Physical and Chemical Properties of Protocluster Clumps and Massive Young Stellar Objects Associated to Infrared Dark Clouds

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Artistic representation of the different evolutionary stages within an infrared dark cloud.
Watercolor painting by Héctor López / 10 years old.

For His glory
He speaks to the sun and it does not shine;
he seals off the light of the stars.
He alone stretches out the heavens
and treads on the waves of the sea.
He is the Maker of the Bear[a] and Orion,
the Pleiades and the constellations of the south.
Job 9:7-9

to my mom
Gloria González

and

in memory of my dad
Roberto Gómez

List of physical and astronomical constants

Physical constants		
Vacuum light speed	c	$2.99792458 \times 10^{10}$ cm s^{-1}
Gravitational constant	G	6.673×10^{-8} dyn cm^2 g^{-3}
Planck's constant	h	6.626×10^{-27} erg s
Boltzmann's constant	k	1.381×10^{-16} erg K^{-1}
Electron mass	m_e	9.109×10^{-28} g
Proton mass	m_p	1.673×10^{-24} g
Hydrogen mass	$m_{\rm H}$	1.673×10^{-24} g

Astronomical constants		
Astronomical Unit	1 AU	1.496×10^{13} cm
Parsec	1 pc	3.086×10^{17} cm
Solar Mass	1 $M_\odot$	1.989×10^{33} g
Solar Luminosity	1 $L_\odot$	3.845×10^{33} erg s^{-1}

Units		
Jansky	1 Jy	1×10^{-23} erg s^{-1} cm^{-2} Hz^{-1}
Debye	1 D	1×10^{-18} esu cm

Abstract

The study of high-mass stars is important not only because of the effects they produce in their environment through outflows, expanding HII regions, stellar winds, and eventually supernova shock waves, but also because they play a crucial role in estimating star formation rates in other galaxies. Although we have an accepted evolutionary scenario that explains (isolated) low-mass star formation, the processes that produce massive stars ($M_\star > 8\ M_\odot$) and star clusters, especially their *earliest* stages, are not well understood.

The newly discovered class of interstellar clouds now termed infrared dark clouds (IRDCs) represent excellent laboratories to study the earliest stages of high-mass star formation given that some of the clumps within them are known to have high masses ($\sim$100's $M_\odot$), high densities ($n > 10^5$ cm^{-3}), and low temperatures (10–20 K) as expected for the birthplaces of high-mass stars. Some questions remain unanswered: Do IRDCs harbor the very early stages of high-mass star formation, i.e., the *pre-protocluster phase*? If so, how do they compare with low-mass star formation sites? Is there *chemical differentiation* in IRDC clumps? What is the *mass distribution* of IRDCs?

In this dissertation and for the first time, a catalog of 12 529 IRDC candidates at 24 μm has been created using archival data from the MIPSGAL/*Spitzer* survey, as a first step in searching for the massive pre-protocluster clumps. From this catalog, a sample of $\sim$60 clumps has been selected in order to perform single-pointing observations with the IRAM 30m, Effelsberg 100m, and APEX 12m telescopes. One IRDC clump seems to be a promising candidate for being in the pre-protocluster phase.

In addition, molecular line mapping observations have been performed on three clumps within IRDCs and a detailed chemical study of 10 molecular lines has been carried out. A larger difference in column densities and abundances has been found between these clumps and high-mass protostellar objects than between these clumps and low-mass pre-stellar cores and protostellar objects. A non-LTE Monte Carlo code was used to model the N_2H^+ (1–0) and (3–2) lines in order to constrain the physical properties of two clumps.

Six IRDC complexes have been mapped in the 870 μm dust continuum emission with the LABOCA instrument on the APEX 12m telescope. Line observations have been carried out in order to obtain temperature and kinematic distances of selected clumps. Physical properties such as masses, effective radii, and column densities have been obtained. The mass spectrum of these clumps has been fitted with a power-law whose best-fitting index is $\alpha = -1.60$. This value is consistent with the CO clump mass function reported in the literature. A relation between the dust emission at 870 μm and the degree of extinction (contrast) at 24 μm has been obtained by combining dust emission observations and extinction studies.

A study with the Plateau de Bure Interferometer of a core in an archetypal filamentary IRDC at few arcsecond resolution has been carried out to determine its physical and chemical structure. Extended 4.5 μm emission, "wings" in the CH_3OH $2_k \rightarrow 1_k$ spectra, and a CH_3OH abundance enhancement provide evidence of an outflow in the East-West direction. In addition, a gradient of $\sim$4 km s^{-1} in the same direction has been found, which is interpreted as being produced by an outflow(s)-cloud interaction.

Finally, Very Large Array interferometric observations of the $7_0 - 6_1 A^+$ (class I) methanol maser transition at 44 GHz toward three high-mass star-forming regions have been carried out in order to provide accurate maser positions and parameters. For all three sources, the masers were well-separated from the HII region, with projected distances ranging from 0.1 to 0.3 pc.

Contents

1

Star formation and infrared dark clouds

Star formation is one of the fundamental topics in astrophysics because stars and star clusters are the building blocks of galaxies. Although we have an accepted evolutionary scenario that explains isolated low-mass star formation, the processes that produce massive stars ($M_\star > 8\ M_\odot$) and star clusters, especially their *earliest* stages, are not well understood.

1.1 Molecular clouds

Star (and planet) formation takes place in interstellar, cold, molecular clouds which are composed primarily of molecular hydrogen (H_2), where dust is also present and is well mixed with the gas. But, since the hydrogen molecule possesses no electric dipole moment, it radiates very weakly and cannot easily be detected. Therefore, other molecules such as carbon monoxide (CO), the second most abundant molecule (after H_2), or emission from dust grains in the radio and (sub)millimeter regimes are used to trace H_2.

In the framework of a hierarchical structure of star formation (see, e.g., Williams et al. 2000), we find sub-units embedded in molecular clouds when observed with higher angular resolution. Observationally, the properties of these clouds have been determined to have masses 10^3–$10^4\ M_\odot$, sizes of 2–15 pc, mean densities of 50–500 cm^{-3}, and temperatures of $\sim$10 K. Clumps embedded in those clouds have masses of 50–500 $M_\odot$, sizes of 0.3–3 pc, mean densities of 10^3–10^4 cm^{-3}, and gas temperatures of 10–20 K. Embedded in the clumps are the cores with masses 0.5–5 $M_\odot$, sizes 0.03–0.2 pc, density $\sim 10^5$ cm^{-3}, and temperatures 8–12 K. The latter entities will eventually form single or multiple stellar systems (such as a binary). A summary of these properties is given in Table 1.1 (Bergin & Tafalla 2007).

Figure 1.1. Optical image of the Pipe Nebula. At this wavelength, almost the entire cloud is completely opaque. We see it in silhouette against the background Galactic starlight. Image courtesy of Manuel Jung (http://www.sternklar.ch/).

Table 1.1. Properties of dark clouds, clumps, and cores.

	Clouds	Clumps	Cores
Mass ($M_\odot$)	10^3–10^4	50–500	0.5–5
Size (pc)	2–15	0.3–3	0.03–0.5
Mean density (cm^{-3})	50–500	10^3–10^4	10^4–10^5
Gas temperature (K)	∼10	10–20	8–12

Notes. Taken from Bergin & Tafalla (2007).

Figure 1.1 shows an optical image of a molecular cloud, the Pipe Nebula, whose size is ∼15 pc × 3 pc at a distance of 140 pc, and mass ∼10^4 $M_\odot$ (Onishi et al. 1999). Note that almost the entire cloud is completely opaque at this wavelength. We see it as a silhouette against the background Galactic starlight. Such clouds are traditionally known as "dark" clouds since the dust absorbs the background starlight. The degree of extinction contains important information about the number of absorbing grains per unit area, i.e., the dust column density.

1.1.1 Are clouds in equilibrium or dynamic entities?

Probably the most controversial point in the formation of low-mass stars is whether clouds are close to equilibrium, having a quasi-static evolution with long lives (e.g., Mouschovias et al. 2006), or whether they are dynamic entities (e.g., Ballesteros-Paredes et al. 1999), evolving to form stars in a crossing time. In the former scenario, clouds should live for 10^7 yr while in the latter, clouds should live for only a few 10^6 yr.

A possible intermediate scenario would be that both processes the "ambipolar dif-

fusion" (with quasi-static evolution) and "turbulent fragmentation" (with dynamic evolution) play important roles at different early stages of star formation (Goodman et al. 1998).

1.2 Low-mass star formation

The following is a summary of physical processes in low-mass star formation (for more details see, e.g., Shu et al. 1987; André et al. 2000; McKee & Ostriker 2007).

A molecular cloud fragments into gravitationally bound cores. Fragments evolve through several mechanisms which are still not completely understood and are actively debated (see Sect. 1.1.1 above). Some of these cores become gravitationally unstable and collapse isothermally. The concentrated matter follows a distribution of $\rho \propto r^{-2}$ (e.g., Foster & Chevalier 1993). Near the center, an opaque protostellar object forms, surrounded by an optically thick envelope in free fall. Then, the accretion phase starts and the central object gains mass mainly through the accretion disk.

If the angular momentum were strictly conserved in the process of star formation, the protostar would be rotating very fast up to the point of breaking up. This is called "the angular momentum problem" (e.g., Bodenheimer 1995). Even though no theory of star formation anticipated jets and outflows, it is now clear by observations that these flows are a fundamental aspect of star formation that accompanies the accretion stage. These outflows emanating from the protostar are believed to carry away the excess of angular momentum.

Once the remaining envelope material has been dissipated and the central object has accreted most of its final mass, it becomes a pre-main sequence (PMS) star. The PMS star continues contracting, close to stationary equilibrium. As soon as the gravitational force becomes stronger than the thermal pressure, the central density and temperature become high enough for hydrogen burning to be possible. The PMS star reaches the zero-age main sequence with further structural adjustment; as the hydrogen burning continues in the center, we speak of a main-sequence star. Eventually some of the disk matter might be converted to planets.

1.3 High-mass star formation

Why are massive stars important? High-mass stars with $M_\star > 8\ M_\odot$, O–B stellar types, and lifetimes of only a few to a few tens of million years have extraordinary effects on their environment. They disrupt the parent molecular clouds by their outflows, stellar winds, UV radiation, and eventually supernova shock waves. Observations have shown that expanding HII regions are able to trigger a subsequent generation of stars (e.g., Deharveng et al. 2010). Moreover, massive stars play a crucial role in estimating star formation rates in other galaxies (e.g., Calzetti 2008).

1.3.1 Some problems...

The fact that high-mass protostars undergo hydrogen burning while still accreting leads to the radiation pressure problem: radiative pressure in the envelope becomes more important than gravity. Early in the 1970's, Kahn (1974) found that when the core exceeds a luminosity-to-mass ratio, $(L/M)_\star$, of $\sim$5000, the radiation pressure becomes large enough for the infall of material to be reversed. Thus, in his model, stars more massive than 40 $M_\odot$ cannot form. Also, assuming non-steady state infall in spherical symmetry, Yorke & Kruegel (1977) followed the evolution of two cores of masses 50 $M_\odot$ and 150 $M_\odot$ and produced central stars of only 16 $M_\odot$ and 36 $M_\odot$, respectively.

Since we do observe stars more massive than 40 $M_\odot$, there must be some mechanisms that produce them. Wolfire & Cassinelli (1987) reanalyzed the model by Kahn (1974) with substantial modifications on dust properties and found that accretion rates of about 10^{-3}–$10^{-2} M_\odot$ yr^{-1} are needed to form stars more massive than 40 $M_\odot$.

1.3.2 ... and some solutions: theoretical approaches

While the standard star formation scenario for low-mass stars has been successful in explaining observations (see Sect. 1.2), it is not clear and under discussion whether this theory could be applicable to the birth of massive stars.

There are three primary theoretical approaches for the formation of massive stars (see Zinnecker & Yorke 2007). One of them is usually called as "*turbulent core model*" (McKee & Tan 2003) which is a scaled-up version of low-mass star formation (Shu et al. 1987). In this model, the cores are supersonically turbulent, the protostar exhibits an accretion disk and outflows, and the timescale for the formation of the massive star is about 10^5 yr.

The radiation-hydrodynamic simulations of Krumholz et al. (2009) support the aforementioned model by showing that gravitational and Rayleigh-Taylor instabilities (Yorke 2002) can channel gas onto the star system through nonaxisymmetric disks, allowing radiation to escape through optically thin bubbles and not presenting a barrier to massive star formation. Moreover, in clouds, a threshold of 1 g cm^{-2} (Krumholz & McKee 2008) for column densities was found to avoid fragmentation and make massive stars. A threshold of 0.7–1.5 g cm^{-2} is able to produce stars of 10–200 $M_\odot$. Conversely, if the column density in clusters is much lower than 1 g cm^{-2}, these models predict a deficiency in massive stars.

A second scenario is called "*competitive accretion*" (Bonnell et al. 1997) in which each (low-mass) protostar in a cluster competes for material from various parts of the parent cloud. The protostar benefits from being in the center of the cluster since the gas reservoir increases toward it. Therefore, stars in the outer regions do not accrete as much gas as those in the center. In this model the accretion rates for each star are different and together with the dynamics of the cluster results in a non-direct correspondence between the initial and final stellar masses.

Lastly, the "*stellar collisions and mergers*" scenario (Bonnell et al. 1998) suggests that high-mass stars form via collisions of intermediate-mass stars in very dense stellar clusters (minimum stellar density $\geq 10^4$ stars pc^{-1}) in less than 10^6 yr. Competitive accretion

is included but accretion is not allowed for stars more massive than 10 $M_\odot$ so that stars more massive than this will form through mergers of lower-mass objects.

1.3.3 Observations

Outflows and disks

Because of the accretion-ejection phenomena observed in low-mass stars, one would expect to find disks perpendicular to jets and/or outflows also in high-mass stars, if the latter can form through accretion. In fact, several works in the last decades have demonstrated that outflows toward massive star-forming regions are ubiquitous (see, e.g., Shepherd & Churchwell 1996; Beuther et al. 2002).

It has been suggested that extended emission at 4.5 μm traces shocked gas/outflows from massive young stellar objects (Cyganowski et al. 2008; Chambers et al. 2009). Due to the coding of the infrared (IR) bands, in a three-color composite the 4.5 μm band as green, Cyganowski et al. (2008) call these regions "extented green objects" (EGOs) while Chambers et al. (2009) call them "green fuzzies". Cyganowski et al. (2008) created a catalog of about 300 massive young stellar object outflow candidates in the *Spitzer*/GLIMPSE survey area. Subsequent studies have revealed the association of EGOs to outflows (e.g., Cyganowski et al. 2011).

Even though hydrodynamic simulations predict the formation of massive stars by accretion (e.g., Krumholz et al. 2009), observations of disks have been very difficult (see Sect. 1.3.4) and their interpretation is challenging. For example, claims of finding a disk (of 1–8 $M_\odot$) around the high-mass object (15 $M_\odot$) Cep A HW2 (Patel et al. 2005) have been subsequently interpreted as the superposition of at least three protostellar objects (Comito et al. 2007).

One of the best cases of Keplerian disks around an early-B-type star was observed in IRAS 20126+4102 (Cesaroni et al. 2006). Rotating and infalling molecular structures called "toroids" are found toward more massive objects instead (see, e.g., Beltrán et al. 2005), presumably around a central O–B cluster rather than a single star (Cesaroni et al. 2007).

Recently, Kraus et al. (2010) provided observational evidence of a disk, perpendicular to a molecular outflow, around the massive ($M_\star$ ∼20 $M_\odot$) young stellar object IRAS 13481-6124.

Masers

Microwave amplification of stimulated emission of radiation (maser) from various molecular species is a well-established signpost of massive star formation. Masers of the hydroxyl (OH), water (H_2O), and methanol (CH_3OH) molecules are particularly prevalent, and numerous studies have been carried out; see Fish (2007) for a review.

Water masers are found in outflows toward both low-mass and high-mass young stellar objects (see, e.g., Goddi & Moscadelli 2006); they are believed to be associated in some

cases with embedded massive stellar objects (De Buizer et al. 2005) and are thought to trace disks (e.g., Torrelles et al. 2002).

Methanol masers appear in two distinct classes, I and II (Cragg et al. 1992; Menten 1991a,b) which differ in their locations within the star forming regions. Class I masers are thought to be tracers of shocked gas and hence frequently of molecular outflows often also manifested as EGOs (e.g., Araya et al. 2009, 2010; Voronkov et al. 2010; Plambeck & Menten 1990) . Class II masers are found in closer proximity to *only* massive young stellar objects (YSOs) showing a variety of structures, including linear (Minier et al. 2000) and ring-like (Bartkiewicz et al. 2009) that provide information on the gas dynamics very close to the YSO (Moscadelli et al. 2002).

Clusters

Most stars do not form in isolation, but within clusters (Lada & Lada 2003). Lada & Lada (2003) define a stellar cluster as "a group of 35 or more physically related stars whose stellar mass density exceeds 1 $M_\odot$ pc^{-3}". With this definition, these authors compiled a list of over 100 embedded clusters, best detected in the IR regime, within ∼2 kpc of the Sun. These authors also showed that the mass distribution ($\frac{dN}{dM} \propto M^\alpha$) of embedded clusters has an index of $\alpha = -2$, similar to that of stars. The initial mass function (IMF) of stars in the solar neighborhood has an index $\alpha = -2.35$ (Salpeter 1955) for $0.4 < \frac{M}{M_\odot} < 10$ while the IMF corrected for unresolved binaries is (Kroupa 2001)

$$\begin{aligned}
\alpha_0 &= -0.3 \pm 0.7, \quad 0.01 \leq M/M_\odot < 0.08,\\
\alpha_1 &= -1.8 \pm 0.5, \quad 0.08 \leq M/M_\odot < 0.50,\\
\alpha_2 &= -2.7 \pm 0.3, \quad 0.50 \leq M/M_\odot < 1.00,\\
\alpha_3 &= -2.3 \pm 0.7, \quad 1.00 \leq M/M_\odot.
\end{aligned}$$

Eventually the embedded clusters will become open clusters, i.e., they will emerge from molecular clouds and become exposed clusters.

Only fifteen star clusters more massive than 10^4 $M_\odot$ are known in the Galaxy (Figer 2008). A recent addition was the Cl 1813-178 cluster which has a mass of 10^4 $M_\odot$ and lies at the edge of the giant molecular cloud W33 (Messineo et al. 2008). However, Ivanov et al. (2010) estimated a lower limit of ∼81 clusters with masses in the range 10^4–10^5 $M_\odot$ to be present in the Milky Way. As we will see below, there are several issues that complicate the identification.

1.3.4 Observational challenges

Much progress in the last decades has been made in high-mass star formation thanks to improvements in observational techniques, instrumentation, computational power, and sophisticated theoretical models. However, when looking for more observational evidence, we have to face some challenges:

- Large distances: high-mass star-forming regions are found at typical distances of 2 kpc. An exception is the Orion Nebula Cluster which is the nearest OB cluster (at 414 pc; Menten et al. 2007) with an estimated mass of 10^3 $M_\odot$ (Hillenbrand 1997). From the mass distribution of clusters, we see that in order to have higher statistics of (more) massive clusters, we need to incorporate a larger volume, i.e., to go further in distance.

- Short timescales of evolutionary phases: massive stars live only a few to a few tens of million years.

- High dust extinction: in their early stages of evolution, massive stellar embryos are still embedded in their natal, highly-extincting molecular clouds. These phases occur at visual extinctions, A_V, higher than 30 mag (maximum value for low-mass star formation regions; Lada et al. 1994) and up to A_V ∼100 mag (Rygl et al. 2010).

Given the above challenges, *what are the best places to search for the earliest phases of massive star formation?* Here the results of mid-infrared (MIR) space missions in the last decade have come to the rescue.

1.4 Fifteen years of infrared dark clouds

In this section, a brief "history" of infrared dark clouds (IRDCs) is given, since their identification as a new class of interstellar clouds in 1996 to January 2011. A review of their properties can be found in Menten et al. (2005).

1996–2005

The objects now termed Infrared Dark Clouds (IRDCs) were first identified by Perault et al. (1996) and Egan et al. (1998) in images of the Galactic plane made with the Infrared Space Observatory (ISO) and the Midcourse Space Experiment (MSX) satellite. Perault et al. (1996) stated "although away from bright IRAS regions, the field displays spectacular emission features, and, **unexpectedly**, a number of regions which are optically thick at 15 μm. The dark regions are presumably dense filaments with $A_V > 25$." A sample of data obtained with the MSX satellite is shown in the *left* panel of Fig. 1.2. In the *right* panel, we show a close-up view of the IRDC G11.11-0.11 at 8 μm as seen by the *Spitzer* Space Telescope, from the Galactic Legacy Infrared Mid-Plane Survey Extraordinaire (GLIMPSE; Benjamin et al. 2003) program, in which a more detailed structure is revealed.

Before IRDCs were known as a different type of cloud, Lis & Carlstrom (1994) carried out an 800 μm continuum survey of the $\sim 1\overset{\circ}{.}5 \times 0\overset{\circ}{.}2$ toward the Galactic center, finding giant molecular cloud cores with almost no evidence for high-mass star formation. One of these cores, M0.25+0.11, was studied by Lis & Menten (1998); they found absorption in the 45 μm ISO LWS detector band and emission in the 173 μm band. From the derivation of a mass of 1×10^6 $M_\odot$ and a very low temperature of 18 K, Lis & Menten (1998) concluded that M0.25+0.11 was in a very early stage of star formation.

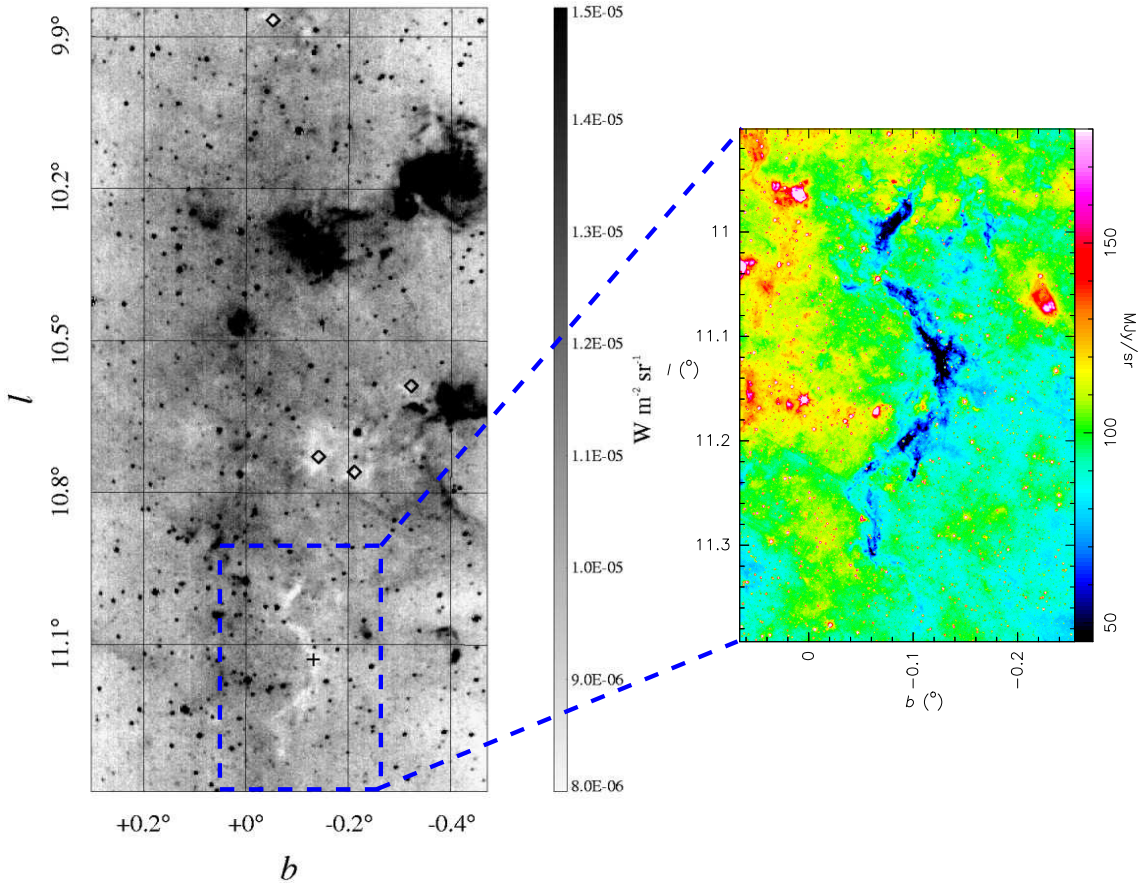

Figure 1.2. *Left*: MSX 8 μm image near 10°.5 longitude. Five extincting clouds are marked by diamonds and a plus symbol. Taken from Egan et al. (1998). *Right*: A close-up view of the IRDC G11.11-0.11 at 8 μm as imaged by the *Spitzer*/GLIMPSE survey (Benjamin et al. 2003). Note the much more detailed structure revealed by *Spitzer*.

Preliminary observations of millimeter transitions of H_2CO in ten IRDCs revealed clumps with column densities $>10^{23}$ cm^{-2}, volume densities of $n >10^5$ cm^{-3}, temperatures of $T <20$ K, and near kinematic distances between 1 and 8.5 kpc (Carey et al. 1998). Carey et al. (2000) presented follow-up 850 and 450 μm continuum images with very strong submillimeter sources, with relatively high masses (of several tens up to a thousand $M_\odot$). A few years later, a multi molecular line study was performed by Teyssier et al. (2002), confirming the high volume densities and finding indication of likely depletion onto cold grains.

Redman et al. (2003) presented the first millimeter interferometric observations toward an IRDC, G79.3+0.3. It was an arcsecond-resolution study at 3 mm carried out with the Berkeley-Illinois-Maryland-Association (BIMA) interferometer, where the continuum source fragments into three components; two of them with emission arising from dust while the other is more consistent with emission from the ionized wind of a Herbig Ae/Be star.

On the other hand, Johnstone et al. (2003) modelled the IRDC G11.11-0.12, marked in Fig. 1.2 by a plus symbol (see also Chapters 4 and 6 of this dissertation), with a non-magnetic isothermal cylinder model; this provided a good fit to the radial density profile

and to other physical parameters such as flux density, temperature, velocity dispersion, and core radius. However, Fiege et al. (2004) showed that magnetic models also agree with the data.

2006–2011

Having access to archival data from the above mentioned satellites, the next step was to obtain a systematic census of IRDCs. This was done by Simon et al. (2006a) by using MSX images at 8.3 μm. These authors created a catalog of 10 931 candidate IRDCs in the range of Galactic longitude $\mid l \mid$<90° and Galactic latitude $\mid b \mid$<5°. Recently, other methods for obtaining extinction catalogs have been applied to both the whole 8 μm *Spitzer*/GLIMPSE data (Peretto & Fuller 2009) and to a smaller sample of IRDCs (e.g., Vasyunina et al. 2009; Butler & Tan 2009). An alternative technique was used by Marshall et al. (2009) with the help of the Two Micron All Sky Survey.

Approximately 600 IRDC candidates, selected from the MSX catalog of Simon et al. (2006a), were observed in the CS (2–1) line toward the fourth quadrant (Jackson et al. 2008) and the ^{13}CO (1–0) line toward the first quadrant (Simon et al. 2006b) in order to obtain kinematic distances.

Rathborne et al. (2006) selected 38 IRDCs with known kinematic distances from the sample of Simon et al. (2006b) and observed their mm continuum emission at 1.2 mm using the Max-Planck Millimeter BOlometer array (MAMBO) at the IRAM 30m telescope. Core masses were found to be in the range of 10–2100 $M_\odot$ with the 1.2 mm emission closely corresponding to the morphology of the dark filaments. Cores that were associated with bright mid-IR emission were related to later stages of evolution than those that were not associated with mid-IR emission. This sample was also observed with the Very Large Array (VLA) in the $6_{16} - 5_{23}$ water (H_2O) maser transition at 22.235 GHz (Wang et al. 2006). A detection rate of 12% was found, i.e., detection in 17 out of 140 cores.

Ammonia (NH_3) observations at 1.3 cm, with the Effelsberg 100m telescope, revealed line widths in the range of 1–3.5 km s^{-1} showing that turbulence plays an important role in the stability of IRDCs (Pillai et al. 2006a). Moreover, with additional data at 850 μm, they found that the clumps appeared to be virialised. The latter result was also found by Du & Yang (2008) in a survey of 61 IRDCs.

Fragmentation at a >0.1 pc scale was found toward IRDC clumps with the Plateau de Bure Interferometer (PdBI) (Rathborne et al. 2007), and the Submillimeter Array (SMA) (Rathborne et al. 2008; Zhang et al. 2009). Interestingly, Swift (2009) found two IRDC cores with radii ∼0.1 pc that are massive (∼110 and ∼60 $M_\odot$), have low luminosity ($L_{\rm bol} < 460\ L_\odot$ and $< 170\ L_\odot$, respectively) and show no sign of star formation activity, although, it is difficult to discard the presence of a protostar due to the high extinctions.

Battersby et al. (2010) reported observations of point and extended radio continuum sources towards IRDCs using the VLA at 3.6 cm. For three sources that are optically thick, unresolved ultra compact (UC) HII regions, they find that their stellar types correspond to one O9.5 and two B0 stars.

Kauffmann & Pillai (2010) studied whether IRDCs are able to form massive stars and

showed that many of them do not exceed the following empirical mass-size threshold for massive star formation:

$$M(R_{\rm eff}) > 870 \left(\frac{R_{\rm eff}}{\rm pc}\right)^{1.33} M_{\odot}\,, \tag{1.1}$$

where M and $R_{\rm eff}$ are, respectively, the mass and effective radius of the clumps; $R_{\rm eff} = \sqrt{A/\pi}$, where A is the projected area of the clump. From their analysis, they went on to say that just a few hundreds of IRDCs might contain most of the Galaxy's star-forming gas, provided extinction-based masses can be trusted.

Finally, the PACS 70/160 μm and SPIRE 250/350/500 μm instruments on the *Herschel* Space Observatory (which was launched on 2009 May 14) have been used to image IRDCs. For instance, Peretto et al. (2010) obtained temperature and column densities maps for a sample of 22 IRDCs, from which two thirds contain at least one 70 μm point-like source, i.e., they are currently forming stars. Stamatellos et al. (2010) and Wilcock et al. (2011) have modelled *Herschel* observations with a 3D Monte Carlo radiative transfer code. From the modelling, core masses in the range 90–290 $M_{\odot}$ and temperature gradients were found (Wilcock et al. 2011).

1.5 Open questions

In the previous section, we presented what we *do* know about the newly discovered class of clouds now termed IRDCs. Many questions remain unanswered though. What *do* we *not* know about IRDCs?

- In the context of massive star formation, do they harbor the very early stages of high-mass stars, i.e, the *pre-protocluster clump phase*?
- If IRDCs contain these elusive pre-protocluster clumps, how do they *compare* with the earliest stages in the formation of low-mass stars and *low-mass star formation sites*?
- What is the spatial distribution of the *chemical content* in IRDC clumps?
- What is the *mass distribution* of IRDCs based on dust continuum emission?

1.6 Motivation and outline of this dissertation

IRDCs represent excellent laboratories to study the earliest stages of high-mass stars given that some of the clumps within them are known to have high masses ($\sim$100's $M_{\odot}$), high densities ($n > 10^5$ cm^{-3}), and low temperatures (10–20 K) as expected for the birthplaces of high-mass stars. Motivated by this, we have tackled the above questions by means of millimeter and submillimeter observations with single-dish telescopes and interferometers, and *Spitzer* archival data in the MIR regime.

This dissertation is structured as follows:

Chapter 2. For the first time, we present a catalog of IRDC candidates at 24 μm using archival data from the MIPSGAL/*Spitzer* survey as a first step in searching for the massive pre-protocluster clumps. The distributions of peak contrasts in Galactic latitude and longitude are presented. The width of the peak contrasts in the Galactic latitude distribution is compared to other IRDC and submm catalogs.

Chapter 3. From our catalog, we select a sample of ∼60 clumps with the aim of searching for the earliest stages of high-mass star formation and answering the question "are there massive pre-protocluster clumps?" We perform single-pointing observations with the IRAM 30m, Effelsberg 100m, and APEX 12m telescopes in the N_2H^+(1–0), HCO^+ (1–0), SiO (2–1), $H^{13}CO^+$ (1–0), NH_3 (1,1) to (3,3), water maser (6_{16} – 5_{23}), SiO (5–4), $C^{18}O$ (2–1), ^{13}CO (2–1), HCN (3–2), and HCO^+(3–2) lines.

Chapter 4. We present molecular line mapping observations toward three clumps within IRDCs. We carry out a detailed chemical study in 10 molecular lines and compare the results with other IRDC samples, low-mass pre-stellar cores and protostellar objects, and high-mass protostellar objects. We run a non-LTE Monte Carlo code to model the N_2H^+ (1–0) and (3–2) lines in order to constrain the physical properties of two clumps.

Chapter 5. Six IRDCs are mapped with the 870 μm Large APEX Bolometer Camera (LABOCA) at the APEX telescope. We carry out line observations in order to obtain temperature and kinematic distances toward selected clumps. Physical properties such as masses, effective radii, column densities are obtained. The mass spectrum of all IRDCs is fitted and is compared to other studies. We also investigate the percentage of clumps that lie above thresholds for massive star formation and study the number of clumps that are likely to survive against an external tidal field.

Chapter 6. We present a study with the Plateau de Bure Interferometer of a core in the archetypal filamentary IRDC G11.11-0.12 at few arcsecond resolution to determine its physical and chemical structure. The data consist of continuum and line observations covering the $C^{34}S$ $2 \rightarrow 1$ line and the methanol $2_k \rightarrow 1_k$ $v_t = 0$ lines at 3 mm and the methanol $5_k \rightarrow 4_k$ $v_t = 0$ lines at 1 mm. This chapter is based on a paper published as Gómez et al. 2011, A&A, 529, A161.

Chapter 7. Using the Very Large Array, we have observed the $7_0 - 6_1 A^+$ (class I) methanol maser transition at 44 GHz toward NGC 6334F, G8.67−0.36, and M17. These arcsecond resolution observations complete a previous, larger VLA survey of this maser transition in high-mass star-forming regions reported by Kurtz et al. This chapter is based on a paper published as Gómez et al. 2010, ApJS, 191, 207.

Chapter 8. We present a summary of this dissertation together with future prospects.

Appendix A. We list the 24 μm IRDC candidates obtained in Chapter 2. We provide the peak contrasts together with their coordinates.

Appendix B. We list the physical parameters of sources identified by two methods, namely *Gaussclumps* and *Clumpfind*, obtained in Chapter 5.

2

A catalog of 24 μm *Spitzer* Space Telescope infrared dark cloud candidates

2.1 Introduction

Infrared dark clouds (IRDCs) have significant extinctions even at 8 and 24 μm and are, thus, seen in silhouette against the bright, diffuse, mid-infrared Galactic emission.

So far, there are two large unbiased catalogs of IRDC candidates (Simon et al. 2006a; Peretto & Fuller 2009). Simon et al. (2006a) used the Midcourse Space Experiment (MSX) images at 8.3 μm to create a catalog of 10 931 IRDC candidates in the range $\mid l \mid < 90^\circ$ and $\mid b \mid < 5^\circ$. The IRDC identification was based on the decrement in contrast against the background which was modeled with a spatial median filtering technique. Follow-ups of IRDCs in the first and fourth quadrants were carried out by Simon et al. (2006b) in the ^{13}CO (1–0) line and Jackson et al. (2008) in the CS (2–1) line, respectively. A subsample of IRDCs from Simon et al. (2006b), with known kinematic distances, was observed by Rathborne et al. (2006) at 1.2 mm with the IRAM 30m telescope. These IRDC cores were found to have masses in the range of 10–2100 $M_\odot$.

Peretto & Fuller (2009), on the other hand, created a catalog of 11 303 IRDCs using the 8 μm *Spitzer* Space Telescope images from the Galactic Legacy Infrared Mid-Plane Survey Extraordinaire program (GLIMPSE; Benjamin et al. 2003) in the range $\mid b \mid < 1^\circ$ and $10^\circ < \mid l \mid < 65^\circ$. The identification of IRDCs was based on the construction of opacity maps where the relation between the opacity $\tau_{8\mu\mathrm{m}}$ and the intensity emerging from the cloud $I_{8\mu\mathrm{m}}$ is given by $I_{8\mu\mathrm{m}} = I_{\mathrm{bg}} \cdot e^{\tau_{8\mu\mathrm{m}}} + I_{\mathrm{fore}}$ (see, e.g., Bacmann et al. 2000); where I_{bg} and I_{fore} are the background and foreground intensities, respectively. Peretto & Fuller (2009) constrained I_{fore} with the dust continuum observations from Rathborne et al. (2006).

The MIPS Galactic plane survey (MIPSGAL; Carey et al. 2009) is a survey with *Spitzer*

of the inner Galactic plane at 24 and 70 μm with a resolution of 6″ and 18″, respectively. Carey et al. (2009) compare the distances up to which GLIMPSE and MIPSGAL are able to detect class 0 and class I protostars of 1 $M_{\odot}$ as well as class III PMS stars. The 24 μm MIPSGAL images permit the identification of such objects at 2.5 kpc, a larger distance compared to that of 0.2 kpc when using the 8 μm GLIMPSE maps. Note that class 0 protostars are identified by evidence, e.g., of a CO outflow or an internal heating source but not from direct evidence for a central young stellar object (see André et al. 2000, for definitions of other classes).

Furthermore, by comparing IRDC images at 8 and 24 μm, we see that some parts of the cloud which are dark at 8 μm show up in emission as point sources at 24 μm, meaning that these parts of the clouds contain star formation activity already.

In order to find massive star-forming regions in the early stages of evolution, here we analyze the unbiased 24 μm *Spitzer*/MIPSGAL survey taking the advantage of the better resolution compared to the MSX data and longer wavelength compared to the *Spitzer*/GLIMPSE and MSX surveys. Images at a longer wavelength help to penetrate to the most obscured regions in the dark cloud. The technique to create a large, unbiased catalog of 24 μm *Spitzer* IRDC candidates is similar to the method Simon et al. (2006a) applied to the MSX data and is explained in Sect. 2.2. Section 2.3 presents the resulting catalog. We make comparisons with other extinction, millimeter, and submillimeter catalogs in Sect. 2.4. Finally, the summary is given in Sect. 2.5.

2.2 Technique: "contrast" images

2.2.1 Archival data from the *Spitzer*/MIPSGAL Survey

Archival *Spitzer*[1] images were taken from the MIPSGAL program (Carey et al. 2009), which is based on observations with the Multiband Infrared Photometer (MIPS; Rieke et al. 2004). The images from the Version 3.0 data release were downloaded from the MIPSGAL website[2]. In the following sections, we analyze mosaics of an area that covers Galactic latitudes in the range of $\mid b \mid < 1^{\circ}$, and Galactic longitudes in the range of $-68^{\circ} < l < 69^{\circ}$. Some mosaics were not available and others cover a smaller region than the usual $1^{\circ} \times 1^{\circ}$.

2.2.2 Background emission models

At 24 μm, the background is dominated by emission from very small grains and not by polycyclic aromatic hydrocarbons (PAHs) as is the case at 8 μm. Since IRDCs are extinction features, we used the method called "median filtering" to determine the level of the emission behind the cloud (background emission). For this purpose, the task "immedian" within MIRIAD[3] was used to estimate the median value of all pixels within a squared

[1] Based on observations made with the *Spitzer* Space Telescope, which is operated by the Jet Propulsion Laboratory, California Institute of Technology under a contract with NASA.

[2] http://irsa.ipac.caltech.edu/data/SPITZER/MIPSGAL/

[3] http://bima.astro.umd.edu/miriad

region over the 24 μm images. The box size is on the order of $8'$, similar to typical IRDC sizes. Simon et al. (2006a) used a filter of $15'$ which, as Peretto & Fuller (2009) pointed out, could underestimate the true background emission and thus the contrast.

We concatenated 6 MIPSGAL mosaics covering $\sim 3^\circ \times 2^\circ$. Before performing the median filtering over the images, we convolved the maps with a Gaussian beam of $18''$, and increased the pixel size to $7\farcs5$. The resulting angular resolution of $19''$ was chosen to be comparable to that of the maps obtained as part of the APEX telescope large area survey of the Galaxy at 870 μm (ATLASGAL; Schuller et al. 2009).

2.2.3 Contrast maps

Once we have the background emission models, we compute the "contrast" maps using the following expression (Simon et al. 2006a)

$$C_{24\mu\mathrm{m}} = \frac{\mathrm{background} - \mathrm{image}_{24\mu\mathrm{m}}}{\mathrm{background}} \tag{2.1}$$

where $C_{24\mu\mathrm{m}}$ is the contrast image,
background is the background model, and
$\mathrm{image}_{24\mu\mathrm{m}}$ is the 24 μm image with angular resolution of $19''$ and a pixel size of $7\farcs5$.

Given the above definition, we do not need to estimate the foreground emission as in the method used by Peretto & Fuller (2009).

In Fig. 2.1, we show an example of an original MIPSGAL 24 μm image together with a background model and a contrast image for the field near $l = 14.2^\circ$. In this field, an IRDC with a contrast peak of 0.42 can be easily identified at $(l, b) = (14.129, -0.576)$.

2.3 Results

2.3.1 The catalog of 24 μm IRDC candidates

The identification of the IRDC candidates was performed with GREG which is part of the GILDAS package[4]. We run the task "field_find" that identifies connected areas with pixel values higher than 0.15. By choosing this contrast threshold we reduce the probability of adding spurious entries (Simon et al. 2006a; Jackson et al. 2008) to the catalog.

In total, within an area of $\sim$212 deg^2, we have identified 12 529 IRDC candidates in the MIPSGAL 24 μm images with contrast higher than 0.15. The peak contrasts and their coordinates are listed in Table A.1 for the whole MIPSGAL survey. An excerpt from that table is presented in Table 2.1 for the zone marked with the dotted rectangle in the *left bottom* panel of Fig. 2.1.

[4] http://www.iram.fr/IRAMFR/GILDAS

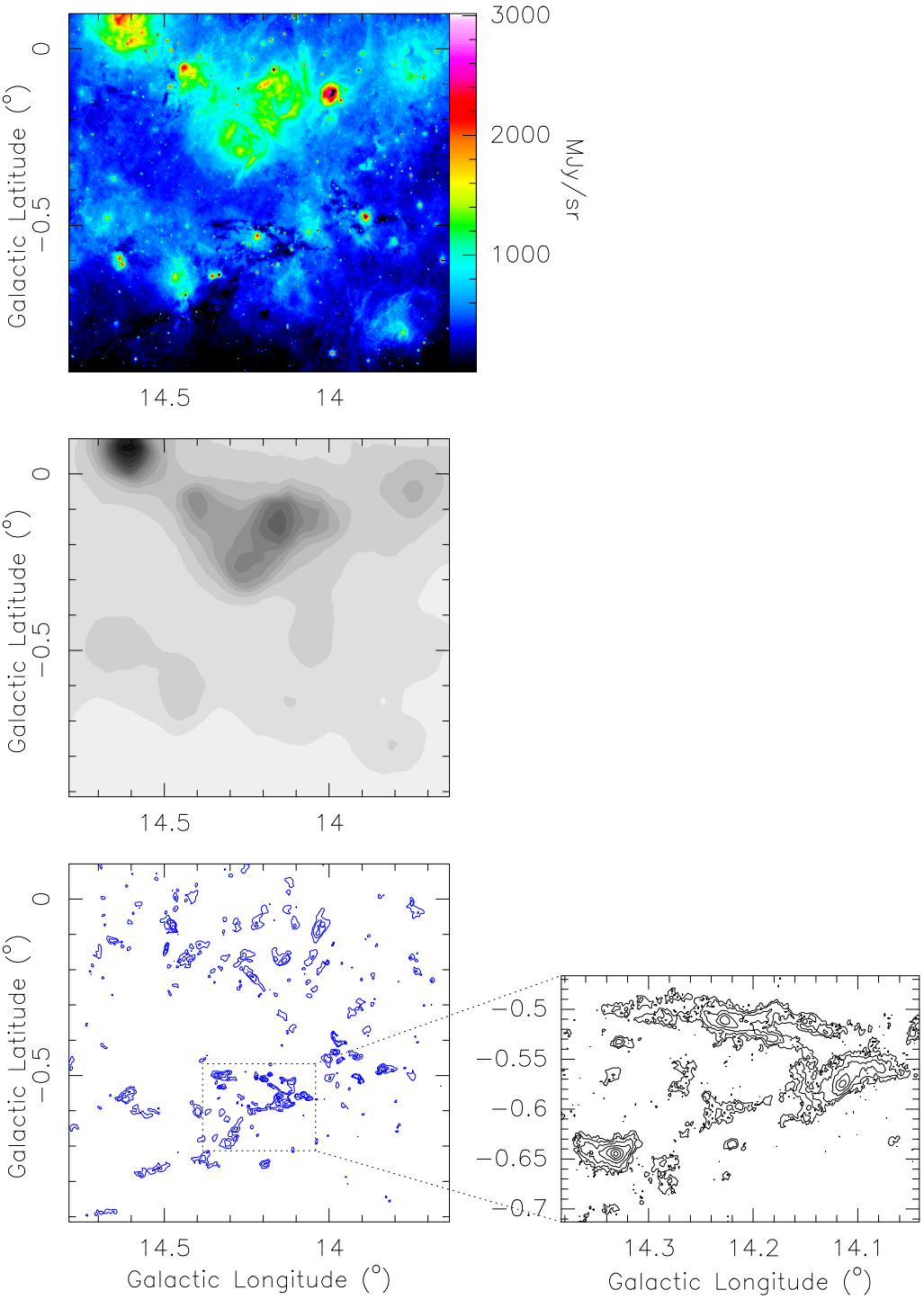

Figure 2.1. MIPSGAL 24 μm image (*top*) for the field near $l = 14.2°$, together with a background model (*middle*), its corresponding contrast image (*left bottom*), and an ATLASGAL 870 μm map (*right bottom*) showing the dust emission in the zone marked in the contrast map. For the contrast image, first contour is 0.15 in steps of 0.1. For the ATLASGAL map, contours are 3, 6, 12, 24, 48, 96, 192 times 0.06 Jy beam^{-1}, the rms noise of the image.

Table 2.1. Catalog of 24 μm contrast ("$C_{24\mu m}$") IRDC candidates (Excerpt).

IRDC name	Position[a]		$C_{24\mu m}$
	RA (J2000)	Dec (J2000)	
G14.11−0.71	18:18:42.8	−17:01:25.30	0.173
G14.15−0.57	18:18:15.6	−16:55:09.77	0.510
G14.18−0.50	18:18:04.0	−16:51:39.87	0.375
G14.20−0.51	18:18:08.9	−16:51:01.79	0.472
G14.22−0.67	18:18:46.3	−16:54:35.09	0.185
G14.22−0.50	18:18:10.1	−16:49:40.33	0.383
G14.23−0.58	18:18:27.8	−16:51:32.97	0.190
G14.23−0.65	18:18:43.3	−16:53:01.52	0.179
G14.25−0.49	18:18:11.2	−16:47:33.26	0.165
G14.26−0.58	18:18:33.1	−16:49:40.10	0.166
G14.27−0.56	18:18:28.4	−16:48:51.01	0.252
G14.28−0.58	18:18:33.2	−16:48:45.88	0.192
G14.30−0.67	18:18:56.4	−16:50:32.68	0.355
G14.31−0.62	18:18:47.2	−16:48:22.98	0.225
G14.32−0.50	18:18:21.7	−16:44:07.28	0.472
G14.33−0.53	18:18:29.0	−16:44:58.63	0.410
G14.33−0.60	18:18:44.9	−16:47:01.66	0.229
G14.33−0.56	18:18:37.2	−16:45:23.36	0.178
G14.34−0.52	18:18:28.3	−16:43:44.37	0.189
G14.35−0.68	18:19:03.3	−16:47:56.19	0.211
G14.35−0.75	18:19:20.8	−16:49:55.63	0.207
G14.37−0.60	18:18:49.6	−16:44:43.78	0.212
G14.38−0.73	18:19:20.1	−16:47:37.17	0.330

[a]Units of right ascension are hours, minutes, and seconds and units of declination are degrees, arcminutes, and arcseconds.

Figure 2.2 presents the number distribution of IRDCs as a function of their peak contrast in a log-log scale. Approximately 8800 sources have a peak contrast between 0.15 and 0.20. There seems to be a steady decrease down to a peak contrast of 0.7, which likely means that the absorption gets saturated and the internal structure of an IRDC cannot be fully proven (Peretto et al. 2010). The number of IRDC peak contrast exceeding this limit is very small (58) compared to the entire catalog of 12 529 sources. As we will show in Chapter 5, from a pixel-to-pixel analysis of our contrast maps and dust emission at 870 μm, this saturation limit corresponds to a column density of N_{H_2} $\sim$2.6$\times$10^{23} cm^{-2}. A similar limit (N_{H_2} $\sim$1$\times$10^{23} cm^{-2}) was derived by Peretto et al. (2010) corresponding to an 8 μm opacity of 3.3.

The distributions of IRDC candidates as function of Galactic latitude and longitude is shown in Fig. 2.3. In the *top* panel of Fig. 2.3, we see that there is an excess of IRDCs at negative latitudes. Schuller et al. (2009) have found the same trend in the ATLASGAL sample of 6000 compact sources. A catalog of 13 027 ATLASGAL sources (extracted with the task "sfind" in MIRIAD; F. Wyrowski, priv. comm.) from maps with a resolution

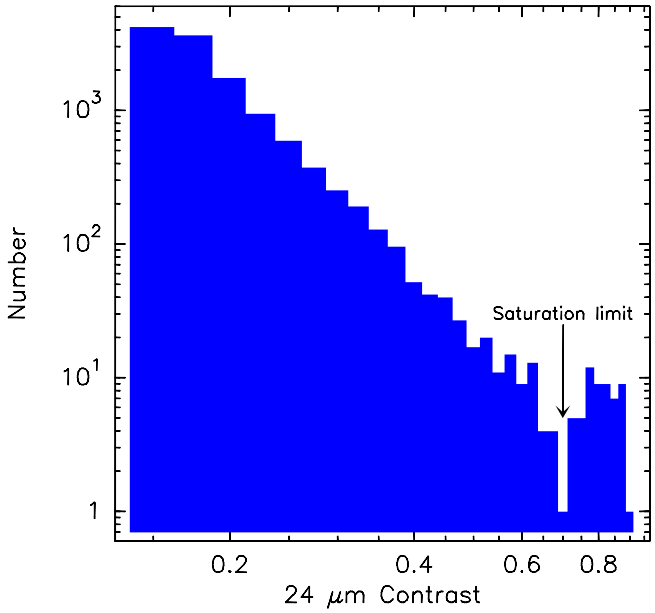

Figure 2.2. Number distribution of IRDCs as a function of their peak contrast in bins of 0.025 in log-log scale. The arrow indicates the saturation limit which is at a peak contrast of 0.7.

of 33″ also shows an excess toward negative latitudes. A possible explanation given in Schuller et al. (2009) is that the sun is slightly above the Galactic Plane. Of particular note, the distribution of the other two 8 μm IRDC catalogs (from Peretto et al. and Simon et al.) and the distribution of BOLOCAM compact sources show an excess at negative latitudes as well.

The width of the distribution of the peak contrasts as a function of Galactic latitude in Fig. 2.3 is similar to those of both the 8 μm opacity catalog by Peretto & Fuller (2009) and the 13 027 submillimeter ATLASGAL sources, even though the decrement in number toward negative latitudes is slower in our 24 μm peak contrast distribution. On the other hand, our latitude distribution width differs from that presented in Simon et al. (2006a, see their Fig. 7); theirs has a broader width in the range $\mid b \mid < 1^\circ$ and thus it decreases very slowly in number. Assuming the scale height of the Galactic disk is constant, the broader the latitude distribution the closer the sources are to the sun. Thus, we conclude that, as expected, ATLASGAL "sees" farther than our catalog of 24 μm peak contrasts.

The number distribution with Galactic longitude can be seen in the *bottom* panel of Fig. 2.3. For reference, we have marked some star-forming complexes, such as W51 around $l = 49^\circ$, W33 around $l = 13^\circ$, and NGC 6334 around $l = -8^\circ$. Some of the highest peaks are toward the Norma arm (at $\sim -30^\circ$) and the meeting point of the Scutum-Centaurus arm with the Galactic bar (at $\sim 30^\circ$) which are also shown in Fig. 2.3. If we take into account the inner few degrees in longitude, i.e., $\mid l \mid < 5^\circ$, there is a slight excess of sources toward positive longitudes as Schuller et al. (2009) found in the ATLASGAL survey. In contrast, Hinz et al. (2009) found an excess toward positive longitudes for 24 μm point sources toward the Galactic Center and suggested that this effect might be due to the true distribution of IR sources. Our finding is consistent with the picture Schuller et al. (2009) describe: if there are more molecular clouds toward positive longitudes, those will obscure

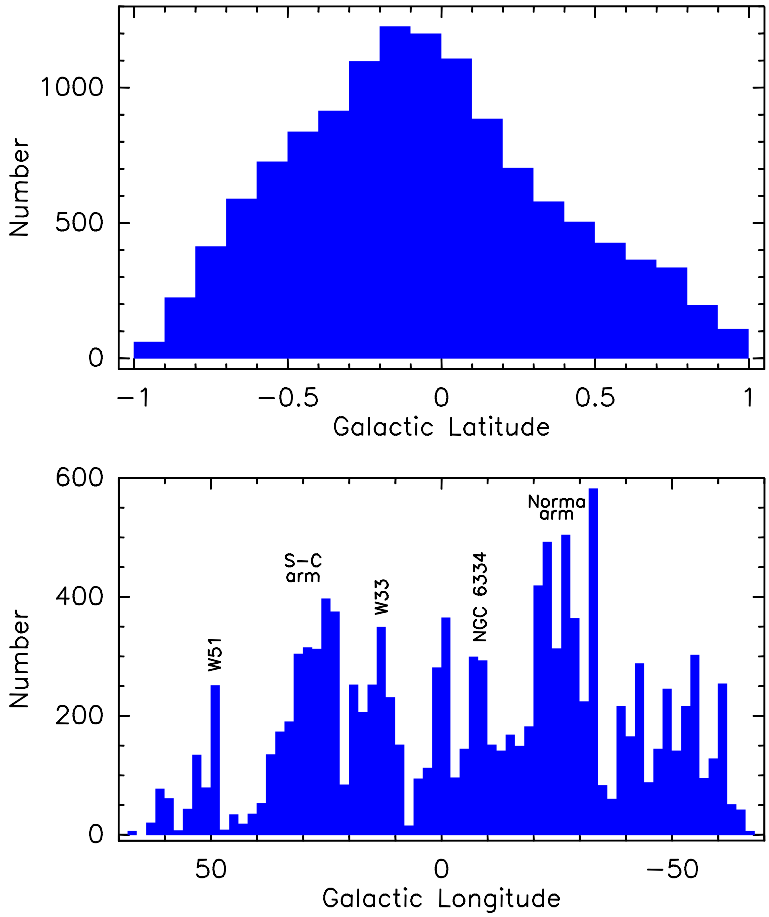

Figure 2.3. Number distribution of IRDCs as a function of their Galactic latitude (*top*) in bins of 0.1°, and Galactic longitude (*bottom*) in bins of 2°. Some known star-forming complexes and spiral arms are labeled. S-C stands for the meeting point of the Scutum-Centaurus arm with the Galactic bar.

the IR sources. In the same way, our catalog is picking up all these molecular clouds seen in the submillimeter through the contrast technique, and therefore the distribution is similar to that of ATLASGAL.

In Fig. 2.4, we show the distribution of IRDC candidates as a function of their coordinates in the range $\mid b \mid < 1°$ in Galactic latitudes and in the range of $-68° < l < 69°$ in Galactic longitudes.

2.4 Discussion

Keeping in mind that selected areas, wavelengths, and techniques for identifying IRDC candidates or compact sources (in the case of the ATLASGAL or BOLOCAM catalogs) vary, in what follows, we will cross-identify our 24 μm IRDC catalog with two 8 μm catalogs of IRDCs and two catalogs of clumps at 870 μm and at 1.1 mm. We use the Tool for

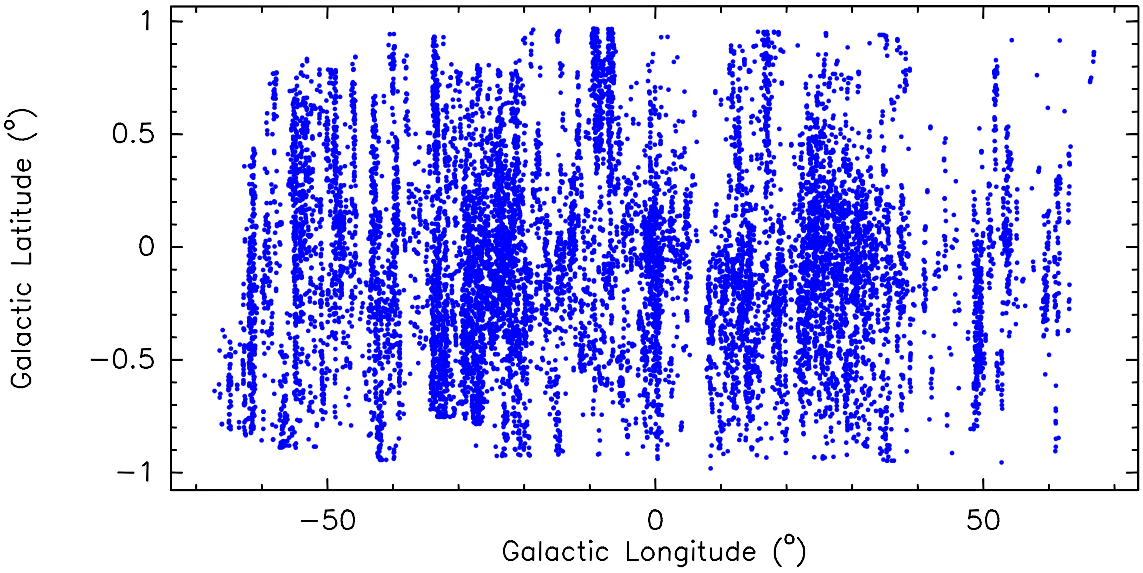

Figure 2.4. Distribution of 12 529 IRDC candidates as a function of their coordinates in the range $\mid b \mid < 1°$ in Galactic latitudes and in the range of $-68° < l < 69°$ in Galactic longitudes.

OPerations and Catalogues And Tables (TOPCAT[5]) software for the cross-identification process with a maximum separation of 60″ between matches.

We call "subsample" number the number of sources found in the common area among IRDC catalogs, namely $\mid b \mid < 1°$ and $10° < \mid l \mid < 65°$. Cross-identifications are performed in this area for each catalog. The BOLOCAM survey covers a smaller region (see below). A summary of catalogs along with "total" and "subsample" numbers, and cross-identification results is given in Table 2.2.

2.4.1 Comparison with other IRDC catalogs

In this section we compare two large catalogs with ours: that of Simon et al. (2006a) who find 10 931 IRDC clouds using data from the MSX, and that of Peretto & Fuller (2009) who find 11 303 IRDCs by constructing 8 μm opacity maps from the *Spitzer*/GLIMPSE program.

Cross-identifying our catalog with that of "clouds" by Simon et al. (2006a) we find 2321 matches and the number increases to 2955 for their "cores" catalog. There are 4437 cross-identifications from the catalog by Peretto & Fuller (2009) that lie within the maximum search separation.

We do not find any clear correlation between contrast peaks at 24 μm and opacity peaks at 8 μm, nor with the contrast peaks of "clouds" at 8 μm, except for a somewhat weak dependence (the Pearson's correlation coefficient, r_P, is 0.4) with the contrast peaks of "cores": $C_{8\mu\mathrm{m}} = 0.57 \cdot C_{24\mu\mathrm{m}}^{0.54}$.

[5]See http://www.star.bris.ac.uk/~mbt/topcat/

2.4.2 Cross-identification with sub(mm) and mm surveys

The ATLASGAL survey is a survey at 870 μm with a resolution of 19.″2. The first observations covered 95 deg^2 in which 6000 compact sources were extracted (Schuller et al. 2009). A more recent catalog of 13 027 sources (F. Wyrowski, priv. comm.), extracted from maps with lower resolution (33″) and covering a larger area, was used to perform cross-identifications. We find 2056 sources out of 9910 extracted submm clumps (in the "subsample" area).

The BOLOCAM Galactic Plane Survey (BGPS; Aguirre et al. 2011) is a survey of the millimeter dust continuum emission at 1.1 mm with a resolution of 33″. It covers 150 deg^2, primarily in the first Galactic quadrant and $\mid b \mid < 0.5°$. Cross-identification of IRDC contrast peaks was carried out using the catalog presented by Rosolowsky et al. (2010). We found 1146 matches.

Using cross-identified sources limited to a peak contrast of 0.7, we find a weak dependence ($r_P = 0.3$) with ATLASGAL peak intensities at 870 μm, $I^{\rm peak}_{870\mu{\rm m},33''}$:

$$I^{\rm peak}_{870\mu{\rm m},33''} = 2.75 \cdot C^{0.73}_{24\mu{\rm m}} \ \ {\rm Jy\ beam^{-1}}\,.$$

Peak contrasts can be translated into peak intensities and in turn into column densities. This relationship will be further constrained in Chapter 5 from a pixel-to-pixel study of both the dust emission at 870 μm and the 24 μm contrast maps toward six IRDC complexes. For the BOLOCAM survey, we also find a weak dependence ($r_P = 0.3$) with the peak intensities at 1.1mm, $I^{\rm peak}_{1.1{\rm mm},40''}$:

$$I^{\rm peak}_{1.1{\rm mm},40''} = 2.02 \cdot C^{0.64}_{24\mu m} \ \ {\rm Jy\ beam^{-1}}\,.$$

The very low percentages of cross-identifications of ATLASGAL (21%) and BOLOCAM (23%) clumps with our 24 μm contrast catalog is rather surprising. It is possible that due to the methods of dust continuum decomposition, catalogs in the mm and submm are missing the extended emission and some of the lower column density clouds while MIR-methods saturate for higher column density. The range of column densities our 24 μm contrast can trace is $\sim$1.8$\times$10^{21}–2.6$\times$10^{23} cm^{-3} (see Eq. 5.6) while ATLASGAL traces column densities in the range of 2.9$\times$10^{21}–1.7$\times$10^{24}. The lower ATLASGAL limit (in column density) corresponds to a contrast of 0.22. Doing the same exercise, as in Table 2.2, for the number of peak contrasts above or equal to that threshold, the percentage of cross-correlated ATLASGAL clumps increases from 21% to 34%. Also, we are aware that some of the catalog entries identified as IRDCs could be spurious given the fluctuations in the MIR background (see Jackson et al. 2008).

From this statistical study, we concentrate on investigating, in Chapter 3, the physical and chemical properties of a sample of $\sim$60 (high contrast) clumps within IRDCs. We also study, in Chapter 5, six IRDC complexes at 870 μm of better signal-to-noise ratio than ATLASGAL images for obtaining their mass spectrum and for constraining the relationship between dust emission at 870 μm and peak contrasts.

Table 2.2. Summary of sample numbers and cross-correlations.

Catalog	G11	S06cl	S06co	P09	W11	R10
G11		2321	2955	4437	2056	1146
S06cl	2321			1803	840	505
S06co	2955			2472	1261	764
P09	4437	1803	2472		2889	1768
W11	2056	1104	1585	3635		3046
R10	1146	505	764	1768	3046	
total	12 529	10 931	12 774	11 303	13 027	8358
subsample	10 647	6719	7948	11 057	9910	5091

Notes. "total" refers to the total number of sources in the original areas, while "subsample" refers to the number of sources found in the common area among the extinction catalogs ($\mid b \mid < 1^\circ$ and $10^\circ < \mid l \mid < 65^\circ$).

References. G11: present work; S06cl: Simon et al. (2006a), "cl" referes to "clouds"; S06co: Simon et al. (2006a), "co" refers to "cores"; P09: Peretto & Fuller (2009); R10: Rosolowsky et al. (2010); W11: ATLASGAL (33″ resolution; F. Wyrowski, priv. comm.)

2.4.3 Mass-size relation threshold for MSF applied to ATLASGAL and BGPS sources

Figure 2.5 shows the size-mass relation of our 24 μm peak contrasts, in the entire MIPSGAL survey, with the 2436 matches of the ATLASGAL catalog (*left*) and with 1609 matches from the BGPS catalog (*right*). A temperature of 16 K and three distances of 2, 4, and 7 kpc for all clumps have been assumed. We plot the threshold for massive star formation (MSF) discussed by Kauffmann & Pillai (2010) (KP): $M = 870 \times R_{\rm eff}^{1.33}$, where M and $R_{\rm eff}$ are, respectively, the mass and effective radius of the clumps; $R_{\rm eff} = \sqrt{A/\pi}$, where A is the projected area of the clump. IRDC clumps that exceed this relationship are expected to be able to form massive stars.

The KP relation for massive star formation is fulfilled for 1004 (41%), 1621 (67%), and 2124 (87%) ATLASGAL clumps at a distance of 2, 4, and 7 kpc, respectively, while 178 (11%), 359 (22%), and 605 (38%) BGPS clumps fulfill it.

The cross-identified BOLOCAM clumps seem to have less mass compared to the ones cross-identified in the ATLASGAL survey. Of course, not knowing the distance to the cross-identified clumps is a big source of uncertainty and we refrain from further interpretation.

2.5 Summary

For the first time, we have presented a catalog of IRDC candidates at 24 μm using archival data from the MIPSGAL/*Spitzer* survey. A total of 12 529 IRDC candidates have been identified above a contrast threshold of 0.15 in an area that covers $\mid b \mid < 1^\circ$ in Galactic latitude and in the range of $-68^\circ < l < 69^\circ$ in Galactic longitude.

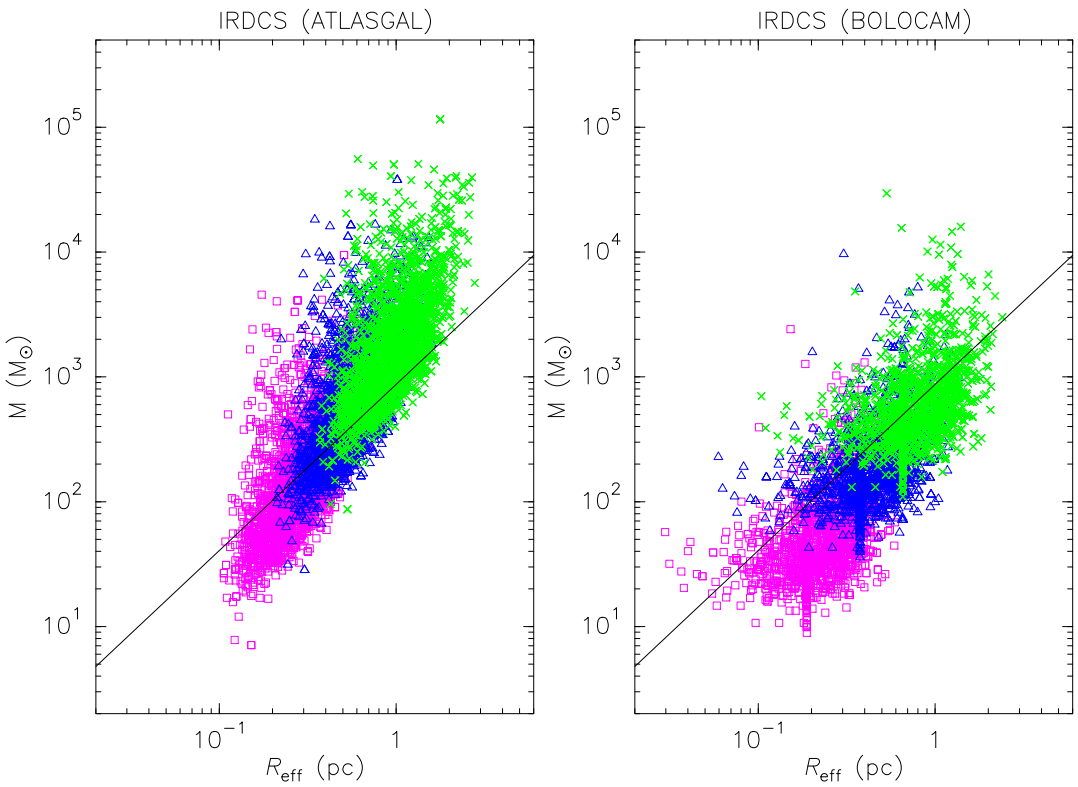

Figure 2.5. Size-mass relation for 2056 ATLASGAL and 1146 BOLOCAM clumps found in our IRDC catalog. In both cases, the resolution is 33″. We have assumed a dust temperature of 16 K and three distances 2 (open pink squares), 4 (open blue triangles) and 7 kpc (green crosses). The straight solid line represents the relation between the mass (M) and the effective radius ($R_{\rm eff}$), $M = 870 \times R_{\rm eff}^{1.33}$, discussed by Kauffmann & Pillai (2010).

The distribution in Galactic latitude and longitude has been presented. The width of the Galactic latitude distribution has been compared to other IRDC and submm catalogs. In the contrast distribution, there appears to be a saturation limit at around 0.7 which can be translated into a limit in column density of $2.6{\times}10^{23}$ cm^{-3}.

We have cross-identified our IRDC catalog with the two existing large, unbiased IRDC catalogs at 8 μm, with the ATLASGAL 870 μm survey, and with the BOLOCAM 1.1 mm survey. Weak dependences have been found with each one of the two latter catalogs.

In a statistical fashion, we found that more than 11% and 41% of the cross-identified BOLOCAM and ATLASGAL clumps, respectively, are expected to form massive stars.

3

Are there massive pre-protocluster clumps?

As we mentioned in Chapter 1, the study of high-mass stars is important not only because of the effects they produce in their environment through outflows, stellar winds, and eventually supernova shock waves, but also because they play a crucial role in estimating star formation rates in other galaxies.

We also explained that it is difficult to observe high-mass stars and star clusters due to their location at large distances, the short timescales of their evolutionary phases, and the high dust extinction toward these regions. Trying to observe the initial conditions of massive star formation, e.g., the pre-protocluster phase, is particularly difficult. Here we report on a search for this phase.

3.1 Pre-protocluster clumps in context

Observationally, the evolution of protostars and young stellar objects (YSOs), in isolated low-mass star formation, has been divided into four stages and has been summarized by André et al. (2000): 1) *Class 0 protostars* are sources with indirect evidence for a central YSO, with centrally peaked but extended submillimeter continuum emission, and that have a significant submillimeter luminosity. 2) *Class I* sources are evolved protostars, surrounded by both a disk and a circumstellar envelope, with $\alpha_{\rm IR} > 0$, where $\alpha_{\rm IR} \equiv d\log(\lambda S_\lambda)/d\log(\lambda)$ is the slope of the spectral energy distribution (SED) in the range of 2.2 μm to 10–25 μm. 3) *Class II* sources are pre-main-sequence (PMS) stars with $-1.5 < \alpha_{\rm IR} < 0$ that are associated to classical T Tauri stars (TTSs), and 4) *Class III* sources are PMS stars with $\alpha_{\rm IR} < -1.5$ that are associated to weak line TTSs.

The precursors of the low-mass Class 0 sources are the *pre-stellar cores* which are gravitational bound cores that evolve toward higher degrees of central condensation but where no central protostar has formed yet (André et al. 2000).

For high-mass star formation, we do not have a well-established classification of the analogs of pre-stellar and class 0 objects owing to poor statistics. Motte et al. (2007) mapped 3 square degrees of the Cygnus X complex at 1.2 mm and found core candidates hosting massive infrared-quiet and high-luminosity infrared protostars but no high-mass analogs of pre-stellar cores ($r \sim 0.1$ pc, $n > 10^4$ cm^{-3}). Beuther et al. (2007a) have proposed the following sequence for high-mass objects: 1) high-mass starless cores, 2) high-mass cores harboring accreting low- and intermediate-mass protostar(s) destined to become high-mass star(s), and 3) high-mass protostellar objects (HMPOs). In clustered star formation, the first stage is believed to be a cold massive clump which is a starless turbulent gravitationally bound clump, and is either on the verge of collapse or already collapsing (Zinnecker & Yorke 2007). Evans et al. (2002) call these objects pre-protocluster cores by analogy to (low-mass) pre-stellar cores.

With the aim of searching for the earliest stages of high-mass star formation within IRDCs, in Chapter 2 we presented a catalog of 12 529 IRDC candidates whose identification was based on the decrement in contrast against the diffuse emission of the Galactic background at 24 μm. We cross-identified IRDC candidates with clumps in the millimeter and submillimeter regimes and found that about 11% (BOLOCAM) and 40% (ATLASGAL) of the cross-identified IRDC clumps are expected to form massive stars.

In this chapter, we focus our study on two samples taken from our IRDC catalog to investigate the following questions. Are there massive pre-protocluster clumps? If so, how do their chemical and physical properties compare to those of the low-mass pre-stellar cores? Section 3.2 presents the sources and the molecules selected. In Sect. 3.3, we present the observations toward samples of IRDC clumps with the IRAM 30m, Effelsberg 100m, and APEX 12m telescopes. Sections 3.4–3.5 give the analysis and observational results while Sect. 3.6 presents the discussion. A summary is given in Sect. 3.7.

3.2 Source and molecular line selections

Dark regions at 24 μm might still harbor the massive analogs of low-mass Class 0 objects which have SEDs typically well fit with a single cold modified blackbody but which drive already powerful, well collimated outflows. Evidence for such early star formation activity was found from SiO observations in cold cores in Cygnus X (Motte et al. 2007) and toward the sample of IRDC clumps of Beuther & Sridharan (2007). The SiO emission is caused by molecular outflow activity due to sputtering Si-bearing species from the dust grain surfaces (Schilke et al. 1997).

A first step to exclude massive Class 0 analogs is therefore to rule out observationally the association with outflows. Since from the statistics we have so far it seems the massive pre-stellar phase is very short-lived ($< 10^3$ yr; Motte et al. 2007), a second step is to show evidence for collapse in the pre-protocluster clump candidates.

We selected from our 24 μm IRDC candidates catalog ∼60 regions with high contrast, i.e., high extinction. High contrast regions have the high column densities needed for the formation of massive stars. The selection was done by eye on contrast maps and, when available, with the help of ATLASGAL maps at 870 μm. Most of the sources, especially

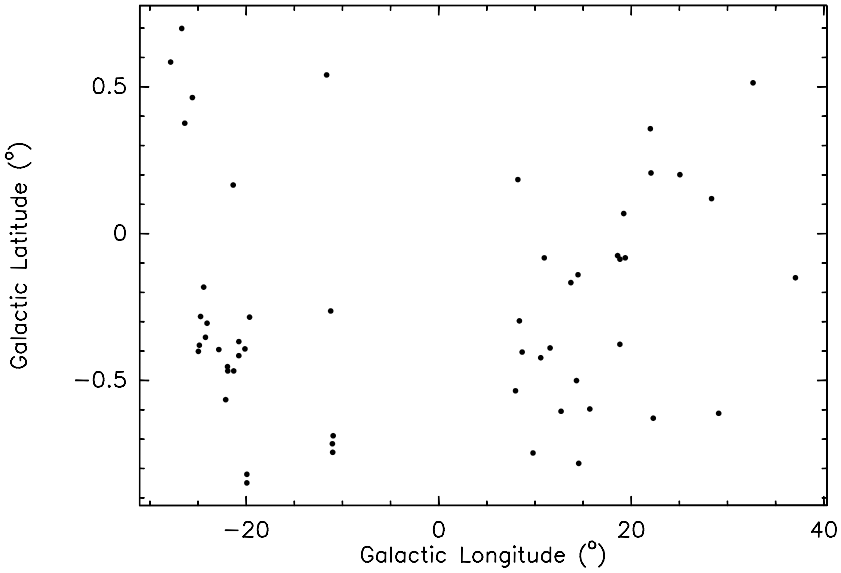

Figure 3.1. Distribution of observed IRDC clumps.

those in the APEX sample, were chosen without having maps at 870 μm. The location of the selected peak contrasts are shown in Fig. 3.1 and the peak contrast values are listed in Tables 3.1 and 3.3.

The line selection was based on lines which provide evidence for depletion ($C^{18}O$), for or against infall (HCO^+, HCN, $H^{13}CO^+$), outflows/jets (SiO), and for tracing high densities (N_2H^+, HCN). The $H^{13}CO^+$ line is an optically thin tracer of high density clumps and peaks at the systemic velocity. On the other hand, HCO^+ is an optically thick line and could show the typical blue-skewed profile caused by infall (see Fig. 5 of Evans 1999).

3.3 Observations and data reduction

3.3.1 IRAM 30m

The observations were made on 2008 May 13–15 using the A100/B100 receivers at the IRAM 30m[1] telescope at Pico Veleta (Spain). The Versatile Spectrometer Assembly (VESPA) was used as backend. The 26 IRDC clumps listed in Table 3.1 were observed in position switching mode. All the clumps were observed in N_2H^+ (1–0) and HCO^+ (1–0). In the available observing time some of these clumps could also be observed in SiO (2–1) and $H^{13}CO^+$ (1–0). System temperatures ranged from $\sim$ 120–190 K. Table 3.2 lists the corresponding frequencies, upper level energies, the half-power beam widths (HPBW), beam ($B_{\rm eff}$) and forward ($F_{\rm eff}$) efficiencies, and velocity resolutions ($\delta v_{\rm res}$).

The data reduction was performed with the GILDAS/CLASS package. For each spectrum, a polynomial of order 1 or 2 was fitted. To convert from antenna temperatures

[1]Based on observations carried out with the IRAM 30m telescope. IRAM is supported by INSU/CNRS (France), MPG (Germany), and IGN (Spain).

Table 3.1. IRDC clump observed with the IRAM 30m and Effelsberg telescopes.

IRDC name	Position[a]		IR-dark[b]	$C_{24\mu m}$	Distance[c]
	RA (J2000)	Dec (J2000)			(kpc)
G8.00−0.53	18:05:34.81	−22:17:44.6	Y	0.30	4.8
G8.25+0.18	18:03:23.53	−21:43:48.3	Y	0.27	3.3
G8.41−0.30	18:05:32.24	−21:49:35.3	N	0.26	4.7
G8.69−0.40	18:06:32.13	−21:37:47.9	N	0.19	4.7
G9.82−0.75	18:10:10.45	−20:48:37.4	Y	0.28	3.6[d]
G10.62−0.42	18:10:36.98	−19:57:01.1	Y	0.35	6.0[e]
G10.99−0.08	18:10:06.44	−19:27:47.3	Y	0.41	3.6
G11.59−0.39	18:12:28.46	−19:05:01.4	Y	0.26	3.6
G12.73−0.60	18:15:34.66	−18:11:06.0	Y	0.34	1.0[f]
G13.75−0.17	18:15:59.83	−17:04:49.9	Y	0.28	2.2
G14.34−0.50	18:18:22.96	−16:43:32.1	Y	0.47	2.3
G14.49−0.14	18:17:22.16	−16:24:57.8	N	0.45	3.8
G14.57−0.78	18:19:52.84	−16:39:11.6	Y	0.31	2.4
G15.72−0.60	18:21:27.21	−15:33:10.2	Y	0.32	2.0
G18.61−0.07	18:25:08.33	−12:45:20.6	N	0.36	3.7
G18.84−0.38	18:26:41.05	−12:41:19.0	Y	0.22	4.4
G18.85−0.09	18:25:38.88	−12:32:47.2	Y	0.31	3.7
G19.24+0.07	18:25:50.20	−12:07:33.4	Y	0.33	..[g]
G19.40−0.08	18:26:41.26	−12:03:18.2	Y	0.28	2.6
G22.01+0.36	18:30:01.86	−09:32:38.8	Y	0.29	3.6
G22.08+0.21	18:30:41.99	−09:33:14.1	Y	0.28	3.8
G22.31−0.63	18:34:08.82	−09:43:51.5	Y	0.32	3.6
G25.08+0.20	18:36:18.91	−06:53:40.6	Y	0.30	3.0
G28.37+0.12	18:42:39.93	−04:00:31.1	Y	0.31	4.9
G29.10−0.61	18:46:37.55	−03:41:08.3	Y	0.31	3.2
G32.67+0.51	18:49:08.04	+00:00:16.3	Y	0.29	0.7
G37.08−0.15	18:59:32.77	+03:37:22.2	Y	0.30	5.2

[a]Units of right ascension are hours, minutes, and seconds and units of declination are degrees, arcminutes, and arcseconds.

[b]"Y" means the clump is 24 μm-dark and "N" means the clump is 24 μm-bright.

[c]Derived (near) kinematic distances using the N_2H^+ line (see Sect. 3.4).

[d]The N_2H^+ line was not detected towards this source. Distance was obtained from the HCO^+ line.

[e]Since this source is associated to the ultracompact HII region G10.6-0.4, we adopt a distance of 6 kpc (Downes et al. 1980).

[f]Not observed with the IRAM 30m telescope but with the Effelsberg telescope. We obtained the distance from the NH_3 line.

[g]Complex spectra in the N_2H^+ (1–0), HCO^+ (1–0) and NH_3 lines.

(T_A^*) to main-beam temperatures ($T_{\rm MB}$) we used the beam and forward efficiencies listed in Table 3.2 following the relation: $T_{\rm MB} = T_A^* \, \frac{F_{\rm eff}}{B_{\rm eff}}$.

Table 3.2. Observed lines with the IRAM 30m and Effelsberg 100m telescopes.

Line	Transition	Frequency[a] (MHz)	E_u/k (K)	HPBW ($''$)	$B_{\rm eff}$	$F_{\rm eff}$	$\delta v_{\rm res}$ (km s^{-1})
			IRAM 30m				
$H^{13}CO^+$	1 – 0	86754.2884	4.16	28	0.78	0.95	0.14
SiO	2 – 1	86846.9600	6.25	28	0.78	0.95	0.14
HCO^+	1 – 0	89188.5247	4.28	28	0.78	0.95	0.13
N_2H^+	1 – 0	93173.7642	4.47	26	0.75	0.95	0.13
			Effelsberg 100m				
NH_3	(1,1)	23694.4955	23.28	40			0.23
NH_3	(2,2)	23722.6333	64.50	40			0.23
NH_3	(3,3)	23870.1292	123.64	40			0.23
H_2O	$6_{16} - 5_{23}$[b]	22235.0800	644.04	40			0.25

[a]Rest frequencies and upper level energies from the Cologne Database for Molecular Spectroscopy (CDMS; Müller et al. 2001, 2005) as of February 2011, except for NH_3 and H_2O (JPL catalog; Pickett et al. 1998).

[b]Always found to be a maser transition.

3.3.2 Effelsberg 100m

Ammonia (NH_3) and water (H_2O) maser observations (see Table 3.2) were made on 2009 March 30-31 with the Effelsberg 100m[2] telescope (Germany). The frontend was the 1.3 cm primary focus receiver. The Fast Fourier Transform Spectrometer (FFTS), similar to that described in Klein et al. (2006), was used as a backend for these observations with a bandwidth of 100 MHz and an original resolution of 0.08 km s^{-1} which was smoothed to a resolution of 0.23 km s^{-1} in order to increase the signal-to-noise ratio. The NH_3 (J,K) = (1,1) to (3,3) inversion lines were observed in frequency switching mode with a frequency throw of 7.5 MHz while the H_2O maser observations were done in position switching mode. System temperatures ranged from 135–185 K. Pointing was checked every 1 hour by continuum measurements on NRAO 530. NGC 7027 was used as flux calibrator.

The calibration of the Effelsberg data involves these steps[3]:

- The signal is converted from counts to temperatures, T_A, by the relation $T_A = T_{\rm cal} \times {\rm signal}_{\rm counts}$, where $T_{\rm cal}$ is the conversion factor provided by the receiver group[4].
- Because the atmosphere produces an attenuation of the observed signal, the next step is to perform an opacity correction by a factor of $e^{-\tau_z \cdot AM}$, where τ_z is the zenith opacity and $AM = \frac{1}{\sin(El)}$, the airmass. We have then $T'_A = T_A \times e^{-\tau_z \cdot AM}$.

  Since there is no hot/cold- nor chopper-wheel calibration at Effelsberg, the τ_z at 1.3 cm for these observations are obtained with a water-vapor radiometer[5].

[2]Based on observations with the 100m telescope of the Max-Planck-Institut für Radioastronomie (MPIfR) at Effelsberg.

[3]Based on the calibration memo by Kraus 2008.

[4]see http://www.mpifr-bonn.mpg.de/div/effelsberg/calibration/1.3cmpf.html

[5]see http://www.mpifr-bonn.mpg.de/staff/aroy/wvr.html

- To get antenna temperatures, we apply an elevation-dependent gain correction

$$T_A^* = \frac{T'_A}{G(El)} = \frac{T'_A}{a_0 + a_1 \cdot El + a_2 \cdot El^2}\,, \tag{3.1}$$

  where "El" is the elevation and $a_0 = 0.88196, a_1 = 6.6278 \times 10^{-3}, a_2 = -9.2334 \times 10^{-5}$. These values are also provided by the receiver group.

- The conversion from T_A^* to flux density (S) is through the sensitivity factor (Γ), in units of K/Jy, by $S = \frac{T_A^*}{\Gamma}$.

- Finally, in the Rayleigh-Jeans regime, we obtain $T_{\rm MB}$

$$T_{\rm MB} = \frac{1}{2.65}\frac{S\ \lambda^2}{\theta_0^2}\,, \tag{3.2}$$

  where λ is the wavelength at which we are observing in cm and θ_0 is the FWHM telescope beam in arcmin. The accuracy on S and hence on $T_{\rm MB}$ was checked with NGC 7027 from the reported values in Ott et al. (1994) and found to be within 20%.

The calibration and data reduction were done with the GILDAS/GREG and CLASS programs.

3.3.3 APEX 12m

The 30 IRDC clumps listed in Table 3.3 were observed with the APEX-1 heterodyne receiver (Vassilev et al. 2008) at the Atacama Pathfinder EXperiment[6] telescope (APEX; Güsten et al. 2006) at Llano de Chajnantor (Chile). G8.00−0.53, G12.73−0.60, and G37.08−0.15 were also observed with the 30m telescope and/or the Effelsberg telescope (see Sects. 3.3.1 and 3.3.2). The FFTS (Klein et al. 2006) was used as a backend for these observations. Two frequency setups were observed: in the first setup, the SiO (5–4), $C^{18}O$ (2–1), and ^{13}CO (2–1) lines were included while HCN (3–2) and HCO^+ (3–2) were observed in the second one. System temperatures ranged from 130–150 K for the first setup and 310–340 K for the second setup. We observed 22 clumps in both setups and 8 sources in the second setup. Molecular line parameters are listed in Table 3.4.

3.4 Kinematic distance determination

For sources located in the Galactic plane, having their radial velocity and Galactic longitude, one can obtain information on the Galactocentric distances, assuming that the source does not have any peculiar motion with respect to the global Galactic rotation.

We estimate kinematic distances based on the Galactic rotation curve model by Fich et al. (1989), assuming the IAU standard rotation constants of distance to the Sun from

[6]Based on data acquired with the Atacama Pathfinder Experiment (APEX). APEX is a collaboration between the Max-Planck-Institut für Radioastronomie, the European Southern Observatory, and the Onsala Space Observatory.

Table 3.3. IRDC clumps observed with the APEX 12m.

IRDC name	Position[a]		IR-dark[b]	$C_{24\mu m}$	Distance[c]
	RA (J2000)	Dec (J2000)		(kpc)	
G332.18+0.59	16:12:15.80	−50:31:12.4	Y	0.30	2.8[d]
G333.33+0.70	16:16:58.78	−49:38:28.5	Y	0.30	2.7[d]
G333.64+0.38	16:19:45.24	−49:39:13.7	Y	0.33	2.7[d]
G334.44+0.46	16:22:49.16	−49:01:59.2	Y	0.28	..[e]
G335.06−0.40	16:29:16.06	−49:11:17.7	Y	0.27	2.9[d]
G335.16−0.38	16:29:36.28	−49:05:59.6	Y	0.28	..[e]
G335.29−0.28	16:29:42.33	−48:56:25.2	Y	0.28	..[e]
G335.61−0.18	16:30:36.73	−48:38:13.4	Y	0.31	3.2–6.6
G335.80−0.35	16:32:08.10	−48:37:08.0	Y	0.31	2.9
G335.96−0.30	16:32:36.05	−48:27:57.0	Y	0.31	2.9
G337.18−0.40	16:37:55.32	−47:37:39.1	Y	0.33	3.2
G338.68+0.17	16:41:17.33	−46:08:20.7	Y	0.27	3.5
G337.90−0.56	16:41:29.53	−47:12:21.0	N	0.27	3.2
G338.09−0.45	16:41:43.39	−46:59:26.6	Y	0.30	3.0
G338.11−0.47	16:41:53.60	−46:58:48.0	Y	0.35	3.0, 6.4
G338.73−0.47	16:44:15.86	−46:30:48.6	Y	0.29	3.0
G339.26−0.37	16:45:49.91	−46:02:44.0	Y	0.26	3.1
G339.26−0.41	16:46:01.57	−46:04:47.6	Y	0.28	2.7
G339.90−0.39	16:48:18.06	−45:34:38.9	Y	0.36	..[e]
G340.38−0.28	16:49:35.02	−45:08:26.9	Y	0.27	3.7, 3.2
G340.10−0.82	16:50:54.57	−45:41:52.6	Y	0.26	2.7
G340.09−0.84	16:51:01.44	−45:43:11.2	Y	0.26	2.7
G348.38+0.54	17:12:30.28	−38:18:58.0	Y	0.29	1.2
G348.81−0.26	17:17:05.63	−38:26:32.3	N	0.32	3.7
G348.98−0.71	17:19:29.57	−38:33:40.6	Y	0.29	2.3
G349.06−0.69	17:19:36.99	−38:28:45.1	Y	0.28	..[e]
G349.01−0.74	17:19:42.77	−38:33:02.5	Y	0.36	..[e]
G8.00−0.53	18:05:34.81	−22:17:44.6	Y	0.26	4.8
G12.73−0.60	18:15:34.66	−18:11:06.0	Y	0.34	1.0
G37.08−0.15	18:59:32.77	+03:37:22.2	Y	0.30	5.2[f]

Notes. When more than one peak in the $C^{18}O$ (2–1) line, we present the near kinematic distance corresponding to each velocity component separated by commas.

[a]Units of right ascension are hours, minutes, and seconds and units of declination are degrees, arcminutes, and arcseconds.

[b]"Y" means the clump is 24 μm-dark and "N" means the clump is 24 μm-bright.

[c]Derived (near) kinematic distances by using the $C^{18}O$ (2–1) line (see Sect. 3.4).

[d]This value is obtained from the HCO^+ (3–2) line because no observations of $C^{18}O$ (2–1) are available.

[e]Observations of $C^{18}O$ (2–1) are not available. We did not detect emission in the HCO^+ (3–2) nor in the HCN (3–2) lines.

[f]Distance obtained from the N_2H^+ (1–0) line.

the Galactic center as $R_0 = 8.5$ kpc and the Sun rotation speed around the Galactic center

Table 3.4. Observed lines with the APEX 12m telescope.

Line	Transition	Frequency[a] (MHz)	E_u/k (K)	HPBW ($''$)	$B_{\rm eff}$[b]	$F_{\rm eff}$	δv (km s^{-1})
SiO	5 – 4	217104.9800	31.27	29	0.82	0.95	0.17
$C^{18}O$	2 – 1	219560.3541	15.81	28	0.82	0.95	0.17
^{13}CO	2 – 1	220398.6842	15.87	28	0.82	0.95	0.17
HCN	3 – 2	265886.4339	25.53	24	0.72	0.95	0.14
HCO^+	3 – 2	267557.6259	25.69	23	0.72	0.95	0.14

[a]Rest frequencies and upper level energies from the CDMS as of February 2011.
[b]Beam efficiencies are from Vassilev et al. (2008).

as $\Theta_0 = 220$ km s^{-1}. Toward the first and fourth quadrants, the distance can have one positive solution or two positive solutions, corresponding to the "near" and "far" distances. Usually, this ambiguity cannot be solved unless one has additional information.

We assume our clumps are at the "near" distance since IRDCs are objects seen in absorption against the diffuse emission of the Galactic disk. In the calculations for the IRAM 30m/Effelsberg sample, we use the LSR velocity of N_2H^+ because with the hyperfine structure the velocity is more strongly constrained than with the other lines, e.g., $H^{13}CO^+$. Moreover, N_2H^+ shows very good correspondence with the cold dust emission (Bergin & Tafalla 2007). We find basically the same distances if we use the NH_3 line, which also has hyperfine structure. In Table 3.1 we list the "near" distances that range from 0.7 to 6 kpc.

In Table 3.3, we list the near kinematic distances obtained with this method, but taking the $v_{\rm LSR}$ from the $C^{18}O$ line. We find near distances in the range of 1 to 6.6 kpc.

3.5 Analysis and observational results

3.5.1 Individual lines

N_2H^+ (1–0)

We detected N_2H^+ emission in all clumps but one (G9.82−0.75). Table 3.7 shows the fitting results to the hyperfine components of the N_2H^+ line using the "METHOD HFS" in the CLASS program. We assume the relative intensities of 15 hyperfine components retrieved from the Cologne Database for Molecular Spectroscopy (CDMS; Müller et al. 2001, 2005). This method determines the main line optical depth ($\tau_{\rm m}$), the local standard of rest (LSR) velocity ($v_{\rm LSR}$), the intrinsic line width, and the product $\xi \cdot \tau_{\rm m}$ with $\xi = [J(T_{\rm ex}) - J(T_{\rm bg})]$, where $T_{\rm ex}$ is the excitation temperature, $T_{\rm bg}$ is the background temperature, and $J_\nu(T) = \frac{h\nu/k}{e^{h\nu/kT}-1}$, with h and k being the Planck constant and the Boltzmann constant, respectively, and ν is the frequency. The line-center velocity corresponds to that of the strongest hyperfine component at 93173.7642 MHz.

The $T_{\rm MB}$ listed in Table 3.7 was obtained from Gaussian fits to the main group of

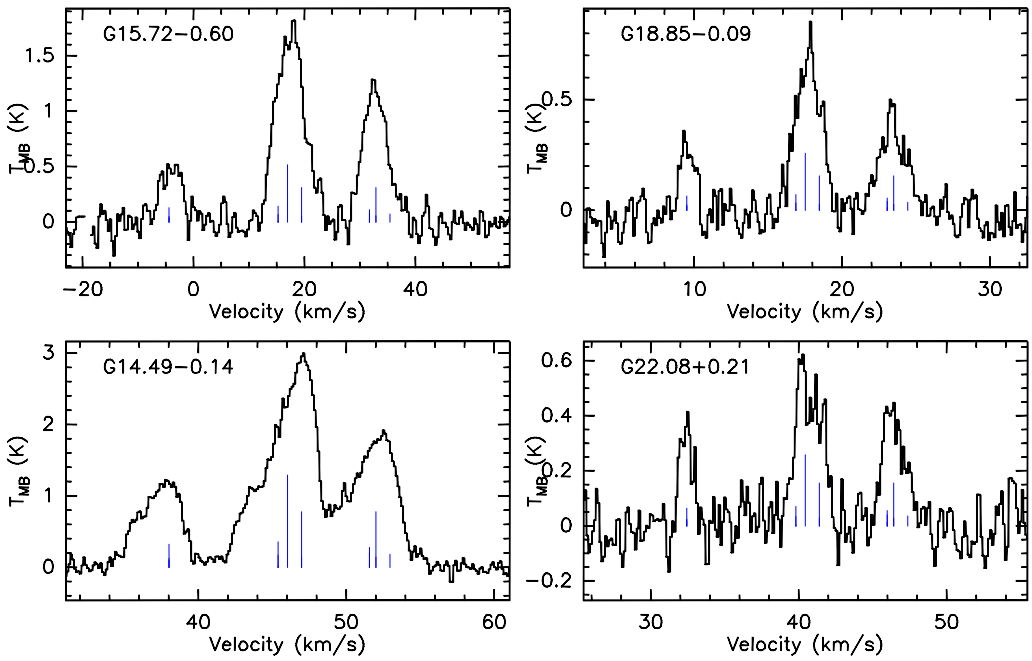

Figure 3.2. N_2H^+ (1–0) spectra of four clumps. *Top*: Optically thin spectra of the IRDC clumps G15.72−0.60 ($\tau_{\rm tot}$=0.27) and G18.85−0.09 ($\tau_{\rm tot}$=0.17). *Bottom*: Optically thick spectra of the clumps G14.49−0.14 ($\tau_{\rm tot}$=2.88) and G22.08+0.21 ($\tau_{\rm tot}$=9.61). The vertical blue lines represent the positions and relative intensities of the hyperfine components.

hyperfine components. To obtain $T_{\rm ex}$, we use the equation of radiative transfer,

$$T_{\rm MB} = \eta[J_\nu(T_{\rm ex}) - J_\nu(T_{\rm bg})] \cdot (1 - e^{-\tau_{\rm m}}) \,, \tag{3.3}$$

where η is the beam filling factor, which we assume to be 1. The rest of the parameters in Table 3.7 come from the HFS method.

Assuming the Rayleigh-Jeans regime is valid

$$T_{\rm ex} = \frac{T_{\rm MB}}{1 - e^{-\tau_{\rm m}}} + T_{\rm bg} \,, \tag{3.4}$$

where $T_{\rm bg}$ is 2.7 K.

For optically thin cases, we give a lower and upper values to the $T_{\rm ex}$ corresponding to the lowest and highest excitation temperatures we get from optically thick cases.

We estimate the total N_2H^+ column density, $N_{\rm N_2H^+}$, in the optically thick regime, from

$$N_{\rm N_2H^+} = \frac{8\pi^{3/2}\Delta V}{2\sqrt{\ln 2}\ \lambda^3 A} \frac{g_l}{g_u} \frac{\tau_{\rm tot}}{1 - e^{-h\nu/kT_{\rm ex}}} \frac{Q}{g_l\ e^{-E_l/kT_{\rm ex}}} \,, \tag{3.5}$$

where g_l and g_u are the statistical weights of the lower and upper levels,
$\tau_{\rm tot}$ is the total optical depth,
Q $= \frac{kT_{\rm ex}}{hB}$ is the partition function with B being the rotational constant,
λ and ν are the wavelength and frequency of the observed transition,
A $= \frac{64\pi^4\nu^3\mu^2 S}{g_u\ 3hc^3}$ is the Einstein coefficient, and
E_l is the energy of the lower level.

Plugging in numerical values, including $E_l/k = 0$ K, $\tau_{\rm tot} = 1.8\tau_{\rm m}$, $\mu = 3.40$ D and $B = 46586.867$ MHz, we get

$$N_{\rm N_2H^+} = 3.3 \times 10^{11} \frac{\tau_{\rm tot}\ \Delta V\ T_{\rm ex}}{1 - e^{-4.47/T_{\rm ex}}} \quad {\rm cm}^{-2}, \tag{3.6}$$

with ΔV in km s^{-1} and $T_{\rm ex}$ in K.

For optically thin cases, we have

$$N_{\rm N_2H^+} = \frac{8\pi W}{\lambda^3 A} \frac{g_l}{g_u} \frac{1}{J_\nu(T_{\rm ex}) - J_\nu(T_{\rm bg})} \frac{1}{1 - e^{-h\nu/kT_{\rm ex}}} \frac{Q}{g_l\ e^{-E_l/kT_{\rm ex}}}\,, \tag{3.7}$$

where $W = \int T_{\rm MB}({\rm N_2H^+})dv$ is the integrated intensity of the line.

For optically thin cases, we estimate $N_{\rm N_2H^+}$ by taking the lowest excitation temperature of 3.2 K,

$$N_{\rm N_2H^+} = 2.4 \times 10^{12} \int T_{\rm MB}({\rm N_2H^+})dv \quad {\rm cm}^{-2}, \tag{3.8}$$

and the highest excitation temperatures of 9.4 K,

$$N_{\rm N_2H^+} = 4.6 \times 10^{11} \int T_{\rm MB}({\rm N_2H^+})dv \quad {\rm cm}^{-2}. \tag{3.9}$$

The integrated intensity is in K km s^{-1} and includes the three main groups of hyperfine components.

Sample spectra of two clumps in the optically thin case and two spectra with optically thick emission are shown in Fig. 3.2.

Table 3.7 lists the fitting results from both Gaussian and HFS methods. The line width obtained with the HFS method ranges from 0.26–3.34 km s^{-1}.

Estimated N_2H^+ column densities range from 5–53$\times 10^{12}$ cm^{-2}. We do not find a correlation between the $N_{\rm N_2H^+}$ and the peak contrast.

$H^{13}CO^+$ (1–0) and SiO (2–1)

Table 3.8 shows the fits of the $H^{13}CO^+$ (1–0) and SiO (2–1) lines. Nine clumps were observed in $H^{13}CO^+$ (1–0) and all were detected but one, the clump G37.08−0.15 (at 2.6σ noise level). In Fig. 3.3, we show two sample spectra of the $H^{13}CO^+$ line.

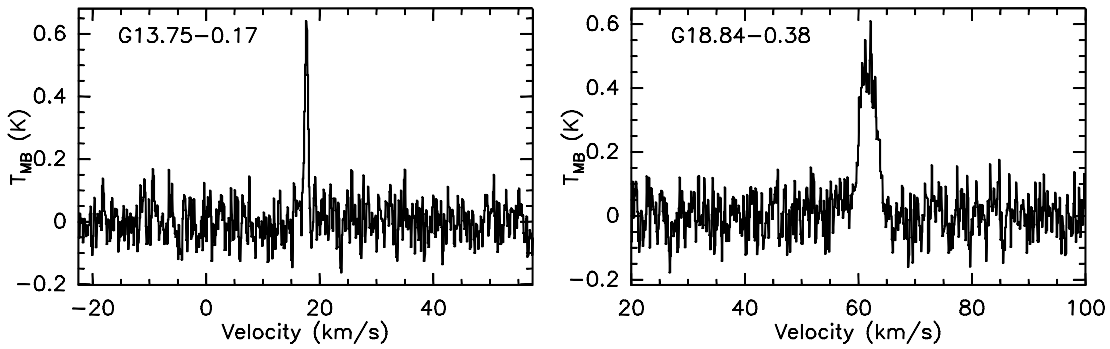

Figure 3.3. $H^{13}CO^+$ (1–0) spectra of two clumps. *Left*: spectrum of the IRDC clump G13.75−0.17. *Right*: spectrum of the clump G18.84−0.38.

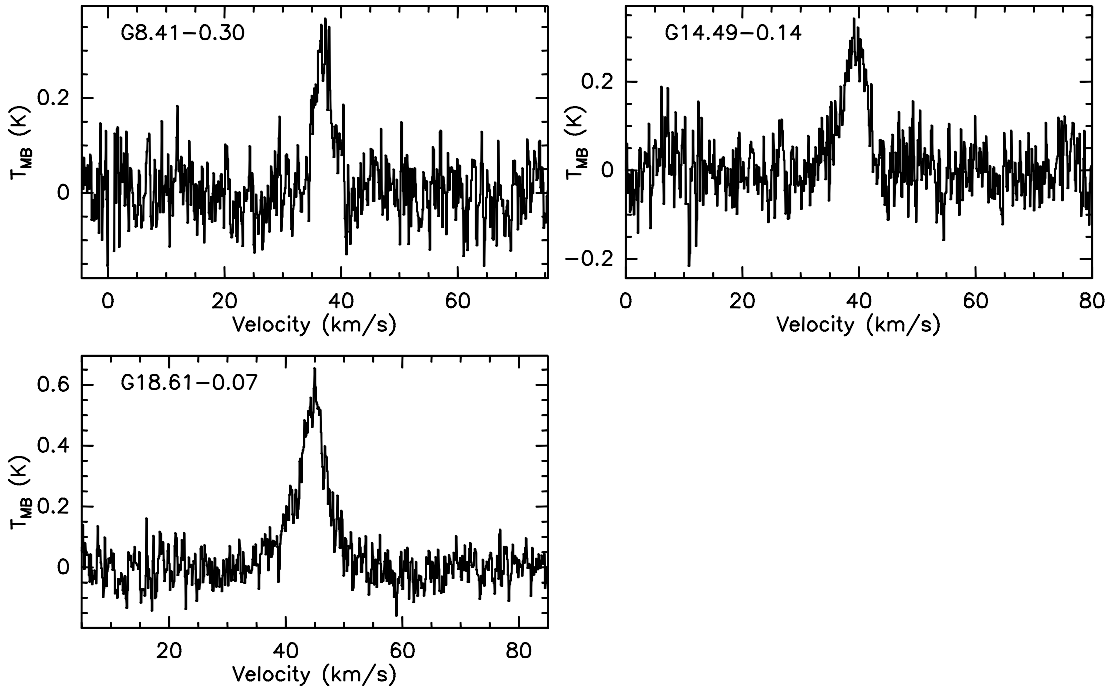

Figure 3.4. SiO (2–1) spectra of three clumps. *Left top*: spectrum of the IRDC clump G8.41−0.30. *Right top*: spectrum of the clump G14.49−0.14. *Bottom*: spectrum of the clump G18.61−0.07.

We observed SiO (2–1) toward three clumps that contain a 24 μm point source and six 24 μm-dark clumps. We detected 3 sources in SiO emission, all three containing a 24 μm source. These clumps are shown in Fig. 3.4.

HCO^+ (1–0)

We observed 26 positions and detected emission in 23 clumps (see Table 3.9). The line profiles have different shapes, from single-peaked to double-peaked. To distinguish between spectra with double-peak profiles produced by optical depth effects from two velocity components, we can use the LSR velocity from observations of the optically thin line $H^{13}CO^+$ (1–0) or from the HFS of N_2H^+ (1–0).

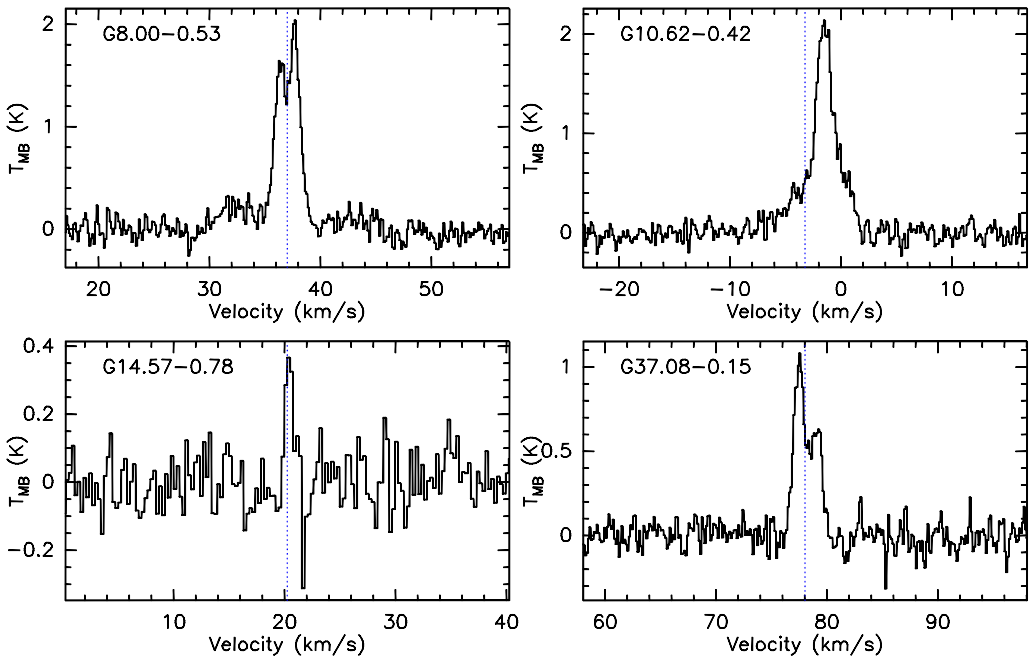

Figure 3.5. HCO^+ (1–0) spectra of four clumps. *Top*: spectra of the IRDC clumps G8.00−0.53 and G10.62−0.42. *Bottom*: spectra of the clumps G15.72−0.60 and G37.08−0.15. The latter clump shows a typical infall profile. The dotted blue lines represent the LSR velocity from N_2H^+ observations.

Figure 3.5 presents sample spectra with different line profiles. As mentioned earlier in this chapter, the N_2H^+ (1–0) better constrains the velocity of the clump, thus, in each panel, the blue dotted line indicates the LSR velocity of the N_2H^+ line. In this figure, the clump G37.08−0.15 exhibits the typical blue-skewed profile caused by infall. The clump G10.62−0.42 as well as other 3 clumps show some "wings" in the line profile possibly indicating outflows.

In Sect. 3.5.4, we study the line asymmetries observed in the HCO^+ (1–0) optically thick line.

NH_3

In Table 3.10, columns 2–5 give the fitting results of the NH_3 (1,1) hyperfine lines using the "METHOD NH3(1,1)" in GILDAS/CLASS. This method returns the same parameters as the "METHOD HFS" described in Sect. 3.5.1. CLASS assumes the relative intensities of 18 hyperfine components. Columns 6–9 list the fitting of Gaussian profiles to the NH_3 (2,2), and NH_3 (3,3) lines. Two sources (G9.82−0.75 and G14.34−0.50), marked with a '-', were not observed in the NH_3 (3,3) line. We give, in parenthesis, the 1σ noise level of spectra for sources that were not detected in either line.

We detect emission of NH_3 (1,1) in 24 clumps out of 27. We do not fit the spectrum from the clump G19.24+0.07 since the emission is probably coming from several components. The detection rate decreased for NH_3 (2,2) and NH_3 (3,3), detecting emis-

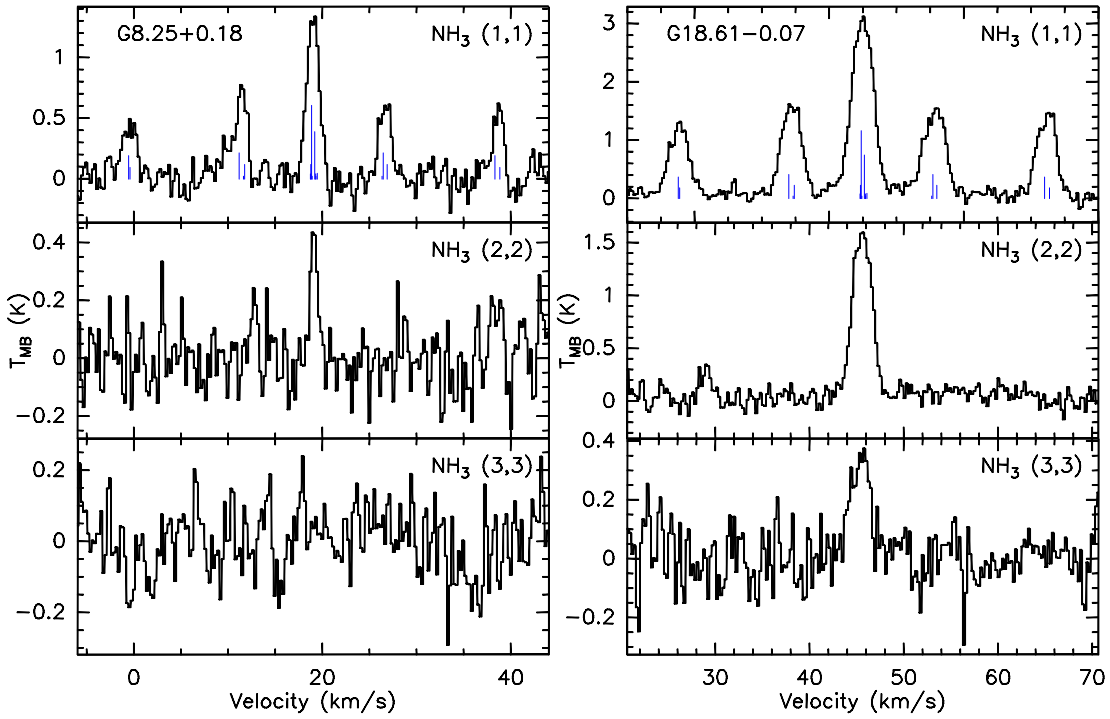

Figure 3.6. NH_3 (1,1), (2,2), and (3,3) spectra of two clumps: G8.25+0.18 (*left* panels) and G18.61−0.07 (*right* panels). The vertical blue lines in the (1,1) transition represent the positions and relative intensities of the hyperfine components.

sion in 18 and 3 sources, respectively. The three sources (G8.41−0.30, G14.49−0.14, and G18.61−0.07) detected in NH_3 (3,3) correspond to the three sources we detected in the SiO (2–1) line.

Figure 3.6 shows sample spectra for two clumps in the three NH_3 transitions we observed.

Ho & Townes (1983) have reviewed the NH_3 molecule. NH_3 is a valuable molecular cloud "thermometer" because its metastable inversion transitions (J=K) thermalized at a rotational temperature that can be related to the kinetic temperature (Danby et al. 1988). The NH_3 (1,1) line is split into five hyperfine components (actually into six, but two of them are very close in frequency) which results from the electric quadrupolar interaction of the N nucleus with the rest of the molecular charge. These sublevels split into 18 components due to magnetic interaction.

From observations of the NH_3 (1,1) one can easily obtain the optical depth by taking the ratio of the main line intensity to that of the satellite lines. For the transition (J,K) = (1,1) the relation between the main line optical depth and the total optical depth is: $\tau_{\rm m} = \frac{1}{2}\tau_{\rm tot}$.

Equation 3.3 can be re-written, using the hyperfine structure fitting, as

$$T_{\rm MB}(1,1:m) = \xi \cdot \tau_{\rm m} \frac{1-e^{-\tau_{\rm m}}}{\tau_{\rm m}}\,, \tag{3.10}$$

where the $\xi \cdot \tau_{\rm m}$ results from the hfs fitting procedure. Applying Eq. 3.4 to the NH_3(1,1)

main line, we derive $T_{\rm ex}$.

Determination of NH_3 rotational temperature and total column density

The estimate of rotational temperatures ($T_{\rm rot}^{21}$) is done following Ho & Townes (1983) and considering the same line widths for both (1,1) and (2,2) lines:

$$T_{\rm rot}^{21} = \frac{-41.5}{\ln\left(-\frac{0.283}{\tau_{\rm m}}\ln\left[1-\frac{T_{\rm MB}(2,2{:}m)}{T_{\rm MB}(1,1{:}m)}\cdot(1-e^{-\tau_{\rm m}})\right]\right)} \quad {\rm K}\,. \tag{3.11}$$

We estimate the kinetic temperature ($T_{\rm k}$) by using the relation given in Tafalla et al. (2004)

$$T_{\rm k} = \frac{T_{\rm rot}^{21}}{1-\frac{T_{\rm rot}^{21}}{42}\ln\left(1+1.1e^{-16/T_{\rm rot}^{21}}\right)} \quad {\rm K}\,. \tag{3.12}$$

The NH_3 (1,1) column density is estimated following Anglada et al. (1995)

$$N(1,1) = 1.58\times10^{13}\frac{e^{1.14/T_{\rm rot}}+1}{e^{1.14/T_{\rm rot}}-1}\tau_{\rm m}\left(\frac{\Delta{\rm V}}{{\rm km\,s^{-1}}}\right) \quad {\rm cm^{-2}}\,, \tag{3.13}$$

and the NH_3 total column density, $N_{\rm NH_3}$, is given by

$$N_{\rm NH_3} = N(1,1)\left[\frac{1}{3}e^{23.4/T_{\rm rot}^{21}}+1+\frac{5}{3}e^{-41.5/T_{\rm rot}^{21}}+\frac{14}{3}e^{-101.2/T_{\rm rot}^{21}}\right] \quad {\rm cm^{-2}}\,. \tag{3.14}$$

Derived temperatures and total column densities of NH_3 are listed in Table 3.11. We estimate upper limits of $T_{\rm rot}$, $T_{\rm kin}$, and $N_{\rm NH_3}$ for sources detected in the NH_3 (1,1) line that are not in the NH_3 (2,2). The 2σ noise level was used as the NH_3 (2,2) intensity for those sources. The $T_{\rm rot}$, $T_{\rm kin}$, and $N_{\rm NH_3}$ vary in the ranges ∼9–18 K, ∼9–21 K, and ∼1–44×10^{14} cm^{-2}, respectively.

In the *top left* panel of Fig. 3.7, we plot Δv (1,1) versus $T_{\rm rot}$. The line width of NH_3 (1,1) line does not correlate (r_P of 0.28) with $T_{\rm rot}$.

For sources that are detected in both NH_3 (1,1) and (2,2) lines, we plot in the *top right* panel of Fig. 3.7 the line width for each transition. Since the (1,1) line widths were fitted with the HFS method and the (2,2) line widths correspond to Gaussian fits, we expect the (2,2) lines to be wider than the (1,1) as can be seen in the Fig. 3.7.

The *bottom* panel in Fig. 3.7, shows the $N_{\rm NH_3}$ as a function of 24 μm peak contrast, where the straight line corresponds to the fit:

$$N_{\rm NH_3} = (72.3\cdot C_{24\mu{\rm m}} - 12.0)\times10^{14} \quad {\rm cm^{-2}}.$$

Water masers

Maser emission from various molecular species is a well-established signpost of massive star formation. Masers of water (H_2O), methanol (CH_3OH; see Chapter 7), and hydroxyl (OH)

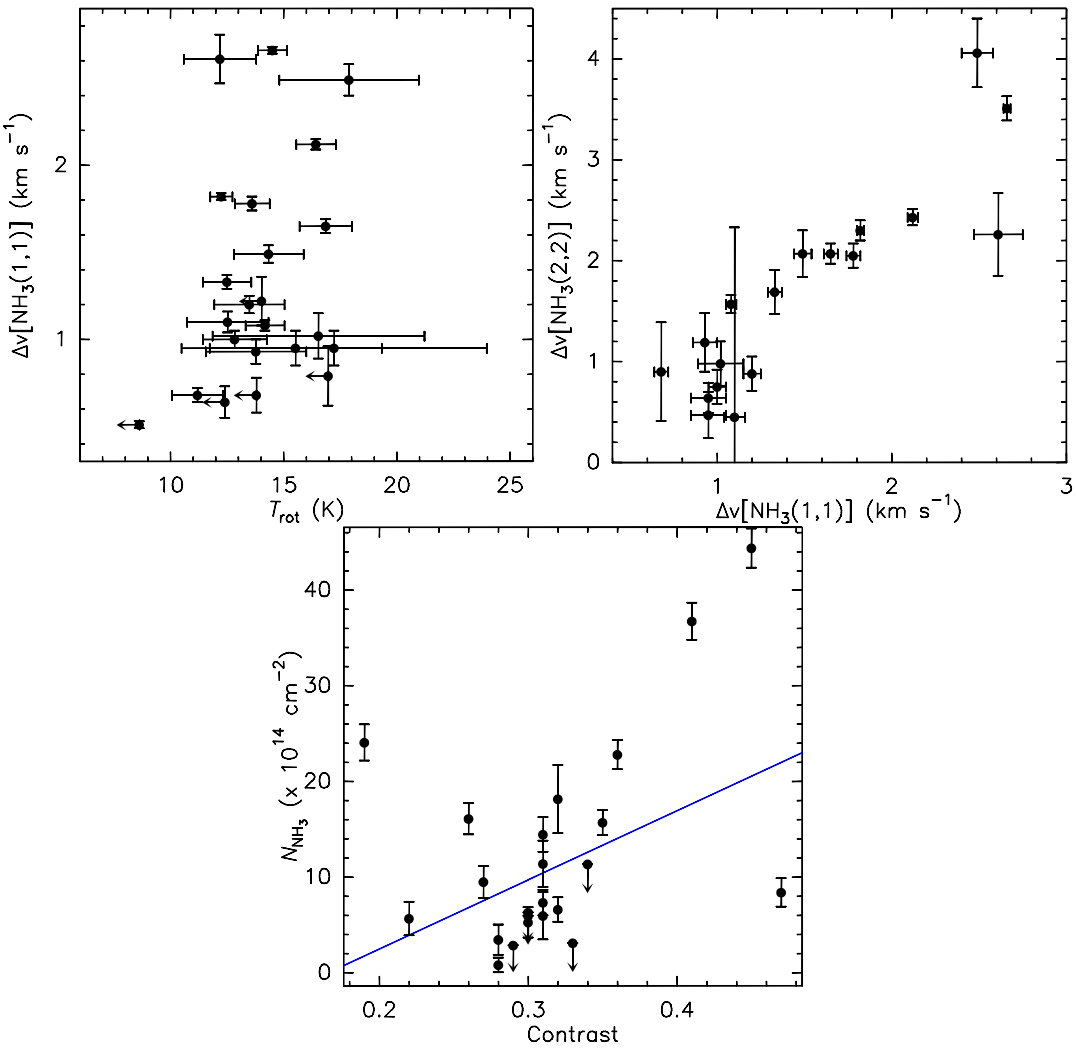

Figure 3.7. *Top left*: Δv (1,1) versus $T_{\rm rot}$, the line width of NH_3 (1,1). *Top right*: Δv (2,2) versus Δv (1,1). *Bottom*: 24 μm peak contrast versus $N_{\rm NH_3}$. The blue line represents the least-squares fit.

molecules are prevalent, and numerous studies of these masers in star-forming regions exist in the literature (see Fish 2007, for a review).

H_2O masers are found in outflows toward both low-mass and high-mass young stellar objects (see, e.g., Goddi & Moscadelli 2006); they are believed to be associated in some cases with embedded massive stellar objects (De Buizer et al. 2005). It is sometimes thought that they also trace disks (e.g., Torrelles et al. 2002). Therefore H_2O masers are good tracers of a variety of phenomena throughout many early phases of star formation.

We observed a total of 19 IRDC clumps and detected water maser emission in 1 source, the clump G10.99−0.08. We show its spectrum, with the smoothed resolution of 0.49 km s^{-1}, in Fig. 3.8; it has one component with a peak intensity of 0.54±0.01 Jy beam^{-1}, a $v_{\rm LSR}$=37.34±0.08 km s^{-1}, a line width of 0.94±0.934 km s^{-1}, and an integrated intensity of 0.54 ± 0.08 Jy km s^{-1}. The velocity of the maser is shifted from the LSR velocity of the

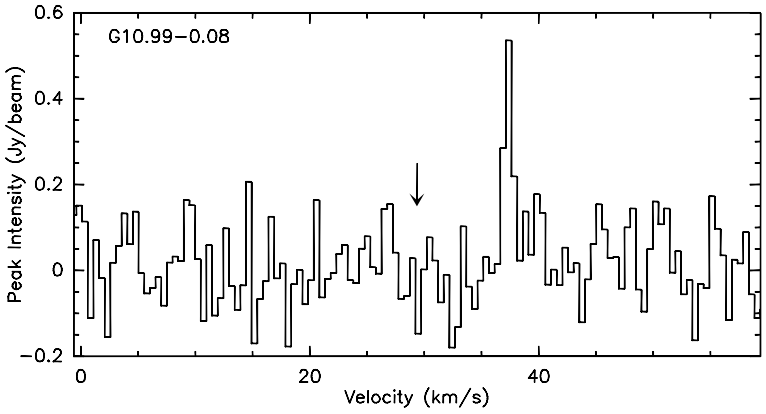

Figure 3.8. Water maser spectrum toward the source G10.99−0.08. The arrow show the $v_{\rm LSR}$=29.38 km s^{-1} of the molecular clump from NH_3 observations. The resolution was smoothed to 0.49 km s^{-1}.

clump (29.38 km s^{-1}).

The detection rate corresponds to 5%. The average 1σ noise level for non-detections is 0.12 Jy (or 0.08 K).

C^{18}O (2–1) and ^{13}CO (2–1)

Figure 3.9 shows sample C^{18}O (2–1) and ^{13}CO (2–1) spectra toward two clumps. In most cases, the ^{13}CO spectra have more than one component, while the C^{18}O have only one. We have three cases of self-absorption in the ^{13}CO line: G335.80−0.35, G340.10−0.82, and G340.09−0.84, all of them show blue-skewed profiles. Spectra of G340.10−0.82 are shown in Fig. 3.9.

Table 3.12 lists the fitting results for the C^{18}O (2–1) and ^{13}CO (2–1) lines together with their corresponding optical depths.

Some assumptions that are considered in the following procedures are: a) Lines are thermalized $T_{\rm k} = T_{\rm ex}({\rm C^{18}O}) = T_{\rm ex}(^{13}{\rm CO}) = T_{\rm ex}$, b) the ^{13}CO (2–1) line is optically thick, c) the C^{18}O (2–1) line is optically thin, and d) the same volume is emitting both lines.

Optical depths are estimated by using the method outlined in Myers et al. (1983), when both lines are detected and the ^{13}CO (2–1) line does not suffer from self-absorption. We use the expression:

$$\frac{T_{\rm MB}(^{13}{\rm CO})}{T_{\rm MB}({\rm C^{18}O})} = \frac{1-e^{-\tau_{13}}}{1-e^{-\tau_{18}}} = \frac{1-e^{-7.3\tau_{18}}}{1-e^{-\tau_{18}}}\,, \tag{3.15}$$

where τ_{18} and τ_{13} correspond to the optical depths of the C^{18}O and ^{13}CO lines, respectively. We have assumed the abundance ratio [^{13}C][^{16}O]/[^{12}C][^{18}O] = 7.3 (Wilson & Rood 1994) estimated at an average Galactocentric distance of 4.8 kpc. This abundance ratio is ∼25% higher than [^{13}CO]/[C^{18}O] = 5.5, assuming terrestrial abundances (McCutcheon et al. 1980).

Optical depths of the C^{18}O line are in the range of 0.1–0.66.

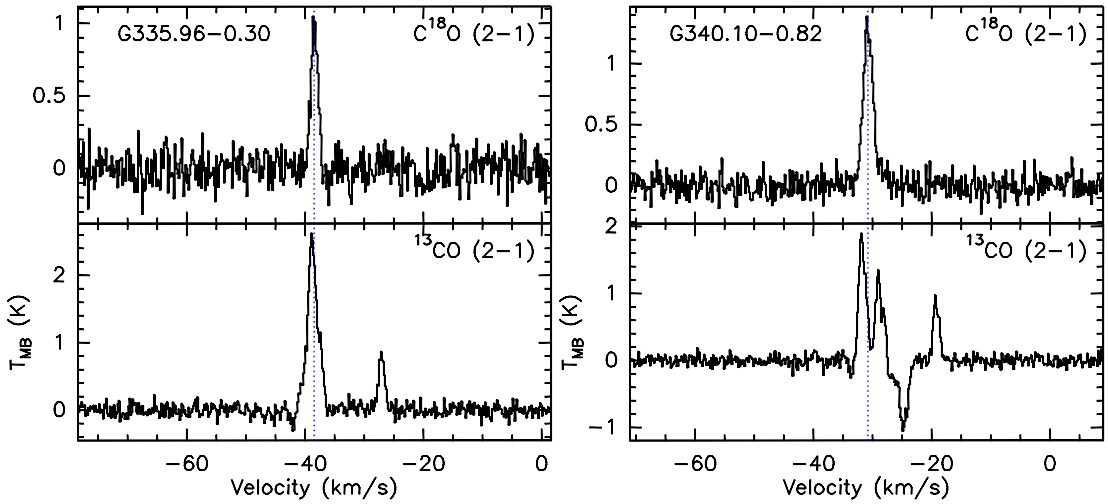

Figure 3.9. $C^{18}O$ (2–1) and ^{13}CO (2–1) spectra of two clumps: G335.96−0.30 (*left*) and G340.10−0.82 (*right*). The blue dotted lines correspond to the LSR velocities of the clouds. G340.10−0.82 shows self-absorption in the ^{13}CO line at $\sim$−30 km s^{-1}, while the feature at $\sim$−25 km s^{-1} is due to a contaminated off-position.

Excitation temperatures are derived from the radiative transfer equation:

$$T_{\rm ex} = \frac{h\nu/k}{\ln\left[1 + \frac{h\nu/k}{T_{\rm MB}+J(T_{\rm bg})}\right]}\,, \tag{3.16}$$

and using the optically thick ^{13}CO (2–1) line, the expression can be written as:

$$T_{\rm ex} = \frac{10.57}{\ln\left[1 + \frac{10.57}{T_{\rm MB}+0.22}\right]} \quad \text{K}.$$

Column densities of $C^{18}O$ (2–1), $N_{\rm C^{18}O}$, are obtained with Eq. 3.7. Making the corresponding substitutions for this molecule, e.g., $Q = \frac{kT_{\rm ex}}{hB} + \frac{1}{3}$, $B = 54891.421$ MHz, and $\mu^2 S = 0.024399$ D^2, we obtain

$$N_{\rm C^{18}O} = 1.25 \times 10^{14} \frac{e^{5.27/T_{\rm ex}}}{1 - e^{-10.53/T_{\rm ex}}} \frac{T_{\rm ex} + 0.88}{J(T_{\rm ex}) - J(T_{\rm bg})} \int T_{\rm MB}(\mathrm{C^{18}O}) dv\,. \tag{3.17}$$

In Table 3.13, we list integrated intensities, $T_{\rm ex}$ and $N_{\rm C^{18}O}$. $N_{\rm C^{18}O}$ is in the range of $\sim$ 1–3 $\times 10^{15}$ cm^{-2}.

A weak anti-correlation ($r_P \sim -0.41$) of $N_{\rm C^{18}O}$ as function of 24 μm peak contrast is found:

$$N_{\rm C^{18}O} = (-9.2 \cdot C_{24\mu\rm m} + 4.5) \times 10^{15} \ \ \text{cm}^{-2}\,.$$

SiO (5–4)

We have non-detections of the SiO (5–4) line toward the 22 observed clumps whose average 1σ noise level of the spectra is 0.07 K. A comparable noise level was reached in the lower transition SiO (2–1).

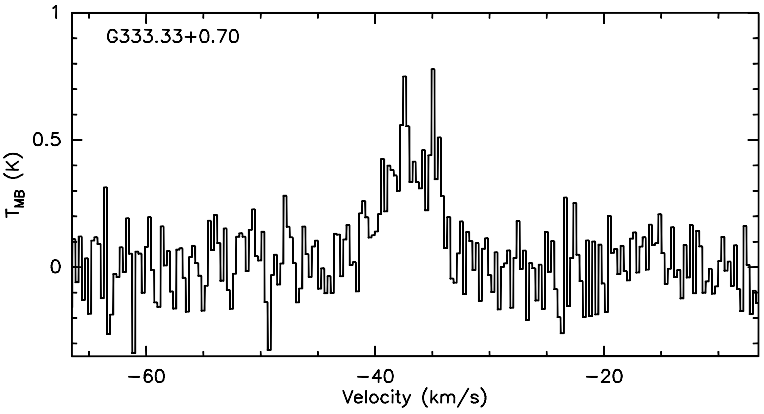

Figure 3.10. HCN (3–2) spectrum of the clump G333.33+0.70.

We estimate the upper limits of SiO (5–4) column densities, $N_{\rm SiO}$, using Eq. 3.7. The integrated intensities are assumed as the 3σ noise level of the spectra, and the $T_{\rm ex}$ was taken as the energy of the upper level of this transition (31.3 K). With $Q = 30.3$ K and $\mu^2 S = 47.992$ D^2, we obtain:

$$N_{\rm SiO} = 1.34 \times 10^{12} \int T_{\rm MB}({\rm SiO}) dv \quad {\rm cm}^{-2}. \tag{3.18}$$

The integrated intensity is in K km s^{-1}. The average SiO column density is $N_{\rm SiO} = 2.8 \times 10^{11}$ cm^{-2}.

HCN (3–2)

One source out of 30 was detected in HCN (3–2); the Gaussian fitting results to the line profile of G333.33+0.70 are $T_{\rm MB} = 0.49 \pm 0.16$ K, line width of 5.56 ± 0.45 km s^{-1} at a $v_{\rm LSR} = -36.97 \pm 0.20$ km s^{-1}; we smoothed this spectrum to a spectral resolution of 0.28 km s^{-1} and it is shown in Fig. 3.10. For non-detections, the average 1σ noise level of the spectra is 0.17 K.

HCO$^+$ (3–2)

We detected HCO$^+$ (3–2) emission in 18 clumps from a list of 30 sources (see Table 3.14). In Fig. 3.11, we present spectra of HCO$^+$ (3–2) for three clumps displaying differences in line profiles. The only source in our APEX sample that shows the blue peak higher than the red peak (a profile expected to be caused by infall) is G348.81−0.26; its spectrum is shown in Fig. 3.11.

In contrast to the line profiles in the HCO$^+$ (1–0) line, those of the (3–2) transition do not show signs of "wings."

In Sect. 3.5.4, we study the line asymmetries observed in the HCO$^+$ (3–2) optically thick line, for clumps observed in the C^{18}O (2–1) and ^{13}CO lines.

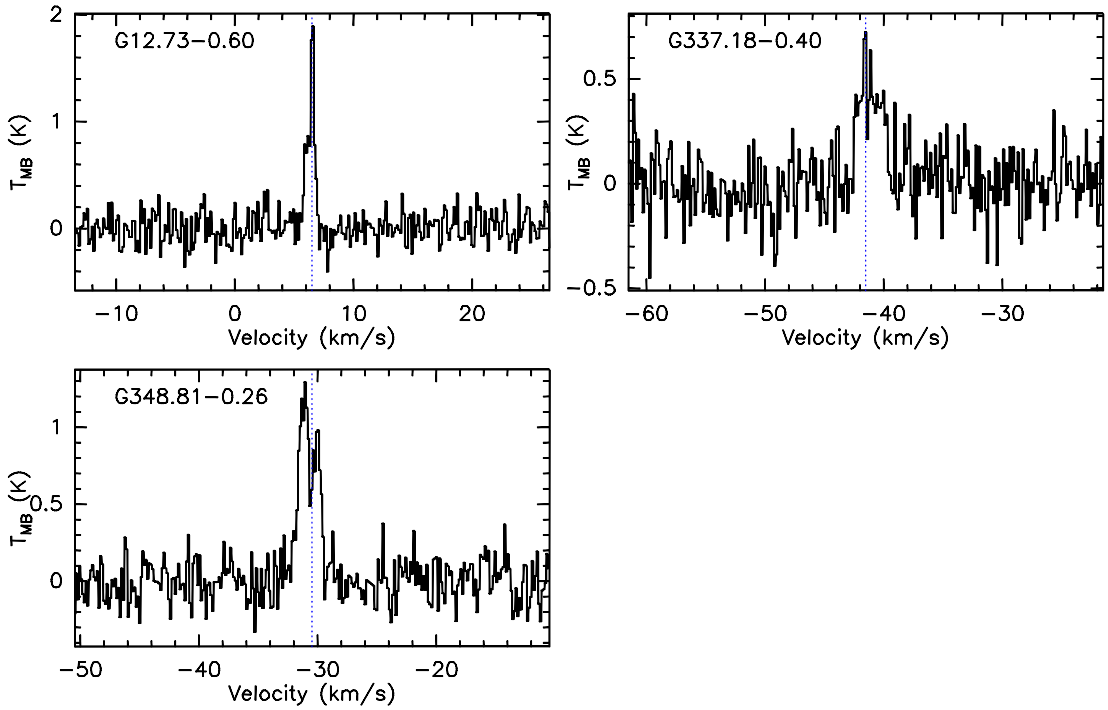

Figure 3.11. HCO^+ (3–2) spectra of three clumps. *Top*: spectra of G12.73−0.60 and G337.18−0.40. *Bottom*: spectrum of G348.81−0.26 showing the typical profile caused by infall. The blue dotted lines correspond to the LSR velocity of the $C^{18}O$ (2–1) line.

3.5.2 Abundances

Molecular column densities, $N_{\rm mol}$, are translated into fractional abundances, $X_{\rm mol}$, using $X_{\rm mol} \equiv N_{\rm mol}/N_{\rm H_2}$, where $N_{\rm H_2}$ is the H_2 column density and "mol" stands for molecule.

The $N_{\rm H_2}$ was estimated from ATLASGAL maps of dust emission at 870 μm with a resolution of 33″. We use the dust temperature equal to the rotational temperatures derived from NH_3 observations for the Effelsberg/IRAM 30m sample while we assume a dust temperature of 16 K for the APEX sample.

Table 3.15 presents the abundances for the N_2H^+ and NH_3, and Table 3.16 lists the abundances for SiO and $C^{18}O$. Both tables also list the $N_{\rm H_2}$ we estimated for each clump. Mean abundances are 1.3×10^{-9}, 6.5×10^{-8}, 4.2×10^{-11}, and 3.2×10^{-7} for N_2H^+, NH_3, SiO (using the 5–4 transition), and $C^{18}O$, respectively. Figure 3.12 shows the abundances of the clumps and compares them to other IRDC samples, high-mass protostellar objects, and low-mass pre-stellar and protostellar cores.

We do not find any correlation between the abundance of N_2H^+, $X_{\rm N_2H^+}$, and the abundance of NH_3, $X_{\rm NH_3}$.

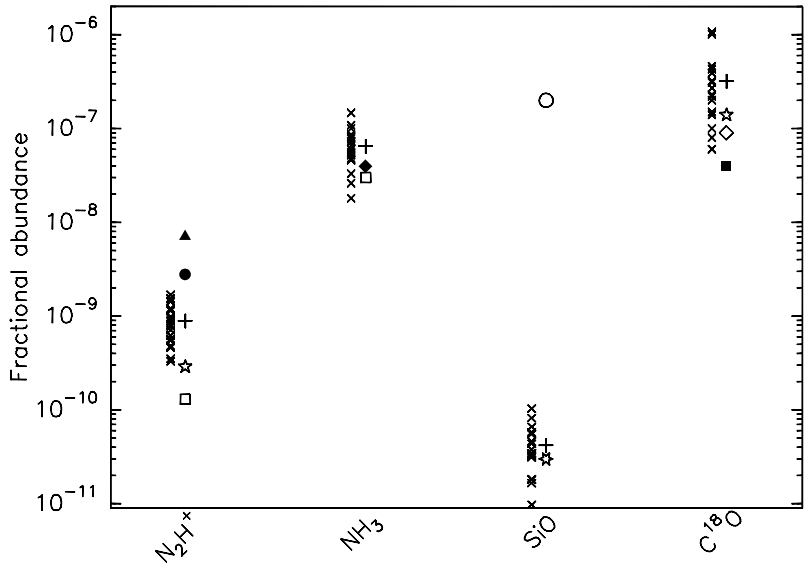

Figure 3.12. Fractional abundances of N_2H^+, NH_3, SiO, and $C^{18}O$, species. Crosses indicate estimations from this work; plus symbols represent mean values. Other symbols indicate mean abundances from other works toward IRDCs (filled symbols), high-mass protostellar objects (starred symbols), and low-mass pre- and protostellar cores (open polygons). Filled triangle from Miettinen et al. (2011), filled circle from Vasyunina et al. (2011), filled diamond from Pillai et al. (2006a), and filled square from Ragan et al. (2006). Five-pointed stars from Zinchenko et al. (2009) and six-pointed star from Miettinen et al. (2006). Open squares from Tafalla et al. (2002), open diamond from Jørgensen et al. (2002), and open circle from Gibb et al. (2004).

3.5.3 Depletion factor

Selective freeze-out happens in dense and cold regions of both low-mass starless cores (e.g., Bacmann et al. 2002) and high-mass clumps (Pillai et al. 2007). Carbon monoxide and carbon-bearing species, in general, suffer from depletion from the gas phase onto dust grains in these environments (see Bergin & Tafalla 2007, and references therein). Tafalla et al. (2006) have suggested that cores can be classified as either chemically young or chemically evolved depending on whether they show depletion or not, respectively.

The depletion factor, f_D, can be obtained from

$$f_D = \frac{X^{\rm obs}_{\rm C^{18}O}}{X^{\rm std}_{\rm C^{18}O}} \,,$$

where $X^{\rm obs}_{\rm C^{18}O}$ is the observed $C^{18}O$ abundance while $X^{\rm std}_{\rm C^{18}O} = 1.7 \times 10^{-7}$ is the "standard" abundance for nearby low-mass clouds (Frerking et al. 1982). Depletion factors are listed in Table 3.16; we obtained values of $f_D = 0.2$–2.8, with a mean of 1.0.

Alternatively, if we use the abundance gradients in the Galactic disk from Wilson & Rood (1994), and following Fontani et al. (2006), the standard abundance can be estimated from:

$$X^{\rm std,GC}_{\rm C^{18}O} = \frac{X^{\rm std}_{\rm CO}}{[^{16}{\rm O}]/[^{18}{\rm O}]} = \frac{X^{\rm std}_{\rm CO}}{58.8 \cdot R_{\rm GC}[{\rm kpc}] + 37.1} \,,$$

where $X^{\rm std}_{\rm CO} = 9.5 \times 10^{-5} e^{1.105 - 0.13 \cdot R_{\rm GC}[{\rm kpc}]}$ (Fontani et al. 2006, see their Eq. 7), $R_{\rm GC}$ is the

Galactocentric distances of the clumps, which we take equal to 4.8 kpc (see Sect. 3.5.1). At this mean location, the $X^{\rm std,GC}_{\rm C^{18}O} = 4.8 \times 10^{-7}$ and the depletion factors increase with values ranging from 0.5–8.4, with a mean value of 3. These values are reported in brackets in Table 3.16.

3.5.4 Infall study

To study the distribution of line asymmetries, we use the parameter δv introduced by Mardones et al. (1997):

$$\delta v = \frac{V_{\rm thick} - V_{\rm thin}}{\Delta V_{\rm thin}}\,, \tag{3.19}$$

where δv is the normalized velocity difference, $V_{\rm thick}$ is the $v_{\rm LSR}$ of the HCO^+ line, and $V_{\rm thin}$ and $\Delta V_{\rm thin}$ correspond to the $v_{\rm LSR}$ and the line width of the optically thin line, respectively. For the IRAM/Effelsberg sample, we use the N_2H^+ line while for the APEX sample, we use the $C^{18}O$ line as optically thin tracers. For sources with double-peaked profiles in the HCO^+ line, we take the brightest peak.

Tables 3.9 and 3.14 list the observed sources in the HCO^+ (1–0) and the HCO^+ (3–2) lines; each peak was fitted with Gaussian profiles. Subscript 'n' stands for neither, 'b' for blue and 'r' for red asymmetries. In Table 3.9, G9.82−0.75 has been classified as 'n' since no optically thin lines were detected and therefore no value of δv is listed for this source.

The mean and standard deviation of the distributions are $< \delta v_{\rm HCO^+(1-0)} > = 0.12 \pm 0.76$ and $< \delta v_{\rm HCO^+(3-2)} > = -0.05 \pm 0.30$. Following Mardones et al. (1997), we have defined a "significant" blueshift or redshift profiles at about 5 times the average rms. The average rms of δv in the distributions is 0.065 (for the 1–0 transition) and 0.058 (for the 3–2 transition).

Figures 3.13 shows the column densities from NH_3 for the IRAM/Effelsberg sample (*left* panel) and $C^{18}O$ for the APEX sample (*right* panel) versus the δv distribution for HCO^+ (1–0) and HCO^+ (3–2), respectively. "Significant" blueshifted profiles are those with $\delta v_{\rm HCO^+(1-0)} < -0.33$ for the IRAM sample (or $\delta v_{\rm HCO^+(3-2)} < -0.29$ for the APEX sample) and "significant" redshifted profiles with $\delta v_{\rm HCO^+(1-0)} > 0.33$ (or $\delta v_{\rm HCO^+(3-2)} > 0.29$). We do not find a trend in the δv distributions with molecular column densities.

We do not find indication of expansion (or outward motions) in the APEX sample, i.e., in the higher transition (3–2) of the HCO^+ molecule.

The quantification of the asymmetries in the distribution of δv can also be done through the excess (E) number of sources with negative compared to positive δv. The excess is defined as (Mardones et al. 1997):

$$E = \frac{N_{\rm B} - N_{\rm R}}{N}\,,$$

where, $N_{\rm B}$ is the number of sources with a significant blueshift ($\delta v < -5\sigma$), $N_{\rm R}$ is the number of sources with a significant redshift ($\delta v > 5\sigma$), and N is the total number of sources including the sources that do not show significant shift ($-5\sigma \leq \delta v \leq 5\sigma$).

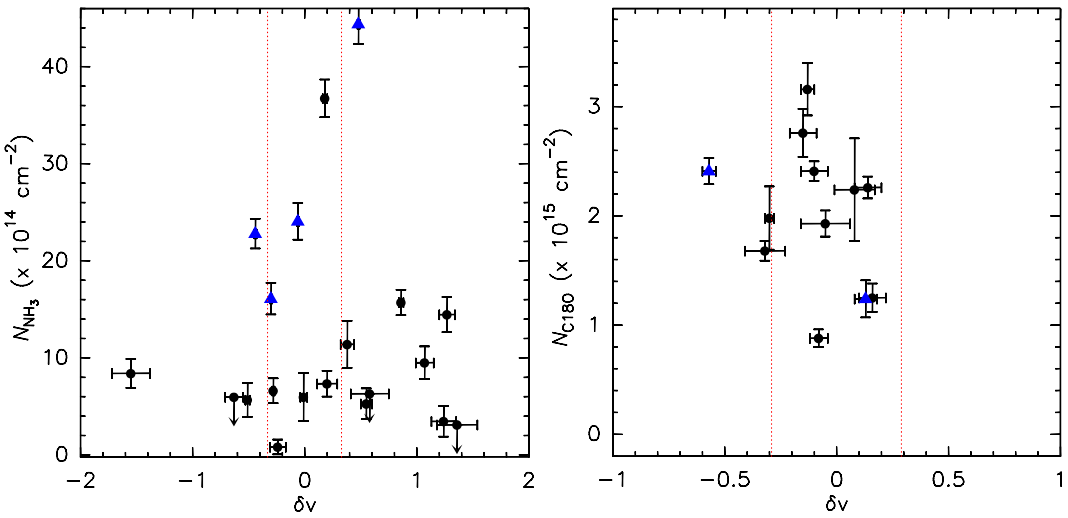

Figure 3.13. *Left*: the column density of NH_3 versus the δv distribution for HCO^+ (1–0). *Right*: the column density of $C^{18}O$ versus the δv distribution for HCO^+ (3–2). The red dotted lines correspond to $\pm 5\sigma_{\delta v} = \pm 0.33$ and $\pm 5\sigma_{\delta v} = \pm 0.29$ for HCO^+ (1–0) and HCO^+ (3–2), respectively. Blue filled triangles indicate clumps with SiO emission or the association to a 24 μm point source.

Table 3.5. Statistical properties of the distributions of δv.

Transition	N	N_B	N_R	$< \delta v >$	P	E
HCO^+ (1–0)	25	6	9	0.12	0.30	−0.12
HCO^+ (3–2)	18	4	0	−0.05	0.06	0.22

A summary of the infall statistics is presented in Table 3.5. Following Fuller et al. (2005), the probability of the distribution being by chance is calculated with the binomial test:

$$P = \binom{n}{k} p^k \; q^{(n-k)}$$

where n is the number of blue and red sources, k is the number of blue sources, p and q are the hypothetical probabilities of having blue and red profiles, respectively, which equal 0.5. A high probability indicates the excess could arise by chance. The probability of having the distribution by chance in the higher transition (3–2) is very low (6%), while for the lower transition (1–0) is 30%.

Two clumps (G8.00−0.53 and G37.08−15) were observed in both transitions of the HCO^+ line. The clump G37.08−15 shows "significant" δv in the (1–0) and (3–2) transitions, but only a blue double-peaked profile in the former. The clump G8.00−0.53 has a "significant" δv in the (1–0) transition, showing a red profile.

Infall velocity and mass infall rate

Myers et al. (1996) presented an analytic model of radiative transfer to provide estimates of infall velocities (v_{in}) and mass infall rates ($\dot{M}_{in}$). Their general result, which can be quantified based on observable line parameters is:

Table 3.6. Infall velocities and infall mass rates of IRDC clumps.

Clump name	$v_{\rm in}$ ($\rm km\,s^{-1}$)	$\dot{M}_{\rm in}$ $M_\odot\ \rm yr^{-1}$
G18.84−0.38	4.18(1.08)	3.76×10^{-4}
G37.08−0.15	0.28(0.13)	1.02×10^{-5}
G348.81−0.26	0.50(0.38)	1.05×10^{-5}

$$v_{\rm in} = \frac{\Delta \rm V^2_{thin}}{\rm v_{LSR,r} - v_{LSR,b}} \ln\left(\frac{1+e^{T_{\rm BD}/T_D}}{1+e^{T_{\rm RD}/T_D}}\right), \tag{3.20}$$

where T_D is the height of the dip in the optically thick line (see Fig. 2 of Myers et al. 1996), and $T_{\rm BD}$ and $T_{\rm RD}$ are the height of the blue and red peak, respectively, above T_D.

For blue double-peaked profiles which have "significant" δv, we list in Table 3.6 their corresponding $v_{\rm in}$ and $\dot{M}_{\rm in}$. The $\dot{M}_{\rm in}$ is estimated with

$$\dot{M}_{\rm in} = 4\pi r^2_{\rm in} M n v_{\rm in}\,. \tag{3.21}$$

We estimate clump masses from the ATLASGAL maps with a resolution of 33″, and assume the infall radius is similar to the effective radius of the clump.

The infall velocity and infall mass for G18.84−0.38 are very high compared to the other two IRDC clumps. These values may arise from a somewhat complex spectrum.

3.6 Discussion

In the previous sections, we presented observations and analysis of two samples. In the IRAM/Effelsberg sample, the transitions of two molecules (HCO^+ and SiO) are at lower energies above the ground than the ones observed in the APEX sample. In the APEX sample, we did not carry out observations of water masers. Here we discuss the resulting physical and chemical properties of the objects.

3.6.1 Physical properties

Temperatures, H_2 column densities, and density probes

The temperatures derived from NH_3 are typical for IRDC clumps (e.g., Pillai et al. 2006a). They are low, ranging from ∼9–18 K.

Column densities derived from dust are in the range of 3–7 $\times 10^{22}$ $\rm cm^{-2}$. The higher values of $N_{\rm H_2}$ correspond in some cases to clumps that are associated to a weak 24 μm point source. For the APEX sample, we assumed a dust temperature of 16 K to derive $N_{\rm H_2}$.

The density tracers we used in this work have different critical densities ($n_{\rm crit}$). The $n_{\rm crit}$ is the density at which the collisional rate is equal to the radiative de-excitation

rate: $n_{\rm crit} = A_{ul}/\gamma_{ul}$, where A_{ul} is the Einstein coefficient and γ_{ul} is the collisional rate coefficient. The molecular data including the A_{ul} and γ_{ul} can be retrieved from the Leiden Atomic and Molecular Database (LAMBDA; Schöier et al. 2005).

Critical densities at 10 K for HCO^+ (1–0) and (3–2) are 1.6 $\times 10^5$ and 3.9 $\times 10^6$ cm^{-3}, respectively. The difference in critical densities can explain our higher detection rate in the former transition than in the latter (88% versus 60%). The HCN (3–2) traces an even higher critical density ($\sim$3.7 $\times 10^7$ cm^{-3}). Thus the clump G333.33+0.70 is particularly interesting because it is IR-dark and it was the only source that showed emission in the HCN (3–2) line.

Infall candidates

We only have 3 sources that show both blue and red shoulders, where the blue peak is higher than the red one. The clumps G18.84−0.38 and G37.08-0.15 are IR-dark and do not show emission in SiO (2–1). On the other hand, the clump G348.81-0.26 also presents the profile expected from infall, but it is not IR-dark. There is a weak 24 μm point source within the the HPBW of the observations.

The infall velocities of G37.08-0.15 and G348.81-0.26 we obtained are in the high-end values found in lower-mass clumps studied in Myers et al. (1996). These values are 0.006, 0.025 and 0.35 km s^{-1}, for L1554, L1527 and L1251B, respectively. The infall velocity of G18.84−0.38 is comparable to values found in the EGO sample observed by Chen et al. (2010b) and higher than the values toward an IRAS sample whose typical infall velocity was 0.2 km s^{-1}(Fuller et al. 2005).

The mass infall rates are higher in our clumps (see Table 3.6) than in the above mentioned low-mass clumps (1.9–40 $\times 10^{-6}$) and up to two orders of magnitude lower than for the sample of IRAS sources (2×10^{-4}–1×10^{-3}; Fuller et al. 2005). Since the infall mass rate depends on the infall radius, and we have single-dish pointings, we might be overestimating the infall radius by assuming it is the same as the effective radius of the clump from dust emission observations.

The blue excess we obtained, $E = 0.12$, from the HCO^+ (3–2) is lower than that estimated by Mardones et al. (1997) for low-mass cores in the H_2CO (2–1) and CS (2–1) lines, 0.21 and 0.27, respectively. Chen et al. (2010b) obtained $E = 0.14$ from the HCO^+ (1–0) for a sample of extended green objects (EGOs). These authors obtained $E = -0.08$ when taking into account sources related to IRDCs. A sample of IRAS sources studied in HCO^+ (1–0) by Fuller et al. (2005) has a blue excess of 0.21 while the same sample has $E = 0.04$ in the HCO^+ (3–2) line. In the latter case, the probability of having that distribution by chance is 50%.

The probabilities of having our δv distributions by chance are low, which indicates that the APEX sample is dominated by infall motion, while the IRAM/Effelsberg sample is dominated by outward motions.

3.6.2 Chemical properties

Water masers

Our very low detection rate (5%) of water masers should be taken with caution because it is known that H_2O masers are highly variable in time (e.g., Felli et al. 2007, and references therein). Using the VLA Wang et al. (2006) presented a detection rate of 18% toward a sample of 140 cores within IRDCs. Chambers et al. (2009) observed the same IRDC sample Wang et al. (2006) studied but with single-dish, including other 50 cores, and found a higher detection rate (35%).

We detected water emission toward one clump. Its spectrum is simple and the flux density is weak with one component at 37.34 $\mathrm{km\,s^{-1}}$ while the LSR velocity from molecular observations is at 29.38 $\mathrm{km\,s^{-1}}$. This shift could imply that either the maser emission is not related to the clump or the maser emission may be tracing the red-shifted lobe of a bipolar outflow. Another possibility is that since the beam size of the Effelsberg telescope is $\sim 40''$, it might be receiving emission, from the sidelobes, from 24 μm point sources that happen to be in the field. We did not find any nearby water maser in the literature in a search radius of $4'$.

Our very low detection rate points to the clumps being in very early phases of evolution.

SiO emission

In our IRAM 30m sample, the SiO (2–1) line was detected in 3 sources out of 9 which means a detection rate of $\sim$33%. These three clumps contain a weak point source by inspecting the maps at 24 μm. The average SiO (2–1) rms is 0.06 K when not taking into account the highest rms = 0.48 K corresponding to the source G37.08−0.15 (see Table 3.8). This detection rate is similar to that of Beuther & Sridharan (2007) who detected SiO (2–1) emission in the 40% of the sources in a sample of IRDCs. The average rms of their spectra was 0.02 K. The detection rate of SiO (2–1) is lower (21%) for a sample of IRDC clumps observed by Vasyunina et al. (2011).

Motte et al. (2007) reported SiO (2–1) detections in spectra with an average rms of 0.03 K toward (possible) ultracompact HII regions, and massive IR-quiet cores in the Cygnus X complex with a very high detection rate of 93%. López-Sepulcre et al. (2011) found very high detection rate (98%) toward a subsample of MSX IR-quiet massive clumps, suggesting that the SiO luminosity decreases as the clump evolves. With a few exceptions, all these clumps show 24 μm point sources.

As for our APEX sample, we did not detect the SiO (5–4), possibly due to the high critical density ($\sim 2\times10^7$ $\mathrm{cm^{-3}}$, at $T = 10$ K) needed to excite this line.

The absence of SiO emission is indicative of no stellar activity such as outflows.

Correlation and anti-correlations with peak contrasts

We found a weak correlation for the Effelsberg sample of the NH_3 column density with peak contrast: the higher the peak contrast, the higher N_{NH_3}. On the contrary, we found an anti-correlation for the APEX sample of $N_{C^{18}O}$ with peak contrast: the higher the peak contrast, the lower $N_{C^{18}O}$.

If both samples have the same evolutionary characteristics, i.e., they are in early phases of evolution and taking into account the selective freeze-out, we expect that the $C^{18}O$ is depleted onto the dust grains while N_{NH_3} is enhanced.

Fractional abundances and "depletion"

In Fig. 3.12, we plot N_2H^+, NH_3, SiO, and $C^{18}O$ abundances. There, we also overplot mean values from other works toward IRDCs, high-mass protostellar objects, and low-mass pre-stellar cores. Different methods are used by different authors to determine the molecular column densities. In some cases, the molecular column density estimation comes from analytical/Monte Carlo models (e.g., Tafalla et al. 2002), or from non-LTE modelling using LVG analysis (e.g., Jørgensen et al. 2002).

For N_2H^+, our mean abundance value is lower than the abundances reported toward IRDC clumps by Miettinen et al. (2011) and Vasyunina et al. (2011), while our values are higher than the reported toward low-mass stellar cores (Tafalla et al. 2002) and high-mass protostellar objects (Zinchenko et al. 2009).

The situation is different for X_{NH_3} and $X_{C^{18}O}$; our mean values are higher in both cases. The mean abundances are above the ones obtained for low-mass sites (Tafalla et al. 2002; Jørgensen et al. 2002), for IRDC clumps (Pillai et al. 2006a; Ragan et al. 2006), and for high-mass sites (Zinchenko et al. 2009).

As we see from Fig. 3.12, some of our clumps have similar fractional abundances than low-mass cores in the NH_3 and $C^{18}O$ lines. High-mass protostellar objects have also similar values to our IRDC clumps.

Since the SiO (5–4) line was not detected, upper limits of X_{SiO} were estimated. The estimates are similar to the mean abundances of massive young stellar objects (Miettinen et al. 2006) but several orders of magnitude lower than for low-mass protostellar objects (Gibb et al. 2004). The large discrepancy in X_{SiO} with low-mass objects is easy to understand since Gibb et al. (2004) estimated N_{H_2} based on the relative abundance of CO with respect to H_2.

We estimated the depletion factors (f_D) of $C^{18}O$ and found no depletion (f_D=0.2–2.8, $< f_D >$=1.0) in average, when using the standard $C^{18}O$ abundance. Three clumps out of 17 have $f_D > 2$, a low value compared to other studies of IRDC clumps and low-mass pre-stellar cores. Pillai et al. (2007) found depletion factor in the range of 2–12 for protoclusters and IRDC clumps. Low-mass pre-stellar cores have similar values: f_D = 2–14 (e.g., Bacmann et al. 2002). Our f_D's increase if we use a standard abundance for $C^{18}O$ that depends on the Galactocentric distances of the clumps.

Are the APEX clumps in a phase prior to collapsing? Tafalla & Santiago (2004) claimed to report on the first low-mass starless core with no $C^{18}O$ depletion, just at the beginning of contraction. So our 24 μm-dark clumps, with low or no depletion, and the blue excess could also imply that our clumps are extremely young.

3.6.3 Comments on selected clumps

G32.67+0.51

Among the sources in the two samples, G32.67+0.51 has the narrowest line width (in N_2H^+, $\Delta V = 0.26$ km s^{-1}) similar to low-mass cores. The observed line width is close to the thermal line width, $\Delta v_{\rm ther} = \sqrt{8 \ln 2 k T_{\rm kin}/m_{\rm N_2H^+}}$, where $m_{\rm N_2H^+}$ is the mass of the N_2H^+ molecule. At $T = 15$ K, we obtain $\Delta v_{\rm ther} = 0.16$ km s^{-1}. This clump is also located relatively nearby at 0.7 kpc.

G37.08-0.15

This clump does not suffer from depletion (when taking the standard $C^{18}O$ abundance) and its spectrum shows an infall profile. This source shows no sign of star formation activity, and non-detection of NH_3 (2,2) and (3,3) transitions. The *left* panel of Fig. 3.14 shows the Galactic Ring Survey[7] (GRS; Jackson et al. 2006) ^{13}CO (1–0) integrated intensity map of the cloud in which the IRDC G37.08−0.15 clump is embedded, while the *right* panel shows the clump as observed in ATLASGAL at 870 μm.

The mass is estimated to be 228 $M_\odot$ with an effective radius of 0.4 pc from dust emission at 870 μm (and a resolution of 33″) and a virial mass ($M_{\rm vir}$) of ∼103 $M_\odot$. Therefore a virial parameter of 0.5 is obtained from $\alpha_{\rm vir} \equiv M_{\rm vir}/M_{\rm tot}$, which means this clump is dominated by gravity.

G37.08−0.15 is a good candidate for being in the pre-protocluster phase.

3.6.4 Are there massive pre-protocluster clumps?

The answer is probably yes, and G37.08−0.15 is our best candidate so far.

About 60 clumps were observed with 27 of them in the lower energy transitions with the IRAM 30m telescope (9 of them in the SiO (2–1) line). We found blue double-peaked profiles toward three sources with no sign of SiO emission. One of them, namely, G37.08-0.15, is IR-dark at 24 μm and physical and chemical properties set this clump in a very early evolutionary phase.

As we saw in Sect. 3.6.2, these IRDC clumps share characteristics of high-mass protostellar objects, and at the same time with those of low-mass starless cores.

[7]This chapter makes use of molecular line data from the Boston University-FCRAO Galactic Ring Survey (GRS). The GRS is a joint project of Boston University and Five College Radio Astronomy Observatory, funded by the National Science Foundation under grants AST-9800334, AST-0098562, AST-0100793, AST-0228993, & AST-0507657.

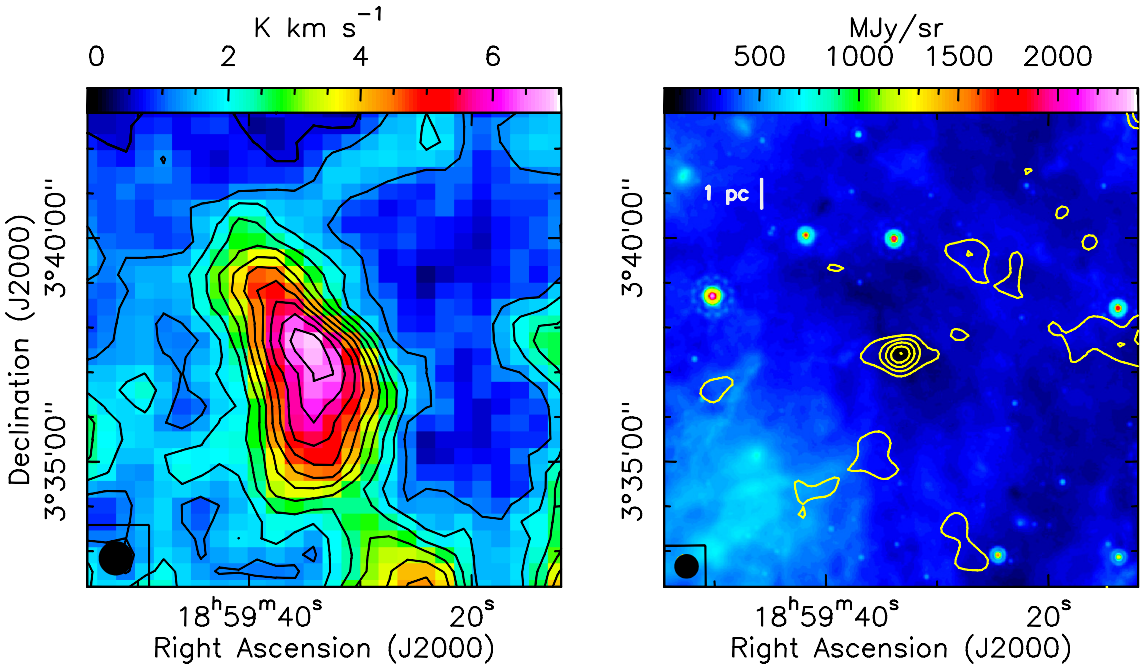

Figure 3.14. *Left*: Galactic Ring Survey (GRS; Jackson et al. 2006) ^{13}CO (1–0) integrated intensity image shown in color scale and contours for the IRDC clump G37.08−0.15 region. The emission was integrated in the range of 76–81 km s^{-1}. The angular resolution (*HPBW*=46″) is shown in the lower left corner. *Right*: ATLASGAL contour map at 870 μm overlaid on top of the *Spitzer*/MIPSGAL 24 μm image. First contour and contour spacing are 0.15 (3σ) and 0.10 Jy beam^{-1}, respectively. The angular resolution (*HPBW*=33″) is shown in the lower left corner.

3.7 Summary

With the aim of searching for clumps in the pre-protocluster phase, we have carried out molecular line observations toward high extinction IRDC clumps chosen from our 24 μm contrast catalog. We have observed 27 clumps with the IRAM 30m and/or the Effelsberg 100m telescopes in the N_2H^+ (1–0), HCO^+ (1–0), SiO (2–1), $H^{13}CO^+$ (1–0), NH_3 (1,1) to (3,3), and the water maser (6_{16} – 5_{23}) transition and 30 clumps with the APEX 12m telescope in SiO (5–4), $C^{18}O$ (2–1), ^{13}CO (2–1), HCN (3–2), and HCO^+ (3–2).

We find higher detection rates in lower energy transitions observed with the IRAM 30m than in the higher energy transitions with the APEX 12m telescope: for HCO^+ (1–0) and (3–2) is 88% versus 60% and for SiO (2–1) and (5–4) is 33% versus non-detections. The non-detection of SiO (5–4) suggests no stellar activity such as outflows. The detection rate of water maser emission has been found to be 5%, which points to the very early phases of evolution of these clumps. The NH_3 study shows low temperatures in the range of 9–18 K.

A correlation in the IRAM 30m/Effelsberg 100m sample and an anti-correlation in the APEX 12m sample of peak contrasts with NH_3 and $C^{18}O$ column densities, respectively, have been found. Comparisons of IRDC fractional abundances with other studies have shown that our clumps share chemical characteristics of low-mass pre-stellar cores and protostellar objects and at the same time with high-mass protostellar objects. On average,

our clumps do not suffer from depletion implying that they are extremely young, in a phase probably prior to contraction.

From the combined study of optically thin and thick molecular lines, three sources have shown the profile expected from infall motions. Computed infall velocities have been found to be higher than those obtained toward low-mass sites and IRAS sources while estimated infall masses are higher than those toward low-mass sites but lower than those in IRAS sources.

All the observational evidence we have presented for the IRDC clump G37.08−0.15 points to it as a promising candidate for being in the pre-protocluster phase.

Table 3.7. N_2H^+ (1–0) parameters of IRDC clumps from HFS fits.

IRDC name	$T_{\rm MB}$ (K)	ΔV (km s^{-1})	v$_{\rm LSR}$ (km s^{-1})	$\tau_{\rm tot}$	$T_{\rm ex}$ (K)	$N_{\rm N_2H^+}$ ($\times10^{13}$ cm^{-2})
G8.00−0.53	1.15(0.10)	1.24(0.09)	37.03(0.02)	2.98(0.93)	4.12(0.21)	0.76(0.25)
G8.25+0.18	1.09(0.10)	1.45(0.09)	19.15(0.02)	2.22(0.75)	4.24(0.29)	0.69(0.25)
G8.41−0.30	3.84(0.12)	2.63(0.01)	36.96(0.01)	0.28(0.01)	3.2–9.4	1.03(0.01)–5.34(0.03)
G8.69−0.40	2.37(0.11)	2.35(0.04)	38.84(0.01)	1.87(0.22)	6.36(0.30)	1.83(0.27)
G9.82−0.75	(0.09)					
G10.62−0.42	3.74(0.21)	2.06(0.04)	−3.22(0.02)	0.10(0.52)	3.2–9.4	0.68(0.01)–3.49(0.03)
G10.99−0.08	1.98(0.15)	2.33(0.04)	29.45(0.02)	3.64(0.32)	4.98(0.18)	2.35(0.25)
G11.59−0.39	0.36(0.06)	2.06(0.27)	30.00(0.10)	0.10(0.43)	3.2–9.4	0.05(0.01)–0.27(0.02)
G13.75−0.17	0.06(0.12)	0.54(0.05)	17.63(0.02)	6.69(2.77)	2.77(0.12)	0.41(0.18)
G14.34−0.50	1.18(0.14)	0.62(0.03)	19.08(0.01)	4.91(1.55)	3.96(0.16)	0.59(0.19)
G14.49−0.14	3.05(0.14)	3.10(0.03)	40.46(0.01)	2.88(0.14)	5.97(0.27)	3.34(0.30)
G14.57−0.78	0.68(0.09)	0.81(0.08)	20.26(0.03)	2.32(1.83)	3.2–9.4	0.10(0.01)–0.54(0.02)
G15.72−0.60	1.74(0.10)	1.65(0.05)	17.53(0.01)	0.27(0.29)	3.2–9.4	0.35(0.01)–1.80(0.03)
G18.61−0.07	4.71(0.17)	2.47(0.03)	45.62(0.01)	2.20(0.18)	9.37(0.37)	4.44(0.49)
G18.84−0.38	1.28(0.10)	3.34(0.06)	61.69(0.03)	2.54(0.29)	4.39(0.15)	1.92(0.25)
G18.85−0.09	0.72(0.06)	1.42(0.12)	46.05(0.03)	0.17(2.76)	3.2–9.4	0.13(0.01)–0.67(0.02)
G19.40−0.08	0.46(0.11)	0.44(0.03)	28.83(0.01)	14.81(4.64)	3.16(0.11)	0.90(0.29)
G22.01+0.36	0.33(0.06)	0.87(0.10)	49.89(0.04)	1.84(2.22)	3.2–9.4	0.06(0.01)–0.32(0.02)
G22.08+0.21	0.54(0.08)	0.88(0.06)	52.34(0.03)	9.61(2.19)	3.24(0.08)	1.20(0.29)
G22.31−0.63	0.59(0.08)	2.44(0.11)	49.32(0.05)	5.31(1.00)	3.32(0.09)	1.92(0.38)
G25.08+0.20	0.41(0.09)	0.64(0.06)	40.56(0.03)	6.45(2.75)	3.12(0.10)	0.56(0.24)
G28.37+0.12	0.82(0.08)	1.72(0.09)	81.45(0.03)	7.55(1.14)	3.54(0.08)	2.11(0.34)
G29.10−0.61	0.71(0.09)	0.81(0.06)	47.34(0.02)	3.31(1.55)	3.55(0.17)	0.44(0.21)
G32.67+0.51	1.01(0.06)	0.26(0.01)	9.06(0.00)	9.36(0.51)	3.72(0.06)	0.43(0.03)
G37.08−0.15	0.55(0.08)	0.89(0.09)	78.04(0.03)	4.52(1.63)	3.30(0.10)	0.59(0.22)

Notes. The $T_{\rm MB}$ is obtained from Gaussian fits. For non-detections, the values given in parentheses represent the spectra 1σ noise level. For optically thin cases, the lower and upper limits of $N_{\rm N_2H^+}$ are estimated at $T_{\rm ex}$ = 3.2 K and 9.4 K.

Table 3.8. Derived $H^{13}CO^+$ (1–0) and SiO (2–1) parameters from Gaussian fits.

	$H^{13}CO^+$ (1–0)			SiO (2–1)		
IRDC name	$T_{\rm MB}$ (K)	ΔV (km s^{-1})	v$_{\rm LSR}$ (km s^{-1})	$T_{\rm MB}$ (K)	ΔV (km s^{-1})	v$_{\rm LSR}$ (km s^{-1})
G8.00−0.53	0.52(0.09)	1.40(0.09)	37.07(0.04)	(0.06)		
G8.41−0.30	0.93(0.06)	2.93(0.10)	36.80(0.04)	0.30(0.06)	3.53(0.22)	36.94(0.09)
G8.69−0.40	0.75(0.09)	2.53(0.14)	38.76(0.06)	(0.10)		
G10.62−0.42	0.58(0.06)	1.55(0.10)	−1.63(0.04)	(0.06)		
G13.75−0.17	0.64(0.03)	0.68(0.05)	17.65(0.02)	(0.05)		
G14.49−0.14	0.60(0.06)	3.54(0.12)	39.89(0.05)	0.28(0.04)	4.66(0.28)	39.26(0.12)
G18.61−0.07	1.22(0.07)	2.67(0.05)	45.60(0.02)	0.50(0.06)	6.13(0.18)	44.60(0.07)
G18.84−0.38	0.49(0.06)	3.36(0.14)	61.68(0.06)	(0.05)		
G37.08−0.15	(0.14)			(0.48)		

Notes. For non-detections, the values given in parentheses represent the spectra 1σ noise level.

Table 3.9. Determination of line asymmetries in HCO^+ (1–0).

IRDC name	$T_{\rm MB,n}$ (K)	$v_{\rm LSR,n}$ ($\rm km\,s^{-1}$)	$T_{\rm MB,b}$ (K)	$v_{\rm LSR,b}$ ($\rm km\,s^{-1}$)	$T_{\rm MB,r}$ (K)	$v_{\rm LSR,r}$ ($\rm km\,s^{-1}$)	$\frac{T_{\rm MB,b}}{T_{\rm MB,r}}$	δv ($\rm km\,s^{-1}$)
G8.00−0.53			1.54(0.08)	36.33(0.03)	1.87(0.08)	37.71(0.03)	0.82(0.06)	0.55(0.05)
G8.25+0.18					0.55(0.08)	20.70(0.06)		1.07(0.08)
G8.41-0.30			3.83(0.09)	36.17(0.01)	3.19(0.09)	38.04(0.01)	1.20(0.04)	-0.30(0.01)
G8.69−0.40	2.53(0.15)	38.70(0.02)						−0.06(0.01)
G9.82−0.75	0.70(0.08)	26.32(0.07)						
G10.62−0.42	1.84(0.20)	−1.45(0.02)						0.86(0.02)
G10.99−0.08			0.57(0.10)	27.17(0.06)	0.59(0.10)	29.88(0.04)	0.96(0.23)	0.18(0.02)
G11.59−0.39			0.43(0.07)	28.00(0.06)				−0.97(0.14)
G13.75−0.17	1.31(0.10)	17.50(0.03)						−0.24(0.07)
G14.34−0.50			0.37(0.02)	18.12(0.09)	0.25(0.02)	20.34(0.12)	1.45(0.16)	−1.55(0.17)
G14.49−0.14			0.27(0.19)	34.91(0.14)	2.50(0.19)	41.94(0.01)	0.11(0.08)	0.48(0.01)
G14.57−0.78	0.39(0.04)	20.42(0.06)						0.20(0.09)
G15.72−0.60	6.19(0.15)	17.06(0.00)						−0.28(0.01)
G18.61−0.07			4.44(0.23)	44.54(0.01)	0.81(0.23)	49.10(0.08)	5.45(1.60)	−0.44(0.01)
G18.84−0.38			1.56(0.09)	59.99(0.05)	0.64(0.09)	63.30(0.13)	2.42(0.36)	−0.51(0.02)
G18.85−0.09	0.99(0.12)	46.04(0.04)						−0.01(0.03)
G19.24+0.07								
G19.40−0.08					0.34(0.06)	29.43(0.06)		1.36(0.18)
G22.01+0.36	(0.09)							
G22.08+0.21	0.54(0.06)	53.42(0.04)						1.24(0.11)
G22.31−0.63	(0.08)							
G25.08+0.20					0.35(0.10)	40.93(0.10)		0.58(0.17)
G28.37+0.12			0.16(0.09)	78.35(0.49)	0.88(0.09)	83.63(0.03)	0.18(0.10)	1.27(0.07)
G29.10−0.61	0.92(0.09)	47.65(0.03)						0.38(0.06)
G32.67+0.51	(0.07)							
G37.08−0.15			1.04(0.05)	77.49(0.04)	0.65(0.05)	79.06(0.05)	1.60(0.14)	−0.63(0.08)

Notes. For non-detections, the values given in parentheses represent the 1σ noise level. 'n' stands for neither, 'b' for blue and 'r' for red asymmetries. G9.82−0.75 has no detected emission of N_2H^+ nor NH_3. G19.24+0.07 has a complex sptecrum.

Table 3.10. Observed ammonia parameters. NH_3 (1,1) from HFS fits. NH_3 (2,2) and (3,3) from Gaussian fits.

	NH_3 (1,1)				NH_3 (2,2)		NH_3 (3,3)	
IRDC name	T_{MB} (K)	ΔV ($km\,s^{-1}$)	v_{LSR} ($km\,s^{-1}$)	τ_m	T_{MB} (K)	ΔV ($km\,s^{-1}$)	T_{MB} (K)	ΔV ($km\,s^{-1}$)
G8.00−0.53	1.36(0.26)	0.93(0.07)	37.05(0.03)	1.57(0.40)	0.41(0.12)	1.19(0.29)	(0.09)	
G8.25+0.18	1.30(0.17)	1.20(0.05)	19.04(0.02)	2.30(0.32)	0.45(0.10)	0.88(0.17)	(0.10)	
G8.41−0.30	3.26(0.23)	1.65(0.04)	36.94(0.02)	2.20(0.17)	1.78(0.12)	2.07(0.10)	0.60(0.09)	2.43(0.20)
G8.69−0.40	2.23(0.14)	1.78(0.04)	38.75(0.02)	3.28(0.19)	0.98(0.10)	2.05(0.12)	(0.10)	
G9.82−0.75	(0.10)				(0.09)		-	-
G10.62−0.42	2.26(0.15)	1.08(0.03)	−1.64(0.01)	3.66(0.22)	1.16(0.11)	1.57(0.09)	(0.09)	
G10.99−0.08	2.87(0.12)	1.82(0.02)	29.38(0.01)	3.89(0.15)	1.09(0.10)	2.30(0.10)	(0.11)	
G11.59−0.39	(0.09)				(0.09)		(0.09)	
G12.73−0.60	2.60(0.27)	0.51(0.02)	6.33(0.01)	2.36(0.26)	(0.09)		(0.11)	
G13.75−0.17	0.94(0.09)	0.95(0.10)	17.56(0.04)	0.10(0.09)	0.31(0.09)	0.47(0.23)	(0.09)	
G14.34−0.50	1.52(0.22)	0.68(0.04)	19.14(0.02)	2.72(0.39)	0.34(0.09)	0.90(0.49)	-	-
G14.49−0.14	2.84(0.08)	2.66(0.02)	39.62(0.01)	3.85(0.09)	1.57(0.12)	3.51(0.12)	0.70(0.12)	4.01(0.20)
G14.57−0.78	1.43(0.18)	1.00(0.05)	20.31(0.02)	1.91(0.28)	0.39(0.10)	0.75(0.17)	(0.08)	
G15.72−0.60	1.46(0.15)	1.49(0.05)	17.58(0.02)	1.18(0.19)	0.44(0.09)	2.07(0.23)	(0.09)	
G18.61−0.07	2.91(0.13)	2.12(0.03)	45.66(0.01)	2.61(0.12)	1.64(0.11)	2.43(0.08)	0.56(0.09)	2.48(0.30)
G18.84−0.38	1.13(0.12)	2.49(0.09)	61.62(0.04)	0.68(0.18)	0.48(0.09)	4.06(0.34)	(0.14)	
G18.85−0.09	0.55(0.16)	1.02(0.13)	45.82(0.05)	2.52(0.77)	0.31(0.09)	0.98(0.22)	(0.08)	
G19.24+0.07					(0.08)		(0.19)	
G19.40−0.08	0.59(0.25)	0.68(0.10)	28.76(0.04)	1.64(0.92)	(0.09)		(0.16)	
G22.01+0.36	0.39(0.22)	0.79(0.17)	49.92(0.06)	1.63(1.20)	(0.10)		(0.06)	
G22.08+0.21	0.77(0.20)	0.95(0.10)	52.37(0.04)	1.33(0.52)	0.29(0.09)	0.64(0.15)	(0.08)	
G22.31−0.63	1.05(0.13)	2.61(0.14)	49.30(0.05)	1.89(0.28)	0.25(0.09)	2.26(0.41)	(0.07)	
G25.08+0.20	0.49(0.18)	0.64(0.09)	40.49(0.04)	3.37(1.11)	(0.09)		(0.09)	
G28.37+0.12	1.31(0.13)	1.33(0.04)	81.59(0.02)	2.94(0.28)	0.43(0.08)	1.69(0.22)	(0.08)	
G29.10−0.61	0.69(0.12)	1.10(0.06)	47.35(0.03)	3.37(0.54)	0.25(0.08)	0.45(1.88)	(0.06)	
G32.67+0.51					(0.08)		(0.09)	
G37.08−0.15	0.66(0.19)	1.22(0.14)	78.10(0.05)	1.74(0.64)	(0.11)		(0.06)	

Table 3.11. NH_3 temperatures and total colum densities, N_{NH_3}, and water masers results.

IRDC name	T_{ex} (K)	T_{rot} (K)	T_{kin} (K)	N_{NH_3} ($\times 10^{14}$ cm^{-2})	Water Maser[a]
G8.00−0.53	4.42(0.37)	13.78(2.22)	15.26(3.93)	5.27(1.59)	N
G8.25+0.18	4.14(0.19)	13.49(1.55)	14.88(2.72)	9.50(1.68)	N
G8.41−0.30	6.37(0.27)	16.86(1.16)	19.66(2.31)	16.10(1.63)	N
G8.69−0.40	5.02(0.14)	13.61(0.77)	15.04(1.35)	24.07(1.89)	N
G9.82−0.75					N
G10.62−0.42	5.02(0.16)	14.18(0.86)	15.81(1.54)	15.71(1.31)	N
G10.99−0.08	5.63(0.13)	12.25(0.49)	13.26(0.82)	36.74(1.94)	Y
G11.59−0.39					N
G12.73−0.60	5.57(0.31)	<8.63	<8.92	<11.35	N
G13.75−0.17	12.61(8.16)	17.23(6.74)	20.22(13.54)	0.82(0.76)	N
G14.34−0.50	4.33(0.24)	11.20(1.13)	11.94(1.83)	8.40(1.49)	-
G14.49−0.14	5.60(0.08)	14.51(0.64)	16.26(1.17)	44.39(2.05)	-
G14.57−0.78	4.38(0.22)	12.84(1.41)	14.02(2.42)	7.34(1.33)	N
G15.72−0.60	4.81(0.28)	14.34(1.54)	16.02(2.77)	6.61(1.28)	-
G18.61−0.07	5.84(0.14)	16.43(0.87)	19.01(1.71)	22.80(1.53)	-
G18.84−0.38	5.00(0.49)	17.89(3.08)	21.26(6.36)	5.67(1.75)	N
G18.85−0.09	3.30(0.18)	16.54(4.68)	19.18(9.16)	5.96(2.47)	N
G19.40−0.08	3.44(0.35)	<13.80	<15.29	<3.11	-
G22.01+0.36	3.19(0.30)	<16.97	<19.83	<2.87	-
G22.08+0.21	3.75(0.33)	15.53(3.80)	17.69(7.17)	3.46(1.58)	N
G22.31−0.63	3.94(0.17)	12.19(1.60)	13.18(2.69)	18.16(3.56)	-
G25.08+0.20	3.21(0.18)	<12.41	<13.46	<6.31	N
G28.37+0.12	4.08(0.14)	12.50(1.07)	13.57(1.82)	14.46(1.81)	N
G29.10−0.61	3.41(0.12)	12.53(1.80)	13.61(3.05)	11.39(2.42)	N
G32.67+0.51					N
G37.08−0.15	3.50(0.26)	<14.03	<15.60	<5.96	N

Notes. The upper limits for T_{rot}, T_{kin}, and N_{NH_3} are obtained with the 2σ of the NH_3 (2,2) line as intensity.

[a]'Y' stands for detection and 'N' for non-detection. The rest of the sources were not observed.

Table 3.12. Parameters of the $C^{18}O$ (2–1) and ^{13}CO (2–1) lines and derived optical depths.

IRDC name	$C^{18}O$ (2–1)			^{13}CO (2–1)			
	T_{MB} (K)	ΔV ($km\,s^{-1}$)	v_{LSR} ($km\,s^{-1}$)	T_{MB} (K)	ΔV ($km\,s^{-1}$)	v_{LSR} ($km\,s^{-1}$)	τ_{18}
G335.61−0.18[a]							
G335.80−0.35	0.74(0.18)	1.85(0.14)	−38.34(0.05)	1.97(0.10)	1.04(0.08)	−39.68(0.03)	
				0.66(0.10)	1.95(0.31)	−37.54(0.11)	
G335.96−0.30	0.99(0.08)	1.43(0.08)	−38.42(0.03)	2.35(0.18)	2.15(0.05)	−38.70(0.02)	0.53
G337.18−0.40	0.71(0.13)	2.13(0.13)	−41.50(0.06)	3.83(0.32)	2.71(0.22)	−41.35(0.10)	0.10
G338.68+0.17	1.69(0.12)	1.32(0.05)	−46.65(0.02)	3.55(0.19)	2.15(0.08)	−46.60(0.04)	0.64
G337.90−0.56	1.14(0.08)	1.38(0.08)	−41.17(0.02)	4.20(0.33)	4.17(0.03)	−40.60(0.02)	0.26
G338.09−0.45	0.37(0.11)	2.01(0.32)	−38.32(0.11)	0.84(0.14)	4.12(0.23)	−38.04(0.11)	0.57
G338.11−0.47	0.67(0.12)	0.94(0.11)	−117.00(0.04)	1.73(0.12)	1.43(0.10)	−117.10(0.04)	0.47
G338.11−0.47A	0.65(0.12)	1.52(0.15)	−38.26(0.06)	1.33(0.25)	2.57(0.19)	−38.62(0.08)	0.66
G338.73−0.47B	0.55(0.09)	1.37(0.18)	−39.44(0.07)	1.85(0.21)	3.63(0.21)	−38.52(0.09)	0.31
G339.26−0.37	1.78(0.10)	1.71(0.04)	−38.47(0.02)	4.66(0.19)	2.72(0.05)	−38.83(0.02)	0.46
G339.26−0.41	1.59(0.17)	2.24(0.05)	−38.85(0.02)	4.35(0.34)	3.44(0.02)	−39.17(0.01)	0.43
G340.38−0.28	0.79(0.12)	2.09(0.11)	−47.09(0.05)	3.47(0.18)	3.55(0.21)	−47.22(0.09)	0.18
G340.10−0.82	1.29(0.07)	1.99(0.06)	−30.72(0.02)	1.83(0.16)	1.38(0.07)	−31.70(0.03)	
				1.16(0.16)	1.54(0.12)	−28.92(0.05)	
G340.09−0.84	1.29(0.19)	2.37(0.08)	−30.84(0.03)	2.52(0.24)	1.25(0.07)	−31.80(0.03)	
				2.05(0.24)	1.86(0.10)	−29.08(0.04)	
G348.38+0.54	1.67(0.09)	1.79(0.05)	−6.97(0.02)	6.04(0.88)	2.59(0.17)	−7.34(0.05)	0.27
G348.81−0.26	3.13(0.12)	1.22(0.02)	−30.46(0.01)	6.97(0.33)	1.79(0.01)	−30.55(0.00)	0.58
G348.98−0.71	1.33(0.11)	3.33(0.09)	−15.01(0.03)	5.09(0.37)	4.46(0.03)	−15.13(0.01)	0.25
G349.06−0.69	(0.08)			(0.07)			
G349.01−0.74	(0.08)			(0.07)			
G008.00−0.53	3.20(0.07)	1.25(0.02)	37.29(0.01)	8.63(0.28)	1.79(0.04)	37.47(0.02)	0.44
G012.73−0.60	1.29(0.11)	0.77(0.06)	6.52(0.02)	3.45(0.25)	1.79(0.10)	6.85(0.04)	0.45
G037.08−0.15	1.50(0.08)	1.57(0.05)	78.60(0.02)	5.13(0.26)	2.24(0.04)	78.82(0.02)	0.30

Notes. For non-detections, the values given in parentheses represent the spectra 1σ noise level. G338.11−0.47 has two components in the line of sight. τ_{18} indicates the $C^{18}O$ optical depth. Since G335.80−0.35, G340.10−0.82, and G340.09−0.84 show blue-skewed profiles, there is no determination of optical depths for these sources.

[a]Complex spectra even in the $C^{18}O$ line.

Table 3.13. Excitation temperatures, $T_{\rm ex}$, integrated intensities, $\int T_{\rm MB} dv$, and column densities derived from the $C^{18}O$ (2–1) line, $N_{\rm C^{18}O}$.

IRDC name	$\int T_{\rm MB}(C^{18}O)dv$ (K km s^{-1})	$\int T_{\rm MB}(^{13}CO)dv$ (K km s^{-1})	$T_{\rm ex}$ (K)	$N_{\rm C^{18}O}$ ($\times 10^{15}$ cm^{-2})
G335.96−0.30	1.50(0.07)	5.36(0.11)	6.48(0.22)	1.64(0.15)
G337.18−0.40	1.61(0.09)	11.03(0.77)	8.23(0.37)	1.25(0.13)
G338.68+0.17	2.37(0.08)	8.13(0.27)	7.91(0.22)	1.93(0.12)
G337.90−0.56	1.68(0.18)	18.67(0.13)	8.66(0.37)	1.24(0.17)
G338.09−0.45	0.79(0.10)	3.68(0.19)	4.41(0.22)	2.24(0.47)
G338.11−0.47A	0.68(0.06)	2.62(0.15)	5.68(0.16)	0.96(0.11)
G338.11−0.47B	1.05(0.08)	3.65(0.21)	5.14(0.35)	1.89(0.39)
G338.73−0.47	0.81(0.10)	7.13(0.34)	5.84(0.27)	1.08(0.18)
G339.26−0.37	3.23(0.07)	13.47(0.23)	9.17(0.21)	2.26(0.10)
G339.26−0.41	3.80(0.08)	15.93(0.08)	8.82(0.38)	2.76(0.22)
G340.38−0.28	1.75(0.08)	13.12(0.67)	7.82(0.21)	1.45(0.10)
G348.38+0.54	3.18(0.07)	16.63(0.77)	10.69(0.95)	1.98(0.29)
G348.81−0.26	4.06(0.06)	13.30(0.07)	11.69(0.35)	2.41(0.12)
G348.98−0.71	4.71(0.10)	24.14(0.12)	9.65(0.41)	3.16(0.24)
G8.00−0.53	4.26(0.06)	16.48(0.35)	13.45(0.29)	2.41(0.09)
G12.73−0.60	1.06(0.06)	6.56(0.29)	7.80(0.29)	0.88(0.08)
G37.08−0.15	2.51(0.06)	12.25(0.21)	9.69(0.29)	1.68(0.09)

Table 3.14. Determination of line asymmetries in HCO^+ (3–2).

IRDC name	$T_{\rm MB,n}$ (K)	$v_{\rm LSR,n}$ ($\rm km\,s^{-1}$)	$T_{\rm MB,b}$ (K)	$v_{\rm LSR,b}$ ($\rm km\,s^{-1}$)	$T_{\rm MB,r}$ (K)	$v_{\rm LSR,r}$ ($\rm km\,s^{-1}$)	$\frac{T_{\rm MB,b}}{T_{\rm MB,r}}$	δv ($\rm km\,s^{-1}$)
G332.18+0.59	0.64(0.12)	−39.03(0.07)						
G333.33+0.70	1.49(0.14)	−36.50(0.03)						
G333.64+0.38	0.42(0.18)	−35.53(0.12)						
G335.06−0.40	1.54(0.14)	−39.46(0.03)						
G337.18−0.40	0.52(0.14)	−41.15(0.11)						0.16(0.06)
G338.68+0.17	0.36(0.10)	−46.71(0.14)						−0.05(0.11)
G337.90−0.56	1.06(0.16)	−40.99(0.07)						0.13(0.05)
G338.09−0.45	0.37(0.11)	−38.15(0.15)						0.08(0.09)
G339.26−0.37	0.52(0.11)	−38.23(0.10)						0.14(0.06)
G339.26−0.41	0.38(0.12)	−39.18(0.14)						−0.15(0.06)
G339.90−0.39	0.63(0.12)	−38.10(0.05)						
G340.09−0.84			0.56(0.14)	−31.60(0.09)				−0.32(0.04)
G348.38+0.54	2.35(0.24)	−7.50(0.02)						−0.30(0.02)
G348.81−0.26			1.22(0.11)	−31.16(0.03)	0.94(0.11)	−29.99(0.04)	1.30(0.19)	−0.57(0.03)
G348.98−0.71	0.52(0.14)	−15.43(0.11)						−0.13(0.03)
G8.00−0.53	0.71(0.13)	37.17(0.08)						−0.10(0.06)
G12.73−0.60	1.52(0.33)	6.46(0.02)						−0.08(0.04)
G037.08−0.15	0.43(0.07)	78.09(0.13)						−0.32(0.09)

Notes. 'n' stands for neither, 'b' for blue and 'r' for red asymmetries. The spectrum of G37.08−0.15 was smoothed to a resolution of 0.28 $\rm km\,s^{-1}$.

Table 3.15. Abundances of N_2H^+, $X_{N_2H^+}$, and NH_3, X_{NH_3}.

IRDC name	N_{H_2} ($\times 10^{21}$ cm^{-2})	$X_{N_2H^+}$ ($\times 10^{-10}$)	X_{NH_3} ($\times 10^{-8}$)
G8.00−0.53	8.6	8.8	6.0
G8.25+0.18	14.2	4.8	6.6
G8.41−0.30	34.5	15.4	4.6
G8.69−0.40	33.1	5.5	7.2
G10.62−0.42	29.2	11.9	5.3
G10.99−0.08	50.2	4.7	7.3
G12.73−0.60	14.4	...[a]	7.8
G13.75−0.17	4.3	9.5	1.8
G14.34−0.50	17.9	3.3	4.6
G14.49−0.14	72.9	4.6	6.0
G14.57−0.78	15.5	3.5	4.7
G15.72−0.60	25.2	7.1	2.6
G18.61−0.07	30.8	14.3	7.3
G18.84−0.38	16.7	11.4	3.3
G18.85−0.09	6.8	9.8	8.6
G19.40−0.08	5.9	15.2	5.2
G22.01+0.36	5.1	6.2	5.5
G22.08+0.21	7.1	16.8	4.8
G22.31−0.63	16.7	11.4	10.8
G25.08+0.20	6.2	8.9	10.0
G28.37+0.12	17.5	12.0	8.2
G29.10−0.61	7.7	5.7	14.7
G37.08−0.15	7.2	8.1	8.1

Notes. For optically thin cases, upper limits on $N_{N_2H^+}$ were estimated with $T_{ex} = 3.2$ K.

[a]This source was not observed in the N_2H^+ line.

Table 3.16. Abundances of SiO (5-4), $X_{\mathrm{SiO(5-4)}}$, $C^{18}O$, $X_{C^{18}O}$, and derived depletion factors, f_D.

IRDC name	N_{H_2} ($\times 10^{21}$ cm^{-2})	$X_{\mathrm{SiO(5-4)}}$ ($\times 10^{-11}$)	$X_{C^{18}O}$ ($\times 10^{-7}$)	f_D[a]
G335.96−0.30	5.0	<5.5	3.2	0.5[1.6]
G337.18−0.40	15.5	<1.8	0.8	2.1[6.4]
G338.68+0.17	4.8	<5.7	3.9	0.4[1.3]
G337.90−0.56	20.5	<1.0	0.6	2.8[8.4]
G338.09−0.45	4.8	<6.6	4.6	0.4[1.1]
G338.11−0.47A	9.2	<3.4	1.0	1.6[4.9]
G338.11−0.47B	9.2	<3.4	2.0	0.8[2.5]
G338.73−0.47	7.3	<4.3	1.4	1.2[3.5]
G339.26−0.37	5.1	<4.6	4.3	0.4[1.2]
G339.26−0.41	2.7	<10.3	10.1	0.2[0.5]
G340.38−0.28	6.3	<3.8	2.2	0.7[2.2]
G348.38+0.54	13.1	<1.8	1.5	1.1[3.4]
G348.81−0.26	7.6	<3.1	3.1	0.5[1.6]
G348.98−0.71	2.9	<8.1	10.7	0.2[0.5]
G8.00−0.53	8.6	<3.2	2.7	0.6[1.8]
G12.73−0.60	14.4	<1.6	0.6	2.8[8.4]
G37.08−0.15	7.2	<3.2	2.3	0.7[2.2]

[a]Values in brackets represent depletion factors using abundance gradients (see Sect. 3.5.3).

4

Molecular line mapping of clumps in the IRDCs G11.11-0.11 and G28.34+0.06

4.1 Introduction

Unlike the case of more evolved stages of massive star formation, the chemical characteristics of the IRDCs, and especially high-mass clumps within them, have been barely studied.

The current chemical understanding of low-mass pre-stellar cores has been reviewed by di Francesco et al. (2007) and Bergin & Tafalla (2007). Very recently, Caselli (2011) showed a schematic representation of the chemical zones for a low-mass pre-stellar core (see their Fig. 1). The most interior region is predicted by chemical models and is known as the "complete depletion" zone (Walmsley et al. 2004) for a radius, r, of ≤ 0.005 pc. The next region is the "deuteration zone" for $0.005 < r \leq 0.02$ pc, where deuterated ammonia or N_2D^+ can be observed. In the "CO freeze-out zone" ($r \leq 0.03$ pc), a number of molecular species deplete from the gas phase in the very cold interiors of these simplest potentially star-forming regions (Tafalla et al. 2006; Aikawa et al. 2005). Tafalla et al. (2006, 2004) have found differentiation in starless cores, i.e., the central abundance for two Taurus-Auriga starless cores (L1498 and L1517B) drops for CO, CS, and CH_3OH while N_2H^+ and NH_3 are found to remain in the gas phase even at the highest densities and closely following the dust emission. The central abundance drops suggest that the former species freeze out onto the cold dust grains at the center of the two cores. Finally, the zone in which CS, HCO^+, among other high-density tracers are found, is called the "dark-cloud chemistry" zone ($0.03 < r \leq 0.07$ pc).

In order to search for possible chemical differentiation in high-mass clumps, and to study their similarities and differences compared to low-mass star formation, in this chapter, we present molecular line mapping toward three clumps within the IRDCs G11.11−0.11

and G28.34+0.06. Dust continuum peaks were identified in the IRDC G11.11-0.11 at 850 μm and 450 μm with the Submillimeter Common-User Bolometer Array (SCUBA) camera at the James Clerk Maxwell Telescope (Carey et al. 2000). Using ammonia observations of the $(J, K) = (1,1)$ and (2,2) inversion transitions with the Effelsberg 100m telescope, a gas temperature of 13 K for the IRDC clump G11.11-0.11P1 (hereafter G11.11P1) was found (Pillai et al. 2006a). Interferometric observations with the Very Large Array revealed the presence of methanol and water masers (Pillai et al. 2006b); the former clearly associated to massive star formation. In Chapter 6, we present an arcsecond resolution study toward this source showing that the methanol fractional abundance is enhanced due to the presence of an outflow (Gómez et al. 2011).

Preliminary observations of the IRDC G28.34+0.06 were done by Carey et al. (2000). Pillai et al. (2006a) reported kinetic temperatures of ∼16 K and ∼13 K for the IRDC clumps G28.34+0.06P2 (hereafter G28.34P2) and G28.34+0.06NH_3-P3 (hereafter G28.34 P3), respectively. G28.34P2 was observed with the Submillimeter Array (SMA) at 1.3mm continuum emission (Zhang et al. 2009) and was found to break up into two cores, each one associated to a 24 μm point source. Both G28.34P2 and G28.34P3 are associated to water maser emission (Wang et al. 2006).

Additionally, our clumps were targeted with the *Herschel* Space Observatory within the Guaranteed Time Key Program on water in star-forming regions (van Dishoeck et al. 2011). Therefore, this study represents important complementary work for the interpretation of *Herschel* water observations.

The three clumps seem to be in different early stages of star formation. G28.34P3 is possibly the youngest clump (still dark at 24 μm) compared to the other two. G11.11P1 remain single at a resolution of $\sim 6''$ while G28.34P2 shows already fragmentation in the SMA data.

In Sect. 4.2, we describe our observations carried out with the IRAM 30m and APEX 12m telescopes. The data reduction is presented in Sect. 4.3. In Sects. 4.4 and 4.5, we present our observational results and analysis, respectively. The discussion is presented in Sect. 4.6 and the summary is given in Sect. 4.7.

4.2 Observations

4.2.1 IRAM 30m: raster mapping

Observations of three clumps, one of them in the IRDC G11.11-0.11 (G11.11P1) and two in the IRDC G28.34+0.06 (G28.34P2 and G28.34P3), were performed with the IRAM 30m telescope on 2008 June 28-30 (see Table 4.1).

We selected molecular lines based on works toward starless cores (e.g., Tafalla et al. 2006); molecules that remain in the core centers, such as N_2H^+ (also a high-density tracer), and molecules that present a hole in the core centers like HC_3N, SO, and C_2S. The latter two molecules are the most sensitive tracers of molecular depletion (Tafalla et al. 2006). We also observed SiO as an outflow tracer.

Table 4.1. Pointing centers of observed IRDC clumps.

Clump name	Pointing center[a]		v_{LSR}	Distance[b]
	RA (J2000)	Dec (J2000)	($km\,s^{-1}$)	(kpc)
G11.11P1[c]	18:10:28.60	−19:22:31.0	29.2	3.6
G28.34P3	18:42:46.40	−04:04:12.0	80.2	4.8
G28.34P2	18:42:52.40	−03:59:54.0	78.5	4.8

[a]Units of right ascension are hours, minutes, and seconds and units of declination are degrees, arcminutes, and arcseconds.
[b]Kinematic distances from Carey et al. (2000).
[c]The pointing center is offset (4.″4, -0.″5) from the 1.2 mm continuum peak position (from interferometric observations).

Table 4.2. Molecular and observing parameters.

Molecule	Transition	Frequency[a] (MHz)	HPBW (″)	$B_{\rm eff}$	$F_{\rm eff}$	$\delta v_{\rm res}$ ($km\,s^{-1}$)
		IRAM 30m telescope				
HC_3N	9 – 8	81881.4677	29	0.78	0.95	0.143
SO	2_2 – 1_1	86093.9500	28	0.78	0.95	0.136
C_2S	7_6 – 6_5	86181.3910	28	0.78	0.95	0.136
$H^{13}CN$	1 – 0	86339.9215	28	0.78	0.95	0.136
$H^{13}CO^+$	1 – 0	86754.2884	28	0.78	0.95	0.135
SiO	2 – 1	86846.9600	28	0.78	0.95	0.135
$HN^{13}C$	1 – 0	87090.8252	28	0.78	0.95	0.135
C_2H	1 – 0	87316.8980	27	0.78	0.95	0.134
N_2H^+	1 – 0	93173.7642	26	0.75	0.95	0.126
$C^{34}S$	2 – 1	96412.9495	25	0.75	0.95	0.121
		APEX 12m telescope				
N_2H^+	3 – 2	279511.8379	22	0.73	0.95	0.122

[a]Rest frequencies from the CDMS as of February 2011, except for C_2S from JPL.

The observations were conducted in a raster mapping mode with the OFF positions are about 600″ offset from the source positions. Clumps were covered with 5×5 pointings, each one separated from the other by 12″, in order to have fully sampled maps. The mapped areas are about ∼40″. Three different setups using the A100/B100 receivers at 3mm allowed us to observe several lines simultaneously. We used the Versatile Spectrometer Assembly (VESPA) autocorrelator as the backend. System temperatures ranged between 168 and 323 K.

Table 4.2 lists the observed molecular lines as well as their frequencies, the half-power beam widths (HPBW), beam ($B_{\rm eff}$) and forward ($F_{\rm eff}$) efficiencies, and velocity resolutions ($\delta v_{\rm res}$). The largest HPBW of 29″ (for the HC_3N 9–8 line) corresponds to a size of 0.50 pc at the distance of G11.11P1 or to 0.67 pc for G28.34P2 and G28.34P3.

4.2.2 APEX 12m: single pointings

Single pointing observations of the N_2H^+ (3–2) line toward the clumps G11.11P1 and G28.34P2 were performed with the FFTS as backend at the APEX 12m telescope. G11.11P1 was observed on 2005 October 5 while G28.34P2 on 2006 March 29. Frequencies, HPBW, and beam and forward efficiencies are also listed in Table 4.2.

4.3 Data reduction

Reduction for all data was performed with the CLASS software part of the GILDAS package. For each spectrum, a polynomial of order 1 or 2 was fitted and subtracted. To convert from antenna temperatures (T_A^*) to main-beam temperatures ($T_{\rm MB}$) we used the beam and forward efficiencies listed in Table 4.2.

Maps of integrated intensity are constructed as

$$I(T_{\rm MB}) = \int_{v1}^{v2} T_{\rm MB} dv \,, \tag{4.1}$$

with the 1σ noise level determined as

$$\sigma = \sqrt{\Delta v_{\rm line} \cdot \delta v_{\rm res}}\ \sigma_{T_{\rm MB}} \,, \tag{4.2}$$

where $\Delta v_{\rm line}$ is the velocity interval ($= v_{v2} - v_{v1}$) that includes the line,
$\delta v_{\rm res}$ is the velocity resolution, and
$\sigma_{T_{\rm MB}}$ is the noise level of the spectrum.

Due to a problem of telescope pointing, the original pointing center, in G28.34P3, was shifted from the dust emission peak by $\sim 6''$ in Right Ascension and $\sim 10''$ in Declination. Since $H^{13}CO^+$, $HN^{13}C$, and N_2H^+ lines were observed simultaneously, the same shift correction was applied to these maps with respect to available Berkeley-Illinois-Maryland-Association (BIMA) N_2H^+ interferometric data (Pillai 2005, Dissertation).

4.4 Observational results

A summary of detected and non-detected molecular lines is presented in Table 4.3. LSR velocities for all lines are within the errors consistent with a single value. In general, line widths of G28.34P2 and P3 are broader than those of G11.11P1. One of the narrowest line widths, among the three clumps, corresponds to $HN^{13}C$ and the broadest to SiO.

Figures 4.1–4.3 show the integrated intensity maps for each of the three sources overlaid on the dust emission maps. In Fig. 4.1, we present maps of HC_3N (9–8), $H^{13}CO^+$ (1–0), $HN^{13}C$ (1–0), C_2H (1–0), and N_2H^+ (1–0) lines towards G11.11P1. Most of the lines are centrally peaked and follow the SCUBA dust emission. The exceptions are the $H^{13}CO^+$ and $HN^{13}C$ lines which peak to the south of the dust continuum peak.

Table 4.3. Summary of detected molecular lines and upper limits.

Molecular Line	IRDC clump		
	G11.11P1	G28.34P2	G28.34P3
HC_3N (9–8)	✓	✓	*c*
SO (2_2–1_1)	–	*c*	–
C_2S (7_6–6_5)	–	–	–
$H^{13}CN$ (1–0)	*c*	✓	*c*
$H^{13}CO^+$ (1–0)	✓	✓	✓
SiO (2–1)	*c*	✓	*c*
$HN^{13}C$ (1–0)	✓	✓	✓
C_2H (1–0)	✓	✓	*c*
N_2H^+ (1–0)	✓	✓	✓
$C^{34}S$ (2–1)	*c*	✓	*c*

Notes. The symbol "✓" means the line is detected and maps are shown in Figs. 4.1–4.3. "*c*" means the line is detected after down-weighted the spectra with a beam of 40″ and then averaging the 25 pointings. Non-detections are marked with "–".

G28.34P2 is in the proximity to the IRAS 18402-0403 source which is located to the south. We present maps of HC_3N (9–8), $H^{13}CN$ (1–0), $H^{13}CO^+$ (1–0), SiO (2–1), $HN^{13}C$ (1–0), C_2H (1–0), N_2H^+(1–0), and $C^{34}S$ (2–1) lines toward G28.34P2 in Fig. 4.2. Again, most of the lines peak at or very close to the central dust continuum peak, with the exceptions (probably) of SiO and $H^{13}CO^+$. The N_2H^+ emission, in general, follows that of dust.

In Fig. 4.3, we present maps of $H^{13}CO^+$ (1–0), $HN^{13}C$ (1–0), and N_2H^+ (1–0) lines toward G28.34P3. This source is the weakest in the dust continuum emission with a peak intensity of 0.65 Jy beam^{-1} (at 850 μm) compared to the other two clumps (5.64 Jy beam^{-1} for G28.34P2 and 1.34 Jy beam^{-1} for G11.11P1). N_2H^+ (1–0) peaks offset from the continuum peak. In general, molecular line intensities toward this clump are also weak.

For the rest of the lines that are too weak to give meaningful maps, we down-weighted the spectra with a beam of 40″. Then, the 25 pointings over each region were averaged to obtain a final spectrum with resolution of 40″. In this way, we detect $H^{13}CN$ (1–0), SiO (2–1), and $C^{34}S$ (2–1) toward G11.11P1; SO (2_2–1_1) toward G28.34P2; and HC_3N (9–8), $H^{13}CN$ (1–0), SiO (2–1), C_2H (1–0), and $C^{34}S$ (2–1) toward G28.34P3.

We did not detect the C_2S (7_6–6_5) line in any of the three clumps, nor the SO line in G11.11P1 and G28.34P3, even after down-weighting and averaging the data.

4.5 Analysis

4.5.1 Line parameters

In Table 4.4, we show the line parameters from Gaussian fits of the peak positions. When the line is barely detected, we averaged 25 pointings as described in Sect. 4.4 and provide

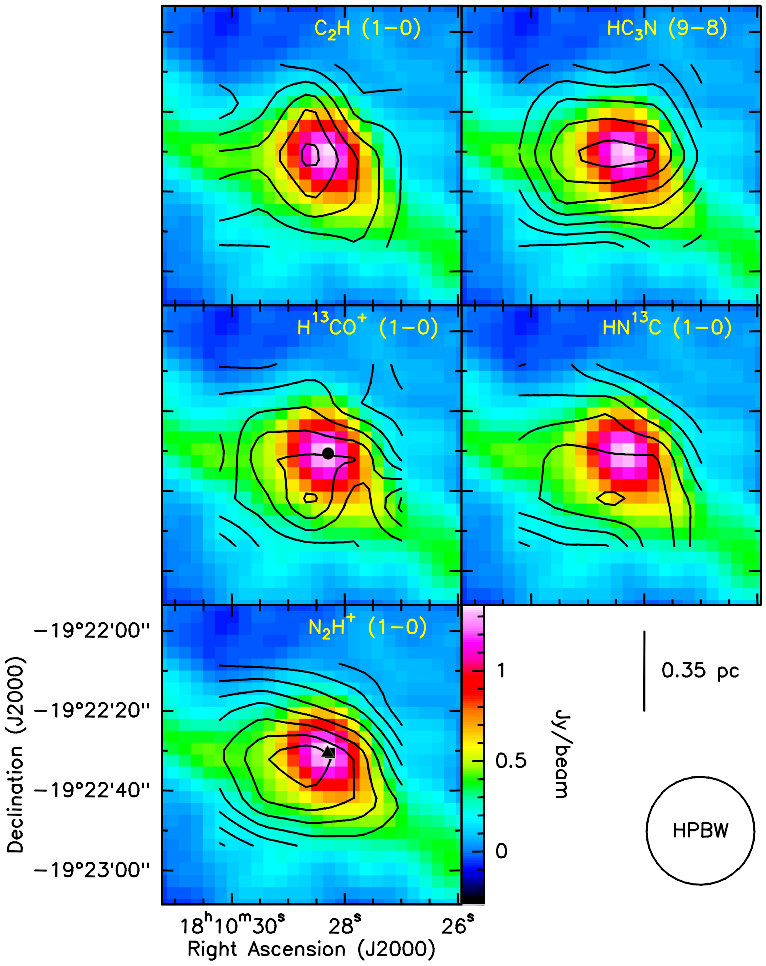

Figure 4.1. In color scale, the 850 μm continuum emission (Carey et al. 2000) of G11.11P1 is shown, and in contours integrated intensity maps of the following molecular lines: HC_3N (9–8), $H^{13}CN$ (1–0), $H^{13}CO^+$ (1–0), C_2H (1–0), and N_2H^+ (1–0) with 1σ noise level of 0.142, 0.142, 0.142, 0.118, and 0.278 K km s^{-1}, respectively. Contours start at 3σ in steps of 2σ, except for the N_2H^+ (1–0) whose contour spacing is 6σ. The filled triangle and square, in the N_2H^+ panel, represent the water and methanol masers, respectively, while in the $H^{13}CO^+$ panel, the filled circle marks the 1.2 mm continuum peak from interferometric observations from Chapter 6 (see also Gómez et al. 2011).

the line parameters of this final spectrum. For non-detections, we give the 3σ noise level as upper limits.

The hyperfine structure of the N_2H^+ (1–0) line was fitted using the "METHOD HFS" of the CLASS program. This program returns, among other parameters (see Sect. 3.5.1), the main line opacity ($\tau_{\rm m}$). We assume the relative intensities of 15 hyperfine components for the (1–0) transition retrieved from the Cologne Database for Molecular Spectroscopy (CDMS; Müller et al. 2001, 2005). The line-center velocity corresponds to that of the strongest hyperfine component at 93173.7642 MHz for N_2H^+ (1–0).

The HFS fitting shows that the N_2H^+ (1–0) line is optically thick: $\tau_{\rm tot}$ = 3.33±0.36, 4.37±0.40, and 1.39±0.29 for G11.11P1, G28.34P2, and G28.34P3, respectively. However,

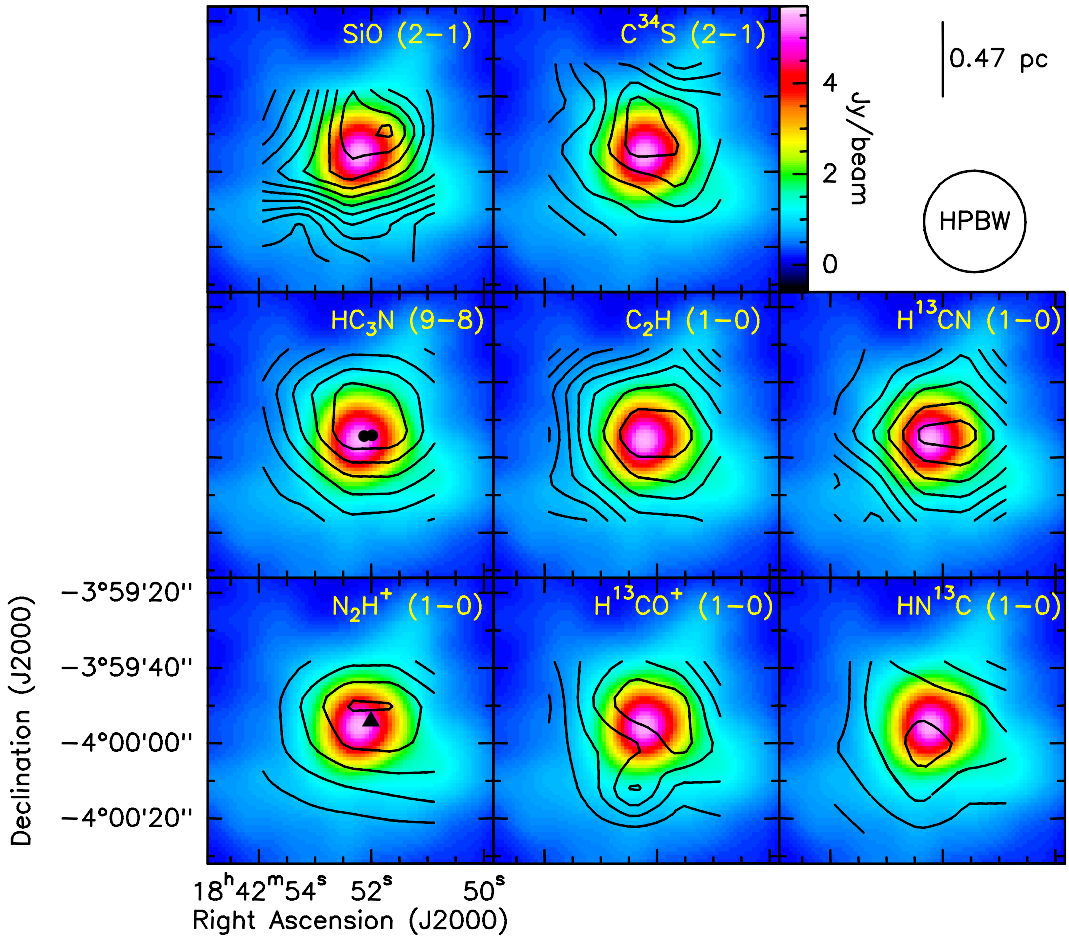

Figure 4.2. In color scale, the SCUBA 850 μm continuum emission (Carey et al. 2000) of G28.34P2 is shown and in contours integrated intensity maps of the following molecular lines: HC_3N (9–8), $H^{13}CN$ (1–0), $H^{13}CO^+$ (1–0), SiO (2–1), $HN^{13}C$ (1–0), C_2H (1–0), N_2H^+ (1–0), and $C^{34}S$ (2–1) with 1σ noise level of 0.159, 0.267, 0.171, 0.215, 0.147, 0.131, 0.245, and 0.210 K km s^{-1}, respectively. Contours start at 3σ in steps of 2σ, except for the HC_3N (9–8) and N_2H^+ (1–0) lines whose contour spacings are 6σ and 12σ, respectively. The filled triangle in the N_2H^+ panel represents the water maser emission (Wang et al. 2006), while in the HC_3N panel, the filled circles mark the 1.3 mm continuum peaks (Zhang et al. 2009).

the fit is not good for G28.34P2, as can be seen in Fig. 4.7.

4.5.2 Molecular column densities and abundances

Assuming all the lines, except N_2H^+, are optically thin, we estimate the total column density for each molecule, $N_{\rm mol}$, with:

$$N_{\rm mol} = \frac{3\ h\ W}{8\pi^3}\frac{1}{\mu^2 S}\frac{1}{J_\nu(T_{\rm ex}) - J_\nu(T_{\rm bg})}\frac{1}{1-e^{-h\nu/kT_{\rm ex}}}\frac{Q}{e^{-E_l/kT_{\rm ex}}}\ ,$$

Table 4.4. Parameters from Gaussian fits of molecular lines towards the peak positions.

Molecular line	$T_{\rm MB}$ (K)	ΔV (km s^{-1})	$v_{\rm LSR}$ (km s^{-1})	$\int T_{\rm MB} dV$ (K km s^{-1})
		G11.11P1		
HC_3N (9–8)	1.06(0.14)	1.99(0.12)	29.54(0.05)	2.24(0.11)
SO (2_2–1_1)	<0.56			
C_2S (7_6–6_5)	<0.52			
$H^{13}CN$ (1–0)*	0.23(0.04)	4.16(0.14)	29.55(0.14)	1.02(0.01)
$H^{13}CO^+$ (1–0)	1.03(0.15)	1.80(0.12)	29.51(0.54)	2.00(0.12)
SiO (2–1)*	0.10(0.04)	5.96(0.49)	29.31(0.19)	0.66(0.04)
$HN^{13}C$ (1–0)	0.80(0.14)	1.98(0.16)	29.70(0.62)	1.69(0.11)
C_2H ($1_{2,2}$–$0_{1,1}$)	0.59(0.12)	2.51(0.27)	29.57(0.88)	1.60(0.12)
N_2H^+ (1–0)	2.79(0.18)	2.15(0.06)	29.60(0.02)	9.40(0.13)
$C^{34}S$ (2–1)*	0.24(0.05)	2.41(0.23)	29.68(0.09)	0.61(0.05)
		G28.34P2		
HC_3N (9–8)	1.63(0.12)	3.61(0.09)	78.01(0.04)	6.26(0.14)
SO (2_2–1_1)*	0.22(0.04)	2.69(0.23)	78.38(0.08)	0.64(0.04)
C_2S (7_6–6_5)	<0.50			
$H^{13}CN$ (1–0)	0.62(0.17)	3.23(0.24)	77.50(0.13)	2.17(0.22)
$H^{13}CO^+$ (1–0)	0.83(0.15)	3.21(0.20)	77.95(0.09)	2.82(0.15)
SiO (2–1)	0.73(0.15)	6.93(0.36)	77.45(0.13)	5.39(0.21)
$HN^{13}C$ (1–0)	0.66(0.15)	2.81(0.20)	78.31(0.09)	1.97(0.13)
C_2H ($1_{2,2}$–$0_{1,1}$)	0.72(0.12)	3.36(0.26)	77.85(0.09)	2.57(0.15)
N_2H^+ (1–0)	3.07(0.26)	3.04(0.06)	77.70(0.02)	10.54(0.38)
$C^{34}S$ (2–1)	0.53(0.17)	5.38(0.54)	78.01(0.20)	3.08(0.25)
		G28.34P3		
HC_3N (9–8)*	0.24(0.03)	3.22(0.11)	79.51(0.05)	0.81(0.03)
SO (2_2–1_1)	<0.53			
C_2S (7_6–6_5)	<0.50			
$H^{13}CN$ (1–0)*	0.14(0.03)	2.83(0.14)	79.92(0.14)	0.43(0.01)
$H^{13}CO^+$ (1–0)	0.68(0.14)	2.72(0.17)	79.55(0.08)	1.99(0.12)
SiO (2–1)*	0.10(0.26)	6.68(0.56)	78.51(0.18)	0.70(0.04)
$HN^{13}C$ (1–0)	0.72(0.09)	2.41(0.18)	80.59(0.07)	1.84(0.11)
C_2H ($1_{2,2}$–$0_{1,1}$)*	0.28(0.03)	3.24(0.14)	79.65(0.06)	0.95(0.04)
N_2H^+ (1–0)	2.47(0.13)	3.42(0.13)	80.14(0.02)	9.00(0.14)
$C^{34}S$ (2–1)*	0.20(0.04)	3.81(0.31)	79.62(0.11)	0.80(0.05)

Notes. Line widths and LSR velocities of the N_2H^+ line come from the HFS fitting. For non-detections, the 3σ noise level are given as upper limits. $\int T_{\rm MB} dV$ for the N_2H^+ and $H^{13}CN$ lines include only the central main group of lines. "*" means the fit was done on the final averaged spectrum after down-weighted each of the 25 pointings with a resolution of 40″.

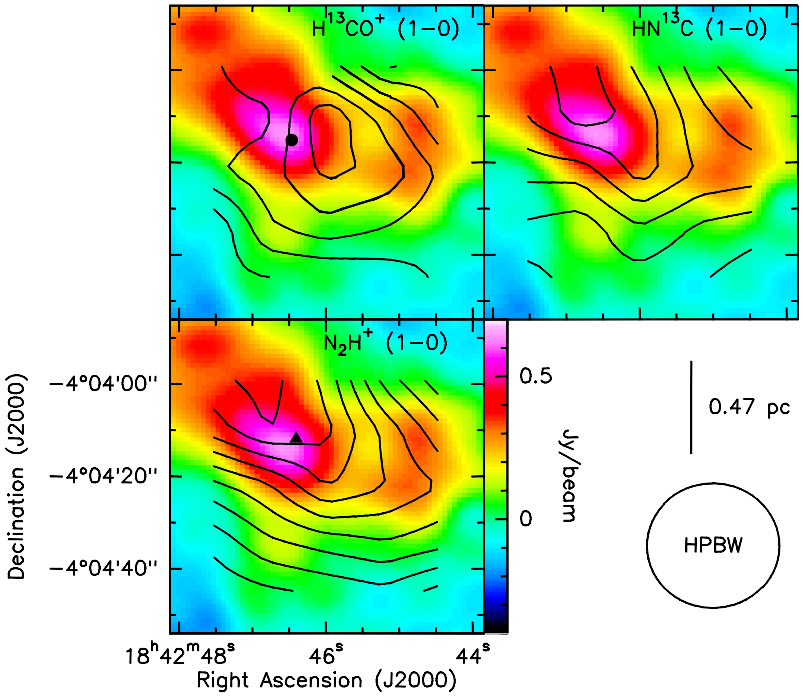

Figure 4.3. In color scale, the 850 μm continuum emission (Carey et al. 2000) of G28.34P3 is shown and in contours integrated intensity maps of the following molecular lines: $H^{13}CO^+$ (1–0), and $HN^{13}C$ (1–0), N_2H^+ (1–0) with 1σ noise level of 0.143, 0.135, and 0.242 K km s^{-1}, respectively. Contours start at 3σ in steps of 2σ, except for N_2H^+ (1–0) whose contour spacing is 6σ. The filled triangle, in the N_2H^+ panel, represent the water maser (Wang et al. 2006), while the filled circle in the $H^{13}CO^+$ panel marks the 1.3 mm continuum peak (Chen et al. 2010a).

where $W = \int T_{\rm MB} dV$ is the integrated intensity of the line,
Q is the partition function of each molecule,
E_l is the energy of the lower level.

The rest of the constants and parameters have the same meaning as for Sect. 3.5. We adopt $T_{\rm ex}$ as $T_{\rm kin}$ from NH_3 observations at a resolution of 40″ (Pillai et al. 2006a), i.e., 13 K for G11.11P1, 16 K for G28.34P2, and 13 K for G28.34P3.

The partition functions are estimated at a given $T_{\rm ex}$ from a fit to $Q = \alpha T_{\rm ex}^{\beta}$, where α and β are the best fit parameters (in the range of 10–300 K) of values given in the CDMS. Energy levels, $\mu^2 S$, and the interpolated partition functions used in the calculations are presented in Table 4.5.

From the HFS analysis, we find that the optically thin assumption is not valid for the N_2H^+ (1–0) line. Thus, in the optically thick case, we use Eq. 3.6:

$$N_{\rm N_2H^+} = 3.3 \times 10^{11} \frac{\tau_{\rm tot}\ \Delta V\ T_{\rm ex}}{1 - e^{-4.47/T_{\rm ex}}}\ .$$

If the assumption of optically thin regime were not true for other molecules, the estimates on column density should be taken as lower limits.

Table 4.5. Lower level energies, $\mu^2 S$, and partition functions.

Molecular Line	E_l/k (K)	$\mu^2 S$ (D^2)	Q
HC_3N (9–8)	15.71	125.32	$4.62T_{\rm ex}^{0.98}$
SO (2_2–1_1)	15.17	3.53	$1.35T_{\rm ex}^{1.14}$
C_2S (7_6–6_5)	19.19	49.13	$5.12T_{\rm ex}^{1.11}$
$H^{13}CN$ (1_2–0_1)	0.00	14.84	$1.53T_{\rm ex}^{0.99}$
$H^{13}CO^+$ (1–0)	0.00	15.21	$0.53T_{\rm ex}^{0.98}$
SiO (2–1)	2.08	19.19	$1.01T_{\rm ex}^{0.99}$
$HN^{13}C$ (1–0)	0.00	9.30	$0.53T_{\rm ex}^{0.98}$
C_2H (1–0)	0.00	0.99	$1.64T_{\rm ex}^{1.06}$
$C^{34}S$ (2–1)	2.31	7.66	$0.91T_{\rm ex}^{0.99}$

Notes. Lower level energies, $\mu^2 S$, and partition functions in the range of 10–300 K are taken from the CDMS (Müller et al. 2005).

In order to translate molecular column densities into fractional abundances, $X_{\rm mol} \equiv N_{\rm mol}/N_{\rm H_2}$, we have estimated the beam averaged column densities of H_2, $N_{\rm H_2}$, with Eq. 6.8:

$$N_{\rm H_2} = \frac{I_\nu^{\rm peak}\ R_{\rm gd}}{\kappa_\nu\ B_\nu(T_{\rm d})\ \Omega\ \mu_{\rm H_2}\ m_{\rm H}}\,.$$

We assume a gas-to-dust mass ratio of 100, and adopt a $\kappa_\nu = 1.95$ cm^2 g^{-1}, (interpolated to 870 μm from Table 1, Col. 9 of Ossenkopf & Henning 1994), for an MRN (Mathis et al. 1977) graphite-silicate grain mixture with thick ice mantles, at a gas density of 10^6 cm^{-3}. We adopt $T_{\rm d}$ as $T_{\rm kin}$ from observations of NH_3 (Pillai et al. 2006a), $\mu_{\rm H_2} = 2.8$ (Kauffmann et al. 2008) and the definition of $\Omega = (\pi\theta^2_{\rm HPBW})/(4{\rm ln}2)$ with $\theta_{\rm HPBW}$ as the half-power beam width. SCUBA maps at 850 μm were smoothed from the original resolution (14″) to the resolutions of the molecular transitions (25″–29″) leading to different $N_{\rm H_2}$ values for a given source in Table 4.6. For the down-weighted and averaged spectra, marked with "*" in Table 4.4, the SCUBA maps were actually smoothed to a resolution of 40″.

The estimated $N_{\rm mol}$ together with their $X_{\rm mol}$ are given in Table 4.6.

In Fig. 4.4, we plot the fractional abundances from other IRDC samples (including our N_2H^+ results from Chapter 3), high-mass protostellar objects (HMPOs), and low-mass pre-stellar and protostellar cores and they are discussed in Sects. 4.6.1–4.6.3.

In Fig. 4.5, we present ratios of several species normalized to the abundance of N_2H^+, $X_{\rm N_2H^+}$. We plot abundances ratios of carbon- and sulphur-bearing species which are believed to greatly suffer from depletion and nitrogen-bearing species which are less affected from it (Bergin & Tafalla 2007). The N_2H^+ is an important ion beacuse even though its abundance decreases as their parent molecules freeze-out, its major destroyer, CO, also disappears from the gas phase helping the abundance of N_2H^+ to increase. No tight relation of abundance ratios with clump "age" is found.

Table 4.6. Molecular column densities and fractional abundances of the molecular lines towards the peak positions.

IRDC clump	H_2 column density[a], N_{H_2}, in $\times10^{22}$ cm^{-2}									
G11.11P1	5.2	5.4	5.4	3.6	5.4	3.6	5.4	5.6	5.8	3.6
G28.34P2	14.4	10.0	14.9	14.9	14.9	14.9	14.9	15.5	16.2	16.8
G28.34P3	1.6	2.8	2.8	1.6	2.8	1.6	2.8	1.6	2.9	1.6
	Molecular column densities, N_{mol}, in cm^{-2}									
	HC_3N	SO	C_2S	$H^{13}CN$	$H^{13}CO^+$	SiO	$HN^{13}C$	C_2H	N_2H^+	$C^{34}S$
G11.11P1	1.1×10^{13}	$<3.9\times10^{13}$	$<1.3\times10^{13}$	4.0×10^{12}	2.5×10^{12}	1.5×10^{12}	3.5×10^{12}	1.2×10^{14}	2.7×10^{13}	3.0×10^{12}
G28.34P2	2.8×10^{13}	4.1×10^{13}	$<1.0\times10^{13}$	9.6×10^{12}	4.1×10^{12}	1.4×10^{13}	4.6×10^{12}	2.2×10^{14}	5.1×10^{13}	1.65×10^{13}
G28.34P3	4.0×10^{12}	$<3.6\times10^{13}$	$<1.2\times10^{13}$	1.7×10^{12}	2.6×10^{12}	1.6×10^{12}	3.8×10^{12}	7.1×10^{13}	2.5×10^{13}	4.0×10^{12}
	Fractional abundances, X_{mol}									
G11.11P1	2.2×10^{-10}	$<7.1\times10^{-10}$	$<2.3\times10^{-10}$	1.1×10^{-10}	4.6×10^{-11}	4.2×10^{-11}	6.4×10^{-11}	2.1×10^{-9}	4.6×10^{-10}	8.3×10^{-11}
G28.34P2	1.9×10^{-10}	4.1×10^{-10}	$<7.0\times10^{-11}$	6.5×10^{-11}	2.7×10^{-11}	9.1×10^{-11}	3.1×10^{-11}	1.4×10^{-9}	3.1×10^{-10}	9.8×10^{-11}
G28.34P3	2.5×10^{-10}	$<1.3\times10^{-9}$	$<4.2\times10^{-10}$	1.1×10^{-10}	9.2×10^{-11}	1.0×10^{-10}	1.4×10^{-10}	4.5×10^{-9}	8.0×10^{-10}	2.4×10^{-10}

Notes. [a] N_{H_2} are estimated at different angular resolutions of 25″–29″ and 40″.

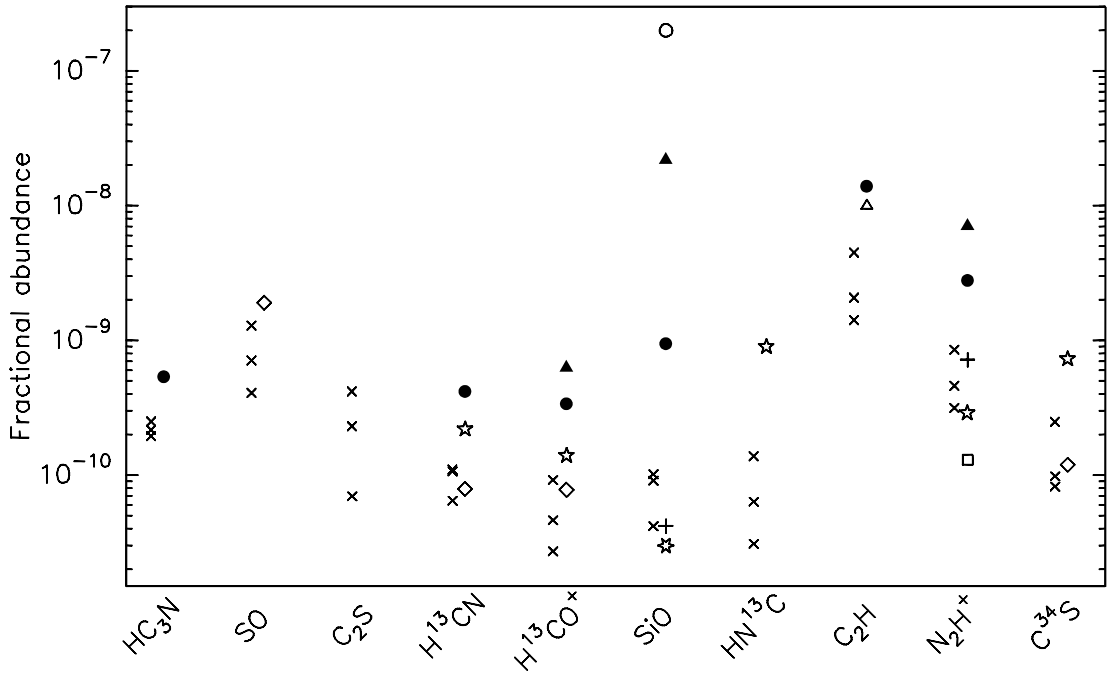

Figure 4.4. Fractional abundances of several species. Crosses indicate estimations from this work; the plus symbol represent mean N_2H^+ abundance from Chapter 3. Other symbols indicate mean abundances from other works toward IRDCs (filled symbols), high-mass protostellar objects (starred symbols), and low-mass pre-stellar and protostellar cores (open polygons). Filled triangles from Miettinen et al. (2011) and filled circles Vasyunina et al. (2011). Five-pointed stars from Zinchenko et al. (2009) and six-pointed star from Miettinen et al. (2006). Open squares from Tafalla et al. (2002), open diamonds from Jørgensen et al. (2002), open triangle from Padovani et al. (2009), and open circle from Gibb et al. (2004).

4.5.3 N_2H^+ line modeling

To further constrain the physical properties of two clumps (G11.11P1 and G28.34P2), we have run a non-LTE Monte Carlo 1D code treating N_2H^+ radiative transfer with line overlap between hyperfine components. This code was first developed by Bernes (1979) and then updated by Pagani et al. (2007).

The model considers a spherical, homogeneous region divided into 12 concentric shells. Therefore temperature and density profiles, respectively, $T \propto r^{-1.6}$ and $n \propto r^{-0.4}$, were assumed because with constant temperature and density, we were not able to reproduce with the same physical parameters both (1–0) and (3–2) line profiles. Initial guesses for the outer radius, $r_{\rm out}$, were adopted from the maps shown in Figs. 4.1 and 4.2. Initial densities were $3{\times}10^5$ cm^{-3} (for G11.11P1) and $4.5{\times}10^5$ cm^{-3} (for G28.34P2). We adopt $T_{\rm kin}$ from NH_3 observations, although we decreased the value for G28.34P2 by $\sim$1 K in order to match the observed ratio of line intensities. We use turbulent velocity contribution of 1.1 and 1.4 km s^{-1} for G11.1P1 and G28.34P2, respectively, since the line widths are broader than the expected thermal broadening, $\Delta v_{\rm ther} = \sqrt{8 \ln 2 k T_{\rm kin}/m_{\rm N_2H^+}}$. $\Delta v_{\rm ther} =$ 0.15 km s^{-1} for the N_2H^+ molecule and at a temperature of 15 K. $X_{\rm N_2H^+}$ was varied, and we found that abundances of $4{\times}10^{-10}$ (for G11.11P1) and $5.5{\times}10^{-10}$ (for G28.34P2) led

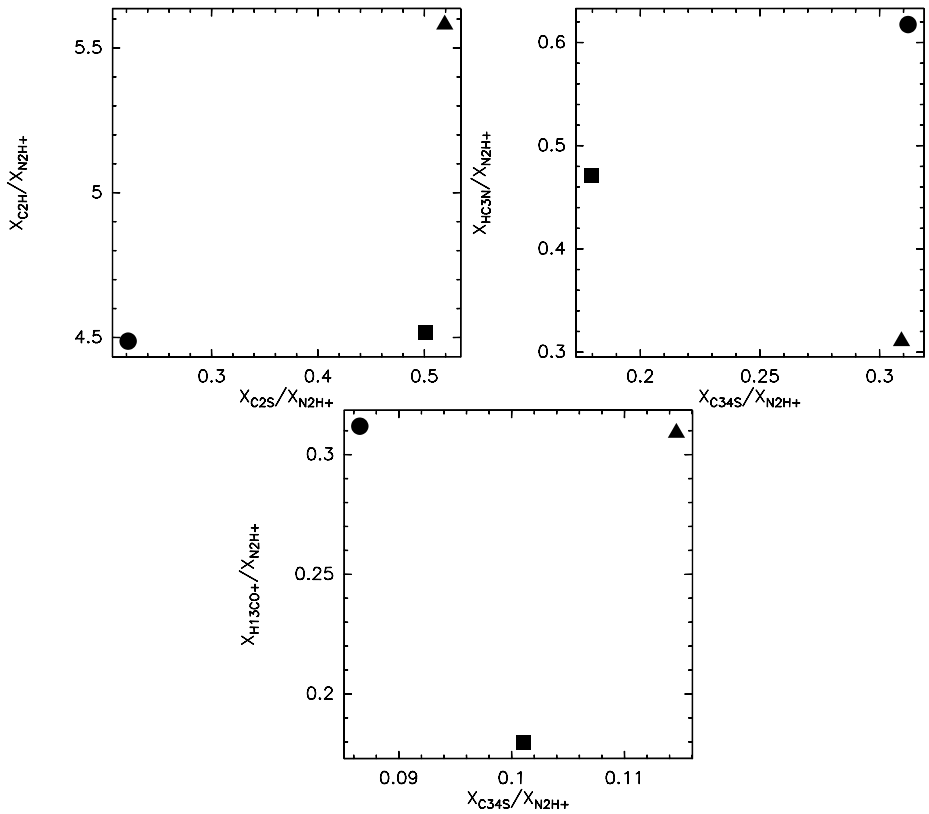

Figure 4.5. Ratios of different molecular species: $X_{\mathrm{C_2H}}/X_{\mathrm{N_2H^+}}$ versus $X_{\mathrm{C_2S}}/X_{\mathrm{N_2H^+}}$ (*top left*), $X_{\mathrm{HC_3N}}/X_{\mathrm{N_2H^+}}$ versus $X_{\mathrm{C^{34}S}}/X_{\mathrm{N_2H^+}}$ (*top right*), and $X_{\mathrm{H^{13}CO^+}}/X_{\mathrm{C^{34}S}}$ versus $X_{\mathrm{C^{34}S}}/X_{\mathrm{N_2H^+}}$ (*bottom*). The filled squares, circles, and triangles represent the ratios for G11.11P1, G28.34P2, and G28.34P3, respectively.

to the best fit. While we find basically the same abundance for G11.11P1 as reported in Table 4.6, the abundance toward G28.34P2 is about a factor of 2 higher than the value we obtained in the LTE analysis. We also added a velocity field with the polynomial form $v_{\mathrm{shell}} = a \cdot (\frac{r}{r_{\mathrm{in}}})^{-0.5} + b$, where a and b are constants. This velocity field increases the depth of the self-absorption in the line profiles, especially for G28.34P2 in the (3–2) transition. Parameters used in the Monte Carlo modeling are shown in Table 4.7.

In general, it is *easy* to obtain a "good" model with a variety of radii (r), densities, and temperatures that fits the (1–0) transition alone but this becomes harder when modeling both (1–0) and (3–2) transitions simultaneously.

In Figs. 4.6 and 4.7, we show the "best" models of N_2H^+ spectra at two different transitions (1–2) and (3–2) corresponding to the observed peak positions. The histograms represent the observed spectra, the blue dashed lines indicate the fit performed in CLASS with the "HFS" task, while the red lines show the output model of the Monte Carlo code. The synthetic model spectra were convolved with the corresponding size of the beam at each frequency and their line intensities were diminished by a factor that we refer to as "filling factor" in Table 4.7.

We obtain good agreement between the non-LTE code models and the observed line

Table 4.7. Parameters in the Monte Carlo modeling.

Parameter	G11.11P1	G28.34.P2
$r_{\rm in}$ (pc)	0.27	0.28
$r_{\rm out}$ (pc)	0.48	0.60
$\Delta v_{\rm turb}$ ($\rm km\,s^{-1}$)	1.10	1.40
$X_{\rm N_2H^+}$	4×10^{-10}	5.5×10^{-10}
$n_{\rm shell} = n_{\rm in}(\frac{r}{r_{\rm in}})^{-p}$	$n_{\rm in} = 3\times10^5$ cm^{-3}, $p = 1.6$	$n_{\rm in} = 4.5\times10^5$ cm^{-3}, $p = 1.6$
$T_{\rm shell} = T_{\rm kin}(\frac{r}{r_{\rm in}})^{-q}$	$T_{\rm kin} = 13$ K, $q = 0.4$	$T_{\rm kin} = 15$ K, $q = 0.4$
$v_{\rm shell} = a\cdot(\frac{r}{r_{\rm in}})^{-0.5} + b$	$a = 0.1$ km s^{-1}, $b = 0$	$a = 0.1$ km s^{-1}, $b = 0$
Filling factor	0.50	0.35

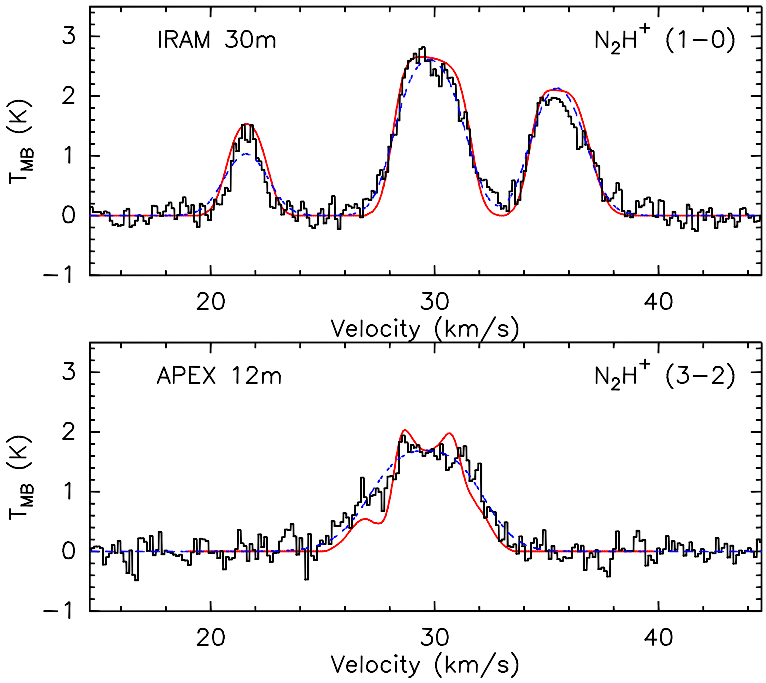

Figure 4.6. Observed spectra (black histograms) of the N_2H^+ (1–0) line (*top*) and N_2H^+ (3–2) line (*bottom*) the toward the peak position in G11.11P1. The blue dashed line indicates the fit performed in CLASS with the "HFS" task, while the red solid line shows the output model of the Monte Carlo code.

profiles. We could not find a model that fit the peak seen in the central main group of hyperfine components toward G28.34P2; we cannot rule out the possibility that the contribution comes from a second lower density source (Zhang et al. 2009) that would not contribute to the (3–2) emission.

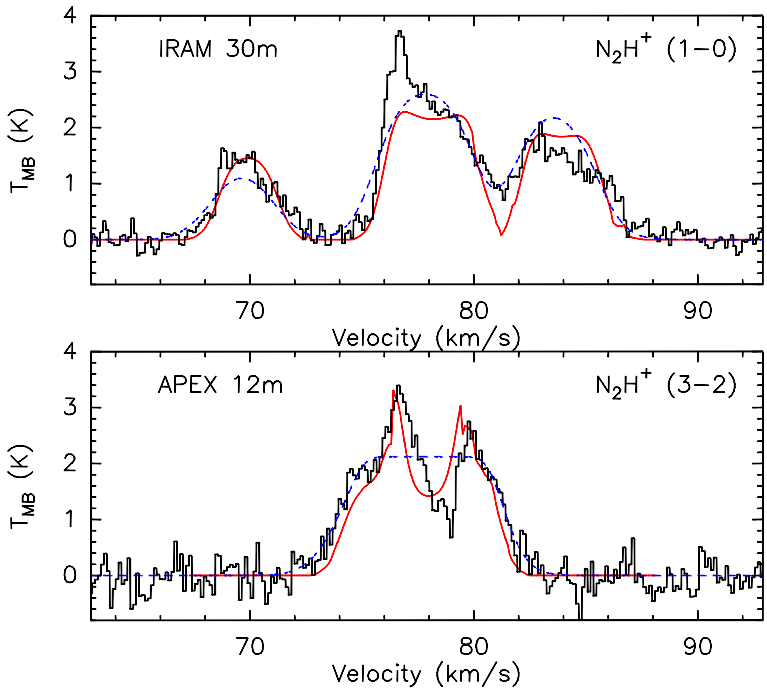

Figure 4.7. Observed spectra (black histograms) of the N_2H^+ (1–0) line (*top*) and N_2H^+ (3–2) line (*bottom*) the toward the peak position in G28.34P2. The blue dashed line indicates the fit performed in CLASS with the "HFS" task, while the red solid line shows the output model of the Monte Carlo code.

4.6 Discussion

4.6.1 Comparison among the three IRDC clumps and with other IRDC samples

The chemical content as well as the spatial distribution of the molecular emission differ from clump to clump. We were able to create molecular maps towards G28.34P2 in almost all molecular lines (8/10). The number of maps decreased for G11.11P1 (5/10) and for G28.34P3 (3/10). Since several molecules show up only after down-weighting the spectra with a beam of 40″ and averaging the data, it is likely that the emission is weaker and/or more extended.

The abundances of seven molecules toward G28.34P3, the clump that seems to be the youngest, are always higher than those of the others and G11.11P1 in turn has higher abundances than those of G28.34P2, which is the most evolved clump (see Table 4.6). This trend does not apply to three molecules ($H^{13}CN$, SiO, and $C^{34}S$).

Average fractional abundances of clumps associated with IRDCs from the works of Vasyunina et al. (2011) and Miettinen et al. (2011) are larger than for our three clumps. The most extreme discrepancy occurs for the SiO molecule, for which Miettinen et al. (2011) find an abundance about two orders of magnitude higher than ours. It is possible that Miettinen et al. (2011) are overestimating the SiO molecular column density since the (6–5) transition requires a much higher temperature to be excited.

In a sample of 55 IRDCs, Sakai et al. (2008) find upper limits to the C_2S column density, N_{C_2S}, an order of magnitude lower than ours ($\sim 10^{13}$ cm^{-2}). Using upper limits, we found that $N_{C_2S}/N_{N_2H^+}$ ratio is lower than unity, in the range of 0.1–0.4, in accordance to the results of Sakai et al. (2008). This ratio was found to be 0.9±0.8 for low-mass cores associated to young stellar objects (YSOs) and 2.0±1.1 for pre-stellar ones (Benson et al. 1998). The C_2S is known as an "early-time species" in gas-phase models since its abundance has a peak of 1.4×10^{-9} at time, t, $\sim 10^5$ yr (Millar & Herbst 1990), which is a factor of 3 higher than the abundance we get for our youngest clump G28.34P3.

We confirm through the abundance study that our three clumps are in different chemical evolutionary phases. G28.34P3 is chemically the youngest, followed by G11.11P1 in an intermediate stage, and G28.34P2 , the chemically oldest clump.

4.6.2 Comparison with low-mass pre-stellar cores and high-mass protostellar objects

Like in low-mass cores, but at different size scales, $H^{13}CO^+$ appears to be depleted in the three clumps and $HN^{13}C$ is depleted in G11.11P1. Contrary to low-mass pre-stellar cores, we do not see a central drop in the HC_3N and $C^{34}S$ molecules; their emission follows the dust emission, at least in G28.34P2. It is also true for G11.11P1; Gómez et al. (2011) presented the results of the $C^{34}S$ (2–1) line imaging with the Plateau de Bure Interferometer (PdBI) at a resolution of $\sim 6''$. The emission was coincident with the dust continuum emission at 1 and 3 mm (see Chapter 6).

The mean fractional abundances obtained toward low-mass pre-stellar and protostellar cores from Tafalla et al. (2002) and Jørgensen et al. (2002) are similar to our values, in the case of the $H^{13}CN$, $H^{13}CO^+$, and $C^{34}S$ lines, but lower than our estimations for the N_2H^+ line. The SiO abundance is again several orders of magnitude higher. This big difference is due to N_{H_2} estimations based on the abundance of CO relative to H_2 (Gibb et al. 2004).

Abundances toward HMPOs from Zinchenko et al. (2009) are up to an order of magnitude higher than the values we find except for N_2H^+.

The most abundant molecule in our line survey is C_2H. The C_2H (4–3) line at around 349.4 GHz was found to be ubiquitous toward IRDC clumps, HMPOs, and UC HII regions (Beuther et al. 2008). These authors found that the emission of the C_2H (4–3) line becomes weaker toward the dust emission peak of the IRAS 18089−1732 (a HMPO), while we find that the C_2H (1–0) emission follows that of the dust in G11.11P1 and G28.34P2.

We find a larger difference between our clumps and the HMPOs than between our clumps and low-mass pre-stellar and protostellar cores.

4.6.3 Comparison with chemical models

The abundances of four molecules (HC_3N, SO, C_2H, and N_2H^+) studied here were compared to several gas-grain models calculated by Hasegawa et al. (1992). Within a factor of 4, their abundances from the gas-phase model A at 1.0×10^6 yr are consistent with our observed values. The gas-phase composition in this model starts with steady state

molecular abundances.

Aikawa et al. (2005) showed the results of calculated fractional abundances in dynamical-chemical models for contracting low-mass pre-stellar cores, one in which the gravitational and pressure forces are in equilibrium (their parameter $\alpha = 1.1$) and a second case in which the gravitational force takes over the pressure force ($\alpha = 4$). For the same four molecules, our estimated molecular column densities are better reproduced by their $\alpha = 4$ model in the range of time $\sim$1.0–1.8$\times10^5$ yr. For our clumps, the depletion in this case is less significant due to a faster contraction with respect to the $\alpha = 1.1$ model (Aikawa et al. 2005).

To our knowledge, there is no combined dynamical-chemical models for studying the chemistry in pre-protoclusters clumps. Caselli et al. (1993) presented a dynamical-chemical model (based on the models of Hasegawa et al. 1992) for studying the chemistry seen in the Orion Hot Core and the Compact Ridge at $T = 200$ K and $T = 100$ K, respectively. Their models at 3.2×10^4 and 1.0×10^5 yr (after the evaporation of the grain mantles) do not reproduce the abundances we obtained for our clumps for HC_3N, SO, and C_2H.

Our fractional abundances and molecular column densities are better reproduced by chemical models for (low-mass) pre-stellar cores (with fast contraction) than for (high-mass) more evolved stages such as the hot core phase.

4.6.4 Physical properties

From the N_2H^+ modeling, we reproduced the line profiles for G11.11P1 and G28.34P2. The modeling was carried out simultaneously for both the (1–0) and (3–2) transitions. Chen et al. (2010a) modeled the N_2H^+ (3–2) transition toward G28.34P2 with the SMT 10m telescope, but they were not able to reproduce the self-absorption in the line profile and suggested that the double peaked profile as a result of the presence of multiple sources.

Pagani et al. (2007) investigated several models for reproducing spectra of different transitions of N_2H^+ and N_2D^+ and found that the best model for the low-mass pre-stellar core L134N has a broken density profile with the form $n \propto r^{-1}$ (r <4000 AU), $n \propto r^{-2}$ (r >4000 AU). These authors also varied the fractional abundances as a function of radius. It is important to mention that we did not try broken density or temperature profiles and that our abundances were constant in each shell.

Our "best" models constrain the number density to 3×10^5 and 4.5×10^5 cm^{-3} and $r_{\rm out}$ to 0.48 and 0.60 pc for G11.11P1 and G28.34P2, respectively.

4.7 Summary

We have presented mapping observations in ten molecular lines toward three clumps in the IRDCs G11.11−0.11 and G28.34+0.06 with the IRAM 30m telescope and complementary single-pointing observations with the APEX 12 m in the N_2H^+ (3–2) line.

Our study of fractional abundances has shown that the three clumps are in different chemical evolutionary stages. Chemically, G28.34P3 is considered the youngest, followed

by G11.11P1 in an intermediate stage, and G28.34P2 as chemically oldest.

Like in low-mass cores, but at different size scales, we have found that $H^{13}CO^+$ is depleted in the three clumps and $HN^{13}C$ is depleted in G11.11P1. Contrary to low-mass pre-stellar cores, we have not seen a central abundance drop in the HC_3N (in G11.11P1 and G28.34P2) and $C^{34}S$ molecules (in G28.34P2).

Observationally, we have found a larger difference in column densities and abundances between our clumps and the HMPOs than between our clumps and low-mass pre-stellar and protostellar cores. Chemical models for low-mass pre-stellar cores with fast contraction better reproduce the observed fractional abundances than chemical models for more evolved stages of high-mass star formation such as the hot core phase.

We have used a non-LTE Monte Carlo 1D code treating N_2H^+ radiative transfer with line overlap between hyperfine components and have constrained the physical properties of two clumps. The number density and radius of the cores have been constrained to 3×10^5 cm^{-3} and 0.48 pc for G11.11P1, and 4.5×10^5 cm^{-3} and 0.60 pc for G28.34P2.

5

The mass spectrum of IRDCs. A LABOCA study.

5.1 Introduction

Stars form in the densest parts of molecular clouds. The mass spectrum ($dN/dM \propto M^{\alpha}$) of dense clumps, obtained from CO and CS molecular observations, is a power-law with an index of $\alpha \sim -1.7$ (e.g., Kramer et al. 1998; Blitz 1993; Lada et al. 1991). Continuum observations of high-mass star-forming regions in the mm regime have also revealed indices of $\alpha \sim -1.7$ (e.g., Muñoz et al. 2007; Mookerjea et al. 2004). Elmegreen & Efremov (1997) have shown that open clusters and globular clusters have similar values of $\alpha = -1.5$ to -2. Interestingly, Lada & Lada (2003) found an index $\alpha = -2$ for the embedded cluster mass function. These similarities might imply that star formation is hierarchical and the mass spectrum form is carried from the interstellar matter (Elmegreen 2010). However, it is worth noting that the origin of the mass spectrum is still a matter of debate and some authors have disputed the universality of the mass spectrum (e.g., Hsu et al. 2010; Weidner et al. 2010).

Several attempts to construct the mass spectrum of IRDCs have been carried out. Rathborne et al. (2006) found a core mass spectrum with an index, α, of -2 from millimeter observations in agreement with the result obtained by Simon et al. (2006b), i.e., $\alpha = -1.97$.

Recently, Peretto & Fuller (2010) used extinction maps at 8 μm and studied the mass structure of $\sim$11 000 IRDCs. In a statistical fashion, they found $\alpha = -1.85$, while for their $\sim$50 000 "fragments", a log-normal function better fits the mass distribution.

In this chapter, we aim at studying the mass spectrum of six IRDCs at 870 μm, making use of observations obtained with the LABOCA instrument. We selected 6 clouds that have high extinctions (>50 A_V) based on IR-extinction selection, which uses the

Spitzer/GLIMPSE 3.6 and 4.5 μm bands at a resolution of $\sim$100$''$ (see Rygl et al. 2010, for details about the method). At the same time, these clouds are found in our IRDC 24 μm contrast maps (at a better resolution of 19$''$). In Sect. 5.2, we provide an overview of LABOCA, sample selection, dust continuum emission and molecular (N_2H^+ and H_2CO) line observations together with the data reduction. Sect. 5.3 shows the resulting dust emission maps and some sample spectra and Sect. 5.4 presents the source decomposition analysis, the mass-radius relationship, clump mass function, and the correlation between the 870 μm emission and the contrast at 24 μm. The results are discussed in Sect. 5.5 and, finally, we summarize our findings in Sect. 5.6.

We adopt a nomenclature in which clumps refer to structures with sizes of $\sim$1 pc, embedded within a cloud (of several pc), and cores refer to structures within a clump with sizes of $\sim$0.1 pc.

5.2 Observations and data reduction

5.2.1 Continuum data

Overview of LABOCA

The Large APEX BOlometer CAmera (LABOCA; Siringo et al. 2009) is a bolometer array of 295 pixels (see Fig. 5.1) working at 870 μm at the APEX 12 m telescope. The bolometers in the LABOCA instrument are arranged in a hexagonal layout with a center pixel and nine concentric hexagons. LABOCA has a field of view of 11$'$.4, and a single-pixel sensitivity (noise equivalent flux density, NEFD) in the range 40–70 mJy $s^{1/2}$.

LABOCA was built by the Max-Planck-Institut for Radioastronomie bolometer group.

LABOCA observations

We carried out observations of six IRDCs (see Table 5.1) in the Southern hemisphere with LABOCA at the APEX telescope typically covering an area of $\sim$20$'\times$20$'$ for each IRDC. The observations were performed on 2007 August 25, 27-28. The sky opacity was determined every 1 to 2 hours with skydips. The focus was optimized on Jupiter. Pointing observations were checked on the source IRAS 16293-2422 and were accurate to within 5$''$.

We used the Bolometer array data analysis (BoA; F. Schuller, et al., in prep.) package to reduce the LABOCA data. The data reduction involves flux calibration, flagging bad and noisy pixels, removal of correlated noise, despiking, filtering of low-frequency, and first-order baseline removal. These procedures are detailed in Siringo et al. (2009) and Schuller et al. (2009). The removal of correlated noise was done on all pixels with the median noise method with five iterations and a relative gain of 0.8. The correlated noise for the pixels sharing the same electronics subsystem was removed with two iterations and a relative gain of 0.8. The same numbers of iterations and gain were applied to groups of pixels connected to the same read-out cable.

Each map was built using natural weighting, where each data point has a weight $1/\sigma_i^2$,

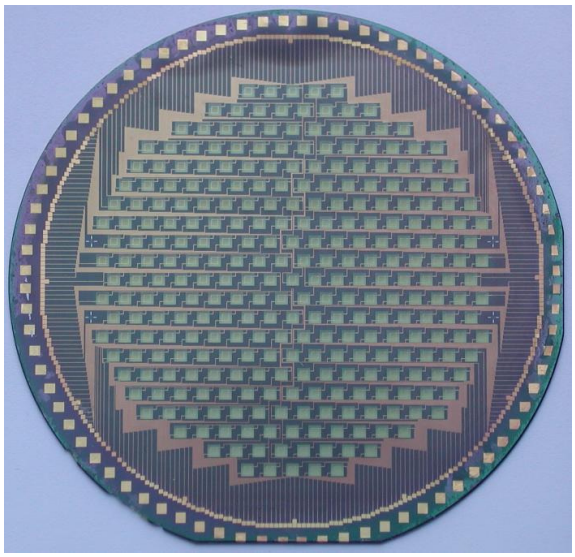

Figure 5.1. Detector array of the Large APEX BOlometer CAmera (LABOCA). Each light-green square is a bolometer. Taken from Siringo et al. (2009).

Table 5.1. Pointing centers of observed IRDCs with LABOCA.

IRDC name	Position[a]		Map 1σ noise
	RA (J2000)	Dec (J2000)	(mJy beam^{-1})
G329.03−0.2	16:00:35.1	−53:13:06	37
G331.38+0.2	16:10:25.4	−51:22:57	44
G335.25−0.3	16:29:36.7	−48:59:08	32
G337.16−0.4	16:37:49.4	−47:38:50	31
G343.48−0.4	17:01:01.0	−42:48:41	28
G345.07−0.2	17:05:21.3	−41:25:16	37

[a]Units of right ascension are hours, minutes, and seconds and units of declination are degrees, arcminutes, and arcseconds.

and where σ_i is the standard deviation of each pixel.

The resulting map after performing the whole process was used as a model for the next iteration. A total of 20 iterations were performed. This iterative process helps to recover flux at each iteration. The relative flux variation between the last and penultimate iterations is ∼0.7%, meaning that the process actually converges. The final flux calibration is accurate to ∼20%. The oversampling in the last iteration was set to 3 and the map was smoothed with a Gaussian kernel of size $10''$, providing a resolution of the final map of $21\farcs6$. The rms (σ) noise level varies from IRDC to IRDC between 28 and 44 Jy beam^{-1} (see Table 5.1).

Table 5.2. Lines observed with the APEX 12m telescope.

Line	Transition	Frequency[a] (MHz)	E_u/k (K)	HPBW ($''$)	$B_{\rm eff}$[b]	$F_{\rm eff}$	$\delta v_{\rm res}$ (km s^{-1})
N_2H^+	3 – 2	279511.7348	26.83	22	0.73	0.95	0.52
p-H_2CO	4_{04} – 3_{03}	290623.4050	34.91	21	0.73	0.95	0.50
p-H_2CO	4_{23} – 3_{22}	291237.7670	82.12	21	0.73	0.95	0.50
o-H_2CO	4_{32} – 3_{31}	291380.4880	141.04	21	0.73	0.95	0.50
o-H_2CO	4_{31} – 3_{30}	291384.2640	141.04	21	0.73	0.95	0.50

[a]Rest frequencies and upper level energies from the CDMS as of February 2011
[b]Efficiencies are from http://www.apex-telescope.org/telescope/efficiency/index.php

5.2.2 Line data

Observations of lines listed in Table 5.2 were performed with the APEX telescope on 2007 October 28-29. The double-sideband heterodyne receiver APEX-2A (Risacher et al. 2006) was used to obtain single pointing spectra toward positions selected by eye within the IRDCs mapped with LABOCA. In total, 18 positions were observed within the six IRDCs, typically from 2 to 5 pointings per cloud. These IR-quiet and IR-loud targets were chosen by eye from *Spitzer*/GLIMPSE images at 8 μm. We mark in Table 5.3 whether the target is dark or not at 8 μm and at 24 μm. The FFTS (Klein et al. 2006) was used as a backend for these observations. The pointing was checked on the core G327.3-0.6 and the source 18592+0109 every hour. System temperature varied from 201 to 243 K.

The 2 GHz bandwidth of the two FFT units allowed us to observe simultaneously N_2H^+ (3–2) and several of ortho- and para- transitions of H_2CO with upper-state energies from ∼27 K to 141 K (see Table 5.2). Table 5.2 lists the observed molecular lines as well as their frequencies, upper level energies, the half-power beam widths (HPBW), and velocity resolutions ($\delta v_{\rm res}$).

The data reduction was performed with the GILDAS/CLASS package[1]. We summed up individual scans and fitted and subtracted a polynomial of order 1 or 2 to the baseline of each final spectrum. For several spectra that were affected by standing waves, in the optics (between the subreflector and the receiver) or by an instability of the receiver itself, we have performed a linear interpolation on the Fourier transform to remove the sinusoidal pattern. The conversion from T_A^* to $T_{\rm MB}$ was done with the efficiencies listed in Table 5.2.

5.3 Observational results

5.3.1 Continuum: Morphology and size of clouds

In the *top* panel of Figs. 5.2–5.7, we show in contours the final maps obtained with LABOCA overlaid on *Spitzer*/MIPSGAL 24 μm images.

[1]http://www.iram.fr/IRAMFR/GILDAS

The mapped regions show extended, filamentary, and compact dust continuum emission. The prominent features are those from bright 24 μm sources. Filamentary IR-dark structures in the 24 μm images can be seen in dust emission at 870 μm extending for more than 10′ (∼9 pc at a distance of 2.7 kpc). All clouds show several compact clumps; some of them are shrouded in the filamentary emission while others surround the extended structures.

In general, there is good correlation between the 24 μm dark structures and the emission at 870 μm, but there are some IR-dark patches that do not have a submillimeter emission counterpart. IRDCs G343 and G345 seem to be more fragmented than the others and present emission all over the field contrary to, e.g., IRDCs G329 and G331.

We see clouds which are connected/linked by an envelope, e.g., IRDCs G337 and G331; clouds with clear compact sources still embedded in the envelope, e.g., IRDCs G329 and G335; and clouds which are more dispersed over the mapped regions, e.g., IRDCs G343 and G345.

5.3.2 Line data

Spectra of the N_2H^+ (3–2) and H_2CO (4–3) lines toward selected positions within the IRDCs are shown at the *bottom* of Figs. 5.2–5.7.

Observed positions are presented in Table 5.3 where we mark whether the clumps are 8 μm- and/or 24 μm-dark if at least one IR source is within the beam size of 22″. In total, 13 clumps are 24 μm-bright while 5 are 24 μm-dark. Gaussian fit results to the N_2H^+ (3–2) line are listed in Table 5.3. We detected emission in 2 (40%) IR-dark clumps and in 9 (69%) IR-bright clumps; the average 1σ noise level for non-detections is ∼0.24 K. Line widths range from 1.59–6.69 km s^{-1}; the narrower N_2H^+ (3–2) line is found in the IRDC clump G343P2 while the wider was observed toward the IRDC clump G329P2.

We fit the N_2H^+ (3–2) line with the hyperfine structure ("HFS") method (see Sect. 3.5.1). We assume the relative intensities of 29 hyperfine components retrieved from the Cologne Database for Molecular Spectroscopy (CDMS; Müller et al. 2001, 2005). Line widths found with this method are always narrower than Gaussian fits, up to 50% in two clumps G331 and G345P1. In these two cases, we obtained very high optical depths (∼13).

The hyperfine components of N_2H^+ are also plotted in Figs. 5.2–5.7 in order to check whether the HFS is causing in part the broadening of the line. We see that it is true for clumps P1 and P4 in the IRDC G335 and possibly in the IRDC clump G343P2.

Gaussian fits for the H_2CO (4–3) transition lines are presented in Table 5.4. The detection rate was lower for this line compared to the N_2H^+ (3–2) line. We detected emission in 7 positions out of 18. The average 1σ noise level for non-detections is ∼0.23 K. Line widths range from 2.50 km s^{-1} to 9.71 km s^{-1}. We fit two Gaussians to the blending of lines H_2CO 4_{31}–3_{30} and H_2CO 4_{31}–3_{30}.

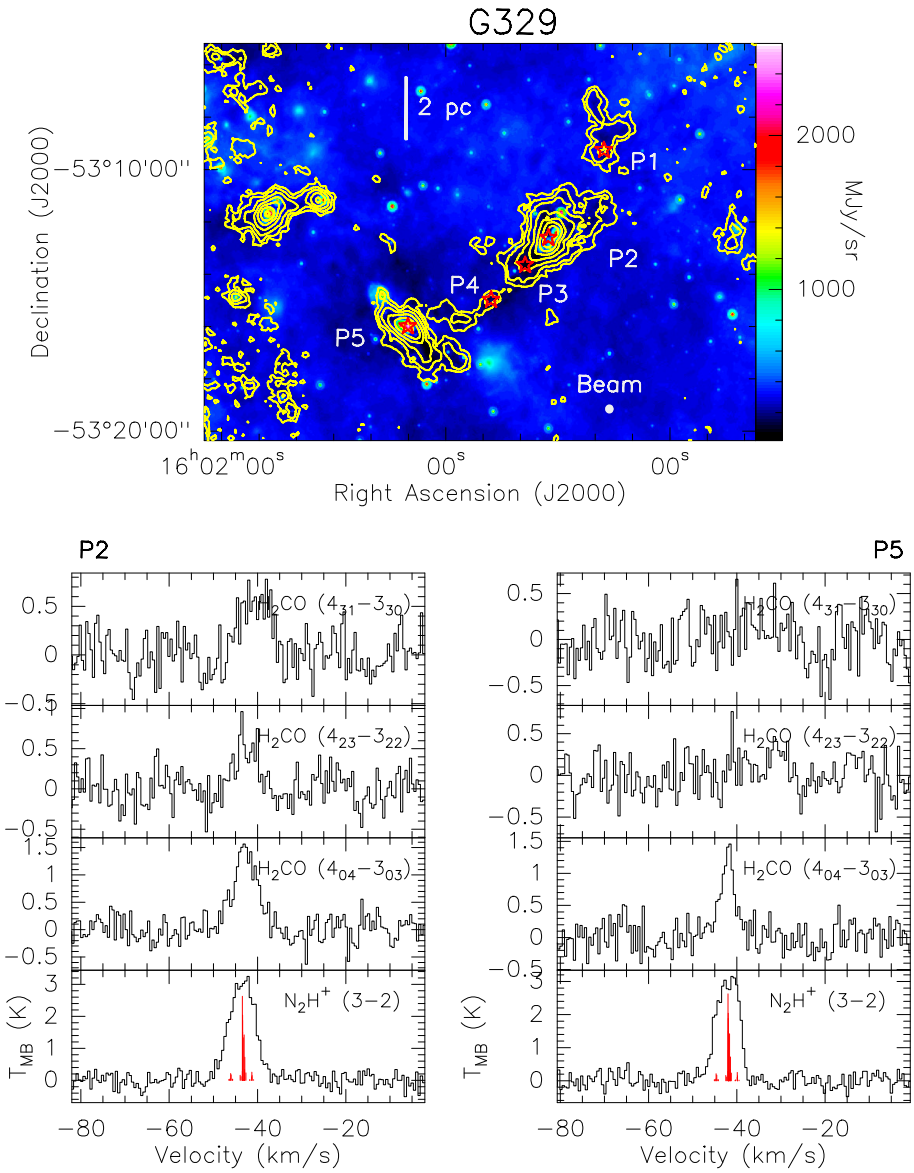

Figure 5.2. *Top*: Contour maps obtained with LABOCA at 870 μm overlaid on top of the *Spitzer*/MIPSGAL 24 μm images for the IRDC G329. Contours are 3, 6, 12, 24, 48, 96, 192 times 0.037 Jy beam^{-1}, the rms noise of the image. The star symbols indicate the positions observed with the APEX2A receiver. The beam *HPBW* (21.″6) and a 2-pc scale-bar are shown. *Bottom*: APEX2A spectra (histograms) toward selected clumps whose names P1, P2, etc. are shown on the continuum images. The red solid lines indicate the relative N_2H^+ (3–2) intensities for each of the 29 hyperfine components.

5.4 Analysis

5.4.1 Kinematic distances from N_2H^+ (3–2)

The "near" kinematic distances are listed in the last column in Table 5.3 and are estimated based on the Galactic rotation curve model by Fich et al. (1989), assuming the IAU

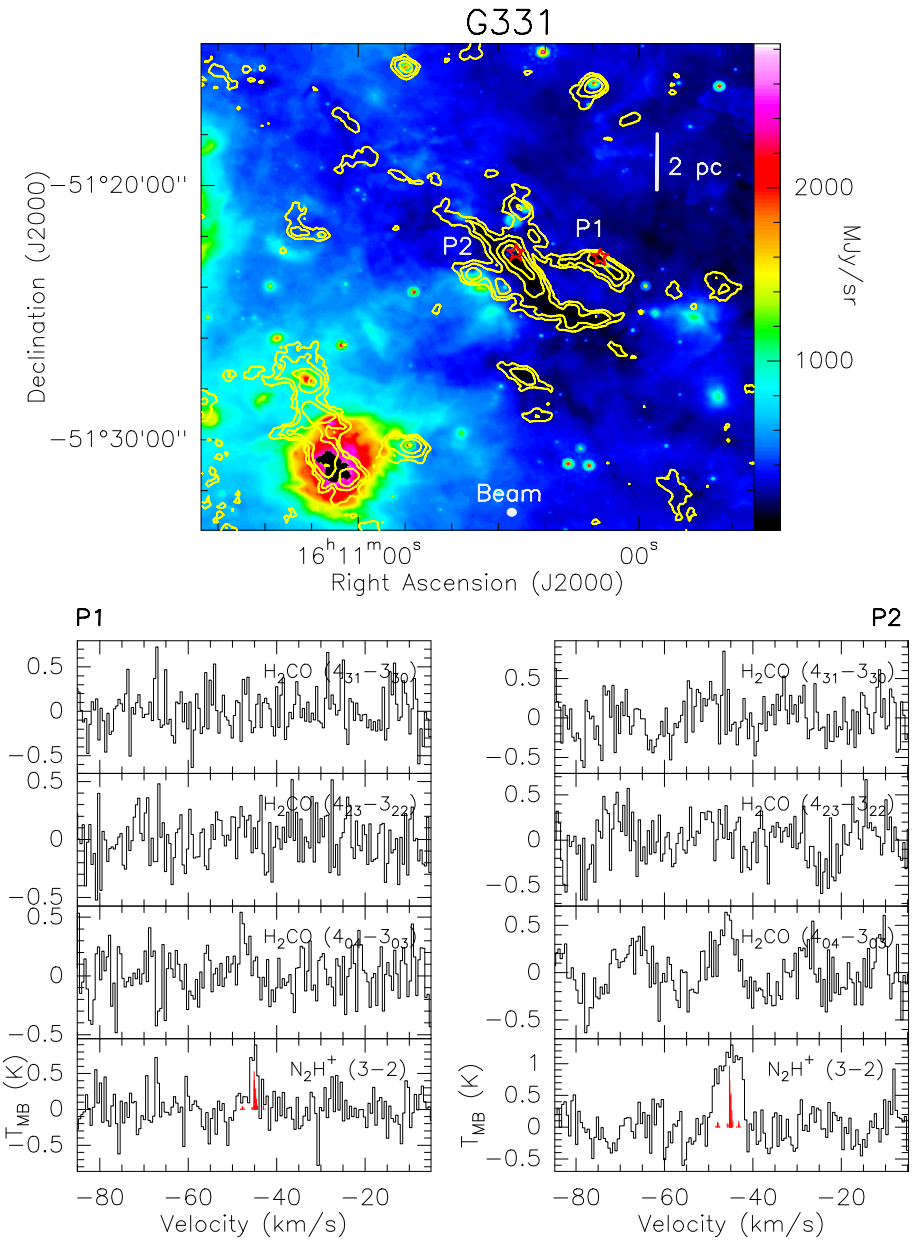

Figure 5.3. Same as Fig. 5.2 but for the IRDC G331. Contours are 3, 6, 12, 24 times 0.044 Jy beam^{-1}, the rms noise of the image.

standard rotation constants of distance to the Sun from the Galactic center as R_0 = 8.5 kpc and the Sun rotation speed around the Galactic center as Θ_0 = 220 km s^{-1}(see also Sect. 3.4). In the calculations, we use the LSR velocity of N_2H^+ (3–2).

In all clouds, except one, we have two detections of N_2H^+. The difference in the LSR velocities of the clumps would result in a distance difference of up to 0.2 kpc, but this difference is easier explained by velocity variations within the parental molecular clouds.

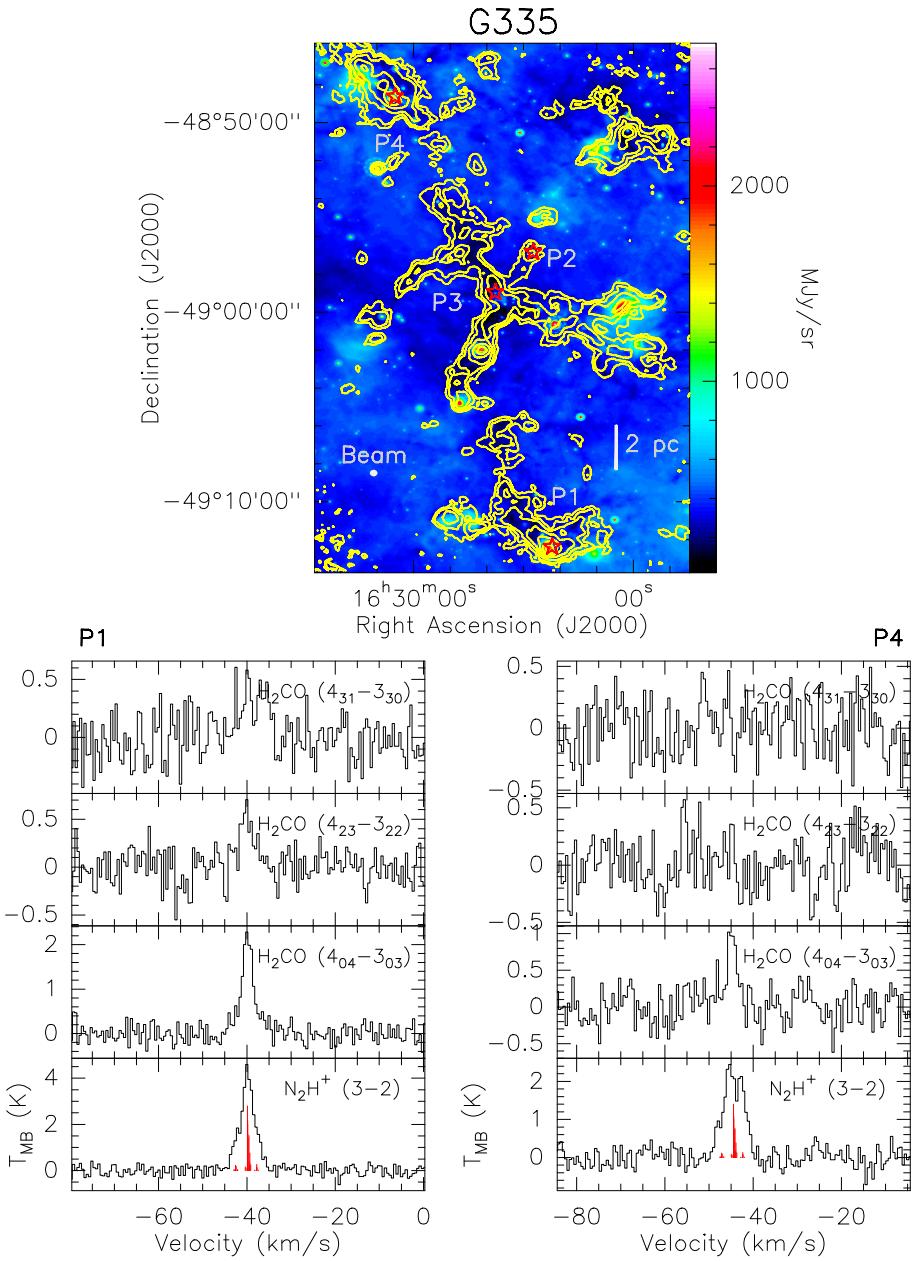

Figure 5.4. Same as Fig. 5.2 but for the IRDC G335. Contours are 3, 6, 12, 24, 48, 96, 192 times 0.032 Jy beam^{-1}, the rms noise of the image.

5.4.2 Temperatures from H_2CO (4–3)

Temperatures and total H_2CO column densities, N_{H_2CO}, were obtained with the rotational diagram method (e.g., Cummins et al. 1986; Goldsmith & Langer 1999). We explain in detail the procedures in Chapter 6. We make use of Eq. 6.7 to perform a least squares fit for T and N:

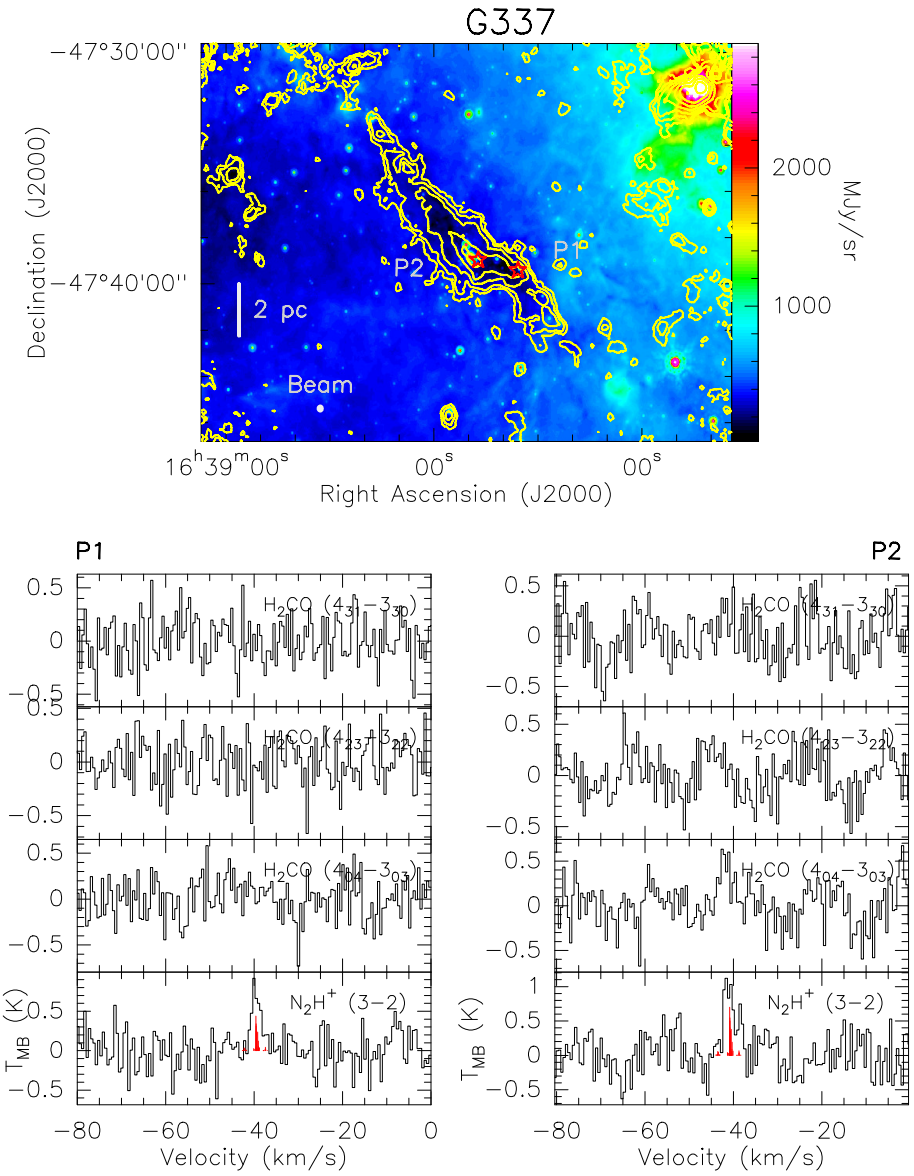

Figure 5.5. Same as Fig. 5.2 but for the IRDC G337. Contours are 3, 6, 12, 24, 48, 96, 192 times 0.031 Jy beam^{-1}, the rms noise of the image.

$$\log\left(\frac{3kW}{8\pi^3\nu\mu^2 S}\right) = \log\left(\frac{N}{Q}\right) - \frac{\log e}{T}\frac{E_u}{k}\,.$$

All parameters have the same meaning as in Eq. 6.7 in Sect. 6.3.2.

We take into account up to four transitions of the line H_2CO (4–3). Following Blake et al. (1987), the partition function of H_2CO is

$$Q = 2\left[\frac{\pi\ (kT)^3}{h^3 ABC}\right]^{1/2}\,.$$

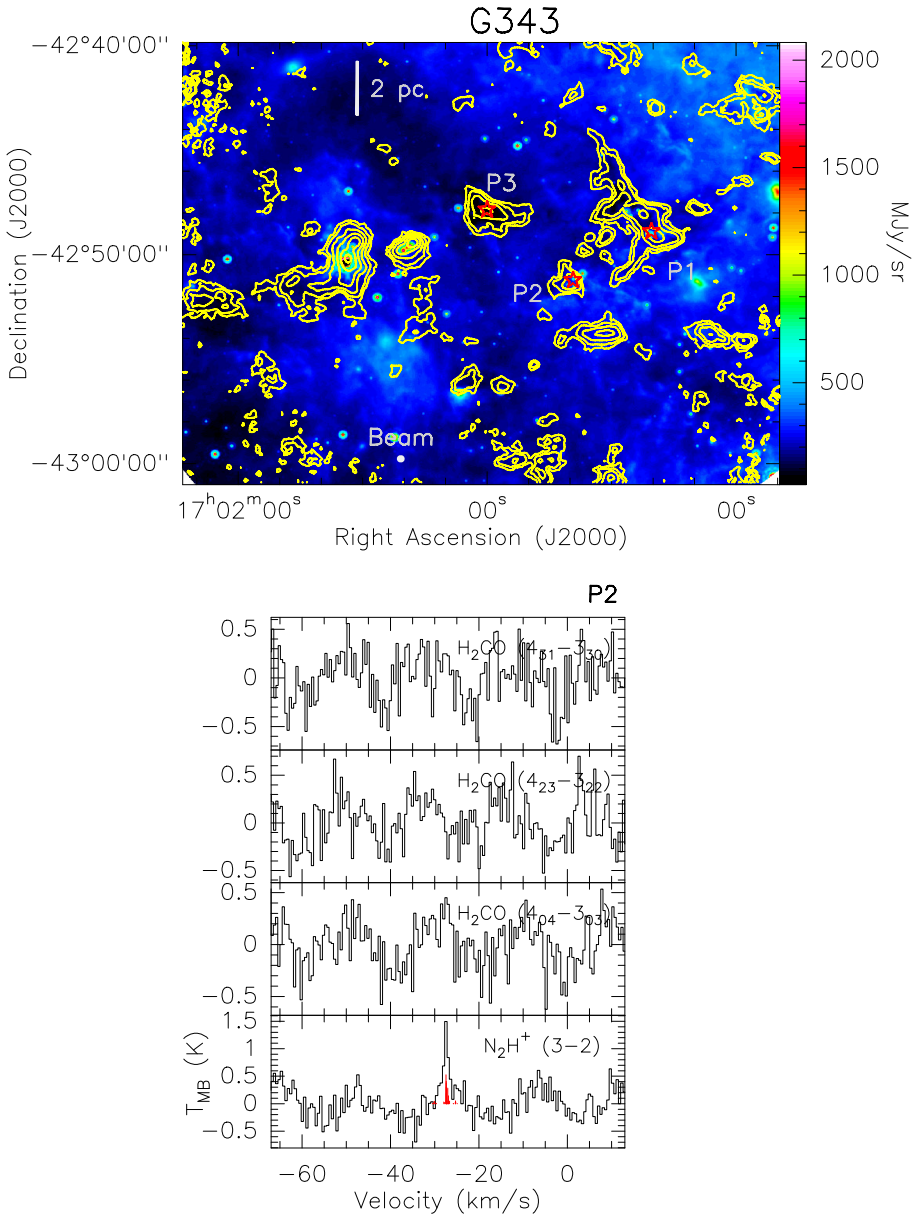

Figure 5.6. Same as Fig. 5.2 but for the IRDC G343. Contours are 3, 6, 12, 24, 48, 96 times 0.028 Jy beam^{-1}, the rms noise of the image.

Values for the rotational constants A, B, and C are obtained from the CDMS (Müller et al. 2001, 2005). A $Q = 0.55\ T^{1.5}$ was used in the calculations.

It was possible to carry out this method only toward three positions, namely, G329P2, G335P1 and G345P1. G329P2 and G345P1 positions have emission in four transitions (two para- and two ortho-H_2CO transitions) while the G335P1 position has emission in two para-H_2CO transitions. Estimates of rotational temperatures (T) together with N_{H_2CO} are presented in Table 5.5.

Three pairs of values (T, N_{H_2CO}) were obtained for G329P2 and G345P1; one pair

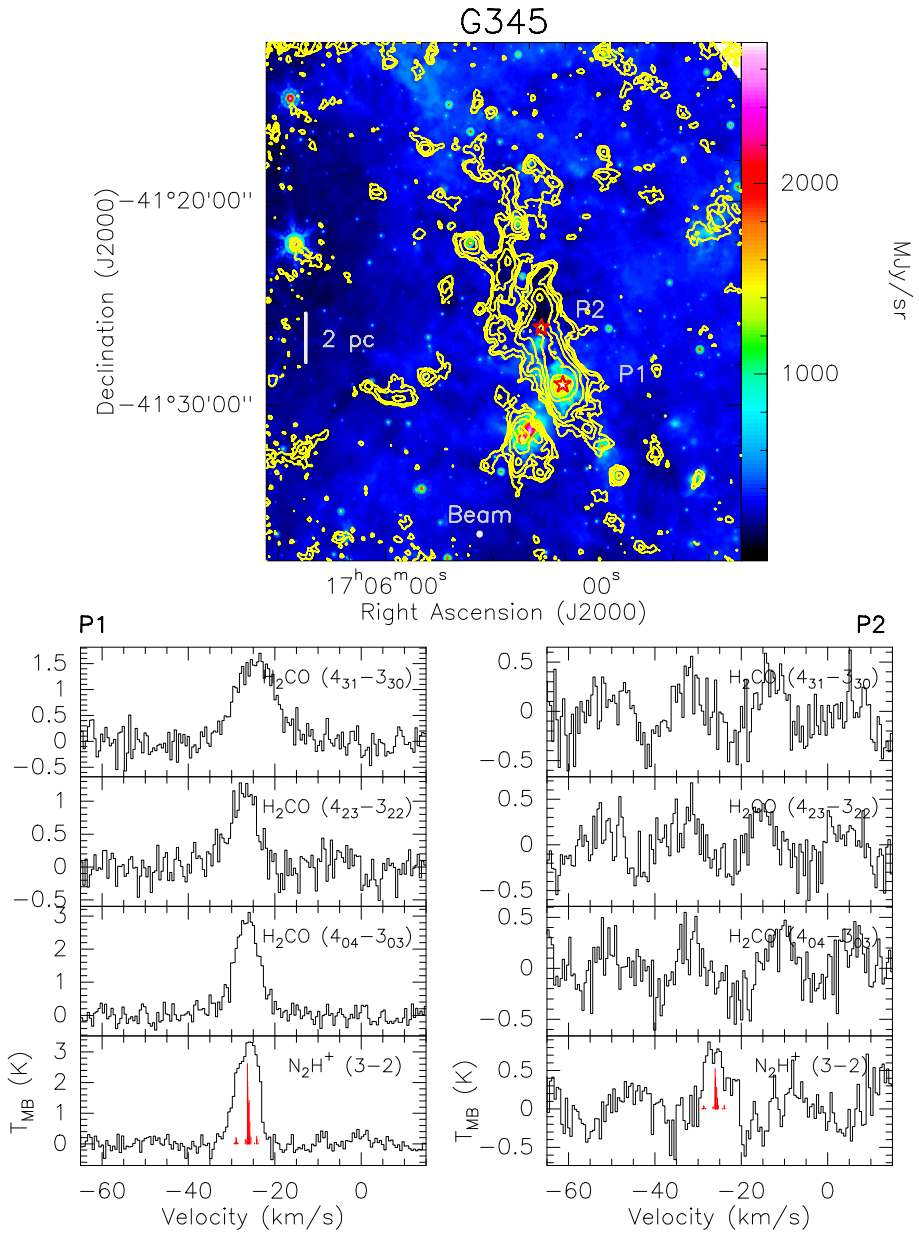

Figure 5.7. Same as Fig. 5.2 but for the IRDC G345. Contours are 3, 6, 12, 24, 48, 96, 192, 384 times 0.037 Jy beam^{-1}, the rms noise of the image.

taking into account only "para" transitions, the other two pairs for ortho-to-para ratios of 1 and 3. Kahane et al. (1984) measured the ortho-to-para ratio to be 3 (from $H_2{}^{13}CO$) in Orion A (a warm cloud) while the ratio decreases to 1–2 for cold clouds as TMC1 and L183. Mangum & Wootten (1993) also find an ortho-to-para ratio lower than 3 for most of the 11 active star-forming regions making use of the large velocity gradient (LVG) method.

Estimates of T and N_{H_2CO}, using either an ortho-to-para ratio of 1 or 3, are similar within the uncertainties.

Table 5.3. N_2H^+ (3–2) observational parameters.

IRDC clump	IR-dark[a] 8/24	Position[b] RA (J2000)	Dec (J2000)	T_{MB} (K)	ΔV ($km\,s^{-1}$)	v_{LSR} ($km\,s^{-1}$)	D^c (kpc)
G329P1	N/N	16:00:17.3	−53:09:18	(0.25)			
G329P2	Y/N	16:00:32.2	−53:12:39	3.20(0.19)	6.69(0.19)	−43.42(0.08)	3.0
G329P3	Y/Y	16:00:38.5	−53:13:41	(0.23)			
G329P4	Y/Y	16:00:47.7	−53:15:01	(0.25)			
G329P5	N/N	16:01:10.1	−53:16:02	3.26(0.32)	5.83(0.17)	−42.00(0.08)	2.9
G331P1	Y/Y	16:10:08.7	−51:22:52	0.86(0.17)	1.79(0.50)	−45.10(0.18)	3.1
G331P2	N/N	16:10:26.9	−51:22:42	1.26(0.25)	5.60(0.49)	−45.31(0.25)	3.1
G335P1	N/N	16:29:22.2	−49:12:24	3.88(0.33)	4.14(0.14)	−39.83(0.05)	3.0
G335P2	Y/N	16:29:27.4	−48:56:51	(0.25)			
G335P3	N/N	16:29:37.8	−48:58:58	(0.24)			
G335P4	N/N	16:30:05.3	−48:48:37	2.29(0.27)	5.53(0.26)	−44.40(0.12)	3.2
G337P1	N/N	16:37:35.8	−47:39:27	0.78(0.11)	2.49(0.59)	−39.56(0.24)	3.0
G337P2	N/N	16:37:47.4	−47:38:59	0.94(0.26)	3.61(0.72)	−40.85(0.30)	3.1
G343P1	N/N	17:00:20.7	−42:49:08	(0.23)			
G343P2	N/N	17:00:39.6	−42:51:28	1.27(0.14)	1.59(0.50)	−27.42(0.14)	2.7
G343P3	Y/Y	17:01:00.4	−42:48:05	(0.23)			
G345P1	N/N	17:05:10.5	−41:29:01	3.44(0.33)	5.85(0.15)	−26.32(0.07)	2.8
G345P2	Y/Y	17:05:16.5	−41:26:14	0.80(0.17)	5.26(0.76)	−26.04(0.37)	2.8

Notes. Parameters are obtained from Gaussian fits. For non-detections, the values given in parenthesis represent the spectra 1σ noise level.

[a] "Y" means the clump is 8 μm- or 24 μm-dark and "N" means the clump is 8 μm- or 24 μm-bright.

[b] Units of right ascension are hours, minutes, and seconds and units of declination are degrees, arcminutes, and arcseconds.

[c] Derived (near) kinematic distances by using the N_2H^+ (3–2) line (see Sect. 5.4.1).

5.4.3 Source extraction from continuum maps: *Gaussclumps* and *Clumpfind*

We use the two most popular algorithms *Gaussclumps* (Stutzki & Guesten 1990; Kramer et al. 1998) and *Clumpfind* (Williams et al. 1994) to extract *clumps* and derive their physical properties from the dust emission.

Gaussclumps, a task in the GILDAS package, was originally written to decompose a 3-dimensional data cube into Gaussian-shaped sources (see Stutzki & Guesten 1990) but can also be applied to dust continuum maps (e.g., Mookerjea et al. 2004). Two adjacent empty planes were added to the original 2-dimensional maps needed for the algorithm to run properly. "Stiffness" parameters that control the fitting, ensuring that a local *clump* is fitted and subtracted, were set to 1 (Kramer et al. 1998). A peak flux density threshold was set to 5σ. Following Belloche et al. (2011), the initial guesses for the aperture cutoff, the aperture *FWHM* and the source *FWHM* were set to 8, 3, and 1.5 times the angular resolution, respectively.

The resulting Gaussian sources derived from *Gaussclumps* are listed in Table B.1 and

Table 5.4. H_2CO (4–3) observational parameters.

IRDC clump	Transition	T_{MB} (K)	ΔV ($km\,s^{-1}$)	v_{LSR} ($km\,s^{-1}$)	$\int T_{MB} dV$ (K $km\,s^{-1}$)
G329.03P2	$4_{04} - 3_{03}$	1.46(0.17)	6.30(0.43)	−42.74(0.17)	9.77(0.56)
	$4_{23} - 3_{22}$	0.59(0.19)	5.54(0.77)	−42.65(0.39)	3.47(0.47)
	$4_{32} - 3_{31}$	0.51(0.16)	4.43(0.62)	−42.43(0.49)	2.41(0.52)
	$4_{31} - 3_{30}$	0.47(0.16)	4.43(0.62)	−42.43(0.49)	2.24(0.48)
G329.03P5	$4_{04} - 3_{03}$	1.28(0.13)	3.82(0.46)	−42.05(0.16)	5.20(0.48)
G331.38P2	$4_{04} - 3_{03}$	0.40(0.14)	2.50(1.42)	−47.40(0.41)	1.07(0.40)
G335.25P1	$4_{04} - 3_{03}$	2.14(0.19)	3.12(0.23)	−39.84(0.08)	7.09(0.40)
	$4_{23} - 3_{22}$	0.54(0.13)	3.81(0.81)	−40.03(0.30)	2.20(0.38)
G335.25P4	$4_{04} - 3_{03}$	1.02(0.12)	2.58(0.53)	−44.78(0.18)	2.81(0.43)
G337.16P2	$4_{04} - 3_{03}$	0.54(0.16)	3.04(0.96)	−41.87(0.39)	1.75(0.45)
G345.07P1	$4_{04} - 3_{03}$	2.95(0.22)	6.76(0.18)	−26.44(0.02)	21.20(0.04)
	$4_{23} - 3_{22}$	1.16(0.19)	7.17(0.56)	−27.18(0.23)	8.84(0.57)
	$4_{32} - 3_{31}$	0.85(0.16)	9.48(0.34)	−26.30(0.62)	8.60(2.84)
	$4_{31} - 3_{30}$	0.89(0.16)	9.48(0.34)	−26.30(0.62)	9.02(2.37)

Notes. Parameters are obtained from Gaussian fits.

Table 5.5. H_2CO (4–3) results from rotational diagrams.

IRDC clump	"Para"		"Ortho/Para" = 1		"Ortho/Para" = 3	
	T_{rot} (K)	N_{H_2CO} ($\times 10^{13}$ cm^{-2})	T_{rot} (K)	N_{H_2CO} ($\times 10^{13}$ cm^{-2})	T_{rot} (K)	N_{H_2CO} ($\times 10^{13}$ cm^{-2})
G329.03P2	63±28	12±9	62±12	12±5	40±5	36±10
G335.25P1	53±25	8±6				
G345.07P1	80±20	34±13	84±18	36±12	79±20	34±13

Notes. For G335.25P1, only "para" transitions were detected.

an excerpt is presented in Table 5.6. Columns are (1) running number in the order *Gaussclumps* finds the source, (2)–(3) J2000 position, (4) peak intensity, (5) flux density, (6)–(7) angular *FWHM* along the major and minor axis determined from Gaussian fits before deconvolution, (8)–(10) deconvolved *FWHM*s (sizes smaller than 25.9″ were set to 25.9″ to compute the deconvolved sizes, in order to account for a fit inaccuracy corresponding to a 5-σ detection in peak intensity) and position angle, (11) deconvolved effective radius, R_{eff}, (12)–(14) total mass derived from the Gaussian fit, beam-averaged H_2 column density, N_{H_2}, and volume density, n_{H_2}. Sources lying on noisy edges were discarded from further analysis. IRDCs G329, G331, G335, G337, G343, and G345 were decomposed into 75, 41, 123, 87, 83 and 123 Gaussian sources, respectively.

Clumpfind, contrary to *Gaussclumps*, needs only two parameters (threshold and step size) to identify *clumps*. The program *clfin2d*[2] is a modification of the original code for 3-dimensional datacubes. We start the contouring at 3σ (threshold) with an interval of 2σ (step size) to process each dust emission map.

[2]Downloadble at http://www.ifa.hawaii.edu/users/jpw/clumpfind.shtml

Table 5.6. Sources found with *Gaussclumps* and derived physical parameters (Excerpt).

$N_{\rm cl}$	Position		$I_{\rm peak}$	S	$\theta_{\rm maj} \times \theta_{\rm min}$	$FWHM$	PA	$R_{\rm eff}$	M	$N_{\rm H_2}$	$n_{\rm H_2}$
	RA (J2000)	Dec (J2000)	(Jy/beam)	(Jy)	($''\times\,''$)	(pc × pc)	($^\circ$)	(pc)	($M_\odot$)	($\times10^{22}$ cm^{-2})	($\times10^{4}$ cm^{-3})
IRDC G329											
1	16:00:31.7	−53:12:36	12.335	52.636	60.0 × 33.2	0.79 × 0.35	−28	0.26	2692	27.0	50.8
2	16:01:47.7	−53:11:44	8.848	18.485	35.2 × 27.7	0.39 × 0.24	−50	0.15	945	19.4	89.3
3	16:01:10.1	−53:16:04	5.034	16.961	39.7 × 39.6	0.47 × 0.47	−71	0.23	867	11.0	23.6
4	16:00:30.5	−53:12:21	2.356	2.382	21.8 × 21.6	0.20 × 0.20	78	0.10	121	5.2	41.7
5	16:01:34.2	−53:11:11	2.308	4.445	33.9 × 26.5	0.37 × 0.22	−103	0.14	227	5.1	28.3
6	16:00:32.5	−53:12:56	2.261	2.284	21.8 × 21.6	0.20 × 0.20	34	0.10	116	5.0	40.0
7	16:01:07.1	−53:16:28	1.950	2.798	31.0 × 21.6	0.31 × 0.20	26	0.13	143	4.3	25.3
8	16:01:44.4	−53:11:18	1.532	3.626	46.1 × 24.0	0.57 × 0.20	53	0.17	185	3.4	13.2
9	16:00:34.4	−53:11:56	1.557	6.299	72.4 × 26.1	0.97 × 0.21	−29	0.22	322	3.4	10.0
10	16:01:14.3	−53:15:46	1.397	3.103	36.3 × 28.6	0.41 × 0.26	−118	0.16	158	3.1	12.5
11	16:00:25.7	−53:12:19	1.192	5.855	82.1 × 27.9	1.11 × 0.25	−18	0.26	299	2.6	5.7
12	16:00:37.5	−53:13:24	1.127	4.134	51.4 × 33.3	0.66 × 0.36	0	0.24	211	2.5	5.2
13	16:01:48.5	−53:12:19	0.893	2.874	62.5 × 24.0	0.82 × 0.20	−92	0.20	147	2.0	6.1
14	16:00:33.2	−53:12:07	0.961	0.971	21.8 × 21.6	0.20 × 0.20	68	0.10	49	2.1	17.0
15	16:01:53.2	−53:11:48	0.751	2.451	58.0 × 26.3	0.76 × 0.21	−41	0.20	125	1.6	5.5

Table 5.7. Sources found with *Clumpfind* and derived physical parameters (Excerpt).

$N_{\rm cl}$	Position		$I_{\rm peak}$	S	$R_{\rm eff}$	M	$N_{\rm H_2}$	$n_{\rm H_2}$
	RA (J2000)	Dec (J2000)	(Jy/beam)	(Jy)	(pc)	($M_\odot$)	($\times10^{22}$ cm^{-2})	($\times10^{4}$ cm^{-3})
IRDC G329								
1	16:00:31.2	−53:11:35	12.422	36.836	0.75	1884	27.2	1.6
2	16:00:32.5	−53:11:11	12.251	33.915	0.92	1734	26.9	0.8
3	16:01:47.7	−53:12:18	8.914	26.139	0.83	1336	19.5	0.8
4	16:01:10.3	−53:07:57	5.083	24.868	0.94	1271	11.1	0.5
5	16:01:34.2	−53:12:48	2.325	5.511	0.59	281	5.1	0.5
6	16:01:55.7	−53:09:03	0.704	1.454	0.42	74	1.5	0.4
7	16:01:43.4	−53:05:19	0.565	0.696	0.27	35	1.2	0.6
8	16:00:26.5	−53:12:36	0.564	2.097	0.45	107	1.2	0.4
9	16:00:17.1	−53:14:44	0.561	2.087	0.50	106	1.2	0.3
10	16:00:21.1	−53:12:06	0.505	3.526	0.68	180	1.1	0.2
11	16:01:55.0	−53:11:47	0.487	1.330	0.37	68	1.1	0.5
12	16:00:17.7	−53:15:14	0.487	1.532	0.40	78	1.1	0.4
13	16:00:56.9	−53:06:44	0.486	2.364	0.56	120	1.1	0.2
14	16:00:20.3	−53:16:27	0.440	1.743	0.46	89	1.0	0.3
15	16:00:12.3	−53:15:26	0.433	1.443	0.41	73	0.9	0.4

All the emission is assigned to *clumps* above the given threshold. It is important to point out that *Clumpfind* does not *a priori* assume Gaussian sources and does not allow overlapping of identified sources.

Sources identified by *Clumpfind* are listed in Table B.2 and an excerpt is presented in Table 5.7. Columns are (1) running number in the order *Clumpfind* finds the source, (2)–(3) J2000 position, (4) peak intensity, (5) flux density, (6) deconvolved effective radius, (7)–(9) total mass, beam-averaged H_2 column density, and volume density. IRDCs G329, G331, G335, G337, G343, and G345 were decomposed into 39, 33, 84, 53, 63, and 80 sources, respectively.

We do not find a one-to-one correspondence for all *Gaussclumps* and *Clumpfind* sources. In every cloud, *Gaussclumps* decomposes emission into more sources than *Clumpfind* does, especially around very bright dust peaks.

We will concentrate most of the analysis on sources identified by *Gaussclumps* in part because the emission decomposition follows that of the fragmentation of (two of) these clouds as observed by the Submillimeter APEX Bolometer Camera (SABOCA; Siringo et al. 2010) on the APEX 12m telescope at a wavelength of 350 μm (see Sect. 8.3.1).

5.4.4 Mass, column density, and volume density estimates

For each identified source and for both methods, we estimated the gas mass (M_g), assuming the submillimeter emission is optically thin, according to Eq. 6.1, which we repeat here

$$M_g = \frac{S_\nu \; D^2 \; R_{\rm gd}}{\kappa_\nu \; B_\nu(T_{\rm d})} \, ,$$

where S_ν is the observed integrated flux density,
D is the distance,
$R_{\rm gd}$ is the gas-to-dust mass ratio,
κ_ν is the dust opacity, and
$B_\nu(T_{\rm d})$ is the Planck function at the dust temperature ($T_{\rm d}$).

We assume a gas-to-dust mass ratio of 100, and adopt a $\kappa_\nu = 1.95$ cm^2 g^{-1}, (interpolated to 870 μm from Table 1, Col. 9 of Ossenkopf & Henning 1994), for an MRN (Mathis et al. 1977) graphite-silicate grain mixture with thick ice mantles, at a gas density of 10^6 cm^{-3}. In the case of the IRDC G343 and assuming a $T_{\rm d} = 18$ K, the detection limit is $\sim$4 $M_\odot$ with $S_\nu = 0.084$ Jy (3σ detection level), at a distance of 2.7 kpc.

We use $T_{\rm d} = 18$ K to compute the masses presented in Tables B.1 and B.2. We are aware that this assumption of low temperature is not valid for sources that are associated to masers, HII regions, UCHII regions, and/or IRAS/MSX/24 μm point sources (see Sec. 5.4.5 and Fig. 5.8) whose temperature should be higher. As found previously, at least three sources with emission in the H_2CO transition lines have temperatures in the range of 53–80 K. On the other hand, sources not associated to any of those star formation signposts could have lower temperature. We note that with a decrease in temperature from 18 K to 12 K, the mass would increase by almost 100%, while with an increase from 18 K to 50 K, the mass would decrease by 30%.

The beam-averaged column density, $N_{\rm H_2}$, is computed using the expression in Eq. 6.8

$$N_{\rm H_2} = \frac{I_\nu^{\rm peak}\, R_{\rm gd}}{\kappa_\nu\ B_\nu(T_{\rm d})\ \Omega\ \mu_{\rm H_2}\ m_{\rm H}}\,,$$

where $I_\nu^{\rm peak}$ is the peak intensity,
$\mu_{\rm H_2}$ is the molecular weight per hydrogen molecule, and
Ω is the beam solid angle.

We adopt $\mu_{\rm H_2} = 2.8$ (Kauffmann et al. 2008) and the definition of $\Omega = (\pi\theta^2_{\rm HPBW})/(4\ln 2)$ with $\theta_{\rm HPBW}$ as the half-power beam width. In the case of the IRDC G343, these observations are sensitive to column densities as low as $N_{\rm H_2} = 1.8 \times 10^{21}$ cm^{-2} with $I_\nu^{\rm peak} = 0.084$ Jy beam^{-1} (3σ detection level) and $T_{\rm d} = 18$ K.

Volume densities are computed, assuming spherical configuration for the identified sources, as follows

$$n_{H_2} = \frac{M_g}{\frac{4}{3}\pi R^3_{\rm eff}\mu_{H_2} m_H}\,, \tag{5.1}$$

where $R_{\rm eff} = \sqrt{A/\pi}$ is the effective radius and A is the area of the source. This radius is also used in the mass-size plot (see Sect. 5.4.7).

We see that *Gaussclumps* tends to decompose the emission into smaller sources than *Clumpfind*. The mean $R_{\rm eff}$ is 0.20 pc for the *Gaussclumps* method, taking into account a total of 532 sources, while the *Clumpfind* mean $R_{\rm eff}$ is 0.40 pc for 226 sources. Given these sizes, the sources we discuss in this chapter are considered as clumps. The distributions of clumps (identified by *Gaussclumps*) as a function of $R_{\rm eff}$ are similar for clumps associated

Table 5.8. Statistics of cross-identifications of *Gaussclumps* sources with star formation signpots and clustering information.

SF signpot	IRDC					
	G329	G331	G335	G337	G343	G345
IRAS point source	5%	5%	7%	2%	1%	3%
MSX point source	3%	-	1%	1%	-	2%
24 μm-bright	35%	37%	35%	26%	19%	26%
HII/UCHII	-	5%	-	7%	-	3%
Masers	17%	3%	2%	-	-	3%
EGO	9%	-	2%	1%	11%	3%
Clustering						
Number of clumps	75	41	123	87	83	123
Area (arcmin^2)	342	358	475	449	561	640
Mean clump density (arcmin^{-2})	0.22	0.11	0.26	0.20	0.15	0.20

Notes. SIMBAD4 was used for performing cross-identifications. EGO stands for Extended Green Object at 4.5 μm (see Cyganowski et al. 2008).

to signposts of star formation and that of clumps without associations. At this clump scale, we do not expect to find a difference.

As for the clump masses, we get a minimum and maximum mass of 6 and 2692 $M_\odot$, respectively, with *Gaussclumps*, while for *Clumpfind* the values are 7 and 4254 $M_\odot$. The total mass of the decomposed clumps, taking into account all clouds, is 57 333 $M_\odot$ for *Gaussclumps* and 49 722 $M_\odot$ for *Clumpfind*.

5.4.5 Star formation signposts and clustering

We cross-identified the *Gaussclumps* sources with signpost of star formation such as IRAS/MSX point sources, masers (H_2O, CH_3OH, OH), green extended objects (EGOs; Cyganowski et al. 2008), HII regions, and UCHII regions using the Set of Identifications, Measurements, and Bibliography for Astronomical Data (SIMBAD4, release 1.181) as of July 2011. Point sources at 24 μm were identified by visual inspection of *Spitzer*/MIPSGAL maps. Only signpost that are in the *FWHM* ellipse of *Gaussclumps* sources are considered and marked accordingly in Fig. 5.8. Statistics of these identifications are shown in Table 5.8.

Among the six IRDCs, G331 has the highest percentage of associations to 24 μm-bright sources (37%), G329 has it for masers (17%), and G343 for EGOs (18%). In the IRDC G345, we find associations to all star formation signposts. Three IRDCs (G331, G337 and G345) have some clumps associated to HII regions and/or UCHII regions.

We also found that in G335, at one of the edges, there is emission coming from a bubble.

The clustering per IRDC which was measured with the mean clump density parameter

is listed in Table 5.8. The mean clump density ranges from 0.11 arcmin^2 (in G331) to 0.26 arcmin^2 (in G335).

5.4.6 Comments on individual IRDCs

Observations with Submillimeter APEX Bolometer Camera (SABOCA) of dust continuum emission at 350 μm reveal that fragmentation is present in at least some clumps toward the central region of the IRDCs G331 and G345 with a resolution of $\sim 9''$(see Chapter 8).

IRDC G329

The IRAS sources 15566-5304, 15579-5303, 15573-5307, and 15574-5306 are associated to 4 clumps in the field of G329. The EGOs identified in this region were cataloged as "possible" massive young stellar object (MYSO) outflow candidates by Cyganowski et al. (2008). From H_2CO observations, we get a high temperature ($\sim$40–60 K) for G329P2, a clump possibly related to a hot core. We do not find any radio continuum data in the literature related to this region. Masers (OH and CH_3OH) toward a dozen of clumps were reported by Caswell et al. (1995).

IRDC G331

The IRAS sources 16072−5123 and 16070−5107 are associated to 2 clumps in the field of G331. The former is related to the radio continuum source G331.4+00.0 which was observed in an all-sky survey of HII regions at 4.85 GHz (Kuchar & Clark 1997). *Gaussclumps* found the lowest number of clumps toward this IRDC.

IRDC G335

Together with the IRDC G343, G335 has the highest number of clumps (123). Six IRAS sources are associated to clumps in G335. We find two EGOs in this region: the first one (G335.43−0.24) was cataloged as a "possible" MYSO candidate while the second one (G335.06−0.43) as a "likely" MYSO outflow candidate (Cyganowski et al. 2008). The bubble S42 was identified by visual inspection of *Spitzer*/GLIMPSE images in Churchwell et al. (2006) and was catalogued as a "broken or incomplete" ring. The emission at 870 μm is tracing the east side of the dusty shell, and this part is visible at 24 μm (see Fig. 5.4, toward the west).

IRDC G337

Two clumps are associated to IRAS sources (16340-4732 and 16346-4726). The EGO G337.16−0.39 is found in this field and was cataloged a "likely" MYSO outflow candidate (Cyganowski et al. 2008). The Galactic radio source GRS 337.10−00.20, located in the northwest of Fig. 5.5, is probably not part of the IRDC complex. Previous studies of

337.10−00.20 show two velocity components in the H90α profile, at -73 km s^{-1} and at -59 km s^{-1} (Sarma et al. 1997), one velocity component at -73 km s^{-1} in the H190α profile (Wilson et al. 1970), and four velocity components in the CI profile, at 108, -75, -36, and -22 km s^{-1} (Huang et al. 1999).

IRDC G343

The source IRAS 16575-4252 is associated to one clump in the field of G343. Four "possible" MYSO outflow candidates (EGOs G343.53-0.51a, G343.53-0.51b, G343.40-0.40, and G343.42-0.33) and one "likely" outflow candidate from Cyganowski et al. (2008) are associated to clumps in this region. No maser observations are reported in the literature.

IRDC G345

The three IRAS sources 17010-4124, 17014-4129, and 17018-4127 are associated to clumps in this field. Masers (OH, H_2O, and CH_3OH) were reported by Caswell et al. (1995) toward a couple of clumps. The EGOs G345.00-0.22a, G345.00-0.22b, and G345.13-0.17 were cataloged by Cyganowski et al. (2008) as "possible" MYSO outflow candidates. Fish et al. (2003) have found a distance of 2.9 kpc to the clump G345P1, which is actually an UC HII (Garay et al. 2006). Garay et al. (2007) carried out observations with the Swedish-ESO Submillimeter Telescope (SEST) at 1.2 mm toward the south of the IRDC of the filament that connects to the UC HII G345.001-0.22. The morphology at 1.2 mm is similar to that we see in Fig. 5.7. These authors used a kinematic distance of 2.7 kpc, in agreement within the uncertainties with our estimated distance.

5.4.7 Mass-size relation for MSF

Figure 5.8 shows the mass-size relationship for clumps extracted with *Gaussclumps*. We plot two massive star formation thresholds, one discussed by Kauffmann & Pillai (2010) (KP; see also Eq. 1.1) and the other by Krumholz & McKee (2008) (KM). Krumholz & McKee (2008) found a limit in $N_{H_2} = 2.13\times10^{23}$ cm^{-2} (or 1 g cm^{-2}) to avoid fragmentation and form massive stars. For the sake of comparison with those criteria, clump masses were re-computed by decreasing the dust opacity values given in Ossenkopf & Henning (1994) by a factor of 1.5, as done in Kauffmann & Pillai (2010). Additionally, we make a reduction of $\ln(2) \approx 0.69$ in the total mass to account for the mass contained in the half peak column density contour.

In Fig. 5.8, the percentage of clumps that lie above the KP relation with and without association to star formation signpost is 18% and 12%, respectively, while 9% and 4% of clumps (with and without association to star formation signpost) satisfy the much more stringent threshold of KM.

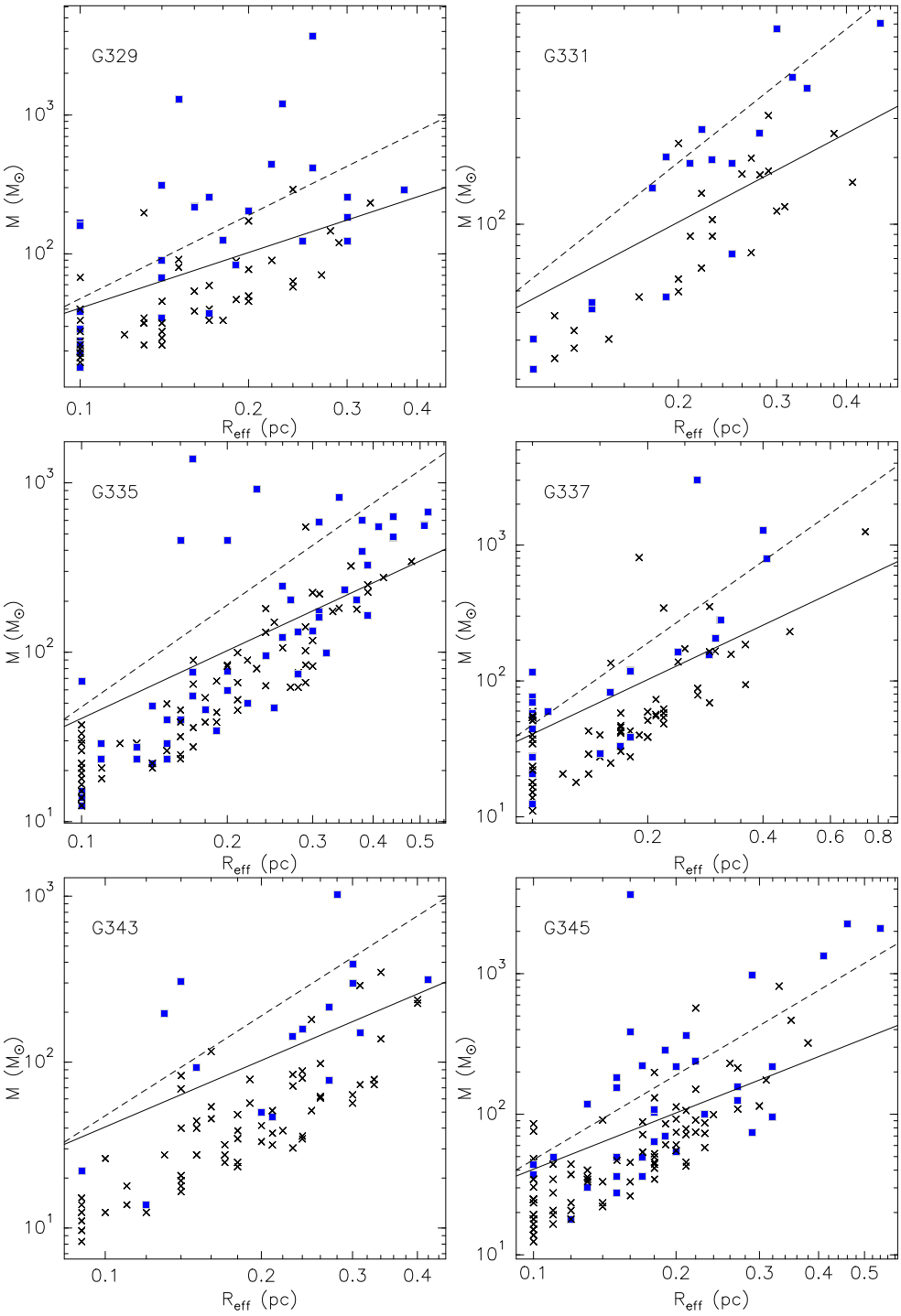

Figure 5.8. Mass-size plots for clumps extracted with *Gaussclumps* for individual IRDCs. The solid line represents the threshold for massive star formation: $M \propto R_{\rm eff}^{1.33}$ discussed by Kauffmann & Pillai (2010) while the dashed line represent the limit of 1 g cm^{-2} from Krumholz & McKee (2008). Blue filled squares represent clumps associated with any of the following signposts of star formation: IRAS/MSX/24-μm point sources, masers, HII regions and/or UCHII regions. Crosses represent clumps with no detected signpost of star formation.

5.4.8 Mass spectrum of IRDCs

The differential mass function has the form

$$\frac{dN}{dM} \propto M^{\alpha}\,, \tag{5.2}$$

where dN is the number of objects in dM,
dM is the mass bin, and
α is the power-law index.

If we see a turn-over at certain mass, $M_{\rm break}$, the fit will have two power-law indices, $\alpha_{\rm low}$ and $\alpha_{\rm high}$:

$$\frac{dN}{dM} \propto \begin{cases} M_{\rm break}^{(\alpha_{\rm high}-\alpha_{\rm low})} M^{\alpha_{\rm low}} & M < M_{\rm break} \\ M^{\alpha_{\rm high}} & M \geq M_{\rm break} \end{cases} \tag{5.3}$$

The other form commonly fitted to the mass spectrum is the log-normal distribution:

$$\frac{dN}{dM} \propto \exp\left[-\frac{\ln M - \mu_{\rm mf}}{2\sigma_{\rm mf}}\right]\,, \tag{5.4}$$

where $\mu_{\rm mf}$ is the characteristic mass and $\sigma_{\rm mf}$ is the dispersion.

When the sample has a number of sources $N_{\rm cl} < 100$, the chosen bin size together with the shifts in the bins become important (Reid & Wilson 2006b). To overcome this issue, Maíz Apellániz & Úbeda (2005) showed that using a variable bin size technique is accurate even when analyzing small samples (∼30 objects).

In Fig. 5.9, we present the differential mass functions for the 532 clumps extracted with *Gaussclumps* and the 352 sources from *Clumpfind*. The slope of the mass spectrum was calculated using two approaches for the single power-law case (see Eq. 5.2). In the former, the bin size was uniform with uncertainty, s_i, given by a Poisson distribution ($s_i = \sqrt{dN}$). In the latter, we followed the technique by Maíz Apellániz & Úbeda (2005) in which the bin size is variable so that the number of clumps per bin is approximately constant. By doing so, we not only minimize the binning biases but also ensure a correct estimate of the uncertainty derived from a binomial distribution (see Maíz Apellániz & Úbeda 2005):

$$s_i = \sqrt{\frac{dN}{N} \cdot (N - dN)}\,,$$

where N is the total number of clumps.

The dashed blue lines, in Fig. 5.9, represent least-squares fits to single power-laws, $dN/dM \propto M^{\alpha}$, with $\alpha = -1.63 \pm 0.08$ and $\alpha_{\rm var} = -1.69 \pm 0.11$ for *Gaussclumps* (*upper* panels) with uniform and variable bin size, respectively, and to slopes $\alpha = -1.50 \pm 0.09$ and $\alpha_{\rm var} = -1.59 \pm 0.12$ for *Clumpfind* (*lower* panels). The vertical dotted line indicates the 6σ (15.4 $M_{\odot}$) mass given by the noisest map. As for the variable bin size, masses higher than 15.4 $M_{\odot}$ were plotted and used in the fit. If we take only the clumps identified by *Gaussclumps* with no signposts of star formation and uniform bin, we obtain $\alpha = -1.76 \pm 0.15$.

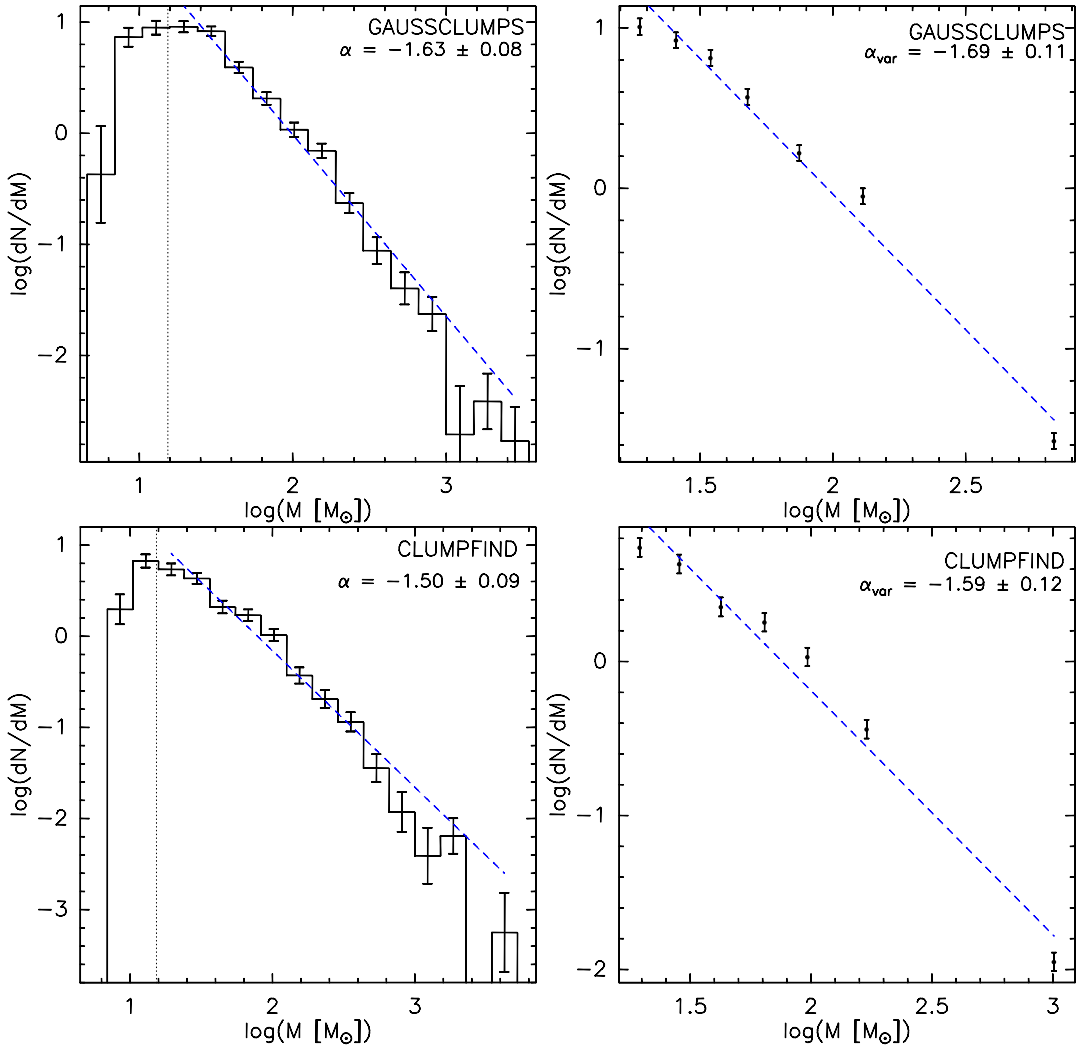

Figure 5.9. Differential mass functions, $dN/dM \propto M^{\alpha}$, for clumps from *Gaussclumps* (*upper* panels) and clumps from *Clumpfind* (*lower* panels). The dashed blue lines represent fits to single power-laws with slopes $\alpha = -1.63 \pm 0.08$ and $\alpha_{\rm var} = -1.69 \pm 0.11$ for *Gaussclumps* with a uniform and variable bin size, respectively, and $\alpha = -1.50 \pm 0.09$ and $\alpha_{\rm var} = -1.59 \pm 0.12$ for *Clumpfind*. The vertical dotted lines indicates the 6σ (15.4 $M_{\odot}$) mass given by the noisest map.

We find good agreement, within the uncertainties, between the mass spectrum obtained with either *Gaussclumps* or *Clumpfind*. Moreover, these indices were similar when using a variable or uniform bin size.

5.4.9 24 μm contrast versus 870 μm dust emission

We use the 24 μm contrast maps obtained with the method described in Chapter 2 and the LABOCA maps studied here in order to perform a pixel-to-pixel cross-correlation between the peak intensity at 870 μm, $I^{\rm peak}_{870\mu{\rm m}}$, which in turn would be translated into a $N_{\rm H_2}$ (or visual extinction, A_V), and the contrast at 24 μm.

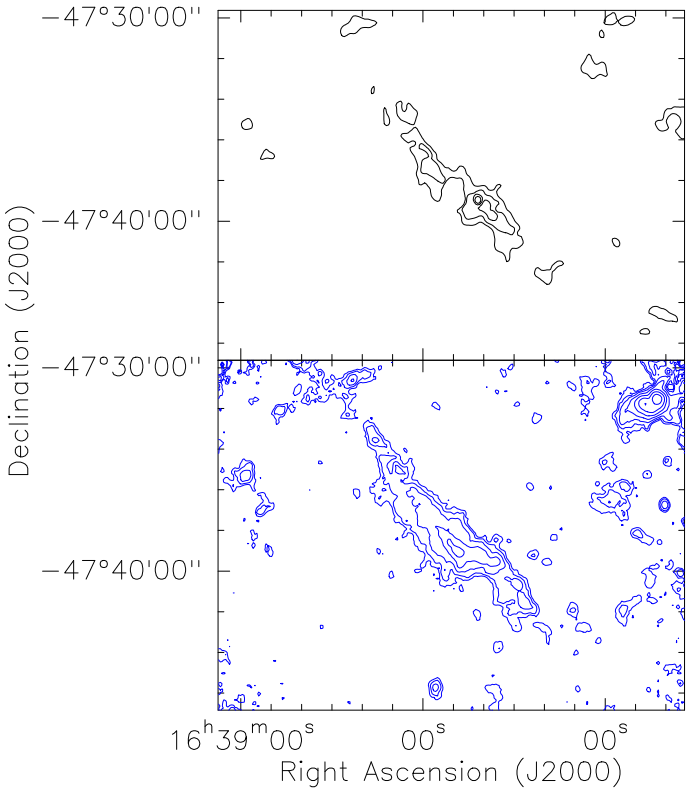

Figure 5.10. Example of a contrast map at 24 μm toward the IRDC G337 (*top*) and the corresponding LABOCA map at 870 μm (*bottom*) in which we perform pixel-to-pixel correlations. The contrast image has been regridded, first contour is 0.15 in steps of 0.1. For the LABOCA map, contours are 3, 6, 12, 24, 48, 96, 192 times 0.031 Jy beam^{-1}, the rms noise of the image.

The contrast maps were regridded to have the same number of pixels, the same pixel size, and the same resolution as those of the LABOCA maps. In Fig. 5.10, we show an example of the final regridded contrast image for the IRDC G337.

The pixel-to-pixel cross-correlation was performed with the task "histo_cloud" of the GILDAS package. Figure 5.11 shows the pixel-to-pixel values of 870 μm peak intensities and 24 μm contrasts, including all six IRDCs. Only pixels with contrast $C_{24\mu\mathrm{m}} > 0.15$ and peak intensities higher than 3σ were used in the linear regression fit. The resultant fit (shown as the blue solid line) is:

$$I^{\mathrm{peak}}_{870\mu\mathrm{m}} = 2.54 \cdot C^{1.30}_{24\mu\mathrm{m}} \quad \mathrm{Jy\ beam^{-1}}\,, \tag{5.5}$$

with a correlation coefficient of 0.45. Since the source might become 24 μm bright, the correlation is washed out to higher $I^{\mathrm{peak}}_{870\mu\mathrm{m}}$. Therefore, we also fit only the outermost pixels at the right-hand side of the plot. In this case, the linear regression fit (shown as the red broken line) is:

$$I^{\mathrm{peak}}_{870\mu\mathrm{m}} = 13.48 \cdot C^{3.19}_{24\mu\mathrm{m}} \quad \mathrm{Jy\ beam^{-1}}\,, \tag{5.6}$$

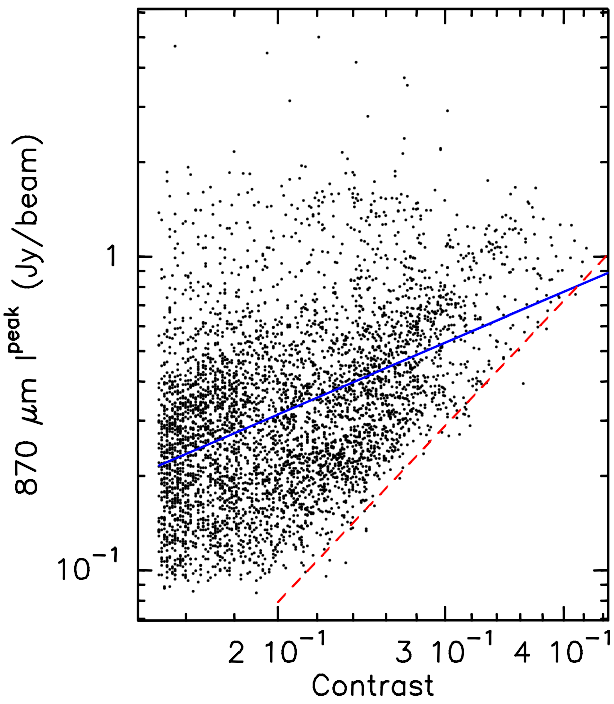

Figure 5.11. Pixel-to-pixel correlation between both images at 870 μm and at 24 μm for all six IRDCs in a log-log plot. Each point represents the values of the 870 μm dust emission, $I^{\rm peak}_{870\mu{\rm m}}$, and 24 μm contrast, $C_{24\mu{\rm m}}$, per pixel. The blue straight line represents the fit, $I^{\rm peak}_{870\mu{\rm m}} = 2.54 \cdot C^{1.30}_{24\mu{\rm m}}$, to pixels above 3σ in peak intensity and values of $C_{24\mu{\rm m}} > 0.15$ in contrast. The red broken line represents the fit, $I^{\rm peak}_{870\mu{\rm m}} = 13.48 \cdot C^{3.19}_{24\mu{\rm m}}$, to the outermost pixels at the right-hand side of the plot.

5.5 Discussion

5.5.1 The relation of 870 μm dust emission and the 24 μm contrast

In the distribution of contrast peaks in Chapter 2 (see Fig. 2.2), we see a minimum at a contrast of ∼0.7, where likely the absorption gets saturated due to the IR background becoming weak (Peretto & Fuller 2010). This saturation limit (contrast = 0.7) is translated into a peak intensity of 1.60 Jy beam^{-1} ($N_{\rm H_2} = 1.0 \times 10^{23}$ cm^{-2} at $T = 10$ K), according to the relation we found in Eq. 5.5, or into a maximum peak intensity of 4.3 Jy beam^{-1} ($N_{\rm H_2} = 2.6 \times 10^{23}$ cm^{-2}) using Eq. 5.6.

In Fig. 5.11, there is an apparent saturation in the dust emission, at ∼1 Jy beam^{-1}. It might be due to pixels with boundaries next to either bright extended or point sources at 24 μm.

5.5.2 Comparison to other mass functions toward IRDCs

The index of our IRDC mass spectrum has a mean and standard deviation of $\alpha = -1.60$ and 0.10, respectively.

Some of the previous mass spectra of IRDCs were obtained based on extinction mapping at 8 μm (Peretto & Fuller 2010; Ragan et al. 2009). Ragan et al. (2009) computed the mass spectrum of cores using *Clumpfind* in 11 IRDCs and fit broken power laws of $\alpha_{\rm low} = -1.76 \pm 0.05$ and $\alpha_{\rm high} = -0.52 \pm 0.04$ for masses lower than 40 $M_\odot$ and for masses greater than 40 $M_\odot$, respectively. Using *Gaussclumps*, the slope becomes shallower: $\alpha_{\rm low} = -1.15 \pm 0.04$ and $\alpha_{\rm high} = -0.64 \pm 0.07$ for the same break-point mass. In contrast, Peretto & Fuller (2010) found that a lognormal distribution better fitted the mass function of "fragments" with masses above 9 $M_\odot$.

Simon et al. (2006b) found a mass spectrum of $\alpha = -1.97 \pm 0.09$ for 379 IRDCs. This slope results from a fit to the high-mass end of the molecular cloud distribution (from $\sim 10^{3.6}$ to $\sim 10^{4.9}$ $M_\odot$), much steeper than the one we find in our IRDC sample whose clumps span from ~ 15 to $\sim 10^{3.4}$ $M_\odot$.

Our estimates for the slope are shallower than that obtained by Rathborne et al. (2006) ($\alpha = -2.1 \pm 0.4$) for IRDC clumps whose properties were extracted from the 1.2 mm dust continuum emission.

5.5.3 Comparison to other (sub)mm and mm mass functions of MSF regions

Mookerjea et al. (2004) studied the giant molecular cloud RCW 106 at 1.2 mm and found indices of $\alpha = -1.5 \pm 0.3$ (using *Gaussclumps*) and $\alpha = -1.7 \pm 0.3$ (with *Clumpfind*) after decomposing the dust emission into clumps. Like these authors, we do not find source-to-source correspondence after using each method of clump decomposition, but we get similar values of α within the errors.

The mass function of the MSF region NGC 6334 has been found to be similar to the CO mass function with $\alpha = -1.62 \pm 0.07$, from observations at 1.2 mm (Muñoz et al. 2007). Reid & Wilson (2006a, 2005) decomposed into clumps (sub)mm maps (at 450 μm and 870 μm) of the MSF regions NGC 7538 and M17 with *Clumpfind*. Broken power laws were fitted to their mass functions at 870 μm with indices at the high-mass end of $\alpha_{\rm high} = -2.0 \pm 0.3$ for NGC 7538 and $\alpha_{\rm high} = -1.5 \pm 0.1$ for M17.

Our derived α's are consistent with the CO clump mass function as well as with other high-mass star-forming regions such as NGC 6334.

5.5.4 What is the future of these clumps?

What is the future of clumps that are located above the MSF thresholds of KP or KM? What is the material going to do? Less than 20% of the clumps found with *Gaussclumps* lie above these thresholds. The majority of them have the mass necessary to form or they have already formed massive stars. Only 12% and 4% of clumps without signposts of star formation lie above the KP and KM thresholds, respectively. Therefore, these clumps are very interesting candidates for sources in the earliest phases of massive stellar cluster evolution.

Assuming all these IRDC clumps are cluster-forming regions (CFRgs), we can ask

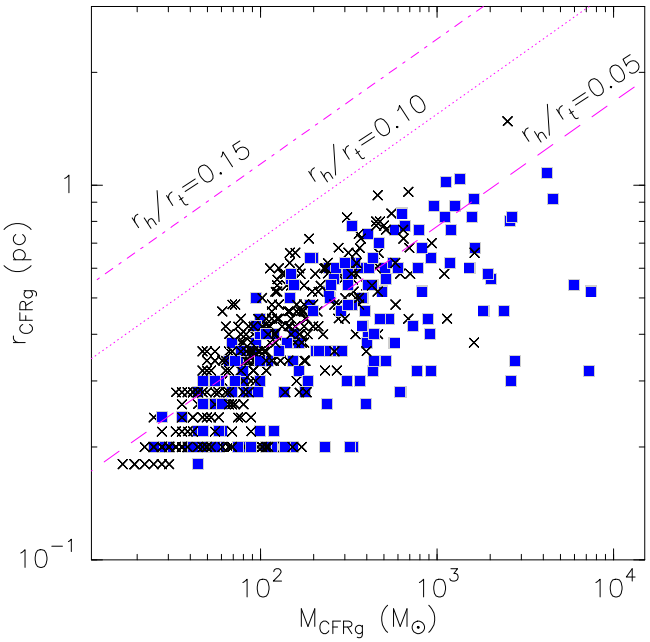

Figure 5.12. Mass-radius diagram for clumps shown in Fig. 5.8. The pink dash-dotted, dotted, and long-dashed lines represent $r_{\rm h}/r_{\rm t}$=0.15, 0.10, and 0.05, respectively, taken from Parmentier & Kroupa (2011, their Fig. 4). Symbol-coding is as in Fig. 5.8.

whether they will survive against an external tidal field. Parmentier & Kroupa (2011) investigated how an external tidal field influences cluster violent relaxation, i.e., while they dynamically respond to the expulsion of their residual star-forming gas. These authors find the relation (their Eq. 10):

$$\frac{r_{\rm h}}{r_{\rm t}} = 4.2\kappa\ {\rm SFE}^{-1/3} n_{\rm H_2}^{-1/3} \left(\frac{D_{\rm GC}}{1\ {\rm kpc}}\right)^{-2/3} \left(\frac{V_{\rm C}}{220\ {\rm km\,s^{-1}}}\right)^{2/3},$$

where $r_{\rm h}/r_{\rm t}$ is the ratio of the embedded cluster half-mass radius to the embedded cluster tidal radius, κ depends on the density profile of the clump, SFE is the star formation efficiency, $n_{\rm H_2}$ is the number density, $D_{\rm GC}$ is the Galactocentric radius, and $V_{\rm C}$ is the circular velocity of an isothermal potential.

We have overplotted our clumps in their model using $D_{\rm GC}$=5.5 kpc, $V_{\rm C}$=220 km s^{-1}, and SFE=0.33 in Fig. 5.12 for three $r_{\rm h}/r_{\rm t}$ ratios of 0.15, 0.10, and 0.05. Since Parmentier & Kroupa (2011) consider that $r_{\rm h}$=0.5$r_{\rm CFRg}$, we have multiplied our radii and masses at FWHM by 2.

In Fig. 5.12, the iso-$r_{\rm h}/r_{\rm t}$ lines are shifted vertically $\Delta\log(R_{\rm eff})$=+0.09 for a Galactocentric distance of 5.5 kpc (at which our IRDCs are located) with respect to the lines in their Fig. 4. The clumps are more likely to survive if they are below the $r_{\rm h}/r_{\rm t}$=0.05. The number of clumps above this threshold is 54 (out of 170) and 164 (out of 362) with and without signs of star formation, respectively. An implication is that ∼59% of the clumps would survive against an external tidal field.

5.6 Summary

Using the LABOCA instrument on the APEX telescope, we have mapped six IRDCs with high sensitivity with the LABOCA instrument working in the 870 μm dust continuum emission. The mapped regions show extended, filamentary, and compact dust continuum emission. Kinematic distances and temperatures have been estimated by carrying out single-pointing observations of the N_2H^+ (3–2) line and four transitions of the H_2CO (4–3) line, respectively, toward selected clumps.

Each IRDC has been decomposed into clumps by using two automated algorithms, namely *Gaussclumps* and *Clumpfind*. *Gaussclumps* tends to decompose the emission into smaller sources than *Clumpfind*. The mean $R_{\rm eff}$ is 0.20 pc for the *Gaussclumps* method, taking into account a total of 532 sources, while the *Clumpfind* mean $R_{\rm eff}$ is 0.40 pc for 226 sources. The total mass of the decomposed clumps is comparable using either method and the clump masses for *Gaussclumps* were found to be in the range from 6 to 2692 $M_\odot$.

We have found that the percentage of clumps that lie above the Kauffmann & Pillai (2010) relation with and without association to star formation signpost is 18% and 12%, respectively, while 9% and 4% of clumps (with and without association to star formation signpost) satisfy the much more stringent threshold of Krumholz & McKee (2008).

The mass spectrum of the decomposed clumps has been fitted with a power-law whose index is $\alpha = -1.60$, using two methods of binning. Both methods, with *Gaussclumps* or *Clumpfind* sources, agree within the uncertainties. This value is consistent with the CO clump mass function as well as with other high-mass star-forming regions such as NGC 6334.

A correlation, from a pixel-to-pixel cross-correlation of our 24 μm contrast maps with the dust continuum emission at 870 μm, has been found albeit with a large scatter. In particular, the lowest submillimeter fluxes for a given contrast, hence likely originating from dust not heated by star formation, show a clear correlation with contrast.

We have investigated the number of clumps that will survive against an external tidal field during the expulsion of their residual star-forming gas and have found that $\sim$59% would.

6

PdBI observations of methanol in the IRDC core G11.11-0.12P1

This chapter is based on a paper published as
Gómez et al. 2011, A&A, 529, A161.

6.1 Introduction to the core G11.11P1

Pillai et al. (2006a) mapped the $(J, K) = (1,1)$ and (2,2) inversion transitions of ammonia (NH_3) in the IRDC G11.11-0.12 with the Effelsberg 100m telescope and found gas temperatures of the order of 15 K for several clumps within this cloud. The *left* panel of Fig. 6.1 shows an overview of the region. Furthermore, Pillai et al. (2006b) reported the detection of 6.7 GHz class II methanol (CH_3OH) and 22.2 GHz water (H_2O) masers in the IRDC core G11.11-0.12P1 (hereafter G11.11P1). Both CH_3OH and H_2O masers are known as tracers of massive star formation. They found that these masers were associated with a SCUBA dust continuum peak (P1; Carey et al. 2000) and ascribed the kinematics of the methanol masing spots to a maser amplification from a Keplerian disk.

Henning et al. (2010) observed this filamentary IRDC with the PACS (at 70, 100, and 160 μm) and the SPIRE (250, 350, and 500 μm) instruments onboard the *Herschel* Space Observatory, with resolutions in the range of $\sim$6″–40″. For G11.11P1, they obtain from a modified blackbody fit to the PACS data, a dust temperature of 24 K, a luminosity of 1346 $L_\odot$, and a mass of 240 $M_\odot$. Pillai et al. (2006a) and Leurini et al. (2007b) used a two-component model to fit single-dish observations of NH_3 and CH_3OH spectra, respectively, and derived temperatures of $\sim$15–18 K for the extended component (with size of $\sim$20″ corresponding to 0.35 pc) and $\sim$47–60 K for the inner component (with a size of $\sim$3″ corresponding to 0.05 pc).

Methanol, which is a slightly asymmetric top molecule, has been used to derive physical parameters such as the density and temperature of IRDCs (Leurini et al. 2007b), high-mass protostellar objects (e.g., Leurini et al. 2007a), and massive young stars (e.g., van der Tak et al. 2000), as well as low-mass protostellar systems (Kristensen et al. 2010). In particular, van der Tak et al. (2000) carried out a study toward 13 massive star-forming regions and found three types of CH_3OH abundance ($X_{CH_3OH} \equiv N_{CH_3OH}/N_{H_2}$) profiles: $X_{CH_3OH} \sim 10^{-9}$ for the coldest sources, from 10^{-9} to 10^{-7} for warmer sources, and 10^{-7} for hot cores. CH_3OH has also been associated with outflows where the methanol abundance enhancements have been found to be a factor as large as 400-1 000 (e.g., Bachiller et al. 1995; Garay et al. 2002; Kristensen et al. 2010).

In this chapter, we present arcsecond-resolution millimeter continuum and line observations toward G11.11P1 to determine its physical and chemical structure. In Sect. 6.2, we describe our observations carried out with the IRAM Plateau de Bure Interferometer. In Sect. 6.3, we present continuum and line results together with the analysis. The discussion is presented in Sect. 6.4 and the summary is given in Sect. 6.5.

6.2 Observations and data reduction

6.2.1 IRAM PdBI observations

G11.11P1 was observed with the IRAM six element array Plateau de Bure Interferometer[1] (PdBI; Guilloteau et al. 1992) in France in D and C configurations in 2005 and 2006, respectively.

During the 2006 observations, one antenna was equipped with the prototype New Generation Receiver. Because of a difference in the frequency scheme of this receiver, visibilities obtained in the image sideband in this antenna were discarded. The receivers were tuned single side-band at 3 mm and double side-band at 1 mm. The 3 mm receivers were centered at 96.64 GHz and the 1 mm receivers at 241.81 GHz (see Table 6.1). At 3 mm, the $C^{34}S$ $2 \rightarrow 1$ line and the CH_3OH $2_k \rightarrow 1_k$ $v_t = 0$ lines were covered by using two correlator units of 80 MHz with a spectral resolution of 0.3125 MHz (0.97 $km\,s^{-1}$) and by two correlator units of 320 MHz. At 1 mm, the CH_3OH $5_k \rightarrow 4_k$ $v_t = 0$ lines were observed with two units of 160 MHz with a spectral resolution of 1.250 MHz (1.55 $km\,s^{-1}$). The remaining units of 80, 160, and 320 MHz were placed in such a way that a frequency range free of lines could be used to measure the continuum flux. The total bandwidth of both sidebands was ∼700 MHz.

The phase and amplitude were calibrated with observations of the object 1730-130. The bandpass calibration was done by observing 3C 273. MWC 349 was used as a primary flux calibrator of the 3 and 1 mm data (see Table 6.1). We estimate the final flux-density accuracy to be ∼5% and 10% for the 3 and 1 mm data, respectively. Continuum images were subtracted from the line data in the visibility plane. The combination of the C and D configurations provides angular scales in the ranges 1.″8–12.″6 (1 mm) and 4.″4–32.″5 (3 mm), i.e., providing information on spatial scales of 0.03–0.22 pc and 0.08–0.57 pc, respectively.

[1]Based on observations carried out with the IRAM Plateau de Bure interferoemter. IRAM is supported by INSU/CNRS (France), MPG (Germany), and IGN (Spain).

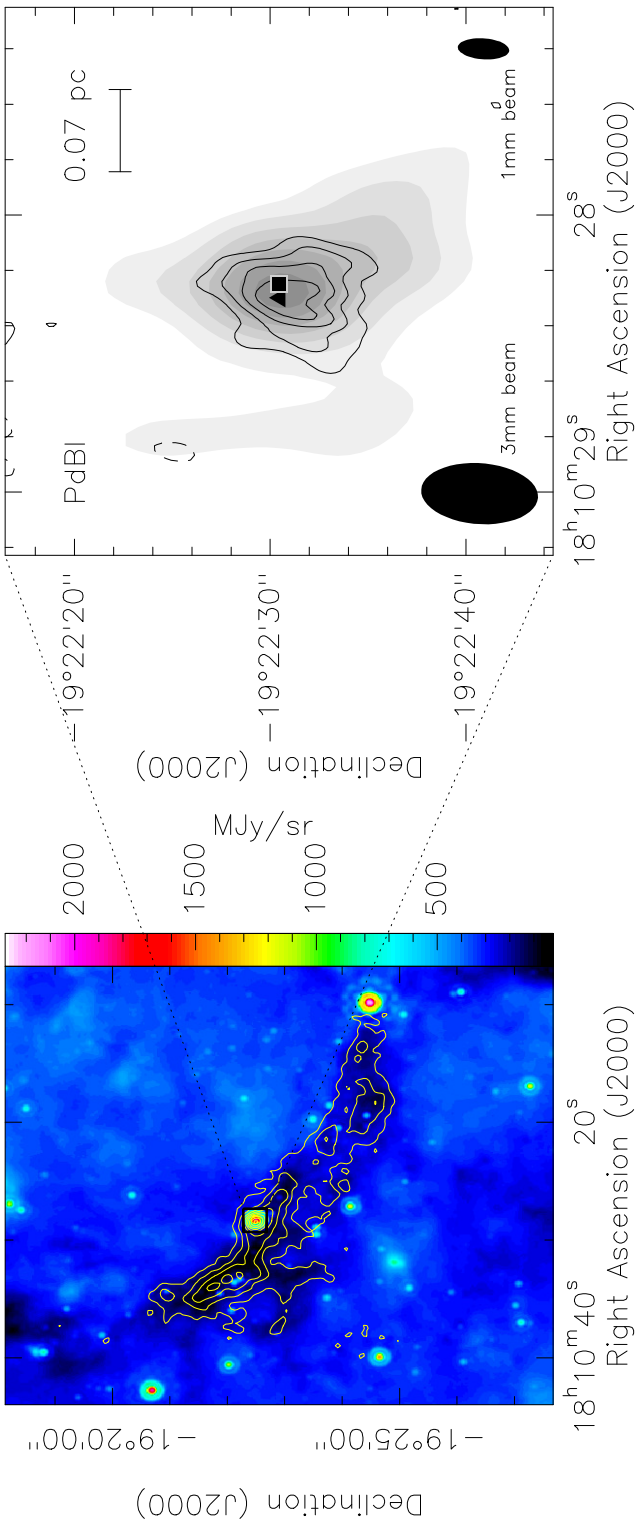

Figure 6.1. *Left*: SCUBA 850 μm (Carey et al. 2000) contours overlaid on the MIPSGAL 24 μm image of the IRDC G11.11-0.12. *Right*: PdBI 1.2 mm continuum emission (contours) of G11.11P1 overlaid on the 3.1 mm continuum emission (grey scale image). First contour and contour spacing for the 3.1 mm emission are 0.9 mJy beam^{-1} (3σ), the dotted contours show the negative emission (-3σ); the synthesized beam (6.″0 × 3.″1; PA = 176°) is shown in the bottom left corner. First contour and contour spacing for the 1.2 mm emission are 6.3 mJy beam^{-1} (3σ), the dashed contours show the negative emission (-3σ); the synthesized beam (2.″6 × 1.″1; PA = 176°) is shown in the bottom right corner. The filled triangle at RA (J2000) = $18^{\rm h}10^{\rm m}28^{\rm s}.29$, Dec (J2000) = −19°22′30.″5 and the filled square at RA (J2000) = $18^{\rm h}10^{\rm m}28^{\rm s}.25$, Dec (J2000) = −19°22′30.″45 indicate the water and (integrated emission) methanol masers, respectively, reported by Pillai et al. (2006b).

Table 6.1. Parameters for the IRAM PdBI observations.

Parameter	Value
Pointing center	RA (J2000) = $18^{\rm h}10^{\rm m}28^{\rm s}.24$
	Dec (J2000) = $-19°22'30''.5$
Number of antennas	6
Baseline range	24-176 m
Band center	96.64 and 241.81 GHz
Primary HPBW	$52''$ at 96.64 GHz
	$21''$ at 241.81 GHz
Synthesised HPBW	$6''.0 \times 3''.1$ at 96.64 GHz
	$2''.6 \times 1''.1$ at 241.81 GHz
Primary flux density calibrator:	1.17 Jy at 96.64 GHz
MWC349	2.03 Jy at 241.81 GHz

The calibration and data reduction were completed using the GILDAS package at IRAM Grenoble. Images were created with natural weighting and CLEANed using the standard Högbom algorithm.

6.2.2 IRAM 30m short-spacing observations

G11.11P1 was observed in the $2_k \rightarrow 1_k$ $v_t = 0$ (3 mm) and $5_k \rightarrow 4_k$ (1 mm) CH_3OH bands with the IRAM 30m telescope. An area of $90'' \times 90''$was mapped with the SIS B100 receiver at 3 mm and $66'' \times 66''$ with the HERA receiver (Schuster et al. 2004) at 1 mm with a bandwidth of ∼140 MHz. Sampling at 3 mm was of $15''$, while at 1 mm it was of $6''$. A conversion from antenna temperature to main-beam brightness temperature ($T_{\rm MB}$) was performed by using a beam efficiency of 0.78 at 3 mm and 0.52 at 1 mm. The rms at 1 mm is 0.3 K and at 3 mm is 0.02 K. The data were reduced with the CLASS program, which is part of the GILDAS software package.

The 3 mm single-dish data are used to create short-spacing pseudo-visibilities; these are then merged with the interferometric observations. All data are imaged and deconvolved together. The processing was performed in GILDAS/MAPPING following standard procedures of the UV_SHORT task (see Rodríguez-Fernández et al. 2008[2] for details of the pseudo-visibility technique). In Sect. 6.3.3, we present the result of recovering the short-spacing information for the 3 mm data.

Unfortunately, we were unable to merge the interferometric and single-dish observations for the 1 mm data because of the poor signal-to-noise ratio of the latter set of data. However, we used the 1 mm single-dish data in the following sections to help in the analysis and interpretation of this core.

[2]http://iram.fr/GENERAL/reports/IRAM_memo_2008-2-short-spacings.pdf

6.3 Results and analysis

6.3.1 PdBI: Continuum emission

Morphology and core size

The *right* panel of Fig. 6.1 presents the continuum images at 1 and 3 mm of G11.11P1. At the resolution of both images, the emission is extended; the peak intensity positions coincide with each other and with the maser positions as well. The morphology at 3 mm resembles that previously imaged with the Berkeley-Illinois-Maryland-Association (BIMA) interferometer by Pillai et al. (2006b) with a slightly lower resolution ($8\farcs3 \times 3\farcs9$).

In Table 6.2, we list the parameters of the continuum emission. Deconvolved sizes were been obtained by fitting two-dimensional Gaussians to the continuum maps and yielding a core size of ∼0.16 pc × 0.08 pc with a PA 24° at 3 mm and ∼0.09 pc × 0.07 pc with a PA 165° at 1 mm. We assumed a kinematic distance of 3.6 kpc.

Mass

Assuming that the mm continuum is mainly due to optically thin dust emission, we estimate the gas mass, M_g, using the expression (Hildebrand 1983)

$$M_g = \frac{F_\nu \; D^2 \; R_{\rm gd}}{\kappa_\nu \; B_\nu(T_{\rm d})} \, , \tag{6.1}$$

where
- F_ν is the observed integrated flux density,
- D is the distance,
- $R_{\rm gd}$ is the gas-to-dust mass ratio,
- κ_ν is the dust opacity, and
- $B_\nu(T_{\rm d})$ is the Planck function at the dust temperature ($T_{\rm d}$).

The 1 mm flux density was obtained by summing the 1 mm continuum emission above 3σ (> 6 mJy beam^{-1}) level within a polygon encompassing the core, and the integrated flux density is ∼209 mJy. We assume a gas-to-dust mass ratio of 100, and adopt a $\kappa_\nu = 1$ cm^2 g^{-1} (Ossenkopf & Henning 1994), at 1mm, for an MRN (Mathis et al. 1977) graphite-silicate grain mixture with thick ice mantles, at a gas density of 10^6 cm^{-3}. If we use $T_{\rm d} = 60$ K (Leurini et al. 2007b; Pillai et al. 2006a), a proper temperature for a region where methanol emission is produced, a mass of 13 $M_\odot$ at 1 mm is obtained for G11.11P1 (see Table 6.2). This is equivalent to adopting a dust opacity coefficient of $k_\nu = 0.1\ (\nu/10^{12}\ {\rm Hz})^\beta$ (Beckwith et al. 1990), which includes the gas contribution to the total mass for a $R_{\rm gd} = 100$, with $\beta = 1.6$. Given the uncertainties in the models of dust opacities and variation of the gas-to-dust ratio, β is within the errors comparable to the upper limit we obtain later in this section.

Table 6.2. Parameters of the observed continuum emission.

Frequency (GHz)	Peak Intensity Position RA (J2000)	Dec (J2000)	Peak Intensity (mJy beam^{-1})	Flux density[a] (mJy)	Deconvolved angular size[b]	Mass[c] ($M_\odot$)
96.6	$188^h108^m28\overset{s}{.}28$	$-19°22'30\overset{''}{.}5$	7.0	20.2	$(8\overset{''}{.}9 \pm 0\overset{''}{.}6) \times (4\overset{''}{.}4 \pm 0\overset{''}{.}5)$; $+24° \pm 7°$	37
240.3	$188^h108^m28\overset{s}{.}29$	$-19°22'30\overset{''}{.}5$	30.8	208.6	$(4\overset{''}{.}9 \pm 0\overset{''}{.}6) \times (3\overset{''}{.}9 \pm 0\overset{''}{.}5)$; $+165° \pm 36°$	13

[a] Flux density was obtained by summing the continuum emission above 3σ level within a polygon encompassing the core. [b] Major axis $\times$ minor axis, at FWHM; position angle of major axis from fits of elliptical Gaussian. [c] Assuming a distance of 3.6 kpc and dust temperature of 60 K.

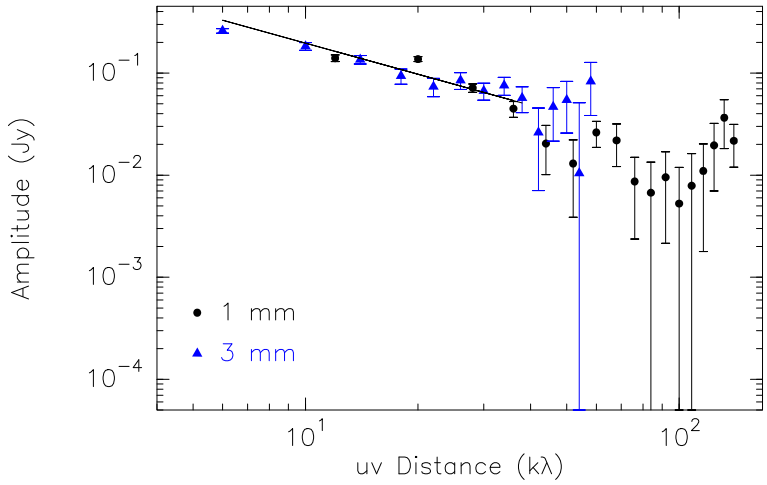

Figure 6.2. Continuum emission from G11.11P1 at 3.1 mm (filled triangles) and 1.2 mm (filled circles) in the Fourier domain. Amplitudes are averaged in bins of deprojected u-v distance from the continuum intensity peaks. The 3.1 mm u-v amplitudes have been scaled by a factor of 15. The straight solid line represents the least squares fit to the data. Error bars represent 1σ statistical errors based in the standard deviation of the mean of the data points in the bin.

Comparing the flux from the Bolocam Galactic Plane Survey (BGPS[3]; Aguirre et al. 2011) 1.1 mm with the PdBI 1.2 mm continuum flux, we find that the interferometric observations filter out about 75% of the emission.

To make a rough mass estimate of the core from the 3 mm data, all parameters remain the same as with the 1 mm data except for the flux density, ∼20 mJy, and $\kappa_\nu = 0.2$ cm^2 g^{-1} (extrapolating from Table 1 Column 9 in Ossenkopf & Henning 1994). We obtain a core mass of 37 $M_\odot$.

Density, temperature, and spectral indeces

For deeper insight into the source structure, we analyzed the 1 mm and 3 mm continuum data in the u-v domain avoiding the cleaning and u-v sampling effects. Figure 6.2 shows the averaged amplitudes averaged over a concentric annulus (from the continuum peak positions) versus deprojected u-v distance in units of wavelength. The amplitudes were averaged vectorially and the 3 mm u-v amplitudes in Jy were scaled by a factor of 15 to match the 1 mm visibilities. Error bars are 1σ statistical errors based on the standard deviation in the mean of the data points in the bin.

Since the index of the power law in u-v distance is related to the index of the power law in radial distance, following Looney et al. (2003), we can write

$$F(r) \propto r^{-(p+q)+1} \rightarrow V(s) \propto s^{(p+q)-3} \tag{6.2}$$

where $F(r)$ is the flux density in the image domain,
$V(s)$ is the Fourier transform of the flux density,
s is the u-v distance,

[3]http://irsa.ipac.caltech.edu/data/BOLOCAM_GPS/

and, p and q are the power-law indices of the density ($n \propto r^{-p}$) and temperature structure ($T \propto r^{-q}$), respectively.

The least squares fit (see Fig. 6.2) to both the 1 mm and 3 mm data yields a slope of -1.01 ± 0.02, corresponding to $p + q \sim 2.0$. Points starting at 40 kλ, which corresponds to an angular scale of $\sim 6''$ (0.1 pc), were excluded from the fit because the signal-to-noise ratio gets very low. If the index $q = 0.4$ (Goldreich & Kwan 1974), the density profile index is 1.6.

We estimate a volume gas density of the core ($n = \frac{M_g}{\frac{4}{3}\pi R^3 \mu_{H_2} m_H}$) of 2.3×10^5 cm^{-3} using the mass derived from the dust observations at 1 mm (13 $M_\odot$), and the geometric mean of the deconvolved linear size as the core radius ($R = \sqrt{(FWHM_{\rm maj}/2) \times (FWHM_{\rm min}/2)}$ = 0.04 pc).

The scaling factor of 15 corresponds to a spectral index $\alpha = 3.0 \pm 0.4$ and we thus obtain an opacity spectral index $\beta = 1.0 \pm 0.4$. The derived dust opacity index corresponds, taking the upper limit, to a "normal" interstellar dust material value. Nonetheless, if taking the lower limit, the dust opacity index decreases to a value that is usually found toward disks (e.g., Beckwith & Sargent 1991; Natta et al. 2004), which has been ascribed to grain growth. Alternatively, the presence of winds/outflows (see Sect. 6.4) could mimic a low value of β (Beuther et al. 2007b). Here we adopt a $\beta = 1.6$ in the rest of the paper.

6.3.2 PdBI: Molecular emission

Spectroscopic parameters of the detected C^{34}S 2 $\rightarrow$ 1 and CH$_3$OH $2_k \rightarrow 1_k$ and $5_k \rightarrow 4_k$ transitions toward G11.11P1 are listed in Table 6.3. The interferometric integrated intensity maps, overlaid on their corresponding continuum emission, along with sample spectra are presented in Figs. 6.3–6.5.

C^{34}S emission

The integrated intensity map of the C^{34}S 2 $\rightarrow$ 1 line is shown in the *top* panel of Fig. 6.3. This emission is spatially coincident with the 3 mm continuum; moreover, some emission extends along the E-W direction. Observed parameters toward the peak position in the integrated intensity map are presented in Table 6.4.

Virial mass. The virial mass of a core with a power-law density distribution is $M_{\rm vir} = k_1 \sigma_{\rm v}^2 R/G$ (MacLaren et al. 1988), where $k_1 = (5-2p)/(3-p)$, $\sigma_{\rm v}$ is the three-dimensional root-mean-square velocity related to the FWHM line width, ΔV, through $\sigma_{\rm v}^2 = (3/8{\rm ln}2)\Delta{\rm V}^2$, R is the core radius, and G is the gravitational constant. For $p = 1.6$ (see Sect. 6.3.1), the virial mass can be expressed as

$$M_{\rm vir} \simeq \ 161 \times \left(\frac{R}{\rm pc}\right) \ \left(\frac{\Delta {\rm V}}{\rm km\ s^{-1}}\right)^2 \ M_\odot. \qquad (6.3)$$

A virial mass of $\sim$135 $M_\odot$ is calculated when using ΔV = 4.1 km s^{-1} (see Table 6.4) of the C^{34}S optically thin line and $R = 0.05$ pc, which corresponds to the geometric mean of the deconvolved linear size.

Table 6.3. Molecular parameters of detected line transitions.

Molecule[a]	Transition	Frequency (MHz)	E_u/k (K)	$\mu^2 S$ (D^2)
$C^{34}S$	2→1	96412.9495	6.94	7.6678
CH_3OH	$2_{-1} \rightarrow 1_{-1}$ E	96739.3620	12.55	1.2134
	$2_0 \rightarrow 1_0$ A	96741.3750	6.97	1.6170
	$2_0 \rightarrow 1_0$ E	96744.5500	20.10	1.6166
	$2_1 \rightarrow 1_1$ E	96755.5110	28.03	1.2442
	$5_0 \rightarrow 4_0$ E	241700.2190	47.96	4.0402
	$5_{-1} \rightarrow 4_{-1}$ E	241767.2240	40.41	3.8824
	$5_0 \rightarrow 4_0$ A	241791.4310	34.83	4.0430
	$5_{\pm 3} \rightarrow 4_{\pm 3}$ A	241832.9100	84.68	2.5775
	$5_1 \rightarrow 4_1$ E	241879.0730	55.91	3.9802
	$5_{-2} \rightarrow 4_{-2}$ E	241904.1520[b]	60.76	3.3986
	$5_2 \rightarrow 4_2$ E	241904.6450[b]	57.11	3.3558

[a]Rest frequencies, upper level energies and $\mu^2 S$ from the Cologne Database for Molecular Spectroscopy (CDMS; Müller et al. 2001, 2005) as of December 2010.
[b]Blend of lines.

Virial parameter. The virial parameter (Bertoldi & McKee 1992) for a spherical cloud is defined as $\alpha_{\rm vir} \equiv M_{\rm vir}/M_{\rm tot}$, where $M_{\rm tot}$ is the total mass. If we assume that $M_{\rm tot} = M_{\rm g} = 37\ M_\odot$, then $\alpha_{\rm vir} = 3.6$.

We note that the $C^{34}S$ line width could be affected by unbound motions, e.g., outflows, partially broadening the line and thereby significantly increasing the virial mass estimate, in addition to the virial parameter.

Jeans mass. Following Stahler & Palla (2005), we can calculate the Jeans mass

$$M_J = \frac{ma^3}{\rho^{1/2}\ G^{3/2}} \simeq\ 1.0 \times \left(\frac{T}{10\ \mathrm{K}}\right)^{3/2} \left(\frac{n}{10^4\ \mathrm{cm}^{-3}}\right)^{-1/2}\ M_\odot, \tag{6.4}$$

where a is the isothermal sound speed and
ρ is the mass density.

where a is the isothermal sound speed and ρ is the mass density. For $n = 7 \times 10^5$ cm^{-3} (see Sect. 6.3.1) and $T = 60$ K, we obtain a Jeans mass of $\sim$1.8 $M_\odot$. We find a gas mass (M_g) to the Jeans mass (M_J) ratio larger than unity; other interferometric studies (Rathborne et al. 2008; Zhang et al. 2009) toward IRDCs also find that $M_g/M_J > 1$.

From our interferometric observations at 1mm, and taking a flux density equal to the 3σ detection level, we derive a mass sensitivity limit of 0.4 $M_\odot$. Comparing this value with the Jeans mass, we note that our mass sensitivity limit is good enough to detect fragments of about the Jeans mass.

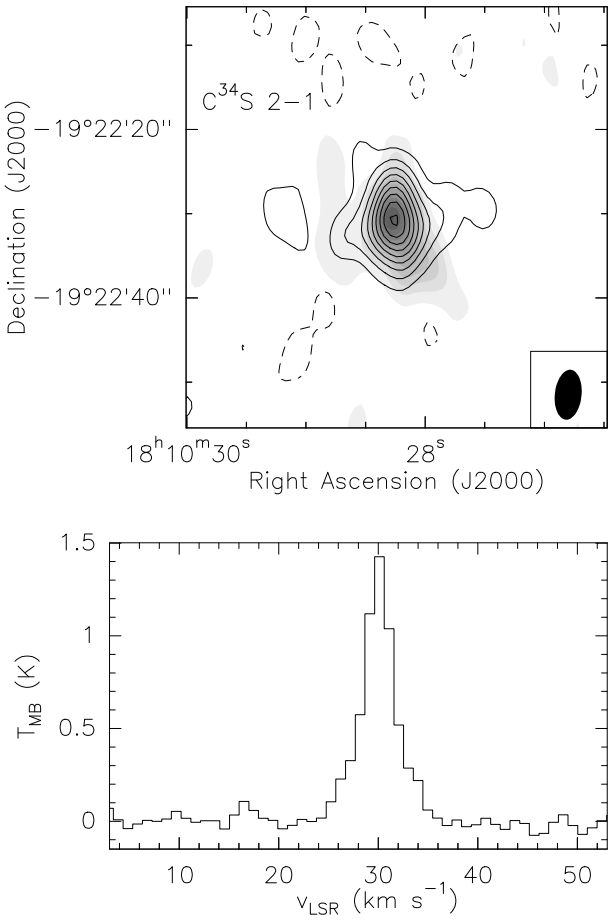

Figure 6.3. Contour image of the emission integrated under the $C^{34}S$ 2→ 1 line, in the velocity range from 22.4 to 37.9 km s^{-1} , overlaid on the grey-scale 3.1 mm continuum emission of G11.11P1. First contour and contour spacing are 0.09 Jy beam^{-1} km s^{-1} (3σ), the dashed contours show the negative emission (-3σ). The synthesized beam ($6\farcs0 \times 3\farcs2$; PA = 176°) is shown in the lower right corner. *Bottom*: Spectrum of $C^{34}S$ 2→ 1 toward the peak position on the integrated intensity map at RA (J2000) = $18^h10^m28\farcs24$, Dec (J2000) = -19°22′30.″5.

CH_3OH emission

Figure 6.4 shows the integrated intensity map of the CH_3OH $2_k \rightarrow 1_k$ quartet of lines (*bottom middle*). The emission exhibits three maxima: one is spatially coincident with the 1 and 3 mm continuum emission that peaks at $(1\farcs5, 0'')$, and the other two are located at $(13\farcs1, 0'')$ and $(-9\farcs5, 2\farcs2)$. We plot sample spectra at four different positions, including the three maxima and one position on the envelope $(3\farcs7, -7\farcs3)$, to compare the line profiles, absolute line strengths, and the relative strengths among lines. The high excitation CH_3OH $2_1 \rightarrow 1_1E$ transition that arises from a smaller region is also shown (*top middle*).

Line widths at and close to the three peak positions are, on average ∼5 km s^{-1} with line profiles showing red- and/or blueshifted "wings", while in the outer parts of the envelope, e.g., at the $(3\farcs7, -7\farcs3)$ position, the line width is narrower (∼2 km s^{-1}; see spectra in Fig. 6.4).

Line widths at and close to the three peak positions are, in average $\sim$5 km s^{-1} with line profiles showing red- and/or blueshifted "wings", while in the outer parts of the envelope, e.g., at the $(3\farcs7, -7\farcs3)$ position, the line width is narrower ($\sim$2 km s^{-1}; see spectra in Fig. 6.4).

In Fig. 6.5, we present the integrated intensity map of the detected CH_3OH $5_k \rightarrow 4_k$ $v_t = 0$ lines. The emission distribution is as compact as that of the 1 mm continuum and the CH_3OH $2_1 \rightarrow 1_1E$ emissions.

Local thermodynamic equilibrium (LTE) analysis.

We derived the rotational temperatures and methanol column densities using the rotational diagram method (e.g., Cummins et al. 1986; Goldsmith & Langer 1999). Briefly, for an optically thin line, the column density in the upper level (N_u) can be written as

$$N_u = \frac{3}{8}\frac{kWg_u}{\pi^3\nu\mu^2 S}\,, \tag{6.5}$$

where W is the integrated intensity of a line ($\int T_{\rm MB} d{\rm V}$),
g_u is the statistical weight,
ν is the frequency,
μ is the dipole moment, and
S is the line strength.

Under LTE conditions, the population of each level follows a Boltzmann law at the gas temperature T by

$$N_u = \frac{N}{Q} g_u e^{-E_u/kT}\,, \tag{6.6}$$

where N is the total column density,
Q is the partition function, and
E_u is the energy of the upper level.

We then obtain

$$\log\left(\frac{3kWg_u}{8\pi^3\nu\mu^2 S}\right) = \log\left(\frac{N}{Q}\right) - \frac{\log e}{T}\frac{E_u}{k}\,. \tag{6.7}$$

Using Eq. 6.7, we plot $\log(\frac{3kW}{8\pi^3\nu\mu^2 S})$ versus E_u/k (see Fig. 6.6) and perform a least squares fit for T and N taking into account both the CH_3OH $2_k \rightarrow 1_k$ and $5_k \rightarrow 4_k$ bands. Following Turner (1991), the partition function of CH_3OH is

$$Q = 2\left[\frac{\pi\ (kT)^3}{h^3 ABC}\right]^{1/2}\,,$$

where h is the Planck constant,
A, B and C are the rotation constants.

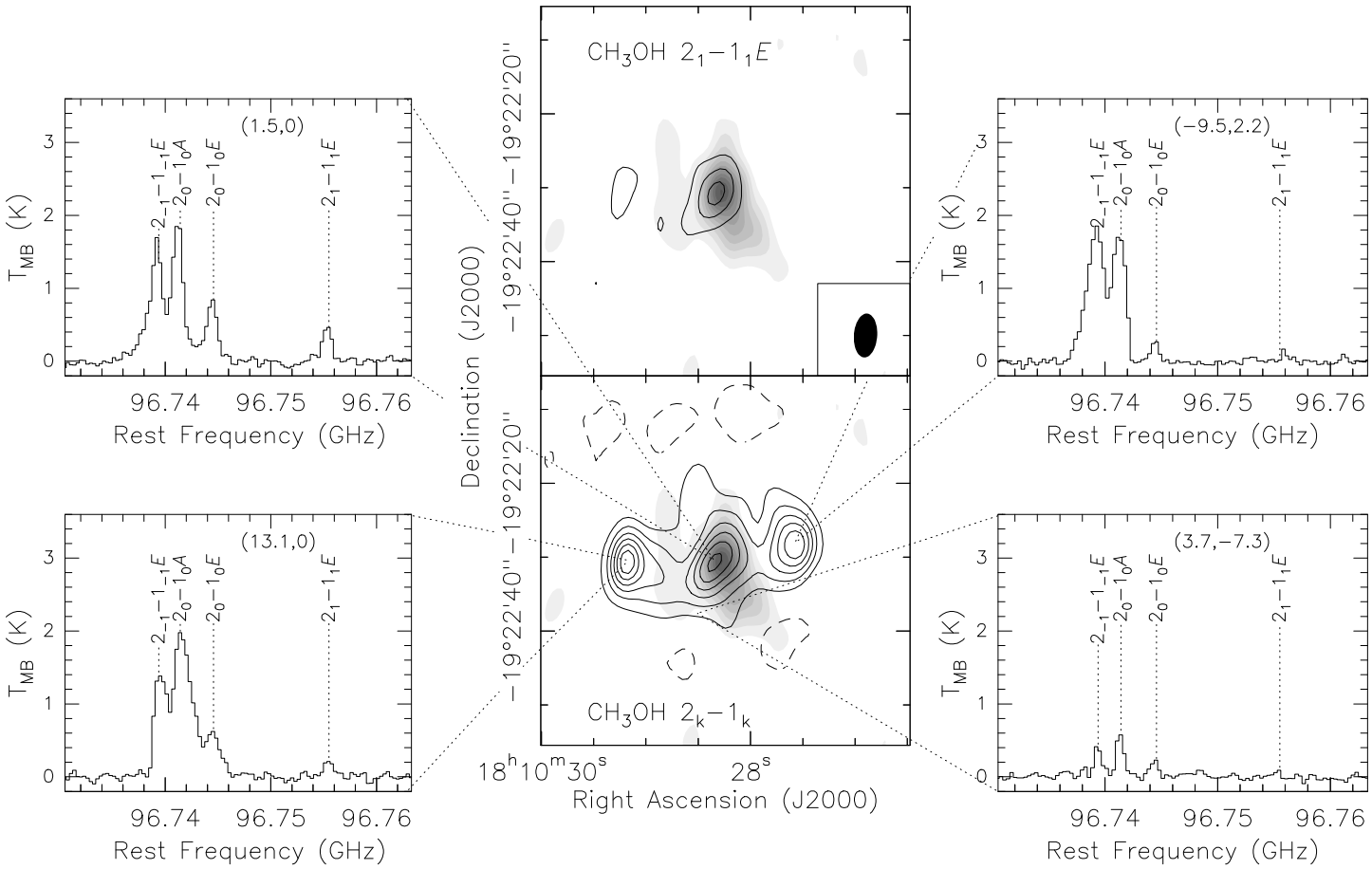

Figure 6.4. In greyscale, the 3.1 mm continuum emission of G11.11P1. *Top middle*: Contour image of the CH_3OH emission integrated under the line $2_1 \rightarrow 1_1E$. First contour and contour spacing are 0.66 Jy beam^{-1} km s^{-1} (3σ). The synthesized beam ($6\farcs0 \times 3\farcs2$; PA = 174°) is shown in the lower right corner. *Bottom middle*: Contour image of the CH_3OH emission integrated under the $2_{-1} \rightarrow 1_{-1}E$, $2_0 \rightarrow 1_0A$, and $2_0 \rightarrow 1_0E$ transition lines. First contour and contour spacing are 0.45 Jy beam^{-1} km s^{-1} (3σ). The dashed contours show the negative emission (-3σ). We also show spectra at four different positions; positions are given in each inset in parenthesis in units of arcsec.

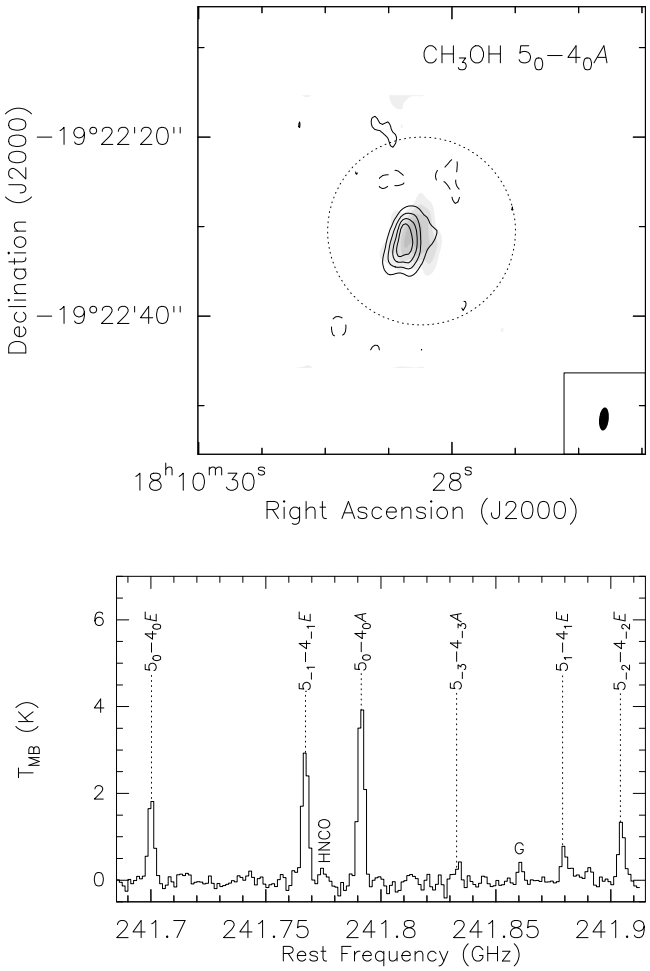

Figure 6.5. Contour image of the emission integrated under the $5_0 \rightarrow 4_0A$ transition line, overlaid on the greyscale 1.2 mm continuum emission of G11.11P1. First contour and contour spacing are 0.16 Jy beam^{-1} km s^{-1} (3σ); the dashed contours show the negative emission (-3σ). The synthesized beam ($2\farcs6 \times 1\farcs1$; PA = 174°) is shown in the lower right corner. The dotted circle indicates the interferometer primary beam ($21''$) at this frequency. *Bottom*: Spectrum of CH_3OH $5_k \rightarrow 4_k$ toward the position: RA (J2000)= $18^h10^m28\fs40$, Dec (J2000) = -19°22′31″.9. The HNCO $11_{0,11} \rightarrow 10_{0,10}$ line (at 241774.0320 MHz with E_u/k = 69.67 K and μ^2S = 27.4590 D^2) is shown as well. The "G" shows an artifact produced in the central channels of a correlator unit by the Gibbs effect.

Values for A, B, and C are obtained from the CDMS (Müller et al. 2001, 2005). A $Q = 1.23\ T^{1.5}$ was used in the calculations. The CH_3OH $5_k \rightarrow 4_k$ data were smoothed to the resolution of the $2_k \rightarrow 1_k$ data. CH_3OH transition lines that were used in this fit are listed in Table 6.4.

To estimate the CH_3OH fractional abundance (relative to H_2), X_{CH_3OH}, we calculate the beam-averaged H_2 column density, N_{H_2}, following the expression

$$N_{H_2} = \frac{I_\nu^{\rm peak}\ R_{\rm gd}}{\kappa_\nu\ B_\nu(T_{\rm d})\ \Omega\ \mu_{H_2}\ m_{\rm H}}\,, \tag{6.8}$$

Table 6.4. Observed molecular line parameters from Gaussian fits.

Molecule	Transition	v_{LSR} (km s^{-1})	Peak T_{MB} (K)	ΔV (FWHM) (km s^{-1})	$\int T_{MB} dV$ (K km s^{-1})
		Offset $(0'', 0'')$			
$C^{34}S$	$2 \rightarrow 1$	29.90 (0.04)	1.31 (0.04)	4.1 (0.1)	5.6 (0.1)
		Offset $(1\farcs5, 0'')$			
CH_3OH	$2_{-1} \rightarrow 1_{-1}$ E	29.85 (0.05)	1.49 (0.04)	5.1 (0.2)	8.0 (0.2)
	$2_0 \rightarrow 1_0$ A	29.72 (0.04)	1.89 (0.04)	3.6 (0.1)	7.3 (0.2)
	$2_0 \rightarrow 1_0$ E	29.87 (0.09)	0.78 (0.04)	4.4 (0.2)	3.6 (0.1)
	$2_1 \rightarrow 1_1$ E	29.79 (0.01)	0.49 (0.04)	3.1 (0.2)	1.6 (0.1)
	$5_0 \rightarrow 4_0$ E	29.71 (0.20)	0.70 (0.04)	4.1 (0.5)	3.1 (0.3)
	$5_{-1} \rightarrow 4_{-1}$ E	29.92 (0.09)	1.48 (0.04)	4.1 (0.2)	6.5 (0.3)
	$5_0 \rightarrow 4_0$ A	30.00 (0.05)	1.80 (0.04)	4.3 (0.2)	8.3 (0.3)
	$5_1 \rightarrow 4_1$ E	29.78 (0.41)	0.33 (0.04)	3.9 (1.3)	1.4 (0.3)

Notes. CH_3OH $2_k \rightarrow 1_k$ and $5_k \rightarrow 4_k$ line parameters listed in this table were used in the rotational diagram method described in the text. The CH_3OH $5_k \rightarrow 4_k$ transitions have been convolved to the $2_k \rightarrow 1_k$ resolution.

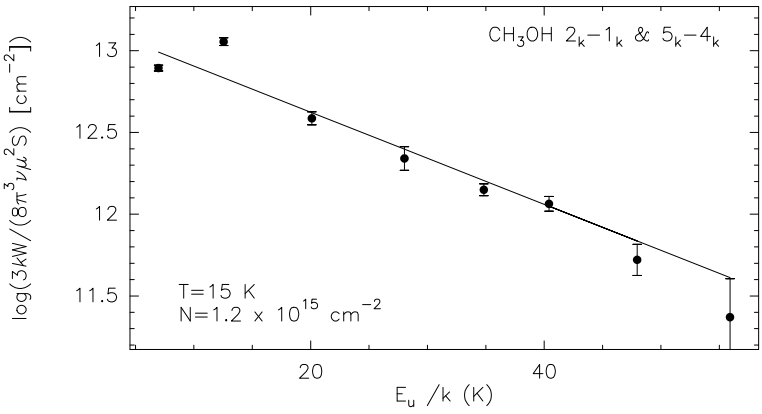

Figure 6.6. Rotational diagram of CH_3OH (2–1) and (5–4) transition lines toward the $(1\farcs5, 0'')$ position. The straight line is a least squares fit to the data corresponding to the rotational temperature and column densities indicated in the bottom left. Error bars are for 1σ uncertainties.

where $I_\nu^{\rm peak}$ is the peak intensity,
μ_{H_2} is the molecular weight per hydrogen molecule, and
Ω is the beam solid angle of an elliptical Gaussian beam,

we adopt $\mu_{H_2} = 2.8$ (Kauffmann et al. 2008) and the definition of $\Omega = (\pi\theta_{\rm min}\theta_{\rm maj})/(4\ln 2)$ with minor and major axes $\theta_{\rm min}$ and $\theta_{\rm maj}$, respectively.

We obtained a rotational temperature of 15 K and a CH_3OH column density, N_{CH_3OH}, of 1.2×10^{15} cm^{-2} toward the $(1\farcs5, 0'')$ peak position. Since the lines are likely subthermally excited, we take a dust temperature $T_{\rm d} = 60$ K (see LVG analysis) and obtain a $N_{H_2} = 4.6 \times 10^{22}$ cm^{-2} (from our 1 mm continuum data convolved to the 3 mm data)

and a X_{CH_3OH} of 2.6×10^{-8}.

At the $(13\farcs1, 0'')$ position, we obtain $X_{CH_3OH} = 3.7 \times 10^{-9}$, when assuming that $N_{CH_3OH} = 2.9 \times 10^{14}$ cm^{-2} and $N_{H_2} = 7.7 \times 10^{22}$ cm^{-2}. A rotational temperature of 13 K was calculated. At the $(-9\farcs5, 2\farcs2)$ position, the values for the X_{CH_3OH}, N_{CH_3OH}, and N_{H_2} are 5.6×10^{-9}, 3.8×10^{14} cm^{-2}, and 6.8×10^{22} cm^{-2}, respectively. For the $(-9\farcs5, 2\farcs2)$ peak, we fixed $T = 15$ K because of the low signal-to-noise ratio of one of the three lines used in the fit. For both peaks at $(13\farcs1, 0'')$ and $(-9\farcs5, 2\farcs2)$, N_{CH_3OH} was calculated from the 3 mm interferometric map only and N_{H_2} from the SCUBA 850 μm dust continuum; the interferometric observations were convolved to the SCUBA beam size $(14'')$.

Large velocity gradient (LVG) analysis.

Leurini et al. (2004) found several ratios, from some CH_3OH-E transitions, to be calibration-independent tracers of density in the 1 and 3 mm bands. We used their LVG calculations and plotted the integrated intensity line ratios $5_0 \rightarrow 4_0/5_{-1} \rightarrow 4_{-1}$, $5_1 \rightarrow 4_1/5_{-1} \rightarrow 4_{-1}$, and $5_1 \rightarrow 4_1/5_0 \rightarrow 4_0$, in a temperature-density (T-n) plane. In Fig. 6.7, the observed ratios, toward the $(1\farcs5,0'')$ position, are represented by the black dash-dotted line, blue solid line, and pink dashed line. The $2_k \rightarrow 1_k$ quartet of lines in the 3 mm band were not used in the analysis because they are blended.

Given the results for CH_3OH column densities in the LTE analysis, the explored LVG models for the excitation of methanol run for temperatures in the range of 10–200 K, for densities 10^5–10^8 cm^{-3}, and for two CH_3OH column densities per line width 10^{14} and 10^{15} cm^{-2}/(km s^{-1}).

For an average line width of 4 km s^{-1}, this corresponds to $N_{CH_3OH-E} = 4\times10^{14}$ cm^{-2} and 4×10^{15} cm^{-2}, respectively. Depending on the column density, two possible solutions are found. At $N_{CH_3OH-E} = 4 \times 10^{14}$ cm^{-2}, the three integrated intensity line ratios intercept at $T = 17$ K and $n = 10^7$ cm^{-3}, whereas at $N_{CH_3OH-E} = 4 \times 10^{15}$ cm^{-2}, the interception is at $T = 60$ K and $n = 2\times10^6$ cm^{-3} (see Fig. 6.7). The methanol column density inferred in this case is consistent with the LTE analysis to within a factor of three, but the intensities in this model are one order of magnitude higher than the observed line intensities. In other words, to fit the observations with the $N_{CH_3OH-E} = 4 \times 10^{15}$ cm^{-2} model, we need a beam filling factor of 0.1 resulting in a more compact source (with a size of $0\farcs5$ corresponding to 0.009 pc or 1800 AU), even smaller than the one modeled by Pillai et al. (2006a) and Leurini et al. (2007b).

To gain more insight into the possible T-n degeneracy, in Figure 6.8, we show n versus N_{CH_3OH} plots, at different temperatures (10-70 K), where the color-coding for the ratios (along with their 1σ values) are the same as in Fig. 6.7; in addition, we show in each panel the peak main beam brightness temperature of the $5_0 \rightarrow 4_0E$ transition (green dotted line). The parameters obtained in the regions in the left side of the green dotted line imply beam filling factors greater than 1, which is not possible. In each panel, the areas of interest are those that lie in the right side of the green line and, at the same time, are delimited by the integrated intensity ratios (taking into account their 1σ values). We see that, for T in the range 30-70 K, the n remains constant up to $N_{CH_3OH} \sim 4 \times 10^{14}$ cm^{-2}, while for very low T (= 10 K) there is no solution.

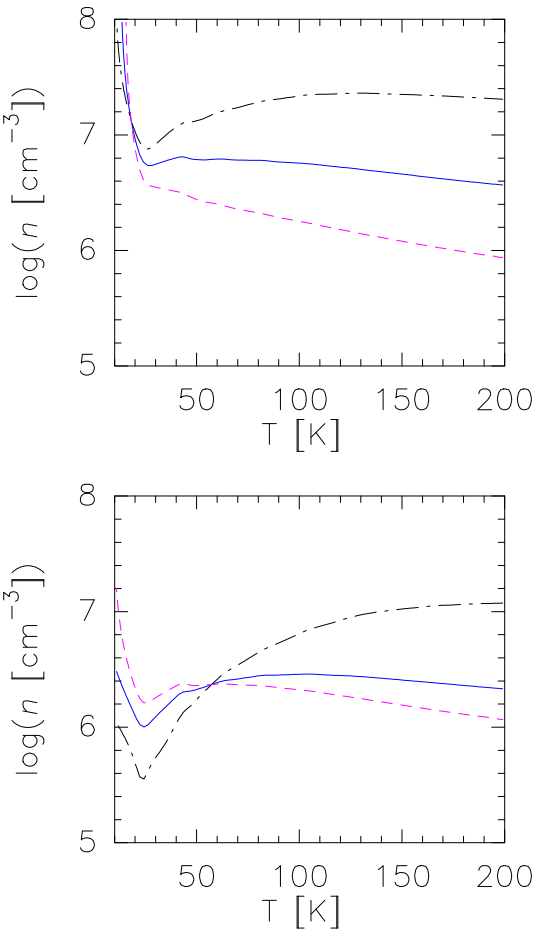

Figure 6.7. Results of statistical equilibrium calculations for CH_3OH-E. The $5_0 \rightarrow 4_0/5_{-1} \rightarrow 4_{-1}$ (black dash-dotted line), $5_1 \rightarrow 4_1/5_{-1} \rightarrow 4_{-1}$ (blue solid line), and $5_1 \rightarrow 4_1/5_0 \rightarrow 4_0$ (pink dashed line) observed integrated intensity line ratios toward the (1.″5,0″) position on a logarithmic scale are shown as function of H_2 density and temperature at $N_{CH_3OH}/\Delta V = 10^{14}$ cm^{-2}/(km s^{-1}) (*top*) and $N_{CH_3OH}/\Delta V = 10^{15}$ cm^{-2}/(km s^{-1}) (*bottom*).

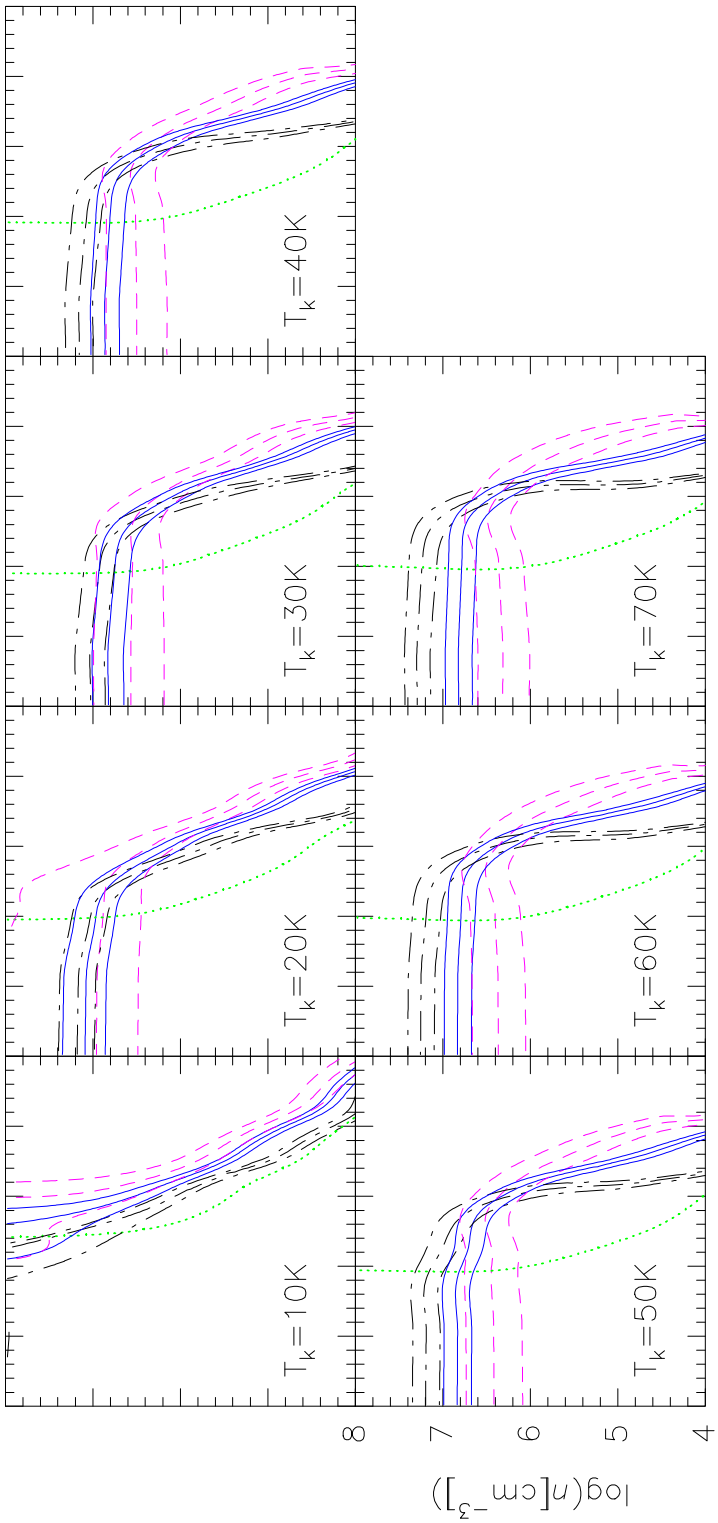

Figure 6.8. Results of statistical equilibrium calculations for CH_3OH-E. Observed integrated intensity line ratios are color-coded as in Fig. 6.7 and plotted on a logarithmic scale (along with their 1σ values) as a function of H_2 density and $N_{CH_3OH}/\Delta V$ at different temperatures (10–70 K). The green dotted line represents the peak main brightness temperature of the $5_0 \rightarrow 4_0E$ transition.

Given our density estimate from the dust continuum, we regard the low T, high n solutions with a large filling factor as unlikely. Therefore, although we cannot strongly constrain the physical parameters of the gas emitting methanol from the LVG analysis because of the limited number of observed transitions, we can exclude the low temperature solution and place a lower limit on the kinetic temperature of the gas of 30 K. This result agrees with the detection of methanol maser from this region and with a previous measurement of $T = 60$ K from NH_3 observations. Therefore, we adopt $T = 60$ K as the kinetic temperature at the peak of the continuum emission.

6.3.3 PdBI+30m: extended CH_3OH emission

A comparison of the interferometric data with the single-dish observations shows that only ∼30% of the CH_3OH $2_k \rightarrow 1_k$ measured with the 30 m telescope is imaged in the PdBI observations. The combined PdBI and 30 m telescope data recover almost 100 % of the flux at the central (1.″5,0″) position. In Fig. 6.9, we show the resultant map after combining the CH_3OH $2_k \rightarrow 1_k$ single-dish observations with the corresponding PdBI data. The methanol emission is already extended in the interferometric observations (mapping angular scales as large as 32.″5) and confirmed to be so in the resultant merged map with the single-dish data. We note that the emission extends over a 1 pc scale in the merged map (see Fig. 6.9). Similarly, silicon monoxide (SiO) was found to be widespread over a 2 pc scale in the IRDC G035.39-00.33 (Jiménez-Serra et al. 2010). The $2_1 \rightarrow 1_1E$ transition was not detected in the single-dish observations, which is expected since this emission does not appear to be extended in our interferometric data.

As for the 1mm data, the missing flux in the interferometric observations is ∼70%. In the 1 mm single-dish observations, two of the strongest transitions showed up, namely the $5_{-1} \rightarrow 4_{-1}E$ and the $5_0 \rightarrow 4_0A$ lines. Both lines are above 3σ noise level at 6 of 144 observed positions.

How is the derivation of column densities and rotational temperatures affected by missing flux? Using the combined data at 3 mm only, the slope, i.e., the rotational temperature, in the rotational diagram is unaffected, within the errors, while CH_3OH column densities are higher by a factor of two.

6.4 Discussion

6.4.1 Properties of G11.11P1 relative to those of other cores

Despite our interferometric observations having sufficient sensitivity to resolve the Jeans mass (1.8 $M_\odot$) at 1 mm, the angular resolution (2.″6×1.″1) is smaller than but very close to the Jeans length of 3.″2 (0.05 pc). Therefore, it is difficult to ascertain whether G11.11P1 is fragmenting into condensations (referred to as substructures within the cores) as is often found when zooming into these cores (e.g., Zhang et al. 2009; Bontemps et al. 2010). If G11.11P1 were not to fragment, this would mean that it has already accumulated most of its mass that will go into the final star even though ∼75 % of the (dust) emission is

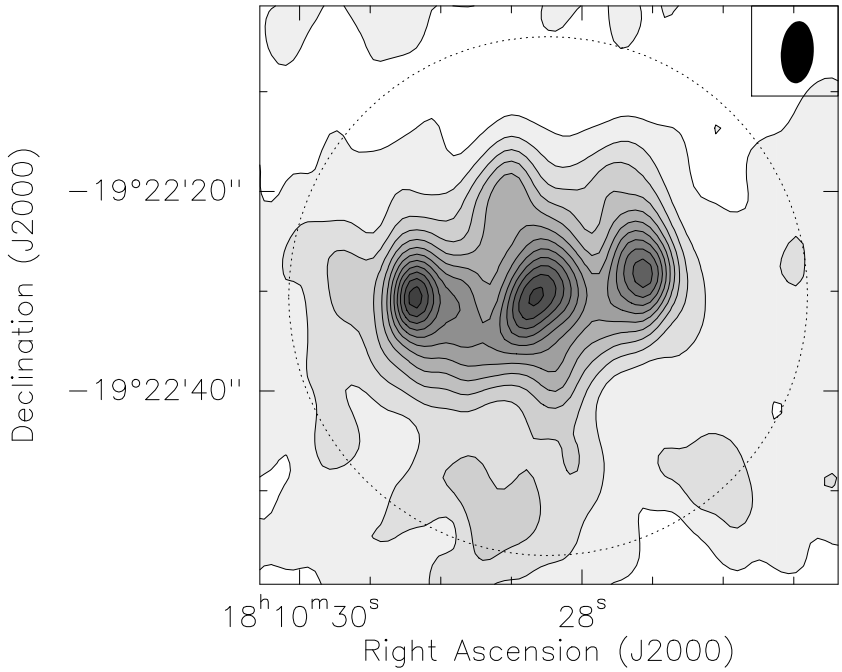

Figure 6.9. CH_3OH $2_k \rightarrow 1_k$ $v_t = 0$ integrated intensity map combining PdBI and 30m data. The emission is integrated over the $2_{-1} \rightarrow 1_{-1}E$, $2_0 \rightarrow 1_0A$, and $2_0 \rightarrow 1_0E$ transitions. First contour and contour spacing are 0.39 Jy beam^{-1} km s^{-1} (3σ), the dashed contours show the negative emission (-3σ). The synthesized beam ($6\farcs2 \times 3\farcs3$; PA = 176°) is shown in the upper right corner. The dotted circle indicates the interferometer primary beam ($52''$).

filtered out by the interferometer. With higher angular resolution observations, it will be possible to determine whether either possibility is true.

The virial parameter of G11.11P1 obtained by Pillai et al. (2006a), from single-dish NH_3 and dust continuum (at 870 μm) observations, is unity on the scale of ∼0.9 pc. Although, in the present work, we find that $M_{\rm vir}$ is much higher than the M_g on the scale of ∼0.1 pc, which would indicate that gravity is not the dominant force (Bertoldi & McKee 1992). We caution, however, that the high value of the virial parameter ($\alpha_{\rm vir} = 3.6$) could be due to the missing flux in the interferometric data and to the virial mass being estimated from the $C^{34}S$ line width, whose broadening is likely to be in part produced by outflows. Pillai et al. (2006b) reported an increase in line widths from 1.29 km s^{-1} in the NH_3 (1,1) line to 3.2 km s^{-1} in the NH_3 (3,3) data. The increase in NH_3 line width toward the higher (J, K) transitions suggest that star forming activity has a strong influence on the line width on smaller scales. The broad line width in the $C^{34}S$ from PdBI is consistent with that notion.

On the basis of the SCUBA 870 μm column density, we estimated a surface density of $\Sigma = 0.4$ g cm^{-2} for G11.11P1, which is close to the thresholds of 0.7–1.5 g cm^{-2} (or 3 320–7 110 $M_\odot$ pc^{-2}) required to form stars of 10–200 $M_\odot$ (Krumholz & McKee 2008). We note that these authors were interested in clouds where no massive stars have yet formed, while G11.11P1 shows already signposts of star formation activity.

We calculated a density profile power-law index of 1.6 from interferometric observations

at 1 and 3 mm; similar values, between 1.5 and 2, for cores in the IRDC G28.34+0.06, were reported by Zhang et al. (2009) also for embedded protostellar sources in the protocluster IRAS 05358+3543 (Beuther et al. 2007b).

6.4.2 The disk/outflow structure?

Pillai et al. (2006b) found a velocity gradient in the CH_3OH maser emission and explained it as the maser spots being located in a Keplerian disk. Interestingly, the spread of the maser components is in the north-south direction, which is perpendicular to the CH_3OH $2_k \rightarrow 1_k$ emission that we propose originates by the presence of an outflow (in the east-west direction). The spread of the masing spots is translated into a radius of ∼450 AU for a hypothetical disk in G11.11P1. Cesaroni et al. (2006) reported that candidate disks in high-mass protostars have masses in the range 0.2–40 $M_\odot$ and radii of 500–10 000 AU. Our interferometric data set is capable of imaging the largest disk structures, but not those inferred in Pillai et al. (2006b).

G11.11P1 was cataloged by Cyganowski et al. (2008) as a "possible" massive young stellar object (YSO) outflow candidate. This categorization was based on the angular extent of the extended excess 4.5 μm emission, i.e., the extent of green emission in a three-color RGB image.

More evidence pointing to the presence of outflows comes from the non-Gaussian methanol line profiles (see Fig. 6.4 and Leurini et al. 2007b). In Fig. 6.10, we analyze the molecular emission in a position-velocity plot and note that there are "wings" of red-shifted emission toward negative offsets and blueshifted emission toward positive offsets (see also Fig. 6.4). Moreover, we find a gradient of ∼4 km s^{-1}, in the east-west direction, for the CH_3OH $2_k \rightarrow 1_k$ emission and speculate that it is due to an outflow(s)-cloud interaction. The $C^{34}S$ 2→1 and CH_3OH $5_k \rightarrow 4_k$ lines are detected mainly toward the central peak/dust emission, and no velocity gradient is found.

Another possibility is that the CH_3OH $2_k \rightarrow 1_k$ emission is actually tracing a toroid (see Cesaroni et al. 2007) as in the interferometric observations of CH_3OH $6_0 \rightarrow 5_0$ toward the IRDC 18223-3 (Fallscheer et al. 2009). However, the gradient of the maser spots is orthogonal and not aligned with the gradient of the methanol emission that we present in Fig. 6.10.

6.4.3 CH_3OH abundances

Because methanol molecules can be sub-thermally excited (Bachiller et al. 1995), the temperatures derived from the rotational diagram are low (∼15 K), even at the central peak where masers have been detected. To overcome this problem we used the LVG method and found that a higher temperature is more reliable.

Purely gas-phase model calculations predict that X_{CH_3OH} is on the order of 10^{-13}–10^{-10} (Garrod et al. 2006), which cannot reproduce the high values we report in this paper. Garrod et al. (2006) conclude that the production of methanol is carried out on the surfaces of dust grains followed by desorption into the gas. The X_{CH_3OH} values in

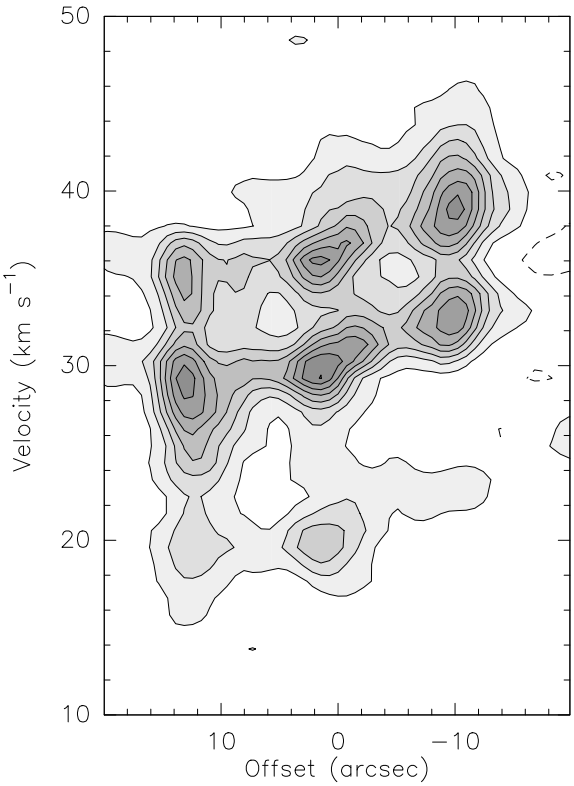

Figure 6.10. Position-velocity plot of the methanol $2_k \rightarrow 1_k$ lines, cutting along the PA=96° on the map shown in the *middle bottom* panel of Fig. 6.4. We show the transitions: $2_{-1} \rightarrow 1_{-1}E$, $2_0 \rightarrow 1_0A$, and $2_1 \rightarrow 1_1E$. The offset is measured in a positive direction toward east and from the pointing center of the observations. First contour is 0.018 in steps of 0.036 Jy beam^{-1}, the dashed contours show the negative emission (-0.018 Jy beam^{-1}).

G11.P11 could then be produced by desorption of icy mantles on the dust grains.

As found in Sect. 6.3.2, the highest X_{CH_3OH} in G11.11P1 is at the central position ($X_{CH_3OH} \sim 3 \times 10^{-8}$), and is lower by more than one order of magnitude at the other two peaks, where $X_{CH_3OH} \sim 4 - 6 \times 10^{-9}$; the same trend was also found by the LVG-modeling of single-dish data (Leurini et al. 2007b). Our abundances are enhanced relative to dark cloud values ($X_{CH_3OH} \sim 10^{-10} - 10^{-9}$; Friberg et al. 1988), also supporting the idea that methanol in G11.11P1 is forming mainly through non-thermal desorption by the presence of outflow(s).

6.5 Summary

We have performed continuum and line observations with the PdBI toward the IRDC core G11.11P1.

The analysis of the mm continuum maps provide a very detailed physical structure of the core.

Evidence that we have uncovered, i.e., "wings" in the CH_3OH $2_k \rightarrow 1_k$ spectra, and

a CH_3OH abundance enhancement point to the presence of an outflow in the east-west direction.

We have found a gradient of $\sim$4 km s^{-1} for the CH_3OH $2_k \rightarrow 1_k$ emission, which we interpret as being produced by an outflow(s)-cloud interaction.

Our fitting results have found an enhanced methanol fractional abundance ($\sim 3 \times 10^{-8}$) at the central peak with respect to the other two maxima, where the methanol abundance is lower by about an order of magnitude ($\sim$4-6 $\times$ 10^{-9}).

7

CH_3OH $7_0 - 6_1A^+$ masers in the massive star-forming regions NGC 6334F, G8.67−0.36, and M17

This chapter is based on a paper published as Gómez et al. 2010, ApJS, 191, 207.

7.1 Introduction

Methanol masers have sometimes proven difficult to interpret, yet they have also been fruitful tracers of phenomena within star formation regions (Ellingsen 2005, 2006). They appear in two distinct classes (I and II) which differ in their pumping mechanisms (Cragg et al. 1992; Menten 1991a,b) and, correspondingly, their locations within the star forming regions. Collisionally pumped class I masers are thought to be tracers of shocked gas and hence frequently of molecular outflows (e.g., Araya et al. 2009, 2010; Voronkov et al. 2010; Plambeck & Menten 1990). Class II masers — found in closer proximity to young stellar objects (YSOs) and pumped by their mid-infrared emission — show a variety of structures, including linear (Minier et al. 2000) and ring-like (Bartkiewicz et al. 2009) that provide information on the gas dynamics very close to the YSO (Moscadelli et al. 2002).

Methanol masers also have significant potential as tracers of magnetic field morphology and strength via their linear polarization (Wiesemeyer et al. 2004) and via the Zeeman effect. Zeeman splitting has been reported for both class I masers (Sarma & Momjian 2009) and class II masers (Vlemmings 2008; Surcis et al. 2009). Owing to their locations within the star-forming regions, class I masers should be better tracers of the magnetic field within the molecular core or clump, while class II masers should be better tracers of

the circum-protostellar magnetic field.

Quite apart from their intrinsic scientific interest, masers also serve a valuable practical role by permitting the use of a cross-calibration technique first described by Reid & Menten (1990); see also the Appendix of Reid & Menten (1997). The lack of nearby phase calibrators is a significant problem for high frequency, high spatial resolution radio observations. When sufficiently strong masers are present within the field of view, they permit self-calibration on very short time scales. This can substantially alleviate the problems caused by the dearth of high frequency calibrators. Araya et al. (2009), for example, have used this technique with 44 GHz methanol masers to obtain high resolution 7 mm continuum images of the DR21(OH) massive star formation region.

Kurtz et al. (2004, hereafter KHV04) presented an arc-second resolution survey of 44 massive star formation regions in the 44 GHz class I CH_3OH maser line. At the time of their observations, less than half of the 27 Very Large Array (VLA) antennas were equipped with Q-band (40-50 GHz) receivers. The relatively poor *uv* coverage that resulted proved problematic for imaging the fields observed, and for three sources — NGC 6334F, G8.67−0.36, and M17 — they were unable to uniquely determine the maser positions, although maser emission was clearly present. More recently, the Max-Planck Institut für Radioastronomie equipped the remaining VLA antennas with Q-band receivers, thus mitigating the *uv* coverage problems that plagued the KHV04 survey.

The goal of the present work is to complete the KHV04 survey by providing accurate positions and line parameters for the 44 GHz masers in NGC 6334F, G8.67−0.36, and M17. The large-scale views of the regions are shown in Fig. 7.1. In Sect. 7.2 we describe the observations and the data reduction procedures. In Sect. 7.3 we present our results, and in Sect. 7.4 we provide a more detailed discussion of each source. A brief summary is given in Sect. 7.5.

7.2 Observations and data reduction

7.2.1 Very Large Array

NGC 6334F, G8.67−0.36, and M17 were observed with the Very Large Array (VLA), in Socorro, New Mexico, of the NRAO[1] on 2005 November 5. We observed the methanol $7_0 - 6_1A^+$ maser transition with a rest frequency of 44 069.43 MHz. The array was in the D configuration, which provides an angular resolution of about $2''$ at 44 GHz (7 mm). The actual resolution depends on *uv* coverage, which varies from source to source; the precise resolution for each source is listed in Table 7.1. The absolute amplitude calibrator was J1331+305 (3C286) with an adopted flux density of 1.434 Jy at 44 069.43 MHz. The phase calibrators were J1700−261 and J1733−130 with bootstrapped flux densities of 0.71±0.03 Jy and 2.47±0.05 Jy, respectively.

We observed the right-hand circular polarization, using one intermediate frequency and a 3.125 MHz (21 $\mathrm{km\,s^{-1}}$) bandwidth, providing 127 spectral line channels that were

[1]The National Radio Astronomy Observatory is operated by Associated Universities Inc. under cooperative agreement with the National Science Foundation.

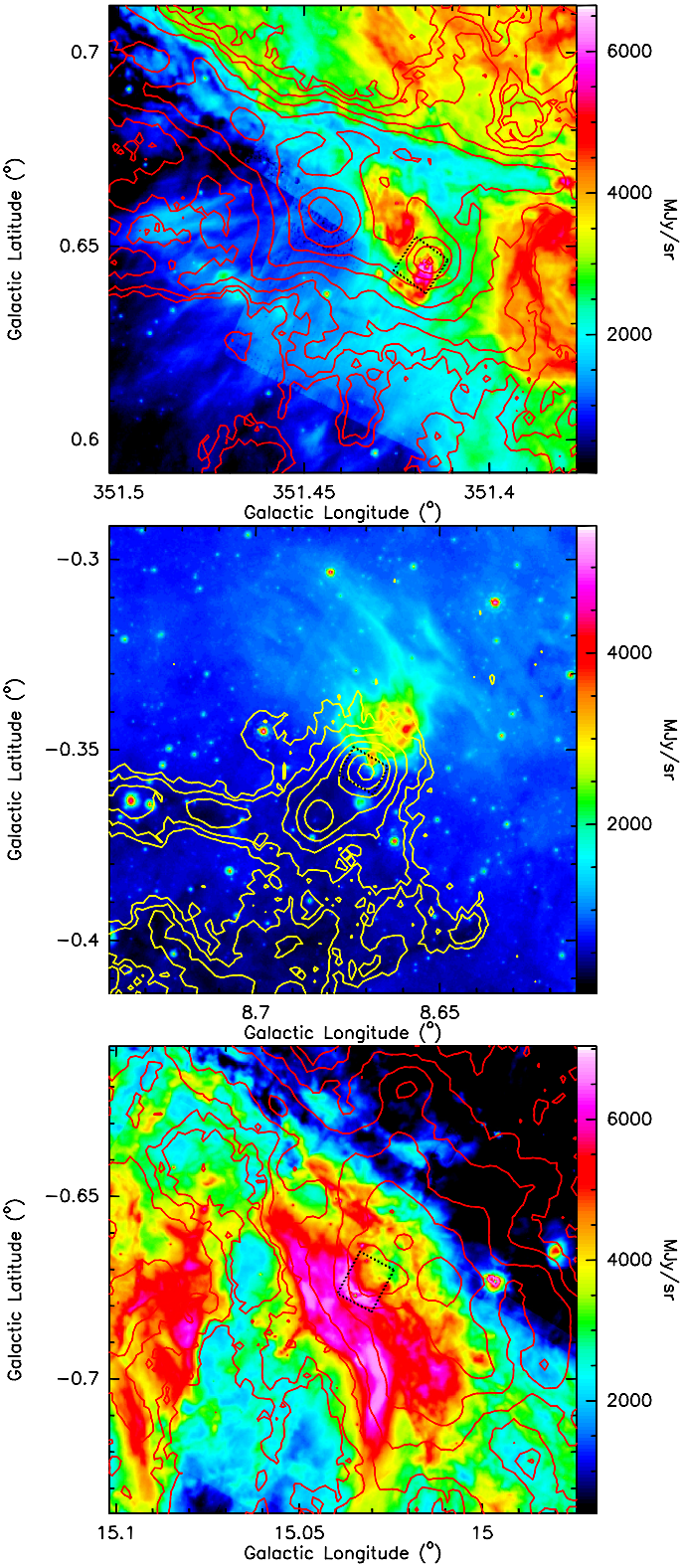

Figure 7.1. ATLASGAL 870 μm contours overliad on GLIMPSE 8 μm images (color scale), showing the large-scale view of NGC 6334F (*top*), G8.67–0.36 (*middle*), and M17 (*bottom*). The dotted rectangles mark the regions presented in Figs. 7.2–7.4. For the ATLASGAL maps, contours are 3, 6, 12, 24, 48, 96, 192... times 0.07 Jy beam^{-1}.

Table 7.1. Observed sources with the Very Large Array.

Source	Pointing Center[a]		Central Velocity	Synthesized Beam[b]	Channel Map rms
	RA (J2000)	Dec (J2000)	($km\,s^{-1}$)		(mJy $beam^{-1}$)
NGC 6334F	17 20 54.00	−35 47 00.0	−10.4	$3\farcs83 \times 1\farcs27$; −2°	45
G8.67−0.36	18 06 19.20	−21 37 30.0	+30.6	$2\farcs41 \times 1\farcs31$; −7°	40
M17	18 20 24.40	−16 11 32.0	+14.0	$2\farcs07 \times 1\farcs36$; −10°	47

[a]Units of right ascension are hours, minutes, and seconds, and units of declination are degrees, arcminutes, and arcseconds.
[b]Major axis × minor axis; position angle of major axis.

Hanning-smoothed on-line. The 24.4 kHz channel widths correspond to 0.17 $km\,s^{-1}$. Referenced pointing was performed on the phase calibrators prior to observing the program sources. We observed in the fast-switching mode with 160-second cycles.

The data were edited, calibrated and imaged using standard procedures of the Astronomical Image Processing System (AIPS) of NRAO. After the initial external calibration, each source was imaged and inspected for maser emission. The brightest maser component was identified and the peak channel was self-calibrated, first in phase, and then a second iteration in phase and amplitude. These self-calibration solutions were applied to all channels, which were then imaged using weights intermediate between natural and uniform (with the ROBUST parameter set to 0) and CLEANed in an iterative fashion. For the initial iteration, clean boxes were assigned only to the strongest masers; for subsequent iterations additional clean boxes were added, as weaker masers became visible. A final image cube was made for each source, with clean boxes for all identified maser components, and CLEANed to a level of twice the theoretical rms.

The maser parameters (see Table 7.2) were extracted from the final image cubes using the AIPS tasks JMFIT, IMSTAT and ISPEC. The absolute flux calibration uncertainty is $\sim 15\%$ and we estimate the absolute positional uncertainty to be $0\farcs2$ for all the masers, although the uncertainty of the Gaussian fit of stronger masers is smaller (Reid et al. 1988).

7.2.2 *Spitzer* Space Telescope

Spitzer images, shown in figures 7.2–7.4, were taken from the Galactic Legacy Infrared Mid-Plane Survey Extraordinaire (GLIMPSE; Benjamin et al. 2003) program, based on observations with the IRAC camera (Fazio et al. 2004).

7.3 Results

We confirm the presence of 44 GHz CH_3OH maser emission in all 3 sources, detecting 8 distinct maser components in NGC 6334F, 12 masers in G8.67−0.36 and 1 maser in M17.

The observed parameters of all detected masers are listed in Table 7.2. Column 1 gives the source name, while columns 2 and 3 give the J2000 peak position, determined from a

Table 7.2. 44 GHz Maser Parameters.

Source	Maser Peak Position[a]		$S_{\rm Peak}$	$\rm V_{LSR}$	ΔV[b]	$\int S\,d$V
	RA (J2000)	Dec (J2000)	(Jy)	(km s^{-1})	(km s^{-1})	(Jy km s^{-1})
(1)	(2)	(3)	(4)	(5)	(6)	(7)
NGC 6334F	17 20 52.54	−35 46 42.2	1.3	−8.1	1.5	1.1
	17 20 52.74	−35 47 07.7	1.2	−10.2	−10.9 to −8.7	1.0
	17 20 52.75	−35 47 02.3	5.9	−6.2	1.3	4.1
	17 20 52.87	−35 46 41.9	1.5	−8.1	−9.0 to −6.9	1.1
	17 20 52.97	−35 47 03.8	2.9	−8.9	−10.9 to −6.2	2.7
	17 20 53.45	−35 47 11.4	0.7	−10.1	1.7	0.6
	17 20 54.63	−35 46 47.1	9.4	−6.9	−7.4 to −4.6	12.6
	17 20 54.88	−35 46 49.6	2.8	−5.7	1.2	1.1
G8.67−0.36	18 06 18.47	−21 37 10.6	0.4	37.9	0.5	0.1
	18 06 18.61	−21 37 22.9	1.9	38.1	0.7	0.7
	18 06 18.79	−21 37 12.7	1.3	37.7	1.3	0.9
	18 06 18.82	−21 37 19.9	1.3	38.7	36.9 to 39.9	0.8
	18 06 18.84	−21 37 42.7	1.4	34.8	1.2	0.7
	18 06 18.97	−21 37 19.7	6.2	37.6	36.9 to 38.7	4.2
	18 06 19.00	−21 37 41.5	7.9	35.1	1.3[c]	5.3[c]
	18 06 19.00	−21 37 26.5	16.5	35.4	34.1 to 38.2	21.1
	18 06 19.04	−21 37 40.0	9.3	33.6	1.8[c]	9.6[c]
	18 06 19.17	−21 37 25.5	18.2	35.9	2.5	13.2
	18 06 19.18	−21 37 21.3	1.4	33.8	2.2	1.1
	18 06 19.54	−21 37 14.8	0.9	36.4	35.0 to 36.9	0.7
M17	18 20 23.21	−16 11 46.5	9.0	19.1	0.7	0.5

[a]Units of right ascension are hours, minutes, and seconds, and units of declination are degrees, arcminutes, and arcseconds.

[b]A single number indicates the line width for $S > 3\sigma$. Two numbers indicates the velocity range when a single sky position has multiple components, even if some intermediate channels fall below 3σ.

[c]These two masers are spatially blended; ΔV and $\int S\,d$V are approximate values.

two-dimensional Gaussian fit to the peak channel. Column 4 gives the peak flux density, also from the Gaussian fit. Column 5 gives the local standard of rest (LSR) velocity of the peak channel, while column 6 provides the the full width at zero intensity at the 3σ level. If multiple velocity components at the same sky position are present then we report the full velocity range, even if some intermediate channels fall below the 3σ level. Column 7 gives the integrated line flux, calculated as $\Sigma \rm S_i\,\Delta V_i$ summed over channels above the 3σ level.

Figures 7.2–7.4 show the three-color GLIMPSE image of each region, with radio continuum emission plotted as contours and various maser species shown as symbols. The symbol sizes are larger than the positional uncertainty in all cases.

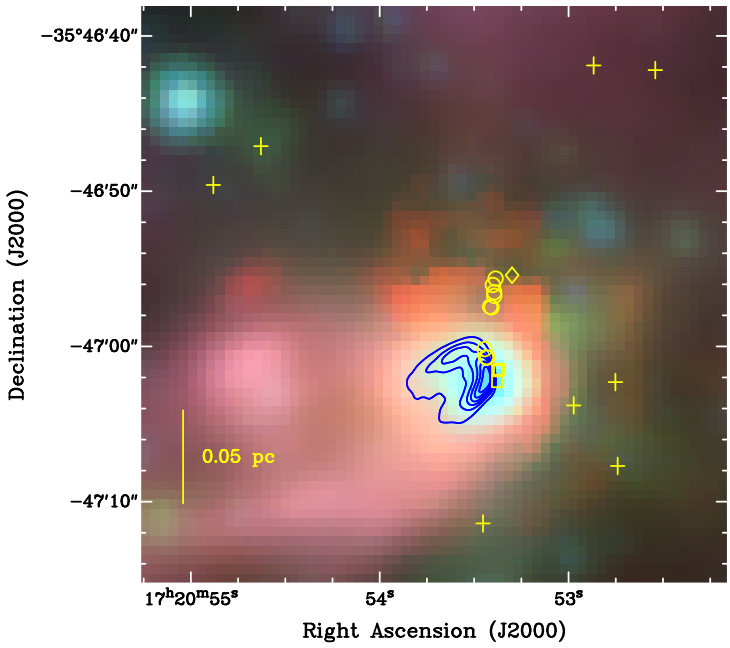

Figure 7.2. VLA 3.6 cm continuum contours (Carral et al. 2002) overlaid on the three-color GLIMPSE IRAC image of NGC 6334F showing 8 μm (red), 4.5 μm (green), and 3.6 μm (blue) emission. The contour levels are from 10% to 85% (step 15%) of the peak emission of 127.5 mJy beam^{-1}. "Plus" symbols represent 44 GHz CH$_3$OH masers (this work), while squares indicate OH masers (Brooks & Whiteoak 2001), circles represent H$_2$O masers (Forster & Caswell 1989) and the diamond indicates a 23 GHz methanol maser (KHV04).

7.4 Discussion of individual sources

7.4.1 NGC 6334F

NGC 6334F is a well-known ultracompact (UC) HII region, lying within the NGC 6334 cloud complex, at a distance of 1.7 kpc (Neckel 1978). It is also known as NGC 6334I, where "I" is a roman numeral "one," originating from far-infrared studies (e.g., Gezari 1982). We adopt the convention of Rodríguez et al. (1982), in which the letter "F" refers to the UC HII region.

The eight 44 GHz class I masers detected within the one arcminute VLA primary beam indicate a higher level of maser activity than the majority of the sources in the KHV04 survey, which has a median of four maser features per field. Figure 7.2 shows the three-color *Spitzer*/GLIMPSE image of NGC 6434F and the location of the maser components. The eight masers are distributed over an area ~ 0.25 pc $\times$ 0.25 pc. As is typical for class I masers, these eight components do not appear to be associated with the UC HII region, other masers, or the infrared emission. Nor do they coincide with thermal ammonia peaks or ammonia masers as reported by Beuther et al. (2005, 2007c) or with the millimeter peaks reported by Hunter et al. (2006). The average projected distance from the masers to the geometric center of the UC HII region is 0.12 pc.

Neglecting the two northern-most masers, there is a southwest to northeast positional

orientation of the remaining six masers. This orientation corresponds to the blueshifted (southwest) and redshifted (northeast) high-velocity outflow mapped with the APEX 12 m telescope by Leurini et al. (2006). There is a weak tendency in the maser velocity structure in accordance with this pattern: the average velocity of the southwestern masers is -9.5 km s^{-1}, while the average for the northeastern masers is -6.3 km s^{-1}. We suggest that these six masers are related to the bipolar outflow reported by Leurini et al. (2006). We caution, however, that the trends in both position and velocity are not particularly strong.

The velocity range of emission that we detected (-10.9 to -4.6 km s^{-1}) is slightly shifted from that reported by KHV04 (-9.0 to -2.5 km s^{-1}) and also differs from the single-dish observations of Slysh et al. (1994, -8.4 to -4.8 km s^{-1}).

7.4.2 G8.67−0.36

The UC HII region G8.67−0.36, at a distance of 4.8 kpc (Fish et al. 2003), was classified by Wood & Churchwell (1989) as having a core-halo morphology; i.e., a single compact peak surrounded by an extended, low-surface-brightness halo.

As in NGC 6334F, the relatively large number of masers detected in this field (12) indicates an unusually high level of maser activity. We identify two regions of maser activity in the field (see Fig. 7.3): one to the north and the other to the south of the UC HII region. No velocity trend with respect to position is seen. The strongest two masers in this field lie at the edge of an Extended Green Object (EGO; Cyganowski et al. 2008), consistent with the idea that EGOs trace molecular outflows from massive YSOs and that class I methanol masers arise from the interaction of outflows with dense clumps of gas (Plambeck & Menten 1990). Cyganowski et al. (2008) did not catalog the G8.67−0.36 region because it lies outside their survey area ($10^\circ < l < 65^\circ$ and $295^\circ < l < 350^\circ, b = \pm 1^\circ$). Although 8 of the 12 masers lie at the edge of some infrared feature, four of the masers appear relatively isolated from the infrared emission; hence our data do not suggest a unique correlation of these masers with a particular set of gas conditions.

KHV04 report maser emission from 33 to 37 km s^{-1}, and detect maser emission in a velocity range of 33.6–39.9 km s^{-1}. Both detections are in close agreement with the velocity of HCO^+ and $H^{13}CO^+$ emission at 34.8 km s^{-1}by Purcell et al. (2006).

The average projected distance from the masers to the geometric center of the UC HII region is 0.29 pc.

7.4.3 M17

The M17 region hosts, among other features, the cometary UC HII region UC-1 (e.g., Felli et al. 1980; Johnson et al. 1998). Distances reported for the M17 nebula have ranged from 2.2 kpc (Chini et al. 1980) to 1.3 kpc (Hanson et al. 1997). More recently, a distance of 1.6 kpc has been reported by Nielbock et al. (2001), which we adopt here.

Unlike the previous two sources, M17 presents very limited 44 GHz maser activity with only a single maser component detected in the field, at a projected distance of 0.2 pc from

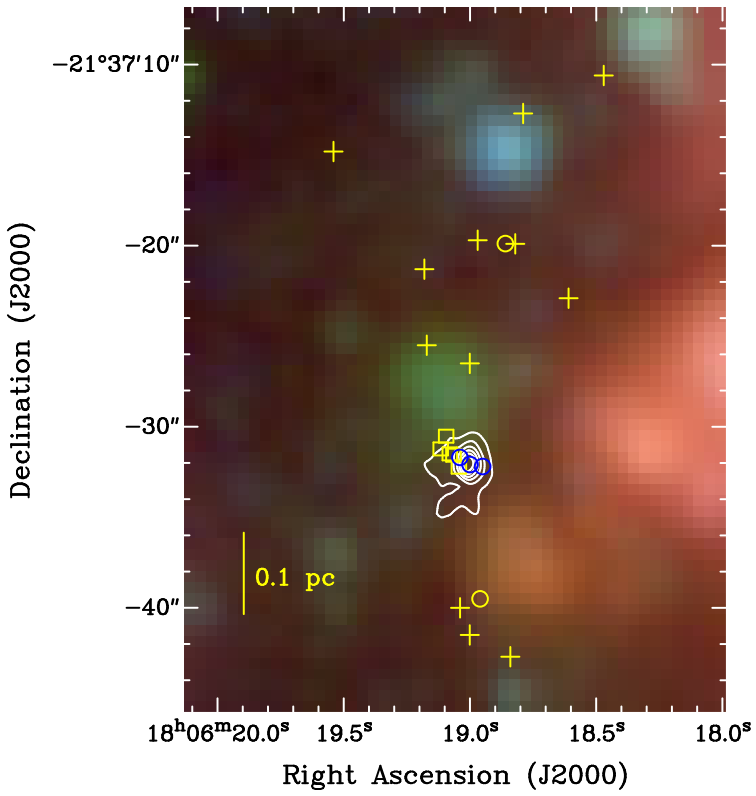

Figure 7.3. VLA 2 cm continuum contours (Wood & Churchwell 1989) overlaid on the three-color *Spitzer*/GLIMPSE image of G8.67−0.36 showing 8 μm (red), 4.5 μm (green), and 3.6 μm (blue) emission. The contour levels are from 10% to 85% (step 15%) of the peak emission of 124.8 mJy beam^{-1}. "Plus" symbols represent 44 GHz CH_3OH masers (this work), while squares indicate OH masers (Forster & Caswell 1989) and circles indicate H_2O masers (Hofner & Churchwell 1996).

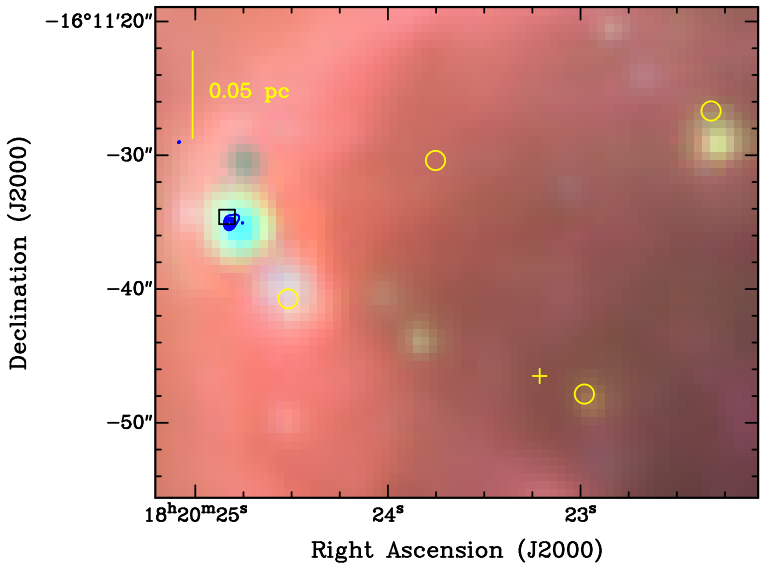

Figure 7.4. VLA 2 cm continuum contours (Wood & Churchwell 1989) overlaid on the three-color *Spitzer*/GLIMPSE image of M17 showing 8 μm (red), 4.5 μm (green), and 3.6 μm (blue) emission. The contour levels are from 5% to 85% (step 20%) of the peak emission of 105.6 mJy beam^{-1}. The "plus" symbol shows the position of the 44 GHz CH_3OH maser (this work), the square represents an OH maser (Brogan & Troland 2001), and circles indicate H_2O masers (Johnson et al. 1998).

the UC HII region (see Fig. 7.4). The maser properties are listed in Table 7.2; the 19.1 km s^{-1} velocity that we find is the same as found by KHV04.

7.5 Summary

Using the Very Large Array, we have observed 44 GHz class I methanol maser emission in the massive star-forming regions NGC 6334F, G8.67−0.36, and M17. Our principal result is to provide accurate maser positions and parameters, thus completing the catalog of KHV04.

In addition, we find that two of the sources (NGC 6334F and G8.67−0.36) show significantly higher levels of maser activity than the typical survey source.

For all three sources, the masers are well-separated from the HII region, with projected distances ranging from 0.1 to 0.3 pc. This is in good agreement with the KHV04 survey, which found a median separation of 0.2 pc for a subsample of 22 sources that had both HII regions and maser emission.

8

Summary, implications, and outlook

8.1 Wrap-up: early stages of high-mass star formation associated to IRDC clumps

For the first time, we presented a catalog of IRDC candidates selected from 24 μm archival data from the MIPSGAL/*Spitzer* survey. A total of 12 529 IRDC candidates have been identified above a contrast threshold (of 0.15) in an area that covers $\mid b \mid < 1^\circ$ in Galactic latitude and in the range of $-68^\circ < l < 69^\circ$ in Galactic longitude. In the contrast distribution, there appears to be a saturation limit at around 0.7 which can be translated into a very high limit in column density of 2.6×10^{23} cm^{-3}. In a statistical fashion, we found that more than 11% and 41% of the cross-identified clumps identifided in BOLOCAM and ATLASGAL (sub)millimeter surveys, respectively, are expected to form massive stars.

With the aim of searching for clumps in the pre-protocluster phase, we have carried out molecular line observations toward high extinction peaks. From this study, the NH_3 analysis shows low temperatures in the range of 9–18 K, the non-detection of SiO (5–4) suggests an absence of stellar activity such as outflows. The low detection rate (5%) of water maser emission points to the very early phases of evolution of these clumps. Moreover, our clumps do not suffer from depletion implying that they are extremely young, in a phase probably prior to contraction. Computed infall velocities have been found to be higher than those obtained toward low-mass sites and IRAS sources while estimated infall mass rates are higher than found toward low-mass sites but lower than in IRAS sources. One IRDC clump seems to be a promising candidate for being in the pre-protocluster phase.

Our study of fractional abundances based on 10 molecular lines has shown that three observed clumps within IRDCs are in different chemical evolutionary stages. Like in low-mass cores, but at different size scales, we have found that $H^{13}CO^+$ is depleted in the three

clumps and $HN^{13}C$ is depleted in at least one. Contrary to low-mass pre-stellar cores, we have not seen a central abundance drop in the HC_3N and $C^{34}S$ molecules. Observationally, we have found a larger difference in column densities and abundances between our clumps and the HMPOs than between our clumps and low-mass pre-stellar and protostellar cores. Chemical models for low-mass pre-stellar cores with fast contraction better reproduce the observed fractional abundances than chemical models for more evolved stages of high-mass star formation such as the hot core phase. Using a non-LTE Monte Carlo 1D code treating N_2H^+ radiative transfer with line overlap between hyperfine components, we constrained physical properties of two clumps.

The six IRDC complexes mapped in the 870 μm dust continuum emission show extended, filamentary, and compact dust continuum emission. Kinematic distances and temperatures were derived from molecular line data that were obtained from single-pointing observations of the N_2H^+ (3–2) line and four transitions of H_2CO (4–3), respectively, toward selected clumps. Each IRDC was decomposed into clumps by using two automated algorithms: *Gaussclumps* and *Clumpfind*. Both algorithms yield comparable values for the total masses of the decomposed clumps. The clump masses for *Gaussclumps* were found to be in the range from 6 to 2692 $M_\odot$. We have found that the percentage of clumps that lie above the Kauffmann & Pillai (2010) relation with and without association to star formation signpost is 18% and 12%, respectively, while 9% and 4% of clumps satisfy the much more stringent threshold of Krumholz & McKee (2008). The mass spectrum of the decomposed clumps has been fitted with a power-law whose index is $\alpha = -1.60$, using two methods of binning. This value is consistent with the CO clump mass function reported in the literature. From a pixel-to-pixel cross-correlation of our 24 μm contrast maps with the dust continuum emission at 870 μm, we found a correlation albeit with a large scatter. In particular, the lowest submillimeter fluxes for a given contrast, hence likely originating from dust not heated by star formation, show a clear correlation with contrast. We also investigated the number of clumps that will survive against an external tidal field during the expulsion of their residual star-forming gas and have found that $\sim$59% would.

Our interferometric observations toward an IRDC core showed extended emission in the continuum at 1 and 3 mm. The methanol $2_k \rightarrow 1_k$ $v_t = 0$ emission presented three maxima extending over 1 pc scale (when merged with single-dish short-spacing observations); one of the maxima was spatially coincident with the continuum emission. The fitting results showed enhanced methanol fractional abundance ($\sim 3 \times 10^{-8}$) at the central peak with respect to the other two peaks, where it decreased by about an order of magnitude (to $\sim$4-6 $\times 10^{-9}$) but is still enhanced compared to dark cloud values. Evidence for extended 4.5 μm emission, "wings" in the CH_3OH $2_k \rightarrow 1_k$ spectra, and a CH_3OH abundance enhancement pointed to the presence of an outflow in the East-West direction. In addition, we find a gradient of $\sim$4 km s^{-1} in the same direction, which we interpret as being produced by an outflow(s)-cloud interaction.

We confirmed the presence of 44 GHz (class I) methanol maser emission in three high-mass star-forming regions that contain ultra compact HII regions. We found that two of the sources show significantly higher levels of maser activity than the typical survey source. For all three sources, our precise positions show that the masers are well-separated from the HII region, with projected distances ranging from 0.1 to 0.3 pc.

8.2 Implications

In this dissertation, we have made use of existing archival data from the *Spitzer* Space Telescope in the MIR regime to create a catalog of IRDC candidates. We have also presented observations with both single-dish telescopes and interferometers toward clumps associated with IRDCs that helped to understand the chemical and physical properties of those entities in the context of the earliest stages of high-mass star formation.

The very question of whether there exists the pre-protocluster phase was one of the main drivers of this work. The question was partially answered since we do find evidence for such a phase in at least one of the IRDC clumps. This likely very short-lived phase had remained elusive in unbiased surveys toward high-mass star formation sites.

We have shown that combining dust emission observations and extinction studies is a powerful diagnostic and actually derived a relation between the dust emission at 870 μm and the degree of extinction (contrast) at 24 μm. In particular, the lowest submillimeter fluxes for a given contrast, hence likely originating from dust not heated by star formation, show a clear correlation with contrast.

8.3 Outlook

In this section, we describe briefly ongoing projects that have been triggered by the results presented in this dissertation and outline possible follow-up studies to gain better understanding of the earliest phases of high-mass star formation.

8.3.1 Ongoing projects

SMA observations of IRDC clumps

We carried out observations of two IRDCs with the Submillimeter Array[1] (SMA; Ho et al. 2004) at Mauna Kea, Hawaii in order to (1) resolve the emission of their cores into possible condensations; (2) help to analyze the kinematics from the single dish scale down to a few arcseconds (i.e., from 0.1 pc to thousands of AU), and hence to understand whether the collapse is global; (3) reveal velocity gradients that might arise from rotating envelopes by analyzing the ^{13}CO (2–1) line transition; (4) from the continuum observations, look for and determine the amount of fragmentation in each clump.

The 230 GHz band receivers were used. These receivers have two sidebands, lower and upper. The FWHM primary beam of the 6-m antennas is $\sim 50''$. The visibility data were calibrated with the IDL superset MIR package developed for the Owens Valley Radio Observatory (OVRO) interferometer. After the calibration in MIR, the visibility data were exported to the MIRIAD format for further processing and imaging.

[1]The Submillimeter Array is a joint project between the Smithsonian Astrophysical Observatory and the Academia Sinica Institute of Astronomy and Astrophysics, and is funded by the Smithsonian Institution and the Academia Sinica.

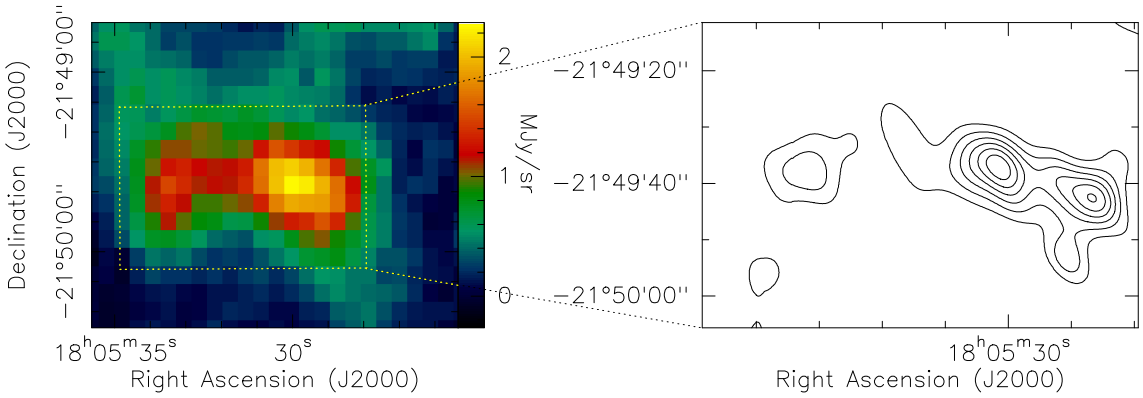

Figure 8.1. *Left*: The 870 μm ATLASGAL image of G8.41−0.30. The dotted rectangle marks the region of the interferometric observations. *Right*: The 1.2 mm SMA contour map. Contours are 3, 6, 9, 12, 15, 18 times 8 mJy beam^{-1}.

G37.08−0.15 is our best candidate to be in the pre-protocluster phase (see Chapter 3).

This clump was observed with seven antennas in the subcompact configuration on 2009 January 27. The pointing center was RA (J2000) = $18^{\rm h}59^{\rm m}32\overset{\rm s}{.}77$, Dec (J2000) = $03°37'22\overset{''}{.}2$. The local oscillator frequency (LO) was tuned to 231.3210 GHz to observe the CO (2–1) and N_2D^+ (3–2) lines in the upper sideband and ^{13}CO (2–1) and C^{18}O (2–1) lines in the lower sideband with a uniform channel spacing of ∼0.6 km s^{-1}. The bandpass calibrator was 3C 273, while the flux and phase calibrations were done by observing MWC 349 and 1751+096, respectively. We estimate that the final absolute flux level is accurate to about 20%.

Preliminary results. We did not detect continuum emission at the level of ∼1 mJy beam^{-1}, which supports the idea of the clump being "monolithic", i.e., with little fragmentation and thus in a very early phase of evolution. Nor do we detect the N^2D^+ (3–2) line at the level of 40 mJy beam^{-1} per channel.

G8.41−0.30 shows an infall profile in the single-dish observations of the HCO$^+$ (1–0) line. It contains two weak 24 μm point sources and shows emission in the SiO (2–1) line. We did not detect water masers toward this clump.

In order to map the cloud in which the clump is embedded, we performed a mosaic of three fields with seven antennas in the subcompact configuration on 2010 March 24. The pointing centers were RA (J2000) = $18^{\rm h}05^{\rm m}29\overset{\rm s}{.}75$, Dec (J2000) = $-21°49'40\overset{''}{.}2$, RA (J2000) = $18^{\rm h}05^{\rm m}31\overset{\rm s}{.}25$, Dec (J2000) = $-21°49'39\overset{''}{.}2$, and RA (J2000) = $18^{\rm h}05^{\rm m}32\overset{\rm s}{.}91$, Dec (J2000) = $-21°49'37\overset{''}{.}7$. We observed in the "1 receiver 4 GHz" mode and were able to observe the CO (2–1) and ^{13}CS (5–4) lines in the upper sideband and the ^{13}CO (2–1), C^{18}O (2–1), and SiO (5–4) lines in the lower sideband. The bandpass calibrator was 3C 273, while the flux and phase calibrations were done by observing Ceres and 1733-130, respectively. We estimate that the final absolute flux level is accurate to about 15%.

Preliminary results. In the *left* panel of Fig. 8.1, we present the ATLASGAL 870 μm continuum emission map with the rectangle representing the region of the interferometric observations and in the *right* panel, we present the resulting map of the SMA observations at 1.2 mm.

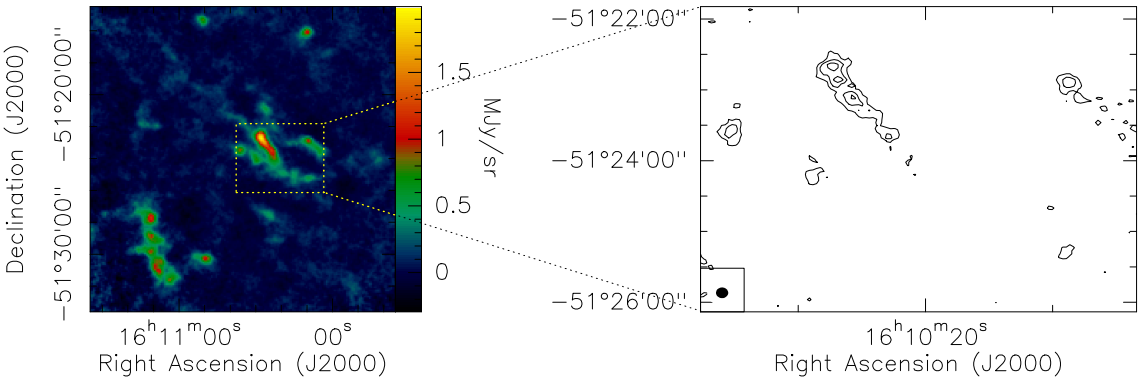

Figure 8.2. *Left*: The 870 μm LABOCA image presented in Chapter 5 for the IRDC G331. The dotted rectangle marks the zoom-in region. *Right*: The 350 μm SABOCA contour map. Contours are 3, 6, 9 times 0.35 Jy beam^{-1}. The angular resolution ($HPBW$=9″) is shown in the bottom left corner.

SABOCA observations of IRDCs

We used the Submillimeter APEX Bolometer Camera (SABOCA; Siringo et al. 2010) on the APEX 12m telescope at a wavelength of 350 μm to observe 2 IRDCs in order to (1) determine proper dust grain emissivity index/temperature estimates in IRDCs; (2) help to analyze in much more detail the morphology of filaments and embedded high-density cores (i.e., structures of the order of ∼0.1 pc); (3) have the unique opportunity to study the dust in both, absorption and emission; (4) from the temperature estimates, constrain better the dust-contrast relationship.

SABOCA is a 37-element array, in which the bolometers are arranged in a hexagonal layout with a center pixel and three concentric hexagons. SABOCA has a field of view of 1′.5, and a single-pixel sensitivity (noise equivalent flux density, NEFD) of 200 mJy s$^{1/2}$. SABOCA was built by the Max-Planck-Institut für Radioastronomie.

The observations were carried out on 2009 March 10 as part of the Science Verification time. The sky opacity was determined with skydips. The focus was optimized on Mars and pointing observations were checked on the source IRAS 16293-2422. We used the Bolometer array data analysis (BoA; F. Schuller, et al., in prep.) package to reduce the data. The data reduction is similar to that of the LABOCA data described in Sect. 5.2. The maps shown in Figs. 8.2 and 8.3 resulted from a total of 7 iterations. The final flux calibration is accurate to ∼30%. The oversampling in the last iteration was set to 3 and the map was smoothed with a Gaussian kernel of 4″, providing a resolution of the final map of 9″. The rms (σ) noise level is ∼0.35 Jy beam^{-1} for both maps.

We find that clumps fragment into cores at a resolution of 9″ and most of the extended emission is filtered out.

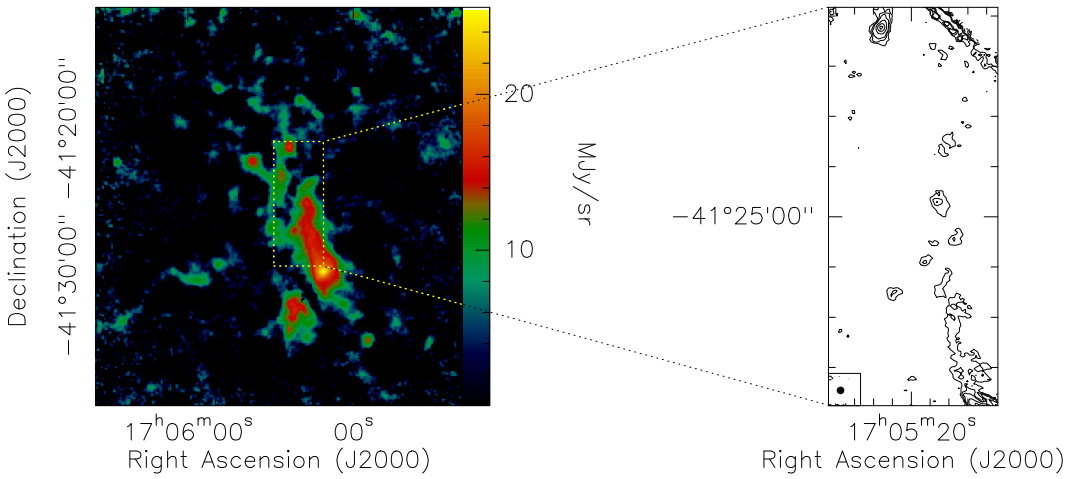

Figure 8.3. *Left*: The 870 μm LABOCA image presented in Chapter 5 for the IRDC G331. The dotted rectangle marks the zoom-in region. *Right*: The 350 μm SABOCA contour map. Contours are 3, 6, 9, 18, 27, 36 times 0.35 Jy beam^{-1}. The angular resolution ($HPBW$=9″) is shown in the bottom left corner.

8.3.2 Follow-ups

Full characterization of the first pre-protocluster clump

We will propose deep integration time observations to study the G37.07−0.15 clump believed to be in the pre-protocluster phase. The APEX 12m and IRAM 30m telescopes can be used to map several molecular lines in this clump, including lines studied in Chapter 3 (e.g., N_2H^+, HCO^+, SiO) in addition to deuterated molecules like N_2D^+, H_2D^+, and D_2H^+. Deuterated molecules have been important in the study of the early phases in low-mass pre-stellar cores.

Using the Expanded Very Large Array (EVLA), we will be able to map the clump in the NH_3 (1,1) line at 1.3 cm with a very high resolution and an extremely good sensitivity in order to obtain its temperature map. The continuum emission in the cm regime will help us to discard any non-thermal contribution.

Studying the onset of massive star formation

We will propose continuum observations of IRDC clumps associated to strong dust peaks and 24 μm point sources with the Australian Telescope Compact Array (ATCA) in the 15 mm band (16–25 GHz) to search for *thermal or synchrotron jets*. Very recently, Hofner et al. (2011) have shown the feasibility of observing hot molecular core candidates in the cm continuum. With the help of single-dish SiO mapping observations, we can relate the parsec-scale outflows with the cm continuum emission. We would observe at two frequencies in the same band in order to obtain the spectral indices. Synchrotron jets can be observed with the Australian Square Kilometer Array Pathfinder (ASKAP) once it becomes operational.

Studying fragmentation within southern IRDCs

The IRDC complexes we studied at 870 μm have a resolution of $\sim 21''$. Subsequent observations with the SABOCA bolometer (at 350 μm) at a resolution of $9''$ of two IRDCs reveal that fragmentation is already taking place (see Figs. 8.2 and 8.3). These IRDCs contain several (massive) clumps that remain dark at 24 μm without any other signpost of star formation activity. Therefore, these clumps are very interesting candidates for studying the role of *fragmentation at early evolutionary phases* with ATCA. They also can be observed with higher resolution with the Atacama Large Millimeter/submillimeter Array (ALMA).

A

A catalog of 24 μm contrast IRDC candidates

Table A.1. Catalog of 24 μm contrast ("$C_{24\mu m}$") IRDC candidates.

IRDC name	R.A. (^{h}:^{m}:^{s}) (J2000)	Decl. ($^\circ$:$'$:$''$) (J2000)	$C_{24\mu m}$	IRDC name	R.A. (^{h}:^{m}:^{s}) (J2000)	Decl. ($^\circ$:$'$:$''$) (J2000)	$C_{24\mu m}$
G0.00+0.66	17:43:03.7	−28:35:25.28	0.185	G309.15−0.35	13:45:47.7	−62:33:39.55	0.437
G0.00+0.69	17:42:55.6	−28:34:31.79	0.199	G309.16+0.12	13:45:01.3	−62:06:00.74	0.170
G0.00+0.03	17:45:30.2	−28:55:15.78	0.269	G309.16−0.25	13:45:43.3	−62:27:37.22	0.256
G0.00−0.17	17:46:18.0	−29:01:38.36	0.190	G309.18−0.55	13:46:25.0	−62:45:17.02	0.189
G0.00−0.46	17:47:26.4	−29:10:29.39	0.325	G309.19+0.13	13:45:20.6	−62:05:21.45	0.167
G0.01−0.57	17:47:52.4	−29:13:41.68	0.150	G309.20−0.46	13:46:26.2	−62:39:38.12	0.206
G0.01+0.61	17:43:16.7	−28:36:43.18	0.151	G309.20−0.01	13:45:38.5	−62:13:06.00	0.169
G0.01+0.10	17:45:14.6	−28:52:29.35	0.227	G309.20−0.66	13:46:50.4	−62:51:03.63	0.153
G0.01−0.49	17:47:32.9	−29:10:49.80	0.160	G309.20−0.47	13:46:30.6	−62:40:21.60	0.181
G0.01+0.59	17:43:21.0	−28:36:54.42	0.166	G309.21−0.14	13:45:55.9	−62:21:03.05	0.164
G0.02−0.30	17:46:49.1	−29:04:38.02	0.197	G309.21−0.58	13:46:44.7	−62:46:46.46	0.168
G0.02+0.08	17:45:20.9	−28:52:39.73	0.213	G309.21−0.13	13:45:56.3	−62:20:18.41	0.165
G0.02−0.11	17:46:06.9	−28:58:36.02	0.352	G309.22−0.65	13:46:56.9	−62:50:44.06	0.218
G0.02−0.49	17:47:35.8	−29:10:14.62	0.213	G309.22−0.56	13:46:49.1	−62:44:57.14	0.167
G0.02−0.43	17:47:22.6	−29:08:27.59	0.242	G309.22−0.54	13:46:48.8	−62:44:16.64	0.164
G0.03−0.11	17:46:08.5	−28:57:55.14	0.741	G309.23−0.59	13:46:55.5	−62:46:53.71	0.174
G0.04+0.12	17:45:16.3	−28:50:16.92	0.196	G309.23−0.48	13:46:44.1	−62:40:34.92	0.173
G0.05+0.16	17:45:07.2	−28:48:31.29	0.154	G309.25−0.61	13:47:08.5	−62:47:45.01	0.155
G0.05+0.14	17:45:13.0	−28:49:11.42	0.204	G309.25−0.58	13:47:06.6	−62:45:47.55	0.151
G0.06−0.18	17:46:28.2	−28:58:58.00	0.572	G309.25−0.63	13:47:12.7	−62:48:50.11	0.223
G0.06+0.28	17:44:39.1	−28:44:19.00	0.152	G309.26−0.49	13:46:58.7	−62:40:42.20	0.211
G0.06−0.28	17:46:50.8	−29:01:45.27	0.153	G309.26−0.60	13:47:14.0	−62:47:00.92	0.154
G0.07+0.17	17:45:06.4	−28:47:14.69	0.152	G309.27−0.56	13:47:12.2	−62:44:25.57	0.276
G0.07−0.43	17:47:27.5	−29:05:54.47	0.244	G309.28−0.36	13:46:54.6	−62:32:38.43	0.195
G0.07+0.21	17:44:57.6	−28:45:49.05	0.264	G309.29−0.20	13:46:46.0	−62:23:02.17	0.232
G0.07+0.31	17:44:35.2	−28:42:38.14	0.169	G309.31−0.21	13:46:55.0	−62:23:37.68	0.157

Table A.1. continued.

IRDC name	R.A. ($^{h}:^{m}:^{s}$) (J2000)	Decl. ($^{\circ}:':''$) (J2000)	$C_{24\mu m}$	IRDC name	R.A. ($^{h}:^{m}:^{s}$) (J2000)	Decl. ($^{\circ}:':''$) (J2000)	$C_{24\mu m}$
G0.08−0.11	17:46:13.7	−28:55:30.12	0.154	G309.31−0.68	13:47:47.8	−62:50:53.88	0.151
G0.08−0.54	17:47:54.8	−29:08:53.25	0.160	G309.33−0.76	13:48:07.1	−62:55:35.69	0.153
G0.08−0.43	17:47:29.6	−29:05:13.92	0.175	G309.33−0.62	13:47:52.9	−62:47:27.31	0.170
G0.08−0.45	17:47:34.6	−29:05:50.85	0.235	G309.34−0.69	13:48:05.7	−62:51:05.99	0.245
G0.09+0.14	17:45:17.5	−28:47:14.11	0.192	G309.36−0.51	13:47:55.1	−62:40:24.64	0.217
G0.09+0.17	17:45:11.2	−28:46:17.67	0.181	G309.37−0.10	13:47:14.1	−62:16:01.14	0.164
G0.09+0.61	17:43:28.8	−28:32:20.92	0.172	G309.38−0.73	13:48:27.1	−62:53:09.88	0.151
G0.10−0.31	17:47:04.4	−29:01:01.74	0.166	G309.38−0.73	13:48:30.2	−62:53:01.30	0.151
G0.10−0.78	17:48:54.8	−29:15:33.11	0.159	G309.40+0.60	13:46:10.5	−61:34:45.02	0.153
G0.10−0.06	17:46:06.0	−28:53:01.19	0.318	G309.42−0.65	13:48:40.2	−62:47:51.01	0.347
G0.11−0.40	17:47:25.9	−29:02:58.04	0.153	G309.44−0.42	13:48:23.7	−62:34:27.94	0.158
G0.11−0.41	17:47:29.6	−29:03:13.72	0.282	G309.44−0.67	13:48:53.8	−62:49:04.86	0.150
G0.12−0.52	17:47:55.5	−29:06:17.89	0.225	G309.45−0.63	13:48:52.9	−62:46:20.97	0.154
G0.12−0.37	17:47:21.9	−29:01:38.08	0.156	G309.45−0.68	13:48:59.7	−62:49:03.46	0.165
G0.12+0.16	17:45:18.3	−28:45:01.54	0.162	G309.47−0.68	13:49:11.0	−62:48:51.80	0.158
G0.13−0.35	17:47:16.6	−29:00:23.38	0.204	G309.47−0.69	13:49:13.4	−62:49:43.13	0.159
G0.14−0.23	17:46:51.3	−28:56:24.39	0.159	G309.48−0.67	13:49:15.6	−62:48:08.12	0.187
G0.14−0.29	17:47:04.6	−28:57:52.69	0.157	G309.48−0.65	13:49:13.8	−62:47:09.07	0.157
G0.14−0.13	17:46:28.3	−28:52:56.67	0.641	G309.50−0.65	13:49:22.3	−62:47:03.51	0.152
G0.15+0.24	17:45:02.4	−28:41:05.50	0.151	G309.51−0.65	13:49:26.5	−62:46:46.20	0.162
G0.15−0.37	17:47:26.6	−29:00:03.80	0.152	G309.51+0.46	13:47:21.7	−61:41:51.81	0.152
G0.15+0.27	17:44:56.5	−28:40:00.82	0.166	G309.66−0.62	13:50:37.6	−62:42:41.79	0.152
G0.16−0.29	17:47:08.1	−28:57:19.47	0.155	G309.68+0.54	13:48:34.6	−61:34:44.92	0.153
G0.16+0.20	17:45:14.5	−28:41:49.67	0.235	G309.75−0.73	13:51:40.5	−62:48:10.73	0.170
G0.16+0.33	17:44:43.7	−28:37:40.20	0.151	G309.77−0.56	13:51:28.6	−62:37:44.67	0.217
G0.16−0.34	17:47:20.4	−28:58:30.68	0.215	G309.84+0.39	13:50:13.5	−61:41:14.11	0.160
G0.17−0.23	17:46:57.0	−28:54:33.06	0.189	G309.87+0.48	13:50:19.1	−61:36:01.82	0.177
G0.18+0.39	17:44:31.6	−28:34:48.29	0.172	G309.89+0.44	13:50:30.5	−61:37:45.00	0.202
G0.19+0.01	17:46:01.8	−28:46:27.16	0.571	G309.89+0.65	13:50:08.0	−61:25:31.40	0.198
G0.19+0.36	17:44:39.0	−28:35:04.75	0.165	G309.91+0.30	13:50:59.4	−61:45:52.05	0.339
G0.19−0.32	17:47:19.4	−28:56:23.25	0.237	G309.94−0.54	13:52:50.3	−62:34:15.79	0.166
G0.19+0.12	17:45:36.3	−28:42:29.80	0.185	G309.94+0.34	13:51:05.2	−61:42:47.00	0.172
G0.20+0.14	17:45:32.8	−28:41:48.90	0.194	G309.95+0.60	13:50:44.1	−61:27:36.19	0.217
G0.20+0.11	17:45:39.8	−28:42:42.29	0.157	G309.96+0.56	13:50:52.1	−61:30:05.43	0.168
G0.20−0.29	17:47:13.2	−28:54:55.00	0.257	G309.97+0.57	13:50:55.6	−61:28:52.63	0.197
G0.20−0.64	17:48:35.2	−29:05:39.17	0.171	G309.97+0.43	13:51:13.9	−61:37:27.35	0.313
G0.20+0.37	17:44:38.9	−28:34:06.10	0.158	G309.97+0.49	13:51:07.1	−61:33:55.51	0.172
G0.21+0.13	17:45:35.5	−28:41:21.93	0.163	G309.98+0.30	13:51:29.6	−61:44:51.94	0.223
G0.21−0.48	17:47:59.5	−29:00:27.85	0.620	G309.98+0.50	13:51:07.0	−61:32:53.15	0.199
G0.21−0.84	17:49:24.0	−29:11:23.45	0.160	G309.98+0.53	13:51:06.7	−61:31:36.76	0.201
G0.21+0.24	17:45:12.3	−28:37:52.69	0.175	G309.99−0.23	13:52:41.7	−62:15:37.49	0.178
G0.22+0.25	17:45:11.1	−28:37:10.64	0.152	G310.01+0.31	13:51:44.1	−61:44:02.61	0.188
G0.23−0.41	17:47:46.3	−28:57:28.83	0.174	G310.01−0.58	13:53:33.7	−62:35:55.54	0.152
G0.23+0.13	17:45:39.9	−28:40:30.61	0.263	G310.02+0.48	13:51:28.3	−61:33:47.12	0.230
G0.23−0.64	17:48:40.9	−29:04:17.58	0.250	G310.02+0.52	13:51:23.7	−61:31:11.83	0.171
G0.23−0.28	17:47:15.3	−28:52:52.00	0.162	G310.03−0.25	13:52:59.9	−62:16:13.69	0.150
G0.24−0.05	17:46:22.4	−28:45:36.77	0.213	G310.04+0.46	13:51:42.4	−61:34:53.40	0.220
G0.24+0.24	17:45:16.6	−28:36:12.76	0.161	G310.04−0.43	13:53:29.6	−62:26:38.77	0.150

Table A.1. continued.

IRDC name	R.A. ($^{h}:^{m}:^{s}$) (J2000)	Decl. ($^{\circ}:':''$) (J2000)	$C_{24\mu m}$	IRDC name	R.A. ($^{h}:^{m}:^{s}$) (J2000)	Decl. ($^{\circ}:':''$) (J2000)	$C_{24\mu m}$
G0.25−0.63	17:48:41.0	−29:03:11.42	0.162	G310.06−0.26	13:53:16.7	−62:16:05.88	0.228
G0.25−0.70	17:48:56.6	−29:05:12.54	0.152	G310.07+0.40	13:52:05.5	−61:37:58.62	0.165
G0.25−0.73	17:49:03.5	−29:06:05.49	0.164	G310.08−0.33	13:53:39.6	−62:20:06.84	0.166
G0.25−0.24	17:47:09.1	−28:50:52.35	0.315	G310.09+0.30	13:52:25.6	−61:43:13.50	0.213
G0.26+0.02	17:46:09.1	−28:42:23.79	0.808	G310.10+0.30	13:52:33.3	−61:43:09.52	0.152
G0.26−0.02	17:46:17.5	−28:43:24.16	0.227	G310.12−0.19	13:53:41.6	−62:11:35.96	0.166
G0.26−0.07	17:46:31.6	−28:44:54.79	0.536	G310.13+0.38	13:52:34.0	−61:37:52.47	0.309
G0.26−0.12	17:46:42.5	−28:46:19.24	0.161	G310.13−0.21	13:53:49.0	−62:12:15.26	0.152
G0.27−0.63	17:48:43.3	−29:02:07.21	0.254	G310.15−0.19	13:53:53.1	−62:11:02.59	0.152
G0.27−0.16	17:46:53.4	−28:47:13.36	0.360	G310.15+0.56	13:52:23.6	−61:27:14.30	0.285
G0.28−0.61	17:48:39.8	−29:00:54.41	0.182	G310.15+0.79	13:51:59.3	−61:13:55.47	0.156
G0.28−0.72	17:49:06.6	−29:04:25.20	0.320	G310.16+0.55	13:52:30.7	−61:27:59.84	0.152
G0.28−0.36	17:47:40.6	−28:53:03.60	0.269	G310.18−0.20	13:54:13.9	−62:11:15.98	0.204
G0.29−0.12	17:46:44.9	−28:45:06.31	0.182	G310.19+0.47	13:52:52.9	−61:31:44.42	0.217
G0.29−0.37	17:47:46.2	−28:52:43.52	0.154	G310.20+0.43	13:53:03.4	−61:33:57.64	0.216
G0.31−0.16	17:46:57.2	−28:45:19.84	0.278	G310.20−0.20	13:54:20.5	−62:10:34.40	0.157
G0.31−0.33	17:47:39.4	−28:50:33.41	0.188	G310.21+0.39	13:53:15.1	−61:36:25.90	0.209
G0.31−0.28	17:47:26.7	−28:48:41.61	0.217	G310.23+0.25	13:53:42.5	−61:44:24.62	0.275
G0.32−0.59	17:48:39.9	−28:58:17.64	0.403	G310.23+0.38	13:53:26.2	−61:36:25.49	0.168
G0.32−0.11	17:46:48.1	−28:42:57.19	0.333	G310.24−0.40	13:55:07.6	−62:21:45.52	0.184
G0.32−0.13	17:46:53.8	−28:43:36.10	0.353	G310.30−0.12	13:55:00.2	−62:04:40.93	0.180
G0.33+0.10	17:46:00.1	−28:36:20.92	0.184	G310.33+0.73	13:53:33.8	−61:14:51.13	0.179
G0.33−0.19	17:47:08.6	−28:45:09.66	0.168	G310.36−0.55	13:56:24.3	−62:28:45.08	0.225
G0.33−0.30	17:47:33.7	−28:48:21.58	0.201	G310.39−0.30	13:56:08.8	−62:13:59.27	0.335
G0.33−0.15	17:47:00.5	−28:43:47.50	0.167	G310.39−0.28	13:56:06.7	−62:12:32.30	0.181
G0.33+0.27	17:45:21.3	−28:30:31.51	0.153	G310.43+0.68	13:54:24.4	−61:16:13.88	0.161
G0.33−0.32	17:47:39.1	−28:48:52.73	0.183	G310.45+0.26	13:55:25.8	−61:40:10.02	0.152
G0.34−0.01	17:46:28.1	−28:39:23.72	0.747	G310.45+0.27	13:55:24.8	−61:39:37.35	0.163
G0.34−0.16	17:47:03.1	−28:43:46.38	0.165	G310.45+0.73	13:54:29.5	−61:13:08.64	0.183
G0.34−0.50	17:48:22.2	−28:53:58.56	0.358	G310.48+0.16	13:55:56.9	−61:45:46.69	0.163
G0.34−0.90	17:49:56.5	−29:06:17.65	0.172	G310.49+0.14	13:56:01.3	−61:46:39.59	0.160
G0.35−0.30	17:47:36.7	−28:47:35.58	0.165	G310.51+0.35	13:55:44.2	−61:34:03.93	0.153
G0.35−0.43	17:48:07.0	−28:51:28.45	0.589	G310.53+0.36	13:55:55.0	−61:33:14.47	0.204
G0.35−0.11	17:46:54.2	−28:41:40.59	0.180	G310.54+0.77	13:55:06.5	−61:09:23.54	0.190
G0.37−0.46	17:48:17.8	−28:51:39.01	0.150	G310.54+0.75	13:55:10.9	−61:10:23.07	0.152
G0.37−0.01	17:46:31.6	−28:37:32.48	0.219	G310.55−0.08	13:57:01.0	−61:58:50.38	0.235
G0.37−0.93	17:50:07.3	−29:05:51.66	0.193	G310.56+0.20	13:56:27.3	−61:42:01.60	0.184
G0.37−0.08	17:46:49.1	−28:39:27.42	0.162	G310.57−0.08	13:57:07.9	−61:58:16.99	0.194
G0.38−0.27	17:47:34.8	−28:45:14.12	0.153	G310.59+0.78	13:55:32.3	−61:08:12.33	0.156
G0.38−0.06	17:46:45.1	−28:38:35.02	0.159	G310.63+0.67	13:56:05.5	−61:13:54.82	0.155
G0.38−0.88	17:49:57.4	−29:03:57.40	0.241	G310.63+0.79	13:55:52.5	−61:07:04.60	0.158
G0.38−0.26	17:47:32.5	−28:44:49.58	0.163	G310.64−0.22	13:58:03.6	−62:05:32.24	0.159
G0.39−0.02	17:46:37.7	−28:37:12.25	0.151	G310.65+0.29	13:57:00.0	−61:35:29.59	0.155
G0.39−0.08	17:46:51.8	−28:39:03.01	0.167	G310.69+0.01	13:57:54.6	−61:51:16.95	0.218
G0.39−0.94	17:50:12.2	−29:05:20.97	0.160	G310.69−0.10	13:58:12.0	−61:57:42.66	0.179
G0.39−0.18	17:47:14.6	−28:41:55.88	0.179	G310.71+0.73	13:56:36.1	−61:09:19.50	0.155
G0.39+0.14	17:46:01.1	−28:31:57.03	0.208	G310.72+0.27	13:57:40.8	−61:35:46.62	0.153
G0.39+0.04	17:46:22.6	−28:34:49.02	0.525	G310.75−0.39	13:59:17.9	−62:13:35.99	0.164

Table A.1. continued.

IRDC name	R.A. ($^{h}:^{m}:^{s}$) (J2000)	Decl. ($^{\circ}:':''$) (J2000)	$C_{24\mu m}$	IRDC name	R.A. ($^{h}:^{m}:^{s}$) (J2000)	Decl. ($^{\circ}:':''$) (J2000)	$C_{24\mu m}$
G0.39−0.05	17:46:45.3	−28:37:38.99	0.167	G310.75−0.17	13:58:52.6	−62:00:45.01	0.153
G0.39−0.33	17:47:50.1	−28:46:13.84	0.201	G310.78−0.16	13:59:03.1	−61:59:46.48	0.155
G0.39−0.63	17:49:01.5	−28:55:36.91	0.375	G310.80−0.27	13:59:27.1	−62:05:50.69	0.158
G0.39−0.84	17:49:50.8	−29:02:02.22	0.322	G310.80−0.38	13:59:42.6	−62:12:01.70	0.179
G0.40−0.71	17:49:21.3	−28:57:56.93	0.381	G310.82−0.14	13:59:22.2	−61:58:15.87	0.154
G0.40−0.38	17:48:03.6	−28:47:25.74	0.184	G310.82+0.77	13:57:24.8	−61:05:16.80	0.219
G0.41−0.59	17:48:54.0	−28:53:47.58	0.200	G310.83+0.43	13:58:13.3	−61:24:44.20	0.171
G0.41−0.21	17:47:25.0	−28:42:01.42	0.339	G310.87+0.41	13:58:32.3	−61:25:18.62	0.168
G0.41−0.14	17:47:08.5	−28:39:30.47	0.422	G310.87+0.46	13:58:28.7	−61:22:12.77	0.209
G0.41+0.16	17:45:58.8	−28:30:05.89	0.151	G310.90+0.24	13:59:08.8	−61:34:30.07	0.166
G0.41−0.51	17:48:36.2	−28:51:00.83	0.158	G310.90−0.16	14:00:05.0	−61:58:07.08	0.161
G0.41−0.81	17:49:46.8	−29:00:16.61	0.154	G310.95+0.48	13:59:04.0	−61:19:52.96	0.266
G0.41+0.15	17:46:00.7	−28:30:17.29	0.167	G310.96−0.02	14:00:11.2	−61:48:48.88	0.233
G0.42−0.66	17:49:11.8	−28:55:25.91	0.246	G310.96+0.73	13:58:36.4	−61:05:41.90	0.191
G0.42−0.82	17:49:49.3	−29:00:19.13	0.158	G310.97+0.09	14:00:02.7	−61:42:14.00	0.171
G0.42−0.26	17:47:36.3	−28:42:46.01	0.171	G310.97+0.01	14:00:15.0	−61:47:04.71	0.188
G0.42−0.59	17:48:55.3	−28:52:46.66	0.290	G310.98+0.08	14:00:08.5	−61:42:36.51	0.166
G0.42−0.04	17:46:46.9	−28:35:37.84	0.315	G310.98+0.50	13:59:16.0	−61:18:37.02	0.154
G0.43−0.07	17:46:53.2	−28:36:23.65	0.243	G310.99+0.29	13:59:49.4	−61:30:23.91	0.152
G0.43+0.40	17:45:03.9	−28:21:40.55	0.157	G311.00+0.30	13:59:51.4	−61:29:49.04	0.157
G0.43−0.43	17:48:19.2	−28:47:38.66	0.384	G311.00+0.29	13:59:54.3	−61:30:22.29	0.158
G0.43+0.16	17:46:02.3	−28:29:12.66	0.206	G311.02+0.53	13:59:31.5	−61:15:56.10	0.220
G0.43−0.02	17:46:43.4	−28:34:37.25	0.312	G311.03+0.72	13:59:09.5	−61:04:46.18	0.212
G0.44−0.52	17:48:42.0	−28:50:08.30	0.263	G311.03−0.29	14:01:25.2	−62:03:34.45	0.226
G0.44−0.30	17:47:50.4	−28:43:17.40	0.287	G311.04+0.11	14:00:37.5	−61:40:10.45	0.174
G0.44−0.63	17:49:07.7	−28:53:22.50	0.404	G311.04+0.42	13:59:56.6	−61:22:02.51	0.171
G0.44−0.82	17:49:53.3	−28:59:02.90	0.241	G311.05−0.30	14:01:33.7	−62:03:37.08	0.191
G0.44−0.28	17:47:45.7	−28:42:12.03	0.183	G311.06+0.13	14:00:40.7	−61:38:51.71	0.158
G0.52+0.31	17:45:38.8	−28:19:41.67	0.151	G311.06+0.64	13:59:36.6	−61:08:55.75	0.151
G0.52−0.38	17:48:20.1	−28:41:05.47	0.281	G311.07+0.64	13:59:37.9	−61:09:01.06	0.151
G0.53−0.70	17:49:35.3	−28:50:49.09	0.171	G311.08+0.38	14:00:17.6	−61:23:43.59	0.293
G0.53−0.35	17:48:13.8	−28:40:03.94	0.174	G311.08+0.49	14:00:03.8	−61:17:35.06	0.162
G0.54−0.31	17:48:06.7	−28:38:22.70	0.168	G311.08+0.45	14:00:10.2	−61:19:28.38	0.163
G0.54−0.60	17:49:13.7	−28:47:09.81	0.185	G311.08+0.56	13:59:58.4	−61:13:35.58	0.157
G0.54−0.66	17:49:27.9	−28:49:00.08	0.527	G311.09+0.49	14:00:09.3	−61:17:32.33	0.164
G0.54+0.10	17:46:30.2	−28:25:24.48	0.151	G311.10+0.56	14:00:03.3	−61:12:56.52	0.184
G0.54−0.74	17:49:47.9	−28:51:23.17	0.290	G311.10−0.12	14:01:34.5	−61:52:12.63	0.175
G0.55−0.72	17:49:44.1	−28:50:05.95	0.174	G311.10+0.47	14:00:18.2	−61:18:30.17	0.215
G0.56−0.30	17:48:07.3	−28:36:57.24	0.216	G311.10−0.14	14:01:39.8	−61:53:14.82	0.154
G0.56−0.73	17:49:48.7	−28:50:13.60	0.151	G311.11+0.50	14:00:15.5	−61:16:26.95	0.178
G0.56−0.46	17:48:44.9	−28:41:40.70	0.473	G311.11+0.53	14:00:11.8	−61:14:30.64	0.215
G0.57−0.49	17:48:52.5	−28:42:11.25	0.171	G311.11+0.40	14:00:30.6	−61:21:57.48	0.167
G0.58−0.72	17:49:48.0	−28:48:35.47	0.176	G311.11+0.52	14:00:16.4	−61:15:08.39	0.151
G0.58−0.35	17:48:21.5	−28:37:07.76	0.180	G311.12−0.13	14:01:46.3	−61:52:52.16	0.180
G0.59−0.36	17:48:25.1	−28:36:59.02	0.201	G311.13−0.39	14:02:30.3	−62:07:45.08	0.168
G0.59−0.11	17:47:26.4	−28:29:01.97	0.469	G311.14−0.03	14:01:41.6	−61:46:22.54	0.207
G0.60−0.14	17:47:36.0	−28:29:58.30	0.231	G311.14+0.70	14:00:04.4	−61:04:07.93	0.151
G0.60−0.05	17:47:14.3	−28:26:54.36	0.253	G311.14+0.78	13:59:58.5	−60:59:52.93	0.153

Table A.1. continued.

IRDC name	R.A. ($^{h}:^{m}:^{s}$) (J2000)	Decl. ($^{\circ}:':''$) (J2000)	$C_{24\mu m}$	IRDC name	R.A. ($^{h}:^{m}:^{s}$) (J2000)	Decl. ($^{\circ}:':''$) (J2000)	$C_{24\mu m}$
G0.60+0.26	17:46:03.7	−28:17:13.51	0.174	G311.16+0.66	14:00:19.1	−61:06:22.38	0.224
G0.61−0.80	17:50:10.6	−28:49:54.33	0.178	G311.16−0.40	14:02:44.2	−62:07:38.57	0.182
G0.62−0.53	17:49:07.6	−28:40:55.39	0.287	G311.16−0.19	14:02:17.1	−61:55:27.58	0.155
G0.62+0.02	17:47:00.4	−28:24:02.19	0.427	G311.16−0.33	14:02:36.0	−62:03:20.37	0.151
G0.62−0.23	17:47:59.9	−28:31:35.66	0.231	G311.17−0.29	14:02:35.4	−62:01:21.08	0.167
G0.62+0.59	17:44:48.8	−28:05:48.49	0.164	G311.18+0.16	14:01:35.6	−61:35:16.64	0.216
G0.62−0.27	17:48:08.9	−28:32:32.96	0.150	G311.18+0.37	14:01:07.6	−61:22:39.28	0.154
G0.62−0.55	17:49:15.6	−28:41:19.85	0.324	G311.18−0.73	14:03:41.6	−62:26:20.12	0.173
G0.62+0.58	17:44:52.2	−28:06:11.01	0.175	G311.18−0.20	14:02:28.0	−61:56:00.80	0.202
G0.63+0.50	17:45:10.0	−28:08:29.74	0.150	G311.18−0.71	14:03:38.6	−62:24:52.82	0.157
G0.63−0.35	17:48:28.0	−28:34:47.24	0.151	G311.19−0.25	14:02:38.3	−61:58:28.86	0.246
G0.63+0.50	17:45:09.8	−28:08:19.45	0.152	G311.19+0.34	14:01:18.0	−61:24:19.29	0.155
G0.63+0.58	17:44:51.3	−28:05:35.73	0.154	G311.19+0.44	14:01:04.5	−61:18:28.79	0.166
G0.64−0.05	17:47:19.2	−28:25:07.82	0.339	G311.19+0.61	14:00:41.9	−61:08:33.61	0.161
G0.64−0.83	17:50:20.9	−28:49:03.55	0.173	G311.19−0.33	14:02:49.8	−62:02:50.96	0.194
G0.64−0.52	17:49:08.5	−28:39:24.28	0.152	G311.19+0.46	14:01:03.6	−61:17:41.35	0.160
G0.64+0.14	17:46:36.1	−28:19:04.99	0.158	G311.20−0.58	14:03:28.5	−62:17:34.76	0.179
G0.64−0.30	17:48:17.6	−28:32:31.13	0.175	G311.20−0.57	14:03:27.0	−62:16:43.37	0.150
G0.64−0.21	17:47:56.7	−28:29:42.09	0.152	G311.20−0.01	14:02:10.9	−61:44:38.79	0.234
G0.64+0.08	17:46:48.8	−28:20:35.13	0.152	G311.21−0.60	14:03:35.1	−62:18:35.48	0.247
G0.64+0.09	17:46:48.6	−28:20:24.81	0.151	G311.21+0.23	14:01:40.9	−61:30:35.87	0.191
G0.65−0.15	17:47:45.2	−28:27:30.78	0.177	G311.21+0.37	14:01:22.5	−61:22:05.75	0.213
G0.66−0.55	17:49:19.7	−28:39:19.68	0.192	G311.21+0.32	14:01:31.4	−61:25:04.60	0.156
G0.66−0.59	17:49:28.8	−28:40:28.61	0.150	G311.23+0.29	14:01:41.7	−61:26:34.95	0.153
G0.66−0.21	17:47:59.7	−28:28:33.76	0.191	G311.24+0.34	14:01:42.6	−61:23:45.57	0.176
G0.67−0.49	17:49:07.5	−28:36:54.40	0.271	G311.24+0.29	14:01:50.6	−61:26:30.57	0.197
G0.68−0.12	17:47:42.5	−28:25:00.48	0.285	G311.24+0.35	14:01:42.7	−61:23:02.77	0.153
G0.68−0.09	17:47:35.6	−28:23:58.39	0.166	G311.25+0.35	14:01:43.4	−61:22:53.55	0.153
G0.68−0.20	17:48:00.6	−28:27:13.07	0.171	G311.25+0.36	14:01:42.2	−61:22:10.80	0.169
G0.68−0.55	17:49:22.5	−28:38:02.65	0.155	G311.25+0.75	14:00:52.4	−60:59:49.65	0.220
G0.69+0.15	17:46:39.3	−28:16:19.22	0.182	G311.26+0.59	14:01:16.2	−61:09:00.74	0.152
G0.69−0.53	17:49:19.5	−28:37:12.19	0.197	G311.26−0.12	14:02:54.1	−61:50:06.32	0.160
G0.71+0.41	17:45:43.1	−28:07:14.86	0.259	G311.26−0.45	14:03:41.3	−62:08:52.74	0.167
G0.72−0.07	17:47:36.0	−28:21:14.17	0.194	G311.27+0.10	14:02:28.0	−61:36:46.94	0.156
G0.74−0.05	17:47:33.9	−28:20:05.36	0.168	G311.27−0.50	14:03:52.6	−62:11:19.48	0.166
G0.74−0.00	17:47:22.2	−28:18:29.47	0.210	G311.27+0.78	14:00:58.6	−60:57:47.95	0.152
G0.74−0.45	17:49:06.3	−28:32:04.54	0.228	G311.27−0.05	14:02:50.5	−61:45:39.28	0.171
G0.74−0.03	17:47:30.5	−28:19:01.90	0.160	G311.28+0.36	14:01:56.6	−61:22:03.62	0.151
G0.75−0.07	17:47:39.3	−28:19:57.85	0.178	G311.28−0.75	14:04:32.2	−62:26:03.22	0.154
G0.76−0.33	17:48:42.8	−28:27:43.27	0.192	G311.28−0.11	14:03:04.1	−61:48:53.37	0.230
G0.77−0.56	17:49:36.9	−28:33:42.95	0.156	G311.29+0.13	14:02:34.0	−61:35:00.77	0.253
G0.77−0.47	17:49:16.2	−28:30:57.91	0.272	G311.29+0.17	14:02:29.5	−61:32:24.33	0.162
G0.78−0.02	17:47:31.5	−28:17:00.22	0.157	G311.30+0.16	14:02:34.1	−61:33:04.72	0.170
G0.79−0.10	17:47:53.4	−28:18:39.51	0.172	G311.30+0.75	14:01:16.0	−60:58:38.45	0.153
G0.80−0.26	17:48:30.1	−28:23:22.78	0.170	G311.31+0.43	14:02:01.5	−61:17:10.64	0.177
G0.82+0.13	17:47:02.5	−28:09:58.50	0.167	G311.31+0.02	14:02:58.2	−61:40:53.36	0.169
G0.82+0.46	17:45:46.7	−27:59:32.10	0.150	G311.31+0.79	14:01:17.5	−60:56:41.47	0.174
G0.83+0.46	17:45:48.2	−27:59:23.61	0.180	G311.31+0.67	14:01:32.7	−61:03:08.27	0.154

Table A.1. continued.

IRDC name	R.A. ($^{h}:^{m}:^{s}$) (J2000)	Decl. ($^{\circ}:':''$) (J2000)	$C_{24\mu m}$	IRDC name	R.A. ($^{h}:^{m}:^{s}$) (J2000)	Decl. ($^{\circ}:':''$) (J2000)	$C_{24\mu m}$
G0.83−0.20	17:48:21.9	−28:19:47.24	0.170	G311.31+0.73	14:01:25.2	−60:59:50.91	0.165
G0.84−0.03	17:47:42.2	−28:13:57.47	0.234	G311.32+0.76	14:01:22.5	−60:58:22.72	0.208
G0.84+0.49	17:45:41.9	−27:57:47.39	0.162	G311.32+0.10	14:02:51.1	−61:36:16.75	0.230
G0.84+0.71	17:44:52.4	−27:50:48.92	0.165	G311.32+0.78	14:01:22.4	−60:57:05.37	0.159
G0.85+0.47	17:45:48.6	−27:57:42.08	0.211	G311.32−0.14	14:03:27.8	−61:49:54.65	0.158
G0.86−0.15	17:48:14.0	−28:16:52.86	0.152	G311.33−0.26	14:03:46.6	−61:57:04.68	0.153
G0.87−0.17	17:48:20.3	−28:16:59.48	0.150	G311.33−0.13	14:03:27.2	−61:49:06.84	0.161
G0.87−0.16	17:48:17.2	−28:16:25.94	0.152	G311.33−0.29	14:03:51.1	−61:58:46.89	0.164
G0.87−0.15	17:48:17.0	−28:16:10.12	0.158	G311.33−0.16	14:03:33.2	−61:51:15.10	0.163
G0.91−0.86	17:51:06.2	−28:35:54.58	0.151	G311.33−0.27	14:03:49.7	−61:57:15.57	0.153
G0.91+0.10	17:47:22.0	−28:06:12.32	0.154	G311.33−0.38	14:04:06.1	−62:03:38.40	0.156
G0.93−0.70	17:50:32.4	−28:30:08.72	0.445	G311.34+0.37	14:02:24.1	−61:20:03.47	0.175
G0.93−0.05	17:48:01.7	−28:10:07.19	0.164	G311.34+0.64	14:01:49.9	−61:04:25.40	0.184
G0.93+0.93	17:44:13.4	−27:39:15.88	0.811	G311.34−0.41	14:04:15.9	−62:04:55.81	0.184
G0.95−0.05	17:48:04.2	−28:09:05.07	0.160	G311.34+0.69	14:01:44.5	−61:01:29.45	0.173
G0.96+0.62	17:45:29.0	−27:47:31.52	0.194	G311.35+0.39	14:02:26.2	−61:19:12.18	0.194
G0.98−0.29	17:49:03.4	−28:14:49.58	0.160	G311.35+0.26	14:02:44.2	−61:26:22.03	0.164
G0.98+0.17	17:47:17.1	−28:00:35.04	0.153	G311.35+0.42	14:02:24.0	−61:17:00.76	0.194
G0.98+0.17	17:47:16.7	−28:00:20.04	0.153	G311.35−0.29	14:04:03.2	−61:58:12.41	0.156
G0.98+0.10	17:47:32.7	−28:02:27.88	0.165	G311.35−0.04	14:03:28.0	−61:43:46.08	0.197
G0.99−0.82	17:51:08.6	−28:30:38.51	0.615	G311.35+0.35	14:02:34.7	−61:21:09.83	0.286
G0.99+0.16	17:47:21.1	−28:00:24.83	0.186	G311.36+0.28	14:02:45.4	−61:25:01.57	0.171
G1.00+0.18	17:47:16.6	−27:59:31.17	0.158	G311.36+0.30	14:02:44.4	−61:23:51.13	0.187
G1.01−0.12	17:48:29.4	−28:08:10.07	0.229	G311.36+0.11	14:03:12.8	−61:34:51.34	0.187
G1.01+0.03	17:47:52.9	−28:03:13.21	0.161	G311.37−0.21	14:04:00.7	−61:53:20.92	0.151
G1.01−0.06	17:48:14.6	−28:06:02.20	0.214	G311.37+0.09	14:03:20.4	−61:35:52.53	0.194
G1.02−0.01	17:48:04.2	−28:04:29.11	0.150	G311.37+0.38	14:02:41.0	−61:19:11.94	0.182
G1.03−0.09	17:48:25.1	−28:06:11.18	0.210	G311.37+0.66	14:02:02.7	−61:02:38.68	0.154
G1.06−0.08	17:48:26.2	−28:04:11.75	0.150	G311.38+0.23	14:03:03.6	−61:27:39.16	0.165
G1.07−0.10	17:48:31.1	−28:04:22.93	0.170	G311.38+0.52	14:02:25.4	−61:11:01.56	0.161
G1.07−0.06	17:48:21.8	−28:02:53.98	0.257	G311.38+0.22	14:03:07.8	−61:28:19.40	0.176
G1.08−0.74	17:51:03.6	−28:23:49.70	0.320	G311.39+0.21	14:03:12.6	−61:28:52.01	0.155
G1.10−0.07	17:48:28.8	−28:01:59.41	0.284	G311.39+0.49	14:02:35.0	−61:12:38.39	0.246
G1.11+0.34	17:46:56.5	−27:48:48.57	0.156	G311.39−0.04	14:03:48.1	−61:43:13.71	0.195
G1.11+0.06	17:48:00.1	−27:57:15.45	0.212	G311.40+0.45	14:02:43.0	−61:14:37.04	0.185
G1.11−0.15	17:48:49.1	−28:03:44.91	0.223	G311.40+0.11	14:03:30.9	−61:34:10.95	0.165
G1.12−0.19	17:48:59.2	−28:04:39.08	0.190	G311.40+0.22	14:03:17.9	−61:28:05.87	0.164
G1.12−0.00	17:48:16.2	−27:58:45.84	0.290	G311.41+0.22	14:03:19.2	−61:27:34.92	0.150
G1.12−0.05	17:48:27.3	−28:00:02.36	0.174	G311.41−0.01	14:03:52.5	−61:40:46.86	0.164
G1.14−0.28	17:49:24.5	−28:06:19.19	0.182	G311.42+0.38	14:03:01.9	−61:18:34.46	0.178
G1.18+0.07	17:48:08.8	−27:53:21.15	0.176	G311.42+0.14	14:03:36.6	−61:32:20.43	0.190
G1.29+0.04	17:48:28.9	−27:48:47.66	0.338	G311.42+0.23	14:03:25.0	−61:27:07.41	0.173
G1.30+0.12	17:48:12.4	−27:45:27.51	0.206	G311.42−0.03	14:04:02.1	−61:41:56.70	0.187
G1.35−0.09	17:49:08.9	−27:49:23.73	0.222	G311.43+0.19	14:03:32.1	−61:29:21.02	0.150
G1.38+0.03	17:48:44.1	−27:44:16.88	0.162	G311.43+0.40	14:03:03.3	−61:17:10.29	0.252
G1.39+0.01	17:48:50.9	−27:44:35.56	0.186	G311.43+0.21	14:03:32.3	−61:28:11.48	0.161
G1.41+0.12	17:48:28.5	−27:40:26.01	0.153	G311.45+0.21	14:03:38.7	−61:27:47.60	0.166
G1.41+0.11	17:48:30.0	−27:40:07.40	0.169	G311.45+0.31	14:03:24.4	−61:21:46.81	0.175

Table A.1. continued.

IRDC name	R.A. ($^{h}:^{m}:^{s}$) (J2000)	Decl. ($^{\circ}:':''$) (J2000)	$C_{24\mu m}$	IRDC name	R.A. ($^{h}:^{m}:^{s}$) (J2000)	Decl. ($^{\circ}:':''$) (J2000)	$C_{24\mu m}$
G1.45+0.24	17:48:06.6	−27:34:26.61	0.161	G311.45+0.05	14:04:04.6	−61:36:41.51	0.160
G1.47+0.04	17:48:55.6	−27:39:23.25	0.211	G311.46+0.53	14:02:59.8	−61:08:53.11	0.177
G1.58−0.59	17:51:36.5	−27:53:17.38	0.155	G311.47−0.14	14:04:40.2	−61:47:40.47	0.187
G1.59+0.04	17:49:12.5	−27:33:27.85	0.828	G311.48+0.49	14:03:16.3	−61:11:00.29	0.188
G1.61−0.54	17:51:30.4	−27:50:13.72	0.151	G311.48+0.58	14:03:06.3	−61:06:00.40	0.192
G1.65+0.59	17:47:14.3	−27:13:11.25	0.821	G311.49−0.55	14:05:45.5	−62:10:37.39	0.159
G1.65−0.05	17:49:43.0	−27:32:57.64	0.264	G311.77−0.03	14:06:48.0	−61:35:57.32	0.190
G1.66−0.20	17:50:17.5	−27:37:19.99	0.166	G311.77+0.02	14:06:41.8	−61:33:06.49	0.209
G1.67−0.20	17:50:19.0	−27:36:44.85	0.171	G311.77+0.11	14:06:31.4	−61:27:58.88	0.157
G1.70−0.21	17:50:26.8	−27:35:17.47	0.150	G311.78−0.19	14:07:16.7	−61:45:13.64	0.158
G1.71+0.28	17:48:32.8	−27:19:29.06	0.179	G311.78−0.31	14:07:35.5	−61:52:11.66	0.170
G1.73+0.33	17:48:24.5	−27:17:00.23	0.183	G311.78+0.05	14:06:42.3	−61:31:01.19	0.170
G1.86+0.07	17:49:41.8	−27:18:32.72	0.160	G311.78+0.24	14:06:16.7	−61:20:28.26	0.155
G1.86−0.15	17:50:34.8	−27:25:04.31	0.164	G311.78+0.34	14:06:04.1	−61:14:48.30	0.154
G1.88−0.87	17:53:25.2	−27:46:21.57	0.181	G311.79+0.07	14:06:44.5	−61:30:12.71	0.158
G1.89−0.15	17:50:37.9	−27:23:35.45	0.154	G311.79+0.20	14:06:26.7	−61:22:36.29	0.153
G1.91+0.93	17:46:30.2	−26:49:17.21	0.271	G311.79−0.00	14:06:55.5	−61:34:03.19	0.234
G1.91−0.06	17:50:18.8	−27:19:45.85	0.206	G311.79−0.33	14:07:44.8	−61:52:55.74	0.165
G1.99+0.04	17:50:08.3	−27:12:34.32	0.162	G311.80+0.23	14:06:24.3	−61:20:29.98	0.161
G2.01+0.04	17:50:09.7	−27:11:42.09	0.266	G311.81+0.25	14:06:28.8	−61:19:08.56	0.178
G2.05+0.70	17:47:43.2	−26:49:32.03	0.767	G311.81+0.42	14:06:05.5	−61:09:40.21	0.158
G2.10+0.01	17:50:30.6	−27:08:09.52	0.207	G311.82−0.15	14:07:31.4	−61:41:54.34	0.173
G2.10−0.57	17:52:45.4	−27:25:32.68	0.235	G311.84+0.12	14:07:00.2	−61:26:10.04	0.154
G2.11+0.30	17:49:23.9	−26:58:26.03	0.223	G311.85+0.19	14:06:55.3	−61:22:08.55	0.170
G2.12+0.35	17:49:14.3	−26:56:22.06	0.152	G311.85+0.15	14:07:03.3	−61:24:32.33	0.367
G2.12+0.29	17:49:27.2	−26:58:01.09	0.156	G311.86+0.25	14:06:50.9	−61:18:44.50	0.279
G2.14+0.29	17:49:30.0	−26:57:28.59	0.179	G311.87+0.01	14:07:33.0	−61:32:03.83	0.183
G2.15−0.60	17:52:57.6	−27:24:02.30	0.171	G311.88−0.05	14:07:47.3	−61:35:19.24	0.165
G2.15+0.28	17:49:34.3	−26:56:52.09	0.192	G311.90+0.08	14:07:36.1	−61:27:24.70	0.353
G2.16+0.04	17:50:30.7	−27:04:04.88	0.264	G311.92+0.12	14:07:38.2	−61:24:38.85	0.184
G2.17+0.25	17:49:44.1	−26:56:52.18	0.166	G311.94+0.06	14:07:56.5	−61:28:07.51	0.225
G2.18+0.07	17:50:26.9	−27:02:03.45	0.288	G311.94+0.14	14:07:45.6	−61:23:21.79	0.275
G2.20+0.03	17:50:39.9	−27:02:19.81	0.213	G311.94+0.01	14:08:07.1	−61:30:46.26	0.220
G2.21+0.12	17:50:20.1	−26:58:48.82	0.168	G311.95−0.27	14:08:50.9	−61:46:39.31	0.158
G2.22−0.52	17:52:48.5	−27:17:56.19	0.155	G311.95−0.22	14:08:46.3	−61:44:00.84	0.151
G2.24−0.51	17:52:49.6	−27:16:55.92	0.159	G311.95+0.07	14:08:02.7	−61:26:54.38	0.160
G2.24+0.04	17:50:41.3	−26:59:50.27	0.185	G311.96+0.11	14:07:58.9	−61:25:00.37	0.176
G2.26+0.16	17:50:17.8	−26:55:22.02	0.165	G311.96+0.10	14:08:02.3	−61:25:31.66	0.161
G2.28+0.10	17:50:32.9	−26:55:46.27	0.189	G311.96+0.14	14:07:55.4	−61:22:45.73	0.197
G2.31+0.01	17:50:59.1	−26:56:55.83	0.176	G311.96−0.15	14:08:39.7	−61:39:53.62	0.273
G2.33+0.02	17:50:58.3	−26:55:59.21	0.250	G311.98+0.02	14:08:23.3	−61:29:34.00	0.160
G2.35+0.09	17:50:44.3	−26:52:44.23	0.162	G311.98+0.14	14:08:06.3	−61:22:43.42	0.308
G2.36+0.07	17:50:51.3	−26:52:54.03	0.253	G311.98−0.13	14:08:46.6	−61:37:59.08	0.153
G2.37−0.01	17:51:12.5	−26:54:54.29	0.198	G311.98+0.35	14:07:37.3	−61:10:37.26	0.175
G2.38+0.35	17:49:51.2	−26:43:08.50	0.158	G311.99+0.67	14:06:52.6	−60:52:18.48	0.160
G2.39−0.00	17:51:13.2	−26:53:25.28	0.184	G311.99−0.78	14:10:28.7	−62:15:16.47	0.178
G2.42−0.16	17:51:53.1	−26:56:40.53	0.154	G311.99+0.10	14:08:18.7	−61:24:54.11	0.294
G2.43+0.03	17:51:09.0	−26:50:28.29	0.162	G312.01+0.22	14:08:05.7	−61:17:26.53	0.217

Table A.1. continued.

IRDC name	R.A. ($^{h}:^{m}:^{s}$) (J2000)	Decl. ($^{\circ}:':''$) (J2000)	$C_{24\mu m}$	IRDC name	R.A. ($^{h}:^{m}:^{s}$) (J2000)	Decl. ($^{\circ}:':''$) (J2000)	$C_{24\mu m}$
G2.43+0.13	17:50:48.2	−26:47:05.99	0.243	G312.01−0.00	14:08:42.3	−61:30:22.14	0.310
G2.44−0.16	17:51:56.3	−26:55:42.62	0.252	G312.01+0.03	14:08:37.1	−61:28:09.12	0.191
G2.45−0.55	17:53:26.3	−27:07:10.34	0.238	G312.02+0.16	14:08:24.2	−61:20:46.91	0.247
G2.45−0.49	17:53:15.1	−27:05:04.80	0.178	G312.04−0.12	14:09:11.4	−61:36:33.97	0.165
G2.47−0.50	17:53:20.5	−27:04:26.73	0.244	G312.04−0.10	14:09:11.2	−61:35:22.80	0.152
G2.48+0.18	17:50:42.8	−26:43:26.68	0.187	G312.04−0.08	14:09:09.0	−61:34:20.39	0.178
G2.48−0.49	17:53:19.3	−27:03:32.20	0.177	G312.05−0.11	14:09:17.1	−61:35:37.92	0.183
G2.49−0.52	17:53:25.0	−27:04:11.56	0.160	G312.05+0.05	14:08:54.3	−61:26:46.62	0.151
G2.50−0.06	17:51:40.2	−26:49:37.17	0.163	G312.06+0.33	14:08:15.7	−61:10:31.64	0.248
G2.50−0.65	17:53:56.7	−27:07:23.41	0.198	G312.06+0.27	14:08:27.8	−61:13:57.96	0.200
G2.52−0.66	17:54:03.5	−27:06:43.94	0.220	G312.06+0.13	14:08:48.0	−61:21:46.71	0.154
G2.52+0.21	17:50:43.1	−26:40:09.21	0.264	G312.07+0.35	14:08:15.2	−61:08:52.68	0.154
G2.55+0.20	17:50:48.3	−26:39:16.43	0.285	G312.07+0.20	14:08:39.6	−61:17:34.17	0.209
G2.58+0.20	17:50:52.4	−26:37:32.08	0.154	G312.07+0.07	14:08:59.5	−61:24:56.89	0.180
G2.58+0.08	17:51:19.9	−26:41:04.39	0.252	G312.07+0.10	14:08:56.5	−61:23:16.48	0.176
G2.59−0.18	17:52:22.0	−26:48:32.85	0.248	G312.08+0.05	14:09:04.5	−61:26:03.92	0.210
G2.59+0.19	17:50:55.5	−26:36:57.85	0.153	G312.08+0.11	14:08:55.1	−61:22:25.75	0.167
G2.60+0.27	17:50:39.9	−26:34:21.12	0.155	G312.09+0.27	14:08:36.4	−61:13:04.60	0.224
G2.62−0.63	17:54:09.6	−27:00:53.02	0.758	G312.09+0.11	14:09:01.8	−61:22:25.88	0.167
G2.65+0.11	17:51:23.8	−26:36:39.05	0.241	G312.10+0.18	14:08:56.3	−61:18:08.76	0.166
G2.66+0.22	17:50:57.4	−26:32:50.80	0.159	G312.11+0.25	14:08:51.4	−61:14:22.98	0.224
G2.66+0.17	17:51:09.6	−26:33:59.99	0.243	G312.12+0.12	14:09:16.2	−61:21:00.68	0.215
G2.66+0.20	17:51:04.4	−26:33:07.86	0.154	G312.12+0.15	14:09:13.4	−61:19:38.18	0.153
G2.67+0.22	17:50:58.6	−26:32:18.43	0.159	G312.15−0.03	14:09:51.6	−61:29:32.53	0.307
G2.69+0.16	17:51:16.1	−26:33:08.09	0.192	G312.15+0.15	14:09:26.4	−61:19:13.44	0.202
G2.69+0.12	17:51:25.8	−26:34:17.89	0.204	G312.15+0.11	14:09:31.5	−61:21:12.00	0.161
G2.70−0.23	17:52:47.5	−26:44:22.21	0.227	G312.16−0.18	14:10:17.1	−61:37:41.43	0.154
G2.71+0.43	17:50:17.4	−26:23:52.32	0.808	G312.16−0.12	14:10:11.5	−61:34:03.27	0.151
G2.71+0.00	17:51:55.8	−26:36:42.54	0.169	G312.16−0.11	14:10:11.1	−61:33:27.87	0.168
G2.77−0.60	17:54:24.0	−26:51:47.46	0.182	G312.17−0.17	14:10:22.0	−61:37:03.44	0.231
G2.78−0.02	17:52:10.9	−26:33:48.70	0.156	G312.18−0.10	14:10:16.2	−61:32:39.02	0.204
G2.79−0.01	17:52:08.2	−26:33:07.43	0.211	G312.18+0.08	14:09:50.1	−61:22:30.25	0.170
G2.81−0.01	17:52:13.7	−26:31:55.78	0.215	G312.18−0.11	14:10:20.0	−61:33:12.96	0.164
G2.82−0.44	17:53:52.3	−26:44:21.21	0.177	G312.20−0.16	14:10:34.5	−61:35:57.14	0.195
G2.84+0.07	17:51:57.1	−26:27:49.22	0.159	G312.20−0.20	14:10:43.5	−61:38:13.68	0.159
G2.84+0.37	17:50:49.0	−26:18:32.16	0.233	G312.20−0.16	14:10:38.8	−61:36:02.69	0.150
G2.86+0.82	17:49:07.5	−26:03:51.52	0.153	G312.20−0.20	14:10:44.2	−61:38:04.27	0.156
G2.87−0.30	17:53:26.8	−26:37:43.96	0.189	G312.21−0.17	14:10:41.3	−61:36:11.64	0.161
G2.91+0.04	17:52:13.4	−26:25:08.58	0.202	G312.21−0.19	14:10:46.0	−61:37:11.17	0.183
G2.94−0.10	17:52:50.9	−26:28:08.53	0.169	G312.23−0.21	14:10:58.2	−61:38:16.30	0.175
G2.95−0.10	17:52:51.7	−26:27:29.04	0.161	G312.23−0.10	14:10:42.9	−61:31:54.98	0.200
G2.96+0.12	17:52:03.6	−26:20:08.01	0.153	G312.24−0.21	14:11:05.1	−61:38:05.09	0.164
G2.99−0.03	17:52:40.5	−26:23:27.21	0.205	G312.26−0.02	14:10:43.7	−61:26:59.80	0.243
G2.99+0.27	17:51:31.5	−26:14:15.67	0.768	G312.29+0.07	14:10:43.0	−61:20:55.82	0.185
G3.00+0.42	17:50:57.9	−26:08:58.00	0.194	G312.30+0.04	14:10:56.1	−61:22:43.15	0.231
G3.00−0.06	17:52:51.1	−26:23:37.93	0.206	G312.33+0.09	14:10:59.6	−61:19:28.93	0.159
G3.01−0.02	17:52:42.1	−26:22:15.39	0.154	G312.33−0.09	14:11:29.9	−61:29:17.87	0.231
G3.04+0.04	17:52:32.3	−26:18:34.41	0.152	G312.35−0.03	14:11:30.7	−61:25:45.36	0.314

Table A.1. continued.

IRDC name	R.A. ($^{h}:^{m}:^{s}$) (J2000)	Decl. ($^{\circ}:':''$) (J2000)	$C_{24\mu m}$	IRDC name	R.A. ($^{h}:^{m}:^{s}$) (J2000)	Decl. ($^{\circ}:':''$) (J2000)	$C_{24\mu m}$
G3.04+0.41	17:51:07.6	−26:07:15.43	0.346	G312.37+0.05	14:11:26.4	−61:21:02.05	0.164
G3.04+0.54	17:50:37.5	−26:03:07.97	0.167	G312.38−0.31	14:12:24.5	−61:41:07.77	0.185
G3.09+0.24	17:51:51.3	−26:10:00.95	0.213	G312.38−0.11	14:11:54.4	−61:29:33.84	0.287
G3.13−0.13	17:53:24.2	−26:19:22.99	0.152	G312.39+0.09	14:11:29.9	−61:17:51.35	0.177
G3.13−0.04	17:53:02.0	−26:16:24.29	0.153	G312.41−0.53	14:13:12.9	−61:53:22.74	0.213
G3.13+0.35	17:51:33.7	−26:04:34.44	0.165	G312.42−0.42	14:13:04.4	−61:46:50.78	0.153
G3.17+0.51	17:51:00.7	−25:57:14.36	0.188	G312.45−0.02	14:12:12.1	−61:23:09.38	0.205
G3.26−0.06	17:53:24.6	−26:10:03.20	0.238	G312.45−0.00	14:12:13.1	−61:22:12.12	0.183
G3.28−0.01	17:53:17.3	−26:07:31.75	0.365	G312.46−0.02	14:12:18.6	−61:23:22.97	0.158
G3.29−0.06	17:53:28.9	−26:08:28.82	0.315	G312.48−0.05	14:12:33.0	−61:24:33.93	0.202
G3.30−0.40	17:54:48.3	−26:18:20.68	0.242	G312.50−0.38	14:13:34.8	−61:42:46.42	0.171
G3.32−0.13	17:53:49.5	−26:09:39.49	0.296	G312.53−0.02	14:12:51.7	−61:21:53.84	0.182
G3.35−0.03	17:53:29.3	−26:04:39.56	0.176	G312.53+0.11	14:12:32.2	−61:14:14.81	0.171
G3.37+0.14	17:52:53.9	−25:58:42.67	0.164	G312.53+0.08	14:12:37.1	−61:15:59.59	0.183
G3.40+0.84	17:50:16.7	−25:35:30.03	0.277	G312.54+0.13	14:12:36.4	−61:13:05.01	0.160
G3.41−0.35	17:54:53.0	−26:11:18.11	0.233	G312.55+0.08	14:12:47.6	−61:15:53.67	0.178
G3.41+0.03	17:53:24.4	−25:59:27.91	0.161	G312.55+0.10	14:12:46.3	−61:14:45.45	0.197
G3.43+0.03	17:53:26.8	−25:58:54.37	0.161	G312.56−0.09	14:13:16.4	−61:25:22.67	0.156
G3.43−0.57	17:55:45.9	−26:16:37.31	0.248	G312.56+0.14	14:12:41.7	−61:12:29.79	0.184
G3.44+0.01	17:53:33.3	−25:58:35.55	0.304	G312.56−0.40	14:14:06.5	−61:43:05.86	0.180
G3.45−0.22	17:54:28.2	−26:05:24.85	0.186	G312.57+0.13	14:12:48.7	−61:12:48.71	0.163
G3.61+0.56	17:51:49.6	−25:33:24.87	0.751	G312.57−0.09	14:13:23.3	−61:25:24.35	0.162
G3.66+0.40	17:52:34.2	−25:35:21.55	0.827	G312.59+0.28	14:12:35.5	−61:03:55.91	0.159
G3.69−0.15	17:54:43.5	−25:50:53.43	0.331	G312.59+0.11	14:13:03.6	−61:13:30.80	0.175
G3.71−0.07	17:54:28.3	−25:47:08.68	0.194	G312.61+0.08	14:13:13.5	−61:14:29.34	0.219
G3.72−0.09	17:54:32.6	−25:47:25.85	0.158	G312.63−0.02	14:13:39.6	−61:20:15.89	0.178
G3.75−0.07	17:54:33.2	−25:45:20.21	0.183	G312.64+0.02	14:13:41.2	−61:17:32.18	0.293
G3.76−0.07	17:54:34.4	−25:44:21.55	0.205	G312.65−0.04	14:13:54.2	−61:20:27.16	0.192
G3.80+0.14	17:53:52.3	−25:36:03.79	0.151	G312.71+0.36	14:13:20.8	−60:56:48.64	0.167
G3.80−0.05	17:54:37.3	−25:41:55.07	0.159	G312.72+0.16	14:13:55.2	−61:08:12.87	0.155
G3.84−0.04	17:54:38.4	−25:39:16.33	0.183	G312.74+0.55	14:13:04.7	−60:45:45.24	0.150
G3.90−0.04	17:54:48.0	−25:36:36.59	0.163	G312.79−0.03	14:14:57.1	−61:17:53.99	0.156
G3.94−0.81	17:57:48.8	−25:57:56.23	0.162	G312.82−0.53	14:16:33.7	−61:45:05.76	0.272
G3.94−0.79	17:57:45.4	−25:57:06.48	0.154	G312.87−0.66	14:17:21.0	−61:51:55.15	0.262
G3.98+0.36	17:53:26.8	−25:20:08.88	0.157	G312.89+0.18	14:15:10.9	−61:03:43.35	0.159
G3.99−0.02	17:54:53.0	−25:31:15.90	0.160	G312.90+0.21	14:15:13.8	−61:01:47.91	0.184
G4.01+0.35	17:53:31.5	−25:18:43.58	0.181	G312.92−0.42	14:17:02.6	−61:37:30.96	0.168
G4.02+0.41	17:53:19.3	−25:16:53.83	0.167	G312.98−0.50	14:17:42.9	−61:40:57.95	0.152
G4.05+0.01	17:54:55.3	−25:27:09.18	0.158	G312.98−0.49	14:17:43.6	−61:40:11.21	0.154
G4.05−0.80	17:58:01.7	−25:51:26.44	0.159	G312.98+0.15	14:15:58.8	−61:03:32.81	0.185
G4.07−0.78	17:57:58.6	−25:50:11.93	0.206	G312.99−0.50	14:17:49.8	−61:40:19.70	0.183
G4.07−0.79	17:58:02.6	−25:50:40.59	0.152	G313.07−0.28	14:17:51.2	−61:26:26.77	0.166
G4.09+0.01	17:55:00.4	−25:25:22.39	0.288	G313.08−0.00	14:17:10.5	−61:10:33.22	0.176
G4.10−0.02	17:55:09.4	−25:25:23.59	0.799	G313.11−0.09	14:17:39.0	−61:14:59.92	0.156
G4.11+0.40	17:53:33.3	−25:12:21.73	0.165	G313.11−0.11	14:17:44.1	−61:15:53.66	0.172
G4.13−0.02	17:55:13.2	−25:23:47.65	0.262	G313.13+0.45	14:16:22.8	−60:44:00.65	0.151
G4.20+0.01	17:55:14.7	−25:19:39.21	0.159	G313.18−0.39	14:18:59.6	−61:30:40.61	0.187
G4.20+0.02	17:55:14.5	−25:19:15.49	0.151	G313.23−0.63	14:20:04.2	−61:42:49.77	0.172

Table A.1. continued.

IRDC name	R.A. ($^{h}:^{m}:^{s}$) (J2000)	Decl. ($^{\circ}:':''$) (J2000)	$C_{24\mu m}$	IRDC name	R.A. ($^{h}:^{m}:^{s}$) (J2000)	Decl. ($^{\circ}:':''$) (J2000)	$C_{24\mu m}$
G4.22+0.56	17:53:13.5	−25:01:40.54	0.159	G313.28−0.70	14:20:42.3	−61:45:49.58	0.162
G4.22+0.01	17:55:18.5	−25:18:13.08	0.316	G313.37+0.16	14:19:00.7	−60:55:40.12	0.152
G4.24+0.00	17:55:22.8	−25:17:19.11	0.164	G313.38−0.44	14:20:42.7	−61:29:23.46	0.155
G4.25−0.01	17:55:26.6	−25:17:10.12	0.157	G313.39+0.12	14:19:18.2	−60:57:28.97	0.202
G4.31−0.45	17:57:14.8	−25:27:37.22	0.156	G313.41+0.06	14:19:32.0	−61:00:09.63	0.186
G4.33−0.03	17:55:40.7	−25:13:53.82	0.267	G313.41−0.33	14:20:42.0	−61:22:28.32	0.161
G4.35−0.05	17:55:49.1	−25:13:47.38	0.273	G313.50+0.12	14:20:05.5	−60:55:04.03	0.153
G4.36+0.08	17:55:20.9	−25:08:49.61	0.185	G313.50+0.12	14:20:06.9	−60:55:08.60	0.151
G4.38−0.45	17:57:24.5	−25:23:50.05	0.169	G313.51−0.53	14:22:01.1	−61:31:51.92	0.163
G4.39−0.46	17:57:27.6	−25:23:49.85	0.157	G313.51−0.52	14:22:00.2	−61:31:07.18	0.158
G4.48+0.44	17:54:14.5	−24:52:08.14	0.181	G313.52−0.03	14:20:41.1	−61:03:08.62	0.228
G4.49+0.69	17:53:18.5	−24:44:01.00	0.802	G313.52−0.51	14:22:03.7	−61:30:27.88	0.152
G4.50+0.42	17:54:21.7	−24:51:24.54	0.156	G313.54+0.53	14:19:17.5	−60:31:01.43	0.152
G4.52+0.35	17:54:40.8	−24:52:47.82	0.166	G313.56−0.13	14:21:17.3	−61:07:55.46	0.166
G4.53−0.07	17:56:18.5	−25:05:00.61	0.164	G313.61−0.08	14:21:33.4	−61:04:05.40	0.162
G4.54−0.08	17:56:20.4	−25:04:26.62	0.191	G313.63−0.22	14:22:02.3	−61:11:46.12	0.170
G4.58+0.15	17:55:35.2	−24:55:30.18	0.176	G313.63−0.06	14:21:37.2	−61:02:55.36	0.206
G4.58+0.24	17:55:15.2	−24:52:42.91	0.151	G313.63+0.27	14:20:43.2	−60:44:05.87	0.179
G4.60+0.15	17:55:36.2	−24:54:31.37	0.176	G313.66−0.79	14:23:57.1	−61:43:08.86	0.161
G4.61+0.09	17:55:50.9	−24:55:52.01	0.202	G313.68+0.67	14:19:59.0	−60:20:10.19	0.173
G4.61+0.14	17:55:41.4	−24:54:32.15	0.174	G313.71−0.30	14:22:56.2	−61:14:40.01	0.329
G4.63+0.17	17:55:35.1	−24:52:22.70	0.195	G313.71+0.67	14:20:12.6	−60:19:37.00	0.193
G4.63+0.11	17:55:49.5	−24:54:01.86	0.199	G313.72+0.70	14:20:12.1	−60:18:11.31	0.167
G4.64+0.17	17:55:37.3	−24:51:44.11	0.182	G313.76−0.12	14:22:49.0	−61:03:36.81	0.232
G4.64−0.23	17:57:09.7	−25:03:50.13	0.169	G313.76−0.08	14:22:42.6	−61:01:22.03	0.264
G4.64+0.21	17:55:30.0	−24:50:34.89	0.179	G313.77+0.37	14:21:28.4	−60:35:35.57	0.202
G4.67+0.18	17:55:40.2	−24:50:07.93	0.205	G313.77+0.21	14:21:57.2	−60:44:17.59	0.169
G4.67−0.18	17:57:02.8	−25:00:41.53	0.159	G313.77−0.35	14:23:34.1	−61:16:05.33	0.151
G4.68+0.01	17:56:20.9	−24:54:38.11	0.207	G313.78+0.63	14:20:49.8	−60:20:47.66	0.186
G4.71−0.44	17:58:06.0	−25:06:39.52	0.241	G313.78−0.27	14:23:24.8	−61:11:36.68	0.162
G4.72+0.00	17:56:26.3	−24:52:46.79	0.233	G313.79−0.19	14:23:13.4	−61:06:55.25	0.234
G4.75−0.07	17:56:46.5	−24:53:33.70	0.229	G313.79+0.65	14:20:53.5	−60:19:28.61	0.204
G4.75−0.04	17:56:40.1	−24:52:12.62	0.151	G313.79+0.21	14:22:07.6	−60:43:59.21	0.151
G4.76+0.08	17:56:12.7	−24:48:27.50	0.151	G313.81−0.25	14:23:31.4	−61:09:36.75	0.255
G4.76−0.29	17:57:38.9	−24:59:43.60	0.162	G313.81+0.20	14:22:15.8	−60:44:29.86	0.219
G4.76+0.10	17:56:10.1	−24:47:48.01	0.212	G313.81−0.21	14:23:28.7	−61:07:10.62	0.179
G4.77−0.18	17:57:15.0	−24:55:21.82	0.153	G313.82−0.27	14:23:42.1	−61:10:38.29	0.166
G4.78−0.20	17:57:20.6	−24:55:49.78	0.249	G313.85+0.19	14:22:35.2	−60:44:07.49	0.186
G4.78+0.06	17:56:22.0	−24:47:43.04	0.408	G313.85+0.72	14:21:10.2	−60:13:54.50	0.181
G4.78+0.14	17:56:02.8	−24:45:07.31	0.152	G313.85+0.04	14:23:04.1	−60:52:13.44	0.178
G4.78−0.16	17:57:11.5	−24:54:09.66	0.230	G313.87+0.81	14:21:03.6	−60:08:30.49	0.223
G4.79−0.17	17:57:16.2	−24:54:36.30	0.153	G313.88+0.05	14:23:14.1	−60:51:06.31	0.268
G4.79+0.23	17:55:44.4	−24:42:25.47	0.224	G313.89+0.71	14:21:28.2	−60:14:09.25	0.293
G4.80+0.11	17:56:12.7	−24:45:29.28	0.190	G313.89+0.15	14:23:03.3	−60:45:24.22	0.158
G4.80+0.20	17:55:52.9	−24:42:30.81	0.151	G313.91+0.60	14:21:56.4	−60:19:37.04	0.208
G4.81−0.16	17:57:14.9	−24:53:09.77	0.215	G313.91+0.73	14:21:36.3	−60:12:34.57	0.161
G4.81+0.16	17:56:02.6	−24:43:35.30	0.188	G313.93+0.73	14:21:41.9	−60:11:54.89	0.175
G4.83+0.06	17:56:27.0	−24:45:28.17	0.158	G313.99+0.79	14:21:59.7	−60:07:36.09	0.196

Table A.1. continued.

IRDC name	R.A. ($^{h}:^{m}:^{s}$) (J2000)	Decl. ($^{\circ}:':''$) (J2000)	$C_{24\mu m}$	IRDC name	R.A. ($^{h}:^{m}:^{s}$) (J2000)	Decl. ($^{\circ}:':''$) (J2000)	$C_{24\mu m}$
G4.83+0.19	17:55:59.1	−24:41:25.68	0.160	G314.00−0.22	14:24:58.8	−61:04:06.37	0.168
G4.84−0.28	17:57:48.0	−24:55:07.26	0.167	G314.00+0.62	14:22:35.4	−60:16:43.91	0.154
G4.85+0.26	17:55:45.4	−24:38:29.14	0.168	G314.01+0.66	14:22:30.9	−60:14:32.97	0.184
G4.85+0.23	17:55:52.4	−24:39:07.02	0.156	G314.01−0.23	14:25:04.7	−61:04:06.16	0.161
G4.86+0.17	17:56:06.8	−24:40:15.04	0.158	G314.01+0.49	14:23:02.7	−60:24:00.26	0.193
G4.88−0.16	17:57:24.0	−24:49:31.46	0.213	G314.02+0.63	14:22:38.0	−60:15:36.94	0.165
G4.88−0.30	17:57:56.3	−24:53:27.69	0.161	G314.03+0.18	14:23:58.9	−60:40:49.36	0.151
G4.88−0.17	17:57:28.3	−24:49:40.80	0.198	G314.04+0.79	14:22:24.2	−60:06:18.02	0.158
G4.89−0.12	17:57:16.9	−24:47:32.55	0.171	G314.07+0.57	14:23:14.2	−60:18:18.92	0.165
G4.91−0.32	17:58:06.3	−24:52:51.62	0.204	G314.07+0.61	14:23:08.9	−60:16:03.60	0.173
G4.92−0.13	17:57:24.2	−24:46:36.82	0.233	G314.08+0.63	14:23:07.6	−60:14:28.70	0.172
G4.92+0.14	17:56:23.2	−24:38:16.63	0.177	G314.08−0.04	14:25:04.0	−60:52:10.24	0.180
G4.92−0.31	17:58:04.9	−24:51:37.50	0.224	G314.08+0.40	14:23:48.7	−60:27:14.18	0.205
G4.96+0.04	17:56:49.5	−24:39:14.11	0.180	G314.08−0.11	14:25:17.4	−60:56:06.89	0.235
G4.97−0.00	17:57:00.5	−24:39:55.90	0.175	G314.09+0.38	14:23:53.7	−60:28:42.13	0.181
G4.97+0.01	17:56:57.3	−24:39:29.57	0.190	G314.09+0.63	14:23:12.7	−60:14:33.86	0.157
G4.98+0.11	17:56:37.3	−24:36:17.71	0.199	G314.09−0.10	14:25:17.4	−60:55:15.21	0.150
G4.98+0.04	17:56:53.6	−24:38:18.34	0.181	G314.09+0.46	14:23:41.8	−60:23:35.40	0.221
G5.01+0.15	17:56:32.8	−24:33:15.68	0.242	G314.10+0.43	14:23:50.0	−60:25:04.09	0.250
G5.01+0.17	17:56:28.5	−24:32:36.52	0.150	G314.10+0.30	14:24:14.2	−60:32:48.80	0.208
G5.02+0.17	17:56:28.4	−24:31:50.62	0.189	G314.10+0.40	14:23:57.8	−60:27:07.17	0.201
G5.12+0.01	17:57:17.4	−24:31:57.68	0.199	G314.11+0.56	14:23:33.0	−60:17:32.35	0.158
G5.17−0.09	17:57:48.1	−24:32:07.79	0.191	G314.11+0.33	14:24:14.0	−60:30:53.18	0.180
G5.19−0.06	17:57:44.2	−24:30:10.50	0.153	G314.11+0.62	14:23:24.9	−60:14:30.40	0.151
G5.20+0.10	17:57:08.7	−24:25:13.89	0.176	G314.12+0.31	14:24:17.8	−60:31:35.82	0.170
G5.29−0.48	17:59:31.7	−24:37:33.17	0.178	G314.13+0.69	14:23:20.1	−60:10:25.11	0.214
G5.32+0.03	17:57:41.0	−24:20:46.66	0.311	G314.14+0.57	14:23:43.9	−60:16:53.91	0.152
G5.40+0.20	17:57:10.9	−24:11:38.66	0.216	G314.14+0.56	14:23:45.8	−60:17:09.01	0.158
G5.40−0.13	17:58:27.0	−24:21:12.64	0.151	G314.15+0.45	14:24:07.3	−60:23:00.05	0.204
G5.41+0.23	17:57:06.5	−24:10:22.44	0.160	G314.15+0.65	14:23:34.8	−60:11:47.78	0.190
G5.41−0.13	17:58:29.2	−24:20:50.98	0.161	G314.15+0.32	14:24:32.7	−60:30:23.81	0.210
G5.42+0.24	17:57:04.9	−24:09:27.75	0.174	G314.17+0.58	14:23:56.0	−60:15:39.18	0.158
G5.66+0.27	17:57:29.6	−23:55:34.88	0.174	G314.17+0.40	14:24:29.5	−60:25:44.00	0.172
G5.73+0.31	17:57:29.7	−23:51:08.50	0.166	G314.17+0.41	14:24:27.1	−60:24:49.93	0.187
G5.74+0.32	17:57:29.6	−23:50:11.74	0.160	G314.17+0.33	14:24:41.1	−60:29:07.26	0.226
G6.01+0.59	17:57:04.5	−23:28:12.43	0.154	G314.18−0.08	14:25:53.9	−60:52:14.24	0.220
G6.02+0.60	17:57:02.1	−23:27:29.93	0.195	G314.18+0.39	14:24:34.2	−60:25:39.18	0.152
G6.10+0.28	17:58:25.9	−23:32:41.61	0.187	G314.19+0.46	14:24:27.7	−60:21:57.41	0.192
G6.25+0.07	17:59:31.8	−23:30:59.88	0.160	G314.19+0.16	14:25:19.3	−60:38:17.00	0.178
G6.25+0.05	17:59:36.8	−23:31:27.90	0.156	G314.19+0.72	14:23:43.8	−60:06:50.01	0.161
G6.35+0.47	17:58:15.0	−23:14:22.76	0.158	G314.20+0.56	14:24:13.6	−60:15:43.18	0.177
G6.43+0.03	18:00:05.3	−23:23:16.47	0.179	G314.21+0.55	14:24:21.1	−60:16:24.96	0.166
G7.81−0.29	18:04:14.0	−22:20:40.87	0.241	G314.21+0.49	14:24:31.7	−60:19:35.29	0.379
G7.82−0.27	18:04:13.0	−22:19:34.46	0.207	G314.21+0.31	14:25:02.2	−60:29:29.71	0.153
G7.84−0.27	18:04:12.9	−22:18:28.56	0.165	G314.21+0.18	14:25:26.3	−60:37:11.24	0.190
G7.87−0.54	18:05:19.1	−22:25:02.67	0.186	G314.22+0.52	14:24:30.5	−60:17:52.61	0.163
G7.94−0.32	18:04:39.5	−22:14:50.01	0.151	G314.24+0.59	14:24:27.2	−60:13:23.96	0.182
G7.95−0.33	18:04:42.1	−22:14:45.11	0.152	G314.24+0.36	14:25:07.2	−60:26:27.38	0.343

Table A.1. continued.

IRDC name	R.A. ($^{h}:^{m}:^{s}$) (J2000)	Decl. ($^{\circ}:':''$) (J2000)	$C_{24\mu m}$	IRDC name	R.A. ($^{h}:^{m}:^{s}$) (J2000)	Decl. ($^{\circ}:':''$) (J2000)	$C_{24\mu m}$
G7.97−0.58	18:05:39.8	−22:20:40.38	0.223	G314.24+0.06	14:26:00.2	−60:43:06.10	0.182
G7.99−0.34	18:04:48.8	−22:12:20.88	0.191	G314.24+0.19	14:25:38.5	−60:36:01.40	0.171
G7.99−0.28	18:04:35.4	−22:10:30.67	0.214	G314.25+0.57	14:24:37.9	−60:14:27.13	0.242
G8.00−0.54	18:05:35.1	−22:17:43.17	0.304	G314.26+0.07	14:26:06.7	−60:42:15.40	0.290
G8.05−0.31	18:04:51.6	−22:08:28.75	0.235	G314.26−0.22	14:26:59.5	−60:58:25.32	0.174
G8.07−0.16	18:04:19.7	−22:03:17.43	0.227	G314.27+0.65	14:24:29.7	−60:09:30.21	0.185
G8.08−0.28	18:04:47.8	−22:06:20.13	0.191	G314.29+0.65	14:24:39.7	−60:09:00.79	0.157
G8.08−0.22	18:04:34.0	−22:04:24.91	0.291	G314.29+0.01	14:26:32.3	−60:44:47.81	0.185
G8.09−0.32	18:04:56.3	−22:06:46.18	0.167	G314.31+0.84	14:24:14.8	−59:57:49.35	0.159
G8.12−0.32	18:05:00.1	−22:05:13.85	0.189	G314.31−0.03	14:26:44.5	−60:46:28.29	0.157
G8.12−0.18	18:04:30.3	−22:01:17.26	0.301	G314.32−0.03	14:26:50.5	−60:46:41.37	0.162
G8.12−0.41	18:05:21.2	−22:07:42.41	0.249	G314.32+0.47	14:25:22.7	−60:18:16.26	0.194
G8.13−0.14	18:04:22.1	−21:59:40.63	0.195	G314.32+0.85	14:24:19.8	−59:57:25.05	0.154
G8.13−0.50	18:05:43.2	−22:09:49.29	0.243	G314.32−0.05	14:26:55.1	−60:47:29.06	0.250
G8.13−0.18	18:04:30.9	−22:00:14.47	0.153	G314.33−0.18	14:27:21.5	−60:54:25.49	0.151
G8.14−0.29	18:04:57.8	−22:03:16.68	0.187	G314.34+0.27	14:26:08.2	−60:29:00.93	0.187
G8.15−0.22	18:04:41.9	−22:00:30.14	0.254	G314.36+0.16	14:26:33.5	−60:34:57.03	0.192
G8.15−0.18	18:04:33.2	−21:59:21.16	0.183	G314.38+0.09	14:26:55.4	−60:38:20.62	0.167
G8.18−0.14	18:04:26.7	−21:56:54.94	0.172	G314.40−0.07	14:27:34.6	−60:46:54.62	0.205
G8.19−0.13	18:04:27.0	−21:56:08.32	0.151	G314.40−0.04	14:27:30.8	−60:45:16.03	0.151
G8.20−0.42	18:05:34.4	−22:04:12.81	0.179	G314.41+0.13	14:27:05.3	−60:35:12.53	0.208
G8.20−0.10	18:04:22.7	−21:54:27.53	0.204	G314.45+0.14	14:27:21.3	−60:33:59.13	0.154
G8.20−0.20	18:04:44.8	−21:57:15.79	0.168	G314.47+0.15	14:27:28.0	−60:33:16.56	0.158
G8.21−0.18	18:04:40.6	−21:56:26.53	0.184	G314.88−0.14	14:31:26.8	−60:40:29.52	0.159
G8.21−0.22	18:04:49.5	−21:57:35.67	0.177	G314.89−0.15	14:31:32.8	−60:40:29.54	0.150
G8.23−0.26	18:05:02.2	−21:57:49.26	0.178	G315.00−0.08	14:32:11.2	−60:33:50.78	0.199
G8.24−0.23	18:04:55.8	−21:56:34.36	0.171	G315.02−0.15	14:32:30.7	−60:37:56.16	0.282
G8.24−0.10	18:04:26.8	−21:52:24.47	0.212	G315.03−0.32	14:33:08.9	−60:46:39.76	0.173
G8.26−0.48	18:05:55.9	−22:02:50.19	0.152	G315.12−0.20	14:33:27.2	−60:38:06.74	0.150
G8.26−0.23	18:04:59.7	−21:55:11.62	0.157	G315.22−0.29	14:34:26.5	−60:40:51.73	0.209
G8.28−0.30	18:05:16.6	−21:56:15.10	0.182	G315.35−0.27	14:35:22.9	−60:36:21.72	0.173
G8.28−0.49	18:06:01.2	−22:01:39.80	0.152	G315.40−0.48	14:36:27.9	−60:47:06.38	0.152
G8.29−0.23	18:05:03.0	−21:53:24.58	0.213	G315.45−0.25	14:36:06.2	−60:32:57.73	0.175
G8.34−0.60	18:06:31.7	−22:01:52.58	0.161	G315.70−0.56	14:38:54.5	−60:44:07.67	0.188
G8.34−0.34	18:05:32.6	−21:54:11.00	0.237	G315.72−0.57	14:39:07.4	−60:44:14.31	0.151
G8.37−0.53	18:06:20.4	−21:58:26.99	0.175	G315.92−0.16	14:39:17.3	−60:16:44.56	0.155
G8.39−0.25	18:05:19.8	−21:48:42.91	0.317	G315.93−0.66	14:41:01.0	−60:43:56.70	0.152
G8.40−0.35	18:05:44.1	−21:51:28.29	0.299	G315.94−0.66	14:41:07.6	−60:43:57.02	0.153
G8.41−0.51	18:06:19.5	−21:55:43.25	0.173	G315.96−0.67	14:41:15.5	−60:44:09.92	0.166
G8.41−0.30	18:05:32.7	−21:49:23.66	0.290	G315.97−0.61	14:41:06.6	−60:40:14.51	0.163
G8.41−0.06	18:04:40.8	−21:42:27.20	0.155	G315.97−0.60	14:41:06.2	−60:39:35.38	0.165
G8.41−0.33	18:05:41.2	−21:50:11.11	0.175	G316.03−0.17	14:40:06.6	−60:14:46.18	0.164
G8.42−0.37	18:05:49.7	−21:50:54.55	0.176	G316.29−0.36	14:42:41.8	−60:18:56.54	0.169
G8.42−0.38	18:05:52.4	−21:51:09.22	0.160	G316.30−0.34	14:42:40.6	−60:17:12.11	0.151
G8.42−0.34	18:05:43.4	−21:49:49.44	0.191	G316.31−0.33	14:42:41.5	−60:16:52.27	0.160
G8.42−0.62	18:06:47.8	−21:58:07.66	0.193	G316.32+0.04	14:41:32.3	−59:56:27.78	0.157
G8.43−0.07	18:04:43.1	−21:41:47.88	0.154	G316.32−0.27	14:42:36.7	−60:13:09.44	0.154
G8.44−0.61	18:06:46.5	−21:57:04.35	0.205	G316.35−0.55	14:43:43.9	−60:27:37.78	0.222

Table A.1. continued.

IRDC name	R.A. ($^{h}:^{m}:^{s}$) (J2000)	Decl. ($^{\circ}:':''$) (J2000)	$C_{24\mu m}$	IRDC name	R.A. ($^{h}:^{m}:^{s}$) (J2000)	Decl. ($^{\circ}:':''$) (J2000)	$C_{24\mu m}$
G8.44−0.63	18:06:51.5	−21:57:37.06	0.168	G316.38−0.83	14:44:54.7	−60:42:33.04	0.151
G8.44−0.62	18:06:50.2	−21:57:07.69	0.231	G316.40−0.68	14:44:34.8	−60:33:15.33	0.160
G8.45−0.29	18:05:35.6	−21:46:58.18	0.238	G316.41−0.43	14:43:45.8	−60:19:58.26	0.183
G8.45−0.58	18:06:42.3	−21:55:21.50	0.215	G316.41−0.46	14:43:54.3	−60:21:14.25	0.226
G8.47−0.62	18:06:52.1	−21:55:50.39	0.318	G316.43−0.49	14:44:07.7	−60:22:30.28	0.181
G8.47−0.92	18:08:01.9	−22:04:43.56	0.193	G316.43−0.28	14:43:25.0	−60:11:01.58	0.212
G8.47−0.98	18:08:14.7	−22:06:12.68	0.184	G316.43−0.31	14:43:32.6	−60:12:23.16	0.153
G8.47−0.16	18:05:10.4	−21:42:03.83	0.207	G316.45−0.64	14:44:47.3	−60:30:08.60	0.328
G8.47−0.50	18:06:27.3	−21:52:00.63	0.151	G316.45−0.27	14:43:32.7	−60:10:02.27	0.151
G8.48−0.50	18:06:28.4	−21:51:56.26	0.156	G316.50−0.54	14:44:50.0	−60:23:15.55	0.273
G8.48−0.65	18:07:00.5	−21:56:05.36	0.225	G316.53−0.22	14:43:56.9	−60:05:22.60	0.189
G8.48−0.19	18:05:18.0	−21:42:43.30	0.153	G316.56+0.05	14:43:17.2	−59:49:47.09	0.218
G8.48−0.51	18:06:30.1	−21:52:05.84	0.158	G316.57−0.28	14:44:25.5	−60:07:33.23	0.150
G8.59−0.53	18:06:48.7	−21:46:56.77	0.161	G316.58+0.07	14:43:19.9	−59:48:30.08	0.271
G8.60−0.63	18:07:11.6	−21:49:12.10	0.170	G316.58−0.22	14:44:17.8	−60:04:00.14	0.152
G8.62−0.39	18:06:18.9	−21:41:09.19	0.165	G316.58+0.04	14:43:28.6	−59:49:46.44	0.154
G8.62−0.36	18:06:13.9	−21:40:00.37	0.163	G316.59+0.07	14:43:26.6	−59:47:53.61	0.160
G8.63−0.09	18:05:13.5	−21:31:28.09	0.194	G316.60−0.18	14:44:19.6	−60:01:12.76	0.155
G8.64−0.88	18:08:12.6	−21:54:32.99	0.171	G316.61−0.19	14:44:23.9	−60:01:29.00	0.161
G8.64−0.67	18:07:26.9	−21:48:18.95	0.284	G316.62−0.19	14:44:28.8	−60:01:29.42	0.181
G8.64−0.38	18:06:20.4	−21:39:27.01	0.157	G316.63−0.28	14:44:51.8	−60:06:09.83	0.155
G8.65−0.40	18:06:25.1	−21:39:55.39	0.219	G316.63−0.83	14:46:45.1	−60:35:46.08	0.152
G8.66+0.07	18:04:42.0	−21:25:23.35	0.821	G316.63−0.83	14:46:45.6	−60:35:36.07	0.151
G8.67−0.41	18:06:30.2	−21:39:03.36	0.155	G316.64−0.17	14:44:37.1	−59:59:42.55	0.166
G8.67−0.69	18:07:34.8	−21:47:25.62	0.154	G316.64−0.15	14:44:33.6	−59:58:41.13	0.239
G8.68−0.70	18:07:38.5	−21:46:52.58	0.200	G316.65−0.37	14:45:19.6	−60:10:37.60	0.220
G8.68−0.40	18:06:30.8	−21:38:01.25	0.255	G316.66−0.27	14:45:02.9	−60:04:26.56	0.174
G8.71−0.70	18:07:41.0	−21:45:41.58	0.211	G316.66−0.25	14:45:01.3	−60:03:40.77	0.157
G8.71−0.41	18:06:36.6	−21:36:58.44	0.195	G316.66−0.31	14:45:13.6	−60:06:48.18	0.166
G8.72−0.42	18:06:39.8	−21:36:26.70	0.150	G316.66+0.04	14:44:03.4	−59:47:38.77	0.197
G8.73−0.40	18:06:37.3	−21:35:38.13	0.163	G316.67+0.34	14:43:04.9	−59:31:22.31	0.162
G8.73−0.42	18:06:41.1	−21:36:05.13	0.167	G316.67−0.07	14:44:27.7	−59:53:14.78	0.183
G8.73−0.73	18:07:51.5	−21:45:05.89	0.226	G316.69−0.06	14:44:32.1	−59:52:31.87	0.179
G8.74−0.71	18:07:48.2	−21:44:30.91	0.159	G316.69−0.10	14:44:42.5	−59:54:42.51	0.288
G8.77−0.43	18:06:47.3	−21:34:30.26	0.197	G316.70−0.02	14:44:29.6	−59:50:06.09	0.307
G8.78−0.37	18:06:36.7	−21:32:09.00	0.184	G316.70+0.42	14:43:02.4	−59:26:08.23	0.163
G8.79−0.35	18:06:32.9	−21:31:11.30	0.194	G316.71+0.14	14:44:01.0	−59:41:11.97	0.280
G8.80−0.33	18:06:28.9	−21:29:59.32	0.223	G316.71−0.07	14:44:44.0	−59:52:47.57	0.177
G8.84−0.03	18:05:27.6	−21:18:52.32	0.150	G316.72−0.16	14:45:08.5	−59:57:08.30	0.288
G8.85−0.05	18:05:32.8	−21:19:15.83	0.185	G316.72+0.24	14:43:49.3	−59:35:12.58	0.179
G8.87−0.41	18:06:56.5	−21:28:41.76	0.188	G316.73−0.10	14:45:02.7	−59:53:45.57	0.172
G8.90−0.31	18:06:38.7	−21:24:10.70	0.159	G316.74−0.73	14:47:12.7	−60:27:46.95	0.174
G8.93−0.32	18:06:42.7	−21:22:58.35	0.197	G316.74+0.31	14:43:42.9	−59:30:50.57	0.163
G8.93−0.35	18:06:49.2	−21:23:35.00	0.183	G316.74+0.24	14:43:56.5	−59:34:33.63	0.155
G8.97−0.31	18:06:47.4	−21:20:34.70	0.160	G316.75+0.05	14:44:38.2	−59:45:12.72	0.489
G9.03−0.32	18:06:55.1	−21:17:26.40	0.187	G316.76−0.18	14:45:28.6	−59:57:35.28	0.211
G9.03−0.63	18:08:05.8	−21:26:35.53	0.154	G316.76+0.11	14:44:32.3	−59:41:17.10	0.214
G9.04−0.52	18:07:41.4	−21:23:06.64	0.181	G316.77+0.28	14:44:01.5	−59:32:13.84	0.186

Table A.1. continued.

IRDC name	R.A. ($^{h}:^{m}:^{s}$) (J2000)	Decl. ($^{\circ}:':''$) (J2000)	$C_{24\mu m}$	IRDC name	R.A. ($^{h}:^{m}:^{s}$) (J2000)	Decl. ($^{\circ}:':''$) (J2000)	$C_{24\mu m}$
G9.12+0.16	18:05:20.0	−20:58:44.06	0.184	G316.78−0.14	14:45:28.0	−59:54:41.97	0.266
G9.15+0.06	18:05:45.8	−21:00:29.98	0.207	G316.78+0.07	14:44:47.3	−59:43:10.40	0.186
G9.15−0.18	18:06:39.3	−21:07:27.13	0.150	G316.78−0.23	14:45:49.6	−59:59:14.21	0.182
G9.15−0.17	18:06:37.9	−21:06:47.31	0.155	G316.82+0.11	14:44:57.6	−59:40:03.31	0.370
G9.18−0.21	18:06:49.5	−21:06:38.26	0.152	G316.84−0.28	14:46:25.5	−60:00:13.89	0.171
G9.18+0.68	18:03:29.8	−20:40:15.53	0.153	G316.85+0.42	14:44:05.5	−59:22:25.15	0.203
G9.19−0.21	18:06:50.4	−21:05:54.78	0.180	G316.85−0.12	14:45:55.5	−59:51:56.31	0.166
G9.19+0.69	18:03:29.5	−20:39:29.77	0.153	G316.85−0.08	14:45:48.2	−59:49:26.60	0.223
G9.20−0.20	18:06:50.6	−21:05:04.08	0.180	G316.85+0.31	14:44:31.3	−59:28:12.27	0.166
G9.21+0.09	18:05:46.8	−20:56:18.42	0.157	G316.87+0.02	14:45:33.3	−59:43:29.79	0.394
G9.21−0.22	18:06:55.9	−21:05:06.54	0.171	G316.87−0.01	14:45:41.0	−59:45:15.96	0.162
G9.22+0.15	18:05:33.9	−20:53:54.25	0.177	G316.87+0.35	14:44:32.4	−59:25:45.29	0.341
G9.23+0.14	18:05:37.4	−20:53:52.83	0.174	G316.89−0.08	14:46:03.9	−59:48:38.76	0.165
G9.23−0.18	18:06:49.0	−21:02:51.38	0.179	G316.89+0.30	14:44:48.2	−59:27:57.38	0.335
G9.24−0.09	18:06:30.7	−20:59:51.27	0.162	G316.89−0.06	14:46:00.8	−59:47:13.63	0.158
G9.24−0.07	18:06:27.4	−20:59:08.96	0.180	G316.89+0.45	14:44:20.5	−59:19:42.84	0.228
G9.28−0.14	18:06:48.2	−20:59:06.32	0.299	G316.91+0.28	14:44:59.8	−59:28:47.71	0.169
G9.31−0.31	18:07:28.7	−21:02:25.95	0.150	G316.91−0.76	14:48:34.7	−60:25:06.27	0.156
G9.32−0.53	18:08:20.1	−21:08:39.81	0.159	G316.92−0.06	14:46:12.0	−59:46:37.55	0.151
G9.33+0.16	18:05:45.4	−20:47:57.17	0.151	G316.92+0.44	14:44:33.2	−59:19:18.07	0.195
G9.34−0.06	18:06:37.4	−20:53:33.30	0.164	G316.92+0.33	14:44:56.0	−59:25:27.12	0.208
G9.36−0.04	18:06:33.6	−20:52:08.12	0.213	G316.92−0.09	14:46:21.0	−59:48:11.20	0.263
G9.37+0.19	18:05:43.7	−20:45:04.77	0.151	G316.92+0.02	14:46:00.4	−59:42:23.39	0.152
G9.37−0.82	18:09:31.5	−21:14:24.70	0.185	G316.93+0.27	14:45:10.6	−59:28:37.02	0.255
G9.43−0.65	18:09:01.0	−21:06:01.33	0.167	G316.93−0.05	14:46:15.1	−59:45:56.53	0.171
G9.58−0.65	18:09:20.0	−20:58:33.59	0.152	G316.93+0.35	14:44:56.9	−59:24:16.08	0.212
G9.63−0.85	18:10:10.3	−21:01:36.86	0.154	G316.94+0.45	14:44:41.5	−59:18:27.83	0.209
G9.63−0.06	18:07:13.6	−20:38:38.92	0.156	G316.94−0.02	14:46:15.9	−59:43:43.28	0.206
G9.64−0.85	18:10:11.5	−21:00:50.87	0.189	G316.95+0.52	14:44:33.1	−59:14:25.85	0.188
G9.67−0.56	18:09:10.8	−20:51:05.13	0.155	G316.97+0.12	14:45:55.9	−59:35:26.50	0.525
G9.69−0.00	18:07:06.7	−20:33:49.28	0.150	G316.97+0.53	14:44:36.2	−59:13:14.10	0.170
G9.71−0.89	18:10:28.8	−20:58:42.64	0.151	G316.97+0.28	14:45:26.6	−59:26:56.55	0.327
G9.73−0.24	18:08:06.2	−20:38:21.32	0.153	G316.98+0.59	14:44:26.8	−59:09:45.16	0.164
G9.78−0.88	18:10:36.1	−20:54:48.38	0.190	G316.98+0.52	14:44:42.4	−59:13:40.40	0.240
G9.79−0.15	18:07:53.4	−20:32:47.59	0.239	G316.98+0.02	14:46:24.4	−59:40:40.31	0.257
G9.80−0.73	18:10:03.5	−20:48:57.76	0.153	G316.99+0.61	14:44:30.2	−59:08:33.56	0.162
G9.80−0.03	18:07:26.6	−20:28:32.88	0.186	G317.00−0.09	14:46:52.8	−59:46:16.06	0.160
G9.82−0.75	18:10:11.5	−20:48:50.31	0.281	G317.01+0.63	14:44:32.7	−59:06:59.32	0.171
G9.82−0.14	18:07:54.8	−20:31:04.56	0.152	G317.01−0.05	14:46:51.3	−59:43:56.58	0.160
G9.82−0.86	18:10:36.5	−20:51:39.07	0.207	G317.01−0.04	14:46:50.9	−59:43:19.70	0.182
G9.84−0.14	18:07:57.5	−20:29:42.64	0.199	G317.02−0.06	14:46:58.4	−59:44:14.91	0.159
G9.85−0.03	18:07:34.2	−20:26:26.89	0.293	G317.03+0.12	14:46:24.3	−59:34:22.48	0.192
G9.85−0.14	18:07:59.2	−20:29:19.82	0.167	G317.04+0.10	14:46:31.6	−59:35:04.89	0.179
G9.86−0.06	18:07:40.8	−20:26:28.64	0.175	G317.04+0.41	14:45:29.1	−59:17:56.48	0.357
G9.86−0.10	18:07:50.7	−20:27:33.55	0.224	G317.04+0.49	14:45:15.9	−59:13:33.63	0.306
G9.87−0.77	18:10:22.9	−20:46:26.67	0.274	G317.05+0.66	14:44:44.2	−59:04:05.49	0.163
G9.89−0.11	18:07:56.3	−20:26:36.06	0.250	G317.06+0.20	14:46:22.7	−59:28:51.33	0.534
G9.91−0.89	18:10:54.2	−20:47:55.53	0.158	G317.07−0.29	14:48:06.9	−59:55:27.46	0.172

Table A.1. continued.

IRDC name	R.A. ($^{h}:^{m}:^{s}$) (J2000)	Decl. ($^{\circ}:':''$) (J2000)	$C_{24\mu m}$	IRDC name	R.A. ($^{h}:^{m}:^{s}$) (J2000)	Decl. ($^{\circ}:':''$) (J2000)	$C_{24\mu m}$
G9.92−0.02	18:07:39.5	−20:22:25.85	0.186	G317.08−0.09	14:47:26.5	−59:44:01.74	0.197
G9.92−0.08	18:07:54.5	−20:24:02.58	0.185	G317.08+0.59	14:45:14.2	−59:07:21.62	0.158
G9.94−0.85	18:10:48.5	−20:45:16.29	0.160	G317.09+0.06	14:47:03.2	−59:36:01.22	0.283
G9.95−0.79	18:10:37.0	−20:43:05.26	0.240	G317.10+0.59	14:45:19.4	−59:07:03.39	0.188
G9.95−0.37	18:09:02.4	−20:30:50.38	0.181	G317.10−0.17	14:47:52.7	−59:47:58.52	0.153
G9.95−0.88	18:10:56.0	−20:45:23.85	0.202	G317.10+0.29	14:46:18.8	−59:22:53.86	0.194
G9.98−0.39	18:09:09.6	−20:29:42.27	0.182	G317.10+0.27	14:46:26.3	−59:24:17.11	0.201
G9.99−0.17	18:08:22.0	−20:23:05.93	0.163	G317.11−0.01	14:47:23.2	−59:38:50.90	0.251
G9.99−0.41	18:09:15.8	−20:29:35.72	0.154	G317.11+0.42	14:45:56.3	−59:15:33.64	0.176
G10.00−0.28	18:08:47.6	−20:25:47.97	0.205	G317.11−0.04	14:47:31.9	−59:40:44.19	0.203
G10.00−0.15	18:08:18.7	−20:22:01.89	0.161	G317.11+0.29	14:46:27.3	−59:22:53.34	0.291
G10.00−0.29	18:08:51.6	−20:25:49.83	0.152	G317.12−0.48	14:49:07.5	−60:04:18.04	0.160
G10.03−0.65	18:10:15.8	−20:34:55.57	0.151	G317.12+0.35	14:46:17.2	−59:19:15.00	0.445
G10.03−0.36	18:09:08.9	−20:26:10.42	0.207	G317.13+0.44	14:46:01.3	−59:14:14.09	0.305
G10.04+0.63	18:05:29.0	−19:56:56.74	0.151	G317.13+0.51	14:45:48.4	−59:10:32.07	0.406
G10.07+0.65	18:05:28.3	−19:54:41.95	0.150	G317.13−0.17	14:48:07.5	−59:47:19.22	0.170
G10.08−0.35	18:09:15.4	−20:23:22.34	0.319	G317.13+0.65	14:45:22.6	−59:02:56.14	0.152
G10.10−0.37	18:09:20.9	−20:22:51.84	0.257	G317.14+0.58	14:45:39.1	−59:06:18.65	0.200
G10.11+0.05	18:07:47.5	−20:10:26.20	0.162	G317.14+0.66	14:45:22.8	−59:01:46.43	0.167
G10.11−0.42	18:09:33.0	−20:23:40.43	0.248	G317.14−0.12	14:48:01.4	−59:43:51.63	0.168
G10.12−0.45	18:09:40.7	−20:24:05.10	0.302	G317.15+0.24	14:46:51.0	−59:24:33.01	0.153
G10.13−0.69	18:10:37.8	−20:30:31.09	0.198	G317.15−0.75	14:50:19.5	−60:17:48.10	0.211
G10.14−0.78	18:10:56.6	−20:32:49.29	0.221	G317.16−0.31	14:48:47.6	−59:54:00.25	0.155
G10.14−0.81	18:11:04.3	−20:33:23.94	0.160	G317.16+0.40	14:46:22.9	−59:15:31.92	0.173
G10.15−0.80	18:11:03.3	−20:32:54.32	0.150	G317.16+0.26	14:46:51.1	−59:22:57.45	0.163
G10.15−0.82	18:11:07.1	−20:33:06.45	0.151	G317.16+0.21	14:47:03.3	−59:25:47.33	0.472
G10.17−0.27	18:09:06.1	−20:16:10.93	0.150	G317.16+0.07	14:47:31.2	−59:33:07.51	0.211
G10.20−0.24	18:09:03.9	−20:13:53.62	0.261	G317.17+0.56	14:45:54.1	−59:06:22.73	0.197
G10.21−0.38	18:09:36.8	−20:17:09.66	0.274	G317.18−0.73	14:50:26.5	−60:16:21.26	0.153
G10.22−0.18	18:08:52.5	−20:10:50.66	0.153	G317.18+0.60	14:45:52.4	−59:04:07.33	0.213
G10.22−0.20	18:08:57.4	−20:11:28.87	0.162	G317.18−0.11	14:48:16.1	−59:42:25.22	0.248
G10.24−0.25	18:09:11.6	−20:11:52.67	0.169	G317.19−0.56	14:49:54.8	−60:06:52.63	0.189
G10.25−0.13	18:08:45.6	−20:08:12.52	0.347	G317.19+0.14	14:47:29.6	−59:28:40.60	0.181
G10.25−0.24	18:09:09.7	−20:11:00.96	0.162	G317.20−0.01	14:48:02.8	−59:36:55.06	0.176
G10.26−0.35	18:09:35.7	−20:13:48.72	0.452	G317.20−0.54	14:49:54.2	−60:05:27.83	0.182
G10.26−0.23	18:09:09.0	−20:10:14.97	0.174	G317.20+0.26	14:47:10.3	−59:21:52.57	0.210
G10.26−0.25	18:09:13.8	−20:10:42.55	0.172	G317.21+0.09	14:47:45.9	−59:31:11.85	0.230
G10.27−0.28	18:09:22.1	−20:11:45.55	0.187	G317.22+0.57	14:46:16.7	−59:04:49.97	0.212
G10.27−0.07	18:08:36.1	−20:05:08.46	0.150	G317.23+0.02	14:48:11.2	−59:34:25.71	0.272
G10.28−0.11	18:08:43.8	−20:05:54.61	0.343	G317.23+0.25	14:47:25.4	−59:22:00.28	0.158
G10.29−0.03	18:08:29.5	−20:03:03.49	0.171	G317.23−0.02	14:48:20.1	−59:36:26.48	0.212
G10.30−0.21	18:09:10.7	−20:07:58.35	0.254	G317.24+0.37	14:47:03.8	−59:14:53.12	0.454
G10.30−0.23	18:09:13.7	−20:08:01.98	0.156	G317.24−0.48	14:50:01.0	−60:01:09.86	0.159
G10.34−0.23	18:09:19.1	−20:06:09.61	0.205	G317.25−0.02	14:48:26.5	−59:36:12.85	0.152
G10.35−0.20	18:09:14.0	−20:04:56.06	0.171	G317.25+0.17	14:47:48.9	−59:25:31.77	0.558
G10.40−0.17	18:09:14.4	−20:01:24.97	0.207	G317.25+0.56	14:46:30.2	−59:04:17.56	0.215
G10.41−0.21	18:09:22.7	−20:01:54.56	0.158	G317.26−0.12	14:48:54.9	−59:41:05.00	0.303
G10.42−0.92	18:12:02.1	−20:22:08.62	0.233	G317.27+0.60	14:46:28.2	−59:01:56.17	0.240

Table A.1. continued.

IRDC name	R.A. ($^{h}:^{m}:^{s}$) (J2000)	Decl. ($^{\circ}:':''$) (J2000)	$C_{24\mu m}$	IRDC name	R.A. ($^{h}:^{m}:^{s}$) (J2000)	Decl. ($^{\circ}:':''$) (J2000)	$C_{24\mu m}$
G10.42−0.01	18:08:41.2	−19:55:42.79	0.160	G317.27−0.27	14:49:26.7	−59:48:46.15	0.180
G10.43−0.81	18:11:39.2	−20:18:29.43	0.152	G317.29+0.15	14:48:08.2	−59:25:57.02	0.153
G10.43−0.23	18:09:30.1	−20:01:16.91	0.174	G317.29−0.37	14:49:58.6	−59:53:45.03	0.209
G10.44−0.23	18:09:31.5	−20:00:49.25	0.155	G317.29+0.50	14:47:00.6	−59:06:47.93	0.219
G10.45−0.25	18:09:37.6	−20:00:49.25	0.186	G317.31−0.31	14:49:54.6	−59:49:37.09	0.166
G10.58−0.79	18:11:52.7	−20:09:58.29	0.210	G317.32−0.42	14:50:20.2	−59:55:42.19	0.153
G10.58−0.30	18:10:05.7	−19:55:30.89	0.288	G317.33+0.04	14:48:49.7	−59:30:50.74	0.258
G10.59−0.23	18:09:50.4	−19:52:53.47	0.156	G317.33−0.34	14:50:09.3	−59:51:04.63	0.220
G10.60−0.38	18:10:25.3	−19:57:08.49	0.520	G317.34+0.67	14:46:44.0	−58:56:18.66	0.179
G10.60−0.62	18:11:19.3	−20:03:55.61	0.179	G317.34−0.50	14:50:45.9	−59:59:39.91	0.181
G10.61−0.61	18:11:17.1	−20:02:47.16	0.156	G317.34+0.10	14:48:42.8	−59:26:56.00	0.212
G10.62−0.36	18:10:21.4	−19:55:20.39	0.235	G317.35+0.26	14:48:14.1	−59:18:19.78	0.313
G10.62−0.51	18:10:56.7	−19:59:49.01	0.229	G317.35−0.55	14:51:02.6	−60:01:46.05	0.208
G10.62−0.44	18:10:41.7	−19:57:50.31	0.413	G317.35+0.22	14:48:22.2	−59:20:21.14	0.200
G10.62−0.38	18:10:28.0	−19:55:49.42	0.310	G317.36+0.53	14:47:20.1	−59:03:15.36	0.377
G10.64−0.13	18:09:34.9	−19:47:47.40	0.157	G317.36−0.65	14:51:29.0	−60:06:47.39	0.200
G10.65−0.15	18:09:40.2	−19:47:28.70	0.152	G317.37+0.16	14:48:38.9	−59:23:05.82	0.150
G10.65−0.20	18:09:51.8	−19:48:59.36	0.154	G317.37+0.16	14:48:39.3	−59:22:55.81	0.152
G10.65−0.13	18:09:36.5	−19:46:59.13	0.212	G317.37+0.35	14:48:04.1	−59:13:01.59	0.175
G10.66−0.23	18:09:58.3	−19:49:26.50	0.161	G317.38−0.62	14:51:28.2	−60:05:11.33	0.158
G10.67+0.11	18:08:44.0	−19:39:18.90	0.261	G317.38−0.16	14:49:50.0	−59:39:54.63	0.155
G10.67−0.22	18:09:58.6	−19:48:49.65	0.184	G317.38−0.59	14:51:22.7	−60:03:29.92	0.265
G10.67−0.16	18:09:44.6	−19:47:00.07	0.229	G317.38−0.56	14:51:17.7	−60:01:18.85	0.168
G10.67−0.02	18:09:12.3	−19:42:34.91	0.195	G317.39+0.21	14:48:38.2	−59:20:01.49	0.177
G10.68−0.19	18:09:52.6	−19:47:30.42	0.235	G317.39+0.40	14:48:00.9	−59:09:39.22	0.196
G10.68−0.18	18:09:48.9	−19:46:53.45	0.151	G317.40+0.14	14:48:59.5	−59:23:07.56	0.348
G10.68−0.01	18:09:11.4	−19:41:53.31	0.174	G317.40−0.39	14:50:49.8	−59:51:33.52	0.199
G10.69+0.08	18:08:52.3	−19:39:02.49	0.169	G317.40−0.02	14:49:33.3	−59:31:52.18	0.213
G10.69−0.25	18:10:05.6	−19:48:29.44	0.266	G317.41+0.54	14:47:39.3	−59:01:30.94	0.150
G10.69−0.21	18:09:58.6	−19:47:31.48	0.258	G317.41−0.18	14:50:09.2	−59:40:37.00	0.220
G10.70−0.32	18:10:23.9	−19:50:12.04	0.352	G317.41+0.54	14:47:40.8	−59:01:37.83	0.153
G10.72−0.13	18:09:42.8	−19:43:27.31	0.434	G317.41+0.28	14:48:36.4	−59:15:41.39	0.208
G10.72−0.19	18:09:57.5	−19:45:17.67	0.152	G317.42−0.36	14:50:50.0	−59:49:54.86	0.287
G10.72−0.23	18:10:07.1	−19:46:25.93	0.210	G317.42−0.15	14:50:06.8	−59:38:22.64	0.205
G10.72−0.19	18:09:57.3	−19:45:07.50	0.163	G317.42+0.64	14:47:26.1	−58:55:53.96	0.188
G10.73−0.29	18:10:21.8	−19:47:37.40	0.206	G317.43+0.06	14:49:25.0	−59:26:56.94	0.229
G10.74−0.46	18:11:00.1	−19:52:15.06	0.444	G317.43−0.34	14:50:49.4	−59:48:29.05	0.163
G10.74−0.39	18:10:44.7	−19:50:10.76	0.161	G317.43+0.49	14:47:58.6	−59:03:53.09	0.153
G10.74−0.64	18:11:39.3	−19:56:58.87	0.170	G317.43−0.31	14:50:45.8	−59:46:38.33	0.183
G10.74+0.01	18:09:16.5	−19:38:14.58	0.303	G317.44−0.66	14:52:05.6	−60:05:33.04	0.200
G10.75−0.22	18:10:06.6	−19:44:18.55	0.346	G317.44−0.27	14:50:41.4	−59:44:16.38	0.234
G10.76−0.33	18:10:32.7	−19:46:56.49	0.181	G317.44+0.23	14:48:59.1	−59:17:32.30	0.151
G10.77+0.03	18:09:13.6	−19:36:11.10	0.165	G317.45−0.50	14:51:31.4	−59:56:31.32	0.186
G10.78−0.23	18:10:12.9	−19:43:05.65	0.161	G317.45+0.24	14:48:58.4	−59:16:38.98	0.174
G10.79+0.48	18:07:37.3	−19:21:50.75	0.152	G317.45−0.46	14:51:24.6	−59:54:14.03	0.230
G10.80−0.41	18:10:56.3	−19:47:02.79	0.174	G317.45−0.49	14:51:31.8	−59:55:41.17	0.150
G10.82−0.05	18:09:37.2	−19:35:54.29	0.156	G317.45+0.35	14:48:37.3	−59:10:28.95	0.226
G10.82−0.41	18:10:59.3	−19:46:27.83	0.164	G317.46−0.11	14:50:14.4	−59:35:23.62	0.229

Table A.1. continued.

IRDC name	R.A. ($^{h}:^{m}:^{s}$) (J2000)	Decl. ($^{\circ}:':''$) (J2000)	$C_{24\mu m}$	IRDC name	R.A. ($^{h}:^{m}:^{s}$) (J2000)	Decl. ($^{\circ}:':''$) (J2000)	$C_{24\mu m}$
G10.82−0.56	18:11:31.1	−19:50:28.49	0.157	G317.46−0.43	14:51:21.4	−59:52:18.09	0.190
G10.83−0.13	18:09:57.6	−19:37:27.79	0.193	G317.46−0.63	14:52:04.2	−60:03:00.46	0.260
G10.84−0.56	18:11:33.3	−19:49:41.97	0.172	G317.46−0.69	14:52:20.2	−60:06:18.66	0.153
G10.84−0.08	18:09:47.1	−19:35:22.53	0.159	G317.47+0.05	14:49:47.7	−59:26:26.05	0.174
G10.88−0.40	18:11:04.1	−19:42:40.89	0.172	G317.47−0.65	14:52:15.3	−60:03:41.12	0.161
G10.89−0.49	18:11:25.6	−19:44:49.82	0.177	G317.47−0.62	14:52:10.2	−60:02:20.47	0.161
G10.91+0.57	18:07:31.5	−19:13:21.85	0.152	G317.47+0.43	14:48:29.5	−59:05:28.97	0.200
G10.92+0.03	18:09:31.8	−19:28:26.39	0.154	G317.48−0.69	14:52:27.0	−60:05:35.04	0.154
G10.95−0.06	18:09:54.9	−19:29:23.81	0.177	G317.48−0.40	14:51:25.4	−59:49:58.93	0.245
G10.96−0.10	18:10:06.8	−19:29:39.78	0.158	G317.48+0.52	14:48:16.4	−59:00:49.17	0.174
G10.97−0.03	18:09:51.3	−19:27:13.23	0.153	G317.48+0.33	14:48:55.6	−59:11:06.22	0.163
G10.97+0.12	18:09:20.2	−19:22:56.63	0.169	G317.49−0.24	14:50:54.1	−59:41:38.30	0.161
G10.98−0.23	18:10:39.6	−19:32:29.46	0.151	G317.49+0.35	14:48:50.7	−59:09:35.23	0.152
G10.98−0.48	18:11:34.0	−19:39:32.26	0.152	G317.60+0.09	14:50:33.0	−59:21:04.91	0.177
G10.98−0.56	18:11:53.4	−19:42:02.49	0.183	G317.60−0.84	14:53:51.5	−60:10:50.74	0.173
G10.99−0.48	18:11:33.8	−19:39:22.06	0.152	G317.60+0.04	14:50:43.7	−59:23:14.59	0.192
G10.99−0.15	18:10:21.8	−19:29:42.95	0.222	G317.61+0.41	14:49:31.6	−59:03:33.95	0.169
G10.99−0.08	18:10:05.3	−19:27:30.86	0.413	G317.61−0.48	14:52:39.3	−59:51:13.44	0.165
G11.00−0.17	18:10:27.5	−19:30:03.13	0.270	G317.61+0.07	14:50:42.9	−59:21:27.47	0.150
G11.00−0.45	18:11:29.9	−19:37:56.02	0.152	G317.62−0.83	14:53:57.2	−60:09:34.12	0.185
G11.01−0.41	18:11:20.4	−19:36:21.34	0.218	G317.62−0.80	14:53:53.4	−60:08:05.69	0.181
G11.01−0.14	18:10:20.5	−19:28:25.24	0.179	G317.62−0.49	14:52:46.6	−59:51:26.34	0.185
G11.02−0.29	18:10:57.3	−19:32:13.63	0.163	G317.63−0.29	14:52:05.4	−59:40:36.52	0.194
G11.03−0.18	18:10:32.2	−19:28:23.60	0.152	G317.63−0.27	14:52:01.5	−59:39:08.98	0.177
G11.03−0.03	18:10:00.6	−19:24:11.89	0.199	G317.63−0.80	14:53:56.2	−60:07:27.48	0.154
G11.03−0.15	18:10:27.8	−19:27:38.73	0.188	G317.64−0.14	14:51:36.9	−59:32:08.20	0.228
G11.05−0.04	18:10:05.6	−19:23:19.98	0.270	G317.64−0.25	14:52:00.9	−59:38:04.50	0.181
G11.06−0.09	18:10:16.8	−19:24:25.19	0.316	G317.64−0.49	14:52:54.2	−59:51:06.12	0.159
G11.06−0.48	18:11:44.8	−19:35:39.81	0.155	G317.64−0.18	14:51:46.0	−59:33:56.96	0.196
G11.08−0.10	18:10:22.1	−19:23:49.23	0.167	G317.65−0.80	14:54:05.4	−60:07:06.91	0.171
G11.08−0.90	18:13:20.8	−19:46:54.23	0.169	G317.66+0.37	14:49:59.4	−59:04:05.54	0.201
G11.08+0.07	18:09:43.2	−19:18:18.10	0.151	G317.68−0.27	14:52:22.3	−59:37:56.29	0.178
G11.09−0.54	18:11:59.8	−19:35:55.35	0.237	G317.70−0.91	14:54:49.2	−60:11:46.59	0.152
G11.09+0.12	18:09:33.1	−19:16:52.60	0.162	G317.70−0.12	14:51:57.9	−59:29:12.49	0.203
G11.10−0.57	18:12:08.2	−19:36:17.57	0.215	G317.71+0.13	14:51:08.7	−59:15:35.68	0.355
G11.10+0.14	18:09:31.8	−19:15:30.04	0.205	G317.71+0.09	14:51:19.4	−59:17:33.41	0.313
G11.10+0.12	18:09:36.1	−19:16:01.38	0.160	G317.72−0.76	14:54:24.0	−60:03:19.36	0.178
G11.12−0.13	18:10:31.9	−19:22:28.67	0.374	G317.72−0.92	14:54:58.0	−60:11:33.98	0.195
G11.13−0.52	18:12:00.7	−19:33:17.28	0.153	G317.73+0.09	14:51:29.7	−59:17:10.53	0.182
G11.13−0.34	18:11:21.3	−19:28:01.89	0.210	G317.73+0.15	14:51:17.3	−59:13:59.07	0.151
G11.15−0.14	18:10:37.9	−19:21:17.17	0.151	G317.74+0.12	14:51:25.2	−59:15:30.35	0.216
G11.15+0.66	18:07:40.8	−18:57:59.43	0.154	G317.74−0.28	14:52:49.3	−59:36:52.33	0.159
G11.18−0.13	18:10:40.6	−19:19:14.64	0.234	G317.75+0.38	14:50:37.0	−59:01:26.41	0.161
G11.20−0.10	18:10:36.3	−19:17:23.23	0.361	G317.75−0.82	14:54:51.7	−60:05:22.56	0.166
G11.22+0.01	18:10:14.4	−19:13:22.23	0.151	G317.76−0.41	14:53:27.5	−59:43:10.57	0.152
G11.22−0.53	18:12:14.1	−19:28:49.21	0.152	G317.77−0.32	14:53:10.0	−59:38:24.39	0.151
G11.22−0.77	18:13:07.1	−19:35:39.46	0.153	G317.77−0.32	14:53:13.2	−59:38:07.34	0.165
G11.23−0.10	18:10:40.2	−19:15:39.37	0.218	G317.77−0.40	14:53:29.9	−59:42:14.08	0.189

Table A.1. continued.

IRDC name	R.A. ($^{h}:^{m}:^{s}$) (J2000)	Decl. ($^{\circ}:':''$) (J2000)	$C_{24\mu m}$	IRDC name	R.A. ($^{h}:^{m}:^{s}$) (J2000)	Decl. ($^{\circ}:':''$) (J2000)	$C_{24\mu m}$
G11.24+0.07	18:10:04.3	−19:10:28.10	0.248	G317.78−0.93	14:55:28.5	−60:10:29.22	0.169
G11.24−0.78	18:13:14.2	−19:34:44.03	0.156	G317.79−0.92	14:55:30.4	−60:09:47.69	0.200
G11.25+0.07	18:10:04.1	−19:09:53.23	0.155	G317.80−0.45	14:53:50.7	−59:44:15.13	0.203
G11.25−0.34	18:11:36.1	−19:21:39.35	0.155	G317.80−0.00	14:52:17.3	−59:20:18.11	0.161
G11.25−0.06	18:10:32.9	−19:13:13.49	0.279	G317.81+0.07	14:52:04.7	−59:16:16.05	0.166
G11.26+0.22	18:09:31.9	−19:04:56.55	0.176	G317.81−0.43	14:53:53.6	−59:42:54.33	0.151
G11.26+0.23	18:09:30.9	−19:04:23.75	0.175	G317.82−0.82	14:55:23.8	−60:03:34.80	0.177
G11.27−0.67	18:12:51.2	−19:29:51.86	0.170	G317.83−0.05	14:52:40.3	−59:21:53.94	0.160
G11.27+0.29	18:09:18.6	−19:02:14.28	0.216	G317.84+0.09	14:52:13.7	−59:14:04.42	0.183
G11.28−0.45	18:12:03.7	−19:23:26.98	0.199	G317.84−0.67	14:54:59.9	−59:55:09.23	0.193
G11.28−0.43	18:12:00.5	−19:22:41.14	0.160	G317.85+0.49	14:50:55.8	−58:52:53.95	0.150
G11.28+0.32	18:09:13.6	−19:00:45.02	0.160	G317.85+0.47	14:51:00.6	−58:53:39.11	0.157
G11.30−0.06	18:10:39.9	−19:10:46.30	0.285	G317.86−0.29	14:53:42.5	−59:34:34.24	0.209
G11.32+0.05	18:10:17.4	−19:06:37.80	0.154	G317.86−0.81	14:55:34.9	−60:01:50.61	0.160
G11.33−0.53	18:12:28.6	−19:23:02.87	0.254	G317.86−0.75	14:55:23.1	−59:58:32.65	0.201
G11.34+0.79	18:07:35.6	−18:44:00.24	0.151	G317.87−0.16	14:53:19.7	−59:26:42.78	0.171
G11.34+0.79	18:07:36.3	−18:43:57.30	0.154	G317.87−0.29	14:53:48.6	−59:33:38.17	0.203
G11.36−0.11	18:10:57.7	−19:09:09.80	0.151	G317.88−0.26	14:53:43.6	−59:32:14.11	0.172
G11.36+0.79	18:07:37.5	−18:42:47.29	0.217	G317.88−0.17	14:53:25.8	−59:27:29.76	0.166
G11.37+0.77	18:07:42.9	−18:43:14.45	0.219	G317.88−0.15	14:53:20.2	−59:25:59.44	0.152
G11.38+0.81	18:07:36.9	−18:41:23.09	0.172	G317.88−0.37	14:54:07.9	−59:37:55.01	0.151
G11.38−0.53	18:12:34.5	−19:20:05.85	0.173	G317.88−0.71	14:55:22.2	−59:55:52.85	0.152
G11.50−0.27	18:11:51.7	−19:06:31.75	0.209	G317.89−0.71	14:55:27.2	−59:55:35.89	0.169
G11.50+0.30	18:09:45.0	−18:49:52.62	0.161	G317.89−0.27	14:53:52.4	−59:32:01.33	0.201
G11.51−0.32	18:12:04.3	−19:07:25.27	0.200	G317.89−0.89	14:56:09.0	−60:05:16.30	0.234
G11.53−0.49	18:12:42.3	−19:11:13.60	0.225	G317.89−0.25	14:53:48.6	−59:30:53.42	0.151
G11.54+0.27	18:09:55.7	−18:48:52.14	0.239	G317.91−0.28	14:54:02.8	−59:32:25.17	0.161
G11.55−0.47	18:12:41.8	−19:09:57.58	0.157	G317.92+0.09	14:52:45.6	−59:12:06.82	0.164
G11.55+0.25	18:10:01.1	−18:48:39.25	0.156	G317.92−0.23	14:53:55.3	−59:29:37.52	0.237
G11.56−0.17	18:11:34.2	−19:00:29.49	0.151	G317.92−0.75	14:55:49.5	−59:57:10.79	0.184
G11.57+0.01	18:10:57.2	−18:54:50.28	0.161	G317.93−0.76	14:55:54.6	−59:57:43.66	0.150
G11.58+0.88	18:07:45.8	−18:28:48.77	0.153	G317.93−0.21	14:53:54.6	−59:27:45.20	0.165
G11.59+0.49	18:09:12.9	−18:39:58.89	0.170	G317.93−0.20	14:53:55.9	−59:27:28.43	0.151
G11.59+0.89	18:07:43.3	−18:27:56.56	0.170	G317.94+0.01	14:53:13.7	−59:15:45.87	0.154
G11.59+0.26	18:10:04.8	−18:46:21.60	0.201	G317.95−0.61	14:55:30.5	−59:48:57.17	0.293
G11.59−0.14	18:11:33.1	−18:57:41.07	0.163	G317.95−0.88	14:56:31.7	−60:03:18.17	0.153
G11.60−0.39	18:12:28.1	−19:04:45.60	0.265	G317.96−0.84	14:56:25.0	−60:00:44.08	0.206
G11.60−0.34	18:12:19.1	−19:03:12.51	0.204	G317.96−0.71	14:55:58.0	−59:54:05.80	0.239
G11.60+0.87	18:07:51.1	−18:27:58.66	0.180	G317.97−0.90	14:56:44.1	−60:03:56.77	0.201
G11.64+0.62	18:08:49.7	−18:33:22.59	0.160	G317.98−0.93	14:56:54.4	−60:05:10.96	0.157
G11.65+0.65	18:08:44.9	−18:31:40.74	0.151	G317.99+0.05	14:53:25.6	−59:12:41.01	0.163
G11.66−0.64	18:13:33.6	−19:08:53.32	0.156	G318.00−0.52	14:55:30.4	−59:42:33.17	0.159
G11.68−0.68	18:13:43.0	−19:08:42.38	0.171	G318.01−0.85	14:56:47.6	−60:00:11.25	0.223
G11.70−0.48	18:13:01.6	−19:02:04.96	0.247	G318.01−0.49	14:55:29.4	−59:40:45.50	0.165
G11.70−0.68	18:13:46.8	−19:07:25.76	0.161	G318.04−0.19	14:54:35.7	−59:23:57.42	0.160
G11.71−0.47	18:13:00.5	−19:01:15.37	0.152	G318.04+0.12	14:53:31.0	−59:07:25.48	0.152
G11.72−0.50	18:13:08.9	−19:01:47.87	0.167	G318.04+0.16	14:53:25.3	−59:05:24.97	0.152
G11.72+0.45	18:09:36.4	−18:34:08.91	0.150	G318.05+0.15	14:53:28.8	−59:05:42.66	0.155

Table A.1. continued.

IRDC name	R.A. ($^{h}:^{m}:^{s}$) (J2000)	Decl. ($^{\circ}:':''$) (J2000)	$C_{24\mu m}$	IRDC name	R.A. ($^{h}:^{m}:^{s}$) (J2000)	Decl. ($^{\circ}:':''$) (J2000)	$C_{24\mu m}$
G11.72−0.47	18:13:01.6	−19:00:44.21	0.161	G318.05−0.51	14:55:53.1	−59:40:47.44	0.150
G11.72+0.68	18:08:47.7	−18:27:32.60	0.200	G318.05−0.77	14:56:50.9	−59:54:32.89	0.183
G11.72−0.07	18:11:32.4	−18:49:03.76	0.153	G318.06−0.94	14:57:28.9	−60:03:33.72	0.159
G11.72−0.05	18:11:29.6	−18:48:32.02	0.153	G318.06+0.13	14:53:36.6	−59:06:09.67	0.195
G11.72−0.55	18:13:21.3	−19:02:48.28	0.152	G318.07−0.89	14:57:25.3	−60:00:13.43	0.177
G11.73−0.54	18:13:19.2	−19:01:54.15	0.194	G318.08−0.81	14:57:08.3	−59:55:42.14	0.162
G11.74−0.76	18:14:10.0	−19:08:00.77	0.176	G318.08+0.12	14:53:50.1	−59:06:26.20	0.165
G11.74−0.06	18:11:33.0	−18:47:40.83	0.195	G318.09−0.47	14:56:00.4	−59:37:36.33	0.158
G11.74+0.66	18:08:52.8	−18:26:40.84	0.162	G318.10+0.09	14:54:01.9	−59:07:20.91	0.177
G11.75+0.87	18:08:08.4	−18:20:13.76	0.151	G318.11−0.46	14:56:05.4	−59:36:42.96	0.158
G11.77−0.42	18:12:57.0	−18:56:49.82	0.175	G318.11−0.94	14:57:51.2	−60:02:02.13	0.853
G11.79+0.77	18:08:35.3	−18:20:58.76	0.152	G318.11−0.61	14:56:37.4	−59:44:08.28	0.256
G11.80−0.14	18:11:57.7	−18:47:02.01	0.229	G318.11−0.70	14:56:59.0	−59:49:20.12	0.369
G11.80+0.76	18:08:38.0	−18:20:54.53	0.173	G318.12−0.81	14:57:25.4	−59:54:33.47	0.160
G11.80−0.28	18:12:28.6	−18:50:54.51	0.157	G318.13−0.93	14:57:56.7	−60:01:01.77	0.150
G11.81−0.28	18:12:31.6	−18:50:20.36	0.220	G318.13−0.77	14:57:23.6	−59:52:21.64	0.218
G11.81−0.13	18:11:56.9	−18:45:45.64	0.150	G318.14−0.94	14:58:02.1	−60:01:04.80	0.196
G11.82−0.06	18:11:43.0	−18:43:26.05	0.206	G318.15+0.13	14:54:13.6	−59:04:00.19	0.176
G11.83+0.73	18:08:49.4	−18:20:19.70	0.171	G318.16−0.32	14:55:55.5	−59:27:56.89	0.274
G11.83−0.64	18:13:54.5	−18:59:42.42	0.202	G318.16−0.84	14:57:51.2	−59:55:10.40	0.150
G11.83−0.09	18:11:50.7	−18:43:35.24	0.191	G318.16−0.88	14:57:59.5	−59:57:05.82	0.191
G11.83−0.25	18:12:27.4	−18:48:20.48	0.155	G318.16−0.84	14:57:51.8	−59:54:55.19	0.157
G11.86−0.42	18:13:07.9	−18:51:58.42	0.199	G318.17−0.84	14:57:55.8	−59:55:04.61	0.158
G11.86−0.45	18:13:15.0	−18:52:41.60	0.159	G318.18−0.31	14:55:59.4	−59:26:26.94	0.167
G11.86+0.64	18:09:12.8	−18:21:08.31	0.166	G318.18−0.83	14:57:55.5	−59:54:11.05	0.159
G11.86−0.10	18:11:57.6	−18:42:36.90	0.190	G318.18−0.32	14:56:06.3	−59:26:52.50	0.164
G11.86−0.62	18:13:53.5	−18:57:26.32	0.201	G318.19−0.30	14:56:01.9	−59:25:34.09	0.163
G11.87−0.44	18:13:13.0	−18:51:56.25	0.163	G318.19−0.61	14:57:11.5	−59:41:54.70	0.165
G11.87−0.63	18:13:56.5	−18:57:13.28	0.201	G318.20−0.66	14:57:28.1	−59:44:20.70	0.293
G11.87+0.62	18:09:18.3	−18:20:58.25	0.240	G318.21+0.06	14:54:52.6	−59:05:56.66	0.155
G11.87+0.82	18:08:34.0	−18:15:05.48	0.151	G318.22−0.74	14:57:54.9	−59:48:00.38	0.255
G11.88−0.61	18:13:51.8	−18:56:23.69	0.168	G318.23−0.79	14:58:06.7	−59:50:41.13	0.154
G11.88+0.80	18:08:39.2	−18:15:11.83	0.218	G318.24−0.66	14:57:42.3	−59:43:24.34	0.204
G11.88−0.05	18:11:49.4	−18:39:58.66	0.178	G318.24−0.68	14:57:46.2	−59:44:20.38	0.152
G11.89−0.40	18:13:06.6	−18:49:52.20	0.163	G318.25−0.80	14:58:17.7	−59:50:23.19	0.171
G11.89+0.14	18:11:07.0	−18:34:06.33	0.183	G318.27−0.52	14:57:23.5	−59:35:07.05	0.153
G11.89−0.43	18:13:13.0	−18:50:19.93	0.204	G318.28−0.52	14:57:30.6	−59:34:45.68	0.187
G11.89−0.08	18:11:56.8	−18:40:12.58	0.163	G318.28−0.23	14:56:28.1	−59:19:19.81	0.182
G11.90−0.18	18:12:19.1	−18:42:39.72	0.173	G318.29−0.64	14:58:02.0	−59:40:53.12	0.153
G11.91−0.15	18:12:14.2	−18:41:47.11	0.177	G318.30−0.86	14:58:52.6	−59:52:16.00	0.197
G11.91−0.13	18:12:08.8	−18:41:01.66	0.201	G318.30−0.60	14:57:57.5	−59:38:19.49	0.206
G11.91−0.42	18:13:13.3	−18:49:01.74	0.191	G318.31−0.37	14:57:07.1	−59:25:56.62	0.241
G11.92−0.57	18:13:50.2	−18:52:52.12	0.153	G318.31−0.34	14:57:02.3	−59:24:36.11	0.151
G11.94+0.70	18:09:08.2	−18:15:22.71	0.155	G318.31−0.67	14:58:16.6	−59:41:57.71	0.154
G11.94−0.21	18:12:30.9	−18:41:30.88	0.246	G318.32−0.73	14:58:32.3	−59:45:07.55	0.211
G11.94−0.12	18:12:10.3	−18:38:39.84	0.153	G318.32−0.64	14:58:14.0	−59:40:15.62	0.188
G11.95+0.69	18:09:12.7	−18:15:15.68	0.154	G318.32−0.75	14:58:39.6	−59:45:49.89	0.164
G11.95−0.11	18:12:08.9	−18:38:10.00	0.161	G318.35+0.32	14:54:58.2	−58:48:28.97	0.169

Table A.1. continued.

IRDC name	R.A. ($^{h}:^{m}:^{s}$) (J2000)	Decl. ($^{\circ}:':''$) (J2000)	$C_{24\mu m}$	IRDC name	R.A. ($^{h}:^{m}:^{s}$) (J2000)	Decl. ($^{\circ}:':''$) (J2000)	$C_{24\mu m}$
G11.97−0.10	18:12:09.3	−18:36:59.15	0.184	G318.37−0.80	14:59:10.9	−59:47:14.67	0.153
G11.98−0.55	18:13:50.5	−18:49:20.85	0.152	G318.39−0.15	14:56:56.9	−59:12:07.18	0.166
G11.99−0.18	18:12:30.3	−18:37:45.29	0.165	G318.41−0.94	14:59:59.8	−59:53:31.52	0.255
G12.00−0.14	18:12:22.9	−18:36:15.53	0.169	G318.42−0.09	14:56:55.1	−59:07:47.05	0.190
G12.00−0.06	18:12:06.4	−18:34:03.58	0.178	G318.45−0.54	14:58:45.7	−59:30:58.14	0.162
G12.00−0.71	18:14:30.0	−18:52:32.77	0.189	G318.49−0.28	14:58:03.5	−59:16:30.59	0.164
G12.01−0.67	18:14:22.3	−18:51:26.98	0.181	G318.54−0.16	14:57:59.3	−59:08:35.45	0.177
G12.02−0.67	18:14:22.6	−18:50:50.51	0.164	G318.55−0.17	14:58:06.3	−59:08:25.18	0.166
G12.02−0.70	18:14:29.7	−18:51:42.53	0.170	G318.56−0.27	14:58:29.7	−59:13:48.14	0.184
G12.02−0.07	18:12:09.6	−18:33:15.25	0.174	G318.58−0.20	14:58:25.0	−59:09:38.70	0.150
G12.02−0.20	18:12:38.6	−18:36:58.94	0.190	G318.66+0.67	14:55:49.0	−58:21:06.82	0.162
G12.02−0.76	18:14:42.6	−18:52:48.40	0.160	G318.68+0.64	14:56:03.7	−58:21:53.10	0.156
G12.03−0.58	18:14:05.1	−18:47:44.09	0.175	G318.69−0.24	14:59:18.4	−59:08:22.89	0.243
G12.03−0.35	18:13:13.4	−18:40:46.91	0.154	G318.69−0.79	15:01:21.5	−59:37:24.83	0.201
G12.04+0.86	18:08:46.9	−18:05:12.25	0.156	G318.71−0.31	14:59:44.1	−59:11:25.62	0.196
G12.06+0.87	18:08:46.3	−18:04:16.68	0.151	G318.72−0.78	15:01:33.9	−59:36:12.31	0.274
G12.06−0.23	18:12:50.4	−18:35:57.84	0.162	G318.73−0.69	15:01:15.1	−59:31:10.96	0.225
G12.07−0.69	18:14:33.0	−18:48:31.14	0.182	G318.75−0.49	15:00:37.6	−59:19:51.22	0.170
G12.08+0.48	18:10:14.4	−18:14:12.46	0.172	G318.77−0.44	15:00:35.2	−59:17:01.14	0.178
G12.09+0.54	18:10:03.3	−18:12:15.26	0.151	G318.78−0.43	15:00:37.0	−59:15:54.88	0.153
G12.09−0.18	18:12:42.6	−18:32:44.79	0.161	G318.79−0.39	15:00:32.3	−59:13:43.78	0.267
G12.09−0.19	18:12:45.0	−18:32:55.73	0.155	G318.79−0.11	14:59:31.2	−58:58:54.91	0.170
G12.10−0.06	18:12:16.6	−18:28:39.07	0.152	G318.81−0.11	14:59:38.3	−58:58:30.97	0.167
G12.13−0.07	18:12:22.5	−18:27:35.05	0.193	G318.88−0.27	15:00:44.4	−59:04:52.07	0.208
G12.13+0.46	18:10:26.2	−18:12:14.95	0.151	G318.90−0.24	15:00:45.3	−59:02:54.33	0.175
G12.15+0.45	18:10:30.3	−18:11:30.33	0.152	G318.90−0.29	15:00:57.4	−59:05:03.48	0.171
G12.15+0.45	18:10:31.0	−18:11:27.38	0.159	G318.93−0.24	15:00:57.5	−59:01:49.11	0.172
G12.17+0.45	18:10:32.6	−18:10:31.21	0.153	G319.00+0.17	14:59:55.9	−58:38:11.21	0.174
G12.18+0.57	18:10:07.7	−18:06:36.26	0.158	G319.01−0.94	15:04:09.6	−59:36:17.85	0.196
G12.20+0.14	18:11:44.4	−18:17:45.62	0.154	G319.05−0.46	15:02:35.1	−59:10:05.45	0.151
G12.22+0.14	18:11:46.8	−18:16:54.42	0.222	G319.10−0.49	15:03:03.4	−59:09:48.32	0.155
G12.23−0.65	18:14:45.2	−18:38:55.68	0.171	G319.15−0.65	15:03:59.6	−59:16:49.68	0.152
G12.24+0.53	18:10:23.4	−18:04:30.16	0.157	G319.17−0.34	15:02:58.6	−59:00:20.57	0.188
G12.24−0.16	18:12:56.1	−18:24:13.78	0.197	G319.20−0.23	15:02:46.5	−58:53:21.82	0.215
G12.25−0.14	18:12:53.6	−18:23:35.90	0.173	G319.22−0.36	15:03:23.1	−58:59:54.60	0.157
G12.25+0.39	18:10:55.2	−18:07:49.44	0.156	G319.22−0.42	15:03:36.9	−59:02:48.71	0.459
G12.26+0.41	18:10:52.0	−18:07:05.25	0.164	G319.22−0.31	15:03:12.5	−58:57:05.04	0.434
G12.29−0.12	18:12:53.0	−18:20:17.25	0.186	G319.24−0.48	15:03:59.6	−59:05:37.35	0.197
G12.30+0.38	18:11:04.5	−18:05:33.67	0.154	G319.26−0.41	15:03:49.5	−59:01:26.16	0.200
G12.30−0.48	18:14:14.9	−18:30:15.31	0.193	G319.27−0.41	15:03:56.1	−59:00:37.20	0.153
G12.31+0.38	18:11:04.2	−18:05:16.10	0.158	G319.29−0.06	15:02:43.9	−58:41:49.25	0.233
G12.31+0.37	18:11:07.2	−18:05:11.40	0.175	G319.29−0.30	15:03:39.4	−58:54:34.11	0.222
G12.32+0.52	18:10:36.2	−18:00:45.47	0.220	G319.29−0.49	15:04:22.8	−59:04:12.06	0.171
G12.32−0.43	18:14:06.2	−18:28:01.00	0.180	G319.30−0.32	15:03:45.4	−58:55:14.23	0.178
G12.32−0.58	18:14:38.9	−18:32:06.42	0.202	G319.30−0.38	15:04:02.0	−58:58:30.94	0.336
G12.33+0.49	18:10:43.0	−18:00:57.20	0.178	G319.31−0.51	15:04:33.1	−59:04:53.45	0.157
G12.33−0.44	18:14:10.1	−18:27:37.25	0.187	G319.32−0.28	15:03:47.2	−58:52:15.81	0.206
G12.34+0.51	18:10:39.7	−17:59:53.57	0.210	G319.33−0.30	15:03:56.1	−58:53:26.50	0.228

Table A.1. continued.

IRDC name	R.A. ($^{h}:^{m}:^{s}$) (J2000)	Decl. ($^{\circ}:':''$) (J2000)	$C_{24\mu m}$	IRDC name	R.A. ($^{h}:^{m}:^{s}$) (J2000)	Decl. ($^{\circ}:':''$) (J2000)	$C_{24\mu m}$
G12.34−0.62	18:14:51.6	−18:32:26.30	0.167	G319.35+0.47	15:01:12.4	−58:12:21.73	0.162
G12.35−0.71	18:15:12.5	−18:34:31.04	0.165	G319.35−0.13	15:03:24.7	−58:43:37.03	0.184
G12.36+0.51	18:10:41.7	−17:58:38.47	0.192	G319.36−0.30	15:04:04.3	−58:52:24.23	0.156
G12.36−0.61	18:14:50.6	−18:30:49.03	0.160	G319.37−0.12	15:03:31.3	−58:42:44.55	0.155
G12.36−0.12	18:13:01.4	−18:16:32.12	0.174	G319.37+0.90	14:59:49.5	−57:49:01.48	0.153
G12.37+0.50	18:10:44.7	−17:58:29.30	0.209	G319.38−0.31	15:04:16.2	−58:52:40.32	0.183
G12.37+0.17	18:11:59.1	−18:08:11.26	0.159	G319.38−0.17	15:03:46.1	−58:45:12.76	0.171
G12.37−0.05	18:12:47.7	−18:14:29.62	0.162	G319.38−0.09	15:03:29.7	−58:40:46.23	0.190
G12.38+0.18	18:11:57.0	−18:07:22.67	0.159	G319.39−0.32	15:04:25.2	−58:52:26.93	0.152
G12.38+0.39	18:11:10.8	−18:01:13.89	0.208	G319.40−0.01	15:03:16.9	−58:36:11.70	0.820
G12.38+0.22	18:11:50.4	−18:05:52.32	0.180	G319.40−0.14	15:03:48.1	−58:42:38.02	0.182
G12.38−0.06	18:12:52.0	−18:13:51.50	0.150	G319.41−0.43	15:04:55.9	−58:57:45.18	0.164
G12.41−0.05	18:12:52.3	−18:12:14.37	0.152	G319.41−0.34	15:04:37.0	−58:52:56.58	0.246
G12.41−0.15	18:13:13.9	−18:14:56.83	0.263	G319.44+0.05	15:03:19.7	−58:31:30.19	0.220
G12.42−0.71	18:15:19.8	−18:30:50.86	0.178	G319.45−0.11	15:04:02.7	−58:39:53.05	0.181
G12.42−0.13	18:13:11.0	−18:14:08.83	0.248	G319.48+0.84	15:00:41.3	−57:48:55.52	0.153
G12.42−0.54	18:14:41.7	−18:25:44.78	0.173	G319.48−0.13	15:04:15.4	−58:39:48.93	0.171
G12.42−0.51	18:14:34.9	−18:24:46.97	0.158	G319.48−0.64	15:06:14.5	−59:06:27.99	0.172
G12.43−0.71	18:15:20.3	−18:30:06.62	0.156	G319.49−0.32	15:05:02.3	−58:49:45.55	0.161
G12.45+0.26	18:11:49.4	−18:01:26.94	0.183	G319.49−0.46	15:05:37.7	−58:56:59.71	0.234
G12.45−0.58	18:14:54.8	−18:25:18.18	0.165	G319.50−0.63	15:06:18.3	−59:05:49.83	0.151
G12.46+0.36	18:11:27.6	−17:58:01.60	0.157	G319.50−0.63	15:06:18.9	−59:05:34.50	0.154
G12.54−0.38	18:14:21.6	−18:14:49.66	0.158	G319.51−0.45	15:05:42.4	−58:55:54.62	0.154
G12.55−0.60	18:15:11.0	−18:20:46.42	0.235	G319.52−0.11	15:04:25.8	−58:37:43.67	0.153
G12.55−0.34	18:14:14.5	−18:13:08.49	0.196	G319.52−0.89	15:07:27.0	−59:18:32.41	0.155
G12.56−0.18	18:13:38.3	−18:08:04.05	0.185	G319.52−0.30	15:05:12.1	−58:47:53.09	0.161
G12.57+0.04	18:12:52.9	−18:01:22.48	0.185	G319.52−0.12	15:04:32.1	−58:38:31.37	0.168
G12.58+0.27	18:12:01.4	−17:54:08.16	0.201	G319.53−0.46	15:05:50.9	−58:56:11.44	0.156
G12.58−0.33	18:14:15.5	−18:11:11.93	0.156	G319.56+0.94	15:00:51.4	−57:41:17.47	0.840
G12.58+0.03	18:12:56.0	−18:00:49.12	0.153	G319.56−0.58	15:06:30.9	−59:01:23.98	0.169
G12.61+0.25	18:12:11.1	−17:53:11.74	0.180	G319.57−0.25	15:05:20.4	−58:43:53.79	0.167
G12.63+0.51	18:11:14.7	−17:44:41.63	0.163	G319.61−0.57	15:06:50.4	−58:58:56.70	0.151
G12.63−0.12	18:13:34.6	−18:02:39.48	0.265	G319.65+0.81	15:01:55.6	−57:45:40.52	0.154
G12.63+0.67	18:10:41.1	−17:39:47.46	0.153	G319.73−0.43	15:07:04.4	−58:48:37.60	0.152
G12.63−0.20	18:13:53.5	−18:04:45.96	0.161	G319.77−0.08	15:06:01.8	−58:29:08.23	0.154
G12.64−0.52	18:15:03.4	−18:13:38.88	0.154	G319.77−0.61	15:08:04.7	−58:56:24.48	0.152
G12.64−0.17	18:13:46.2	−18:03:39.37	0.176	G319.78−0.07	15:06:02.3	−58:28:19.05	0.168
G12.64−0.22	18:13:57.7	−18:04:47.21	0.212	G319.79−0.27	15:06:54.7	−58:37:58.53	0.150
G12.64+0.67	18:10:41.7	−17:39:09.18	0.150	G319.80−0.28	15:07:02.1	−58:38:30.82	0.164
G12.65−0.03	18:13:18.6	−17:58:54.97	0.151	G319.83−0.39	15:07:36.1	−58:43:22.31	0.197
G12.66−0.17	18:13:48.7	−18:02:26.14	0.168	G319.83+0.79	15:03:12.1	−57:41:32.15	0.160
G12.66−0.18	18:13:51.9	−18:02:40.06	0.159	G319.85−0.19	15:06:56.5	−58:32:05.05	0.150
G12.67−0.06	18:13:26.1	−17:58:45.88	0.195	G319.85−0.20	15:07:01.2	−58:32:33.83	0.164
G12.67−0.21	18:14:00.0	−18:03:08.15	0.271	G319.87−0.18	15:07:05.8	−58:30:50.60	0.174
G12.68−0.17	18:13:50.7	−18:01:28.02	0.246	G319.89−0.18	15:07:12.8	−58:30:48.53	0.187
G12.70+0.74	18:10:31.9	−17:34:11.14	0.165	G319.90−0.24	15:07:27.8	−58:33:17.30	0.174
G12.70+0.36	18:11:57.0	−17:45:00.36	0.227	G319.90−0.28	15:07:38.2	−58:35:18.12	0.150
G12.70+0.57	18:11:10.0	−17:38:48.28	0.219	G319.90−0.12	15:07:02.0	−58:26:55.28	0.152

Table A.1. continued.

IRDC name	R.A. ($^{h}:^{m}:^{s}$) (J2000)	Decl. ($^{\circ}:':''$) (J2000)	$C_{24\mu m}$	IRDC name	R.A. ($^{h}:^{m}:^{s}$) (J2000)	Decl. ($^{\circ}:':''$) (J2000)	$C_{24\mu m}$
G12.71−0.78	18:16:11.3	−18:17:40.35	0.180	G319.90+0.50	15:04:44.5	−57:54:23.46	0.191
G12.71−0.64	18:15:39.9	−18:13:07.68	0.261	G319.90−0.25	15:07:34.9	−58:33:51.89	0.177
G12.72+0.51	18:11:26.6	−17:39:54.47	0.152	G319.91−0.27	15:07:40.2	−58:34:57.88	0.161
G12.72+0.61	18:11:04.9	−17:36:55.23	0.184	G319.91−0.12	15:07:05.9	−58:26:33.39	0.157
G12.72−0.76	18:16:09.1	−18:16:11.18	0.158	G319.93−0.19	15:07:28.6	−58:29:58.29	0.156
G12.73+0.56	18:11:16.9	−17:38:07.80	0.177	G319.93+0.62	15:04:28.3	−57:47:46.95	0.174
G12.73−0.22	18:14:08.4	−18:00:19.18	0.415	G319.93+0.85	15:03:38.6	−57:35:14.28	0.201
G12.73−0.36	18:14:39.6	−18:04:19.48	0.227	G319.94+0.80	15:03:53.8	−57:38:05.85	0.273
G12.74−0.60	18:15:34.9	−18:10:24.87	0.349	G319.94+0.72	15:04:10.1	−57:41:51.97	0.201
G12.75+0.01	18:13:20.0	−17:52:16.20	0.209	G319.94+0.69	15:04:19.2	−57:43:23.25	0.180
G12.76+0.53	18:11:25.6	−17:37:11.91	0.163	G319.96+0.71	15:04:20.0	−57:41:47.29	0.154
G12.76+0.03	18:13:17.8	−17:51:45.15	0.185	G319.97−0.02	15:07:07.7	−58:20:05.99	0.209
G12.76−0.21	18:14:11.0	−17:58:35.31	0.656	G319.97−0.32	15:08:15.7	−58:35:27.01	0.169
G12.78+0.50	18:11:34.5	−17:37:03.42	0.179	G319.98−0.44	15:08:50.1	−58:41:24.17	0.153
G12.78−0.27	18:14:25.5	−17:59:13.42	0.218	G319.99+0.01	15:07:10.8	−58:17:37.99	0.196
G12.78+0.56	18:11:23.3	−17:35:24.21	0.175	G320.00+0.71	15:04:37.2	−57:41:01.46	0.152
G12.78−0.32	18:14:36.3	−18:00:25.69	0.176	G320.02+0.12	15:06:54.9	−58:10:49.15	0.153
G12.78+0.37	18:12:04.9	−17:40:42.28	0.231	G320.02+0.71	15:04:45.4	−57:40:08.42	0.192
G12.78+0.38	18:12:02.5	−17:40:21.93	0.173	G320.02−0.48	15:09:14.5	−58:42:07.59	0.186
G12.78+0.47	18:11:42.4	−17:37:41.30	0.227	G320.02+0.59	15:05:12.8	−57:46:29.09	0.161
G12.79+0.51	18:11:34.7	−17:36:24.12	0.154	G320.03+0.82	15:04:22.7	−57:34:13.88	0.152
G12.79+0.53	18:11:29.8	−17:35:41.29	0.189	G320.04+0.83	15:04:24.3	−57:33:12.61	0.285
G12.79−0.18	18:14:06.6	−17:56:04.15	0.375	G320.05+0.70	15:05:00.4	−57:39:55.37	0.215
G12.79−0.22	18:14:15.3	−17:57:09.46	0.235	G320.07+0.02	15:07:39.3	−58:14:47.96	0.157
G12.79−0.40	18:14:56.6	−18:02:23.59	0.160	G320.08+0.68	15:05:13.0	−57:39:59.01	0.165
G12.80+0.66	18:11:01.6	−17:31:23.76	0.152	G320.08+0.80	15:04:49.2	−57:33:49.04	0.183
G12.80+0.35	18:12:11.1	−17:40:16.99	0.422	G320.09+0.73	15:05:06.5	−57:37:20.62	0.171
G12.80+0.65	18:11:05.0	−17:31:36.67	0.166	G320.09+0.79	15:04:55.1	−57:33:48.18	0.152
G12.80+0.45	18:11:49.5	−17:37:18.80	0.218	G320.10+0.84	15:04:46.0	−57:31:14.78	0.252
G12.80+0.26	18:12:30.8	−17:42:26.71	0.151	G320.10+0.81	15:04:53.6	−57:32:55.74	0.231
G12.81+0.06	18:13:16.2	−17:48:15.25	0.205	G320.11+0.75	15:05:11.8	−57:35:36.10	0.315
G12.81+0.47	18:11:47.3	−17:36:13.82	0.171	G320.12−0.19	15:08:45.6	−58:24:23.39	0.168
G12.81+0.32	18:12:18.9	−17:40:14.41	0.170	G320.12−0.62	15:10:25.1	−58:46:28.64	0.156
G12.81+0.25	18:12:36.1	−17:42:28.37	0.215	G320.12+0.45	15:06:23.0	−57:50:54.69	0.159
G12.82−0.18	18:14:11.3	−17:54:18.67	0.181	G320.12+0.70	15:05:26.8	−57:37:26.69	0.183
G12.83−0.31	18:14:41.2	−17:57:44.50	0.268	G320.13−0.09	15:08:24.9	−58:18:29.96	0.178
G12.83+0.36	18:12:13.3	−17:38:32.11	0.169	G320.14−0.20	15:08:57.2	−58:24:12.01	0.166
G12.83−0.01	18:13:35.3	−17:49:05.51	0.162	G320.14−0.91	15:11:43.7	−59:00:41.60	0.158
G12.83−0.28	18:14:35.6	−17:56:34.99	0.216	G320.15+0.08	15:07:55.7	−58:09:19.54	0.165
G12.84−0.01	18:13:35.2	−17:48:32.52	0.151	G320.15−0.04	15:08:23.9	−58:15:40.00	0.199
G12.84+0.43	18:11:58.2	−17:35:41.55	0.154	G320.16+0.86	15:05:04.8	−57:28:28.76	0.154
G12.84+0.39	18:12:07.4	−17:36:47.13	0.411	G320.16−0.02	15:08:21.5	−58:14:15.41	0.160
G12.84+0.42	18:12:00.4	−17:35:46.07	0.154	G320.16−0.94	15:11:57.0	−59:01:33.79	0.179
G12.84+0.30	18:12:28.6	−17:39:22.67	0.158	G320.16+0.88	15:05:01.8	−57:27:07.56	0.346
G12.85−0.40	18:15:03.4	−17:59:23.23	0.227	G320.16−0.43	15:10:00.2	−58:35:28.01	0.244
G12.85−0.85	18:16:43.6	−18:12:16.31	0.162	G320.16+0.24	15:07:25.0	−58:00:15.96	0.152
G12.85−0.37	18:14:55.6	−17:58:21.50	0.243	G320.17+0.22	15:07:32.0	−58:01:16.44	0.175
G12.85−0.16	18:14:09.1	−17:52:18.44	0.208	G320.17−0.23	15:09:16.3	−58:24:28.03	0.174

Table A.1. continued.

IRDC name	R.A. ($^{h}:^{m}:^{s}$) (J2000)	Decl. ($^{\circ}:':''$) (J2000)	$C_{24\mu m}$	IRDC name	R.A. ($^{h}:^{m}:^{s}$) (J2000)	Decl. ($^{\circ}:':''$) (J2000)	$C_{24\mu m}$
G12.85+0.49	18:11:46.3	−17:33:32.12	0.223	G320.18+0.95	15:04:55.1	−57:23:12.85	0.627
G12.85−0.10	18:13:56.6	−17:50:24.17	0.221	G320.18+0.28	15:07:21.8	−57:57:41.23	0.156
G12.85+0.30	18:12:28.5	−17:38:54.52	0.159	G320.18+0.18	15:07:47.0	−58:03:17.70	0.155
G12.86+0.28	18:12:34.5	−17:39:12.78	0.161	G320.19+0.28	15:07:28.0	−57:57:39.86	0.165
G12.86−0.31	18:14:44.5	−17:55:53.46	0.263	G320.20−0.40	15:10:03.4	−58:32:30.78	0.211
G12.86+0.31	18:12:29.0	−17:38:05.23	0.164	G320.20+0.35	15:07:14.1	−57:53:36.07	0.152
G12.88−0.32	18:14:48.7	−17:55:12.24	0.181	G320.20−0.06	15:08:49.3	−58:15:03.34	0.152
G12.88+0.53	18:11:41.4	−17:30:48.01	0.411	G320.21−0.12	15:09:05.1	−58:18:08.53	0.328
G12.88−0.13	18:14:08.0	−17:49:45.12	0.194	G320.21−0.90	15:12:08.0	−58:57:50.89	0.179
G12.89+0.31	18:12:30.5	−17:36:40.28	0.189	G320.23−0.93	15:12:21.3	−58:59:07.37	0.214
G12.89−0.15	18:14:13.5	−17:50:02.33	0.160	G320.23−0.37	15:10:10.6	−58:30:19.04	0.225
G12.90−0.23	18:14:30.7	−17:51:36.21	0.259	G320.23−0.04	15:08:54.6	−58:13:07.72	0.283
G12.90−0.44	18:15:19.0	−17:57:43.66	0.210	G320.23+0.14	15:08:12.8	−58:03:35.95	0.257
G12.90+0.40	18:12:13.5	−17:33:31.10	0.170	G320.23−0.91	15:12:17.9	−58:57:55.58	0.158
G12.91+0.89	18:10:24.7	−17:18:59.07	0.178	G320.23−0.15	15:09:22.3	−58:18:53.88	0.156
G12.91−0.26	18:14:39.1	−17:51:59.02	0.164	G320.24−0.22	15:09:40.2	−58:22:12.52	0.331
G12.91−0.03	18:13:49.8	−17:45:10.23	0.158	G320.24+0.82	15:05:44.7	−57:27:46.36	0.160
G12.92−0.34	18:14:57.7	−17:53:51.96	0.291	G320.24+0.11	15:08:25.7	−58:05:00.99	0.180
G12.92−0.46	18:15:23.7	−17:57:06.70	0.205	G320.25+0.26	15:07:52.2	−57:56:49.36	0.166
G12.92−0.04	18:13:51.0	−17:45:02.41	0.153	G320.25+0.89	15:05:32.8	−57:24:08.62	0.168
G12.92+0.46	18:12:01.9	−17:30:47.07	0.202	G320.26+0.56	15:06:50.4	−57:41:18.10	0.174
G12.92−0.04	18:13:52.7	−17:44:52.79	0.163	G320.26−0.17	15:09:35.2	−58:19:04.07	0.155
G12.93+0.79	18:10:49.2	−17:20:23.95	0.182	G320.26+0.81	15:05:56.7	−57:28:04.02	0.199
G12.94+0.03	18:13:39.2	−17:42:05.26	0.150	G320.26−0.24	15:09:54.3	−58:22:36.07	0.157
G12.94−0.12	18:14:12.4	−17:46:15.49	0.384	G320.26+0.30	15:07:52.1	−57:54:37.18	0.337
G12.94+0.70	18:11:10.6	−17:22:29.33	0.208	G320.27−0.12	15:09:32.1	−58:16:05.29	0.295
G12.95+0.79	18:10:51.4	−17:19:31.42	0.159	G320.28+0.22	15:08:15.4	−57:57:43.02	0.153
G12.95−0.15	18:14:20.1	−17:46:33.28	0.273	G320.28+0.89	15:05:48.3	−57:23:19.09	0.156
G12.96+0.37	18:12:25.5	−17:31:23.53	0.167	G320.28−0.25	15:10:05.7	−58:22:26.61	0.161
G12.96+0.39	18:12:21.0	−17:30:47.58	0.178	G320.29+0.25	15:08:10.2	−57:56:07.25	0.238
G12.96+0.70	18:11:14.7	−17:21:43.80	0.161	G320.29+0.89	15:05:48.5	−57:22:52.11	0.150
G12.96−0.23	18:14:38.2	−17:48:12.87	0.314	G320.29−0.54	15:11:15.3	−58:37:20.07	0.187
G13.01−0.17	18:14:32.2	−17:44:26.90	0.215	G320.29+0.07	15:08:54.2	−58:05:41.74	0.260
G13.01−0.31	18:15:01.3	−17:48:11.51	0.158	G320.29+0.01	15:09:07.4	−58:08:27.85	0.153
G13.01−0.27	18:14:54.6	−17:47:09.60	0.210	G320.30−0.00	15:09:12.9	−58:09:12.11	0.160
G13.02−0.32	18:15:06.2	−17:47:31.06	0.175	G320.30−0.21	15:09:59.8	−58:19:34.97	0.170
G13.02−0.18	18:14:35.2	−17:43:30.36	0.162	G320.30+0.27	15:08:11.3	−57:54:46.10	0.199
G13.03−0.29	18:15:01.3	−17:46:44.30	0.164	G320.30−0.23	15:10:07.2	−58:20:49.71	0.299
G13.03−0.83	18:17:00.5	−18:02:01.84	0.322	G320.30−0.38	15:10:42.8	−58:28:37.39	0.220
G13.03−0.17	18:14:34.3	−17:42:49.64	0.153	G320.31−0.28	15:10:21.3	−58:23:27.09	0.225
G13.03−0.34	18:15:11.3	−17:47:31.51	0.173	G320.31+0.13	15:08:47.8	−58:01:59.60	0.293
G13.04−0.16	18:14:32.9	−17:42:17.03	0.153	G320.31+0.14	15:08:44.6	−58:01:01.34	0.179
G13.05−0.32	18:15:10.2	−17:46:26.67	0.212	G320.32−0.28	15:10:25.0	−58:22:55.04	0.152
G13.06−0.18	18:14:39.7	−17:41:45.62	0.312	G320.32+0.21	15:08:33.5	−57:57:07.44	0.162
G13.07−0.10	18:14:23.9	−17:38:40.59	0.155	G320.33+0.19	15:08:43.1	−57:58:16.19	0.232
G13.08−0.15	18:14:34.8	−17:40:00.46	0.173	G320.34+0.14	15:08:56.5	−58:00:37.70	0.194
G13.08−0.11	18:14:26.9	−17:38:22.51	0.155	G320.34−0.12	15:09:56.3	−58:14:00.38	0.194
G13.09−0.25	18:14:59.6	−17:42:17.53	0.187	G320.34−0.43	15:11:09.5	−58:30:01.72	0.191

Table A.1. continued.

IRDC name	R.A. ($^{h}:^{m}:^{s}$) (J2000)	Decl. ($^{\circ}:':''$) (J2000)	$C_{24\mu m}$	IRDC name	R.A. ($^{h}:^{m}:^{s}$) (J2000)	Decl. ($^{\circ}:':''$) (J2000)	$C_{24\mu m}$
G13.09−0.26	18:15:01.6	−17:42:22.67	0.150	G320.34+0.23	15:08:36.7	−57:55:38.52	0.219
G13.09−0.26	18:15:02.3	−17:42:19.67	0.155	G320.34+0.43	15:07:52.3	−57:45:20.36	0.185
G13.12−0.11	18:14:30.9	−17:36:23.67	0.251	G320.34+0.27	15:08:30.4	−57:53:40.51	0.152
G13.12+0.02	18:14:04.1	−17:32:38.86	0.162	G320.34+0.07	15:09:14.4	−58:03:41.82	0.258
G13.13−0.39	18:15:35.4	−17:44:13.94	0.153	G320.35+0.27	15:08:30.8	−57:53:30.28	0.153
G13.13−0.40	18:15:36.5	−17:44:06.60	0.152	G320.35−0.26	15:10:32.6	−58:20:36.83	0.275
G13.14−0.01	18:14:11.9	−17:32:53.34	0.216	G320.35−0.14	15:10:05.7	−58:14:32.68	0.167
G13.14−0.07	18:14:25.7	−17:34:35.36	0.155	G320.36+0.43	15:07:59.3	−57:44:35.11	0.168
G13.14+0.62	18:11:53.7	−17:14:30.36	0.153	G320.37−0.29	15:10:47.0	−58:21:41.76	0.199
G13.14+0.27	18:13:10.0	−17:24:14.60	0.260	G320.38−0.07	15:10:01.4	−58:09:52.64	0.168
G13.15−0.39	18:15:36.7	−17:43:13.03	0.154	G320.39−0.03	15:09:54.5	−58:07:32.78	0.206
G13.15+0.10	18:13:49.9	−17:28:59.89	0.257	G320.39−0.09	15:10:10.0	−58:10:41.17	0.169
G13.16−0.13	18:14:39.9	−17:35:04.16	0.162	G320.39−0.30	15:11:00.1	−58:21:37.90	0.183
G13.16−0.07	18:14:28.2	−17:33:29.49	0.158	G320.40+0.49	15:08:01.6	−57:40:34.16	0.156
G13.16−0.39	18:15:37.8	−17:42:29.68	0.217	G320.40+0.35	15:08:33.3	−57:47:46.64	0.218
G13.16−0.15	18:14:45.1	−17:35:33.20	0.178	G320.45+0.23	15:09:19.1	−57:52:44.60	0.378
G13.16−0.01	18:14:14.8	−17:31:28.76	0.156	G320.45−0.09	15:10:34.1	−58:08:41.84	0.190
G13.17−0.13	18:14:41.1	−17:34:17.64	0.167	G320.46+0.12	15:09:47.1	−57:57:43.95	0.160
G13.17−0.34	18:15:28.2	−17:40:21.54	0.259	G320.46−0.20	15:11:04.7	−58:14:26.76	0.229
G13.17−0.07	18:14:29.5	−17:32:39.76	0.151	G320.47+0.03	15:10:12.9	−58:02:05.85	0.150
G13.20−0.37	18:15:39.1	−17:40:06.20	0.150	G320.47+0.11	15:09:56.2	−57:58:00.81	0.211
G13.20−0.37	18:15:38.8	−17:39:56.00	0.150	G320.47+0.08	15:10:02.2	−57:59:17.39	0.174
G13.20−0.10	18:14:38.3	−17:32:02.60	0.206	G320.48−0.34	15:11:42.1	−58:21:07.61	0.177
G13.20−0.08	18:14:33.9	−17:31:21.45	0.321	G320.48+0.06	15:10:10.1	−58:00:10.93	0.212
G13.20−0.35	18:15:35.5	−17:39:08.52	0.196	G320.49+0.09	15:10:06.3	−57:58:23.38	0.171
G13.22−0.33	18:15:33.3	−17:37:41.23	0.160	G320.49−0.38	15:11:56.5	−58:22:55.86	0.154
G13.23+0.43	18:12:44.6	−17:15:19.77	0.194	G320.49−0.88	15:13:54.2	−58:48:25.73	0.152
G13.23−0.33	18:15:33.6	−17:37:07.43	0.158	G320.50+0.39	15:09:02.2	−57:42:57.01	0.164
G13.23−0.08	18:14:39.0	−17:29:56.51	0.171	G320.51+0.32	15:09:21.2	−57:45:48.81	0.166
G13.23−0.33	18:15:34.5	−17:37:06.19	0.153	G320.51+0.39	15:09:06.3	−57:42:13.87	0.150
G13.23+0.02	18:14:15.4	−17:26:47.03	0.159	G320.58+0.26	15:10:02.9	−57:47:09.88	0.179
G13.24−0.09	18:14:42.5	−17:29:40.53	0.216	G320.58+0.13	15:10:33.5	−57:53:57.24	0.213
G13.24−0.31	18:15:30.5	−17:35:43.73	0.150	G320.59−0.26	15:12:04.7	−58:13:21.40	0.192
G13.25−0.06	18:14:36.0	−17:28:21.32	0.384	G320.59+0.24	15:10:11.7	−57:47:43.12	0.158
G13.25+0.05	18:14:12.1	−17:25:13.46	0.217	G320.59−0.39	15:12:38.3	−58:20:04.53	0.173
G13.25+0.02	18:14:17.6	−17:25:56.24	0.174	G320.60+0.36	15:09:49.4	−57:41:14.71	0.253
G13.25−0.34	18:15:38.4	−17:36:02.82	0.182	G320.60+0.22	15:10:20.8	−57:48:18.62	0.156
G13.26−0.03	18:14:31.6	−17:27:01.83	0.156	G320.60+0.48	15:09:23.0	−57:34:55.76	0.171
G13.26−0.40	18:15:53.0	−17:37:21.62	0.151	G320.60+0.26	15:10:12.9	−57:46:17.52	0.199
G13.26+0.01	18:14:22.2	−17:25:31.66	0.181	G320.61+0.40	15:09:42.5	−57:38:50.45	0.167
G13.27+0.23	18:13:34.5	−17:18:42.39	0.318	G320.61−0.02	15:11:21.5	−58:00:35.63	0.177
G13.27+0.27	18:13:26.2	−17:17:33.43	0.263	G320.61+0.45	15:09:33.1	−57:35:54.82	0.172
G13.27+0.31	18:13:18.5	−17:16:27.55	0.159	G320.62+0.18	15:10:35.9	−57:49:52.43	0.210
G13.28−0.33	18:15:39.2	−17:34:38.86	0.289	G320.62+0.33	15:10:03.8	−57:42:06.20	0.154
G13.28+0.04	18:14:19.2	−17:23:45.17	0.209	G320.62+0.47	15:09:33.7	−57:34:54.15	0.165
G13.30−0.32	18:15:40.4	−17:33:18.46	0.209	G320.63+0.35	15:10:00.7	−57:40:37.74	0.175
G13.30+0.34	18:13:14.6	−17:14:21.69	0.230	G320.63+0.41	15:09:47.2	−57:37:27.66	0.153
G13.30−0.41	18:16:00.4	−17:35:41.01	0.157	G320.63+0.00	15:11:22.0	−57:58:50.06	0.171

Table A.1. continued.

IRDC name	R.A. ($^{h}:^{m}:^{s}$) (J2000)	Decl. ($^{\circ}:':''$) (J2000)	$C_{24\mu m}$	IRDC name	R.A. ($^{h}:^{m}:^{s}$) (J2000)	Decl. ($^{\circ}:':''$) (J2000)	$C_{24\mu m}$
G13.31−0.43	18:16:05.8	−17:36:00.17	0.166	G320.63−0.17	15:12:02.6	−58:07:24.62	0.154
G13.31+0.14	18:13:58.5	−17:19:26.83	0.337	G320.63−0.01	15:11:26.6	−57:59:21.09	0.155
G13.31+0.02	18:14:24.8	−17:22:39.46	0.226	G320.63+0.15	15:10:50.3	−57:51:06.26	0.258
G13.31−0.30	18:15:37.7	−17:31:52.74	0.277	G320.64+0.46	15:09:41.8	−57:34:59.26	0.152
G13.32−0.28	18:15:33.7	−17:31:10.06	0.154	G320.64+0.35	15:10:07.9	−57:40:20.72	0.170
G13.32−0.29	18:15:35.6	−17:31:24.37	0.152	G320.65−0.43	15:13:10.6	−58:20:02.41	0.153
G13.32−0.28	18:15:34.3	−17:30:40.13	0.151	G320.66+0.17	15:10:53.6	−57:49:18.26	0.258
G13.33+0.87	18:11:20.4	−16:57:21.28	0.154	G320.66+0.12	15:11:06.7	−57:52:00.30	0.180
G13.33−0.08	18:14:50.4	−17:24:19.88	0.158	G320.67+0.47	15:09:49.9	−57:33:17.19	0.153
G13.34−0.30	18:15:39.2	−17:30:35.75	0.152	G320.68+0.30	15:10:32.7	−57:42:07.33	0.252
G13.34+0.01	18:14:31.6	−17:21:23.48	0.213	G320.68+0.06	15:11:28.9	−57:54:24.18	0.230
G13.35+0.19	18:13:53.2	−17:16:06.43	0.368	G320.69+0.44	15:10:04.5	−57:34:13.76	0.183
G13.35−0.26	18:15:33.3	−17:28:55.18	0.195	G320.70−0.27	15:12:54.6	−58:10:28.64	0.157
G13.35−0.30	18:15:41.5	−17:29:41.49	0.163	G320.71+0.34	15:10:33.8	−57:38:56.74	0.170
G13.36−0.05	18:14:46.4	−17:22:20.54	0.152	G320.72+0.05	15:11:44.0	−57:53:22.98	0.152
G13.36−0.01	18:14:39.4	−17:21:09.71	0.171	G320.72−0.24	15:12:51.5	−58:08:15.86	0.174
G13.36−0.03	18:14:43.6	−17:21:37.08	0.175	G320.74+0.30	15:10:53.8	−57:39:58.18	0.261
G13.36−0.00	18:14:36.8	−17:20:31.81	0.160	G320.74+0.14	15:11:33.7	−57:48:05.30	0.175
G13.37−0.27	18:15:36.9	−17:28:07.01	0.152	G320.74+0.15	15:11:31.4	−57:47:23.68	0.172
G13.37+0.02	18:14:32.8	−17:19:26.00	0.153	G320.75+0.69	15:09:32.6	−57:19:21.31	0.154
G13.38−0.25	18:15:33.6	−17:26:52.85	0.196	G320.76+0.12	15:11:45.2	−57:48:39.65	0.178
G13.40−0.23	18:15:30.2	−17:25:20.48	0.177	G320.76+0.19	15:11:30.9	−57:44:53.42	0.458
G13.40−0.24	18:15:34.4	−17:25:41.82	0.174	G320.76−0.52	15:14:16.1	−58:21:11.82	0.157
G13.40−0.28	18:15:42.0	−17:26:37.10	0.170	G320.77+0.07	15:12:00.8	−57:51:01.87	0.154
G13.40+0.11	18:14:16.9	−17:15:27.55	0.241	G320.77+0.08	15:11:59.5	−57:50:37.45	0.159
G13.40−0.20	18:15:25.2	−17:24:17.06	0.180	G320.78+0.10	15:11:56.8	−57:49:09.92	0.152
G13.40−0.43	18:16:15.8	−17:30:44.80	0.280	G320.79+0.12	15:11:55.1	−57:47:52.83	0.228
G13.42+0.25	18:13:46.8	−17:10:24.28	0.242	G320.79−0.74	15:15:20.5	−58:31:52.33	0.152
G13.42−0.21	18:15:28.9	−17:23:36.76	0.225	G320.80+0.29	15:11:22.9	−57:38:37.34	0.150
G13.42−0.03	18:14:50.6	−17:18:32.61	0.164	G320.81+0.27	15:11:32.5	−57:39:21.68	0.237
G13.44−0.20	18:15:30.7	−17:22:01.67	0.164	G320.85+0.16	15:12:12.4	−57:43:38.96	0.181
G13.45+0.16	18:14:12.1	−17:11:11.73	0.193	G320.88−0.34	15:14:18.2	−58:08:40.12	0.305
G13.46+0.15	18:14:15.6	−17:11:13.43	0.206	G320.89+0.27	15:12:03.3	−57:37:04.57	0.155
G13.46+0.17	18:14:11.6	−17:10:39.66	0.185	G320.91−0.33	15:14:30.1	−58:07:19.22	0.157
G13.46+0.19	18:14:07.8	−17:09:55.20	0.251	G320.91−0.43	15:14:54.4	−58:12:14.86	0.152
G13.48−0.21	18:15:37.3	−17:20:15.21	0.213	G320.93−0.53	15:15:21.4	−58:16:46.07	0.150
G13.50−0.32	18:16:04.0	−17:22:17.30	0.159	G320.94−0.85	15:16:44.6	−58:32:35.08	0.179
G13.53−0.24	18:15:50.0	−17:18:37.44	0.171	G320.94−0.46	15:15:13.2	−58:12:53.82	0.172
G13.58−0.21	18:15:48.1	−17:15:15.56	0.190	G320.96−0.64	15:16:01.0	−58:21:48.92	0.155
G13.60+0.83	18:12:00.9	−16:44:18.57	0.163	G320.99−0.60	15:16:03.4	−58:18:13.20	0.217
G13.60−0.31	18:16:14.1	−17:17:03.19	0.151	G320.99−0.20	15:14:28.7	−57:57:38.90	0.159
G13.60−0.31	18:16:14.0	−17:16:49.78	0.161	G321.00−0.69	15:16:28.3	−58:22:48.34	0.153
G13.61+0.83	18:12:03.9	−16:43:58.88	0.172	G321.00−0.58	15:16:03.1	−58:17:00.86	0.158
G13.63+0.82	18:12:08.3	−16:42:59.46	0.168	G321.01−0.20	15:14:36.1	−57:57:38.57	0.157
G13.64+0.81	18:12:11.9	−16:42:35.63	0.166	G321.01−0.58	15:16:05.4	−58:16:52.51	0.150
G13.64+0.83	18:12:06.8	−16:41:49.36	0.205	G321.01−0.44	15:15:33.5	−58:09:20.79	0.286
G13.66−0.53	18:17:09.2	−17:20:02.59	0.152	G321.01−0.59	15:16:10.7	−58:17:03.32	0.199
G13.69−0.23	18:16:06.1	−17:10:04.95	0.259	G321.03−0.56	15:16:09.6	−58:14:57.86	0.169

Table A.1. continued.

IRDC name	R.A. ($^{h}:^{m}:^{s}$) (J2000)	Decl. ($^{\circ}:':''$) (J2000)	$C_{24\mu m}$	IRDC name	R.A. ($^{h}:^{m}:^{s}$) (J2000)	Decl. ($^{\circ}:':''$) (J2000)	$C_{24\mu m}$
G13.69−0.30	18:16:21.8	−17:11:56.32	0.157	G321.03−0.49	15:15:53.8	−58:11:16.96	0.783
G13.71−0.30	18:16:24.9	−17:10:50.58	0.163	G321.04+0.11	15:13:35.1	−57:40:39.00	0.188
G13.73−0.41	18:16:50.3	−17:12:44.55	0.158	G321.04−0.59	15:16:22.1	−58:16:22.95	0.205
G13.73−0.15	18:15:54.7	−17:05:31.18	0.157	G321.05−0.73	15:16:57.9	−58:23:18.32	0.247
G13.73−0.21	18:16:06.2	−17:06:57.13	0.284	G321.05−0.31	15:15:17.4	−58:01:28.64	0.155
G13.74−0.17	18:15:59.4	−17:05:54.39	0.192	G321.05−0.56	15:16:18.2	−58:14:28.51	0.255
G13.74−0.39	18:16:47.5	−17:11:54.70	0.170	G321.06−0.70	15:16:54.6	−58:21:11.43	0.211
G13.74−0.03	18:15:27.9	−17:01:31.22	0.306	G321.06−0.76	15:17:10.6	−58:24:08.83	0.155
G13.75−0.49	18:17:09.8	−17:14:17.21	0.151	G321.06−0.61	15:16:35.9	−58:16:46.77	0.229
G13.75−0.48	18:17:09.6	−17:14:07.02	0.150	G321.07−0.56	15:16:23.4	−58:13:50.74	0.206
G13.75−0.50	18:17:13.6	−17:14:32.76	0.246	G321.07−0.45	15:15:59.2	−58:08:16.08	0.246
G13.75−0.16	18:15:59.2	−17:04:55.42	0.280	G321.08−0.46	15:16:06.4	−58:08:41.60	0.215
G13.75+0.12	18:14:55.9	−16:56:35.18	0.155	G321.08−0.47	15:16:09.9	−58:09:01.27	0.150
G13.75+0.11	18:14:58.6	−16:56:49.43	0.153	G321.09−0.43	15:16:02.3	−58:06:41.70	0.377
G13.77−0.48	18:17:11.1	−17:12:45.58	0.168	G321.10−0.53	15:16:28.8	−58:11:07.40	0.388
G13.79−0.64	18:17:48.8	−17:16:28.53	0.167	G321.10+0.08	15:14:07.1	−57:39:59.37	0.165
G13.79−0.23	18:16:19.3	−17:04:47.30	0.159	G321.11−0.49	15:16:23.0	−58:09:13.21	0.315
G13.79−0.65	18:17:50.9	−17:16:24.02	0.160	G321.13−0.52	15:16:39.3	−58:09:46.18	0.494
G13.79−0.66	18:17:53.6	−17:16:35.81	0.165	G321.14−0.39	15:16:12.4	−58:03:08.06	0.192
G13.80−0.57	18:17:35.3	−17:14:01.57	0.200	G321.14−0.29	15:15:48.1	−57:57:51.40	0.159
G13.82−0.85	18:18:39.8	−17:21:01.89	0.162	G321.16−0.42	15:16:24.9	−58:04:01.79	0.229
G13.82+0.26	18:14:33.6	−16:49:10.76	0.197	G321.22−0.55	15:17:21.5	−58:08:20.97	0.204
G13.83−0.84	18:18:38.6	−17:20:10.07	0.162	G321.48−0.70	15:19:36.7	−58:07:51.36	0.150
G13.83−0.48	18:17:19.2	−17:09:38.76	0.487	G321.62+0.06	15:17:28.7	−57:25:06.39	0.181
G13.83+0.01	18:15:30.7	−16:55:25.30	0.154	G321.62+0.10	15:17:19.4	−57:22:40.23	0.165
G13.85+0.01	18:15:32.9	−16:54:53.98	0.171	G321.65+0.08	15:17:33.8	−57:23:05.03	0.220
G13.85+0.16	18:14:59.5	−16:50:12.20	0.164	G321.70−0.74	15:21:09.7	−58:02:49.32	0.151
G13.86−0.13	18:16:04.4	−16:58:20.38	0.190	G321.71−0.19	15:19:02.5	−57:34:37.98	0.152
G13.86+0.16	18:15:00.5	−16:49:43.94	0.175	G321.71+0.08	15:17:57.5	−57:20:42.40	0.215
G13.86−0.28	18:16:38.8	−17:02:23.02	0.159	G321.72+0.07	15:18:04.2	−57:21:27.67	0.297
G13.87−0.22	18:16:24.8	−17:00:11.60	0.207	G321.73+0.82	15:15:12.8	−56:42:24.92	0.153
G13.87−0.30	18:16:42.9	−17:02:24.41	0.205	G321.74+0.83	15:15:14.5	−56:41:55.54	0.166
G13.88−0.10	18:16:01.4	−16:56:19.39	0.166	G321.76+0.03	15:18:27.2	−57:21:57.19	0.248
G13.88−0.39	18:17:04.2	−17:04:17.41	0.153	G321.82−0.60	15:21:23.4	−57:52:00.82	0.167
G13.89−0.37	18:17:00.9	−17:03:36.27	0.189	G321.88+0.01	15:19:16.4	−57:19:14.74	0.154
G13.89−0.11	18:16:04.6	−16:56:03.67	0.155	G321.89−0.00	15:19:24.6	−57:19:21.47	0.163
G13.90−0.61	18:17:55.2	−17:09:50.22	0.159	G321.89+0.57	15:17:10.7	−56:50:18.50	0.161
G13.90−0.31	18:16:49.8	−17:01:10.84	0.168	G321.89−0.01	15:19:28.5	−57:19:51.92	0.236
G13.90−0.23	18:16:31.2	−16:58:39.78	0.183	G321.92+0.65	15:17:04.6	−56:45:24.48	0.155
G13.90+0.71	18:13:06.0	−16:31:49.50	0.163	G321.95+0.75	15:16:50.2	−56:39:24.49	0.164
G13.91−0.29	18:16:45.9	−17:00:15.98	0.235	G321.96+0.02	15:19:47.4	−57:15:49.14	0.160
G13.91−0.67	18:18:11.1	−17:10:49.11	0.152	G322.04+0.79	15:17:13.0	−56:34:17.20	0.179
G13.91−0.51	18:17:34.1	−17:06:02.87	0.409	G322.04+0.51	15:18:18.0	−56:48:28.95	0.170
G13.92−0.44	18:17:21.3	−17:03:53.22	0.365	G322.07+0.68	15:17:49.6	−56:39:02.06	0.159
G13.92+0.19	18:15:00.4	−16:45:37.94	0.198	G322.07+0.80	15:17:23.3	−56:32:59.00	0.151
G13.93−0.32	18:16:54.9	−16:59:53.47	0.214	G322.07+0.52	15:18:31.0	−56:47:12.19	0.213
G13.93−0.19	18:16:27.3	−16:56:14.21	0.156	G322.09+0.54	15:18:32.6	−56:45:27.58	0.155
G13.94−0.54	18:17:44.3	−17:05:34.14	0.167	G322.10+0.58	15:18:24.0	−56:43:08.82	0.477

Table A.1. continued.

IRDC name	R.A. ($^{h}:^{m}:^{s}$) (J2000)	Decl. ($^{\circ}:':''$) (J2000)	$C_{24\mu m}$	IRDC name	R.A. ($^{h}:^{m}:^{s}$) (J2000)	Decl. ($^{\circ}:':''$) (J2000)	$C_{24\mu m}$
G13.94−0.59	18:17:57.1	−17:06:53.23	0.151	G322.11+0.66	15:18:10.2	−56:39:02.65	0.236
G13.94−0.81	18:18:44.3	−17:12:57.23	0.151	G322.14+0.85	15:17:38.1	−56:28:08.20	0.172
G13.95−0.79	18:18:40.6	−17:12:06.99	0.157	G322.18+0.68	15:18:34.3	−56:35:24.56	0.186
G13.96+0.34	18:14:32.9	−16:39:36.72	0.200	G322.20+0.60	15:18:59.9	−56:38:45.87	0.410
G13.96−0.59	18:17:56.8	−17:05:57.83	0.177	G322.28+0.60	15:19:28.2	−56:36:11.58	0.169
G13.96+0.24	18:14:54.2	−16:42:14.76	0.169	G322.33+0.56	15:19:55.6	−56:36:36.45	0.152
G13.96−0.18	18:16:28.3	−16:54:13.88	0.170	G322.39+0.53	15:20:27.4	−56:36:22.89	0.162
G13.97−0.46	18:17:29.6	−17:01:45.93	0.312	G322.43+0.50	15:20:44.8	−56:36:42.60	0.161
G13.97−0.40	18:17:18.5	−16:59:51.23	0.313	G322.45+0.28	15:21:45.0	−56:47:04.71	0.158
G13.97−0.53	18:17:46.2	−17:03:20.82	0.173	G322.47+0.22	15:22:05.4	−56:49:28.54	0.158
G13.98−0.49	18:17:38.8	−17:02:20.26	0.166	G322.47+0.25	15:22:01.5	−56:47:44.12	0.156
G13.98−0.39	18:17:15.3	−16:59:14.35	0.170	G322.49+0.20	15:22:21.1	−56:49:46.26	0.275
G13.99−0.13	18:16:19.5	−16:51:16.14	0.680	G322.63+0.03	15:23:53.0	−56:53:40.52	0.179
G14.00−0.45	18:17:31.0	−16:59:54.97	0.434	G322.65−0.56	15:26:25.0	−57:22:26.45	0.154
G14.00−0.51	18:17:44.4	−17:01:28.27	0.263	G322.67+0.04	15:24:05.4	−56:51:40.62	0.233
G14.00−0.67	18:18:21.2	−17:05:56.45	0.158	G322.75−0.33	15:26:05.1	−57:07:47.36	0.162
G14.01+0.24	18:15:01.0	−16:39:43.28	0.169	G322.76−0.13	15:25:17.3	−56:57:15.73	0.155
G14.01−0.57	18:17:59.7	−17:02:24.28	0.154	G322.90+0.28	15:24:28.6	−56:32:25.25	0.182
G14.02+0.10	18:15:33.7	−16:43:17.39	0.151	G322.90+0.24	15:24:40.1	−56:34:25.65	0.170
G14.02−0.19	18:16:37.0	−16:51:28.23	0.340	G322.90+0.23	15:24:44.4	−56:34:45.47	0.171
G14.03−0.08	18:16:14.0	−16:47:43.88	0.375	G323.00−0.26	15:27:17.9	−56:56:08.80	0.158
G14.04−0.69	18:18:28.8	−17:04:32.56	0.184	G323.14+0.17	15:26:25.2	−56:29:37.06	0.172
G14.04−0.57	18:18:02.6	−17:01:10.78	0.168	G323.16+0.14	15:26:36.8	−56:30:49.92	0.249
G14.04−0.26	18:16:54.3	−16:51:57.59	0.210	G323.20+0.08	15:27:07.7	−56:32:16.63	0.181
G14.05−0.17	18:16:35.8	−16:48:52.65	0.269	G323.20+0.06	15:27:12.6	−56:32:51.73	0.182
G14.06−0.27	18:17:00.4	−16:51:37.18	0.217	G323.26−0.01	15:27:51.3	−56:34:42.44	0.151
G14.06−0.24	18:16:52.3	−16:50:20.03	0.256	G323.27+0.22	15:26:56.6	−56:22:45.55	0.164
G14.07−0.21	18:16:48.3	−16:49:07.54	0.151	G323.28−0.39	15:29:31.0	−56:52:52.97	0.211
G14.08−0.20	18:16:45.4	−16:48:34.14	0.180	G323.30−0.01	15:28:05.2	−56:33:21.74	0.157
G14.08−0.56	18:18:05.4	−16:58:50.10	0.435	G323.34+0.13	15:27:45.4	−56:24:52.75	0.161
G14.08−0.61	18:18:17.4	−17:00:21.04	0.154	G323.36−0.34	15:29:50.3	−56:47:45.70	0.150
G14.10−0.02	18:16:09.7	−16:42:22.19	0.154	G323.36−0.34	15:29:50.1	−56:47:29.07	0.151
G14.10−0.07	18:16:20.3	−16:43:31.12	0.280	G323.37−0.35	15:29:55.0	−56:47:41.47	0.179
G14.11−0.71	18:18:42.8	−17:01:25.30	0.173	G323.37−0.14	15:29:03.2	−56:37:20.70	0.151
G14.11−0.37	18:17:26.8	−16:51:32.70	0.200	G323.42+0.37	15:27:17.4	−56:10:15.81	0.155
G14.12+0.05	18:15:56.3	−16:39:19.42	0.212	G323.42−0.15	15:29:23.7	−56:35:55.13	0.305
G14.12−0.23	18:16:58.0	−16:47:06.57	0.175	G323.48−0.22	15:30:03.1	−56:37:48.36	0.169
G14.12+0.02	18:16:03.3	−16:39:56.48	0.162	G323.48+0.50	15:27:06.6	−56:01:41.62	0.171
G14.13−0.38	18:17:31.2	−16:51:06.01	0.167	G323.50+0.05	15:29:03.4	−56:23:38.27	0.221
G14.13−0.03	18:16:14.4	−16:41:02.91	0.242	G323.57+0.26	15:28:37.7	−56:10:49.72	0.161
G14.14−0.33	18:17:22.2	−16:48:57.78	0.244	G323.58+0.20	15:28:55.3	−56:13:13.99	0.168
G14.14−0.41	18:17:41.3	−16:51:15.26	0.181	G323.63−0.02	15:30:07.0	−56:22:39.98	0.162
G14.14−0.17	18:16:47.0	−16:44:08.13	0.394	G323.67−0.02	15:30:20.2	−56:21:36.19	0.150
G14.15−0.57	18:18:15.6	−16:55:09.77	0.510	G323.72−0.29	15:31:43.0	−56:32:44.30	0.264
G14.16−0.27	18:17:11.9	−16:46:10.71	0.190	G323.75−0.35	15:32:10.6	−56:35:07.60	0.170
G14.17−0.06	18:16:25.9	−16:39:55.41	0.338	G323.79−0.27	15:32:03.1	−56:29:19.40	0.234
G14.18−0.47	18:17:57.4	−16:50:58.12	0.188	G323.87−0.03	15:31:33.6	−56:14:51.10	0.164
G14.18−0.02	18:16:17.5	−16:37:59.02	0.150	G323.89−0.51	15:33:42.4	−56:37:51.45	0.279

Table A.1. continued.

IRDC name	R.A. ($^{h}:^{m}:^{s}$) (J2000)	Decl. ($^{\circ}:':''$) (J2000)	$C_{24\mu m}$	IRDC name	R.A. ($^{h}:^{m}:^{s}$) (J2000)	Decl. ($^{\circ}:':''$) (J2000)	$C_{24\mu m}$
G14.18−0.26	18:17:10.8	−16:44:52.56	0.150	G323.89−0.22	15:32:29.9	−56:23:26.42	0.160
G14.18−0.50	18:18:04.0	−16:51:39.87	0.375	G323.90+0.06	15:31:19.7	−56:09:25.77	0.185
G14.18−0.01	18:16:17.3	−16:37:48.87	0.151	G323.90+0.38	15:30:05.2	−55:53:37.36	0.167
G14.19−0.75	18:19:01.5	−16:58:06.18	0.359	G323.95−0.29	15:33:06.2	−56:24:54.69	0.172
G14.20−0.51	18:18:08.9	−16:51:01.79	0.472	G323.99+0.02	15:32:01.4	−56:08:14.81	0.252
G14.21−0.27	18:17:16.8	−16:43:43.48	0.161	G323.99+0.25	15:31:06.6	−55:57:02.31	0.154
G14.21−0.06	18:16:30.9	−16:37:26.10	0.270	G324.05+0.15	15:31:53.1	−55:59:32.12	0.173
G14.21−0.28	18:17:18.9	−16:43:35.62	0.163	G324.08+0.14	15:32:04.5	−55:59:15.30	0.195
G14.22−0.67	18:18:46.3	−16:54:35.09	0.185	G324.08+0.44	15:30:52.5	−55:44:21.99	0.193
G14.22+0.11	18:15:55.0	−16:32:20.20	0.174	G324.08−0.43	15:34:27.8	−56:26:58.36	0.174
G14.22−0.50	18:18:10.1	−16:49:40.33	0.383	G324.09+0.13	15:32:11.3	−55:59:24.44	0.153
G14.23−0.58	18:18:27.8	−16:51:32.97	0.190	G324.10+0.17	15:32:06.9	−55:57:17.62	0.160
G14.23−0.22	18:17:09.0	−16:40:56.75	0.362	G324.11−0.43	15:34:38.4	−56:25:55.59	0.227
G14.23−0.65	18:18:43.3	−16:53:01.52	0.179	G324.17−0.40	15:34:53.1	−56:22:31.22	0.151
G14.24+0.16	18:15:45.4	−16:29:49.52	0.173	G324.19+0.16	15:32:40.0	−55:54:15.12	0.174
G14.24−0.17	18:16:59.9	−16:39:16.14	0.218	G324.20+0.12	15:32:53.4	−55:56:13.59	0.766
G14.25−0.49	18:18:11.2	−16:47:33.26	0.165	G324.21+0.19	15:32:38.6	−55:52:33.74	0.204
G14.25+0.09	18:16:04.1	−16:31:04.73	0.196	G324.22+0.21	15:32:38.4	−55:50:44.30	0.180
G14.26−0.16	18:16:59.7	−16:38:01.88	0.280	G324.25+0.10	15:33:13.8	−55:55:32.50	0.151
G14.26−0.58	18:18:33.1	−16:49:40.10	0.166	G324.25+0.12	15:33:11.3	−55:54:33.70	0.189
G14.27−0.56	18:18:28.4	−16:48:51.01	0.252	G324.28−0.37	15:35:25.1	−56:17:20.24	0.151
G14.27−0.25	18:17:18.9	−16:39:49.29	0.171	G324.55−0.45	15:37:16.4	−56:11:43.20	0.156
G14.27−0.23	18:17:16.5	−16:39:23.78	0.182	G324.59−0.26	15:36:43.8	−56:01:29.12	0.172
G14.27−0.25	18:17:21.3	−16:39:44.54	0.180	G324.73+0.34	15:35:01.5	−55:27:04.97	0.155
G14.28−0.58	18:18:33.2	−16:48:45.88	0.192	G324.82−0.44	15:38:49.8	−56:01:22.17	0.151
G14.28−0.07	18:16:42.3	−16:34:21.47	0.204	G324.96+0.24	15:36:45.2	−55:23:37.90	0.168
G14.29−0.09	18:16:47.0	−16:34:07.58	0.151	G324.96+0.09	15:37:24.0	−55:30:57.89	0.158
G14.30−0.67	18:18:56.4	−16:50:32.68	0.355	G324.96+0.11	15:37:19.7	−55:30:01.29	0.192
G14.30+0.07	18:16:13.7	−16:29:18.84	0.178	G325.00+0.12	15:37:29.1	−55:28:32.57	0.169
G14.31+0.78	18:13:38.2	−16:08:35.80	0.152	G325.01−0.06	15:38:18.7	−55:36:47.59	0.150
G14.31−0.62	18:18:47.2	−16:48:22.98	0.225	G325.05+0.24	15:37:17.3	−55:20:14.53	0.153
G14.31+0.79	18:13:37.5	−16:07:57.64	0.151	G325.06−0.41	15:40:03.8	−55:51:36.33	0.163
G14.32+0.08	18:16:12.0	−16:27:57.42	0.155	G325.07−0.40	15:40:05.0	−55:50:52.46	0.159
G14.32−0.17	18:17:07.1	−16:35:03.96	0.226	G325.13−0.04	15:38:53.3	−55:31:33.12	0.224
G14.32−0.06	18:16:43.3	−16:31:55.88	0.185	G325.15+0.22	15:37:54.8	−55:18:02.19	0.211
G14.32−0.09	18:16:51.3	−16:32:43.17	0.190	G325.21−0.10	15:39:35.3	−55:31:32.98	0.164
G14.32−0.10	18:16:53.7	−16:33:00.16	0.153	G325.21−0.26	15:40:17.3	−55:38:56.40	0.169
G14.32−0.50	18:18:21.7	−16:44:07.28	0.472	G325.23+0.01	15:39:15.7	−55:25:28.55	0.162
G14.33−0.53	18:18:29.0	−16:44:58.63	0.410	G325.24−0.01	15:39:23.0	−55:26:12.00	0.184
G14.33−0.60	18:18:44.9	−16:47:01.66	0.229	G325.24+0.02	15:39:17.4	−55:24:46.43	0.161
G14.33−0.20	18:17:15.2	−16:35:12.59	0.187	G325.24+0.10	15:38:57.8	−55:20:26.95	0.192
G14.33−0.56	18:18:37.2	−16:45:23.36	0.178	G325.27+0.08	15:39:10.0	−55:20:24.88	0.187
G14.34−0.52	18:18:28.3	−16:43:44.37	0.189	G325.30−0.16	15:40:21.6	−55:31:09.56	0.153
G14.35−0.68	18:19:03.3	−16:47:56.19	0.211	G325.31−0.24	15:40:44.7	−55:34:28.88	0.185
G14.35−0.24	18:17:26.3	−16:35:22.29	0.162	G325.31−0.26	15:40:50.2	−55:35:16.75	0.162
G14.35−0.75	18:19:20.8	−16:49:55.63	0.207	G325.35−0.12	15:40:30.2	−55:27:28.83	0.196
G14.35−0.20	18:17:19.7	−16:34:11.10	0.197	G325.36−0.15	15:40:39.6	−55:28:09.12	0.176
G14.36−0.22	18:17:24.3	−16:34:02.59	0.176	G325.37+0.51	15:37:57.9	−54:56:27.34	0.164

Table A.1. continued.

IRDC name	R.A. ($^{h}:^{m}:^{s}$) (J2000)	Decl. ($^{\circ}:':''$) (J2000)	$C_{24\mu m}$	IRDC name	R.A. ($^{h}:^{m}:^{s}$) (J2000)	Decl. ($^{\circ}:':''$) (J2000)	$C_{24\mu m}$
G14.37−0.60	18:18:49.6	−16:44:43.78	0.212	G325.43+0.24	15:39:23.8	−55:06:58.00	0.163
G14.37−0.44	18:18:14.7	−16:40:03.44	0.156	G325.43+0.27	15:39:18.2	−55:05:42.54	0.153
G14.38+0.19	18:15:55.7	−16:21:39.02	0.152	G325.49+0.42	15:39:01.6	−54:56:16.09	0.246
G14.38−0.73	18:19:20.1	−16:47:37.17	0.330	G325.51+0.43	15:39:05.0	−54:54:50.82	0.162
G14.38−0.46	18:18:19.2	−16:39:41.64	0.209	G325.54+0.45	15:39:09.4	−54:53:18.79	0.177
G14.39−0.13	18:17:07.3	−16:30:18.30	0.264	G325.66+0.33	15:40:21.6	−54:54:38.82	0.166
G14.39−0.68	18:19:09.1	−16:45:56.73	0.220	G325.68+0.36	15:40:19.0	−54:52:22.17	0.167
G14.39+0.19	18:15:57.2	−16:21:02.75	0.154	G325.68−0.68	15:44:43.9	−55:41:59.24	0.163
G14.39−0.15	18:17:13.2	−16:30:37.04	0.188	G325.70+0.51	15:39:49.4	−54:44:39.58	0.173
G14.40−0.60	18:18:52.7	−16:43:02.38	0.350	G325.71+0.34	15:40:34.7	−54:52:32.08	0.180
G14.40+0.04	18:16:31.9	−16:24:35.68	0.163	G325.76−0.57	15:44:43.0	−55:34:09.13	0.213
G14.41−0.75	18:19:26.5	−16:46:44.27	0.153	G325.76+0.43	15:40:28.0	−54:46:05.91	0.150
G14.41+0.01	18:16:40.5	−16:24:57.88	0.221	G325.77−0.72	15:45:25.5	−55:40:31.06	0.151
G14.42−0.58	18:18:49.7	−16:41:24.20	0.191	G325.80−0.22	15:43:25.7	−55:15:47.05	0.309
G14.42−0.13	18:17:12.1	−16:28:47.98	0.227	G325.81−0.61	15:45:10.6	−55:33:53.86	0.172
G14.42−0.15	18:17:15.0	−16:29:08.12	0.156	G325.84−0.64	15:45:28.6	−55:34:37.83	0.205
G14.43−0.17	18:17:22.0	−16:29:01.10	0.306	G325.84−0.23	15:43:40.6	−55:14:39.13	0.170
G14.43−0.00	18:16:45.4	−16:24:10.15	0.174	G325.86−0.65	15:45:35.6	−55:33:52.88	0.151
G14.44+0.01	18:16:42.3	−16:23:42.94	0.151	G325.88−0.13	15:43:30.5	−55:08:52.27	0.170
G14.46−0.10	18:17:09.5	−16:25:41.01	0.152	G325.88−0.63	15:45:37.2	−55:32:10.47	0.167
G14.46−0.72	18:19:25.5	−16:43:12.49	0.157	G325.89−0.15	15:43:37.9	−55:09:31.23	0.151
G14.46+0.02	18:16:42.1	−16:22:00.40	0.190	G325.90−0.41	15:44:48.5	−55:21:26.81	0.155
G14.46−0.19	18:17:30.0	−16:28:09.74	0.201	G325.91−0.70	15:46:05.7	−55:34:40.95	0.154
G14.47+0.01	18:16:47.0	−16:22:15.63	0.276	G325.91−0.62	15:45:46.1	−55:30:54.73	0.161
G14.47−0.03	18:16:54.4	−16:23:12.19	0.255	G325.91−0.42	15:44:54.8	−55:21:22.58	0.175
G14.47−0.25	18:17:42.3	−16:29:22.40	0.171	G325.91−0.00	15:43:08.7	−55:01:09.39	0.156
G14.47−0.18	18:17:27.5	−16:27:09.58	0.154	G325.93−0.42	15:45:03.2	−55:20:36.05	0.153
G14.47+0.02	18:16:44.0	−16:21:14.41	0.154	G325.94−0.18	15:44:01.7	−55:09:03.71	0.158
G14.48−0.07	18:17:06.2	−16:23:41.84	0.524	G325.94−0.60	15:45:49.3	−55:28:42.10	0.165
G14.48−0.27	18:17:49.2	−16:29:04.83	0.164	G325.94+0.07	15:42:59.4	−54:56:55.24	0.261
G14.49−0.19	18:17:32.6	−16:26:47.44	0.199	G325.94−0.15	15:43:57.0	−55:07:25.88	0.155
G14.49−0.14	18:17:22.7	−16:24:55.34	0.445	G325.94−0.19	15:44:05.7	−55:08:53.19	0.156
G14.50−0.04	18:17:00.2	−16:21:56.29	0.178	G325.95−0.44	15:45:10.9	−55:20:45.60	0.160
G14.52−0.59	18:19:05.2	−16:36:33.19	0.155	G325.95−0.62	15:45:58.4	−55:29:24.71	0.252
G14.52+0.07	18:16:39.2	−16:17:15.05	0.152	G325.96−0.41	15:45:07.6	−55:18:58.13	0.210
G14.52+0.06	18:16:42.7	−16:17:41.15	0.177	G325.98−0.56	15:45:53.5	−55:25:13.76	0.173
G14.53+0.78	18:14:03.8	−15:56:56.36	0.164	G325.98−0.28	15:44:42.2	−55:11:55.74	0.152
G14.53−0.60	18:19:08.6	−16:35:55.75	0.192	G325.99−0.19	15:44:20.7	−55:07:25.81	0.155
G14.54−0.77	18:19:46.2	−16:40:31.06	0.309	G325.99+0.11	15:43:07.7	−54:53:17.54	0.181
G14.54+0.18	18:16:17.3	−16:13:27.03	0.158	G325.99−0.58	15:46:03.6	−55:25:40.69	0.155
G14.57−0.60	18:19:14.1	−16:34:02.52	0.223	G326.00−0.59	15:46:07.4	−55:26:04.99	0.175
G14.57−0.03	18:17:06.9	−16:17:23.16	0.155	G326.00−0.28	15:44:49.0	−55:11:36.44	0.189
G14.58−0.01	18:17:04.7	−16:16:51.14	0.238	G326.00+0.21	15:42:44.8	−54:48:06.28	0.155
G14.59−0.04	18:17:12.4	−16:16:46.80	0.176	G326.00−0.70	15:46:37.5	−55:31:05.72	0.151
G14.60+0.07	18:16:48.2	−16:13:28.13	0.165	G326.01+0.21	15:42:44.8	−54:47:40.02	0.152
G14.60+0.25	18:16:08.2	−16:08:16.98	0.209	G326.01−0.34	15:45:06.6	−55:13:41.81	0.160
G14.60−0.07	18:17:19.3	−16:16:56.73	0.194	G326.01−0.29	15:44:56.5	−55:11:33.99	0.160
G14.61−0.14	18:17:36.1	−16:18:54.82	0.233	G326.03−0.37	15:45:22.0	−55:14:19.10	0.198

Table A.1. continued.

IRDC name	R.A. ($^{h}:^{m}:^{s}$) (J2000)	Decl. ($^{\circ}:':''$) (J2000)	$C_{24\mu m}$	IRDC name	R.A. ($^{h}:^{m}:^{s}$) (J2000)	Decl. ($^{\circ}:':''$) (J2000)	$C_{24\mu m}$
G14.61−0.56	18:19:08.4	−16:30:24.61	0.380	G326.04−0.45	15:45:45.2	−55:18:14.81	0.212
G14.61+0.04	18:16:57.8	−16:13:30.88	0.190	G326.07−0.57	15:46:25.3	−55:22:41.41	0.184
G14.63−0.13	18:17:37.0	−16:17:42.54	0.199	G326.07−0.65	15:46:47.7	−55:25:58.40	0.154
G14.63−0.12	18:17:34.5	−16:17:14.75	0.188	G326.07−0.18	15:44:47.0	−55:03:44.15	0.174
G14.64+0.55	18:15:07.6	−15:57:17.75	0.159	G326.08−0.25	15:45:06.7	−55:07:13.52	0.153
G14.65−0.13	18:17:38.5	−16:16:21.73	0.155	G326.08−0.59	15:46:33.5	−55:23:03.51	0.172
G14.66−0.27	18:18:10.8	−16:20:02.07	0.164	G326.08−0.36	15:45:36.7	−55:12:17.34	0.381
G14.66−0.12	18:17:36.7	−16:15:38.10	0.332	G326.08+0.78	15:40:50.5	−54:17:52.68	0.176
G14.66−0.56	18:19:14.3	−16:27:47.12	0.162	G326.09+0.69	15:41:12.0	−54:21:52.71	0.160
G14.66+0.40	18:15:43.4	−16:00:26.38	0.154	G326.09−0.20	15:44:55.8	−55:04:06.94	0.162
G14.68−0.89	18:20:28.7	−16:36:29.11	0.204	G326.09+0.80	15:40:44.8	−54:16:22.65	0.211
G14.68+0.39	18:15:48.5	−16:00:01.90	0.155	G326.09+0.64	15:41:26.7	−54:24:27.48	0.154
G14.68−0.07	18:17:29.8	−16:13:10.18	0.174	G326.09+0.71	15:41:08.8	−54:20:44.06	0.195
G14.68+0.58	18:15:06.9	−15:54:31.52	0.188	G326.09+0.19	15:43:20.4	−54:45:50.36	0.205
G14.68−0.42	18:18:45.9	−16:22:42.65	0.185	G326.10−0.23	15:45:06.8	−55:05:15.88	0.261
G14.68−0.05	18:17:24.5	−16:12:10.34	0.183	G326.11+0.70	15:41:16.4	−54:20:37.44	0.161
G14.69+0.00	18:17:13.7	−16:10:41.76	0.206	G326.11+0.22	15:43:16.1	−54:43:24.99	0.175
G14.69−0.22	18:18:03.7	−16:17:07.90	0.174	G326.11−0.38	15:45:51.8	−55:12:06.94	0.184
G14.70+0.10	18:16:54.2	−16:07:31.77	0.183	G326.12−0.28	15:45:27.7	−55:07:16.78	0.155
G14.70−0.59	18:19:25.9	−16:27:03.21	0.168	G326.12+0.63	15:41:37.5	−54:23:36.49	0.156
G14.70−0.15	18:17:49.2	−16:14:26.23	0.247	G326.12+0.67	15:41:29.2	−54:21:53.31	0.203
G14.70+0.17	18:16:39.6	−16:05:16.88	0.177	G326.12−0.70	15:47:18.4	−55:26:45.83	0.179
G14.71−0.16	18:17:52.7	−16:13:51.88	0.162	G326.13+0.89	15:40:35.0	−54:10:43.93	0.223
G14.72−0.19	18:17:59.6	−16:14:26.13	0.178	G326.13−0.24	15:45:19.4	−55:04:40.44	0.173
G14.72−0.21	18:18:05.7	−16:14:54.61	0.150	G326.13−0.43	15:46:09.5	−55:13:36.98	0.319
G14.72−0.20	18:18:04.1	−16:14:33.74	0.162	G326.13−0.51	15:46:30.0	−55:17:15.11	0.155
G14.73−0.90	18:20:37.6	−16:33:38.27	0.169	G326.13−0.72	15:47:25.3	−55:27:05.37	0.197
G14.74−0.36	18:18:38.6	−16:18:15.48	0.163	G326.13−0.47	15:46:22.9	−55:15:36.72	0.321
G14.78−0.65	18:19:47.3	−16:24:26.02	0.193	G326.14−0.61	15:46:57.7	−55:21:48.45	0.167
G14.78−0.46	18:19:06.9	−16:18:44.56	0.215	G326.14−0.45	15:46:16.8	−55:14:15.35	0.176
G14.78−0.48	18:19:11.5	−16:19:19.09	0.191	G326.14−0.40	15:46:07.0	−55:12:00.53	0.177
G14.80−0.17	18:18:04.7	−16:09:48.82	0.164	G326.15−0.62	15:47:05.6	−55:21:47.03	0.160
G14.80+0.66	18:15:03.5	−15:46:16.61	0.151	G326.15+0.75	15:41:18.2	−54:16:35.03	0.318
G14.80−0.67	18:19:54.5	−16:23:44.21	0.167	G326.16+0.65	15:41:45.3	−54:21:16.14	0.155
G14.80−0.19	18:18:09.4	−16:10:08.17	0.157	G326.16+0.69	15:41:35.6	−54:19:21.08	0.180
G14.80+0.27	18:16:29.3	−15:57:01.32	0.150	G326.16−0.62	15:47:09.6	−55:21:29.92	0.159
G14.81−0.47	18:19:12.8	−16:17:34.10	0.164	G326.16+0.68	15:41:40.7	−54:19:44.72	0.150
G14.82+0.08	18:17:12.8	−16:01:09.95	0.164	G326.16+0.59	15:42:03.7	−54:24:11.10	0.167
G14.82−0.37	18:18:51.9	−16:13:56.34	0.219	G326.16−0.61	15:47:07.9	−55:20:53.40	0.158
G14.83−0.89	18:20:47.3	−16:28:25.48	0.185	G326.16−0.52	15:46:44.3	−55:16:31.63	0.364
G14.83−0.46	18:19:12.6	−16:16:04.78	0.161	G326.17−0.66	15:47:22.7	−55:23:24.80	0.170
G14.84−0.53	18:19:28.3	−16:17:36.90	0.154	G326.18−0.64	15:47:21.9	−55:22:03.57	0.206
G14.84−0.53	18:19:29.0	−16:17:33.81	0.151	G326.18−0.70	15:47:38.8	−55:24:46.31	0.215
G14.84−0.45	18:19:13.0	−16:15:19.70	0.157	G326.19−0.53	15:46:53.8	−55:16:11.70	0.151
G14.85−0.54	18:19:31.4	−16:17:30.07	0.167	G326.19+0.58	15:42:12.4	−54:23:32.86	0.184
G14.85−0.01	18:17:36.2	−16:02:34.59	0.184	G326.19−0.69	15:47:36.2	−55:23:46.44	0.157
G14.85−0.65	18:19:57.5	−16:20:45.52	0.173	G326.19−0.38	15:46:16.4	−55:09:04.93	0.169
G14.86−0.65	18:19:57.5	−16:19:59.07	0.173	G326.19−0.17	15:45:22.4	−54:58:54.71	0.172

Table A.1. continued.

IRDC name	R.A. ($^h:^m:^s$) (J2000)	Decl. ($^\circ:':''$) (J2000)	$C_{24\mu m}$	IRDC name	R.A. ($^h:^m:^s$) (J2000)	Decl. ($^\circ:':''$) (J2000)	$C_{24\mu m}$
G14.88−0.76	18:20:25.2	−16:22:06.76	0.185	G326.19−0.40	15:46:22.6	−55:09:58.15	0.216
G14.89−0.64	18:19:59.2	−16:18:19.90	0.251	G326.19−0.55	15:47:00.7	−55:16:52.69	0.182
G14.89−0.55	18:19:39.3	−16:15:45.92	0.202	G326.19−0.42	15:46:29.0	−55:11:04.10	0.258
G14.89−0.75	18:20:23.1	−16:21:23.53	0.151	G326.19−0.46	15:46:40.3	−55:13:00.20	0.170
G14.89−0.17	18:18:15.2	−16:04:47.57	0.331	G326.20+0.61	15:42:07.6	−54:21:37.98	0.153
G14.89+0.58	18:15:31.2	−15:43:15.80	0.155	G326.20+0.92	15:40:50.7	−54:06:41.09	0.177
G15.03−0.50	18:19:46.1	−16:06:35.69	0.261	G326.20−0.62	15:47:22.4	−55:20:14.48	0.169
G15.04+0.89	18:14:40.6	−15:26:48.58	0.174	G326.20+0.85	15:41:10.5	−54:10:12.48	0.202
G15.04+0.05	18:17:44.3	−15:50:37.88	0.153	G326.20−0.06	15:44:59.0	−54:53:39.42	0.150
G15.04+0.89	18:14:41.9	−15:26:27.00	0.150	G326.20−0.30	15:46:00.6	−55:04:47.21	0.190
G15.05+0.08	18:17:41.3	−15:49:16.82	0.333	G326.21−0.48	15:46:47.7	−55:12:57.78	0.166
G15.06+0.50	18:16:07.8	−15:36:48.83	0.150	G326.21−0.31	15:46:04.7	−55:05:00.33	0.153
G15.07+0.03	18:17:52.4	−15:49:40.32	0.214	G326.21−0.12	15:45:17.9	−54:56:13.82	0.230
G15.07−0.25	18:18:55.0	−15:57:34.10	0.185	G326.21−0.31	15:46:06.0	−55:05:01.62	0.151
G15.08−0.55	18:20:01.6	−16:05:31.06	0.158	G326.21−0.38	15:46:26.4	−55:08:22.36	0.153
G15.10−0.37	18:19:23.8	−15:59:28.87	0.217	G326.22−0.26	15:45:56.7	−55:02:38.40	0.208
G15.11−0.46	18:19:45.2	−16:01:37.95	0.155	G326.23+0.00	15:44:52.6	−54:49:25.38	0.160
G15.11+0.09	18:17:45.2	−15:45:55.46	0.210	G326.23+0.91	15:41:05.6	−54:06:04.70	0.151
G15.15−0.55	18:20:09.9	−16:02:08.52	0.399	G326.24−0.43	15:46:45.0	−55:09:41.47	0.269
G15.18+0.82	18:15:12.8	−15:21:04.83	0.159	G326.24−0.32	15:46:17.8	−55:04:39.25	0.379
G15.20−0.54	18:20:13.4	−15:59:00.84	0.176	G326.24+0.77	15:41:43.8	−54:12:18.34	0.282
G15.20−0.52	18:20:10.8	−15:58:18.83	0.173	G326.24+0.89	15:41:14.6	−54:06:36.05	0.206
G15.21−0.01	18:18:19.8	−15:43:27.03	0.154	G326.25−0.66	15:47:50.0	−55:20:04.25	0.170
G15.22−0.42	18:19:49.9	−15:54:35.44	0.158	G326.25+0.70	15:42:04.9	−54:15:38.49	0.210
G15.23−0.41	18:19:48.8	−15:53:28.68	0.204	G326.25−0.15	15:45:37.6	−54:55:45.24	0.180
G15.25−0.44	18:19:59.4	−15:53:21.81	0.171	G326.25−0.16	15:45:42.0	−54:56:18.10	0.167
G15.26−0.12	18:18:49.6	−15:43:42.58	0.327	G326.26−0.42	15:46:50.1	−55:08:29.38	0.187
G15.28+0.17	18:17:47.7	−15:34:19.48	0.168	G326.27+0.90	15:41:18.5	−54:05:07.28	0.193
G15.29−0.48	18:20:10.9	−15:52:42.70	0.184	G326.27−0.54	15:47:26.5	−55:13:56.52	0.210
G15.30−0.55	18:20:28.1	−15:54:14.30	0.248	G326.27−0.58	15:47:35.6	−55:15:13.26	0.157
G15.30+0.17	18:17:48.8	−15:33:36.39	0.151	G326.27−0.51	15:47:18.4	−55:12:02.56	0.161
G15.30−0.46	18:20:08.7	−15:51:18.26	0.210	G326.28+0.92	15:41:17.6	−54:04:03.17	0.165
G15.31−0.31	18:19:35.5	−15:46:37.05	0.194	G326.28+0.62	15:42:32.7	−54:18:03.26	0.492
G15.33−0.16	18:19:05.2	−15:41:05.60	0.202	G326.28−0.60	15:47:44.3	−55:16:03.47	0.184
G15.34−0.44	18:20:07.6	−15:48:38.43	0.157	G326.28+0.76	15:41:59.2	−54:11:12.02	0.160
G15.35−0.48	18:20:19.4	−15:49:22.71	0.163	G326.29−0.49	15:47:20.7	−55:10:42.40	0.165
G15.37+0.89	18:15:20.0	−15:08:58.56	0.163	G326.30+0.61	15:42:43.8	−54:18:06.48	0.225
G15.40−0.34	18:19:53.4	−15:42:42.15	0.155	G326.30−0.65	15:48:04.7	−55:17:42.66	0.153
G15.40+0.19	18:17:58.3	−15:27:28.46	0.168	G326.30−0.31	15:46:37.4	−55:01:45.69	0.384
G15.42−0.36	18:20:01.5	−15:42:15.23	0.156	G326.30+0.84	15:41:46.9	−54:06:50.59	0.151
G15.53−0.92	18:22:16.7	−15:52:16.13	0.150	G326.31+0.45	15:43:23.5	−54:25:16.76	0.154
G15.55−0.42	18:20:29.0	−15:37:15.40	0.305	G326.31−0.06	15:45:34.9	−54:49:51.15	0.226
G15.56+0.39	18:17:31.9	−15:13:33.31	0.150	G326.31+0.58	15:42:53.0	−54:19:04.72	0.244
G15.56+0.41	18:17:28.0	−15:12:54.28	0.172	G326.32−0.64	15:48:07.2	−55:16:46.76	0.188
G15.58+0.57	18:16:55.0	−15:07:20.27	0.159	G326.32+0.08	15:45:02.5	−54:42:52.15	0.165
G15.59−0.53	18:20:58.5	−15:37:50.56	0.207	G326.32+0.87	15:41:44.4	−54:04:47.40	0.197
G15.61−0.28	18:20:05.4	−15:29:53.06	0.157	G326.32+0.06	15:45:08.5	−54:43:35.16	0.153
G15.62−0.54	18:21:03.7	−15:36:40.66	0.155	G326.32−0.06	15:45:40.2	−54:49:07.93	0.212

Table A.1. continued.

IRDC name	R.A. ($^{h}:^{m}:^{s}$) (J2000)	Decl. ($^{\circ}:':''$) (J2000)	$C_{24\mu m}$	IRDC name	R.A. ($^{h}:^{m}:^{s}$) (J2000)	Decl. ($^{\circ}:':''$) (J2000)	$C_{24\mu m}$
G15.63−0.28	18:20:08.7	−15:28:44.45	0.187	G326.33−0.42	15:47:13.6	−55:06:01.87	0.165
G15.64−0.38	18:20:31.1	−15:31:11.38	0.229	G326.33+0.45	15:43:32.4	−54:24:42.84	0.222
G15.64−0.86	18:22:15.2	−15:44:31.50	0.151	G326.33−0.69	15:48:23.9	−55:18:25.90	0.267
G15.66−0.67	18:21:35.8	−15:38:20.43	0.153	G326.33+0.82	15:42:00.3	−54:06:43.74	0.482
G15.66−0.21	18:19:55.6	−15:25:21.88	0.153	G326.33+0.56	15:43:05.8	−54:19:17.02	0.285
G15.66−0.21	18:19:55.3	−15:24:58.26	0.158	G326.33+0.93	15:41:33.7	−54:01:15.66	0.169
G15.67−0.71	18:21:46.3	−15:39:01.57	0.153	G326.34−0.16	15:46:09.6	−54:53:07.10	0.304
G15.70+0.96	18:15:45.2	−14:49:58.56	0.181	G326.34−0.19	15:46:19.5	−54:54:42.88	0.154
G15.72−0.57	18:21:22.5	−15:32:22.64	0.333	G326.35+0.45	15:43:36.3	−54:23:44.77	0.150
G15.74−0.23	18:20:08.9	−15:21:15.56	0.156	G326.35−0.64	15:48:16.6	−55:15:20.36	0.199
G15.75−0.66	18:21:44.4	−15:33:20.33	0.153	G326.35+0.46	15:43:37.5	−54:23:27.40	0.160
G15.77−0.26	18:20:19.1	−15:21:04.61	0.809	G326.35+0.44	15:43:41.8	−54:23:55.47	0.179
G15.77−0.35	18:20:38.6	−15:23:15.26	0.180	G326.36−0.53	15:47:52.2	−55:10:00.75	0.192
G15.77−0.48	18:21:07.3	−15:26:48.85	0.169	G326.37−0.51	15:47:51.1	−55:08:20.59	0.245
G15.79−0.41	18:20:54.7	−15:24:03.43	0.257	G326.38−0.40	15:47:23.9	−55:02:51.36	0.197
G15.80−0.55	18:21:27.5	−15:27:15.35	0.167	G326.38+0.92	15:41:54.0	−54:00:23.68	0.234
G15.81−0.42	18:20:59.5	−15:23:17.75	0.164	G326.38+0.36	15:44:12.8	−54:26:58.68	0.210
G15.82−0.56	18:21:30.2	−15:26:54.06	0.169	G326.38−0.21	15:46:37.1	−54:53:51.43	0.304
G15.82+0.56	18:17:25.9	−14:54:46.67	0.166	G326.39+0.04	15:45:35.1	−54:41:57.75	0.156
G15.89−0.12	18:20:03.9	−15:10:34.39	0.166	G326.39+0.03	15:45:38.6	−54:42:19.39	0.205
G15.89−0.80	18:22:33.2	−15:29:38.35	0.155	G326.39−0.56	15:48:09.9	−55:10:00.81	0.367
G15.90+0.35	18:18:21.1	−14:56:38.28	0.164	G326.40+0.33	15:44:23.5	−54:27:51.60	0.156
G15.91+0.02	18:19:33.8	−15:05:43.13	0.171	G326.40−0.33	15:47:12.6	−54:59:15.77	0.226
G15.91−0.14	18:20:09.1	−15:10:16.43	0.267	G326.40+0.37	15:44:15.2	−54:26:05.12	0.196
G15.92−0.59	18:21:50.2	−15:22:06.25	0.195	G326.40+0.05	15:45:36.4	−54:41:09.32	0.155
G15.94−0.57	18:21:47.6	−15:20:25.98	0.205	G326.40−0.65	15:48:36.4	−55:14:03.30	0.158
G15.96−0.56	18:21:46.2	−15:19:25.61	0.162	G326.40+0.72	15:42:49.4	−54:09:19.53	0.288
G15.97−0.36	18:21:05.3	−15:13:27.15	0.192	G326.40+0.93	15:41:56.2	−53:59:00.19	0.478
G16.04+0.60	18:17:42.1	−14:42:22.07	0.153	G326.40+0.41	15:44:06.2	−54:23:52.58	0.150
G16.11−0.70	18:22:36.6	−15:15:02.84	0.179	G326.40−0.02	15:45:55.1	−54:44:12.03	0.174
G16.14−0.85	18:23:11.7	−15:17:56.42	0.168	G326.41−0.11	15:46:18.1	−54:48:16.75	0.163
G16.15+0.39	18:18:40.5	−14:42:15.09	0.169	G326.41−0.35	15:47:19.6	−54:59:32.95	0.162
G16.16+0.52	18:18:14.4	−14:37:51.04	0.162	G326.41−0.67	15:48:44.8	−55:14:47.99	0.156
G16.21+0.71	18:17:40.1	−14:30:00.48	0.170	G326.42+0.04	15:45:43.9	−54:40:46.64	0.182
G16.23+0.41	18:18:46.7	−14:37:28.96	0.168	G326.42−0.45	15:47:50.6	−55:03:52.41	0.172
G16.26+0.37	18:18:58.9	−14:36:54.77	0.166	G326.42+0.54	15:43:39.2	−54:17:03.13	0.174
G16.26+0.85	18:17:14.2	−14:23:14.23	0.164	G326.42+0.39	15:44:16.3	−54:24:01.78	0.250
G16.30−0.07	18:20:40.4	−14:47:15.67	0.316	G326.42−0.10	15:46:22.1	−54:47:25.31	0.182
G16.33−0.21	18:21:14.0	−14:50:04.72	0.231	G326.42+0.60	15:43:25.9	−54:14:16.87	0.339
G16.33−0.48	18:22:13.8	−14:57:40.62	0.150	G326.42+0.49	15:43:52.3	−54:19:09.79	0.351
G16.34−0.14	18:21:00.9	−14:47:17.55	0.153	G326.43+0.63	15:43:18.2	−54:12:24.00	0.169
G16.35+0.92	18:17:09.5	−14:16:46.26	0.212	G326.43−0.66	15:48:48.9	−55:13:26.98	0.209
G16.36−0.13	18:20:59.7	−14:45:44.42	0.221	G326.43+0.85	15:42:26.0	−54:01:49.79	0.352
G16.37−0.08	18:20:49.9	−14:44:17.23	0.185	G326.44+0.81	15:42:36.2	−54:03:16.90	0.201
G16.39−0.21	18:21:20.6	−14:46:46.69	0.222	G326.44+0.45	15:44:07.9	−54:20:41.91	0.150
G16.40−0.12	18:21:02.8	−14:43:53.83	0.183	G326.44+0.72	15:43:01.6	−54:07:32.06	0.181
G16.42−0.63	18:22:57.5	−14:56:51.45	0.164	G326.44−0.47	15:48:04.7	−55:03:56.32	0.225
G16.43−0.64	18:23:00.0	−14:56:32.93	0.156	G326.45+0.07	15:45:45.9	−54:38:14.42	0.177

Table A.1. continued.

IRDC name	R.A. ($^{h}:^{m}:^{s}$) (J2000)	Decl. ($^{\circ}:':''$) (J2000)	$C_{24\mu m}$	IRDC name	R.A. ($^{h}:^{m}:^{s}$) (J2000)	Decl. ($^{\circ}:':''$) (J2000)	$C_{24\mu m}$
G16.44−0.38	18:22:04.0	−14:48:39.56	0.208	G326.45−0.43	15:47:55.2	−55:01:55.44	0.228
G16.48−0.37	18:22:06.4	−14:46:40.31	0.150	G326.45+0.80	15:42:45.1	−54:03:43.31	0.176
G16.48+0.17	18:20:07.6	−14:31:05.25	0.163	G326.45+0.50	15:43:59.2	−54:17:52.61	0.188
G16.48−0.20	18:21:29.3	−14:41:36.11	0.164	G326.45−0.20	15:46:56.0	−54:50:54.72	0.175
G16.51−0.18	18:21:29.0	−14:39:26.87	0.150	G326.45+0.71	15:43:08.1	−54:07:52.72	0.167
G16.52+0.85	18:17:43.8	−14:09:56.71	0.152	G326.45+0.76	15:42:54.0	−54:05:07.19	0.172
G16.53+0.62	18:18:35.0	−14:15:50.16	0.215	G326.46−0.31	15:47:26.3	−54:55:42.01	0.155
G16.53+0.83	18:17:49.0	−14:09:48.60	0.201	G326.46−0.10	15:46:34.0	−54:45:53.64	0.237
G16.53−0.40	18:22:19.7	−14:44:29.33	0.165	G326.46+0.10	15:45:42.3	−54:36:16.47	0.152
G16.54−0.15	18:21:25.5	−14:37:10.66	0.157	G326.46−0.64	15:48:53.6	−55:11:06.06	0.164
G16.56−0.09	18:21:13.8	−14:34:12.39	0.203	G326.46+0.80	15:42:49.4	−54:03:12.02	0.152
G16.56+0.95	18:17:27.8	−14:04:42.65	0.158	G326.46+0.81	15:42:45.5	−54:02:27.25	0.153
G16.57−0.18	18:21:34.6	−14:36:17.96	0.171	G326.46+0.54	15:43:53.5	−54:15:25.27	0.287
G16.57+0.95	18:17:27.6	−14:04:10.95	0.155	G326.47+0.71	15:43:13.1	−54:06:52.17	0.191
G16.57−0.15	18:21:29.5	−14:35:15.40	0.151	G326.47−0.08	15:46:32.9	−54:44:27.49	0.151
G16.60+0.67	18:18:32.0	−14:10:45.72	0.182	G326.47−0.46	15:48:11.9	−55:02:22.08	0.233
G16.60+0.90	18:17:44.7	−14:03:57.06	0.162	G326.48−0.72	15:49:19.9	−55:14:20.05	0.189
G16.61+0.91	18:17:42.0	−14:03:02.81	0.166	G326.48+0.43	15:44:26.0	−54:20:14.54	0.150
G16.62−0.18	18:21:40.6	−14:33:47.96	0.179	G326.48+0.74	15:43:08.2	−54:05:18.62	0.396
G16.62+0.77	18:18:14.0	−14:06:56.79	0.161	G326.48+0.80	15:42:53.0	−54:02:15.17	0.194
G16.63−0.21	18:21:48.6	−14:34:10.51	0.161	G326.48+0.44	15:44:24.6	−54:19:46.19	0.153
G16.63−0.06	18:21:17.4	−14:29:40.11	0.226	G326.48+0.87	15:42:38.1	−53:59:10.58	0.419
G16.64+0.74	18:18:23.9	−14:06:22.65	0.152	G326.48−0.09	15:46:40.1	−54:44:48.99	0.223
G16.65+0.73	18:18:24.6	−14:06:19.62	0.151	G326.48+0.78	15:43:00.4	−54:03:07.29	0.162
G16.65+0.92	18:17:44.9	−14:00:50.78	0.192	G326.49+0.68	15:43:25.5	−54:07:56.73	0.234
G16.66+0.07	18:20:52.5	−14:24:26.47	0.169	G326.49+0.58	15:43:51.2	−54:12:47.92	0.169
G16.66−0.24	18:22:00.4	−14:33:07.74	0.807	G326.57−0.12	15:47:16.0	−54:42:59.33	0.178
G16.67+0.47	18:19:24.3	−14:12:49.13	0.162	G326.57+0.44	15:44:53.8	−54:16:28.10	0.173
G16.68−0.34	18:22:23.0	−14:35:08.49	0.164	G326.57+0.47	15:44:46.4	−54:14:50.67	0.322
G16.68+0.91	18:17:50.6	−13:59:45.63	0.173	G326.58−0.03	15:46:54.5	−54:38:25.74	0.162
G16.68−0.07	18:21:24.2	−14:27:25.08	0.198	G326.58−0.18	15:47:35.6	−54:45:19.45	0.186
G16.69+0.86	18:18:03.1	−14:00:35.17	0.165	G326.58+0.23	15:45:50.4	−54:25:45.77	0.150
G16.69+0.90	18:17:54.1	−13:59:20.86	0.168	G326.58+0.13	15:46:17.2	−54:30:39.41	0.162
G16.69+0.47	18:19:28.2	−14:11:26.27	0.159	G326.59+0.63	15:44:10.5	−54:06:32.38	0.219
G16.71+0.90	18:17:56.4	−13:58:31.99	0.170	G326.59+0.04	15:46:40.5	−54:34:28.97	0.165
G16.72+0.94	18:17:48.4	−13:56:15.88	0.271	G326.59−0.10	15:47:16.3	−54:41:02.33	0.159
G16.73+0.47	18:19:32.0	−14:09:37.41	0.156	G326.59−0.11	15:47:19.9	−54:41:13.03	0.164
G16.73+0.58	18:19:08.9	−14:06:06.50	0.163	G326.60+0.84	15:43:22.4	−53:56:14.36	0.208
G16.74+0.79	18:18:22.8	−13:59:34.29	0.232	G326.61−0.36	15:48:28.7	−54:52:40.23	0.241
G16.75−0.24	18:22:09.9	−14:28:43.20	0.194	G326.61−0.65	15:49:43.8	−55:06:11.71	0.280
G16.75−0.29	18:22:19.6	−14:29:53.60	0.156	G326.62+0.66	15:44:12.9	−54:03:51.36	0.250
G16.77−0.36	18:22:37.7	−14:30:52.38	0.160	G326.62+0.45	15:45:08.0	−54:14:06.78	0.177
G16.77−0.17	18:21:56.9	−14:25:34.53	0.158	G326.62−0.15	15:47:39.0	−54:42:01.10	0.155
G16.77+0.90	18:18:03.5	−13:55:07.79	0.369	G326.63+0.79	15:43:44.1	−53:57:36.63	0.358
G16.79−0.36	18:22:39.4	−14:29:47.61	0.172	G326.63−0.58	15:49:32.5	−55:02:01.02	0.382
G16.79+0.95	18:17:54.3	−13:52:28.28	0.283	G326.63−0.42	15:48:51.0	−54:54:31.72	0.153
G16.80+0.53	18:19:26.5	−14:04:04.65	0.156	G326.63−0.68	15:50:01.5	−55:07:01.77	0.250
G16.80+0.73	18:18:42.7	−13:58:19.13	0.153	G326.63+0.84	15:43:32.2	−53:54:50.87	0.198

Table A.1. continued.

IRDC name	R.A. ($^{h}:^{m}:^{s}$) (J2000)	Decl. ($^{\circ}:':''$) (J2000)	$C_{24\mu m}$	IRDC name	R.A. ($^{h}:^{m}:^{s}$) (J2000)	Decl. ($^{\circ}:':''$) (J2000)	$C_{24\mu m}$
G16.81+0.73	18:18:44.7	−13:57:56.46	0.157	G326.63+0.73	15:44:00.4	−54:00:14.29	0.159
G16.81+0.60	18:19:12.5	−14:01:10.12	0.234	G326.63−0.23	15:48:03.2	−54:45:21.35	0.165
G16.82+0.72	18:18:48.5	−13:57:56.43	0.152	G326.64+0.37	15:45:31.9	−54:16:58.02	0.274
G16.82+0.55	18:19:25.8	−14:02:33.78	0.152	G326.64+0.85	15:43:32.9	−53:54:00.83	0.162
G16.82+0.85	18:18:19.9	−13:53:39.15	0.235	G326.64+0.62	15:44:30.4	−54:05:00.24	0.205
G16.82+0.54	18:19:28.7	−14:02:32.91	0.158	G326.64−0.08	15:47:28.8	−54:38:19.59	0.158
G16.83+0.24	18:20:33.7	−14:10:55.47	0.210	G326.64−0.24	15:48:09.5	−54:45:46.30	0.180
G16.84+0.12	18:21:00.8	−14:13:34.19	0.177	G326.64+0.69	15:44:13.6	−54:01:41.07	0.199
G16.84+0.74	18:18:47.2	−13:55:45.06	0.185	G326.65+0.43	15:45:21.4	−54:14:07.43	0.160
G16.85−0.32	18:22:38.8	−14:25:26.26	0.219	G326.65−0.32	15:48:32.6	−54:48:56.36	0.162
G16.85+0.91	18:18:10.8	−13:50:25.18	0.172	G326.65−0.22	15:48:08.9	−54:44:21.02	0.151
G16.86+0.26	18:20:31.9	−14:08:32.72	0.151	G326.66+0.40	15:45:33.4	−54:15:06.88	0.169
G16.86+0.76	18:18:45.0	−13:54:31.75	0.197	G326.66+0.35	15:45:47.1	−54:17:16.40	0.164
G16.86+0.45	18:19:51.5	−14:03:07.94	0.228	G326.66+0.69	15:44:22.4	−54:01:09.51	0.202
G16.88+0.53	18:19:36.5	−14:00:00.55	0.163	G326.66+0.74	15:44:08.4	−53:58:27.24	0.197
G16.89+0.61	18:19:19.0	−13:57:03.75	0.167	G326.67+0.72	15:44:14.9	−53:59:31.67	0.189
G16.89+0.52	18:19:39.6	−13:59:35.47	0.163	G326.67−0.12	15:47:47.7	−54:39:00.85	0.215
G16.89+0.95	18:18:06.8	−13:47:08.44	0.351	G326.67+0.04	15:47:07.7	−54:31:38.61	0.259
G16.90+0.84	18:18:31.2	−13:50:10.54	0.580	G326.67−0.01	15:47:21.2	−54:34:05.48	0.167
G16.90+0.57	18:19:29.6	−13:57:43.74	0.161	G326.67−0.10	15:47:41.8	−54:37:52.09	0.325
G16.91−0.08	18:21:53.9	−14:15:27.35	0.251	G326.67−0.50	15:49:26.2	−54:56:38.21	0.214
G16.91+0.22	18:20:47.9	−14:06:39.88	0.259	G326.67+0.89	15:43:33.8	−53:50:50.89	0.172
G16.92+0.66	18:19:12.5	−13:54:08.53	0.248	G326.67−0.32	15:48:40.6	−54:48:13.10	0.152
G16.92+0.34	18:20:22.2	−14:03:11.92	0.233	G326.68+0.70	15:44:24.4	−54:00:05.77	0.152
G16.92+0.07	18:21:21.9	−14:10:32.83	0.152	G326.68+0.68	15:44:28.1	−54:00:44.14	0.176
G16.92−0.09	18:21:56.8	−14:14:59.36	0.156	G326.68−0.32	15:48:44.0	−54:48:04.03	0.184
G16.93+0.25	18:20:43.8	−14:05:23.31	0.306	G326.69−0.28	15:48:35.3	−54:45:52.66	0.276
G16.93−0.78	18:24:28.9	−14:34:11.97	0.154	G326.69+0.43	15:45:35.7	−54:12:17.03	0.251
G16.93+0.86	18:18:30.7	−13:47:36.54	0.168	G326.69+0.51	15:45:15.9	−54:08:28.28	0.213
G16.94+0.46	18:19:59.6	−13:58:22.47	0.156	G326.69−0.23	15:48:23.0	−54:43:05.51	0.219
G16.96+0.56	18:19:39.2	−13:54:57.75	0.207	G326.69+0.71	15:44:25.1	−53:58:38.71	0.165
G16.96+0.25	18:20:46.1	−14:03:37.84	0.177	G326.70−0.31	15:48:46.7	−54:47:07.37	0.215
G16.96+0.16	18:21:07.2	−14:06:08.31	0.170	G326.70+0.44	15:45:35.4	−54:11:23.29	0.183
G16.96+0.59	18:19:32.0	−13:53:42.05	0.191	G326.70−0.50	15:49:37.6	−54:55:48.89	0.254
G16.97−0.10	18:22:03.6	−14:12:51.16	0.254	G326.70+0.46	15:45:30.6	−54:10:17.78	0.257
G16.97+0.16	18:21:08.3	−14:05:35.69	0.153	G326.70−0.19	15:48:18.0	−54:41:19.72	0.184
G16.97+0.61	18:19:29.0	−13:52:38.73	0.181	G326.71+0.51	15:45:20.5	−54:08:07.08	0.266
G16.97+0.15	18:21:09.9	−14:05:39.68	0.152	G326.71−0.40	15:49:14.1	−54:50:58.10	0.182
G16.97−0.08	18:22:00.7	−14:12:01.34	0.158	G326.72−0.03	15:47:40.8	−54:33:12.01	0.238
G16.98−0.93	18:25:07.4	−14:35:55.16	0.156	G326.72−0.18	15:48:18.9	−54:40:10.70	0.214
G16.98+0.27	18:20:45.0	−14:02:04.29	0.183	G326.72+0.44	15:45:41.2	−54:10:40.44	0.316
G16.98−0.22	18:22:32.7	−14:15:44.70	0.199	G326.72−0.01	15:47:36.2	−54:32:00.00	0.152
G16.98−0.10	18:22:07.1	−14:12:13.25	0.185	G326.72−0.02	15:47:38.8	−54:32:29.47	0.151
G16.99+0.47	18:20:02.8	−13:55:58.27	0.231	G326.73−0.01	15:47:36.8	−54:31:36.54	0.161
G16.99+0.28	18:20:43.7	−14:00:40.49	0.161	G326.73+0.62	15:44:59.7	−54:02:11.64	0.764
G17.00+0.02	18:21:41.4	−14:08:02.60	0.155	G326.73−0.09	15:48:00.3	−54:35:37.38	0.252
G17.01+0.91	18:18:29.1	−13:42:07.83	0.392	G326.73+0.57	15:45:13.0	−54:04:26.52	0.328
G17.03+0.81	18:18:53.0	−13:43:45.07	0.427	G326.74−0.44	15:49:31.4	−54:51:34.96	0.154

Table A.1. continued.

IRDC name	R.A. ($^{h}:^{m}:^{s}$) (J2000)	Decl. ($^{\circ}:':''$) (J2000)	$C_{24\mu m}$	IRDC name	R.A. ($^{h}:^{m}:^{s}$) (J2000)	Decl. ($^{\circ}:':''$) (J2000)	$C_{24\mu m}$
G17.03+0.38	18:20:28.4	−13:56:01.13	0.260	G326.74−0.64	15:50:24.5	−55:00:53.68	0.262
G17.04+0.35	18:20:34.0	−13:56:28.79	0.151	G326.74−0.16	15:48:20.4	−54:38:16.74	0.231
G17.04+0.91	18:18:32.6	−13:40:32.76	0.198	G326.74+0.43	15:45:50.4	−54:10:26.37	0.250
G17.07+0.35	18:20:37.4	−13:55:01.76	0.152	G326.74−0.61	15:50:19.0	−54:59:14.09	0.216
G17.07+0.36	18:20:35.0	−13:54:38.86	0.162	G326.74−0.12	15:48:13.4	−54:36:30.32	0.160
G17.07−0.04	18:22:03.9	−14:05:38.72	0.192	G326.75+0.45	15:45:48.8	−54:09:17.37	0.182
G17.07+0.96	18:18:26.7	−13:37:25.50	0.179	G326.75−0.44	15:49:35.8	−54:50:53.11	0.171
G17.08+0.45	18:20:17.4	−13:51:09.46	0.262	G326.75−0.03	15:47:52.2	−54:31:55.15	0.152
G17.09+0.34	18:20:41.7	−13:54:10.51	0.200	G326.75−0.43	15:49:33.6	−54:50:22.37	0.152
G17.10+0.70	18:19:24.9	−13:43:17.92	0.259	G326.75−0.49	15:49:52.0	−54:53:27.99	0.332
G17.10+0.81	18:19:00.9	−13:39:49.34	0.206	G326.76+0.53	15:45:31.2	−54:05:13.94	0.159
G17.11+0.58	18:19:51.4	−13:46:22.54	0.187	G326.76−0.72	15:50:52.2	−55:03:56.01	0.178
G17.12+0.27	18:21:01.3	−13:54:42.93	0.157	G326.76−0.26	15:48:51.8	−54:42:14.81	0.163
G17.12+0.61	18:19:48.2	−13:44:58.52	0.241	G326.76+0.54	15:45:29.1	−54:04:36.43	0.243
G17.12+0.90	18:18:44.5	−13:36:24.95	0.304	G326.76−0.03	15:47:53.0	−54:31:22.06	0.172
G17.12+0.50	18:20:11.8	−13:47:44.31	0.230	G326.76−0.04	15:47:56.3	−54:31:57.28	0.167
G17.13+0.51	18:20:10.2	−13:47:00.53	0.167	G326.76+0.52	15:45:35.7	−54:05:40.32	0.153
G17.13+0.49	18:20:15.4	−13:47:29.84	0.213	G326.76−0.10	15:48:12.2	−54:34:46.98	0.232
G17.14+0.70	18:19:29.8	−13:41:31.61	0.153	G326.76+0.22	15:46:52.3	−54:19:48.84	0.206
G17.14+0.60	18:19:51.5	−13:43:55.54	0.153	G326.76+0.73	15:44:43.2	−53:55:25.33	0.238
G17.14+0.83	18:19:01.9	−13:37:26.74	0.202	G326.76−0.08	15:48:09.6	−54:33:54.38	0.153
G17.14−0.35	18:23:20.2	−14:10:50.82	0.169	G326.76+0.61	15:45:14.3	−54:01:11.34	0.180
G17.15−0.17	18:22:40.2	−14:04:59.61	0.205	G326.77+0.36	15:46:16.9	−54:12:54.06	0.154
G17.16+0.82	18:19:07.4	−13:36:46.01	0.209	G326.77+0.71	15:44:49.9	−53:56:13.60	0.198
G17.16+0.94	18:18:39.8	−13:33:04.24	0.196	G326.77−0.72	15:50:57.7	−55:03:20.03	0.244
G17.17−0.30	18:23:11.9	−14:08:08.75	0.202	G326.78+0.74	15:44:45.3	−53:54:21.63	0.164
G17.17+0.60	18:19:56.0	−13:42:37.70	0.202	G326.78+0.63	15:45:13.1	−53:59:35.65	0.181
G17.18−0.21	18:22:51.6	−14:04:51.72	0.164	G326.78+0.54	15:45:36.3	−54:03:56.71	0.150
G17.18+0.74	18:19:26.1	−13:37:44.16	0.156	G326.78−0.65	15:50:42.4	−55:00:03.66	0.195
G17.19−0.05	18:22:19.3	−13:59:47.11	0.159	G326.78+0.54	15:45:37.5	−54:03:58.04	0.153
G17.19+0.43	18:20:35.0	−13:46:01.77	0.181	G326.78+0.52	15:45:41.4	−54:04:34.95	0.169
G17.20+0.85	18:19:04.1	−13:33:59.17	0.328	G326.78+0.62	15:45:18.8	−54:00:03.36	0.186
G17.20+0.33	18:20:57.2	−13:48:28.53	0.161	G326.79+0.55	15:45:34.6	−54:03:01.40	0.167
G17.21+0.29	18:21:07.3	−13:49:21.29	0.193	G326.79+0.71	15:44:55.1	−53:55:30.70	0.151
G17.21+0.46	18:20:30.0	−13:44:09.05	0.153	G326.79−0.40	15:49:37.9	−54:47:49.06	0.157
G17.22+0.92	18:18:51.0	−13:30:23.32	0.152	G326.79−0.26	15:49:03.8	−54:41:17.60	0.227
G17.23+0.54	18:20:15.4	−13:41:03.98	0.203	G326.79−0.11	15:48:26.2	−54:34:17.98	0.514
G17.25+0.82	18:19:17.2	−13:32:02.85	0.209	G326.79+0.39	15:46:18.7	−54:10:31.01	0.391
G17.26+0.69	18:19:46.6	−13:35:09.23	0.232	G326.79−0.75	15:51:12.2	−55:03:54.09	0.208
G17.27+0.82	18:19:17.8	−13:31:03.11	0.160	G326.80+0.51	15:45:47.9	−54:04:27.24	0.265
G17.27+0.91	18:18:58.2	−13:28:20.07	0.155	G326.80+0.54	15:45:42.0	−54:03:06.57	0.177
G17.28−0.28	18:23:19.3	−14:01:35.61	0.155	G326.80−0.35	15:49:31.4	−54:45:05.29	0.167
G17.28+0.33	18:21:05.8	−13:44:15.27	0.153	G326.81−0.19	15:48:51.0	−54:37:26.73	0.183
G17.29+0.64	18:20:01.5	−13:34:59.09	0.190	G326.81−0.40	15:49:45.1	−54:46:54.26	0.163
G17.32+0.46	18:20:43.2	−13:38:32.23	0.169	G326.81−0.31	15:49:23.7	−54:43:00.29	0.250
G17.32+0.65	18:20:02.5	−13:33:03.34	0.187	G326.81+0.58	15:45:36.6	−54:00:57.68	0.188
G17.34+0.89	18:19:11.6	−13:25:19.52	0.165	G326.81+0.60	15:45:32.3	−53:59:43.80	0.159
G17.34+0.82	18:19:27.2	−13:27:16.88	0.170	G326.81+0.67	15:45:13.8	−53:56:13.28	0.151

Table A.1. continued.

IRDC name	R.A. ($^{h}:^{m}:^{s}$) (J2000)	Decl. ($^{\circ}:':''$) (J2000)	$C_{24\mu m}$	IRDC name	R.A. ($^{h}:^{m}:^{s}$) (J2000)	Decl. ($^{\circ}:':''$) (J2000)	$C_{24\mu m}$
G17.34+0.47	18:20:43.3	−13:36:52.12	0.188	G326.82−0.75	15:51:20.7	−55:02:44.93	0.329
G17.36+0.57	18:20:23.8	−13:33:14.13	0.161	G326.82+0.67	15:45:18.4	−53:56:10.42	0.156
G17.37+0.73	18:19:50.2	−13:28:06.88	0.152	G326.83+0.51	15:45:59.1	−54:03:33.74	0.160
G17.37+0.72	18:19:52.0	−13:28:14.29	0.172	G326.83+0.71	15:45:09.3	−53:53:36.44	0.188
G17.39+0.81	18:19:35.3	−13:25:06.29	0.154	G326.84+0.55	15:45:50.8	−54:01:11.01	0.154
G17.39+0.42	18:21:00.4	−13:35:40.76	0.160	G326.84+0.67	15:45:21.9	−53:55:33.46	0.189
G17.40+0.05	18:22:22.0	−13:45:48.95	0.150	G326.84+0.55	15:45:50.9	−54:01:00.50	0.151
G17.40−0.03	18:22:39.8	−13:48:00.09	0.168	G326.84+0.51	15:46:01.7	−54:02:56.47	0.160
G17.41+0.41	18:21:05.1	−13:35:09.21	0.157	G326.84+0.13	15:47:38.1	−54:20:49.66	0.176
G17.41+0.64	18:20:15.5	−13:28:33.87	0.156	G326.84+0.69	15:45:17.6	−53:54:25.44	0.194
G17.42+0.63	18:20:17.3	−13:28:01.02	0.155	G326.84−0.05	15:48:24.6	−54:29:19.62	0.295
G17.43+0.65	18:20:14.1	−13:27:04.88	0.244	G326.84+0.53	15:45:58.5	−54:02:02.33	0.150
G17.44+0.72	18:20:00.5	−13:24:54.76	0.154	G326.84−0.63	15:50:55.4	−54:56:23.56	0.327
G17.44+0.84	18:19:34.4	−13:21:09.34	0.160	G326.84−0.53	15:50:31.4	−54:51:56.12	0.180
G17.45−0.20	18:23:20.9	−13:50:22.76	0.205	G326.85+0.55	15:45:55.3	−54:01:03.05	0.161
G17.45−0.26	18:23:36.5	−13:51:42.93	0.168	G326.85−0.17	15:48:57.6	−54:34:40.52	0.166
G17.46+0.84	18:19:37.9	−13:20:14.92	0.172	G326.85−0.75	15:51:31.3	−55:01:50.98	0.159
G17.51+0.61	18:20:32.1	−13:23:53.58	0.159	G326.85−0.53	15:50:34.6	−54:51:44.35	0.151
G17.52+0.34	18:21:33.3	−13:31:20.32	0.158	G326.85+0.52	15:46:04.6	−54:02:03.61	0.158
G17.56+0.13	18:22:23.6	−13:35:15.41	0.151	G326.86−0.36	15:49:49.5	−54:43:15.81	0.209
G17.58+0.77	18:20:06.4	−13:15:58.67	0.155	G326.86+0.50	15:46:11.8	−54:02:54.21	0.154
G17.61+0.84	18:19:55.2	−13:12:17.91	0.154	G326.86+0.56	15:45:58.1	−54:00:09.68	0.181
G17.62−0.20	18:23:43.1	−13:41:16.00	0.164	G326.86+0.10	15:47:52.4	−54:21:27.89	0.155
G17.63+0.84	18:19:55.6	−13:11:20.81	0.160	G326.86−0.53	15:50:37.8	−54:51:12.67	0.153
G17.65+0.38	18:21:39.0	−13:23:34.52	0.177	G326.87−0.17	15:49:05.2	−54:34:13.23	0.166
G17.65+0.07	18:22:45.1	−13:32:01.89	0.164	G326.87+0.08	15:48:00.2	−54:22:18.20	0.387
G17.67+0.09	18:22:45.7	−13:30:22.61	0.154	G326.87−0.02	15:48:26.2	−54:26:51.58	0.271
G17.68+0.24	18:22:13.2	−13:25:49.58	0.226	G326.87+0.41	15:46:38.2	−54:06:25.50	0.186
G17.71+0.18	18:22:29.6	−13:25:36.48	0.193	G326.88+0.13	15:47:51.0	−54:19:24.97	0.269
G17.74−0.85	18:26:17.4	−13:52:45.90	0.158	G326.88−0.11	15:48:54.4	−54:30:50.91	0.400
G17.78+0.67	18:20:51.9	−13:08:16.96	0.154	G326.89+0.22	15:47:31.4	−54:14:57.69	0.156
G17.79+0.30	18:22:12.7	−13:18:19.23	0.200	G326.89+0.29	15:47:14.1	−54:11:21.53	0.185
G17.83+0.91	18:20:05.3	−12:58:53.20	0.151	G326.89−0.35	15:50:01.0	−54:41:45.52	0.211
G17.90−0.51	18:25:21.7	−13:35:02.63	0.192	G326.90+0.31	15:47:12.6	−54:10:39.39	0.162
G17.92−0.62	18:25:48.2	−13:37:07.49	0.154	G326.90+0.25	15:47:27.3	−54:13:20.75	0.172
G17.94+0.08	18:23:18.9	−13:16:21.21	0.151	G326.90−0.21	15:49:25.7	−54:34:58.12	0.529
G17.94+0.07	18:23:20.6	−13:16:34.03	0.172	G326.90+0.15	15:47:51.5	−54:17:40.05	0.150
G17.94+0.09	18:23:16.3	−13:15:58.51	0.177	G326.90+0.84	15:45:00.5	−53:45:06.00	0.181
G17.95+0.10	18:23:14.6	−13:15:05.88	0.153	G326.90−0.10	15:48:57.0	−54:29:15.01	0.290
G17.96−0.41	18:25:06.6	−13:29:12.78	0.166	G326.91−0.53	15:50:49.8	−54:49:14.26	0.156
G17.97−0.26	18:24:36.0	−13:24:32.99	0.165	G326.91+0.46	15:46:38.2	−54:03:00.16	0.177
G17.98+0.81	18:20:43.8	−12:53:43.36	0.166	G326.91−0.02	15:48:40.2	−54:25:26.47	0.502
G17.98−0.25	18:24:35.7	−13:23:33.27	0.170	G326.91−0.58	15:51:04.7	−54:51:25.30	0.157
G18.00−0.34	18:24:56.7	−13:24:49.41	0.177	G326.91+0.30	15:47:19.1	−54:10:07.55	0.169
G18.01−0.46	18:25:24.3	−13:27:47.66	0.191	G326.92−0.54	15:50:58.0	−54:49:16.93	0.160
G18.02−0.45	18:25:21.8	−13:26:56.76	0.156	G326.92+0.72	15:45:36.9	−53:50:07.22	0.206
G18.02−0.36	18:25:03.9	−13:24:25.97	0.186	G326.92−0.08	15:48:59.5	−54:27:50.80	0.155
G18.02−0.37	18:25:06.0	−13:24:41.29	0.178	G326.92−0.14	15:49:14.3	−54:30:26.86	0.152

Table A.1. continued.

IRDC name	R.A. ($^h:^m:^s$) (J2000)	Decl. ($^\circ:':''$) (J2000)	$C_{24\mu m}$	IRDC name	R.A. ($^h:^m:^s$) (J2000)	Decl. ($^\circ:':''$) (J2000)	$C_{24\mu m}$
G18.03−0.25	18:24:40.0	−13:20:36.64	0.178	G326.92−0.73	15:51:49.2	−54:58:01.75	0.150
G18.05−0.29	18:24:51.6	−13:20:53.00	0.171	G326.93−0.33	15:50:05.8	−54:39:12.53	0.175
G18.05−0.28	18:24:48.5	−13:20:24.45	0.188	G326.93−0.50	15:50:51.1	−54:47:01.04	0.157
G18.10−0.36	18:25:12.0	−13:20:20.85	0.191	G326.93−0.29	15:49:56.7	−54:37:12.32	0.390
G18.11+0.40	18:22:27.9	−12:58:26.82	0.170	G326.94−0.75	15:51:58.0	−54:58:31.99	0.201
G18.12+0.27	18:22:56.1	−13:01:35.76	0.161	G326.94+0.33	15:47:20.1	−54:07:59.91	0.153
G18.13−0.39	18:25:23.0	−13:19:39.38	0.194	G326.94−0.18	15:49:29.9	−54:31:40.82	0.158
G18.13−0.20	18:24:41.4	−13:14:16.63	0.173	G326.95−0.51	15:50:57.7	−54:46:48.47	0.155
G18.13+0.96	18:20:29.8	−12:41:27.88	0.153	G326.95+0.33	15:47:24.1	−54:07:35.64	0.195
G18.13+0.32	18:22:47.1	−12:59:13.22	0.153	G326.95−0.16	15:49:30.4	−54:30:37.66	0.367
G18.14+0.34	18:22:45.2	−12:58:41.63	0.178	G326.95+0.56	15:46:25.5	−53:56:23.62	0.339
G18.14−0.23	18:24:48.2	−13:14:26.04	0.158	G326.95+0.09	15:48:25.1	−54:18:27.34	0.269
G18.14−0.23	18:24:49.1	−13:14:24.62	0.156	G326.95−0.74	15:52:03.1	−54:57:37.56	0.196
G18.15−0.24	18:24:50.7	−13:14:15.06	0.155	G326.96+0.50	15:46:43.5	−53:59:20.23	0.177
G18.15+0.95	18:20:32.9	−12:40:33.56	0.223	G326.96−0.60	15:51:25.4	−54:50:42.63	0.160
G18.17+0.89	18:20:49.0	−12:41:21.22	0.175	G326.96+0.59	15:46:20.8	−53:54:47.06	0.161
G18.18−0.22	18:24:51.7	−13:12:13.67	0.361	G326.96+0.45	15:46:56.1	−54:01:15.24	0.188
G18.19+0.74	18:21:24.0	−12:44:22.68	0.192	G326.96+0.47	15:46:53.3	−54:00:40.17	0.151
G18.19−0.35	18:25:19.9	−13:14:52.13	0.565	G326.96−0.71	15:51:56.8	−54:55:52.44	0.210
G18.21−0.28	18:25:06.7	−13:12:21.24	0.207	G326.96−0.36	15:50:25.4	−54:39:34.21	0.466
G18.23−0.15	18:24:40.5	−13:07:26.90	0.205	G326.97+0.07	15:48:36.5	−54:18:46.40	0.223
G18.24−0.49	18:25:56.2	−13:16:07.95	0.196	G326.98−0.01	15:49:00.8	−54:22:36.62	0.572
G18.26−0.43	18:25:45.9	−13:13:57.67	0.163	G326.98−0.61	15:51:35.8	−54:50:26.73	0.206
G18.27−0.63	18:26:31.0	−13:18:43.77	0.157	G326.99+0.44	15:47:09.0	−54:00:27.47	0.151
G18.27−0.44	18:25:48.6	−13:13:13.46	0.156	G327.00−0.52	15:51:17.9	−54:45:45.19	0.159
G18.29−0.25	18:25:10.4	−13:07:10.19	0.243	G327.00−0.75	15:52:17.8	−54:56:03.17	0.155
G18.29−0.71	18:26:51.5	−13:19:54.71	0.164	G327.00−0.53	15:51:21.2	−54:45:55.35	0.152
G18.30−0.39	18:25:42.4	−13:10:17.47	0.770	G327.01−0.42	15:50:53.6	−54:40:27.44	0.193
G18.32−0.29	18:25:22.8	−13:06:31.89	0.218	G327.01+0.00	15:49:06.9	−54:20:47.34	0.170
G18.32−0.32	18:25:29.8	−13:07:25.59	0.205	G327.01−0.08	15:49:27.8	−54:24:30.72	0.425
G18.32−0.21	18:25:05.9	−13:04:13.84	0.169	G327.01−0.52	15:51:22.7	−54:45:02.05	0.170
G18.33−0.28	18:25:22.6	−13:05:50.53	0.158	G327.02−0.13	15:49:44.8	−54:26:37.58	0.269
G18.33−0.40	18:25:47.3	−13:08:53.00	0.157	G327.02−0.16	15:49:50.9	−54:27:43.41	0.351
G18.35−0.30	18:25:27.4	−13:05:28.71	0.170	G327.02−0.23	15:50:09.8	−54:30:53.67	0.279
G18.35−0.37	18:25:43.9	−13:07:24.28	0.187	G327.04−0.53	15:51:33.7	−54:44:22.03	0.212
G18.36−0.13	18:24:52.1	−13:00:19.39	0.172	G327.05+0.25	15:48:16.1	−54:07:36.58	0.196
G18.36−0.29	18:25:26.1	−13:04:36.47	0.214	G327.05+0.02	15:49:14.9	−54:18:22.60	0.425
G18.36+0.84	18:21:21.3	−12:32:39.85	0.185	G327.05−0.14	15:49:56.5	−54:25:42.44	0.154
G18.36−0.37	18:25:44.7	−13:06:43.02	0.153	G327.06−0.13	15:49:57.1	−54:25:19.19	0.161
G18.39−0.30	18:25:33.4	−13:03:05.14	0.230	G327.06−0.43	15:51:15.1	−54:38:40.50	0.150
G18.42−0.24	18:25:22.5	−13:00:05.75	0.197	G327.07−0.25	15:50:30.5	−54:30:25.93	0.245
G18.45−0.49	18:26:20.5	−13:05:24.59	0.153	G327.07−0.09	15:49:49.1	−54:22:46.77	0.234
G18.46−0.18	18:25:13.5	−12:56:07.13	0.163	G327.07−0.54	15:51:48.6	−54:43:50.81	0.159
G18.46−0.19	18:25:17.4	−12:56:37.06	0.219	G327.07−0.39	15:51:07.7	−54:36:31.38	0.211
G18.55−0.25	18:25:39.8	−12:53:34.27	0.156	G327.07−0.12	15:49:57.7	−54:23:47.13	0.180
G18.55−0.58	18:26:52.8	−13:02:43.74	0.159	G327.08−0.30	15:50:46.9	−54:32:34.18	0.443
G18.56−0.16	18:25:20.7	−12:50:12.98	0.252	G327.08−0.11	15:49:55.4	−54:23:14.18	0.171
G18.56−0.29	18:25:50.1	−12:53:47.60	0.187	G327.08−0.73	15:52:39.4	−54:52:31.14	0.152

Table A.1. continued.

IRDC name	R.A. ($^{h}:^{m}:^{s}$) (J2000)	Decl. ($^{\circ}:':''$) (J2000)	$C_{24\mu m}$	IRDC name	R.A. ($^{h}:^{m}:^{s}$) (J2000)	Decl. ($^{\circ}:':''$) (J2000)	$C_{24\mu m}$
G18.56−0.44	18:26:22.8	−12:57:54.52	0.255	G327.08+0.13	15:48:54.2	−54:11:56.16	0.183
G18.57−0.09	18:25:06.9	−12:47:26.81	0.260	G327.08−0.75	15:52:44.4	−54:53:19.89	0.153
G18.57−0.34	18:26:02.3	−12:54:32.54	0.249	G327.08−0.74	15:52:42.7	−54:52:35.75	0.152
G18.59−0.69	18:27:20.4	−13:03:39.07	0.153	G327.08−0.22	15:50:27.6	−54:28:16.57	0.291
G18.59−0.16	18:25:25.1	−12:48:42.65	0.154	G327.09−0.17	15:50:14.9	−54:25:35.92	0.194
G18.60−0.17	18:25:27.2	−12:48:33.26	0.151	G327.09−0.25	15:50:37.1	−54:29:18.39	0.205
G18.61−0.07	18:25:07.9	−12:45:16.19	0.366	G327.09+0.13	15:49:00.8	−54:11:43.29	0.151
G18.62−0.08	18:25:10.6	−12:44:34.65	0.156	G327.10+0.16	15:48:52.9	−54:09:55.27	0.160
G18.63−0.27	18:25:53.3	−12:49:30.28	0.168	G327.10+0.24	15:48:34.2	−54:06:19.66	0.193
G18.64−0.41	18:26:25.3	−12:53:08.97	0.157	G327.10+0.04	15:49:26.0	−54:15:39.21	0.286
G18.64−0.34	18:26:10.4	−12:51:12.77	0.271	G327.10−0.09	15:49:58.9	−54:21:23.61	0.182
G18.64−0.09	18:25:15.3	−12:43:55.82	0.195	G327.10−0.02	15:49:41.2	−54:18:07.45	0.155
G18.66−0.25	18:25:53.5	−12:47:16.15	0.154	G327.11−0.00	15:49:38.7	−54:17:11.98	0.161
G18.67−0.44	18:26:36.0	−12:52:00.60	0.216	G327.11−0.18	15:50:24.8	−54:25:26.83	0.159
G18.68−0.60	18:27:11.6	−12:56:27.03	0.153	G327.11+0.15	15:49:01.7	−54:09:48.12	0.202
G18.69−0.01	18:25:02.7	−12:39:16.67	0.157	G327.12−0.06	15:49:58.6	−54:19:42.79	0.177
G18.69−0.27	18:26:00.4	−12:46:23.53	0.244	G327.12−0.29	15:50:58.6	−54:30:25.69	0.373
G18.69−0.37	18:26:21.8	−12:48:56.83	0.295	G327.12+0.17	15:49:00.6	−54:08:47.04	0.156
G18.70−0.05	18:25:13.5	−12:39:54.36	0.199	G327.12−0.42	15:51:33.5	−54:36:23.63	0.323
G18.70−0.23	18:25:53.4	−12:45:00.28	0.151	G327.12−0.32	15:51:07.9	−54:31:36.34	0.217
G18.70−0.10	18:25:23.9	−12:41:02.04	0.241	G327.13+0.72	15:46:42.1	−53:42:29.82	0.165
G18.71−0.51	18:26:54.9	−12:51:58.78	0.168	G327.13−0.46	15:51:43.0	−54:37:40.10	0.182
G18.72−0.11	18:25:28.8	−12:40:36.50	0.168	G327.14−0.22	15:50:46.9	−54:26:19.61	0.206
G18.72−0.22	18:25:53.3	−12:43:43.09	0.152	G327.14+0.17	15:49:05.3	−54:07:40.49	0.173
G18.72−0.25	18:25:59.9	−12:44:21.44	0.276	G327.14−0.09	15:50:14.0	−54:20:09.70	0.164
G18.72−0.13	18:25:33.3	−12:40:38.85	0.155	G327.15−0.21	15:50:47.0	−54:25:34.50	0.153
G18.74−0.11	18:25:30.3	−12:39:24.25	0.198	G327.16−0.07	15:50:13.4	−54:18:43.01	0.161
G18.74−0.42	18:26:39.1	−12:48:06.34	0.171	G327.16−0.56	15:52:20.1	−54:41:24.48	0.182
G18.75−0.42	18:26:39.2	−12:47:35.57	0.158	G327.16−0.66	15:52:45.6	−54:45:48.07	0.205
G18.75−0.38	18:26:30.7	−12:46:24.45	0.174	G327.16−0.26	15:51:02.9	−54:27:14.66	0.159
G18.76−0.42	18:26:40.4	−12:47:04.87	0.183	G327.17−0.35	15:51:26.6	−54:31:03.45	0.300
G18.76−0.36	18:26:29.1	−12:45:07.50	0.251	G327.17−0.58	15:52:28.1	−54:41:55.64	0.220
G18.77−0.23	18:26:01.1	−12:40:47.45	0.294	G327.17−0.66	15:52:52.3	−54:45:32.39	0.161
G18.78−0.41	18:26:40.6	−12:45:44.15	0.202	G327.18−0.23	15:51:00.9	−54:24:51.66	0.296
G18.78−0.39	18:26:37.0	−12:45:13.95	0.154	G327.18+0.17	15:49:19.6	−54:06:18.10	0.168
G18.78−0.03	18:25:18.9	−12:35:01.68	0.319	G327.20−0.52	15:52:24.1	−54:37:59.66	0.538
G18.78−0.27	18:26:11.1	−12:41:26.36	0.443	G327.21+0.26	15:49:04.6	−54:01:26.30	0.219
G18.79+0.95	18:21:46.2	−12:06:43.31	0.153	G327.22−0.32	15:51:36.6	−54:27:55.14	0.173
G18.79+0.11	18:24:48.8	−12:30:15.63	0.178	G327.22+0.26	15:49:09.0	−54:00:44.46	0.241
G18.80−0.00	18:25:14.8	−12:33:23.39	0.156	G327.22+0.01	15:50:12.3	−54:12:18.42	0.268
G18.80−0.30	18:26:18.4	−12:41:25.68	0.442	G327.22+0.24	15:49:15.6	−54:01:38.36	0.227
G18.81−0.50	18:27:05.1	−12:46:32.63	0.465	G327.23−0.32	15:51:39.0	−54:27:15.82	0.154
G18.81−0.37	18:26:35.6	−12:42:45.20	0.182	G327.23−0.73	15:53:27.7	−54:46:29.64	0.183
G18.82−0.38	18:26:39.3	−12:42:29.09	0.197	G327.23−0.71	15:53:22.7	−54:45:15.75	0.151
G18.83+0.95	18:21:50.9	−12:04:51.04	0.151	G327.23−0.67	15:53:14.3	−54:43:44.67	0.262
G18.83+0.94	18:21:53.0	−12:04:59.82	0.159	G327.24−0.16	15:51:00.8	−54:19:39.71	0.218
G18.83−0.10	18:25:40.4	−12:34:16.69	0.314	G327.24−0.70	15:53:24.0	−54:44:42.28	0.154
G18.83+0.03	18:25:12.5	−12:30:36.55	0.168	G327.25+0.05	15:50:09.9	−54:09:33.66	0.153

Table A.1. continued.

IRDC name	R.A. ($^{h}:^{m}:^{s}$) (J2000)	Decl. ($^{\circ}:':''$) (J2000)	$C_{24\mu m}$	IRDC name	R.A. ($^{h}:^{m}:^{s}$) (J2000)	Decl. ($^{\circ}:':''$) (J2000)	$C_{24\mu m}$
G18.83−0.53	18:27:13.4	−12:46:06.27	0.197	G327.25−0.20	15:51:14.2	−54:21:12.48	0.225
G18.84−0.54	18:27:16.2	−12:46:14.39	0.174	G327.25−0.22	15:51:20.6	−54:22:10.36	0.193
G18.84−0.35	18:26:34.9	−12:40:31.28	0.174	G327.25−0.09	15:50:49.2	−54:16:05.99	0.316
G18.85−0.38	18:26:42.0	−12:41:08.79	0.256	G327.26−0.30	15:51:44.9	−54:25:13.74	0.158
G18.85−0.54	18:27:17.6	−12:45:12.88	0.180	G327.26−0.22	15:51:25.6	−54:21:32.28	0.181
G18.86+0.12	18:24:54.3	−12:26:33.95	0.156	G327.27−0.65	15:53:18.3	−54:41:08.64	0.272
G18.86−0.60	18:27:31.5	−12:46:41.54	0.156	G327.27+0.17	15:49:47.1	−54:02:44.99	0.166
G18.86+0.14	18:24:50.6	−12:25:41.86	0.174	G327.28−0.06	15:50:47.3	−54:13:26.78	0.159
G18.87−0.41	18:26:52.0	−12:41:04.98	0.376	G327.28−0.61	15:53:11.7	−54:39:03.24	0.368
G18.88−0.47	18:27:06.5	−12:41:51.02	0.361	G327.29−0.22	15:51:33.2	−54:20:48.35	0.174
G18.88−0.28	18:26:24.8	−12:36:21.48	0.375	G327.29−0.57	15:53:05.7	−54:37:07.42	0.781
G18.89−0.23	18:26:13.8	−12:34:53.33	0.245	G327.29−0.62	15:53:20.0	−54:39:12.95	0.158
G18.89−0.11	18:25:48.1	−12:31:20.86	0.186	G327.30−0.19	15:51:28.8	−54:19:07.09	0.189
G18.90+0.03	18:25:19.3	−12:27:01.28	0.193	G327.30−0.48	15:52:42.2	−54:32:12.14	0.161
G18.90−0.39	18:26:51.7	−12:38:41.33	0.266	G327.30−0.21	15:51:36.1	−54:19:41.39	0.191
G18.90−0.15	18:25:59.5	−12:31:42.40	0.162	G327.30−0.49	15:52:48.7	−54:32:39.62	0.159
G18.91+0.07	18:25:10.9	−12:25:25.24	0.271	G327.31−0.43	15:52:32.7	−54:29:33.59	0.162
G18.91−0.35	18:26:42.5	−12:36:58.63	0.220	G327.31−0.75	15:53:58.6	−54:44:28.71	0.161
G18.92−0.63	18:27:45.1	−12:44:34.17	0.176	G327.31−0.58	15:53:14.7	−54:36:43.48	0.265
G18.92−0.51	18:27:19.3	−12:41:08.76	0.243	G327.31−0.45	15:52:39.9	−54:30:32.32	0.284
G18.92−0.78	18:28:18.2	−12:48:33.44	0.166	G327.32−0.50	15:52:57.7	−54:32:24.25	0.204
G18.92−0.08	18:25:45.7	−12:28:44.42	0.333	G327.32−0.48	15:52:53.2	−54:31:21.71	0.176
G18.92−0.50	18:27:16.9	−12:40:24.10	0.285	G327.35+0.21	15:50:02.5	−53:58:24.93	0.152
G18.93−0.03	18:25:36.1	−12:26:56.72	0.301	G327.36−0.43	15:52:51.8	−54:27:49.26	0.169
G18.93+0.53	18:23:35.5	−12:11:17.98	0.155	G327.39−0.74	15:54:20.9	−54:40:59.69	0.250
G18.93−0.52	18:27:23.7	−12:40:42.65	0.295	G327.39−0.54	15:53:28.4	−54:31:32.60	0.172
G18.94−0.32	18:26:40.4	−12:34:47.65	0.153	G327.39−0.39	15:52:49.3	−54:24:28.22	0.183
G18.94−0.31	18:26:38.9	−12:34:25.03	0.211	G327.41−0.65	15:54:02.4	−54:35:49.08	0.186
G18.94−0.50	18:27:19.0	−12:39:27.77	0.151	G327.41−0.58	15:53:46.9	−54:32:48.19	0.204
G18.94−0.57	18:27:35.7	−12:41:31.88	0.172	G327.41+0.04	15:51:07.5	−54:03:49.95	0.245
G18.95−0.23	18:26:22.0	−12:31:37.15	0.184	G327.43+0.05	15:51:09.6	−54:02:35.59	0.154
G18.96−0.09	18:25:51.3	−12:26:59.38	0.155	G327.43−0.40	15:53:05.7	−54:23:24.74	0.187
G18.97−0.40	18:27:00.8	−12:34:56.22	0.351	G327.44−0.47	15:53:24.6	−54:26:27.73	0.167
G18.98−0.15	18:26:07.4	−12:27:54.04	0.250	G327.44−0.40	15:53:10.5	−54:23:06.46	0.154
G18.98−0.65	18:27:55.7	−12:41:46.08	0.150	G327.45−0.57	15:53:53.8	−54:30:38.20	0.169
G18.98−0.55	18:27:33.7	−12:38:50.69	0.193	G327.45−0.74	15:54:39.6	−54:38:28.20	0.245
G18.98−0.60	18:27:45.4	−12:40:15.57	0.192	G327.46−0.56	15:53:56.2	−54:29:59.49	0.158
G18.98−0.45	18:27:12.8	−12:35:52.88	0.195	G327.51−0.70	15:54:50.5	−54:34:34.09	0.223
G18.99−0.57	18:27:40.5	−12:38:52.41	0.217	G327.52−0.41	15:53:36.9	−54:20:46.13	0.196
G18.99−0.59	18:27:45.9	−12:39:19.00	0.156	G327.53−0.53	15:54:14.1	−54:25:50.84	0.167
G19.00−0.64	18:27:57.1	−12:40:35.52	0.266	G327.56−0.52	15:54:18.9	−54:24:13.66	0.197
G19.00−0.43	18:27:11.8	−12:34:27.03	0.151	G327.59+0.77	15:48:56.4	−53:22:43.25	0.150
G19.01−0.40	18:27:05.8	−12:33:25.23	0.411	G327.59−0.61	15:54:50.9	−54:26:56.17	0.167
G19.01−0.75	18:28:22.0	−12:43:00.73	0.153	G327.61−0.66	15:55:10.3	−54:28:49.35	0.280
G19.02−0.07	18:25:53.5	−12:23:16.16	0.290	G327.64−0.54	15:54:48.1	−54:22:22.05	0.155
G19.02−0.26	18:26:35.8	−12:28:28.47	0.342	G327.66−0.61	15:55:12.3	−54:24:24.67	0.176
G19.02−0.48	18:27:24.9	−12:34:46.18	0.190	G327.66+0.61	15:49:59.4	−53:27:51.86	0.152
G19.02−0.33	18:26:52.8	−12:30:30.09	0.411	G327.66−0.41	15:54:22.7	−54:15:09.53	0.172

Table A.1. continued.

IRDC name	R.A. ($^{h}:^{m}:^{s}$) (J2000)	Decl. ($^{\circ}:':''$) (J2000)	$C_{24\mu m}$	IRDC name	R.A. ($^{h}:^{m}:^{s}$) (J2000)	Decl. ($^{\circ}:':''$) (J2000)	$C_{24\mu m}$
G19.03−0.52	18:27:33.8	−12:35:35.18	0.295	G327.67−0.70	15:55:40.7	−54:28:34.55	0.231
G19.04+0.02	18:25:37.2	−12:19:53.29	0.168	G327.67−0.57	15:55:07.9	−54:22:25.25	0.270
G19.06−0.31	18:26:52.5	−12:28:00.43	0.158	G327.68−0.35	15:54:11.3	−54:11:41.52	0.194
G19.06−0.05	18:25:54.9	−12:20:27.28	0.295	G327.68−0.41	15:54:28.0	−54:14:10.81	0.188
G19.07−0.28	18:26:46.8	−12:26:30.62	0.844	G327.69+0.05	15:52:31.6	−53:52:50.27	0.164
G19.07−0.33	18:26:57.7	−12:27:41.87	0.156	G327.69−0.67	15:55:40.5	−54:26:18.51	0.183
G19.08−0.20	18:26:29.9	−12:23:50.22	0.152	G327.69−0.37	15:54:22.7	−54:12:19.52	0.183
G19.10−0.49	18:27:35.0	−12:31:03.15	0.240	G327.70+0.06	15:52:30.4	−53:52:03.58	0.174
G19.10−0.21	18:26:33.6	−12:22:57.08	0.208	G327.70−0.36	15:54:22.0	−54:11:28.60	0.226
G19.10−0.47	18:27:30.3	−12:30:08.42	0.208	G327.71−0.58	15:55:20.5	−54:21:14.90	0.173
G19.10−0.52	18:27:41.7	−12:31:34.84	0.185	G327.71−0.28	15:54:03.2	−54:07:21.62	0.173
G19.10−0.23	18:26:39.8	−12:23:24.76	0.162	G327.71−0.31	15:54:10.8	−54:08:29.62	0.176
G19.11+0.11	18:25:24.8	−12:13:32.28	0.151	G327.71−0.34	15:54:18.6	−54:09:50.95	0.290
G19.11+0.11	18:25:26.3	−12:13:39.48	0.154	G327.72−0.55	15:55:17.8	−54:19:32.34	0.378
G19.11+0.46	18:24:11.0	−12:03:38.86	0.160	G327.72+0.90	15:49:05.1	−53:11:50.28	0.207
G19.11−0.51	18:27:40.8	−12:30:34.14	0.158	G327.72−0.36	15:54:28.1	−54:10:36.93	0.154
G19.11+0.06	18:25:37.2	−12:14:35.55	0.162	G327.72−0.75	15:56:11.3	−54:28:35.12	0.152
G19.12−0.30	18:26:55.5	−12:24:22.74	0.188	G327.72−0.33	15:54:19.3	−54:08:54.19	0.158
G19.12−0.05	18:26:03.2	−12:17:17.72	0.162	G327.72−0.37	15:54:31.5	−54:11:03.74	0.165
G19.12+0.11	18:25:28.4	−12:12:48.23	0.166	G327.73−0.05	15:53:09.4	−53:55:55.00	0.194
G19.13+0.12	18:25:27.0	−12:12:21.88	0.156	G327.73−0.75	15:56:14.2	−54:28:09.68	0.201
G19.13−0.19	18:26:34.0	−12:20:58.72	0.153	G327.75+0.93	15:49:05.5	−53:09:30.53	0.191
G19.13+0.08	18:25:34.5	−12:13:16.59	0.186	G327.75+0.06	15:52:46.2	−53:50:03.25	0.165
G19.14+0.26	18:24:57.4	−12:07:56.50	0.174	G327.75−0.49	15:55:12.1	−54:15:33.28	0.168
G19.14−0.06	18:26:05.5	−12:16:35.74	0.229	G327.76−0.35	15:54:36.8	−54:08:46.24	0.870
G19.14−0.10	18:26:14.1	−12:17:37.82	0.183	G327.76+0.52	15:50:54.5	−53:28:29.31	0.151
G19.14−0.29	18:26:55.8	−12:22:52.92	0.207	G327.76−0.72	15:56:14.5	−54:25:33.42	0.226
G19.15−0.12	18:26:20.7	−12:18:07.07	0.170	G327.77−0.51	15:55:20.0	−54:15:46.31	0.170
G19.15+0.88	18:22:44.1	−11:49:58.19	0.150	G327.78−0.71	15:56:16.4	−54:24:36.79	0.165
G19.15+0.87	18:22:45.6	−11:49:48.65	0.151	G327.78−0.48	15:55:19.7	−54:13:56.16	0.166
G19.16−0.23	18:26:46.5	−12:20:18.95	0.158	G327.80−0.47	15:55:19.7	−54:12:37.27	0.173
G19.18−0.25	18:26:52.4	−12:19:31.26	0.159	G327.80+0.05	15:53:05.1	−53:48:31.30	0.150
G19.20−0.06	18:26:12.2	−12:13:34.94	0.261	G327.80+0.05	15:53:05.2	−53:48:20.74	0.152
G19.20−0.61	18:28:12.7	−12:28:56.68	0.174	G327.80+0.07	15:53:03.1	−53:47:46.97	0.157
G19.21+0.07	18:25:45.7	−12:08:57.24	0.153	G327.81+0.50	15:51:13.5	−53:27:24.75	0.160
G19.22−0.03	18:26:09.8	−12:11:25.79	0.157	G327.81+0.49	15:51:17.6	−53:27:57.88	0.152
G19.23−0.66	18:28:27.3	−12:28:45.27	0.180	G327.81−0.59	15:55:57.0	−54:18:01.19	0.156
G19.23−0.50	18:27:51.5	−12:23:57.08	0.161	G327.81+0.49	15:51:18.3	−53:27:42.69	0.160
G19.24+0.10	18:25:43.7	−12:06:57.29	0.213	G327.82−0.75	15:56:40.6	−54:24:57.06	0.158
G19.25+0.03	18:25:59.4	−12:08:18.72	0.241	G327.82+0.16	15:52:43.8	−53:43:00.76	0.166
G19.25+0.09	18:25:46.1	−12:06:28.08	0.152	G327.82−0.25	15:54:29.0	−54:01:43.89	0.169
G19.28+0.07	18:25:53.5	−12:05:25.62	0.430	G327.82−0.60	15:56:01.4	−54:17:55.77	0.234
G19.28−0.39	18:27:34.2	−12:18:18.90	0.310	G327.82−0.46	15:55:25.4	−54:11:31.76	0.296
G19.29−0.04	18:26:19.2	−12:08:02.37	0.165	G327.82−0.27	15:54:36.2	−54:02:44.19	0.174
G19.31−0.69	18:28:42.4	−12:24:52.96	0.155	G327.82+0.20	15:52:34.0	−53:40:48.65	0.200
G19.32+0.73	18:23:35.1	−11:45:07.74	0.150	G327.83−0.05	15:53:39.3	−53:52:14.22	0.210
G19.32+0.73	18:23:36.6	−11:45:07.81	0.155	G327.83−0.28	15:54:40.4	−54:02:42.38	0.153
G19.32−0.04	18:26:21.7	−12:06:27.61	0.162	G327.83−0.75	15:56:44.2	−54:24:13.95	0.244

Table A.1. continued.

IRDC name	R.A. ($^{h}:^{m}:^{s}$) (J2000)	Decl. ($^{\circ}:':''$) (J2000)	$C_{24\mu m}$	IRDC name	R.A. ($^{h}:^{m}:^{s}$) (J2000)	Decl. ($^{\circ}:':''$) (J2000)	$C_{24\mu m}$
G19.34−0.04	18:26:25.7	−12:05:15.99	0.186	G327.83−0.67	15:56:23.9	−54:20:29.18	0.157
G19.38−0.03	18:26:27.8	−12:03:22.71	0.267	G327.84−0.27	15:54:41.5	−54:02:14.45	0.166
G19.40−0.01	18:26:25.1	−12:01:27.40	0.345	G327.84−0.71	15:56:38.4	−54:22:23.35	0.242
G19.41−0.09	18:26:44.5	−12:03:23.50	0.154	G327.85−0.49	15:55:40.8	−54:11:33.05	0.157
G19.42−0.06	18:26:38.7	−12:01:50.27	0.209	G327.85−0.04	15:53:45.2	−53:51:00.73	0.152
G19.42−0.09	18:26:45.4	−12:02:38.33	0.282	G327.85−0.27	15:54:43.7	−54:01:17.72	0.158
G19.43−0.82	18:29:24.2	−12:22:39.14	0.853	G327.85−0.64	15:56:22.4	−54:18:20.38	0.269
G19.45−0.11	18:26:54.4	−12:01:29.10	0.159	G327.85−0.59	15:56:10.1	−54:16:07.20	0.331
G19.47−0.08	18:26:49.4	−11:59:46.99	0.204	G327.86−0.51	15:55:51.8	−54:12:10.97	0.154
G19.48−0.68	18:29:00.5	−12:15:39.48	0.155	G327.86+0.06	15:53:24.2	−53:45:57.48	0.155
G19.49−0.05	18:26:45.7	−11:57:44.23	0.229	G327.87−0.12	15:54:14.4	−53:53:52.03	0.150
G19.50−0.22	18:27:23.8	−12:01:56.16	0.176	G327.88−0.28	15:54:54.5	−54:00:47.20	0.158
G19.52+0.06	18:26:23.3	−11:52:47.31	0.231	G327.88−0.50	15:55:52.2	−54:10:51.95	0.237
G19.53−0.11	18:27:02.1	−11:57:36.67	0.158	G327.88+0.45	15:51:50.5	−53:26:57.91	0.162
G19.53+0.87	18:23:30.6	−11:29:41.93	0.157	G327.89−0.17	15:54:28.4	−53:55:20.50	0.203
G19.61−0.18	18:27:26.6	−11:55:15.12	0.377	G327.89−0.47	15:55:49.5	−54:09:31.29	0.186
G19.61−0.24	18:27:38.2	−11:56:39.68	0.723	G327.89+0.45	15:51:50.7	−53:26:42.21	0.151
G19.62−0.28	18:27:50.0	−11:57:26.77	0.181	G327.89−0.38	15:55:26.4	−54:05:23.30	0.171
G19.63−0.73	18:29:28.3	−12:09:07.36	0.187	G327.89−0.55	15:56:11.6	−54:13:08.72	0.282
G19.64−0.09	18:27:11.3	−11:50:46.76	0.185	G327.89−0.58	15:56:19.3	−54:14:18.82	0.155
G19.65−0.27	18:27:50.7	−11:55:18.55	0.160	G327.89−0.60	15:56:24.7	−54:15:12.28	0.157
G19.66−0.76	18:29:37.4	−12:08:48.58	0.195	G327.90−0.39	15:55:32.5	−54:05:25.18	0.171
G19.66−0.74	18:29:32.2	−12:08:03.20	0.174	G327.90+0.45	15:51:53.8	−53:26:07.01	0.230
G19.68−0.19	18:27:37.3	−11:51:41.56	0.183	G327.90+0.43	15:51:59.6	−53:27:10.69	0.312
G19.69+0.13	18:26:28.5	−11:41:58.62	0.156	G327.90+0.08	15:53:29.8	−53:43:25.16	0.155
G19.71−0.17	18:27:36.0	−11:49:28.35	0.220	G327.90−0.18	15:54:36.8	−53:55:06.65	0.151
G19.72−0.19	18:27:41.4	−11:49:41.40	0.172	G327.92+0.07	15:53:37.1	−53:43:15.55	0.161
G19.72−0.17	18:27:38.1	−11:48:49.07	0.172	G327.92−0.61	15:56:34.2	−54:14:27.80	0.241
G19.72−0.21	18:27:45.1	−11:49:43.08	0.150	G327.92−0.40	15:55:41.2	−54:04:47.92	0.191
G19.73−0.22	18:27:48.8	−11:50:03.51	0.163	G327.92−0.02	15:54:03.7	−53:47:21.47	0.167
G19.74−0.65	18:29:23.9	−12:01:28.27	0.345	G327.93−0.57	15:56:26.1	−54:12:11.41	0.172
G19.78−0.52	18:28:59.8	−11:55:14.31	0.209	G327.93+0.02	15:53:55.5	−53:45:04.78	0.229
G19.84−0.34	18:28:27.2	−11:47:34.38	0.158	G327.94+0.50	15:51:53.3	−53:22:14.29	0.284
G19.84−0.41	18:28:43.4	−11:49:26.44	0.175	G327.94−0.59	15:56:38.6	−54:12:43.49	0.221
G19.84−0.74	18:29:54.9	−11:58:27.19	0.212	G327.95−0.72	15:57:12.6	−54:18:29.42	0.265
G19.84−0.61	18:29:26.3	−11:54:40.67	0.197	G327.95−0.19	15:54:54.0	−53:54:06.21	0.163
G19.85−0.83	18:30:15.0	−12:00:40.55	0.169	G327.95+0.39	15:52:26.0	−53:26:57.09	0.192
G19.89−0.50	18:29:06.4	−11:49:12.68	0.156	G327.95+0.52	15:51:54.9	−53:21:05.13	0.216
G19.89−0.50	18:29:07.2	−11:49:06.26	0.151	G327.96−0.75	15:57:25.5	−54:19:29.44	0.158
G19.89−0.59	18:29:27.8	−11:51:36.13	0.161	G327.96−0.04	15:54:19.1	−53:46:33.84	0.167
G19.89−0.57	18:29:23.0	−11:50:51.26	0.154	G327.97+0.39	15:52:33.8	−53:26:31.84	0.158
G19.90−0.51	18:29:09.9	−11:49:01.96	0.152	G327.97+0.16	15:53:31.9	−53:36:54.67	0.224
G19.90−0.76	18:30:04.0	−11:55:46.65	0.226	G327.98+0.51	15:52:03.7	−53:20:22.30	0.183
G19.90−0.15	18:27:52.8	−11:38:54.56	0.167	G327.98−0.49	15:56:23.5	−54:06:51.14	0.261
G19.91−0.59	18:29:28.2	−11:50:38.84	0.301	G327.99−0.52	15:56:34.3	−54:07:49.94	0.196
G19.91−0.24	18:28:12.8	−11:40:53.68	0.228	G327.99−0.48	15:56:22.0	−54:05:37.52	0.162
G19.91−0.86	18:30:28.0	−11:57:49.59	0.172	G328.00−0.56	15:56:47.2	−54:09:23.37	0.286
G19.91−0.62	18:29:35.9	−11:51:05.55	0.166	G328.00+0.15	15:53:42.7	−53:36:40.32	0.158

Table A.1. continued.

IRDC name	R.A. ($^{h}:^{m}:^{s}$) (J2000)	Decl. ($^{\circ}:':''$) (J2000)	$C_{24\mu m}$	IRDC name	R.A. ($^{h}:^{m}:^{s}$) (J2000)	Decl. ($^{\circ}:':''$) (J2000)	$C_{24\mu m}$
G19.92−0.46	18:29:02.9	−11:46:39.12	0.152	G328.00+0.52	15:52:07.8	−53:19:21.85	0.185
G19.92−0.20	18:28:06.3	−11:39:17.71	0.295	G328.01+0.42	15:52:36.2	−53:23:48.77	0.161
G19.93−0.30	18:28:28.3	−11:41:40.34	0.227	G328.01+0.38	15:52:47.6	−53:25:33.21	0.222
G19.93−0.91	18:30:42.1	−11:58:10.61	0.191	G328.01−0.64	15:57:12.2	−54:12:13.37	0.181
G19.94−0.26	18:28:19.9	−11:39:52.77	0.213	G328.02−0.55	15:56:49.8	−54:08:05.56	0.174
G19.94−0.82	18:30:22.3	−11:55:23.97	0.237	G328.02−0.37	15:56:04.1	−53:59:55.63	0.182
G19.97−0.10	18:27:51.0	−11:33:47.81	0.222	G328.02−0.74	15:57:41.3	−54:16:22.13	0.209
G19.98−0.17	18:28:06.0	−11:35:23.73	0.153	G328.02+0.54	15:52:10.1	−53:17:19.05	0.166
G20.04−0.69	18:30:06.7	−11:46:40.46	0.163	G328.02−0.44	15:56:25.0	−54:02:51.65	0.199
G20.06−0.74	18:30:18.4	−11:46:31.09	0.150	G328.04+0.39	15:52:53.2	−53:23:25.35	0.178
G20.07−0.85	18:30:45.1	−11:49:15.52	0.184	G328.04−0.55	15:56:57.8	−54:06:42.38	0.201
G20.07−0.73	18:30:17.6	−11:45:44.87	0.177	G328.05−0.73	15:57:47.5	−54:15:03.40	0.152
G20.08−0.74	18:30:20.7	−11:45:30.64	0.160	G328.05−0.03	15:54:42.9	−53:42:39.62	0.184
G20.08−0.80	18:30:35.7	−11:47:20.49	0.175	G328.05−0.71	15:57:43.5	−54:13:54.66	0.164
G20.15−0.72	18:30:25.9	−11:41:27.85	0.177	G328.05−0.25	15:55:42.1	−53:52:40.62	0.181
G20.18−0.73	18:30:30.3	−11:39:51.69	0.155	G328.06−0.01	15:54:41.5	−53:41:38.18	0.155
G20.21−0.64	18:30:15.3	−11:36:01.20	0.167	G328.06−0.04	15:54:50.3	−53:43:06.96	0.188
G20.39+0.05	18:28:06.0	−11:07:29.13	0.165	G328.06−0.06	15:54:54.1	−53:43:45.94	0.186
G20.51−0.01	18:28:32.7	−11:02:45.54	0.152	G328.06−0.29	15:55:56.0	−53:54:40.13	0.165
G20.61−0.18	18:29:20.3	−11:01:46.61	0.193	G328.06−0.47	15:56:41.6	−54:02:34.21	0.242
G20.67−0.17	18:29:23.4	−10:58:35.18	0.203	G328.06+0.36	15:53:07.5	−53:24:13.19	0.186
G20.69−0.32	18:29:59.7	−11:01:21.89	0.157	G328.07−0.49	15:56:50.0	−54:03:20.93	0.151
G20.70−0.04	18:29:00.0	−10:53:23.71	0.171	G328.07−0.53	15:57:01.2	−54:04:56.93	0.295
G20.71−0.12	18:29:17.9	−10:55:12.74	0.273	G328.07−0.24	15:55:47.1	−53:51:37.35	0.153
G20.71−0.36	18:30:09.1	−11:01:37.27	0.244	G328.08−0.12	15:55:17.8	−53:46:09.07	0.187
G20.71−0.23	18:29:42.3	−10:58:09.79	0.152	G328.08−0.06	15:55:01.3	−53:42:45.47	0.159
G20.71−0.03	18:28:58.1	−10:52:27.33	0.166	G328.08−0.10	15:55:12.5	−53:44:44.69	0.289
G20.71−0.14	18:29:24.0	−10:55:28.06	0.174	G328.08−0.32	15:56:10.5	−53:54:48.29	0.341
G20.72−0.16	18:29:29.4	−10:55:25.28	0.198	G328.09−0.01	15:54:51.2	−53:40:38.39	0.163
G20.73−0.14	18:29:25.4	−10:54:45.49	0.215	G328.09−0.24	15:55:50.7	−53:50:57.01	0.155
G20.74−0.18	18:29:34.2	−10:54:53.69	0.276	G328.09−0.58	15:57:22.7	−54:06:36.42	0.274
G20.76+0.45	18:27:20.4	−10:36:20.98	0.150	G328.10+0.52	15:52:37.7	−53:15:33.47	0.239
G20.76+0.45	18:27:20.2	−10:36:10.82	0.159	G328.10+0.63	15:52:12.3	−53:10:30.53	0.232
G20.77+0.46	18:27:20.0	−10:35:43.72	0.194	G328.10−0.50	15:57:03.8	−54:02:27.52	0.254
G20.78−0.18	18:29:38.4	−10:53:00.08	0.158	G328.10+0.61	15:52:18.3	−53:11:16.56	0.301
G20.78−0.09	18:29:19.1	−10:50:24.39	0.169	G328.11−0.17	15:55:40.0	−53:47:18.26	0.180
G20.78−0.17	18:29:36.6	−10:52:29.56	0.175	G328.12−0.59	15:57:33.1	−54:06:00.60	0.186
G20.78−0.14	18:29:31.9	−10:51:47.68	0.215	G328.12+0.00	15:54:58.5	−53:38:29.44	0.255
G20.80−0.18	18:29:40.3	−10:51:58.56	0.155	G328.12−0.69	15:58:01.4	−54:10:18.06	0.160
G20.80−0.16	18:29:36.7	−10:51:06.40	0.170	G328.13−0.42	15:56:52.5	−53:57:52.56	0.262
G20.80+0.00	18:29:02.2	−10:46:35.74	0.171	G328.14+0.27	15:53:54.3	−53:25:35.76	0.167
G20.82−0.13	18:29:32.9	−10:49:37.33	0.153	G328.14+0.61	15:52:26.8	−53:09:37.80	0.243
G20.83−0.23	18:29:56.9	−10:51:28.22	0.246	G328.14−0.57	15:57:34.7	−54:03:55.43	0.222
G20.95−0.06	18:29:32.9	−10:40:35.51	0.156	G328.15+0.62	15:52:27.3	−53:08:52.33	0.150
G21.10+0.15	18:29:03.4	−10:26:42.12	0.157	G328.15−0.67	15:58:05.5	−54:08:27.10	0.207
G21.20−0.13	18:30:16.4	−10:29:18.10	0.171	G328.16+0.62	15:52:31.4	−53:08:33.37	0.194
G21.20+0.40	18:28:21.5	−10:14:27.16	0.158	G328.17−0.29	15:56:27.3	−53:50:08.98	0.173
G21.21−0.14	18:30:18.2	−10:28:54.92	0.153	G328.17+0.02	15:55:09.3	−53:35:38.41	0.267

Table A.1. continued.

IRDC name	R.A. ($^{h}:^{m}:^{s}$) (J2000)	Decl. ($^{\circ}:':''$) (J2000)	$C_{24\mu m}$	IRDC name	R.A. ($^{h}:^{m}:^{s}$) (J2000)	Decl. ($^{\circ}:':''$) (J2000)	$C_{24\mu m}$
G21.23−0.01	18:29:53.6	−10:23:58.53	0.164	G328.17−0.16	15:55:57.8	−53:44:14.18	0.166
G21.24−0.00	18:29:53.1	−10:23:14.98	0.154	G328.18−0.32	15:56:38.4	−53:51:03.91	0.284
G21.27+0.19	18:29:14.2	−10:16:44.77	0.186	G328.18−0.28	15:56:30.4	−53:49:36.82	0.157
G21.31+0.37	18:28:40.9	−10:09:19.88	0.183	G328.18+0.31	15:53:57.2	−53:22:04.99	0.213
G21.32−0.14	18:30:32.0	−10:22:56.29	0.150	G328.18−0.44	15:57:12.5	−53:56:24.02	0.159
G21.36−0.61	18:32:18.8	−10:33:49.50	0.168	G328.19+0.63	15:52:39.3	−53:06:58.04	0.204
G21.37−0.55	18:32:05.6	−10:31:24.87	0.152	G328.20−0.67	15:58:19.9	−54:06:39.65	0.288
G21.38+0.17	18:29:32.1	−10:11:19.64	0.188	G328.20+0.29	15:54:08.1	−53:21:59.93	0.249
G21.39−0.54	18:32:07.0	−10:30:24.22	0.238	G328.21−0.44	15:57:21.7	−53:55:21.00	0.206
G21.40−0.01	18:30:13.4	−10:14:58.39	0.154	G328.21−0.36	15:57:01.4	−53:51:46.80	0.170
G21.41+0.03	18:30:05.4	−10:13:21.95	0.263	G328.22−0.42	15:57:19.3	−53:54:29.35	0.153
G21.42−0.08	18:30:30.0	−10:16:18.18	0.187	G328.22−0.39	15:57:11.7	−53:52:47.61	0.183
G21.42−0.49	18:31:58.2	−10:27:20.94	0.209	G328.23−0.62	15:58:13.0	−54:02:54.20	0.234
G21.54+0.03	18:30:18.5	−10:06:43.92	0.152	G328.23−0.42	15:57:20.9	−53:53:48.57	0.197
G21.62−0.24	18:31:28.4	−10:09:55.47	0.168	G328.23−0.40	15:57:17.3	−53:53:10.71	0.151
G21.66+0.12	18:30:14.9	−09:57:51.10	0.200	G328.23+0.26	15:54:26.5	−53:22:41.80	0.150
G21.75+0.89	18:27:37.5	−09:31:11.37	0.161	G328.23−0.63	15:58:18.6	−54:03:36.89	0.170
G21.76−0.51	18:32:42.1	−10:09:54.54	0.169	G328.23+0.26	15:54:25.0	−53:22:20.91	0.155
G21.77−0.23	18:31:42.5	−10:01:45.62	0.160	G328.23−0.37	15:57:08.5	−53:51:17.36	0.256
G21.77−0.35	18:32:07.9	−10:04:49.42	0.159	G328.23−0.75	15:58:49.8	−54:08:41.03	0.209
G21.77−0.47	18:32:33.3	−10:08:03.03	0.169	G328.25−0.61	15:58:18.8	−54:01:42.07	0.349
G21.77−0.36	18:32:10.4	−10:04:58.38	0.159	G328.25−0.52	15:57:54.2	−53:57:20.60	0.578
G21.80−0.19	18:31:36.8	−09:59:00.09	0.173	G328.25−0.41	15:57:26.3	−53:52:24.21	0.350
G21.82−0.34	18:32:10.4	−10:02:11.20	0.187	G328.25+0.25	15:54:36.9	−53:22:15.35	0.176
G21.82−0.55	18:32:58.0	−10:07:48.09	0.175	G328.25−0.26	15:56:47.0	−53:45:21.57	0.222
G21.83−0.40	18:32:24.9	−10:03:04.86	0.199	G328.26−0.30	15:56:59.8	−53:47:11.79	0.191
G21.85−0.25	18:31:55.3	−09:57:59.81	0.253	G328.26+0.58	15:53:14.9	−53:06:41.97	0.170
G21.85−0.28	18:32:03.2	−09:58:37.66	0.262	G328.26+0.13	15:55:10.1	−53:27:26.99	0.185
G21.87−0.37	18:32:24.0	−10:00:13.32	0.158	G328.28+0.60	15:53:14.0	−53:05:08.52	0.178
G21.88+0.17	18:30:28.4	−09:44:44.62	0.166	G328.29+0.53	15:53:35.1	−53:07:51.53	0.167
G21.88−0.23	18:31:54.3	−09:55:34.22	0.165	G328.29+0.52	15:53:39.0	−53:07:59.14	0.153
G21.89−0.23	18:31:56.4	−09:55:07.87	0.153	G328.30−0.42	15:57:43.7	−53:50:59.26	0.245
G21.90−0.24	18:31:59.8	−09:54:50.95	0.169	G328.30−0.01	15:55:57.9	−53:32:18.05	0.191
G21.91−0.04	18:31:16.1	−09:49:04.44	0.172	G328.32−0.41	15:57:48.2	−53:49:59.88	0.211
G21.91−0.20	18:31:51.2	−09:53:32.68	0.151	G328.32−0.55	15:58:25.0	−53:56:14.09	0.335
G21.92+0.05	18:30:58.5	−09:45:43.05	0.159	G328.33−0.63	15:58:50.1	−53:59:43.39	0.167
G21.96−0.28	18:32:14.5	−09:52:46.64	0.180	G328.34−0.41	15:57:54.1	−53:49:22.18	0.207
G21.97−0.16	18:31:50.2	−09:49:14.95	0.184	G328.35−0.25	15:57:14.0	−53:41:11.05	0.207
G21.97−0.32	18:32:23.5	−09:53:30.53	0.186	G328.36−0.21	15:57:07.9	−53:39:18.66	0.161
G21.97−0.39	18:32:39.6	−09:55:21.31	0.166	G328.38−0.53	15:58:38.1	−53:52:40.65	0.172
G21.97+0.23	18:30:24.9	−09:37:51.80	0.231	G328.39−0.31	15:57:43.5	−53:42:32.91	0.165
G21.98−0.38	18:32:36.9	−09:54:30.16	0.185	G328.40−0.09	15:56:49.1	−53:31:50.68	0.156
G21.98−0.40	18:32:42.2	−09:54:52.27	0.151	G328.41+0.13	15:55:55.1	−53:21:43.02	0.162
G21.99−0.42	18:32:47.2	−09:54:56.75	0.188	G328.41+0.11	15:55:59.9	−53:22:25.15	0.154
G22.00−0.26	18:32:14.7	−09:50:35.83	0.156	G328.42+0.10	15:56:07.1	−53:22:41.05	0.173
G22.00−0.27	18:32:17.1	−09:50:25.16	0.153	G328.43+0.12	15:56:05.0	−53:21:25.02	0.170
G22.01+0.35	18:30:02.4	−09:32:48.46	0.291	G328.43+0.71	15:53:32.8	−52:53:44.77	0.157
G22.01−0.40	18:32:45.7	−09:53:44.01	0.213	G328.44−0.51	15:58:50.8	−53:50:05.62	0.219

Table A.1. continued.

IRDC name	R.A. ($^{h}:^{m}:^{s}$) (J2000)	Decl. ($^{\circ}:':''$) (J2000)	$C_{24\mu m}$	IRDC name	R.A. ($^{h}:^{m}:^{s}$) (J2000)	Decl. ($^{\circ}:':''$) (J2000)	$C_{24\mu m}$
G22.01−0.65	18:33:38.6	−10:00:24.22	0.152	G328.44−0.55	15:58:59.9	−53:51:39.50	0.152
G22.01−0.57	18:33:23.6	−09:58:23.05	0.207	G328.44−0.48	15:58:43.1	−53:48:34.04	0.167
G22.02−0.54	18:33:16.8	−09:57:03.99	0.257	G328.44−0.34	15:58:06.2	−53:42:05.50	0.205
G22.03+0.35	18:30:05.2	−09:31:42.50	0.161	G328.45−0.33	15:58:06.2	−53:41:12.84	0.189
G22.03−0.03	18:31:29.1	−09:42:21.00	0.158	G328.45−0.60	15:59:19.1	−53:53:42.81	0.244
G22.04−0.57	18:33:26.2	−09:56:59.37	0.159	G328.46−0.23	15:57:43.6	−53:35:56.69	0.174
G22.05+0.18	18:30:46.1	−09:35:22.51	0.213	G328.47+0.11	15:56:19.4	−53:20:15.64	0.172
G22.06+0.19	18:30:44.0	−09:34:45.45	0.261	G328.47+0.22	15:55:50.5	−53:14:56.84	0.168
G22.06+0.22	18:30:36.4	−09:33:36.09	0.173	G328.48+0.40	15:55:07.6	−53:06:24.10	0.177
G22.08+0.21	18:30:41.9	−09:33:14.16	0.285	G328.49+0.38	15:55:14.6	−53:06:53.89	0.160
G22.08−0.47	18:33:07.9	−09:51:37.81	0.172	G328.49+0.36	15:55:21.3	−53:07:36.65	0.158
G22.08+0.46	18:29:49.1	−09:25:58.82	0.159	G328.50+0.34	15:55:29.8	−53:08:21.62	0.166
G22.09+0.50	18:29:40.9	−09:24:40.35	0.221	G328.59+0.27	15:56:13.6	−53:08:13.47	0.161
G22.09−0.50	18:33:16.4	−09:52:12.67	0.151	G328.60−0.13	15:57:59.5	−53:26:06.84	0.155
G22.09−0.46	18:33:08.2	−09:50:42.96	0.167	G328.62+0.28	15:56:22.1	−53:06:48.26	0.207
G22.10−0.39	18:32:53.4	−09:48:23.67	0.184	G328.63−0.46	15:59:37.7	−53:39:46.82	0.272
G22.10+0.13	18:31:01.5	−09:33:50.24	0.222	G328.64−0.66	16:00:31.8	−53:48:53.42	0.184
G22.11+0.15	18:30:59.1	−09:33:11.81	0.160	G328.65−0.42	15:59:34.3	−53:37:24.14	0.224
G22.12−0.56	18:33:31.8	−09:52:17.60	0.159	G328.70+0.26	15:56:49.5	−53:04:30.60	0.225
G22.12−0.54	18:33:29.0	−09:51:53.60	0.176	G328.72+0.39	15:56:23.0	−52:57:41.10	0.164
G22.13−0.10	18:31:55.2	−09:39:02.94	0.198	G328.73−0.12	15:58:40.0	−53:20:41.40	0.163
G22.13−0.24	18:32:24.1	−09:42:30.61	0.162	G328.73−0.75	16:01:25.9	−53:49:15.88	0.156
G22.15−0.22	18:32:23.1	−09:40:59.31	0.206	G328.75+0.72	15:55:07.9	−52:41:35.35	0.218
G22.16−0.66	18:33:58.6	−09:52:49.24	0.152	G328.77−0.57	16:00:49.1	−53:39:50.51	0.196
G22.17−0.64	18:33:54.4	−09:51:51.26	0.153	G328.82+0.75	15:55:22.8	−52:36:59.07	0.217
G22.17−0.67	18:34:02.5	−09:52:53.48	0.150	G328.83+0.47	15:56:36.7	−52:50:04.79	0.215
G22.18+0.28	18:30:38.1	−09:25:27.03	0.176	G328.85−0.54	16:01:04.9	−53:35:22.87	0.175
G22.18−0.09	18:31:57.6	−09:35:37.52	0.166	G328.85−0.60	16:01:23.9	−53:37:49.79	0.173
G22.21−0.52	18:33:34.1	−09:46:33.48	0.229	G328.86+0.75	15:55:32.9	−52:35:46.81	0.231
G22.21−0.11	18:32:04.3	−09:34:56.30	0.191	G328.86−0.57	16:01:16.8	−53:35:54.75	0.207
G22.23+0.39	18:30:20.6	−09:19:48.55	0.173	G328.87+0.75	15:55:35.7	−52:35:22.22	0.152
G22.24+0.40	18:30:18.6	−09:19:12.53	0.154	G328.89−0.67	16:01:53.1	−53:39:37.18	0.150
G22.25−0.58	18:33:50.6	−09:45:51.78	0.167	G328.92+0.28	15:57:52.5	−52:54:43.16	0.181
G22.25−0.18	18:32:24.4	−09:34:36.99	0.157	G328.95+0.81	15:55:45.2	−52:29:35.98	0.153
G22.25−0.42	18:33:17.3	−09:41:09.91	0.237	G328.98−0.56	16:01:51.3	−53:31:00.51	0.153
G22.25−0.64	18:34:04.0	−09:47:05.68	0.186	G328.99+0.56	15:57:02.2	−52:39:41.97	0.175
G22.26−0.32	18:32:56.2	−09:38:06.40	0.167	G329.02−0.17	16:00:19.8	−53:11:42.53	0.193
G22.26−0.33	18:32:59.5	−09:38:31.24	0.180	G329.02−0.20	16:00:28.5	−53:13:02.05	0.164
G22.26−0.59	18:33:54.0	−09:45:23.73	0.152	G329.03−0.19	16:00:26.8	−53:12:13.01	0.164
G22.26−0.77	18:34:33.3	−09:50:25.30	0.177	G329.03−0.24	16:00:40.3	−53:14:10.19	0.304
G22.26−0.18	18:32:26.7	−09:34:09.23	0.177	G329.04−0.14	16:00:17.8	−53:09:30.15	0.160
G22.29−0.08	18:32:07.7	−09:29:28.27	0.191	G329.04−0.20	16:00:33.5	−53:12:00.56	0.294
G22.31+0.45	18:30:14.6	−09:14:08.43	0.240	G329.04−0.28	16:00:55.6	−53:15:46.67	0.183
G22.31−0.63	18:34:08.5	−09:44:10.52	0.332	G329.04−0.13	16:00:15.4	−53:08:44.89	0.208
G22.31−0.65	18:34:12.8	−09:44:32.62	0.162	G329.05−0.31	16:01:04.1	−53:16:56.73	0.282
G22.32−0.20	18:32:36.4	−09:31:31.74	0.236	G329.06−0.12	16:00:18.5	−53:08:00.28	0.154
G22.33+0.27	18:30:57.0	−09:18:11.07	0.156	G329.07−0.29	16:01:08.3	−53:15:00.75	0.157
G22.33+0.10	18:31:34.1	−09:22:35.89	0.184	G329.09−0.28	16:01:10.6	−53:13:58.27	0.199

Table A.1. continued.

IRDC name	R.A. ($^{h}:^{m}:^{s}$) (J2000)	Decl. ($^{\circ}:':''$) (J2000)	$C_{24\mu m}$	IRDC name	R.A. ($^{h}:^{m}:^{s}$) (J2000)	Decl. ($^{\circ}:':''$) (J2000)	$C_{24\mu m}$
G22.33+0.25	18:31:01.8	−09:18:21.83	0.154	G329.09−0.34	16:01:27.4	−53:16:38.78	0.156
G22.33−0.11	18:32:19.7	−09:28:21.26	0.200	G329.10−0.32	16:01:22.3	−53:15:26.76	0.173
G22.34+0.26	18:30:59.9	−09:17:22.21	0.212	G329.13+0.29	15:58:53.3	−52:46:29.40	0.174
G22.35−0.23	18:32:47.0	−09:31:01.76	0.216	G329.14−0.25	16:01:16.1	−53:10:34.08	0.177
G22.36+0.42	18:30:28.7	−09:11:58.66	0.396	G329.15−0.61	16:02:54.7	−53:26:40.44	0.153
G22.37+0.27	18:31:01.8	−09:16:02.01	0.177	G329.15+0.45	15:58:17.6	−52:38:04.78	0.165
G22.37−0.09	18:32:20.1	−09:25:49.27	0.151	G329.17+0.65	15:57:33.2	−52:28:01.39	0.169
G22.38−0.63	18:34:16.6	−09:40:30.03	0.171	G329.18+0.45	15:58:27.9	−52:37:16.01	0.235
G22.38−0.24	18:32:52.3	−09:29:13.31	0.156	G329.18−0.33	16:01:49.8	−53:12:28.62	0.159
G22.38−0.28	18:33:01.3	−09:30:20.45	0.159	G329.20−0.34	16:01:57.2	−53:12:06.99	0.191
G22.39−0.26	18:32:58.1	−09:29:07.82	0.192	G329.21−0.74	16:03:48.2	−53:30:14.63	0.170
G22.41+0.32	18:30:55.2	−09:12:17.21	0.278	G329.21−0.59	16:03:09.1	−53:23:13.06	0.226
G22.41−0.49	18:33:50.4	−09:34:46.24	0.281	G329.23+0.48	15:58:33.1	−52:33:47.18	0.173
G22.41−0.46	18:33:42.8	−09:33:45.15	0.156	G329.24+0.48	15:58:37.5	−52:33:24.89	0.159
G22.41−0.02	18:32:09.8	−09:21:41.70	0.227	G329.24+0.62	15:58:02.3	−52:26:47.13	0.159
G22.42+0.01	18:32:03.7	−09:20:44.39	0.212	G329.26−0.75	16:04:04.5	−53:28:12.63	0.154
G22.42−0.41	18:33:33.8	−09:32:17.89	0.163	G329.26−0.25	16:01:52.7	−53:05:29.83	0.241
G22.42−0.69	18:34:33.2	−09:39:46.49	0.205	G329.27−0.71	16:03:58.1	−53:26:22.90	0.156
G22.42+0.16	18:31:30.9	−09:16:21.84	0.155	G329.27−0.32	16:02:14.4	−53:08:29.41	0.180
G22.42−0.65	18:34:26.3	−09:38:45.58	0.174	G329.28−0.26	16:02:02.4	−53:05:35.47	0.178
G22.43−0.65	18:34:27.1	−09:37:55.80	0.163	G329.29−0.66	16:03:52.3	−53:23:11.41	0.208
G22.44−0.34	18:33:20.4	−09:29:09.19	0.172	G329.31−0.31	16:02:23.5	−53:06:29.47	0.185
G22.44+0.27	18:31:10.3	−09:11:53.62	0.298	G329.33+0.32	15:59:44.7	−52:37:00.79	0.161
G22.45−0.02	18:32:12.9	−09:19:33.46	0.174	G329.34−0.32	16:02:36.7	−53:05:49.03	0.155
G22.45−0.75	18:34:51.8	−09:39:48.24	0.187	G329.34−0.31	16:02:33.0	−53:05:11.28	0.171
G22.45+0.50	18:30:20.7	−09:04:48.20	0.240	G329.38−0.30	16:02:42.8	−53:03:11.23	0.241
G22.47+0.35	18:30:54.7	−09:08:28.79	0.181	G329.39−0.71	16:04:35.1	−53:21:37.52	0.177
G22.47−0.75	18:34:51.8	−09:38:50.71	0.162	G329.39+0.02	16:01:22.4	−52:48:20.79	0.162
G22.47−0.00	18:32:11.7	−09:18:02.06	0.174	G329.41−0.30	16:02:51.3	−53:02:10.00	0.155
G22.48+0.03	18:32:06.4	−09:16:57.92	0.214	G329.41−0.74	16:04:47.2	−53:21:45.49	0.266
G22.48+0.31	18:31:05.8	−09:09:04.32	0.157	G329.41+0.20	16:00:41.4	−52:39:11.34	0.300
G22.48−0.02	18:32:16.3	−09:17:51.98	0.151	G329.42+0.32	16:00:12.6	−52:33:32.47	0.160
G22.49+0.32	18:31:03.8	−09:08:10.59	0.224	G329.42−0.12	16:02:06.4	−52:53:22.37	0.216
G22.50−0.04	18:32:23.7	−09:17:40.97	0.214	G329.42+0.36	16:00:02.8	−52:31:36.59	0.173
G22.50+0.22	18:31:27.6	−09:10:27.07	0.186	G329.42+0.37	16:00:00.6	−52:31:03.95	0.150
G22.50+0.27	18:31:16.3	−09:08:43.16	0.167	G329.43+0.53	15:59:21.0	−52:23:52.16	0.181
G22.50+0.18	18:31:35.8	−09:11:06.22	0.164	G329.43+0.51	15:59:25.9	−52:24:26.85	0.158
G22.51−0.56	18:34:16.1	−09:31:39.23	0.169	G329.43−0.72	16:04:50.7	−53:20:17.72	0.158
G22.51−0.28	18:33:15.9	−09:23:53.18	0.165	G329.44+0.31	16:00:21.5	−52:33:29.31	0.151
G22.51+0.32	18:31:05.7	−09:06:56.82	0.152	G329.44+0.13	16:01:08.8	−52:41:43.42	0.215
G22.51−0.26	18:33:12.1	−09:23:06.73	0.200	G329.44+0.32	16:00:19.1	−52:32:54.20	0.159
G22.52+0.19	18:31:35.2	−09:10:16.99	0.156	G329.44−0.72	16:04:52.5	−53:19:36.15	0.151
G22.52+0.27	18:31:17.9	−09:07:56.95	0.152	G329.44+0.48	15:59:38.6	−52:25:21.77	0.155
G22.52−0.52	18:34:09.0	−09:29:52.41	0.181	G329.46+0.31	16:00:26.5	−52:32:31.29	0.214
G22.52+0.46	18:30:38.4	−09:02:34.76	0.150	G329.46−0.33	16:03:15.0	−53:01:34.31	0.179
G22.53−0.27	18:33:16.3	−09:22:11.30	0.151	G329.56−0.36	16:03:52.8	−52:59:12.23	0.155
G22.53+0.28	18:31:18.6	−09:07:03.49	0.154	G329.56+0.70	15:59:17.7	−52:11:12.73	0.156
G22.53−0.19	18:32:59.7	−09:20:03.31	0.262	G329.56+0.21	16:01:23.3	−52:33:00.94	0.178

Table A.1. continued.

IRDC name	R.A. ($^{h}:^{m}:^{s}$) (J2000)	Decl. ($^{\circ}:':''$) (J2000)	$C_{24\mu m}$	IRDC name	R.A. ($^{h}:^{m}:^{s}$) (J2000)	Decl. ($^{\circ}:':''$) (J2000)	$C_{24\mu m}$
G22.54−0.52	18:34:11.8	−09:28:53.79	0.320	G329.57+0.29	16:01:03.9	−52:29:20.12	0.223
G22.55+0.08	18:32:02.3	−09:11:46.19	0.167	G329.57+0.34	16:00:50.4	−52:26:53.55	0.160
G22.55+0.02	18:32:16.5	−09:12:59.69	0.166	G329.57−0.36	16:03:53.1	−52:58:24.61	0.164
G22.56+0.04	18:32:12.9	−09:12:25.69	0.164	G329.57−0.39	16:04:03.9	−53:00:01.83	0.173
G22.56−0.78	18:35:08.8	−09:34:34.58	0.176	G329.58+0.28	16:01:10.5	−52:29:27.42	0.164
G22.57−0.79	18:35:12.7	−09:34:21.95	0.163	G329.58+0.11	16:01:54.4	−52:36:44.90	0.267
G22.58−0.22	18:33:11.1	−09:18:27.53	0.286	G329.59+0.38	16:00:47.6	−52:24:16.04	0.169
G22.58+0.01	18:32:21.5	−09:11:41.57	0.204	G329.60+0.44	16:00:35.0	−52:21:24.30	0.155
G22.59−0.01	18:32:26.4	−09:11:52.72	0.169	G329.60+0.10	16:02:03.5	−52:36:52.17	0.216
G22.60−0.48	18:34:08.9	−09:24:28.39	0.181	G329.60+0.13	16:01:54.9	−52:35:12.64	0.168
G22.60−0.57	18:34:29.3	−09:26:56.30	0.161	G329.60−0.50	16:04:42.0	−53:03:43.08	0.162
G22.60+0.13	18:31:58.7	−09:07:24.79	0.161	G329.61+0.40	16:00:49.5	−52:22:31.54	0.157
G22.61−0.10	18:32:47.7	−09:13:01.05	0.151	G329.63−0.41	16:04:25.7	−52:58:10.22	0.181
G22.61−0.59	18:34:35.6	−09:26:48.63	0.185	G329.63−0.39	16:04:21.2	−52:57:11.43	0.156
G22.62−0.14	18:32:57.6	−09:14:05.94	0.185	G329.64−0.42	16:04:30.3	−52:58:28.88	0.151
G22.62−0.71	18:35:01.1	−09:29:24.26	0.152	G329.64+0.30	16:01:26.0	−52:25:59.51	0.150
G22.63−0.82	18:35:26.3	−09:32:31.88	0.178	G329.65−0.40	16:04:27.6	−52:57:07.23	0.162
G22.63−0.46	18:34:09.1	−09:22:18.89	0.214	G329.65−0.43	16:04:37.0	−52:58:30.05	0.259
G22.63−0.57	18:34:33.1	−09:25:22.74	0.234	G329.66−0.43	16:04:41.2	−52:58:14.86	0.209
G22.63+0.08	18:32:11.4	−09:07:02.30	0.166	G329.67−0.40	16:04:36.2	−52:56:35.12	0.151
G22.63+0.11	18:32:05.6	−09:06:10.83	0.221	G329.67−0.24	16:03:55.1	−52:49:09.57	0.152
G22.64−0.13	18:32:58.5	−09:12:50.82	0.164	G329.69+0.27	16:01:47.1	−52:25:21.68	0.203
G22.65−0.83	18:35:29.5	−09:31:33.64	0.161	G329.71+0.78	15:59:42.8	−52:01:20.61	0.177
G22.65−0.11	18:32:55.3	−09:11:46.96	0.190	G329.72+0.78	15:59:46.0	−52:00:54.37	0.156
G22.65−0.47	18:34:11.4	−09:21:27.87	0.187	G329.73−0.11	16:03:37.5	−52:40:33.20	0.154
G22.65+0.07	18:32:15.2	−09:06:30.70	0.153	G329.75−0.04	16:03:22.7	−52:37:03.73	0.175
G22.65−0.27	18:33:29.7	−09:15:42.88	0.184	G329.86+0.78	16:00:27.3	−51:55:39.90	0.159
G22.66+0.09	18:32:13.9	−09:05:16.93	0.164	G329.86+0.11	16:03:20.1	−52:25:45.38	0.162
G22.67+0.08	18:32:16.8	−09:05:19.02	0.156	G329.88+0.75	16:00:38.6	−51:55:53.85	0.203
G22.68−0.46	18:34:13.8	−09:19:19.95	0.306	G329.90+0.42	16:02:07.3	−52:10:17.90	0.170
G22.68+0.07	18:32:19.5	−09:04:32.53	0.177	G329.97−0.26	16:05:26.5	−52:37:51.82	0.208
G22.70−0.09	18:32:56.2	−09:08:07.87	0.164	G329.97−0.69	16:07:23.2	−52:57:12.51	0.199
G22.71−0.43	18:34:10.1	−09:16:58.30	0.183	G329.99+0.75	16:01:12.4	−51:52:02.56	0.151
G22.72−0.07	18:32:55.3	−09:06:48.95	0.203	G329.99+0.73	16:01:18.6	−51:52:50.17	0.155
G22.72−0.38	18:34:01.0	−09:15:13.95	0.153	G330.00+0.74	16:01:18.5	−51:51:55.94	0.154
G22.72−0.37	18:33:58.3	−09:14:44.82	0.151	G330.01+0.74	16:01:21.9	−51:51:30.01	0.155
G22.72−0.27	18:33:38.1	−09:11:58.23	0.245	G330.06+0.65	16:01:57.4	−51:53:16.54	0.189
G22.73+0.13	18:32:13.2	−09:00:41.41	0.300	G330.08−0.11	16:05:18.7	−52:26:47.16	0.271
G22.73−0.09	18:32:59.1	−09:06:23.62	0.175	G330.10−0.08	16:05:17.5	−52:24:36.07	0.154
G22.73−0.39	18:34:05.1	−09:14:43.52	0.161	G330.18−0.02	16:05:27.0	−52:18:47.70	0.186
G22.75−0.07	18:32:56.7	−09:05:04.06	0.200	G330.20+0.69	16:02:27.0	−51:46:24.14	0.162
G22.76−0.48	18:34:27.1	−09:15:53.55	0.819	G330.20−0.02	16:05:32.4	−52:17:55.37	0.159
G22.80−0.46	18:34:26.3	−09:13:06.20	0.219	G330.20−0.00	16:05:28.1	−52:17:08.94	0.166
G22.80−0.34	18:34:02.6	−09:09:50.65	0.245	G330.21−0.51	16:07:42.0	−52:39:34.73	0.177
G22.81−0.23	18:33:39.6	−09:06:24.64	0.166	G330.23+0.76	16:02:19.1	−51:41:46.72	0.242
G22.83+0.02	18:32:46.4	−08:58:04.63	0.172	G330.25+0.53	16:03:22.3	−51:51:27.31	0.160
G22.83−0.42	18:34:23.2	−09:10:21.18	0.339	G330.25+0.76	16:02:23.7	−51:40:57.58	0.184
G22.84−0.38	18:34:14.4	−09:08:59.58	0.160	G330.26−0.61	16:08:25.5	−52:42:06.33	0.155

Table A.1. continued.

IRDC name	R.A. ($^{h}:^{m}:^{s}$) (J2000)	Decl. ($^{\circ}:':''$) (J2000)	$C_{24\mu m}$	IRDC name	R.A. ($^{h}:^{m}:^{s}$) (J2000)	Decl. ($^{\circ}:':''$) (J2000)	$C_{24\mu m}$
G22.84−0.09	18:33:11.4	−09:00:35.29	0.163	G330.29−0.08	16:06:11.9	−52:17:06.80	0.245
G22.85−0.37	18:34:13.0	−09:08:12.35	0.175	G330.29+0.36	16:04:18.4	−51:57:30.83	0.165
G22.86−0.44	18:34:30.1	−09:09:19.88	0.213	G330.30−0.68	16:08:56.6	−52:43:42.13	0.153
G22.87−0.41	18:34:23.3	−09:08:07.54	0.307	G330.30+0.63	16:03:14.3	−51:45:05.59	0.175
G22.87−0.11	18:33:19.8	−08:59:38.52	0.165	G330.32+0.57	16:03:33.3	−51:47:00.28	0.189
G22.88−0.10	18:33:18.0	−08:58:54.22	0.191	G330.33+0.53	16:03:46.2	−51:48:21.88	0.168
G22.89−0.33	18:34:08.1	−09:04:56.27	0.181	G330.33−0.09	16:06:27.2	−52:16:05.53	0.158
G22.90−0.47	18:34:40.1	−09:08:13.04	0.285	G330.33+0.55	16:03:44.6	−51:47:22.91	0.256
G22.91−0.52	18:34:51.7	−09:08:59.51	0.157	G330.34+0.74	16:02:55.8	−51:38:40.49	0.218
G22.91−0.51	18:34:51.0	−09:08:32.55	0.152	G330.35−0.03	16:06:16.9	−52:12:42.27	0.248
G22.92−0.24	18:33:53.8	−09:00:51.12	0.195	G330.35+0.77	16:02:51.8	−51:36:28.08	0.211
G22.92−0.63	18:35:18.2	−09:11:37.75	0.168	G330.37+0.51	16:04:02.9	−51:47:35.76	0.250
G22.93−0.25	18:33:57.0	−09:00:20.19	0.171	G330.38−0.03	16:06:26.6	−52:11:40.29	0.211
G22.94−0.17	18:33:40.2	−08:57:51.18	0.327	G330.39+0.48	16:04:16.8	−51:47:52.80	0.169
G22.95−0.60	18:35:14.1	−09:09:01.45	0.157	G330.41−0.03	16:06:34.8	−52:10:12.02	0.173
G22.95−0.10	18:33:27.1	−08:54:58.55	0.166	G330.43−0.40	16:08:19.5	−52:25:25.71	0.172
G22.96−0.00	18:33:06.6	−08:52:13.56	0.181	G330.44−0.51	16:08:51.1	−52:30:32.10	0.173
G22.97−0.17	18:33:42.9	−08:56:17.67	0.156	G330.44−0.30	16:07:54.2	−52:20:54.88	0.153
G22.97−0.73	18:35:45.6	−09:11:43.78	0.152	G330.45−0.29	16:07:56.5	−52:19:54.83	0.154
G22.98+0.71	18:30:36.0	−08:31:18.17	0.180	G330.46+0.38	16:05:02.1	−51:49:46.15	0.173
G22.99−0.42	18:34:38.4	−09:02:05.05	0.453	G330.46−0.47	16:08:45.8	−52:27:27.08	0.162
G22.99+0.72	18:30:33.5	−08:30:15.93	0.191	G330.46+0.49	16:04:34.6	−51:44:37.91	0.152
G22.99−0.32	18:34:17.5	−08:58:59.61	0.183	G330.47+0.49	16:04:38.0	−51:44:37.10	0.170
G23.00−0.40	18:34:36.7	−09:01:04.98	0.163	G330.48+0.36	16:05:15.2	−51:49:58.47	0.175
G23.01−0.22	18:33:59.2	−08:55:39.17	0.247	G330.51+0.17	16:06:11.7	−51:57:28.04	0.151
G23.01−0.11	18:33:36.7	−08:52:21.40	0.197	G330.53−0.60	16:09:40.2	−52:30:31.35	0.159
G23.02−0.20	18:33:55.8	−08:54:07.96	0.286	G330.55−0.43	16:09:00.6	−52:22:14.83	0.191
G23.03+0.53	18:31:18.9	−08:33:39.63	0.188	G330.55−0.06	16:07:23.9	−52:05:47.65	0.174
G23.03−0.63	18:35:29.8	−09:05:34.25	0.250	G330.56−0.39	16:08:54.3	−52:20:03.27	0.166
G23.04+0.09	18:32:55.3	−08:44:55.56	0.154	G330.58−0.69	16:10:21.2	−52:32:40.41	0.155
G23.05+0.09	18:32:57.9	−08:44:32.88	0.183	G330.58−0.27	16:08:29.0	−52:13:47.49	0.285
G23.05+0.29	18:32:14.4	−08:38:51.96	0.207	G330.59−0.23	16:08:21.0	−52:11:54.85	0.205
G23.06+0.28	18:32:16.2	−08:38:40.43	0.150	G330.59−0.68	16:10:21.5	−52:31:47.45	0.150
G23.06+0.26	18:32:21.6	−08:39:09.33	0.194	G330.62−0.27	16:08:39.4	−52:12:42.07	0.268
G23.07+0.04	18:33:08.4	−08:45:01.85	0.284	G330.62−0.22	16:08:26.1	−52:10:07.50	0.164
G23.07−0.20	18:34:02.5	−08:51:32.78	0.224	G330.63−0.55	16:09:56.7	−52:24:06.70	0.181
G23.08+0.24	18:32:28.8	−08:39:00.92	0.242	G330.65−0.55	16:10:01.2	−52:23:39.82	0.151
G23.09−0.42	18:34:51.1	−08:56:49.85	0.158	G330.66−0.32	16:09:04.2	−52:13:17.72	0.222
G23.09−0.24	18:34:11.6	−08:51:35.82	0.157	G330.66−0.19	16:08:29.8	−52:07:19.19	0.155
G23.09−0.64	18:35:39.6	−09:02:30.74	0.155	G330.66−0.64	16:10:29.4	−52:26:45.09	0.155
G23.10−0.15	18:33:53.0	−08:48:45.16	0.162	G330.67+0.19	16:06:54.0	−51:50:14.36	0.156
G23.10+0.62	18:31:07.0	−08:27:20.77	0.210	G330.67−0.33	16:09:11.2	−52:12:59.24	0.161
G23.10−0.08	18:33:37.8	−08:46:40.54	0.246	G330.67−0.49	16:09:53.4	−52:19:57.60	0.304
G23.10−0.39	18:34:45.3	−08:55:17.02	0.281	G330.69−0.18	16:08:35.7	−52:05:50.63	0.179
G23.10−0.33	18:34:33.3	−08:53:34.34	0.322	G330.69+0.19	16:06:57.6	−51:48:57.57	0.163
G23.11−0.25	18:34:15.3	−08:50:56.32	0.155	G330.69−0.29	16:09:06.5	−52:10:33.50	0.192
G23.11−0.11	18:33:47.2	−08:47:05.16	0.181	G330.70−0.41	16:09:39.6	−52:15:34.13	0.165
G23.12+0.62	18:31:10.3	−08:26:09.19	0.152	G330.71+0.04	16:07:43.2	−51:55:11.01	0.193

Table A.1. continued.

IRDC name	R.A. ($^{h}:^{m}:^{s}$) (J2000)	Decl. ($^{\circ}:':''$) (J2000)	$C_{24\mu m}$	IRDC name	R.A. ($^{h}:^{m}:^{s}$) (J2000)	Decl. ($^{\circ}:':''$) (J2000)	$C_{24\mu m}$
G23.13−0.16	18:33:58.2	−08:47:24.46	0.155	G330.72−0.19	16:08:45.0	−52:04:43.68	0.179
G23.13+0.63	18:31:09.4	−08:25:39.53	0.165	G330.72+0.05	16:07:44.2	−51:54:08.98	0.160
G23.13−0.48	18:35:07.8	−08:55:55.95	0.259	G330.72−0.50	16:10:10.6	−52:18:24.72	0.180
G23.13−0.07	18:33:41.3	−08:44:47.22	0.188	G330.73−0.40	16:09:45.0	−52:13:45.67	0.424
G23.15−0.49	18:35:11.9	−08:55:19.76	0.222	G330.73−0.55	16:10:26.5	−52:20:33.65	0.231
G23.15−0.40	18:34:54.5	−08:52:59.10	0.175	G330.73−0.35	16:09:34.0	−52:11:16.74	0.223
G23.15−0.22	18:34:15.1	−08:47:45.10	0.154	G330.74−0.37	16:09:40.7	−52:11:57.51	0.173
G23.17−0.34	18:34:43.5	−08:50:24.08	0.164	G330.76−0.30	16:09:27.9	−52:07:46.54	0.192
G23.17−0.03	18:33:36.3	−08:41:36.56	0.188	G330.77−0.28	16:09:24.6	−52:06:44.61	0.196
G23.17−0.00	18:33:30.7	−08:40:37.68	0.169	G330.77−0.41	16:10:00.7	−52:12:38.17	0.179
G23.18−0.05	18:33:41.8	−08:41:30.12	0.155	G330.77−0.08	16:08:32.4	−51:57:45.05	0.164
G23.19−0.12	18:33:56.6	−08:43:07.53	0.158	G330.77+0.26	16:07:04.5	−51:42:35.44	0.316
G23.20−0.30	18:34:36.4	−08:47:23.06	0.151	G330.77+0.24	16:07:09.9	−51:43:27.48	0.222
G23.20−0.30	18:34:37.3	−08:47:21.57	0.156	G330.78−0.28	16:09:29.2	−52:05:59.54	0.151
G23.20−0.33	18:34:45.6	−08:48:11.86	0.174	G330.79+0.23	16:07:16.5	−51:43:04.30	0.306
G23.22−0.47	18:35:16.5	−08:51:09.87	0.190	G330.79−0.44	16:10:14.3	−52:12:56.10	0.195
G23.22−0.38	18:34:57.6	−08:48:36.03	0.359	G330.80−0.26	16:09:27.1	−52:04:32.35	0.227
G23.22−0.54	18:35:31.8	−08:52:47.78	0.217	G330.80+0.25	16:07:17.0	−51:41:55.37	0.173
G23.22−0.49	18:35:20.3	−08:51:19.16	0.158	G330.81−0.52	16:10:42.4	−52:15:50.75	0.300
G23.23−0.51	18:35:26.8	−08:52:00.91	0.240	G330.81−0.44	16:10:19.6	−52:11:58.74	0.212
G23.24−0.49	18:35:21.9	−08:50:38.78	0.221	G330.82−0.38	16:10:04.8	−52:09:00.90	0.189
G23.25+0.01	18:33:35.0	−08:36:18.85	0.236	G330.84−0.74	16:11:47.0	−52:24:10.15	0.196
G23.25−0.06	18:33:51.6	−08:38:19.54	0.152	G330.86+0.30	16:07:17.6	−51:37:24.81	0.159
G23.25+0.60	18:31:30.7	−08:19:45.78	0.154	G330.86+0.27	16:07:27.7	−51:38:59.28	0.185
G23.26+0.57	18:31:36.5	−08:20:11.92	0.153	G330.87+0.25	16:07:35.6	−51:39:09.61	0.248
G23.26−0.15	18:34:12.7	−08:39:54.03	0.229	G330.89+0.07	16:08:26.3	−51:46:27.92	0.214
G23.27−0.25	18:34:33.8	−08:42:24.52	0.205	G330.89−0.33	16:10:12.8	−52:03:53.92	0.343
G23.27+0.59	18:31:33.1	−08:19:04.16	0.157	G330.89−0.17	16:09:30.9	−51:56:47.23	0.226
G23.28−0.35	18:34:57.3	−08:44:53.02	0.231	G330.90−0.29	16:10:05.3	−52:02:09.24	0.267
G23.28−0.17	18:34:18.9	−08:39:36.79	0.227	G330.91−0.61	16:11:33.7	−52:15:46.83	0.214
G23.29−0.20	18:34:26.9	−08:40:07.65	0.291	G330.91+0.16	16:08:10.6	−51:41:32.95	0.258
G23.29−0.32	18:34:51.2	−08:43:09.34	0.232	G330.92−0.42	16:10:44.1	−52:06:43.96	0.224
G23.29+0.04	18:33:34.5	−08:33:17.86	0.179	G330.92−0.22	16:09:54.9	−51:57:51.87	0.157
G23.29−0.29	18:34:45.3	−08:42:13.11	0.319	G330.93−0.21	16:09:54.8	−51:57:08.47	0.175
G23.30−0.41	18:35:11.8	−08:45:06.63	0.156	G330.93−0.54	16:11:22.2	−52:11:31.74	0.229
G23.30−0.06	18:33:58.4	−08:35:28.37	0.176	G330.94+0.09	16:08:35.4	−51:43:25.48	0.154
G23.30+0.16	18:33:09.3	−08:29:09.56	0.155	G330.94+0.13	16:08:26.9	−51:41:59.63	0.155
G23.31+0.25	18:32:50.8	−08:26:03.98	0.152	G330.94+0.14	16:08:24.2	−51:41:09.25	0.178
G23.32+0.05	18:33:34.5	−08:31:26.39	0.316	G330.95+0.21	16:08:06.8	−51:37:38.86	0.151
G23.32−0.08	18:34:03.6	−08:35:02.67	0.159	G330.95−0.43	16:10:56.5	−52:05:56.60	0.173
G23.32−0.23	18:34:35.8	−08:39:03.27	0.328	G330.96−0.47	16:11:10.0	−52:07:38.54	0.364
G23.32−0.20	18:34:29.3	−08:38:01.27	0.154	G330.96−0.29	16:10:24.4	−51:59:18.02	0.172
G23.34−0.41	18:35:18.5	−08:42:54.23	0.310	G330.96−0.65	16:11:58.8	−52:14:51.40	0.194
G23.35+0.04	18:33:41.0	−08:29:52.26	0.189	G330.97−0.69	16:12:10.2	−52:16:35.22	0.210
G23.36−0.34	18:35:03.5	−08:40:09.60	0.152	G330.97−0.21	16:10:04.8	−51:55:35.91	0.208
G23.36−0.12	18:34:17.5	−08:34:12.24	0.289	G330.97−0.28	16:10:24.1	−51:58:43.48	0.150
G23.36+0.68	18:31:25.2	−08:11:39.19	0.158	G330.97−0.58	16:11:42.8	−52:11:39.72	0.162
G23.37−0.31	18:34:59.3	−08:39:03.34	0.157	G330.98−0.28	16:10:24.5	−51:58:21.45	0.190

Table A.1. continued.

IRDC name	R.A. ($^{h}:^{m}:^{s}$) (J2000)	Decl. ($^{\circ}:':''$) (J2000)	$C_{24\mu m}$	IRDC name	R.A. ($^{h}:^{m}:^{s}$) (J2000)	Decl. ($^{\circ}:':''$) (J2000)	$C_{24\mu m}$
G23.37−0.29	18:34:53.5	−08:38:11.75	0.335	G330.99+0.34	16:07:47.1	−51:30:34.90	0.285
G23.37−0.30	18:34:57.1	−08:38:38.34	0.184	G330.99−0.22	16:10:13.2	−51:55:11.21	0.183
G23.37−0.68	18:36:19.2	−08:48:47.48	0.165	G331.00+0.44	16:07:23.2	−51:25:54.48	0.153
G23.37+0.32	18:32:43.1	−08:20:56.91	0.159	G331.00−0.16	16:09:59.7	−51:52:23.79	0.181
G23.38+0.29	18:32:51.2	−08:21:31.92	0.234	G331.00−0.36	16:10:52.9	−52:01:09.04	0.246
G23.38−0.28	18:34:52.7	−08:37:05.07	0.163	G331.00−0.14	16:09:54.1	−51:51:18.76	0.203
G23.38−0.24	18:34:46.2	−08:36:04.79	0.239	G331.00−0.49	16:11:27.1	−52:06:44.11	0.204
G23.39−0.52	18:35:45.6	−08:43:33.41	0.226	G331.00−0.23	16:10:18.7	−51:55:11.01	0.160
G23.40+0.26	18:32:58.7	−08:21:33.10	0.160	G331.01−0.48	16:11:27.4	−52:05:51.07	0.182
G23.40+0.46	18:32:17.3	−08:15:35.35	0.170	G331.01−0.23	16:10:22.2	−51:54:58.21	0.185
G23.41−0.52	18:35:47.6	−08:42:17.13	0.199	G331.01−0.65	16:12:13.5	−52:13:17.80	0.194
G23.41−0.42	18:35:27.3	−08:39:39.87	0.190	G331.01−0.60	16:11:59.2	−52:10:48.57	0.164
G23.41+0.46	18:32:17.8	−08:14:58.45	0.161	G331.02+0.27	16:08:11.6	−51:32:24.00	0.174
G23.41−0.31	18:35:03.1	−08:36:12.08	0.259	G331.02+0.58	16:06:52.5	−51:18:42.75	0.161
G23.41+0.44	18:32:22.1	−08:15:29.71	0.157	G331.02−0.51	16:11:38.5	−52:06:37.70	0.215
G23.42+0.48	18:32:13.4	−08:14:12.14	0.154	G331.02−0.29	16:10:40.5	−51:56:39.66	0.322
G23.42+0.43	18:32:25.4	−08:15:16.62	0.161	G331.02−0.37	16:11:03.3	−52:00:23.83	0.159
G23.43−0.50	18:35:47.2	−08:40:49.21	0.159	G331.04+0.20	16:08:35.7	−51:34:43.23	0.204
G23.43−0.07	18:34:13.9	−08:28:47.61	0.154	G331.04+0.26	16:08:19.6	−51:31:43.49	0.165
G23.43+0.48	18:32:16.4	−08:13:35.70	0.206	G331.04−0.14	16:10:06.4	−51:49:23.19	0.316
G23.43−0.10	18:34:20.3	−08:29:26.60	0.384	G331.04−0.75	16:12:49.6	−52:16:11.35	0.213
G23.44+0.57	18:31:56.2	−08:10:43.16	0.159	G331.05−0.76	16:12:52.3	−52:16:30.75	0.164
G23.44−0.08	18:34:17.7	−08:28:51.86	0.153	G331.05+0.19	16:08:41.9	−51:34:28.87	0.186
G23.44−0.30	18:35:03.9	−08:34:17.46	0.151	G331.05+0.33	16:08:06.0	−51:28:20.95	0.190
G23.45+0.42	18:32:30.7	−08:14:28.14	0.164	G331.06−0.35	16:11:07.4	−51:57:40.22	0.172
G23.45−0.53	18:35:54.3	−08:40:23.85	0.241	G331.07+0.34	16:08:07.4	−51:27:10.01	0.156
G23.45−0.04	18:34:09.2	−08:26:47.69	0.312	G331.07−0.19	16:10:27.1	−51:50:38.32	0.309
G23.45−0.08	18:34:19.1	−08:27:53.83	0.161	G331.07−0.37	16:11:14.2	−51:58:25.46	0.204
G23.46+0.15	18:33:29.2	−08:21:25.04	0.168	G331.07−0.40	16:11:23.1	−51:59:44.91	0.311
G23.47+0.01	18:34:01.5	−08:24:35.70	0.168	G331.07−0.00	16:09:39.9	−51:42:12.09	0.176
G23.47−0.07	18:34:18.0	−08:26:35.80	0.221	G331.08−0.49	16:11:48.0	−52:03:13.99	0.350
G23.48−0.49	18:35:50.0	−08:37:55.04	0.186	G331.08−0.12	16:10:12.0	−51:47:05.20	0.213
G23.48+0.02	18:34:01.0	−08:23:49.52	0.152	G331.08−0.29	16:10:56.4	−51:54:26.78	0.151
G23.48−0.54	18:35:59.9	−08:39:02.48	0.374	G331.08+0.34	16:08:13.3	−51:26:48.61	0.158
G23.48−0.45	18:35:41.7	−08:36:36.97	0.309	G331.09+0.09	16:09:17.9	−51:37:26.97	0.153
G23.48+0.13	18:33:36.8	−08:20:32.54	0.365	G331.09−0.37	16:11:20.7	−51:57:49.46	0.211
G23.49−0.09	18:34:24.4	−08:26:15.75	0.306	G331.09+0.31	16:08:21.8	−51:27:42.36	0.294
G23.50+0.08	18:33:49.9	−08:21:02.58	0.157	G331.09−0.63	16:12:28.8	−52:08:55.86	0.178
G23.50−0.17	18:34:43.2	−08:27:45.16	0.168	G331.09−0.10	16:10:09.2	−51:45:38.42	0.180
G23.50−0.27	18:35:04.6	−08:30:26.88	0.222	G331.09−0.12	16:10:14.6	−51:46:27.63	0.156
G23.50+0.07	18:33:52.0	−08:21:03.06	0.155	G331.10−0.39	16:11:28.9	−51:58:00.31	0.179
G23.51+0.42	18:32:37.8	−08:11:12.13	0.198	G331.10−0.02	16:09:52.5	−51:41:49.41	0.182
G23.51−0.10	18:34:28.1	−08:25:16.22	0.155	G331.11−0.07	16:10:07.2	−51:43:35.22	0.166
G23.52+0.10	18:33:45.9	−08:19:24.43	0.171	G331.12−0.30	16:11:11.6	−51:53:03.13	0.342
G23.52+0.25	18:33:16.1	−08:15:14.25	0.154	G331.12−0.44	16:11:49.0	−51:59:13.75	0.348
G23.53+0.09	18:33:49.1	−08:19:14.84	0.178	G331.13−0.53	16:12:14.2	−52:02:46.20	0.892
G23.53+0.20	18:33:27.5	−08:16:20.92	0.240	G331.14+0.37	16:08:21.1	−51:23:15.92	0.254
G23.53+0.06	18:33:58.1	−08:19:55.67	0.184	G331.15−0.02	16:10:07.7	−51:39:54.99	0.156

Table A.1. continued.

IRDC name	R.A. ($^{h}:^{m}:^{s}$) (J2000)	Decl. ($^{\circ}:':''$) (J2000)	$C_{24\mu m}$	IRDC name	R.A. ($^{h}:^{m}:^{s}$) (J2000)	Decl. ($^{\circ}:':''$) (J2000)	$C_{24\mu m}$
G23.54−0.64	18:36:28.5	−08:38:36.97	0.169	G331.15+0.38	16:08:22.3	−51:21:49.94	0.156
G23.55−0.31	18:35:19.6	−08:28:58.87	0.150	G331.16−0.14	16:10:37.6	−51:44:37.36	0.174
G23.56−0.65	18:36:32.3	−08:38:00.83	0.156	G331.16−0.31	16:11:24.8	−51:51:54.43	0.152
G23.56−0.69	18:36:42.2	−08:39:16.66	0.153	G331.17+0.35	16:08:35.7	−51:22:37.13	0.219
G23.56+0.08	18:33:56.3	−08:17:56.14	0.202	G331.17−0.52	16:12:25.9	−52:00:54.87	0.188
G23.56−0.69	18:36:42.0	−08:39:06.55	0.155	G331.18−0.55	16:12:34.6	−52:02:02.30	0.154
G23.57−0.25	18:35:08.1	−08:26:30.84	0.174	G331.18−0.34	16:11:39.5	−51:52:56.06	0.200
G23.57−0.06	18:34:27.6	−08:21:16.86	0.168	G331.18−0.12	16:10:42.4	−51:42:53.70	0.209
G23.57+0.00	18:34:14.6	−08:19:12.14	0.342	G331.19−0.16	16:10:53.4	−51:44:16.31	0.165
G23.58+0.12	18:33:48.7	−08:15:46.73	0.175	G331.19−0.19	16:11:02.1	−51:45:37.09	0.225
G23.58−0.40	18:35:41.9	−08:30:09.04	0.157	G331.19−0.68	16:13:12.9	−52:06:58.12	0.156
G23.59+0.52	18:32:23.7	−08:03:54.37	0.169	G331.20+0.48	16:08:07.7	−51:15:42.61	0.150
G23.60+0.48	18:32:34.9	−08:04:57.00	0.243	G331.20−0.30	16:11:32.9	−51:49:55.22	0.358
G23.60+0.03	18:34:11.5	−08:16:46.46	0.172	G331.20−0.68	16:13:16.3	−52:06:49.72	0.152
G23.61+0.33	18:33:07.7	−08:08:22.99	0.155	G331.20+0.10	16:09:49.8	−51:32:19.44	0.185
G23.61+0.18	18:33:40.2	−08:12:19.41	0.223	G331.21−0.52	16:12:35.1	−51:59:20.18	0.229
G23.62+0.18	18:33:41.3	−08:11:30.26	0.161	G331.21−0.66	16:13:13.1	−52:05:28.53	0.264
G23.63−0.00	18:34:20.9	−08:16:28.51	0.333	G331.22+0.32	16:08:57.1	−51:22:14.34	0.191
G23.63+0.48	18:32:37.5	−08:03:00.44	0.158	G331.23−0.56	16:12:49.6	−52:00:17.73	0.164
G23.63+0.33	18:33:10.1	−08:07:10.83	0.154	G331.23−0.14	16:11:01.1	−51:41:54.88	0.164
G23.63+0.41	18:32:52.3	−08:04:46.25	0.154	G331.23−0.41	16:12:11.4	−51:53:33.55	0.413
G23.63+0.32	18:33:11.7	−08:07:11.79	0.152	G331.24−0.51	16:12:42.7	−51:57:47.26	0.153
G23.63+0.39	18:32:57.5	−08:05:11.84	0.222	G331.24−0.74	16:13:42.3	−52:07:25.37	0.167
G23.64−0.29	18:35:25.7	−08:23:50.08	0.209	G331.24−0.35	16:12:00.6	−51:50:33.77	0.164
G23.65+0.20	18:33:41.4	−08:09:34.24	0.369	G331.26−0.34	16:11:59.7	−51:49:26.33	0.150
G23.66+0.25	18:33:31.5	−08:07:40.54	0.271	G331.26−0.34	16:12:01.6	−51:49:25.89	0.159
G23.66+0.45	18:32:47.9	−08:02:01.11	0.184	G331.27+0.39	16:08:52.9	−51:17:00.90	0.170
G23.67+0.12	18:34:00.8	−08:10:54.53	0.166	G331.27−0.38	16:12:16.0	−51:50:38.82	0.313
G23.67+0.43	18:32:53.3	−08:02:04.12	0.217	G331.28−0.19	16:11:26.0	−51:42:04.54	0.831
G23.68+0.07	18:34:10.9	−08:11:39.52	0.186	G331.28−0.24	16:11:41.6	−51:44:18.23	0.167
G23.69+0.42	18:32:56.6	−08:01:37.50	0.183	G331.28−0.47	16:12:42.4	−51:54:12.59	0.217
G23.69+0.76	18:31:44.1	−07:52:14.97	0.150	G331.28−0.45	16:12:37.3	−51:53:20.38	0.156
G23.69+0.39	18:33:04.7	−08:02:21.67	0.152	G331.29+0.10	16:10:13.6	−51:28:44.45	0.173
G23.69+0.39	18:33:04.3	−08:02:09.83	0.154	G331.29+0.22	16:09:42.9	−51:23:29.93	0.159
G23.69+0.42	18:32:57.8	−08:01:19.65	0.151	G331.29+0.41	16:08:54.8	−51:15:14.81	0.152
G23.69+0.37	18:33:08.1	−08:02:30.93	0.159	G331.29−0.23	16:11:41.6	−51:43:09.23	0.151
G23.70−0.49	18:36:13.3	−08:26:09.16	0.152	G331.30+0.09	16:10:20.8	−51:28:50.58	0.198
G23.70+0.41	18:33:00.1	−08:00:57.18	0.178	G331.31+0.42	16:08:55.6	−51:14:06.65	0.186
G23.70+0.37	18:33:09.3	−08:02:03.20	0.160	G331.31−0.14	16:11:22.8	−51:38:55.80	0.194
G23.71+0.42	18:33:00.5	−08:00:14.29	0.163	G331.31−0.10	16:11:12.2	−51:37:09.36	0.150
G23.72+0.37	18:33:10.5	−08:01:13.44	0.177	G331.31−0.10	16:11:12.5	−51:36:50.90	0.155
G23.72−0.16	18:35:04.9	−08:15:34.41	0.173	G331.31−0.13	16:11:20.2	−51:38:00.75	0.170
G23.73+0.44	18:32:57.0	−07:58:51.45	0.180	G331.32−0.23	16:11:49.8	−51:42:22.28	0.150
G23.73+0.26	18:33:37.0	−08:03:46.28	0.220	G331.32−0.22	16:11:46.9	−51:41:46.09	0.205
G23.74+0.04	18:34:25.3	−08:09:30.45	0.179	G331.33+0.12	16:10:18.2	−51:26:21.61	0.158
G23.74+0.34	18:33:20.7	−08:00:53.42	0.277	G331.33+0.10	16:10:25.3	−51:27:29.71	0.337
G23.75+0.01	18:34:31.3	−08:09:27.54	0.160	G331.33+0.15	16:10:12.5	−51:25:17.49	0.279
G23.76+0.03	18:34:29.0	−08:08:33.02	0.159	G331.33+0.18	16:10:03.8	−51:23:30.68	0.268

Table A.1. continued.

IRDC name	R.A. ($^{h}:^{m}:^{s}$) (J2000)	Decl. ($^{\circ}:':''$) (J2000)	$C_{24\mu m}$	IRDC name	R.A. ($^{h}:^{m}:^{s}$) (J2000)	Decl. ($^{\circ}:':''$) (J2000)	$C_{24\mu m}$
G23.76+0.25	18:33:43.2	−08:02:22.60	0.162	G331.33−0.10	16:11:19.3	−51:36:06.45	0.183
G23.77+0.53	18:32:42.1	−07:54:13.63	0.205	G331.33−0.50	16:13:03.6	−51:53:11.92	0.151
G23.77+0.17	18:33:59.3	−08:03:54.16	0.222	G331.33+0.21	16:09:57.3	−51:22:09.84	0.179
G23.78+0.09	18:34:17.9	−08:06:00.39	0.185	G331.34−0.51	16:13:09.9	−51:53:30.48	0.232
G23.78+0.02	18:34:33.9	−08:07:29.06	0.175	G331.34+0.08	16:10:33.8	−51:27:17.32	0.337
G23.79+0.16	18:34:03.7	−08:03:18.84	0.295	G331.35−0.57	16:13:25.9	−51:55:42.42	0.223
G23.80−0.00	18:34:40.6	−08:07:15.03	0.282	G331.35−0.47	16:13:00.5	−51:51:24.95	0.151
G23.81+0.28	18:33:42.0	−07:58:59.11	0.155	G331.35+0.18	16:10:11.2	−51:22:57.56	0.285
G23.82−0.63	18:36:58.8	−08:23:44.10	0.156	G331.35+0.15	16:10:19.4	−51:24:19.39	0.370
G23.82−0.65	18:37:02.5	−08:23:58.84	0.190	G331.35−0.09	16:11:22.5	−51:34:33.58	0.154
G23.83+0.48	18:33:01.1	−07:52:15.12	0.160	G331.35+0.07	16:10:39.3	−51:27:19.14	0.263
G23.83+0.57	18:32:40.7	−07:49:35.95	0.208	G331.36−0.02	16:11:05.1	−51:31:05.88	0.881
G23.84+0.00	18:34:43.8	−08:05:03.49	0.201	G331.36−0.40	16:12:48.1	−51:47:52.73	0.175
G23.84+0.35	18:33:30.0	−07:55:12.17	0.226	G331.36+0.61	16:08:22.6	−51:03:12.47	0.198
G23.85−0.35	18:36:00.0	−08:14:17.21	0.175	G331.38−0.10	16:11:31.5	−51:34:13.89	0.201
G23.85−0.37	18:36:04.4	−08:14:36.49	0.203	G331.38−0.30	16:12:25.0	−51:42:53.19	0.164
G23.85−0.21	18:35:32.0	−08:10:24.92	0.168	G331.38+0.17	16:10:22.6	−51:21:55.25	0.167
G23.85−0.30	18:35:51.2	−08:12:50.21	0.257	G331.38−0.54	16:13:30.1	−51:52:59.38	0.181
G23.86+0.19	18:34:05.0	−07:58:47.60	0.156	G331.39−0.42	16:12:57.7	−51:47:34.27	0.326
G23.86+0.18	18:34:08.6	−07:59:09.56	0.179	G331.39+0.04	16:10:55.8	−51:27:16.59	0.195
G23.86+0.59	18:32:40.4	−07:47:40.35	0.151	G331.40+0.43	16:09:18.1	−51:09:55.10	0.168
G23.86−0.28	18:35:47.7	−08:11:44.76	0.213	G331.40+0.15	16:10:31.4	−51:22:17.99	0.296
G23.86+0.08	18:34:30.4	−08:01:45.93	0.270	G331.41−0.02	16:11:19.9	−51:29:28.44	0.197
G23.87−0.36	18:36:04.5	−08:13:28.48	0.196	G331.42+0.12	16:10:44.8	−51:22:43.43	0.184
G23.87+0.33	18:33:35.9	−07:54:12.55	0.154	G331.43+0.11	16:10:51.5	−51:22:51.88	0.162
G23.87−0.18	18:35:26.5	−08:08:19.42	0.280	G331.43+0.73	16:08:11.4	−50:55:26.99	0.195
G23.89−0.23	18:35:38.9	−08:08:47.31	0.179	G331.43−0.22	16:12:18.0	−51:36:49.96	0.169
G23.90+0.20	18:34:07.9	−07:56:23.97	0.161	G331.44+0.10	16:10:56.0	−51:23:02.25	0.186
G23.92+0.12	18:34:28.0	−07:57:33.00	0.171	G331.44+0.13	16:10:47.4	−51:21:27.25	0.217
G23.93−0.22	18:35:40.3	−08:06:28.34	0.245	G331.44−0.23	16:12:24.6	−51:37:05.71	0.151
G23.94+0.42	18:33:24.8	−07:47:47.75	0.216	G331.44−0.35	16:12:56.2	−51:42:11.98	0.152
G23.97−0.07	18:35:14.6	−08:00:23.56	0.179	G331.45−0.10	16:11:50.7	−51:31:05.12	0.163
G23.97+0.04	18:34:51.9	−07:56:59.04	0.197	G331.45−0.16	16:12:08.1	−51:33:35.85	0.193
G23.98−0.19	18:35:40.0	−08:03:02.87	0.164	G331.45+0.35	16:09:54.9	−51:11:12.02	0.172
G23.98+0.09	18:34:39.9	−07:54:57.33	0.150	G331.45−0.58	16:14:00.3	−51:51:48.51	0.171
G23.99+0.49	18:33:15.9	−07:43:37.72	0.180	G331.45−0.33	16:12:55.1	−51:41:06.14	0.161
G23.99−0.20	18:35:44.3	−08:02:39.18	0.157	G331.46−0.34	16:12:57.6	−51:41:27.21	0.164
G24.01+0.27	18:34:04.5	−07:48:43.39	0.193	G331.46−0.30	16:12:45.9	−51:39:22.52	0.229
G24.01−0.16	18:35:36.7	−08:00:33.49	0.154	G331.46−0.32	16:12:53.2	−51:40:18.24	0.182
G24.01+0.40	18:33:37.8	−07:45:11.00	0.160	G331.47+0.02	16:11:26.3	−51:24:52.65	0.368
G24.01−0.14	18:35:33.9	−07:59:55.23	0.154	G331.48−0.52	16:13:50.5	−51:48:16.75	0.210
G24.01+0.15	18:34:31.7	−07:51:56.34	0.388	G331.48−0.32	16:12:59.2	−51:39:15.05	0.151
G24.01+0.41	18:33:36.5	−07:44:32.36	0.154	G331.48−0.30	16:12:55.5	−51:38:34.13	0.170
G24.02−0.16	18:35:39.6	−08:00:02.81	0.200	G331.49+0.15	16:10:57.5	−51:18:48.48	0.162
G24.03+0.01	18:35:02.6	−07:54:42.25	0.151	G331.49+0.58	16:09:06.8	−50:59:41.65	0.174
G24.03+0.25	18:34:11.1	−07:47:48.18	0.150	G331.49+0.59	16:09:04.9	−50:59:12.86	0.153
G24.04+0.47	18:33:25.0	−07:41:35.26	0.151	G331.49−0.64	16:14:27.3	−51:53:01.25	0.154
G24.04+0.10	18:34:44.3	−07:51:30.34	0.152	G331.49−0.62	16:14:21.5	−51:51:59.62	0.169

Table A.1. continued.

IRDC name	R.A. ($^{h}:^{m}:^{s}$) (J2000)	Decl. ($^{\circ}:':''$) (J2000)	$C_{24\mu m}$	IRDC name	R.A. ($^{h}:^{m}:^{s}$) (J2000)	Decl. ($^{\circ}:':''$) (J2000)	$C_{24\mu m}$
G24.04+0.25	18:34:13.0	−07:47:18.15	0.167	G331.49+0.59	16:09:04.9	−50:59:02.26	0.152
G24.04+0.08	18:34:50.9	−07:52:08.72	0.159	G331.49−0.28	16:12:51.0	−51:36:57.36	0.164
G24.05+0.09	18:34:47.9	−07:51:27.32	0.237	G331.50+0.14	16:11:03.0	−51:18:31.03	0.264
G24.05−0.22	18:35:54.5	−07:59:48.44	0.219	G331.50−0.30	16:12:58.4	−51:37:28.75	0.154
G24.05+0.27	18:34:09.6	−07:46:13.85	0.224	G331.50+0.25	16:10:36.6	−51:13:38.63	0.159
G24.06−0.10	18:35:30.1	−07:55:56.30	0.165	G331.50−0.54	16:14:04.5	−51:48:05.91	0.359
G24.06+0.18	18:34:29.8	−07:48:02.49	0.163	G331.51−0.06	16:11:57.2	−51:26:41.84	0.214
G24.06+0.31	18:34:03.4	−07:44:37.90	0.215	G331.53−0.23	16:12:48.8	−51:33:10.30	0.186
G24.07−0.08	18:35:28.1	−07:54:59.78	0.202	G331.55−0.52	16:14:10.5	−51:45:26.34	0.154
G24.09+0.02	18:35:08.4	−07:51:31.76	0.215	G331.55−0.23	16:12:55.2	−51:32:22.14	0.165
G24.09+0.17	18:34:35.7	−07:47:16.50	0.224	G331.56−0.56	16:14:24.4	−51:46:42.97	0.199
G24.09+0.35	18:33:56.4	−07:42:03.51	0.296	G331.56+0.01	16:11:53.4	−51:21:48.02	0.196
G24.09−0.10	18:35:34.6	−07:54:40.02	0.288	G331.56−0.52	16:14:14.1	−51:44:45.40	0.167
G24.10−0.16	18:35:48.5	−07:55:34.37	0.203	G331.56+0.14	16:11:20.4	−51:15:59.79	0.225
G24.11+0.05	18:35:03.7	−07:49:09.91	0.181	G331.57−0.53	16:14:19.2	−51:45:09.88	0.151
G24.13+0.17	18:34:40.5	−07:45:09.55	0.171	G331.57−0.22	16:12:57.3	−51:31:40.98	0.162
G24.13+0.08	18:34:59.7	−07:47:08.75	0.153	G331.57−0.27	16:13:10.8	−51:33:49.74	0.233
G24.14+0.08	18:34:59.7	−07:46:51.99	0.164	G331.57−0.44	16:13:54.1	−51:40:53.20	0.157
G24.14+0.32	18:34:08.9	−07:40:14.16	0.198	G331.57−0.06	16:12:14.2	−51:24:07.99	0.168
G24.15−0.63	18:37:33.5	−08:05:57.84	0.162	G331.57−0.41	16:13:49.0	−51:39:41.53	0.151
G24.15+0.33	18:34:07.3	−07:39:24.19	0.184	G331.57−0.07	16:12:19.3	−51:24:45.41	0.188
G24.16+0.08	18:35:03.4	−07:45:50.10	0.347	G331.58−0.26	16:13:09.8	−51:32:42.74	0.153
G24.17+0.16	18:34:46.7	−07:42:58.51	0.159	G331.59+0.03	16:11:56.0	−51:19:33.41	0.225
G24.18+0.09	18:35:03.1	−07:44:33.53	0.211	G331.59+0.01	16:12:01.5	−51:20:18.81	0.171
G24.18−0.03	18:35:28.9	−07:47:35.28	0.176	G331.59−0.43	16:13:59.0	−51:39:32.14	0.161
G24.23+0.28	18:34:29.0	−07:36:34.70	0.158	G331.60+0.10	16:11:42.1	−51:16:22.54	0.244
G24.23+0.57	18:33:27.0	−07:28:30.57	0.167	G331.60−0.08	16:12:29.8	−51:23:59.26	0.159
G24.23+0.01	18:35:25.6	−07:43:43.08	0.151	G331.60−0.04	16:12:20.7	−51:22:15.24	0.410
G24.24−0.18	18:36:07.1	−07:48:29.86	0.172	G331.61−0.42	16:14:01.1	−51:38:35.58	0.164
G24.24+0.21	18:34:44.9	−07:37:54.30	0.185	G331.61+0.57	16:09:41.4	−50:54:58.04	0.176
G24.25−0.07	18:35:44.4	−07:45:18.96	0.205	G331.61+0.12	16:11:38.1	−51:14:35.92	0.193
G24.25−0.04	18:35:38.1	−07:44:16.02	0.156	G331.62+0.04	16:12:01.0	−51:18:03.05	0.353
G24.25+0.56	18:33:30.0	−07:27:42.83	0.152	G331.62−0.09	16:12:38.0	−51:23:48.07	0.170
G24.25+0.03	18:35:23.2	−07:42:14.23	0.159	G331.62+0.57	16:09:46.0	−50:54:44.60	0.190
G24.25−0.18	18:36:10.2	−07:48:11.19	0.189	G331.62−0.25	16:13:19.9	−51:30:38.13	0.153
G24.25+0.17	18:34:54.2	−07:38:19.55	0.156	G331.63+0.11	16:11:46.8	−51:14:42.39	0.188
G24.26−0.00	18:35:31.4	−07:43:02.21	0.232	G331.63−0.23	16:13:14.9	−51:29:15.13	0.167
G24.26−0.05	18:35:41.2	−07:44:06.83	0.200	G331.63−0.24	16:13:18.3	−51:29:44.65	0.150
G24.26+0.04	18:35:23.4	−07:41:40.13	0.163	G331.63+0.54	16:09:56.6	−50:55:35.25	0.189
G24.26+0.10	18:35:09.3	−07:39:50.49	0.210	G331.63−0.20	16:13:10.3	−51:28:06.97	0.151
G24.26+0.17	18:34:54.3	−07:37:47.31	0.158	G331.64+0.03	16:12:09.6	−51:17:36.33	0.257
G24.28−0.42	18:37:03.1	−07:53:26.35	0.166	G331.64+0.50	16:10:08.2	−50:56:45.43	0.350
G24.28−0.93	18:38:53.6	−08:07:22.18	0.183	G331.64−0.06	16:12:35.5	−51:21:20.53	0.307
G24.29+0.26	18:34:38.6	−07:33:51.33	0.178	G331.65+0.07	16:12:02.9	−51:15:45.66	0.151
G24.30+0.21	18:34:50.5	−07:34:54.07	0.168	G331.65−0.12	16:12:53.4	−51:23:47.60	0.152
G24.31+0.15	18:35:04.8	−07:36:01.70	0.256	G331.65−0.16	16:13:04.4	−51:25:20.77	0.175
G24.31+0.56	18:33:36.2	−07:24:19.01	0.163	G331.66+0.50	16:10:15.0	−50:56:07.26	0.225
G24.32+0.01	18:35:37.1	−07:39:06.23	0.196	G331.67−0.26	16:13:35.2	−51:29:14.66	0.153

Table A.1. continued.

IRDC name	R.A. ($^{h}:^{m}:^{s}$) (J2000)	Decl. ($^{\circ}:':''$) (J2000)	$C_{24\mu m}$	IRDC name	R.A. ($^{h}:^{m}:^{s}$) (J2000)	Decl. ($^{\circ}:':''$) (J2000)	$C_{24\mu m}$
G24.33−0.12	18:36:05.2	−07:42:36.30	0.240	G331.67−0.16	16:13:08.7	−51:24:24.49	0.221
G24.33+0.22	18:34:52.0	−07:33:07.86	0.194	G331.67+0.03	16:12:21.2	−51:16:25.76	0.172
G24.33+0.47	18:33:58.7	−07:26:13.71	0.183	G331.67+0.19	16:11:40.0	−51:09:18.12	0.157
G24.33−0.41	18:37:08.9	−07:50:11.95	0.156	G331.68+0.07	16:12:09.0	−51:14:09.19	0.248
G24.34+0.15	18:35:07.1	−07:34:21.10	0.243	G331.68−0.27	16:13:40.3	−51:29:00.00	0.158
G24.34+0.11	18:35:15.5	−07:35:20.90	0.327	G331.68−0.24	16:13:34.0	−51:27:50.63	0.178
G24.35+0.28	18:34:41.2	−07:30:29.74	0.172	G331.68−0.13	16:13:06.2	−51:22:49.55	0.221
G24.35−0.43	18:37:12.6	−07:49:55.38	0.193	G331.69+0.04	16:12:20.4	−51:15:09.39	0.228
G24.35+0.20	18:34:57.5	−07:32:34.43	0.155	G331.69−0.17	16:13:17.4	−51:24:12.76	0.156
G24.36−0.16	18:36:16.4	−07:41:39.16	0.491	G331.69−0.03	16:12:40.9	−51:17:45.79	0.161
G24.36−0.43	18:37:16.0	−07:49:04.24	0.206	G331.70+0.06	16:12:19.5	−51:13:56.00	0.232
G24.37−0.19	18:36:24.1	−07:42:20.80	0.170	G331.70−0.04	16:12:46.3	−51:18:18.69	0.205
G24.37−0.08	18:36:00.7	−07:39:05.39	0.200	G331.70+0.23	16:11:35.4	−51:06:22.12	0.167
G24.38−0.22	18:36:31.4	−07:42:30.64	0.329	G331.70−0.15	16:13:14.4	−51:22:44.75	0.180
G24.38−0.44	18:37:19.1	−07:48:32.16	0.203	G331.70−0.38	16:14:17.4	−51:33:05.33	0.153
G24.38−0.04	18:35:54.1	−07:37:37.51	0.163	G331.70−0.01	16:12:40.7	−51:16:50.93	0.185
G24.38+0.01	18:35:42.7	−07:36:06.94	0.171	G331.71−0.39	16:14:22.3	−51:33:09.15	0.164
G24.38−0.12	18:36:11.7	−07:39:35.24	0.249	G331.72+0.22	16:11:43.5	−51:06:05.58	0.171
G24.38−0.31	18:36:50.7	−07:44:34.55	0.164	G331.72−0.40	16:14:27.4	−51:32:54.44	0.154
G24.39−0.41	18:37:12.7	−07:47:05.38	0.242	G331.73+0.12	16:12:11.7	−51:10:02.07	0.194
G24.39+0.55	18:33:46.7	−07:20:31.88	0.162	G331.73+0.25	16:11:39.7	−51:04:28.88	0.324
G24.39−0.29	18:36:48.1	−07:43:50.02	0.160	G331.73−0.34	16:14:12.8	−51:29:49.00	0.165
G24.39−0.38	18:37:07.6	−07:46:18.59	0.151	G331.73−0.55	16:15:09.8	−51:38:59.23	0.156
G24.40−0.38	18:37:09.4	−07:45:48.79	0.155	G331.74−0.32	16:14:09.4	−51:28:36.23	0.194
G24.41+0.54	18:33:52.4	−07:20:05.66	0.223	G331.75+0.40	16:11:03.4	−50:56:49.09	0.160
G24.41−0.29	18:36:51.1	−07:42:47.37	0.289	G331.75+0.13	16:12:14.1	−51:08:40.57	0.179
G24.42+0.11	18:35:25.9	−07:31:13.06	0.272	G331.75+0.41	16:11:02.3	−50:56:23.24	0.167
G24.42+0.53	18:33:55.0	−07:19:27.14	0.156	G331.77+0.22	16:11:57.9	−51:03:46.27	0.197
G24.43−0.23	18:36:39.9	−07:40:20.57	0.327	G331.77−0.14	16:13:34.4	−51:19:38.79	0.153
G24.43+0.40	18:34:24.6	−07:22:47.38	0.164	G331.79+0.02	16:12:56.7	−51:11:59.03	0.196
G24.43+0.16	18:35:16.4	−07:29:18.11	0.177	G331.79+0.45	16:11:03.3	−50:52:36.96	0.170
G24.43−0.53	18:37:44.0	−07:48:12.57	0.240	G331.80+0.02	16:12:58.6	−51:11:31.56	0.150
G24.43−0.02	18:35:55.8	−07:34:04.18	0.152	G331.80+0.46	16:11:04.8	−50:52:08.42	0.162
G24.44−0.03	18:35:58.7	−07:34:10.92	0.179	G331.80−0.26	16:14:12.2	−51:23:20.52	0.151
G24.44+0.06	18:35:38.1	−07:31:31.13	0.156	G331.80+0.03	16:12:58.2	−51:11:01.52	0.179
G24.44−0.21	18:36:36.7	−07:38:59.02	0.281	G331.82+0.04	16:12:59.5	−51:09:47.61	0.226
G24.44−0.02	18:35:55.6	−07:33:28.94	0.155	G331.83−0.46	16:15:13.1	−51:31:00.49	0.156
G24.44−0.50	18:37:39.6	−07:46:38.86	0.178	G331.83−0.54	16:15:34.4	−51:34:21.78	0.285
G24.45+0.13	18:35:25.0	−07:29:02.07	0.173	G331.83−0.26	16:14:22.0	−51:22:19.23	0.153
G24.45+0.16	18:35:18.3	−07:27:55.51	0.154	G331.84−0.13	16:13:47.7	−51:16:14.14	0.176
G24.45−0.05	18:36:04.1	−07:33:46.03	0.219	G331.84−0.45	16:15:14.8	−51:29:58.31	0.170
G24.46+0.06	18:35:40.9	−07:30:44.52	0.209	G331.85−0.56	16:15:45.3	−51:34:47.52	0.241
G24.46+0.01	18:35:52.4	−07:31:55.13	0.156	G331.85−0.08	16:13:38.6	−51:13:31.14	0.256
G24.53−0.14	18:36:31.9	−07:31:58.12	0.253	G331.85−0.10	16:13:45.8	−51:14:38.24	0.234
G24.54−0.17	18:36:39.6	−07:32:52.11	0.237	G331.86−0.15	16:13:59.6	−51:16:15.89	0.264
G24.54+0.56	18:34:01.2	−07:12:29.00	0.209	G331.87+0.21	16:12:27.6	−51:00:36.22	0.183
G24.54+0.29	18:35:00.3	−07:20:03.59	0.219	G331.87−0.53	16:15:43.9	−51:32:37.66	0.186
G24.54+0.39	18:34:38.5	−07:17:13.63	0.156	G331.87−0.13	16:13:58.3	−51:15:14.35	0.154

Table A.1. continued.

IRDC name	R.A. ($^{h}:^{m}:^{s}$) (J2000)	Decl. ($^{\circ}:':''$) (J2000)	$C_{24\mu m}$	IRDC name	R.A. ($^{h}:^{m}:^{s}$) (J2000)	Decl. ($^{\circ}:':''$) (J2000)	$C_{24\mu m}$
G24.54+0.48	18:34:19.0	−07:14:40.68	0.191	G331.88+0.08	16:13:05.7	−51:05:33.54	0.199
G24.54−0.35	18:37:18.0	−07:37:27.92	0.186	G331.89−0.33	16:14:53.8	−51:22:56.97	0.175
G24.55−0.74	18:38:42.8	−07:47:46.83	0.152	G331.89−0.10	16:13:54.5	−51:12:54.91	0.299
G24.55+0.40	18:34:38.0	−07:16:14.86	0.150	G331.90−0.31	16:14:54.7	−51:21:38.60	0.218
G24.55+0.49	18:34:17.9	−07:13:38.30	0.230	G331.91−0.40	16:15:20.7	−51:25:18.94	0.171
G24.55+0.21	18:35:18.8	−07:21:23.92	0.230	G331.91−0.23	16:14:34.7	−51:17:31.69	0.166
G24.55+0.09	18:35:43.9	−07:24:32.44	0.166	G331.92−0.08	16:13:57.7	−51:10:59.79	0.237
G24.55−0.49	18:37:48.5	−07:40:26.96	0.169	G331.92−0.63	16:16:23.1	−51:34:30.31	0.156
G24.56+0.36	18:34:47.2	−07:16:59.11	0.166	G331.93−0.09	16:14:02.8	−51:10:59.69	0.162
G24.56+0.46	18:34:26.4	−07:13:58.76	0.211	G331.95−0.26	16:14:54.1	−51:17:33.30	0.232
G24.56−0.06	18:36:18.6	−07:28:22.33	0.294	G331.96+0.12	16:13:16.5	−51:00:44.99	0.252
G24.57+0.34	18:34:52.5	−07:17:02.54	0.237	G331.97+0.37	16:12:16.1	−50:49:04.65	0.154
G24.57−0.77	18:38:51.4	−07:47:39.77	0.189	G331.99+0.37	16:12:19.1	−50:48:32.07	0.202
G24.57−0.09	18:36:24.3	−07:28:48.62	0.205	G331.99−0.24	16:14:58.5	−51:14:59.24	0.157
G24.57+0.37	18:34:45.6	−07:15:53.13	0.157	G331.99−0.15	16:14:36.9	−51:10:47.73	0.269
G24.57+0.25	18:35:12.5	−07:19:16.90	0.155	G332.02−0.33	16:15:30.7	−51:17:43.28	0.173
G24.57+0.45	18:34:29.8	−07:13:44.38	0.159	G332.02+0.23	16:13:05.4	−50:53:27.60	0.155
G24.57+0.27	18:35:08.2	−07:18:34.90	0.260	G332.03−0.37	16:15:45.5	−51:19:11.14	0.172
G24.58+0.46	18:34:27.7	−07:13:12.32	0.164	G332.04−0.09	16:14:34.3	−51:06:39.52	0.198
G24.58+0.47	18:34:26.3	−07:12:42.54	0.168	G332.05+0.48	16:12:05.7	−50:40:58.92	0.249
G24.58−0.14	18:36:37.7	−07:29:32.62	0.167	G332.05−0.35	16:15:44.8	−51:17:12.76	0.209
G24.59−0.46	18:37:47.6	−07:37:59.31	0.158	G332.06+0.63	16:11:33.7	−50:34:02.32	0.151
G24.59+0.10	18:35:46.0	−07:22:05.36	0.201	G332.06+0.64	16:11:30.1	−50:33:19.97	0.225
G24.59−0.15	18:36:39.9	−07:28:54.53	0.153	G332.07−0.59	16:16:55.2	−51:27:06.03	0.231
G24.60+0.08	18:35:52.2	−07:22:37.97	0.182	G332.07−0.71	16:17:26.6	−51:31:39.09	0.179
G24.60+0.67	18:33:44.9	−07:06:15.02	0.187	G332.07−0.69	16:17:23.5	−51:31:05.28	0.155
G24.60−0.27	18:37:07.8	−07:31:59.73	0.250	G332.10−0.42	16:16:16.8	−51:18:17.86	0.369
G24.60−0.22	18:36:57.2	−07:30:36.98	0.231	G332.10−0.66	16:17:21.5	−51:28:32.69	0.170
G24.60+0.30	18:35:06.0	−07:16:16.04	0.155	G332.10−0.09	16:14:51.1	−51:03:59.83	0.152
G24.60−0.48	18:37:52.0	−07:37:29.47	0.189	G332.10+0.56	16:12:01.8	−50:35:27.22	0.322
G24.61−0.33	18:37:21.3	−07:33:01.63	0.239	G332.10−0.32	16:15:53.4	−51:13:54.54	0.152
G24.61−0.40	18:37:36.8	−07:34:59.73	0.169	G332.11+0.05	16:14:15.8	−50:57:32.24	0.192
G24.61−0.56	18:38:10.7	−07:39:20.12	0.196	G332.11−0.28	16:15:44.7	−51:11:41.83	0.164
G24.61+0.02	18:36:05.6	−07:23:13.61	0.247	G332.12+0.62	16:11:50.0	−50:32:01.80	0.190
G24.62−0.24	18:37:02.5	−07:30:22.45	0.156	G332.12−0.09	16:14:56.9	−51:03:12.13	0.285
G24.62+0.08	18:35:53.7	−07:21:12.33	0.258	G332.13+0.08	16:14:11.6	−50:55:10.50	0.190
G24.62+0.19	18:35:30.6	−07:18:13.75	0.151	G332.13−0.35	16:16:08.1	−51:14:08.00	0.194
G24.62+0.19	18:35:30.5	−07:18:00.42	0.158	G332.13−0.69	16:17:38.3	−51:28:37.51	0.151
G24.64+0.06	18:35:59.7	−07:20:55.63	0.159	G332.13−0.39	16:16:18.4	−51:15:33.52	0.157
G24.64+0.55	18:34:15.5	−07:07:24.26	0.182	G332.13+0.65	16:11:48.0	−50:30:23.69	0.241
G24.64+0.41	18:34:45.5	−07:11:11.43	0.182	G332.13+0.02	16:14:31.9	−50:57:53.16	0.184
G24.64+0.10	18:35:51.7	−07:19:26.04	0.255	G332.14−0.68	16:17:37.6	−51:27:36.41	0.153
G24.64−0.11	18:36:37.5	−07:25:14.85	0.331	G332.15+0.02	16:14:36.7	−50:57:08.11	0.211
G24.65+0.09	18:35:55.7	−07:19:40.18	0.165	G332.15−0.68	16:17:41.8	−51:26:57.28	0.174
G24.65−0.30	18:37:19.5	−07:30:19.74	0.157	G332.15−0.72	16:17:54.3	−51:28:55.21	0.182
G24.65−0.18	18:36:53.2	−07:26:44.69	0.178	G332.16+0.09	16:14:18.8	−50:53:29.00	0.267
G24.65+0.56	18:34:15.7	−07:06:20.38	0.190	G332.16−0.56	16:17:10.6	−51:21:34.58	0.156
G24.65+0.38	18:34:53.6	−07:11:11.73	0.174	G332.16−0.69	16:17:47.4	−51:27:16.49	0.152

Table A.1. continued.

IRDC name	R.A. ($^{h}:^{m}:^{s}$) (J2000)	Decl. ($^{\circ}:':''$) (J2000)	$C_{24\mu m}$	IRDC name	R.A. ($^{h}:^{m}:^{s}$) (J2000)	Decl. ($^{\circ}:':''$) (J2000)	$C_{24\mu m}$
G24.66+0.18	18:35:37.5	−07:16:43.11	0.401	G332.17−0.68	16:17:44.5	−51:26:26.60	0.154
G24.66+0.67	18:33:52.4	−07:02:51.91	0.215	G332.17+0.01	16:14:43.5	−50:56:52.05	0.252
G24.66+0.65	18:33:57.7	−07:03:23.61	0.206	G332.17−0.12	16:15:18.0	−51:02:15.88	0.179
G24.67+0.22	18:35:28.7	−07:14:56.87	0.179	G332.17−0.55	16:17:13.7	−51:20:53.15	0.156
G24.67+0.05	18:36:06.8	−07:19:44.83	0.163	G332.17−0.66	16:17:43.4	−51:25:35.22	0.154
G24.67−0.01	18:36:19.6	−07:21:08.53	0.153	G332.17+0.58	16:12:15.0	−50:31:25.95	0.295
G24.67+0.29	18:35:15.5	−07:12:50.12	0.155	G332.17−0.08	16:15:08.0	−51:00:13.53	0.196
G24.67+0.66	18:33:55.9	−07:02:26.83	0.160	G332.18−0.67	16:17:47.9	−51:25:48.68	0.158
G24.68−0.16	18:36:51.2	−07:24:46.39	0.273	G332.18−0.54	16:17:13.2	−51:20:09.79	0.167
G24.69−0.41	18:37:48.5	−07:31:11.89	0.154	G332.18−0.00	16:14:49.6	−50:56:44.28	0.186
G24.70+0.02	18:36:16.5	−07:18:51.49	0.236	G332.18+0.09	16:14:25.2	−50:52:23.72	0.173
G24.73+0.57	18:34:20.9	−07:02:09.11	0.153	G332.19−0.66	16:17:47.4	−51:25:00.37	0.153
G24.73−0.17	18:37:00.1	−07:22:27.14	0.189	G332.19−0.58	16:17:25.4	−51:21:10.27	0.155
G24.74+0.63	18:34:10.0	−06:59:32.68	0.167	G332.19−0.19	16:15:41.5	−51:04:18.30	0.157
G24.75+0.16	18:35:51.7	−07:12:21.00	0.159	G332.19+0.59	16:12:18.5	−50:30:23.16	0.158
G24.75+0.40	18:35:00.4	−07:05:39.09	0.176	G332.20+0.63	16:12:09.5	−50:28:13.09	0.306
G24.76+0.09	18:36:08.0	−07:13:32.99	0.229	G332.20−0.70	16:18:01.3	−51:26:06.30	0.245
G24.76+0.02	18:36:22.2	−07:15:11.64	0.195	G332.20−0.56	16:17:22.6	−51:19:46.76	0.197
G24.77+0.12	18:36:03.1	−07:12:27.38	0.563	G332.21+0.15	16:14:16.0	−50:48:57.06	0.245
G24.77−0.15	18:37:00.7	−07:19:37.69	0.240	G332.21−0.04	16:15:07.1	−50:57:20.86	0.375
G24.77+0.06	18:36:15.5	−07:13:45.76	0.282	G332.21−0.40	16:16:44.9	−51:12:45.13	0.176
G24.78+0.08	18:36:11.7	−07:12:45.07	0.169	G332.22−0.49	16:17:09.1	−51:15:52.17	0.230
G24.78+0.01	18:36:28.1	−07:14:50.38	0.201	G332.22+0.17	16:14:16.9	−50:47:24.52	0.168
G24.78+0.19	18:35:49.5	−07:09:48.34	0.279	G332.23+0.75	16:11:48.3	−50:22:02.46	0.200
G24.79+0.64	18:34:12.7	−06:56:26.78	0.277	G332.23−0.44	16:17:00.7	−51:13:37.97	0.169
G24.80+0.53	18:34:37.3	−06:59:18.78	0.193	G332.24−0.40	16:16:51.3	−51:11:26.99	0.156
G24.80−0.04	18:36:40.9	−07:15:07.14	0.327	G332.25−0.71	16:18:16.8	−51:24:25.97	0.175
G24.81+0.00	18:36:31.9	−07:13:29.86	0.159	G332.25−0.13	16:15:42.2	−50:59:20.64	0.192
G24.81+0.65	18:34:13.8	−06:55:32.37	0.182	G332.25+0.18	16:14:22.5	−50:45:57.52	0.233
G24.81−0.11	18:36:56.0	−07:16:08.37	0.201	G332.26−0.75	16:18:28.5	−51:25:45.34	0.164
G24.82+0.71	18:34:01.2	−06:53:03.52	0.225	G332.26−0.06	16:15:24.7	−50:55:50.21	0.315
G24.83+0.43	18:35:01.2	−07:00:38.20	0.192	G332.26+0.33	16:13:45.4	−50:39:06.53	0.151
G24.83+0.23	18:35:45.6	−07:06:08.49	0.212	G332.26−0.08	16:15:32.2	−50:56:47.45	0.174
G24.84−0.18	18:37:14.9	−07:16:51.99	0.200	G332.26−0.51	16:17:27.5	−51:15:19.93	0.183
G24.85+0.08	18:36:18.5	−07:09:10.45	0.299	G332.27−0.07	16:15:31.3	−50:55:57.68	0.152
G24.85+0.09	18:36:18.1	−07:08:57.47	0.463	G332.27−0.76	16:18:34.6	−51:25:36.95	0.172
G24.86+0.69	18:34:10.7	−06:51:54.90	0.181	G332.27−0.07	16:15:32.7	−50:56:00.58	0.160
G24.86−0.08	18:36:56.4	−07:13:03.56	0.189	G332.27+0.70	16:12:11.9	−50:21:58.90	0.167
G24.86−0.00	18:36:39.2	−07:10:46.89	0.169	G332.28+0.04	16:15:05.1	−50:50:32.14	0.225
G24.86−0.13	18:37:05.6	−07:14:03.02	0.202	G332.28−0.66	16:18:11.4	−51:20:44.60	0.277
G24.87−0.16	18:37:12.4	−07:14:43.86	0.182	G332.29−0.73	16:18:32.0	−51:23:36.24	0.153
G24.87−0.12	18:37:04.2	−07:13:21.07	0.163	G332.29−0.73	16:18:33.7	−51:23:52.35	0.162
G24.88+0.85	18:33:36.6	−06:46:18.05	0.154	G332.29−0.37	16:16:55.9	−51:07:56.73	0.223
G24.88+0.12	18:36:14.0	−07:06:09.55	0.337	G332.29−0.45	16:17:18.8	−51:11:16.45	0.191
G24.89−0.22	18:37:29.1	−07:15:33.89	0.150	G332.30+0.50	16:13:10.3	−50:29:45.33	0.157
G24.89+0.04	18:36:34.0	−07:08:01.04	0.295	G332.31+0.48	16:13:18.0	−50:30:32.49	0.195
G24.89+0.15	18:36:08.7	−07:04:45.09	0.181	G332.31−0.34	16:16:54.3	−51:05:42.15	0.233
G24.90+0.27	18:35:45.3	−07:00:58.31	0.165	G332.31−0.20	16:16:19.3	−51:00:00.13	0.155

Table A.1. continued.

IRDC name	R.A. ($^{h}:^{m}:^{s}$) (J2000)	Decl. ($^{\circ}:':''$) (J2000)	$C_{24\mu m}$	IRDC name	R.A. ($^{h}:^{m}:^{s}$) (J2000)	Decl. ($^{\circ}:':''$) (J2000)	$C_{24\mu m}$
G24.91−0.15	18:37:15.9	−07:12:23.38	0.164	G332.32−0.12	16:15:57.9	−50:56:12.80	0.186
G24.92+0.17	18:36:08.2	−07:02:50.52	0.269	G332.32+0.21	16:14:30.8	−50:41:38.50	0.207
G24.92+0.13	18:36:16.8	−07:03:37.67	0.197	G332.32−0.38	16:17:10.0	−51:07:16.10	0.351
G24.95−0.35	18:38:04.0	−07:15:30.32	0.185	G332.33−0.67	16:18:26.2	−51:19:15.18	0.190
G24.98+0.01	18:36:48.4	−07:04:01.59	0.217	G332.33−0.44	16:17:25.3	−51:09:11.60	0.164
G24.98−0.10	18:37:13.6	−07:07:14.32	0.151	G332.33−0.64	16:18:19.2	−51:17:44.48	0.190
G24.98−0.17	18:37:27.7	−07:09:02.53	0.401	G332.33+0.20	16:14:39.1	−50:41:32.20	0.180
G24.99−0.64	18:39:10.6	−07:21:23.06	0.191	G332.34−0.78	16:18:59.2	−51:23:24.43	0.233
G25.00−0.10	18:37:15.1	−07:06:18.36	0.170	G332.35−0.19	16:16:26.6	−50:58:02.42	0.175
G25.00+0.01	18:36:52.2	−07:02:46.65	0.157	G332.35−0.07	16:15:55.1	−50:52:35.30	0.312
G25.01−0.65	18:39:13.9	−07:20:40.88	0.167	G332.36+0.25	16:14:32.6	−50:38:34.67	0.223
G25.01−0.66	18:39:16.5	−07:20:39.72	0.157	G332.36+0.03	16:15:28.4	−50:47:46.05	0.296
G25.02+0.00	18:36:55.7	−07:02:14.39	0.201	G332.36−0.04	16:15:48.3	−50:50:53.37	0.161
G25.02−0.73	18:39:32.1	−07:22:09.75	0.150	G332.36−0.44	16:17:34.1	−51:07:58.60	0.160
G25.06+0.47	18:35:20.1	−06:47:23.23	0.151	G332.36+0.15	16:14:59.3	−50:42:24.61	0.156
G25.06+0.46	18:35:21.9	−06:47:21.92	0.153	G332.36−0.50	16:17:52.1	−51:10:38.03	0.179
G25.07+0.24	18:36:09.9	−06:53:09.29	0.151	G332.37−0.01	16:15:43.0	−50:49:19.86	0.157
G25.07−0.11	18:37:24.3	−07:02:24.96	0.158	G332.37+0.12	16:15:09.4	−50:43:45.79	0.204
G25.07+0.20	18:36:18.7	−06:53:43.71	0.299	G332.37−0.50	16:17:52.1	−51:10:13.49	0.151
G25.08+0.18	18:36:23.1	−06:54:15.73	0.174	G332.37−0.43	16:17:34.0	−51:07:13.53	0.175
G25.08−0.45	18:38:39.5	−07:11:34.46	0.161	G332.37−0.54	16:18:06.0	−51:12:08.99	0.208
G25.09+0.47	18:35:22.9	−06:45:50.74	0.168	G332.38+0.13	16:15:09.4	−50:42:34.76	0.168
G25.09−0.10	18:37:24.8	−07:01:20.52	0.206	G332.38−0.11	16:16:12.9	−50:52:51.14	0.200
G25.09+0.03	18:36:58.1	−06:57:53.18	0.185	G332.38−0.45	16:17:44.5	−51:07:34.33	0.155
G25.09−0.46	18:38:41.9	−07:11:07.82	0.183	G332.39−0.52	16:18:04.7	−51:10:32.15	0.212
G25.10+0.49	18:35:20.6	−06:44:13.27	0.180	G332.39−0.44	16:17:42.9	−51:06:59.49	0.192
G25.11−0.67	18:39:31.3	−07:15:49.46	0.151	G332.40−0.47	16:17:52.9	−51:07:52.12	0.167
G25.12+0.30	18:36:01.8	−06:48:30.67	0.174	G332.40+0.18	16:15:01.8	−50:39:35.47	0.156
G25.12−0.58	18:39:12.3	−07:12:44.29	0.153	G332.41−0.01	16:15:54.3	−50:47:50.22	0.237
G25.12−0.57	18:39:09.5	−07:12:22.44	0.182	G332.41−0.71	16:19:01.6	−51:17:41.85	0.247
G25.13+0.32	18:36:00.9	−06:47:29.34	0.210	G332.41−0.08	16:16:14.8	−50:50:30.55	0.175
G25.13−0.39	18:38:31.3	−07:06:44.90	0.264	G332.42+0.12	16:15:23.9	−50:41:42.63	0.194
G25.15−0.47	18:38:51.7	−07:08:26.41	0.194	G332.43−0.56	16:18:25.3	−51:10:21.64	0.267
G25.16−0.30	18:38:16.5	−07:03:00.62	0.342	G332.43−0.29	16:17:15.4	−50:58:54.90	0.154
G25.17−0.05	18:37:22.9	−06:55:48.16	0.174	G332.43−0.11	16:16:26.5	−50:50:54.22	0.174
G25.17+0.76	18:34:29.5	−06:33:25.11	0.218	G332.43+0.19	16:15:07.9	−50:37:50.27	0.181
G25.17−0.35	18:38:27.0	−07:03:50.77	0.152	G332.43+0.38	16:14:19.1	−50:29:37.81	0.163
G25.18+0.51	18:35:24.6	−06:39:29.90	0.165	G332.45−0.11	16:16:32.0	−50:50:24.16	0.158
G25.18−0.25	18:38:08.7	−07:00:32.58	0.173	G332.45−0.38	16:17:43.4	−51:01:50.92	0.460
G25.19+0.36	18:35:58.3	−06:43:12.50	0.204	G332.45−0.02	16:16:09.0	−50:46:23.22	0.161
G25.19+0.23	18:36:26.5	−06:46:42.98	0.220	G332.45+0.16	16:15:20.5	−50:38:16.06	0.157
G25.20+0.17	18:36:39.8	−06:48:17.65	0.175	G332.45−0.61	16:18:44.7	−51:11:30.98	0.154
G25.23+0.50	18:35:32.3	−06:37:28.76	0.157	G332.45−0.25	16:17:11.5	−50:56:10.95	0.169
G25.23−0.44	18:38:54.3	−07:03:12.54	0.299	G332.45+0.35	16:14:33.1	−50:30:04.79	0.159
G25.24+0.45	18:35:43.0	−06:38:11.53	0.267	G332.46−0.13	16:16:37.9	−50:50:38.23	0.181
G25.24+0.29	18:36:17.6	−06:42:31.84	0.179	G332.46−0.26	16:17:15.1	−50:56:21.04	0.150
G25.24−0.22	18:38:06.8	−06:56:19.64	0.245	G332.46−0.51	16:18:21.9	−51:07:08.71	0.178
G25.25+0.36	18:36:03.2	−06:39:54.68	0.166	G332.61−0.78	16:20:14.7	−51:12:10.43	0.200

Table A.1. continued.

IRDC name	R.A. ($^{h}:^{m}:^{s}$) (J2000)	Decl. ($^{\circ}:':''$) (J2000)	$C_{24\mu m}$	IRDC name	R.A. ($^{h}:^{m}:^{s}$) (J2000)	Decl. ($^{\circ}:':''$) (J2000)	$C_{24\mu m}$
G25.26+0.44	18:35:48.5	−06:37:13.93	0.164	G332.61−0.38	16:18:28.7	−50:55:13.49	0.278
G25.26+0.37	18:36:04.3	−06:39:01.96	0.154	G332.61−0.16	16:17:29.0	−50:45:24.35	0.170
G25.27+0.36	18:36:07.3	−06:38:55.33	0.162	G332.61−0.77	16:20:13.4	−51:11:39.87	0.152
G25.28−0.05	18:37:35.4	−06:50:00.20	0.165	G332.62−0.60	16:19:28.3	−51:04:16.35	0.321
G25.28−0.21	18:38:09.9	−06:54:20.53	0.152	G332.62−0.44	16:18:47.4	−50:57:21.47	0.243
G25.28−0.44	18:38:58.8	−07:00:19.21	0.214	G332.62−0.52	16:19:08.8	−51:00:38.12	0.244
G25.28−0.02	18:37:29.7	−06:48:41.66	0.235	G332.63+0.32	16:15:28.3	−50:24:19.27	0.164
G25.29−0.75	18:40:05.8	−07:08:32.46	0.153	G332.63−0.31	16:18:13.6	−50:51:06.28	0.155
G25.29+0.04	18:37:16.1	−06:46:40.43	0.153	G332.63+0.03	16:16:44.2	−50:36:30.45	0.150
G25.29−0.25	18:38:19.8	−06:54:45.94	0.154	G332.63−0.13	16:17:27.9	−50:43:33.45	0.155
G25.29+0.01	18:37:22.9	−06:47:28.00	0.187	G332.64−0.27	16:18:04.8	−50:49:08.76	0.205
G25.29+0.37	18:36:06.7	−06:37:20.30	0.237	G332.64−0.15	16:17:33.9	−50:43:59.80	0.175
G25.30−0.19	18:38:06.8	−06:52:31.23	0.340	G332.64+0.08	16:16:34.2	−50:33:57.55	0.161
G25.30−0.26	18:38:22.7	−06:54:28.39	0.184	G332.65+0.03	16:16:48.7	−50:36:01.40	0.231
G25.32+0.64	18:35:12.7	−06:28:49.62	0.170	G332.65+0.28	16:15:43.2	−50:25:11.38	0.270
G25.32−0.07	18:37:43.8	−06:48:03.95	0.254	G332.65−0.60	16:19:36.6	−51:03:06.68	0.780
G25.32+0.68	18:35:03.9	−06:27:28.26	0.174	G332.65+0.22	16:15:59.5	−50:27:36.02	0.291
G25.33−0.32	18:38:38.2	−06:54:27.01	0.356	G332.65+0.45	16:14:59.8	−50:17:19.69	0.167
G25.33−0.75	18:40:12.2	−07:06:22.74	0.175	G332.65−0.23	16:18:00.5	−50:46:59.28	0.150
G25.35−0.52	18:39:23.0	−06:59:02.24	0.181	G332.66−0.03	16:17:09.3	−50:37:51.36	0.220
G25.35+0.14	18:37:01.3	−06:40:45.18	0.152	G332.66+0.16	16:16:20.5	−50:29:45.25	0.219
G25.36+0.02	18:37:28.6	−06:43:40.08	0.192	G332.67+0.13	16:16:27.1	−50:30:37.33	0.165
G25.36−0.44	18:39:08.2	−06:56:05.48	0.175	G332.67−0.76	16:20:23.7	−51:08:49.65	0.187
G25.36−0.47	18:39:15.1	−06:56:47.15	0.154	G332.67−0.70	16:20:07.8	−51:06:13.75	0.190
G25.37+0.52	18:35:44.5	−06:29:07.36	0.162	G332.68−0.72	16:20:16.3	−51:06:54.67	0.193
G25.37−0.06	18:37:47.9	−06:44:54.57	0.236	G332.68−0.54	16:19:27.6	−50:58:58.40	0.439
G25.39+0.24	18:36:46.4	−06:36:04.37	0.174	G332.68−0.01	16:17:07.8	−50:36:09.19	0.212
G25.41−0.30	18:38:43.1	−06:49:56.83	0.163	G332.68−0.78	16:20:33.6	−51:09:15.92	0.245
G25.41−0.60	18:39:48.5	−06:58:14.63	0.154	G332.68−0.67	16:20:03.2	−51:04:21.79	0.163
G25.41−0.45	18:39:16.9	−06:53:36.67	0.271	G332.68+0.19	16:16:16.7	−50:27:35.90	0.259
G25.42−0.49	18:39:25.7	−06:54:24.87	0.153	G332.68+0.52	16:14:50.0	−50:13:04.96	0.192
G25.43−0.50	18:39:29.1	−06:54:25.51	0.155	G332.68−0.70	16:20:11.8	−51:05:34.20	0.227
G25.43+0.02	18:37:35.8	−06:39:53.38	0.222	G332.70+0.59	16:14:35.0	−50:09:25.33	0.151
G25.43−0.52	18:39:33.0	−06:54:43.02	0.151	G332.70−0.42	16:19:03.8	−50:53:10.90	0.191
G25.43−0.29	18:38:43.4	−06:48:12.05	0.271	G332.70−0.88	16:21:06.2	−51:12:30.73	0.346
G25.43−0.54	18:39:36.6	−06:54:57.63	0.160	G332.70−0.13	16:17:47.4	−50:40:36.40	0.175
G25.43+0.21	18:36:57.0	−06:34:24.74	0.166	G332.71−0.37	16:18:50.2	−50:50:36.08	0.296
G25.44−0.32	18:38:50.5	−06:48:49.87	0.216	G332.71−0.61	16:19:55.2	−51:00:51.98	0.385
G25.45+0.08	18:37:25.7	−06:37:18.90	0.205	G332.71+0.17	16:16:28.4	−50:27:14.41	0.169
G25.45+0.01	18:37:40.3	−06:39:09.89	0.172	G332.71−0.63	16:20:02.7	−51:01:45.65	0.263
G25.45−0.16	18:38:17.3	−06:43:38.18	0.281	G332.71−0.78	16:20:42.6	−51:08:03.84	0.232
G25.46+0.16	18:37:11.2	−06:34:21.45	0.156	G332.71−0.67	16:20:14.4	−51:03:19.17	0.262
G25.46−0.33	18:38:56.6	−06:47:39.01	0.162	G332.71−0.11	16:17:42.8	−50:38:54.35	0.152
G25.47+0.11	18:37:22.1	−06:35:24.02	0.152	G332.72+0.30	16:15:58.3	−50:21:28.48	0.179
G25.47+0.08	18:37:29.1	−06:36:07.76	0.161	G332.72−0.48	16:19:23.1	−50:54:49.86	0.175
G25.48−0.30	18:38:51.1	−06:46:07.01	0.159	G332.73−0.72	16:20:30.4	−51:04:42.98	0.222
G25.48−0.16	18:38:20.9	−06:41:51.83	0.163	G332.73−0.42	16:19:10.6	−50:51:50.06	0.281
G25.49−0.08	18:38:04.2	−06:39:17.22	0.162	G332.74−0.66	16:20:17.4	−51:01:48.21	0.191

Table A.1. continued.

IRDC name	R.A. ($^{h}:^{m}:^{s}$) (J2000)	Decl. ($^{\circ}:':''$) (J2000)	$C_{24\mu m}$	IRDC name	R.A. ($^{h}:^{m}:^{s}$) (J2000)	Decl. ($^{\circ}:':''$) (J2000)	$C_{24\mu m}$
G25.49+0.00	18:37:47.6	−06:37:05.35	0.157	G332.74−0.50	16:19:35.6	−50:55:01.47	0.258
G25.49−0.04	18:37:57.8	−06:38:05.44	0.153	G332.74−0.62	16:20:08.7	−50:59:58.10	0.336
G25.51+0.10	18:37:27.6	−06:33:26.02	0.158	G332.75−0.78	16:20:52.6	−51:06:08.05	0.214
G25.51−0.02	18:37:54.0	−06:36:47.35	0.163	G332.75−0.35	16:18:58.1	−50:47:45.71	0.190
G25.52−0.15	18:38:23.9	−06:39:57.83	0.154	G332.76−0.73	16:20:41.8	−51:03:33.25	0.150
G25.52−0.32	18:39:00.6	−06:44:10.98	0.195	G332.76−0.71	16:20:37.9	−51:02:55.08	0.329
G25.52+0.02	18:37:46.5	−06:34:40.29	0.155	G332.77−0.67	16:20:28.1	−51:01:04.37	0.219
G25.53+0.12	18:37:26.1	−06:31:50.13	0.151	G332.77−0.07	16:17:46.8	−50:35:04.31	0.163
G25.53−0.36	18:39:10.7	−06:44:54.32	0.159	G332.78−0.76	16:20:52.6	−51:04:09.00	0.180
G25.53−0.01	18:37:54.7	−06:35:02.31	0.276	G332.78−0.25	16:18:38.5	−50:42:40.81	0.196
G25.54+0.14	18:37:22.4	−06:30:39.03	0.233	G332.78−0.17	16:18:18.0	−50:39:08.14	0.170
G25.55−0.09	18:38:14.3	−06:36:39.43	0.165	G332.78−0.78	16:21:01.0	−51:05:11.15	0.246
G25.55−0.23	18:38:44.7	−06:40:24.52	0.337	G332.78−0.66	16:20:28.3	−50:59:57.11	0.166
G25.55−0.36	18:39:13.2	−06:43:56.95	0.158	G332.78−0.63	16:20:21.5	−50:58:33.25	0.263
G25.56−0.47	18:39:36.2	−06:46:09.47	0.182	G332.79−0.22	16:18:33.1	−50:40:59.31	0.370
G25.56+0.64	18:35:39.7	−06:15:45.54	0.201	G332.79−0.05	16:17:48.7	−50:33:31.70	0.159
G25.56−0.94	18:41:17.5	−06:58:53.94	0.176	G332.79+0.71	16:14:29.3	−50:00:22.42	0.239
G25.57+0.22	18:37:09.1	−06:26:54.93	0.154	G332.79−0.53	16:19:57.7	−50:54:05.50	0.312
G25.57−0.54	18:39:53.6	−06:47:30.75	0.155	G332.79+0.25	16:16:31.5	−50:20:28.13	0.226
G25.58−0.93	18:41:18.6	−06:57:52.86	0.152	G332.79−0.77	16:21:01.2	−51:04:03.06	0.161
G25.58−0.93	18:41:17.4	−06:57:39.24	0.153	G332.80−0.25	16:18:43.5	−50:41:47.20	0.160
G25.58−0.17	18:38:34.6	−06:36:45.31	0.160	G332.81+0.25	16:16:34.4	−50:19:30.48	0.158
G25.59−0.09	18:38:19.9	−06:34:10.67	0.177	G332.81−0.78	16:21:08.4	−51:03:45.78	0.272
G25.60−0.11	18:38:23.4	−06:34:25.48	0.178	G332.81+0.75	16:14:26.8	−49:57:45.59	0.186
G25.60−0.55	18:39:59.1	−06:46:39.75	0.152	G332.81−0.76	16:21:03.4	−51:02:32.88	0.157
G25.61−0.53	18:39:56.2	−06:45:21.11	0.168	G332.82−0.25	16:18:48.1	−50:40:50.50	0.209
G25.61+0.24	18:37:09.9	−06:24:00.88	0.320	G332.83−0.44	16:19:41.4	−50:48:24.53	0.520
G25.61−0.30	18:39:07.0	−06:38:58.45	0.246	G332.83−0.62	16:20:30.4	−50:55:51.45	0.587
G25.61+0.02	18:37:58.2	−06:30:03.68	0.168	G332.84+0.74	16:14:36.1	−49:57:26.91	0.255
G25.63+0.46	18:36:23.8	−06:17:11.55	0.190	G332.84−0.11	16:18:18.1	−50:33:51.15	0.154
G25.63+0.49	18:36:18.4	−06:16:18.89	0.153	G332.85+0.63	16:15:05.9	−50:01:34.94	0.153
G25.63−0.53	18:39:57.5	−06:44:09.49	0.166	G332.85−0.34	16:19:22.1	−50:43:22.56	0.185
G25.64+0.09	18:37:44.3	−06:26:50.81	0.237	G332.85−0.36	16:19:27.2	−50:44:11.63	0.166
G25.64+0.76	18:35:20.6	−06:08:10.28	0.155	G332.86−0.50	16:20:05.6	−50:49:50.13	0.524
G25.64+0.14	18:37:34.4	−06:25:18.36	0.159	G332.86+0.04	16:17:43.9	−50:26:50.51	0.168
G25.64−0.38	18:39:27.5	−06:39:29.14	0.191	G332.87+0.79	16:14:31.6	−49:53:54.58	0.258
G25.65−0.33	18:39:17.1	−06:38:03.60	0.217	G332.87−0.61	16:20:39.7	−50:54:01.63	0.226
G25.65+0.14	18:37:35.8	−06:24:59.48	0.156	G332.87−0.36	16:19:33.2	−50:43:20.50	0.285
G25.66−0.12	18:38:33.2	−06:31:36.22	0.305	G332.89−0.69	16:21:04.6	−50:56:41.86	0.533
G25.66−0.16	18:38:41.1	−06:32:09.36	0.286	G332.90−0.78	16:21:31.7	−51:00:01.83	0.250
G25.67−0.00	18:38:08.8	−06:27:20.19	0.155	G332.90+0.80	16:14:37.6	−49:52:15.30	0.294
G25.68+0.36	18:36:52.7	−06:17:16.22	0.160	G332.90−0.24	16:19:08.8	−50:37:02.68	0.320
G25.69+0.53	18:36:16.3	−06:11:57.16	0.163	G332.91−0.52	16:20:26.2	−50:48:33.68	0.185
G25.69+0.76	18:35:27.8	−06:05:39.32	0.161	G332.92−0.13	16:18:44.1	−50:31:19.04	0.170
G25.70+0.77	18:35:27.1	−06:04:57.97	0.167	G332.92−0.00	16:18:11.6	−50:25:45.55	0.203
G25.70−0.05	18:38:22.3	−06:27:23.34	0.209	G332.93−0.62	16:20:55.9	−50:51:52.74	0.532
G25.70+0.38	18:36:49.0	−06:15:21.22	0.177	G332.93−0.44	16:20:07.8	−50:44:11.25	0.488
G25.70+0.78	18:35:24.6	−06:04:25.45	0.158	G332.93+0.00	16:18:13.7	−50:25:08.17	0.151

Table A.1. continued.

IRDC name	R.A. ($^{h}:^{m}:^{s}$) (J2000)	Decl. ($^{\circ}:':''$) (J2000)	$C_{24\mu m}$	IRDC name	R.A. ($^{h}:^{m}:^{s}$) (J2000)	Decl. ($^{\circ}:':''$) (J2000)	$C_{24\mu m}$
G25.70+0.50	18:36:24.2	−06:11:55.06	0.154	G332.94+0.24	16:17:12.6	−50:14:56.81	0.212
G25.71−0.75	18:40:53.0	−06:46:02.35	0.162	G332.94+0.81	16:14:45.6	−49:50:13.07	0.229
G25.72+0.24	18:37:22.2	−06:18:15.65	0.192	G332.94−0.78	16:21:42.6	−50:58:09.99	0.223
G25.72+0.27	18:37:16.9	−06:17:24.07	0.191	G332.95−0.21	16:19:14.7	−50:33:24.18	0.225
G25.72−0.17	18:38:50.8	−06:29:26.03	0.256	G332.95−0.27	16:19:30.0	−50:35:45.90	0.398
G25.73+0.31	18:37:07.8	−06:16:00.55	0.157	G332.96−0.02	16:18:26.7	−50:25:21.79	0.253
G25.73−0.27	18:39:12.0	−06:31:53.15	0.170	G332.96−0.71	16:21:29.2	−50:54:38.83	0.254
G25.73+0.29	18:37:11.6	−06:16:11.36	0.152	G332.96−0.76	16:21:44.4	−50:56:48.31	0.182
G25.73−0.29	18:39:17.9	−06:32:15.14	0.152	G332.97+0.66	16:15:31.5	−49:55:13.19	0.153
G25.75+0.03	18:38:10.7	−06:22:38.78	0.151	G332.97−0.69	16:21:28.0	−50:53:19.22	0.173
G25.75−0.11	18:38:40.5	−06:26:11.19	0.263	G332.97−0.32	16:19:49.9	−50:37:31.59	0.394
G25.75−0.22	18:39:05.2	−06:29:13.33	0.159	G332.97−0.74	16:21:41.8	−50:55:11.80	0.317
G25.75−0.18	18:38:57.0	−06:28:09.11	0.161	G332.97+0.68	16:15:27.2	−49:54:07.25	0.205
G25.76−0.14	18:38:47.0	−06:26:40.61	0.150	G332.97−0.11	16:18:54.8	−50:28:18.61	0.183
G25.77+0.81	18:35:25.9	−05:59:46.62	0.151	G332.98−0.14	16:19:03.7	−50:29:25.77	0.303
G25.78+0.81	18:35:26.9	−05:59:40.09	0.154	G332.98−0.67	16:21:24.6	−50:51:56.85	0.163
G25.78+0.07	18:38:04.8	−06:19:57.26	0.181	G332.98−0.58	16:20:59.8	−50:47:51.81	0.218
G25.79+0.49	18:36:34.7	−06:07:47.37	0.150	G332.98−0.66	16:21:22.6	−50:51:15.71	0.191
G25.79+0.09	18:38:02.7	−06:19:00.84	0.156	G332.98−0.55	16:20:52.9	−50:46:29.11	0.373
G25.79+0.17	18:37:44.7	−06:16:42.05	0.507	G332.98+0.00	16:18:27.3	−50:22:59.69	0.160
G25.79+0.78	18:35:33.3	−05:59:31.78	0.179	G332.99−0.02	16:18:34.2	−50:23:54.56	0.214
G25.79+0.81	18:35:27.4	−05:58:37.17	0.209	G332.99−0.49	16:20:38.2	−50:43:49.47	0.628
G25.80+0.61	18:36:10.2	−06:03:55.72	0.206	G332.99+0.77	16:15:08.7	−49:49:44.36	0.786
G25.80+0.04	18:38:13.1	−06:19:26.05	0.238	G332.99+0.65	16:15:38.8	−49:54:39.07	0.171
G25.81+0.83	18:35:25.2	−05:57:14.70	0.160	G332.99−0.36	16:20:06.1	−50:38:04.32	0.165
G25.82+0.07	18:38:10.2	−06:17:48.57	0.171	G333.00−0.12	16:19:03.2	−50:27:53.36	0.223
G25.83−0.31	18:39:33.2	−06:27:44.40	0.191	G333.00−0.65	16:21:25.3	−50:50:11.10	0.193
G25.83−0.46	18:40:04.0	−06:31:32.24	0.168	G333.01−0.75	16:21:56.3	−50:54:05.87	0.417
G25.84+0.72	18:35:51.3	−05:58:44.98	0.159	G333.01−0.14	16:19:13.5	−50:28:04.06	0.187
G25.84−0.47	18:40:07.7	−06:31:35.30	0.172	G333.01−0.69	16:21:39.8	−50:51:20.02	0.283
G25.85−0.48	18:40:10.2	−06:31:21.00	0.151	G333.03−0.02	16:18:46.7	−50:21:58.13	0.202
G25.86+0.56	18:36:28.6	−06:02:13.37	0.193	G333.03−0.17	16:19:27.1	−50:28:23.57	0.156
G25.86−0.21	18:39:14.1	−06:23:02.75	0.168	G333.04−0.60	16:21:22.1	−50:46:22.64	0.182
G25.87−0.21	18:39:15.5	−06:22:47.82	0.151	G333.04−0.15	16:19:23.0	−50:27:11.66	0.153
G25.87−0.93	18:41:50.4	−06:42:29.79	0.156	G333.04−0.21	16:19:40.1	−50:29:41.74	0.217
G25.89+0.21	18:37:48.2	−06:10:17.51	0.241	G333.04−0.58	16:21:18.3	−50:45:22.96	0.219
G25.90−0.16	18:39:08.2	−06:20:02.06	0.151	G333.05−0.20	16:19:37.0	−50:29:04.53	0.168
G25.91+0.49	18:36:49.4	−06:01:17.91	0.178	G333.05−0.70	16:21:49.8	−50:50:10.29	0.162
G25.92+0.54	18:36:38.8	−05:59:25.84	0.164	G333.05−0.67	16:21:42.3	−50:48:51.56	0.154
G25.92−0.23	18:39:25.9	−06:20:45.66	0.154	G333.05+0.20	16:17:52.9	−50:11:47.44	0.163
G25.92+0.03	18:38:29.8	−06:13:17.28	0.153	G333.05+0.78	16:15:22.0	−49:46:29.87	0.364
G25.93+0.19	18:37:57.5	−06:08:25.91	0.227	G333.06+0.68	16:15:51.1	−49:51:00.34	0.161
G25.94−0.73	18:41:14.1	−06:33:24.75	0.155	G333.06−0.26	16:19:56.6	−50:31:16.58	0.311
G25.95−0.73	18:41:14.6	−06:32:45.93	0.161	G333.06−0.73	16:22:04.9	−50:51:04.97	0.154
G25.95−0.74	18:41:18.0	−06:32:55.20	0.154	G333.07−0.44	16:20:47.9	−50:38:25.37	0.842
G25.97+0.01	18:38:38.6	−06:11:23.30	0.158	G333.08−0.14	16:19:29.4	−50:25:07.02	0.286
G25.97−0.61	18:40:52.6	−06:28:10.41	0.169	G333.09−0.08	16:19:17.2	−50:22:19.64	0.165
G25.98−0.04	18:38:50.9	−06:12:27.51	0.185	G333.09−0.63	16:21:44.8	−50:45:27.11	0.245

Table A.1. continued.

IRDC name	R.A. ($^{h}:^{m}:^{s}$) (J2000)	Decl. ($^{\circ}:':''$) (J2000)	$C_{24\mu m}$	IRDC name	R.A. ($^{h}:^{m}:^{s}$) (J2000)	Decl. ($^{\circ}:':''$) (J2000)	$C_{24\mu m}$
G25.98−0.56	18:40:43.6	−06:26:33.52	0.155	G333.10−0.03	16:19:07.0	−50:19:50.81	0.356
G25.99−0.06	18:38:55.7	−06:12:20.29	0.330	G333.10−0.58	16:21:32.9	−50:43:06.37	0.223
G25.99−0.61	18:40:55.3	−06:27:14.83	0.171	G333.11+0.69	16:16:01.5	−49:48:20.97	0.168
G26.02−0.08	18:39:03.6	−06:11:12.97	0.161	G333.11−0.50	16:21:13.8	−50:39:21.74	0.874
G26.02−0.84	18:41:47.1	−06:31:57.38	0.170	G333.11−0.67	16:22:00.2	−50:46:39.38	0.205
G26.03−0.46	18:40:27.2	−06:21:03.53	0.154	G333.11−0.10	16:19:27.7	−50:21:53.85	0.154
G26.03−0.63	18:41:03.1	−06:25:36.56	0.152	G333.11+0.32	16:17:39.0	−50:03:56.22	0.155
G26.04+0.86	18:35:45.7	−05:44:16.65	0.173	G333.12+0.31	16:17:43.0	−50:04:12.71	0.165
G26.04+0.95	18:35:26.1	−05:41:29.85	0.151	G333.12+0.32	16:17:40.7	−50:03:32.53	0.156
G26.04−0.62	18:41:01.9	−06:24:32.95	0.171	G333.12−0.56	16:21:34.5	−50:41:15.47	0.157
G26.05+0.95	18:35:26.8	−05:41:09.88	0.152	G333.12−0.28	16:20:19.2	−50:29:11.96	0.176
G26.06+0.45	18:37:15.0	−05:54:32.18	0.154	G333.12−0.74	16:22:22.2	−50:48:45.02	0.186
G26.07+0.42	18:37:21.8	−05:54:53.92	0.165	G333.13−0.29	16:20:24.1	−50:29:40.70	0.188
G26.07+0.94	18:35:31.1	−05:40:27.50	0.177	G333.13−0.60	16:21:46.7	−50:42:36.39	0.282
G26.08+0.20	18:38:11.4	−06:00:12.44	0.205	G333.13−0.21	16:20:03.9	−50:26:06.02	0.203
G26.08+0.02	18:38:49.4	−06:04:58.67	0.173	G333.13−0.51	16:21:21.5	−50:38:30.13	0.333
G26.08−0.03	18:38:59.9	−06:06:13.07	0.158	G333.13−0.63	16:21:55.0	−50:43:44.77	0.160
G26.09+0.62	18:36:41.4	−05:48:08.69	0.199	G333.13−0.18	16:19:57.0	−50:24:42.87	0.185
G26.09+0.42	18:37:24.9	−05:53:33.12	0.162	G333.14+0.08	16:18:48.5	−50:13:26.00	0.160
G26.09+0.43	18:37:21.9	−05:53:01.38	0.151	G333.14−0.29	16:20:24.5	−50:28:56.30	0.154
G26.12+0.09	18:38:38.9	−06:01:22.32	0.206	G333.14−0.68	16:22:09.5	−50:45:37.79	0.187
G26.12−0.60	18:41:07.2	−06:20:12.35	0.174	G333.14+0.68	16:16:12.1	−49:47:16.55	0.216
G26.12−0.28	18:39:57.7	−06:10:54.44	0.151	G333.14−0.25	16:20:15.3	−50:27:13.34	0.157
G26.15+0.03	18:38:53.8	−06:01:11.43	0.181	G333.14+0.19	16:18:20.1	−50:08:02.96	0.170
G26.15−0.71	18:41:34.0	−06:21:21.17	0.196	G333.15−0.57	16:21:43.8	−50:40:38.37	0.170
G26.17+0.16	18:38:29.8	−05:56:49.49	0.167	G333.15−0.29	16:20:28.7	−50:28:29.48	0.207
G26.17−0.08	18:39:19.9	−06:03:15.03	0.200	G333.16−0.59	16:21:50.2	−50:40:56.82	0.166
G26.18+0.14	18:38:33.9	−05:56:27.60	0.240	G333.16−0.76	16:22:38.5	−50:48:18.37	0.451
G26.20+0.16	18:38:33.2	−05:54:59.27	0.180	G333.16−0.70	16:22:22.1	−50:45:38.44	0.270
G26.20−0.87	18:42:13.5	−06:23:05.85	0.184	G333.16−0.37	16:20:54.0	−50:31:35.60	0.607
G26.21+0.14	18:38:38.2	−05:55:08.43	0.179	G333.17−0.72	16:22:30.3	−50:46:11.97	0.180
G26.22+0.29	18:38:06.8	−05:50:09.45	0.186	G333.17−0.58	16:21:52.1	−50:39:37.40	0.150
G26.22+0.10	18:38:48.5	−05:55:20.34	0.253	G333.17−0.67	16:22:16.6	−50:43:30.56	0.150
G26.23−0.03	18:39:15.7	−05:58:43.53	0.182	G333.18+0.13	16:18:45.0	−50:09:24.83	0.160
G26.23−0.10	18:39:31.0	−06:00:18.92	0.152	G333.18−0.57	16:21:50.3	−50:39:12.05	0.180
G26.24−0.42	18:40:41.9	−06:08:58.30	0.169	G333.18+0.09	16:18:55.7	−50:10:53.09	0.275
G26.24−0.51	18:41:01.3	−06:11:02.50	0.152	G333.20−0.18	16:20:14.6	−50:21:48.48	0.292
G26.24−0.44	18:40:45.1	−06:08:54.28	0.171	G333.20−0.68	16:22:27.8	−50:42:46.98	0.233
G26.25+0.14	18:38:41.9	−05:53:00.22	0.165	G333.21−0.31	16:20:50.3	−50:27:07.46	0.382
G26.25−0.09	18:39:32.1	−05:59:11.83	0.192	G333.21+0.46	16:17:29.5	−49:53:52.82	0.187
G26.25−0.03	18:39:19.4	−05:57:18.20	0.227	G333.21+0.26	16:18:21.9	−50:02:29.34	0.212
G26.26−0.53	18:41:08.0	−06:10:41.78	0.179	G333.21+0.31	16:18:09.1	−50:00:14.41	0.341
G26.26−0.13	18:39:42.6	−05:59:33.69	0.160	G333.22+0.21	16:18:35.6	−50:03:58.11	0.257
G26.27+0.23	18:38:25.8	−05:49:21.98	0.172	G333.22+0.76	16:16:13.9	−49:40:19.72	0.151
G26.27+0.24	18:38:23.0	−05:49:00.71	0.152	G333.23+0.24	16:18:30.8	−50:02:33.03	0.209
G26.28−0.54	18:41:11.4	−06:09:52.54	0.183	G333.23−0.56	16:22:01.6	−50:36:31.55	0.551
G26.28+0.15	18:38:43.6	−05:50:43.10	0.151	G333.23+0.27	16:18:21.8	−50:01:00.74	0.188
G26.29−0.05	18:39:27.9	−05:55:56.60	0.202	G333.24−0.78	16:23:04.9	−50:45:36.23	0.212

Table A.1. continued.

IRDC name	R.A. ($^{h}:^{m}:^{s}$) (J2000)	Decl. ($^{\circ}:':''$) (J2000)	$C_{24\mu m}$	IRDC name	R.A. ($^{h}:^{m}:^{s}$) (J2000)	Decl. ($^{\circ}:':''$) (J2000)	$C_{24\mu m}$
G26.29+0.15	18:38:44.4	−05:50:19.74	0.152	G333.24−0.68	16:22:36.8	−50:41:05.60	0.367
G26.29+0.14	18:38:47.6	−05:50:37.62	0.303	G333.25+0.06	16:19:22.8	−50:09:21.70	0.876
G26.31+0.23	18:38:29.7	−05:47:25.63	0.205	G333.26−0.78	16:23:09.4	−50:44:39.64	0.224
G26.31+0.15	18:38:45.8	−05:49:28.70	0.176	G333.27+0.30	16:18:27.2	−49:58:25.93	0.158
G26.31−0.36	18:40:36.1	−06:03:09.67	0.205	G333.27−0.67	16:22:42.4	−50:39:24.86	0.366
G26.33−0.38	18:40:41.4	−06:02:55.16	0.255	G333.27−0.48	16:21:53.6	−50:31:36.01	0.212
G26.33−0.05	18:39:31.2	−05:53:33.08	0.199	G333.28−0.77	16:23:11.8	−50:43:33.46	0.205
G26.34+0.03	18:39:16.4	−05:51:01.72	0.156	G333.28−0.05	16:19:58.9	−50:12:45.15	0.185
G26.35+0.13	18:38:54.9	−05:47:58.88	0.256	G333.28−0.03	16:19:55.5	−50:11:53.82	0.152
G26.35−0.49	18:41:08.6	−06:04:48.09	0.151	G333.28+0.17	16:19:02.2	−50:03:11.85	0.200
G26.35−0.28	18:40:22.7	−05:58:53.28	0.220	G333.28−0.64	16:22:38.0	−50:37:35.32	0.327
G26.35+0.04	18:39:13.9	−05:50:00.23	0.157	G333.29+0.78	16:16:27.1	−49:37:03.16	0.155
G26.35+0.04	18:39:16.1	−05:50:03.97	0.160	G333.29−0.01	16:19:54.1	−50:10:48.06	0.318
G26.36−0.23	18:40:12.8	−05:57:08.68	0.151	G333.29−0.50	16:22:04.0	−50:31:35.52	0.267
G26.36−0.48	18:41:07.4	−06:03:51.30	0.193	G333.30+0.22	16:18:54.4	−50:00:39.35	0.228
G26.37−0.49	18:41:11.9	−06:03:43.11	0.209	G333.30−0.19	16:20:41.6	−50:17:58.09	0.154
G26.38−0.63	18:41:41.6	−06:06:41.16	0.167	G333.31+0.03	16:19:47.1	−50:08:29.09	0.155
G26.39−0.20	18:40:10.6	−05:54:41.24	0.190	G333.31+0.72	16:16:48.5	−49:38:25.08	0.173
G26.41−0.61	18:41:39.8	−06:04:58.80	0.186	G333.31−0.57	16:22:26.6	−50:33:16.30	0.204
G26.41+0.21	18:38:45.7	−05:42:37.04	0.157	G333.32−0.68	16:22:59.3	−50:38:04.38	0.285
G26.41−0.16	18:40:04.6	−05:52:40.52	0.153	G333.32−0.71	16:23:05.9	−50:39:01.48	0.153
G26.41+0.22	18:38:43.9	−05:41:58.20	0.170	G333.32−0.30	16:21:16.2	−50:21:32.96	0.399
G26.42−0.64	18:41:49.0	−06:05:16.58	0.174	G333.32+0.14	16:19:20.9	−50:02:47.76	0.157
G26.43+0.25	18:38:39.5	−05:39:58.46	0.167	G333.32−0.41	16:21:48.7	−50:26:27.14	0.171
G26.44−0.67	18:41:56.0	−06:05:00.84	0.242	G333.32−0.44	16:21:56.4	−50:27:37.67	0.287
G26.44−0.51	18:41:22.8	−06:00:13.50	0.199	G333.32+0.79	16:16:33.6	−49:34:50.73	0.175
G26.45+0.18	18:38:55.8	−05:41:01.56	0.203	G333.33−0.18	16:20:47.2	−50:16:30.42	0.254
G26.46+0.73	18:36:59.8	−05:25:37.68	0.231	G333.33−0.72	16:23:11.3	−50:39:15.47	0.180
G26.46−0.71	18:42:08.1	−06:05:08.81	0.162	G333.33−0.50	16:22:12.2	−50:29:48.79	0.210
G26.46−0.03	18:39:42.0	−05:46:15.65	0.152	G333.33+0.13	16:19:28.3	−50:03:05.63	0.194
G26.46−0.40	18:41:00.6	−05:56:09.85	0.363	G333.33+0.15	16:19:22.6	−50:02:05.46	0.157
G26.47−0.59	18:41:41.8	−06:01:12.52	0.166	G333.33+0.70	16:16:59.7	−49:38:25.05	0.298
G26.47+0.65	18:37:17.2	−05:27:14.09	0.152	G333.33−0.40	16:21:47.2	−50:25:17.79	0.193
G26.47+0.33	18:38:25.1	−05:35:41.80	0.161	G333.34−0.70	16:23:09.6	−50:38:07.86	0.228
G26.47−0.05	18:39:48.0	−05:46:06.58	0.201	G333.34+0.21	16:19:07.2	−49:59:13.14	0.154
G26.48+0.06	18:39:24.2	−05:42:47.08	0.175	G333.36−0.53	16:22:29.5	−50:30:01.54	0.201
G26.48+0.71	18:37:05.2	−05:24:50.80	0.152	G333.38−0.66	16:23:07.1	−50:34:31.23	0.176
G26.50−0.33	18:40:51.2	−05:52:39.01	0.224	G333.38−0.32	16:21:37.8	−50:20:13.55	0.185
G26.50+0.47	18:37:58.8	−05:30:15.22	0.189	G333.38−0.56	16:22:42.0	−50:30:05.11	0.184
G26.50−0.41	18:41:07.2	−05:54:20.91	0.216	G333.39+0.61	16:17:35.9	−49:39:54.17	0.167
G26.51+0.03	18:39:34.6	−05:41:42.20	0.196	G333.40−0.14	16:20:55.8	−50:11:49.97	0.207
G26.52+0.71	18:37:10.0	−05:22:25.84	0.196	G333.40−0.37	16:21:55.5	−50:21:12.23	0.390
G26.53−0.05	18:39:52.7	−05:43:06.50	0.204	G333.40−0.01	16:20:22.9	−50:06:15.78	0.166
G26.53+0.28	18:38:43.0	−05:33:49.99	0.155	G333.40+0.21	16:19:23.7	−49:56:34.10	0.154
G26.53−0.21	18:40:29.2	−05:47:25.80	0.189	G333.40+0.21	16:19:25.4	−49:56:28.89	0.150
G26.53−0.51	18:41:33.2	−05:55:27.88	0.209	G333.41+0.73	16:17:09.9	−49:33:49.15	0.212
G26.54−0.19	18:40:25.8	−05:46:27.66	0.172	G333.41−0.69	16:23:24.6	−50:34:33.92	0.238
G26.54+0.73	18:37:08.9	−05:21:10.16	0.153	G333.41−0.10	16:20:49.4	−50:09:35.90	0.157

Table A.1. continued.

IRDC name	R.A. ($^{h}:^{m}:^{s}$) (J2000)	Decl. ($^{\circ}:':''$) (J2000)	$C_{24\mu m}$	IRDC name	R.A. ($^{h}:^{m}:^{s}$) (J2000)	Decl. ($^{\circ}:':''$) (J2000)	$C_{24\mu m}$
G26.55−0.40	18:41:12.1	−05:51:37.10	0.195	G333.41−0.59	16:23:00.0	−50:30:15.80	0.199
G26.57−0.05	18:39:58.8	−05:41:04.26	0.209	G333.42−0.10	16:20:51.4	−50:09:12.08	0.151
G26.57−0.07	18:40:02.3	−05:41:29.82	0.162	G333.42+0.13	16:19:52.1	−49:59:12.02	0.186
G26.57+0.73	18:37:12.0	−05:19:15.18	0.185	G333.42+0.08	16:20:04.1	−50:01:05.20	0.159
G26.58−0.11	18:40:13.2	−05:42:14.73	0.168	G333.43−0.31	16:21:50.1	−50:17:38.43	0.241
G26.59+0.37	18:38:30.3	−05:28:21.62	0.162	G333.43−0.46	16:22:29.5	−50:23:48.00	0.384
G26.59+0.72	18:37:14.5	−05:18:35.37	0.151	G333.44+0.12	16:19:56.6	−49:58:54.29	0.150
G26.59+0.54	18:37:55.3	−05:23:32.71	0.183	G333.44−0.22	16:21:26.6	−50:13:20.36	0.426
G26.59+0.42	18:38:20.2	−05:26:43.95	0.165	G333.45−0.05	16:20:45.4	−50:05:45.05	0.152
G26.60+0.73	18:37:15.3	−05:18:01.69	0.179	G333.46−0.49	16:22:44.6	−50:23:54.97	0.196
G26.60+0.40	18:38:26.6	−05:26:52.69	0.199	G333.46−0.56	16:23:03.4	−50:26:39.08	0.157
G26.61+0.25	18:38:57.3	−05:30:33.93	0.198	G333.46−0.28	16:21:49.0	−50:14:35.88	0.205
G26.61−0.44	18:41:25.7	−05:49:19.83	0.236	G333.46−0.30	16:21:56.0	−50:15:40.69	0.280
G26.63−0.65	18:42:13.9	−05:54:30.82	0.169	G333.47−0.04	16:20:47.5	−50:04:30.72	0.269
G26.63+0.26	18:38:59.3	−05:29:29.58	0.186	G333.47−0.39	16:22:21.9	−50:18:59.14	0.161
G26.63−0.26	18:40:49.6	−05:43:32.54	0.169	G333.48+0.45	16:18:41.5	−49:42:56.13	0.152
G26.63−0.38	18:41:16.0	−05:46:45.91	0.164	G333.48−0.22	16:21:38.8	−50:11:42.18	0.351
G26.63−0.31	18:41:00.5	−05:44:45.60	0.203	G333.48−0.24	16:21:45.4	−50:12:32.64	0.213
G26.63−0.36	18:41:10.9	−05:46:03.59	0.187	G333.49−0.35	16:22:16.8	−50:16:37.17	0.199
G26.64−0.37	18:41:15.8	−05:46:07.91	0.159	G333.49+0.09	16:20:20.3	−49:57:51.72	0.275
G26.64−0.29	18:40:57.5	−05:43:32.77	0.162	G333.50+0.16	16:20:03.4	−49:54:52.56	0.208
G26.65−0.01	18:39:58.8	−05:35:27.36	0.194	G333.50−0.41	16:22:34.5	−50:18:59.84	0.211
G26.66−0.38	18:41:18.9	−05:45:19.84	0.259	G333.50−0.11	16:21:15.8	−50:06:18.68	0.212
G26.66−0.04	18:40:05.0	−05:35:50.70	0.241	G333.50−0.21	16:21:41.7	−50:10:06.07	0.159
G26.66−0.08	18:40:13.8	−05:36:54.74	0.165	G333.51−0.45	16:22:46.3	−50:20:14.15	0.156
G26.66−0.32	18:41:06.4	−05:43:32.21	0.231	G333.51−0.57	16:23:19.7	−50:25:26.83	0.152
G26.67−0.01	18:40:00.6	−05:34:35.23	0.221	G333.52+0.06	16:20:35.7	−49:58:16.52	0.336
G26.67+0.75	18:37:18.1	−05:13:42.58	0.152	G333.52−0.25	16:21:57.7	−50:11:28.45	0.274
G26.67+0.01	18:39:56.9	−05:33:53.72	0.153	G333.52−0.22	16:21:50.8	−50:09:59.66	0.348
G26.68−0.71	18:42:32.3	−05:52:57.90	0.161	G333.52−0.06	16:21:08.0	−50:03:01.20	0.223
G26.69+0.04	18:39:52.5	−05:32:13.55	0.225	G333.52−0.56	16:23:20.2	−50:24:06.07	0.255
G26.69−0.72	18:42:34.9	−05:52:43.21	0.157	G333.52−0.18	16:21:38.4	−50:07:49.86	0.357
G26.69+0.27	18:39:03.8	−05:25:35.78	0.150	G333.53−0.49	16:23:02.0	−50:20:46.54	0.165
G26.70+0.05	18:39:51.6	−05:31:27.10	0.167	G333.53+0.49	16:18:44.3	−49:39:00.44	0.178
G26.70+0.36	18:38:44.6	−05:22:42.74	0.151	G333.53−0.67	16:23:51.5	−50:28:20.09	0.152
G26.72−0.75	18:42:45.4	−05:51:55.16	0.193	G333.53−0.76	16:24:16.4	−50:31:56.63	0.183
G26.72−0.47	18:41:45.4	−05:44:13.89	0.169	G333.54−0.77	16:24:21.6	−50:32:18.58	0.174
G26.74+0.21	18:39:20.4	−05:24:55.27	0.158	G333.55+0.02	16:20:52.8	−49:58:39.78	0.311
G26.74−0.48	18:41:50.0	−05:44:01.95	0.174	G333.55−0.01	16:21:00.9	−49:59:55.50	0.152
G26.74−0.36	18:41:22.4	−05:40:21.89	0.177	G333.56−0.02	16:21:06.1	−49:59:50.44	0.338
G26.76−0.24	18:41:00.0	−05:35:50.70	0.193	G333.56−0.06	16:21:16.0	−50:01:19.12	0.297
G26.76+0.42	18:38:39.2	−05:17:39.84	0.152	G333.56+0.15	16:20:22.4	−49:52:35.40	0.159
G26.77+0.03	18:40:03.7	−05:27:59.94	0.196	G333.56−0.35	16:22:35.0	−50:13:49.32	0.407
G26.78+0.38	18:38:48.8	−05:17:48.83	0.160	G333.56−0.21	16:21:58.9	−50:07:48.86	0.733
G26.78+0.25	18:39:17.7	−05:21:28.49	0.150	G333.57−0.51	16:23:19.8	−50:20:01.61	0.234
G26.78+0.29	18:39:08.3	−05:20:11.16	0.192	G333.58−0.04	16:21:18.2	−49:59:37.31	0.169
G26.78+0.22	18:39:25.1	−05:22:12.61	0.237	G333.58+0.46	16:19:08.3	−49:38:20.31	0.166
G26.79+0.05	18:40:00.2	−05:26:31.87	0.165	G333.59+0.01	16:21:06.7	−49:57:24.52	0.152

Table A.1. continued.

IRDC name	R.A. ($^{h}:^{m}:^{s}$) (J2000)	Decl. ($^{\circ}:':''$) (J2000)	$C_{24\mu m}$	IRDC name	R.A. ($^{h}:^{m}:^{s}$) (J2000)	Decl. ($^{\circ}:':''$) (J2000)	$C_{24\mu m}$
G26.79+0.26	18:39:16.7	−05:20:44.06	0.160	G333.59−0.30	16:22:27.2	−50:10:18.58	0.214
G26.80+0.21	18:39:27.3	−05:21:18.67	0.173	G333.59−0.07	16:21:30.4	−50:00:31.41	0.612
G26.81−0.31	18:41:21.1	−05:35:36.96	0.168	G333.60−0.71	16:24:21.0	−50:27:11.70	0.194
G26.81−0.82	18:43:09.1	−05:49:17.58	0.152	G333.60−0.40	16:22:58.1	−50:14:03.06	0.161
G26.81−0.04	18:40:23.4	−05:27:51.51	0.202	G333.61−0.62	16:23:59.4	−50:22:59.83	0.214
G26.82−0.60	18:42:23.9	−05:43:00.05	0.161	G333.61−0.13	16:21:49.6	−50:02:04.81	0.632
G26.82−0.80	18:43:07.2	−05:47:58.74	0.177	G333.61−0.71	16:24:25.6	−50:26:42.19	0.162
G26.83+0.18	18:39:37.4	−05:20:42.25	0.234	G333.62−0.39	16:22:58.4	−50:12:50.73	0.182
G26.83−0.03	18:40:23.7	−05:26:25.69	0.184	G333.62−0.31	16:22:39.0	−50:09:41.59	0.370
G26.84−0.59	18:42:24.9	−05:41:27.36	0.156	G333.62−0.48	16:23:24.9	−50:16:34.92	0.239
G26.85−0.05	18:40:28.4	−05:26:03.10	0.156	G333.63−0.42	16:23:11.3	−50:14:04.36	0.264
G26.85−0.21	18:41:03.9	−05:30:08.09	0.176	G333.63−0.00	16:21:19.5	−49:56:06.54	0.207
G26.86+0.18	18:39:40.5	−05:19:12.74	0.275	G333.63+0.38	16:19:38.9	−49:39:36.16	0.338
G26.88+0.53	18:38:28.2	−05:08:29.62	0.187	G333.63+0.01	16:21:16.3	−49:55:19.38	0.205
G26.91−0.39	18:41:49.3	−05:32:33.04	0.153	G333.64−0.68	16:24:22.7	−50:24:14.98	0.157
G26.91+0.21	18:39:39.2	−05:15:51.23	0.215	G333.64+0.38	16:19:44.8	−49:39:18.91	0.341
G26.91+0.18	18:39:45.6	−05:16:31.80	0.151	G333.64−0.65	16:24:16.0	−50:22:44.05	0.177
G26.92−0.19	18:41:06.3	−05:26:03.14	0.153	G333.65−0.01	16:21:28.9	−49:55:17.12	0.225
G26.92−0.58	18:42:30.4	−05:36:44.87	0.152	G333.66+0.36	16:19:54.6	−49:39:26.54	0.206
G26.92+0.18	18:39:47.3	−05:15:40.70	0.210	G333.66−0.56	16:23:58.0	−50:18:30.78	0.169
G26.93+0.20	18:39:45.3	−05:15:10.59	0.158	G333.66−0.03	16:21:35.1	−49:55:38.06	0.204
G26.93+0.02	18:40:22.5	−05:19:51.44	0.194	G333.66+0.07	16:21:09.8	−49:51:17.97	0.226
G26.93+0.14	18:39:56.8	−05:16:22.11	0.151	G333.67+0.44	16:19:35.4	−49:35:43.79	0.175
G26.93−0.32	18:41:36.9	−05:29:10.82	0.217	G333.67−0.40	16:23:15.0	−50:11:03.72	0.172
G26.94+0.50	18:38:41.6	−05:06:02.22	0.157	G333.67+0.01	16:21:26.7	−49:53:36.33	0.188
G26.94−0.31	18:41:34.4	−05:28:02.22	0.200	G333.67−0.41	16:23:18.7	−50:11:26.69	0.178
G26.96+0.19	18:39:50.4	−05:13:54.39	0.218	G333.67−0.36	16:23:05.6	−50:09:09.89	0.175
G26.99+0.14	18:40:03.8	−05:13:19.20	0.175	G333.68−0.00	16:21:33.7	−49:54:01.57	0.187
G26.99−0.74	18:43:12.5	−05:37:16.90	0.162	G333.68+0.60	16:18:56.9	−49:28:19.94	0.162
G27.00−0.26	18:41:30.9	−05:24:04.41	0.169	G333.68+0.47	16:19:29.4	−49:33:37.97	0.179
G27.01−0.30	18:41:40.0	−05:24:33.70	0.185	G333.68+0.16	16:20:53.2	−49:46:53.03	0.151
G27.01+0.19	18:39:56.2	−05:11:02.72	0.206	G333.68−0.13	16:22:10.1	−49:59:15.70	0.319
G27.01−0.12	18:41:01.1	−05:19:16.38	0.151	G333.69+0.37	16:19:57.8	−49:37:40.81	0.326
G27.02+0.14	18:40:07.1	−05:11:48.58	0.182	G333.69−0.17	16:22:22.0	−50:00:35.74	0.154
G27.02+0.29	18:39:34.8	−05:07:19.43	0.225	G333.70−0.17	16:22:23.6	−50:00:22.50	0.155
G27.02−0.10	18:40:59.0	−05:18:07.21	0.162	G333.70+0.58	16:19:07.2	−49:28:10.28	0.152
G27.02+0.42	18:39:08.0	−05:03:49.00	0.175	G333.71−0.22	16:22:38.5	−50:01:55.08	0.205
G27.03−0.11	18:41:00.8	−05:18:10.86	0.161	G333.71−0.32	16:23:06.3	−50:06:19.10	0.332
G27.03+0.28	18:39:39.0	−05:07:28.72	0.198	G333.71−0.68	16:24:43.0	−50:21:09.76	0.159
G27.03+0.21	18:39:53.3	−05:09:16.21	0.280	G333.72−0.75	16:25:02.7	−50:23:58.68	0.205
G27.04−0.10	18:41:00.2	−05:17:15.51	0.155	G333.72−0.19	16:22:32.8	−50:00:01.09	0.151
G27.04−0.67	18:43:04.1	−05:32:59.47	0.173	G333.72−0.18	16:22:32.8	−49:59:50.48	0.150
G27.04−0.10	18:41:01.2	−05:17:02.23	0.152	G333.72−0.71	16:24:54.1	−50:21:54.49	0.159
G27.05−0.10	18:41:01.9	−05:16:59.00	0.161	G333.73−0.40	16:23:32.8	−50:08:39.76	0.191
G27.08−0.86	18:43:47.3	−05:36:07.15	0.152	G333.73−0.39	16:23:30.1	−50:07:57.85	0.169
G27.08+0.18	18:40:05.7	−05:07:19.86	0.201	G333.74−0.27	16:23:00.3	−50:02:30.71	0.297
G27.09−0.57	18:42:45.8	−05:27:37.35	0.154	G333.74+0.48	16:19:45.8	−49:30:50.87	0.163
G27.09+0.43	18:39:12.4	−05:00:01.42	0.170	G333.74+0.33	16:20:24.6	−49:37:05.80	0.254

Table A.1. continued.

IRDC name	R.A. ($^{h}:^{m}:^{s}$) (J2000)	Decl. ($^{\circ}:':''$) (J2000)	$C_{24\mu m}$	IRDC name	R.A. ($^{h}:^{m}:^{s}$) (J2000)	Decl. ($^{\circ}:':''$) (J2000)	$C_{24\mu m}$
G27.09−0.44	18:42:19.3	−05:23:47.61	0.165	G333.75−0.45	16:23:48.4	−50:09:49.88	0.184
G27.09−0.56	18:42:45.1	−05:27:01.90	0.176	G333.75−0.22	16:22:49.9	−50:00:17.72	0.212
G27.10−0.13	18:41:14.1	−05:15:06.38	0.194	G333.75−0.47	16:23:58.8	−50:10:39.66	0.184
G27.10+0.17	18:40:10.3	−05:06:54.85	0.173	G333.76−0.61	16:24:35.7	−50:16:24.95	0.181
G27.10+0.19	18:40:06.3	−05:06:20.60	0.182	G333.76−0.60	16:24:32.4	−50:15:38.67	0.151
G27.10+0.14	18:40:17.2	−05:07:24.07	0.176	G333.76+0.23	16:20:55.9	−49:40:37.34	0.183
G27.11+0.57	18:38:44.8	−04:55:08.51	0.155	G333.77−0.30	16:23:15.3	−50:02:52.18	0.373
G27.12+0.17	18:40:11.5	−05:05:40.14	0.225	G333.78+0.33	16:20:32.0	−49:35:21.97	0.314
G27.12+0.77	18:38:04.2	−04:48:55.93	0.164	G333.80−0.60	16:24:45.0	−50:14:09.58	0.170
G27.12−0.62	18:43:00.9	−05:26:52.92	0.157	G333.82+0.22	16:21:11.1	−49:38:27.02	0.157
G27.15+0.53	18:38:58.6	−04:53:51.23	0.158	G333.82−0.20	16:23:03.3	−49:55:56.21	0.171
G27.16+0.15	18:40:20.5	−05:04:13.52	0.155	G333.82+0.01	16:22:09.1	−49:47:13.17	0.166
G27.16−0.01	18:40:54.6	−05:08:20.43	0.167	G333.83−0.41	16:23:59.0	−50:04:43.11	0.168
G27.18−0.10	18:41:17.1	−05:10:07.77	0.312	G333.83−0.67	16:25:11.7	−50:15:56.17	0.156
G27.18+0.15	18:40:23.5	−05:03:01.00	0.164	G333.84+0.26	16:21:08.7	−49:36:06.58	0.176
G27.20−0.93	18:44:15.8	−05:31:39.50	0.164	G333.84−0.67	16:25:14.2	−50:15:16.12	0.154
G27.21+0.58	18:38:53.2	−04:49:23.97	0.194	G333.85+0.19	16:21:26.3	−49:38:24.29	0.160
G27.21+0.42	18:39:27.6	−04:53:39.02	0.164	G333.85+0.52	16:20:03.2	−49:24:42.26	0.212
G27.22+0.32	18:39:50.1	−04:56:15.01	0.151	G333.86−0.29	16:23:36.9	−49:58:27.65	0.195
G27.22−0.13	18:41:27.4	−05:08:25.08	0.163	G333.86+0.24	16:21:18.6	−49:35:44.28	0.253
G27.24+0.30	18:39:57.2	−04:55:42.54	0.206	G333.86+0.53	16:20:04.5	−49:23:33.79	0.203
G27.24−0.12	18:41:27.9	−05:07:14.88	0.172	G333.89−0.48	16:24:34.1	−50:05:12.74	0.152
G27.24+0.34	18:39:49.6	−04:54:24.19	0.201	G333.89−0.48	16:24:34.0	−50:05:02.15	0.150
G27.28−0.57	18:43:08.6	−05:17:41.50	0.172	G333.90+0.03	16:22:22.8	−49:43:14.35	0.289
G27.30+0.69	18:38:39.6	−04:41:46.49	0.153	G333.90−0.46	16:24:32.8	−50:03:57.16	0.169
G27.31+0.33	18:39:57.7	−04:51:10.73	0.164	G333.91−0.50	16:24:45.2	−50:05:15.41	0.186
G27.31+0.23	18:40:20.3	−04:53:56.30	0.153	G333.92−0.55	16:25:00.9	−50:06:42.84	0.189
G27.31+0.14	18:40:40.3	−04:56:25.71	0.158	G333.93−0.69	16:25:42.4	−50:11:50.49	0.157
G27.31−0.11	18:41:32.6	−05:03:04.05	0.201	G333.94−0.67	16:25:39.6	−50:11:11.52	0.175
G27.32+0.31	18:40:05.2	−04:51:08.31	0.166	G333.95−0.68	16:25:46.7	−50:10:50.06	0.184
G27.33−0.08	18:41:27.7	−05:01:20.12	0.171	G333.96−0.08	16:23:07.8	−49:45:11.08	0.171
G27.35−0.14	18:41:44.3	−05:01:55.87	0.259	G333.96−0.24	16:23:50.4	−49:51:46.44	0.205
G27.35−0.05	18:41:24.1	−04:58:58.86	0.187	G333.96+0.17	16:22:03.5	−49:34:32.19	0.452
G27.36−0.13	18:41:43.7	−05:01:01.00	0.174	G333.97−0.23	16:23:50.5	−49:50:46.26	0.152
G27.38+0.12	18:40:51.0	−04:52:57.22	0.156	G333.98+0.09	16:22:29.0	−49:37:25.06	0.315
G27.39+0.21	18:40:33.3	−04:50:06.21	0.160	G333.98+0.11	16:22:23.9	−49:36:18.84	0.186
G27.39−0.08	18:41:35.3	−04:57:41.80	0.211	G333.98−0.35	16:24:25.6	−49:55:43.36	0.153
G27.39+0.10	18:40:57.4	−04:52:50.24	0.158	G333.98−0.36	16:24:28.3	−49:56:04.31	0.153
G27.40−0.62	18:43:32.4	−05:12:34.37	0.152	G333.98+0.19	16:22:02.5	−49:32:35.73	0.167
G27.40+0.12	18:40:53.5	−04:51:58.14	0.195	G334.00−0.09	16:23:20.0	−49:44:12.63	0.174
G27.40+0.09	18:41:00.1	−04:52:42.91	0.151	G334.02+0.04	16:22:52.3	−49:37:22.06	0.200
G27.40+0.19	18:40:38.8	−04:49:54.70	0.154	G334.04−0.07	16:23:24.5	−49:41:23.26	0.178
G27.42−0.61	18:43:31.7	−05:10:45.29	0.158	G334.04−0.43	16:25:01.6	−49:56:44.99	0.158
G27.43+0.77	18:38:37.9	−04:32:40.56	0.154	G334.05−0.35	16:24:42.9	−49:53:00.18	0.160
G27.43−0.02	18:41:27.2	−04:54:01.80	0.290	G334.05−0.35	16:24:42.7	−49:52:44.19	0.151
G27.43−0.36	18:42:40.0	−05:03:18.43	0.156	G334.06−0.43	16:25:06.7	−49:56:03.41	0.154
G27.44−0.17	18:41:59.4	−04:57:38.34	0.150	G334.06+0.01	16:23:10.0	−49:37:23.29	0.179
G27.44+0.12	18:40:57.6	−04:49:34.60	0.152	G334.06+0.02	16:23:06.8	−49:36:45.26	0.153

Table A.1. continued.

IRDC name	R.A. ($^{h}:^{m}:^{s}$) (J2000)	Decl. ($^{\circ}:':''$) (J2000)	$C_{24\mu m}$	IRDC name	R.A. ($^{h}:^{m}:^{s}$) (J2000)	Decl. ($^{\circ}:':''$) (J2000)	$C_{24\mu m}$
G27.44−0.17	18:42:00.5	−04:57:38.53	0.152	G334.07+0.03	16:23:07.6	−49:36:15.14	0.166
G27.45−0.34	18:42:37.8	−05:02:10.67	0.172	G334.07+0.04	16:23:03.8	−49:35:36.49	0.159
G27.46−0.15	18:41:58.1	−04:56:30.31	0.315	G334.07+0.24	16:22:11.8	−49:27:10.31	0.164
G27.46+0.12	18:41:00.6	−04:48:50.57	0.190	G334.07+0.04	16:23:04.3	−49:35:12.52	0.154
G27.54+0.25	18:40:41.0	−04:41:03.11	0.193	G334.08+0.06	16:23:02.4	−49:34:09.44	0.200
G27.54+0.49	18:39:50.2	−04:34:16.39	0.157	G334.09+0.42	16:21:30.4	−49:18:36.92	0.169
G27.56+0.26	18:40:40.7	−04:39:24.31	0.171	G334.10−0.44	16:25:20.9	−49:54:31.05	0.166
G27.57−0.17	18:42:14.4	−04:50:50.52	0.193	G334.11+0.40	16:21:41.5	−49:18:38.44	0.169
G27.58+0.17	18:41:02.6	−04:40:57.69	0.153	G334.11+0.33	16:21:58.8	−49:21:17.71	0.205
G27.59−0.09	18:41:58.9	−04:47:29.96	0.172	G334.12+0.25	16:22:21.9	−49:24:41.77	0.159
G27.59−0.10	18:42:02.5	−04:47:54.34	0.167	G334.12+0.36	16:21:53.6	−49:19:59.93	0.204
G27.59−0.05	18:41:50.5	−04:46:13.19	0.173	G334.13−0.35	16:25:04.4	−49:49:36.42	0.166
G27.60−0.33	18:42:51.6	−04:53:55.61	0.154	G334.14+0.14	16:22:57.3	−49:28:24.46	0.167
G27.60−0.61	18:43:51.9	−05:01:21.51	0.165	G334.14−0.24	16:24:38.6	−49:44:18.01	0.158
G27.61+0.46	18:40:03.5	−04:31:14.07	0.184	G334.15+0.05	16:23:24.1	−49:31:24.12	0.289
G27.61−0.61	18:43:52.7	−05:00:33.63	0.160	G334.16+0.01	16:23:36.3	−49:32:57.36	0.187
G27.62−0.01	18:41:46.3	−04:44:04.82	0.168	G334.16−0.24	16:24:44.2	−49:43:32.58	0.173
G27.62−0.58	18:43:48.7	−04:59:37.08	0.150	G334.17+0.10	16:23:14.0	−49:28:38.59	0.261
G27.62−0.35	18:42:59.1	−04:53:13.27	0.152	G334.17+0.08	16:23:21.9	−49:29:29.73	0.154
G27.62−0.59	18:43:49.8	−04:59:33.90	0.155	G334.20−0.51	16:26:04.7	−49:53:17.31	0.160
G27.63+0.81	18:38:51.1	−04:20:36.76	0.168	G334.20−0.20	16:24:42.4	−49:39:55.03	0.316
G27.66+0.12	18:41:23.5	−04:37:59.72	0.197	G334.22+0.12	16:23:24.5	−49:25:41.56	0.205
G27.67−0.68	18:44:15.6	−04:59:45.07	0.171	G334.23−0.35	16:25:31.5	−49:45:02.97	0.153
G27.67+0.04	18:41:40.6	−04:39:39.22	0.161	G334.24+0.10	16:23:33.3	−49:25:58.80	0.199
G27.68−0.68	18:44:15.1	−04:58:48.26	0.165	G334.24−0.18	16:24:47.8	−49:37:31.57	0.157
G27.68−0.16	18:42:24.6	−04:44:29.23	0.156	G334.24−0.19	16:24:50.8	−49:38:00.37	0.153
G27.68−0.66	18:44:11.0	−04:58:05.98	0.169	G334.27−0.25	16:25:12.5	−49:39:08.20	0.188
G27.69−0.28	18:42:49.9	−04:47:30.62	0.168	G334.28−0.27	16:25:22.0	−49:39:45.88	0.156
G27.70−0.14	18:42:23.0	−04:43:26.95	0.164	G334.28−0.34	16:25:41.1	−49:42:42.16	0.184
G27.70−0.70	18:44:23.0	−04:58:33.66	0.185	G334.29−0.22	16:25:11.5	−49:36:54.66	0.151
G27.71+0.75	18:39:12.7	−04:18:27.21	0.158	G334.29−0.21	16:25:08.9	−49:36:18.96	0.170
G27.71−0.65	18:44:11.3	−04:56:42.23	0.180	G334.30−0.55	16:26:43.2	−49:50:27.34	0.175
G27.71+0.24	18:41:01.3	−04:32:19.34	0.159	G334.33−0.09	16:24:47.4	−49:30:05.98	0.207
G27.71−0.14	18:42:23.2	−04:42:38.35	0.168	G334.36+0.47	16:22:28.4	−49:04:39.84	0.179
G27.71−0.72	18:44:27.9	−04:58:25.58	0.168	G334.37−0.23	16:25:34.7	−49:33:55.75	0.192
G27.71−0.12	18:42:20.5	−04:41:55.89	0.187	G334.37+0.22	16:23:36.4	−49:14:52.05	0.179
G27.72+0.02	18:41:49.2	−04:37:38.55	0.170	G334.38+0.26	16:23:28.1	−49:13:07.95	0.184
G27.72−0.60	18:44:02.1	−04:54:36.34	0.169	G334.38−0.64	16:27:26.4	−49:50:29.23	0.186
G27.72+0.23	18:41:05.7	−04:31:46.39	0.179	G334.38−0.26	16:25:45.2	−49:34:36.55	0.176
G27.74+0.19	18:41:16.2	−04:31:51.16	0.174	G334.39−0.03	16:24:45.3	−49:24:45.27	0.174
G27.74+0.21	18:41:12.9	−04:31:15.26	0.173	G334.39−0.68	16:27:40.3	−49:52:09.07	0.189
G27.74+0.17	18:41:20.5	−04:32:11.51	0.230	G334.40−0.01	16:24:43.2	−49:23:38.74	0.203
G27.75−0.27	18:42:55.2	−04:44:08.07	0.220	G334.40−0.22	16:25:37.5	−49:32:15.45	0.180
G27.75+0.08	18:41:40.1	−04:34:08.61	0.195	G334.40−0.03	16:24:50.3	−49:24:21.07	0.156
G27.76+0.15	18:41:26.1	−04:31:45.00	0.192	G334.41−0.02	16:24:49.6	−49:23:23.63	0.155
G27.77+0.08	18:41:42.7	−04:33:29.63	0.151	G334.43+0.49	16:22:42.3	−49:01:20.24	0.157
G27.77+0.17	18:41:23.6	−04:30:42.10	0.221	G334.44+0.46	16:22:50.0	−49:01:52.98	0.283
G27.78+0.07	18:41:45.4	−04:33:10.04	0.164	G334.45−0.24	16:25:56.4	−49:31:12.55	0.189

Table A.1. continued.

IRDC name	R.A. ($^{h}:^{m}:^{s}$) (J2000)	Decl. ($^{\circ}:':''$) (J2000)	$C_{24\mu m}$	IRDC name	R.A. ($^{h}:^{m}:^{s}$) (J2000)	Decl. ($^{\circ}:':''$) (J2000)	$C_{24\mu m}$
G27.78+0.82	18:39:04.7	−04:12:29.26	0.162	G334.45−0.02	16:24:58.8	−49:22:02.32	0.151
G27.79−0.30	18:43:05.8	−04:42:57.25	0.167	G334.45−0.19	16:25:45.4	−49:28:53.64	0.177
G27.79+0.83	18:39:05.2	−04:11:51.70	0.152	G334.46−0.24	16:26:01.8	−49:30:33.79	0.201
G27.79+0.08	18:41:45.0	−04:32:21.37	0.225	G334.46−0.03	16:25:04.9	−49:21:29.24	0.221
G27.79−0.20	18:42:45.9	−04:40:02.87	0.187	G334.47+0.01	16:24:56.4	−49:19:20.20	0.204
G27.81+0.13	18:41:37.4	−04:29:44.05	0.218	G334.48+0.67	16:22:06.0	−48:51:15.56	0.153
G27.82−0.35	18:43:21.6	−04:42:26.28	0.197	G334.49+0.67	16:22:09.6	−48:51:15.50	0.182
G27.83−0.60	18:44:15.2	−04:48:57.36	0.151	G334.50+0.02	16:25:01.0	−49:18:11.36	0.157
G27.83+0.02	18:42:01.9	−04:31:52.28	0.187	G334.50+0.66	16:22:14.9	−48:51:12.79	0.173
G27.83−0.34	18:43:18.9	−04:41:41.81	0.195	G334.51+0.18	16:24:21.6	−49:10:50.69	0.193
G27.83−0.07	18:42:22.2	−04:34:20.62	0.157	G334.51+0.10	16:24:44.9	−49:14:11.57	0.282
G27.85−0.03	18:42:16.2	−04:32:18.22	0.153	G334.53+0.10	16:24:48.1	−49:12:58.93	0.192
G27.86−0.08	18:42:26.1	−04:32:57.10	0.173	G334.54−0.25	16:26:22.3	−49:27:34.85	0.202
G27.87−0.04	18:42:19.0	−04:31:11.67	0.162	G334.54+0.12	16:24:44.2	−49:11:58.35	0.209
G27.88+0.23	18:41:23.5	−04:23:30.72	0.201	G334.54+0.14	16:24:41.9	−49:11:16.91	0.156
G27.89+0.08	18:41:55.6	−04:26:59.44	0.280	G334.54−0.06	16:25:34.5	−49:19:30.65	0.206
G27.90+0.18	18:41:35.1	−04:23:50.52	0.159	G334.54+0.39	16:23:35.0	−49:00:18.96	0.172
G27.90−0.39	18:43:38.3	−04:39:37.77	0.206	G334.55−0.19	16:26:09.7	−49:24:56.21	0.221
G27.90+0.19	18:41:34.2	−04:23:32.76	0.152	G334.55−0.00	16:25:21.7	−49:16:42.14	0.178
G27.94+0.07	18:42:03.8	−04:24:53.28	0.160	G334.56+0.32	16:23:58.8	−49:02:40.59	0.162
G27.94−0.38	18:43:39.2	−04:36:55.08	0.178	G334.57+0.02	16:25:17.6	−49:14:58.76	0.161
G27.94−0.47	18:44:00.3	−04:39:15.29	0.261	G334.58+0.32	16:24:02.4	−49:01:57.14	0.260
G27.97+0.12	18:41:55.2	−04:21:40.67	0.151	G334.58−0.08	16:25:47.6	−49:18:41.12	0.168
G27.97+0.10	18:42:01.5	−04:22:17.24	0.183	G334.59−0.18	16:26:17.4	−49:22:45.79	0.157
G27.97−0.20	18:43:04.7	−04:30:18.70	0.168	G334.62−0.27	16:26:50.2	−49:25:12.04	0.182
G27.97−0.42	18:43:52.1	−04:36:05.17	0.357	G334.62+0.48	16:23:32.1	−48:53:30.76	0.153
G27.99−0.11	18:42:47.1	−04:26:44.78	0.158	G334.62+0.01	16:25:35.4	−49:12:58.37	0.162
G27.99+0.16	18:41:51.1	−04:19:17.23	0.229	G334.63+0.38	16:24:00.0	−48:57:06.83	0.189
G28.02+0.03	18:42:21.7	−04:21:18.53	0.205	G334.63−0.26	16:26:49.8	−49:24:04.20	0.199
G28.03+0.06	18:42:16.2	−04:20:24.93	0.157	G334.64+0.05	16:25:29.6	−49:10:47.29	0.238
G28.03−0.78	18:45:14.9	−04:43:05.99	0.170	G334.64+0.03	16:25:35.6	−49:11:29.32	0.173
G28.03−0.48	18:44:12.0	−04:34:46.55	0.156	G334.65+0.35	16:24:13.1	−48:57:55.88	0.156
G28.05+0.03	18:42:24.3	−04:20:03.69	0.187	G334.65+0.39	16:24:02.5	−48:55:44.50	0.183
G28.05−0.47	18:44:10.6	−04:33:32.64	0.277	G334.65+0.81	16:22:15.8	−48:38:18.55	0.150
G28.05−0.13	18:42:58.6	−04:24:09.40	0.193	G334.66+0.06	16:25:32.7	−49:09:46.69	0.151
G28.06+0.18	18:41:53.5	−04:15:18.04	0.159	G334.66−0.13	16:26:22.8	−49:17:02.88	0.156
G28.07−0.12	18:42:58.9	−04:23:05.28	0.156	G334.67−0.33	16:27:18.7	−49:25:31.01	0.152
G28.07+0.35	18:41:19.0	−04:10:00.06	0.152	G334.68−0.21	16:26:47.7	−49:19:46.15	0.150
G28.08+0.12	18:42:08.5	−04:16:01.48	0.254	G334.68+0.02	16:25:49.7	−49:10:13.90	0.194
G28.08−0.11	18:42:57.3	−04:21:46.19	0.177	G334.68−0.21	16:26:50.4	−49:19:51.03	0.154
G28.08−0.12	18:42:59.5	−04:21:56.64	0.183	G334.70−0.42	16:27:49.8	−49:28:02.57	0.272
G28.09+0.07	18:42:19.5	−04:16:34.67	0.425	G334.70+0.03	16:25:52.3	−49:09:02.79	0.253
G28.09+0.34	18:41:22.1	−04:09:07.79	0.224	G334.71+0.05	16:25:48.6	−49:07:33.72	0.173
G28.09−0.46	18:44:14.4	−04:31:10.07	0.201	G334.72−0.04	16:26:13.5	−49:11:16.85	0.155
G28.10−0.48	18:44:19.0	−04:30:57.91	0.157	G334.72+0.07	16:25:45.0	−49:06:42.54	0.190
G28.11−0.45	18:44:13.6	−04:29:44.63	0.346	G334.73+0.59	16:23:29.9	−48:44:07.64	0.154
G28.11+0.12	18:42:11.4	−04:13:52.41	0.188	G334.75−0.08	16:26:31.6	−49:11:30.05	0.158
G28.12+0.01	18:42:36.9	−04:16:32.11	0.206	G334.75+0.49	16:24:02.5	−48:47:33.50	0.157

Table A.1. continued.

IRDC name	R.A. ($^h:^m:^s$) (J2000)	Decl. ($^\circ:':''$) (J2000)	$C_{24\mu m}$	IRDC name	R.A. ($^h:^m:^s$) (J2000)	Decl. ($^\circ:':''$) (J2000)	$C_{24\mu m}$
G28.13−0.18	18:43:17.0	−04:21:17.12	0.195	G334.75−0.37	16:27:48.0	−49:23:27.40	0.158
G28.13+0.02	18:42:35.6	−04:15:53.63	0.158	G334.75+0.48	16:24:04.9	−48:47:46.62	0.154
G28.17−0.11	18:43:07.3	−04:17:20.81	0.208	G334.75−0.10	16:26:36.7	−49:12:01.06	0.162
G28.18−0.09	18:43:04.7	−04:15:56.95	0.162	G334.75−0.35	16:27:43.3	−49:22:19.91	0.158
G28.19+0.01	18:42:43.6	−04:12:55.84	0.240	G334.76+0.70	16:23:11.4	−48:38:02.09	0.157
G28.19−0.08	18:43:02.7	−04:15:04.46	0.184	G334.77−0.11	16:26:44.9	−49:11:56.51	0.182
G28.20−0.40	18:44:11.8	−04:23:45.14	0.235	G334.81−0.20	16:27:20.8	−49:13:49.64	0.155
G28.20−0.19	18:43:28.6	−04:17:54.58	0.286	G334.81−0.01	16:26:30.7	−49:05:50.79	0.161
G28.21+0.02	18:42:43.2	−04:11:40.77	0.219	G334.82−0.12	16:27:02.4	−49:10:05.58	0.150
G28.21+0.15	18:42:16.9	−04:08:10.76	0.208	G334.84−0.27	16:27:44.8	−49:15:42.78	0.152
G28.22+0.16	18:42:14.7	−04:07:01.86	0.156	G334.85−0.09	16:26:58.8	−49:07:26.51	0.183
G28.22+0.22	18:42:03.3	−04:05:17.07	0.164	G334.86+0.33	16:25:14.3	−48:49:34.45	0.232
G28.23+0.00	18:42:50.3	−04:11:06.03	0.156	G334.87−0.05	16:26:55.2	−49:04:52.79	0.175
G28.23+0.23	18:42:01.3	−04:04:31.96	0.151	G334.87−0.12	16:27:14.6	−49:07:52.32	0.181
G28.25+0.07	18:42:37.2	−04:08:02.79	0.447	G334.87−0.38	16:28:22.5	−49:18:29.16	0.164
G28.25−0.17	18:43:30.3	−04:14:35.83	0.516	G334.87−0.38	16:28:24.7	−49:18:40.41	0.150
G28.26−0.32	18:44:01.7	−04:18:11.69	0.169	G334.89−0.32	16:28:10.5	−49:15:21.61	0.286
G28.26+0.52	18:41:02.1	−03:55:06.55	0.152	G334.89−0.36	16:28:22.2	−49:16:59.02	0.172
G28.26−0.46	18:44:32.0	−04:21:48.97	0.169	G334.90−0.08	16:27:08.2	−49:04:55.79	0.178
G28.27−0.09	18:43:14.1	−04:11:38.48	0.172	G334.91−0.12	16:27:24.6	−49:06:23.91	0.243
G28.27+0.01	18:42:53.1	−04:08:38.89	0.151	G334.91−0.35	16:28:26.3	−49:15:51.75	0.204
G28.27+0.01	18:42:52.2	−04:08:32.04	0.151	G334.93+0.52	16:24:41.9	−48:38:37.25	0.154
G28.27−0.17	18:43:31.7	−04:13:23.92	0.519	G334.93+0.50	16:24:47.6	−48:39:15.23	0.162
G28.28+0.50	18:41:08.8	−03:54:25.79	0.150	G334.93+0.62	16:24:17.3	−48:34:17.44	0.156
G28.29−0.36	18:44:14.8	−04:17:59.04	0.188	G334.96−0.40	16:28:51.5	−49:15:52.13	0.227
G28.29−0.15	18:43:28.2	−04:11:56.28	0.387	G334.97−0.14	16:27:43.3	−49:04:36.24	0.222
G28.32−0.30	18:44:05.6	−04:14:39.99	0.178	G334.97−0.38	16:28:47.7	−49:14:07.57	0.158
G28.33+0.02	18:42:57.9	−04:05:21.45	0.175	G335.00+0.37	16:25:37.0	−48:41:53.72	0.153
G28.33−0.64	18:45:17.7	−04:23:10.53	0.158	G335.00+0.36	16:25:39.7	−48:42:05.76	0.150
G28.33+0.09	18:42:42.8	−04:03:11.98	0.195	G335.01−0.08	16:27:36.8	−49:00:17.64	0.195
G28.35+0.09	18:42:44.1	−04:01:56.41	0.192	G335.01+0.48	16:25:10.2	−48:36:40.67	0.165
G28.35−0.04	18:43:12.3	−04:05:29.84	0.199	G335.02+0.39	16:25:38.1	−48:40:07.13	0.205
G28.35−0.30	18:44:09.0	−04:12:40.15	0.161	G335.03−0.51	16:29:39.0	−49:17:13.77	0.175
G28.36−0.49	18:44:50.0	−04:17:51.28	0.172	G335.04−0.44	16:29:23.3	−49:13:52.28	0.163
G28.36−0.35	18:44:19.0	−04:13:36.52	0.164	G335.05−0.42	16:29:18.1	−49:12:13.61	0.184
G28.36−0.38	18:44:25.4	−04:14:25.51	0.156	G335.05+0.38	16:25:47.9	−48:38:57.99	0.191
G28.37+0.13	18:42:37.7	−04:00:10.28	0.314	G335.06−0.52	16:29:47.1	−49:16:06.60	0.166
G28.37−0.21	18:43:51.4	−04:09:35.96	0.199	G335.06−0.39	16:29:14.7	−49:10:55.59	0.276
G28.37−0.38	18:44:26.9	−04:13:38.36	0.158	G335.07−0.41	16:29:21.0	−49:11:28.20	0.198
G28.38+0.06	18:42:53.7	−04:01:30.44	0.476	G335.08−0.45	16:29:34.1	−49:12:28.99	0.155
G28.39−0.11	18:43:32.2	−04:05:48.59	0.287	G335.08+0.43	16:25:43.2	−48:35:54.05	0.157
G28.39+0.09	18:42:48.8	−04:00:09.93	0.190	G335.08+0.23	16:26:36.8	−48:44:12.84	0.164
G28.39+0.70	18:40:38.3	−03:42:59.50	0.151	G335.08+0.15	16:26:55.7	−48:47:10.32	0.195
G28.40−0.01	18:43:11.5	−04:02:26.30	0.159	G335.09+0.20	16:26:44.7	−48:44:51.57	0.175
G28.40+0.13	18:42:41.4	−03:58:30.28	0.229	G335.10−0.42	16:29:30.9	−49:10:25.62	0.329
G28.40+0.09	18:42:50.0	−03:59:24.71	0.253	G335.10+0.34	16:26:10.8	−48:38:39.13	0.164
G28.41+0.77	18:40:26.8	−03:40:25.96	0.158	G335.11−0.44	16:29:38.6	−49:11:05.60	0.154
G28.41+0.04	18:43:02.0	−04:00:13.86	0.158	G335.11+0.01	16:27:39.6	−48:52:14.28	0.175

Table A.1. continued.

IRDC name	R.A. ($^{h}:^{m}:^{s}$) (J2000)	Decl. ($^{\circ}:':''$) (J2000)	$C_{24\mu m}$	IRDC name	R.A. ($^{h}:^{m}:^{s}$) (J2000)	Decl. ($^{\circ}:':''$) (J2000)	$C_{24\mu m}$
G28.42−0.17	18:43:46.8	−04:05:32.93	0.158	G335.11−0.43	16:29:37.2	−49:10:36.83	0.156
G28.44+0.27	18:42:15.8	−03:52:22.69	0.271	G335.12−0.29	16:29:00.1	−49:04:16.18	0.195
G28.44−0.13	18:43:41.0	−04:03:12.02	0.208	G335.12−0.25	16:28:49.7	−49:02:28.19	0.218
G28.44−0.31	18:44:21.4	−04:08:22.01	0.261	G335.12−0.22	16:28:42.9	−49:01:14.94	0.179
G28.44−0.25	18:44:07.0	−04:06:18.66	0.179	G335.12−0.18	16:28:33.2	−48:59:40.77	0.151
G28.45−0.27	18:44:11.9	−04:06:43.07	0.208	G335.12−0.34	16:29:15.7	−49:06:14.20	0.152
G28.45+0.19	18:42:35.2	−03:54:04.68	0.206	G335.12−0.27	16:28:56.0	−49:03:02.70	0.193
G28.45−0.09	18:43:34.4	−04:01:30.42	0.205	G335.12−0.13	16:28:20.3	−48:57:22.99	0.160
G28.46−0.27	18:44:14.2	−04:05:57.78	0.151	G335.12−0.10	16:28:13.9	−48:56:18.29	0.167
G28.47+0.17	18:42:39.3	−03:53:40.20	0.165	G335.14−0.63	16:30:35.7	−49:17:22.32	0.159
G28.47+0.05	18:43:07.3	−03:56:50.16	0.162	G335.14−0.29	16:29:07.5	−49:03:13.39	0.208
G28.48−0.38	18:44:38.1	−04:08:11.07	0.213	G335.15−0.29	16:29:09.0	−49:02:44.51	0.177
G28.48+0.19	18:42:36.1	−03:52:32.65	0.197	G335.16−0.39	16:29:36.9	−49:06:41.20	0.282
G28.48−0.10	18:43:39.2	−04:00:29.57	0.200	G335.17+0.46	16:25:58.6	−48:30:28.54	0.152
G28.50+0.18	18:42:42.6	−03:51:33.88	0.177	G335.18+0.46	16:25:59.6	−48:30:28.40	0.154
G28.51−0.14	18:43:52.8	−03:59:45.31	0.161	G335.21−0.07	16:28:26.9	−48:51:27.70	0.315
G28.52−0.37	18:44:42.8	−04:05:46.11	0.319	G335.22−0.27	16:29:21.7	−48:59:18.95	0.159
G28.52+0.02	18:43:17.5	−03:54:48.08	0.234	G335.22−0.37	16:29:47.2	−49:03:14.96	0.305
G28.54−0.28	18:44:23.5	−04:02:13.95	0.323	G335.22−0.28	16:29:24.3	−48:59:00.82	0.159
G28.55−0.33	18:44:37.2	−04:03:01.67	0.179	G335.23−0.31	16:29:34.8	−49:00:06.83	0.329
G28.55+0.29	18:42:24.9	−03:45:47.07	0.157	G335.24−0.01	16:28:17.9	−48:47:18.76	0.152
G28.56+0.28	18:42:27.7	−03:46:02.00	0.170	G335.25−0.11	16:28:48.7	−48:51:08.19	0.218
G28.56−0.01	18:43:28.3	−03:53:35.95	0.202	G335.25−0.38	16:29:59.9	−49:02:09.64	0.176
G28.56−0.23	18:44:16.6	−03:59:36.49	0.291	G335.26−0.26	16:29:28.9	−48:56:45.99	0.170
G28.57−0.19	18:44:07.3	−03:58:13.02	0.217	G335.26+0.41	16:26:34.6	−48:29:00.33	0.191
G28.58−0.06	18:43:41.7	−03:53:39.60	0.169	G335.27−0.12	16:28:57.2	−48:50:34.18	0.346
G28.59+0.05	18:43:19.3	−03:50:21.37	0.166	G335.28−0.00	16:28:25.6	−48:45:27.17	0.266
G28.60−0.05	18:43:40.6	−03:52:44.11	0.201	G335.28+0.05	16:28:11.5	−48:43:05.51	0.161
G28.60−0.20	18:44:13.8	−03:56:29.12	0.175	G335.28+0.07	16:28:07.0	−48:41:57.45	0.151
G28.61−0.26	18:44:28.5	−03:57:39.18	0.241	G335.30−0.28	16:29:45.2	−48:56:09.06	0.301
G28.62−0.07	18:43:48.6	−03:52:04.82	0.222	G335.30−0.34	16:30:01.0	−48:58:10.43	0.213
G28.63+0.16	18:43:01.2	−03:45:26.57	0.159	G335.30−0.38	16:30:13.3	−48:59:58.86	0.167
G28.63−0.33	18:44:45.6	−03:58:36.27	0.176	G335.32−0.13	16:29:12.0	−48:48:49.50	0.363
G28.64−0.03	18:43:42.7	−03:49:58.04	0.234	G335.34−0.37	16:30:19.6	−48:57:51.78	0.165
G28.65−0.07	18:43:52.8	−03:50:42.71	0.232	G335.34−0.40	16:30:26.6	−48:58:45.78	0.177
G28.65−0.40	18:45:02.2	−03:59:11.89	0.162	G335.36−0.15	16:29:26.0	−48:47:40.01	0.168
G28.66+0.14	18:43:08.2	−03:44:25.50	0.363	G335.37−0.41	16:30:37.8	−48:58:12.47	0.195
G28.66−0.38	18:44:58.8	−03:58:33.62	0.180	G335.38+0.43	16:26:58.5	−48:23:05.64	0.187
G28.68−0.57	18:45:42.0	−04:02:46.70	0.171	G335.38−0.53	16:31:12.0	−49:02:48.44	0.154
G28.68+0.39	18:42:17.0	−03:36:17.99	0.184	G335.39+0.43	16:26:59.0	−48:22:32.45	0.165
G28.68+0.11	18:43:17.7	−03:44:03.93	0.182	G335.39−0.54	16:31:17.3	−49:02:25.68	0.180
G28.69+0.25	18:42:47.8	−03:39:36.97	0.287	G335.40−0.23	16:29:56.9	−48:49:38.25	0.205
G28.69−0.33	18:44:53.1	−03:55:23.30	0.169	G335.40−0.17	16:29:40.0	−48:46:40.43	0.175
G28.70+0.42	18:42:12.5	−03:34:05.52	0.178	G335.41−0.24	16:30:01.0	−48:49:31.47	0.196
G28.71+0.14	18:43:12.0	−03:41:40.46	0.261	G335.41+0.14	16:28:22.4	−48:33:41.75	0.199
G28.71+0.36	18:42:26.4	−03:35:45.45	0.157	G335.41−0.42	16:30:51.0	−48:56:55.68	0.152
G28.71+0.36	18:42:25.6	−03:35:18.84	0.162	G335.42−0.35	16:30:32.8	−48:53:43.29	0.161
G28.71+0.39	18:42:20.0	−03:34:32.25	0.155	G335.42−0.25	16:30:05.6	−48:49:18.07	0.172

Table A.1. continued.

IRDC name	R.A. ($^{h}:^{m}:^{s}$) (J2000)	Decl. ($^{\circ}:':''$) (J2000)	$C_{24\mu m}$	IRDC name	R.A. ($^{h}:^{m}:^{s}$) (J2000)	Decl. ($^{\circ}:':''$) (J2000)	$C_{24\mu m}$
G28.73+0.10	18:43:24.9	−03:41:31.36	0.245	G335.43−0.38	16:30:42.7	−48:54:34.45	0.169
G28.74+0.16	18:43:13.6	−03:39:24.52	0.200	G335.43+0.05	16:28:49.0	−48:36:43.67	0.162
G28.75+0.15	18:43:15.7	−03:39:04.88	0.155	G335.43+0.20	16:28:10.9	−48:30:26.63	0.168
G28.75+0.15	18:43:16.4	−03:39:01.65	0.152	G335.43−0.17	16:29:48.7	−48:45:40.25	0.185
G28.77+0.20	18:43:06.9	−03:36:58.08	0.182	G335.43−0.19	16:29:54.4	−48:46:29.40	0.259
G28.77−0.29	18:44:52.0	−03:50:08.06	0.241	G335.44+0.20	16:28:11.1	−48:29:57.85	0.155
G28.78+0.20	18:43:08.7	−03:36:16.12	0.174	G335.44−0.23	16:30:04.6	−48:47:46.94	0.289
G28.78−0.15	18:44:22.4	−03:45:39.82	0.153	G335.44+0.14	16:28:29.2	−48:32:44.89	0.205
G28.78−0.01	18:43:53.4	−03:41:40.70	0.224	G335.55+0.28	16:28:21.1	−48:22:00.51	0.151
G28.79+0.11	18:43:29.5	−03:38:23.58	0.153	G335.55+0.27	16:28:23.4	−48:22:19.12	0.151
G28.80+0.13	18:43:25.6	−03:37:12.46	0.153	G335.56−0.79	16:33:06.8	−49:05:22.66	0.201
G28.80−0.13	18:44:21.0	−03:43:59.20	0.163	G335.56+0.28	16:28:22.8	−48:21:06.32	0.180
G28.80+0.43	18:42:21.0	−03:28:30.08	0.226	G335.58−0.30	16:31:00.6	−48:44:16.80	0.231
G28.80−0.54	18:45:48.4	−03:55:01.93	0.224	G335.58−0.26	16:30:50.9	−48:42:42.67	0.363
G28.81−0.27	18:44:52.5	−03:47:24.25	0.166	G335.59−0.18	16:30:30.9	−48:39:32.69	0.167
G28.82+0.14	18:43:26.1	−03:35:51.35	0.218	G335.59−0.01	16:29:46.5	−48:32:19.88	0.205
G28.83+0.74	18:41:17.6	−03:18:45.79	0.178	G335.59+0.19	16:28:54.8	−48:23:54.15	0.304
G28.83+0.49	18:42:12.5	−03:25:42.07	0.184	G335.59−0.45	16:31:43.0	−48:49:58.71	0.154
G28.84+0.05	18:43:47.4	−03:36:49.20	0.213	G335.59+0.44	16:27:48.6	−48:13:06.15	0.152
G28.85+0.25	18:43:05.1	−03:31:06.82	0.186	G335.59+0.17	16:29:00.8	−48:24:35.55	0.168
G28.85+0.24	18:43:07.5	−03:31:05.19	0.165	G335.60+0.46	16:27:45.4	−48:12:34.49	0.158
G28.86+0.37	18:42:41.1	−03:27:11.34	0.151	G335.60−0.29	16:31:00.9	−48:43:12.58	0.158
G28.86+0.21	18:43:16.2	−03:31:37.34	0.179	G335.60−0.17	16:30:30.6	−48:38:24.29	0.151
G28.86+0.29	18:42:58.3	−03:29:12.15	0.213	G335.61−0.29	16:31:04.8	−48:42:51.96	0.176
G28.87+0.38	18:42:41.2	−03:26:24.09	0.157	G335.61−0.17	16:30:32.7	−48:37:31.09	0.310
G28.88+0.08	18:43:43.5	−03:34:16.17	0.203	G335.62−0.47	16:31:54.8	−48:50:05.29	0.225
G28.91+0.20	18:43:22.9	−03:28:58.39	0.178	G335.62−0.11	16:30:17.8	−48:34:54.73	0.182
G28.93−0.66	18:46:28.3	−03:51:50.85	0.244	G335.63−0.12	16:30:23.1	−48:34:49.56	0.176
G28.93+0.39	18:42:44.2	−03:22:56.40	0.197	G335.64−0.10	16:30:23.2	−48:33:50.82	0.160
G28.93+0.19	18:43:26.4	−03:28:20.07	0.158	G335.64−0.15	16:30:35.9	−48:35:31.42	0.225
G28.93−0.19	18:44:48.7	−03:38:52.02	0.157	G335.64−0.47	16:32:02.3	−48:48:51.35	0.167
G28.93+0.07	18:43:52.0	−03:31:35.92	0.262	G335.65+0.03	16:29:51.5	−48:27:55.00	0.227
G28.95+0.39	18:42:45.9	−03:21:45.78	0.167	G335.66−0.16	16:30:42.6	−48:35:33.70	0.152
G28.95−0.66	18:46:30.4	−03:50:29.36	0.180	G335.66−0.17	16:30:46.4	−48:35:48.52	0.152
G28.96−0.68	18:46:35.8	−03:50:25.15	0.164	G335.68+0.34	16:28:35.9	−48:13:52.02	0.204
G28.97−0.05	18:44:22.4	−03:33:07.26	0.223	G335.68−0.01	16:30:06.8	−48:28:11.87	0.236
G28.97−0.47	18:45:53.0	−03:44:42.59	0.224	G335.68+0.21	16:29:11.7	−48:19:04.06	0.265
G28.97−0.73	18:46:49.2	−03:51:38.20	0.199	G335.69−0.17	16:30:51.5	−48:34:22.15	0.151
G28.97−0.71	18:46:43.5	−03:50:45.92	0.174	G335.69−0.17	16:30:55.1	−48:34:17.40	0.212
G28.97+0.17	18:43:37.0	−03:26:50.45	0.154	G335.70−0.41	16:31:57.1	−48:43:44.13	0.221
G28.98−0.52	18:46:05.0	−03:45:27.15	0.212	G335.70−0.00	16:30:11.3	−48:27:13.19	0.151
G28.98+0.15	18:43:41.7	−03:26:46.20	0.184	G335.70−0.88	16:34:06.2	−49:03:03.26	0.151
G28.99+0.02	18:44:08.6	−03:29:58.29	0.179	G335.70+0.39	16:28:30.0	−48:10:36.44	0.156
G29.00+0.59	18:42:09.4	−03:13:51.04	0.150	G335.71−0.35	16:31:43.6	−48:40:52.53	0.256
G29.01−0.52	18:46:07.5	−03:43:55.89	0.219	G335.71+0.03	16:30:05.1	−48:25:29.25	0.239
G29.01+0.03	18:44:09.4	−03:28:38.22	0.202	G335.71+0.08	16:29:52.3	−48:23:27.52	0.170
G29.02−0.67	18:46:39.9	−03:47:10.17	0.158	G335.71+0.51	16:28:00.1	−48:05:11.75	0.151
G29.02−0.30	18:45:21.2	−03:37:02.02	0.167	G335.71−0.02	16:30:19.2	−48:27:14.04	0.260

Table A.1. continued.

IRDC name	R.A. ($^{h}:^{m}:^{s}$) (J2000)	Decl. ($^{\circ}:':''$) (J2000)	$C_{24\mu m}$	IRDC name	R.A. ($^{h}:^{m}:^{s}$) (J2000)	Decl. ($^{\circ}:':''$) (J2000)	$C_{24\mu m}$
G29.02−0.54	18:46:14.1	−03:43:39.11	0.235	G335.71+0.05	16:30:02.3	−48:24:25.88	0.173
G29.03−0.71	18:46:49.2	−03:47:50.49	0.163	G335.72−0.34	16:31:46.8	−48:40:12.04	0.183
G29.03−0.35	18:45:32.6	−03:37:50.56	0.216	G335.73−0.37	16:31:54.7	−48:40:56.39	0.179
G29.03−0.58	18:46:22.6	−03:44:01.71	0.162	G335.73+0.32	16:28:54.2	−48:12:34.89	0.201
G29.03−0.67	18:46:42.6	−03:46:31.71	0.172	G335.73+0.23	16:29:18.7	−48:16:09.09	0.170
G29.03+0.04	18:44:10.5	−03:26:58.85	0.225	G335.75−0.07	16:30:39.7	−48:27:35.19	0.225
G29.04−0.56	18:46:19.8	−03:43:29.66	0.164	G335.75+0.52	16:28:06.4	−48:03:00.50	0.159
G29.04−0.13	18:44:46.4	−03:31:29.98	0.160	G335.75+0.49	16:28:14.8	−48:04:14.57	0.178
G29.04−0.59	18:46:25.5	−03:44:04.41	0.194	G335.76+0.52	16:28:09.4	−48:03:02.54	0.151
G29.04−0.66	18:46:41.6	−03:46:03.26	0.151	G335.76+0.50	16:28:14.6	−48:03:23.79	0.188
G29.04−0.22	18:45:06.8	−03:33:42.79	0.158	G335.76+0.52	16:28:11.2	−48:02:43.57	0.154
G29.04−0.54	18:46:16.3	−03:42:32.24	0.161	G335.77+0.05	16:30:12.8	−48:21:51.59	0.232
G29.05−0.69	18:46:49.8	−03:46:03.75	0.279	G335.77−0.34	16:31:57.6	−48:37:43.89	0.214
G29.06−0.32	18:45:29.2	−03:35:38.31	0.159	G335.79+0.34	16:29:04.5	−48:09:03.33	0.197
G29.06−0.52	18:46:12.7	−03:40:48.58	0.157	G335.80−0.40	16:32:19.1	−48:38:56.93	0.183
G29.06−0.33	18:45:33.5	−03:35:43.45	0.159	G335.80+0.23	16:29:34.5	−48:12:50.46	0.207
G29.08+0.15	18:43:52.8	−03:21:42.91	0.163	G335.80+0.42	16:28:47.0	−48:05:09.00	0.178
G29.09−0.54	18:46:20.6	−03:40:07.41	0.214	G335.80+0.03	16:30:28.9	−48:21:09.05	0.254
G29.09+0.05	18:44:14.5	−03:23:56.66	0.174	G335.81−0.36	16:32:11.0	−48:36:58.09	0.311
G29.09+0.54	18:42:30.4	−03:10:04.88	0.155	G335.82+0.45	16:28:42.5	−48:03:10.27	0.236
G29.11−0.61	18:46:38.3	−03:41:08.98	0.311	G335.82−0.13	16:31:14.9	−48:27:08.96	0.185
G29.11+0.04	18:44:18.4	−03:23:07.98	0.207	G335.82−0.06	16:30:57.9	−48:24:02.03	0.175
G29.11+0.56	18:42:28.5	−03:08:52.72	0.165	G335.83+0.22	16:29:44.1	−48:12:09.72	0.165
G29.11+0.41	18:42:58.9	−03:12:39.21	0.257	G335.84−0.13	16:31:18.3	−48:26:17.07	0.227
G29.12−0.33	18:45:38.6	−03:32:30.71	0.195	G335.84+0.24	16:29:42.8	−48:11:14.85	0.167
G29.12+0.04	18:44:19.4	−03:22:20.64	0.169	G335.84−0.17	16:31:30.9	−48:27:53.41	0.158
G29.12−0.21	18:45:13.9	−03:29:00.26	0.205	G335.85+0.52	16:28:32.6	−47:59:02.14	0.174
G29.13+0.24	18:43:38.7	−03:16:36.14	0.246	G335.85+0.19	16:29:59.5	−48:12:23.40	0.307
G29.13+0.35	18:43:15.1	−03:13:08.40	0.152	G335.85+0.02	16:30:44.8	−48:19:28.74	0.226
G29.13+0.03	18:44:22.8	−03:21:47.72	0.229	G335.86−0.18	16:31:37.8	−48:27:30.04	0.169
G29.14−0.87	18:47:36.0	−03:46:09.72	0.156	G335.86−0.17	16:31:35.0	−48:27:04.38	0.153
G29.15−0.34	18:45:43.1	−03:31:19.87	0.205	G335.86−0.59	16:33:26.5	−48:44:11.20	0.168
G29.15−0.50	18:46:18.6	−03:35:46.65	0.168	G335.86−0.92	16:34:57.3	−48:57:33.16	0.186
G29.15+0.14	18:44:02.2	−03:18:07.93	0.161	G335.87−0.17	16:31:36.5	−48:26:37.33	0.155
G29.15+0.35	18:43:18.3	−03:12:18.93	0.182	G335.87−0.18	16:31:40.9	−48:27:07.79	0.151
G29.16−0.24	18:45:24.6	−03:28:17.03	0.156	G335.87+0.08	16:30:31.6	−48:16:05.42	0.157
G29.16−0.19	18:45:13.9	−03:26:44.31	0.205	G335.87−0.28	16:32:07.7	−48:30:55.37	0.161
G29.16−0.01	18:44:35.8	−03:21:46.93	0.247	G335.88−0.25	16:32:01.8	−48:29:23.55	0.173
G29.16−0.14	18:45:03.8	−03:25:20.46	0.154	G335.88−0.35	16:32:28.7	−48:33:21.05	0.177
G29.16−0.34	18:45:45.8	−03:30:28.92	0.151	G335.89−0.23	16:31:59.0	−48:28:18.75	0.165
G29.17−0.49	18:46:19.0	−03:34:02.01	0.153	G335.89+0.31	16:29:35.5	−48:05:46.08	0.199
G29.17−0.21	18:45:19.1	−03:26:19.06	0.189	G335.89−0.13	16:31:32.8	−48:24:11.73	0.195
G29.18+0.33	18:43:24.0	−03:10:55.11	0.165	G335.89+0.66	16:28:08.0	−47:51:15.24	0.155
G29.19−0.18	18:45:15.2	−03:25:04.79	0.190	G335.90+0.34	16:29:30.4	−48:04:22.69	0.219
G29.19+0.01	18:44:34.1	−03:19:32.45	0.231	G335.90+0.30	16:29:41.7	−48:05:54.97	0.254
G29.19−0.15	18:45:07.7	−03:23:49.57	0.204	G335.90−0.25	16:32:06.2	−48:28:27.27	0.185
G29.19+0.07	18:44:22.4	−03:17:51.74	0.174	G335.90+0.15	16:30:20.6	−48:11:48.21	0.159
G29.19+0.34	18:43:25.0	−03:10:19.88	0.159	G335.91−0.37	16:32:40.9	−48:32:45.15	0.161

Table A.1. continued.

IRDC name	R.A. ($^{h}:^{m}:^{s}$) (J2000)	Decl. ($^{\circ}:':''$) (J2000)	$C_{24\mu m}$	IRDC name	R.A. ($^{h}:^{m}:^{s}$) (J2000)	Decl. ($^{\circ}:':''$) (J2000)	$C_{24\mu m}$
G29.20+0.05	18:44:26.4	−03:18:10.17	0.166	G335.92+0.33	16:29:38.6	−48:03:56.84	0.165
G29.21+0.33	18:43:26.8	−03:09:43.18	0.154	G335.93+0.12	16:30:36.2	−48:12:07.64	0.296
G29.22+0.45	18:43:03.0	−03:05:52.10	0.177	G335.94−0.08	16:31:30.6	−48:19:36.18	0.194
G29.22−0.23	18:45:29.1	−03:24:20.73	0.151	G335.94+0.46	16:29:10.3	−47:57:23.36	0.215
G29.23+0.03	18:44:34.1	−03:17:07.62	0.246	G335.94−0.03	16:31:19.9	−48:17:40.20	0.234
G29.23−0.70	18:47:10.2	−03:36:58.60	0.155	G335.94+0.01	16:31:09.3	−48:15:58.06	0.232
G29.23−0.92	18:47:57.7	−03:42:40.52	0.161	G335.95−0.40	16:32:56.2	−48:32:27.37	0.180
G29.23−0.33	18:45:52.0	−03:26:31.72	0.176	G335.95−0.12	16:31:44.4	−48:20:44.61	0.160
G29.23+0.44	18:43:07.9	−03:05:28.60	0.194	G335.96+0.41	16:29:28.8	−47:58:31.71	0.155
G29.24−0.67	18:47:04.2	−03:35:19.35	0.152	G335.96−0.11	16:31:44.4	−48:19:51.53	0.153
G29.25+0.09	18:44:24.1	−03:14:29.46	0.267	G335.96−0.54	16:33:39.2	−48:37:27.00	0.211
G29.25−0.67	18:47:06.9	−03:35:12.71	0.177	G335.97−0.30	16:32:36.8	−48:27:46.80	0.323
G29.25−0.56	18:46:42.8	−03:31:53.32	0.172	G335.97+0.56	16:28:50.7	−47:52:11.56	0.155
G29.26−0.48	18:46:26.2	−03:29:08.07	0.228	G335.98+0.40	16:29:33.8	−47:58:09.42	0.160
G29.26−0.56	18:46:44.2	−03:31:21.52	0.151	G335.98+0.72	16:28:13.5	−47:45:15.51	0.159
G29.26−0.67	18:47:08.3	−03:34:26.29	0.152	G335.98+0.37	16:29:42.4	−47:59:19.14	0.158
G29.26−0.03	18:44:50.5	−03:16:41.12	0.155	G335.99+0.34	16:29:54.0	−48:00:33.06	0.151
G29.26+0.09	18:44:25.8	−03:13:29.99	0.155	G336.00+0.04	16:31:14.9	−48:12:24.03	0.171
G29.27+0.36	18:43:27.7	−03:05:21.05	0.186	G336.00+0.57	16:28:56.6	−47:50:14.62	0.178
G29.28−0.10	18:45:07.9	−03:17:49.94	0.164	G336.00+0.30	16:30:06.3	−48:01:12.12	0.159
G29.29−0.77	18:47:32.4	−03:35:40.39	0.182	G336.00−0.15	16:32:05.1	−48:19:46.28	0.186
G29.29−0.63	18:47:02.0	−03:31:39.17	0.230	G336.00+0.25	16:30:19.9	−48:03:11.26	0.216
G29.31−0.79	18:47:37.6	−03:35:05.59	0.177	G336.01+0.34	16:29:57.1	−47:59:33.90	0.204
G29.31+0.66	18:42:28.1	−02:55:24.19	0.174	G336.01−0.17	16:32:11.9	−48:20:17.17	0.175
G29.31−0.77	18:47:33.9	−03:34:30.79	0.174	G336.01−0.13	16:32:02.9	−48:18:39.83	0.183
G29.31−0.61	18:47:01.0	−03:30:08.70	0.207	G336.02+0.24	16:30:27.0	−48:03:21.68	0.154
G29.31+0.69	18:42:22.5	−02:54:26.02	0.177	G336.02+0.18	16:30:40.7	−48:05:30.85	0.381
G29.32+0.70	18:42:20.9	−02:53:23.69	0.152	G336.03+0.24	16:30:28.5	−48:02:53.00	0.202
G29.32−0.81	18:47:44.3	−03:34:48.96	0.167	G336.03−0.14	16:32:08.4	−48:18:24.85	0.177
G29.33−0.60	18:47:00.4	−03:29:07.62	0.156	G336.03+0.49	16:29:25.7	−47:52:18.02	0.156
G29.33−0.80	18:47:42.3	−03:34:17.99	0.151	G336.03+0.07	16:31:16.1	−48:09:34.20	0.303
G29.33−0.01	18:44:52.7	−03:12:31.64	0.188	G336.04−0.19	16:32:24.3	−48:20:05.64	0.185
G29.33+0.01	18:44:49.0	−03:11:39.62	0.159	G336.04−0.47	16:33:39.3	−48:31:39.01	0.155
G29.34−0.76	18:47:34.6	−03:32:27.79	0.163	G336.04+0.33	16:30:09.6	−47:58:21.14	0.174
G29.36+0.89	18:41:45.0	−02:46:36.79	0.152	G336.04+0.28	16:30:22.2	−48:00:17.48	0.169
G29.38−0.59	18:47:02.4	−03:25:52.19	0.163	G336.05−0.27	16:32:49.3	−48:22:35.25	0.176
G29.39−0.10	18:45:18.4	−03:11:52.73	0.173	G336.05−0.19	16:32:29.4	−48:19:20.49	0.156
G29.39−0.46	18:46:36.3	−03:21:46.75	0.157	G336.06+0.34	16:30:09.9	−47:57:25.19	0.173
G29.39−0.53	18:46:51.5	−03:23:26.32	0.153	G336.06−0.30	16:32:57.7	−48:23:33.10	0.156
G29.41−0.65	18:47:18.1	−03:26:00.54	0.172	G336.06+0.29	16:30:22.4	−47:59:08.75	0.177
G29.41−0.63	18:47:15.8	−03:25:26.98	0.195	G336.06+0.77	16:28:20.7	−47:39:23.79	0.180
G29.41−0.07	18:45:14.7	−03:09:39.14	0.173	G336.08+0.79	16:28:19.8	−47:38:05.48	0.164
G29.41−0.65	18:47:18.9	−03:25:31.38	0.178	G336.09+0.14	16:31:10.6	−48:04:08.34	0.198
G29.42−0.05	18:45:10.7	−03:08:59.05	0.190	G336.09+0.34	16:30:18.8	−47:55:42.44	0.151
G29.43−0.62	18:47:15.7	−03:23:59.78	0.168	G336.09+0.36	16:30:15.0	−47:55:01.08	0.156
G29.44+0.73	18:42:28.2	−02:46:28.18	0.156	G336.10+0.21	16:30:53.7	−48:00:37.42	0.173
G29.44−0.00	18:45:04.5	−03:06:26.83	0.152	G336.10+0.38	16:30:10.7	−47:53:32.05	0.170
G29.46−0.24	18:45:58.3	−03:11:57.21	0.179	G336.11+0.08	16:31:32.2	−48:05:38.50	0.158

Table A.1. continued.

IRDC name	R.A. ($^{h}:^{m}:^{s}$) (J2000)	Decl. ($^{\circ}:':''$) (J2000)	$C_{24\mu m}$	IRDC name	R.A. ($^{h}:^{m}:^{s}$) (J2000)	Decl. ($^{\circ}:':''$) (J2000)	$C_{24\mu m}$
G29.48+0.75	18:42:27.6	−02:43:34.43	0.164	G336.12+0.40	16:30:09.7	−47:52:27.76	0.162
G29.49+0.15	18:44:37.3	−02:59:45.89	0.169	G336.12+0.06	16:31:36.8	−48:06:03.87	0.175
G29.49+0.17	18:44:34.0	−02:58:58.68	0.181	G336.12+0.36	16:30:21.2	−47:53:35.90	0.163
G29.50+0.39	18:43:47.1	−02:52:39.27	0.162	G336.13−0.05	16:32:09.9	−48:10:08.07	0.243
G29.50+0.20	18:44:28.0	−02:57:51.13	0.154	G336.13−0.16	16:32:41.0	−48:14:43.37	0.167
G29.52+0.18	18:44:34.4	−02:57:10.25	0.152	G336.14−0.36	16:33:33.4	−48:22:31.29	0.174
G29.56+0.06	18:45:03.3	−02:58:35.12	0.164	G336.14+0.16	16:31:18.0	−48:01:15.60	0.178
G29.56+0.18	18:44:37.4	−02:55:02.44	0.242	G336.14−0.19	16:32:50.3	−48:15:19.59	0.150
G29.56+0.17	18:44:40.6	−02:55:05.49	0.167	G336.15−0.20	16:32:53.3	−48:15:17.00	0.163
G29.57+0.16	18:44:42.9	−02:55:20.91	0.167	G336.15+0.23	16:31:02.1	−47:57:34.09	0.243
G29.57−0.61	18:47:29.6	−03:16:08.86	0.177	G336.15+0.06	16:31:48.1	−48:04:41.24	0.182
G29.58+0.05	18:45:08.8	−02:57:38.08	0.173	G336.15+0.76	16:28:45.7	−47:35:43.99	0.160
G29.59+0.47	18:43:38.5	−02:45:29.19	0.154	G336.16+0.35	16:30:34.6	−47:52:30.36	0.283
G29.59+0.32	18:44:12.4	−02:49:38.92	0.151	G336.16+0.16	16:31:23.7	−48:00:13.77	0.194
G29.60+0.32	18:44:12.6	−02:49:02.02	0.150	G336.16+0.06	16:31:49.2	−48:04:12.62	0.152
G29.61−0.57	18:47:23.4	−03:13:02.61	0.194	G336.17−0.32	16:33:32.2	−48:19:31.17	0.154
G29.62+0.26	18:44:28.8	−02:49:46.54	0.158	G336.17−0.05	16:32:20.2	−48:08:15.07	0.150
G29.63−0.57	18:47:25.8	−03:11:54.07	0.201	G336.18+0.25	16:31:03.2	−47:55:46.84	0.260
G29.64−0.52	18:47:15.9	−03:10:12.90	0.175	G336.18+0.06	16:31:54.0	−48:03:42.72	0.157
G29.73+0.34	18:44:21.8	−02:41:35.54	0.167	G336.18−0.09	16:32:33.1	−48:09:45.84	0.250
G29.73−0.40	18:47:00.4	−03:01:49.61	0.153	G336.18−0.18	16:32:58.4	−48:13:23.97	0.171
G29.75+0.36	18:44:20.6	−02:40:02.13	0.154	G336.18+0.05	16:31:58.0	−48:03:55.51	0.177
G29.76+0.36	18:44:20.7	−02:39:30.41	0.155	G336.18−0.01	16:32:13.4	−48:06:10.60	0.383
G29.77−0.46	18:47:17.6	−03:01:19.54	0.157	G336.19−0.11	16:32:40.5	−48:09:42.54	0.175
G29.78−0.54	18:47:37.0	−03:03:18.30	0.172	G336.19+0.58	16:29:42.1	−47:41:35.13	0.196
G29.78−0.47	18:47:22.1	−03:01:05.73	0.160	G336.20+0.31	16:30:53.5	−47:52:41.46	0.206
G29.80−0.23	18:46:32.8	−02:53:52.47	0.152	G336.21+0.09	16:31:52.6	−48:00:46.30	0.217
G29.81−0.23	18:46:32.8	−02:53:13.88	0.154	G336.22+0.52	16:30:02.1	−47:42:46.80	0.179
G29.82+0.37	18:44:26.2	−02:36:05.45	0.175	G336.22+0.21	16:31:25.2	−47:55:35.24	0.302
G29.83+0.35	18:44:30.8	−02:36:13.18	0.163	G336.22+0.49	16:30:12.3	−47:43:49.64	0.181
G29.85−0.48	18:47:29.8	−02:57:49.81	0.177	G336.24−0.08	16:32:45.7	−48:06:52.90	0.177
G29.86−0.53	18:47:42.6	−02:58:18.42	0.158	G336.24+0.78	16:29:01.6	−47:31:18.68	0.156
G29.87−0.74	18:48:29.0	−03:03:49.08	0.158	G336.24+0.52	16:30:08.7	−47:41:55.84	0.172
G29.87−0.03	18:45:56.6	−02:44:06.52	0.176	G336.25+0.38	16:30:44.9	−47:47:16.42	0.317
G29.87−0.52	18:47:42.0	−02:57:27.58	0.157	G336.25−0.23	16:33:25.5	−48:12:06.93	0.201
G29.87+0.75	18:43:11.4	−02:22:42.30	0.152	G336.25−0.36	16:34:02.4	−48:17:35.65	0.180
G29.88−0.75	18:48:31.7	−03:03:40.63	0.162	G336.25+0.42	16:30:37.1	−47:45:24.91	0.231
G29.89−0.14	18:46:22.5	−02:45:58.49	0.212	G336.27−0.13	16:33:05.1	−48:07:32.49	0.155
G29.90−0.10	18:46:14.3	−02:44:36.83	0.325	G336.27+0.27	16:31:21.1	−47:51:09.83	0.303
G29.90−0.80	18:48:45.5	−03:03:57.65	0.161	G336.27+0.17	16:31:46.4	−47:55:06.08	0.160
G29.91−0.22	18:46:40.9	−02:47:28.80	0.165	G336.28+0.20	16:31:41.4	−47:53:46.28	0.263
G29.91−0.58	18:47:59.8	−02:57:00.04	0.155	G336.28−0.21	16:33:29.8	−48:10:15.73	0.155
G29.93+0.01	18:45:54.2	−02:40:04.67	0.160	G336.28+0.69	16:29:34.7	−47:32:49.67	0.151
G29.93−0.08	18:46:14.8	−02:42:31.39	0.280	G336.29+0.69	16:29:35.7	−47:32:49.42	0.151
G29.93−0.06	18:46:09.8	−02:41:39.82	0.680	G336.30+0.07	16:32:18.4	−47:57:53.57	0.344
G29.93−0.79	18:48:46.6	−03:01:38.68	0.156	G336.30+0.69	16:29:39.9	−47:32:27.11	0.153
G29.94−0.79	18:48:46.5	−03:01:25.24	0.162	G336.31+0.51	16:30:28.3	−47:39:15.56	0.287
G29.95+0.15	18:45:26.9	−02:34:49.61	0.193	G336.32+0.61	16:30:04.3	−47:35:00.78	0.196

Table A.1. continued.

IRDC name	R.A. ($^{h}:^{m}:^{s}$) (J2000)	Decl. ($^{\circ}:':''$) (J2000)	$C_{24\mu m}$	IRDC name	R.A. ($^{h}:^{m}:^{s}$) (J2000)	Decl. ($^{\circ}:':''$) (J2000)	$C_{24\mu m}$
G29.96−0.42	18:47:30.4	−02:50:14.70	0.189	G336.32+0.66	16:29:50.8	−47:32:45.29	0.194
G29.96−0.14	18:46:30.8	−02:42:17.81	0.150	G336.32−0.17	16:33:28.9	−48:06:56.01	0.355
G29.97−0.05	18:46:12.8	−02:39:48.42	0.248	G336.32+0.40	16:30:59.9	−47:43:25.46	0.191
G29.98−0.43	18:47:34.1	−02:49:31.77	0.170	G336.32+0.45	16:30:46.3	−47:41:05.52	0.168
G29.98−0.42	18:47:32.0	−02:48:52.89	0.151	G336.33−0.03	16:32:52.5	−48:00:44.64	0.453
G29.99−0.39	18:47:27.6	−02:47:45.15	0.154	G336.33−0.09	16:33:09.6	−48:03:03.69	0.333
G30.00−0.41	18:47:33.2	−02:48:04.87	0.186	G336.34+0.41	16:30:59.7	−47:42:11.41	0.176
G30.00−0.04	18:46:13.1	−02:37:44.75	0.261	G336.34+0.15	16:32:07.9	−47:52:48.08	0.285
G30.01−0.13	18:46:33.6	−02:39:39.42	0.182	G336.34+0.35	16:31:18.0	−47:44:50.46	0.211
G30.01−0.24	18:46:57.4	−02:42:37.03	0.159	G336.34+0.20	16:31:55.5	−47:50:33.44	0.176
G30.01−0.15	18:46:39.3	−02:40:14.65	0.176	G336.34+0.53	16:30:30.5	−47:37:06.11	0.162
G30.02−0.02	18:46:10.5	−02:36:10.15	0.254	G336.34−0.22	16:33:48.1	−48:07:59.65	0.226
G30.02−0.75	18:48:47.5	−02:55:43.26	0.152	G336.34+0.62	16:30:09.0	−47:33:31.10	0.164
G30.03−0.75	18:48:48.5	−02:55:13.03	0.183	G336.34+0.31	16:31:28.2	−47:46:04.00	0.219
G30.04+0.53	18:44:16.7	−02:20:11.91	0.150	G336.35−0.17	16:33:33.5	−48:05:23.51	0.291
G30.07+0.11	18:45:48.1	−02:29:49.79	0.195	G336.36+0.20	16:32:00.2	−47:49:59.07	0.188
G30.07−0.55	18:48:11.4	−02:47:51.29	0.165	G336.36−0.14	16:33:29.6	−48:03:35.10	0.735
G30.11+0.25	18:45:23.2	−02:24:03.87	0.159	G336.37+0.78	16:29:34.7	−47:25:40.04	0.184
G30.12−0.21	18:47:02.5	−02:35:46.88	0.151	G336.37−0.09	16:33:19.2	−48:00:58.93	0.172
G30.12+0.07	18:46:03.7	−02:28:05.90	0.214	G336.38+0.01	16:32:55.5	−47:56:45.54	0.263
G30.13−0.07	18:46:34.8	−02:31:37.29	0.265	G336.38+0.27	16:31:47.1	−47:45:51.15	0.164
G30.13−0.64	18:48:36.2	−02:46:48.35	0.259	G336.38+0.08	16:32:38.2	−47:53:48.92	0.212
G30.16+0.09	18:46:03.2	−02:25:39.87	0.165	G336.39+0.02	16:32:54.9	−47:55:52.09	0.290
G30.22−0.20	18:47:13.3	−02:30:12.85	0.287	G336.39+0.76	16:29:42.6	−47:25:23.05	0.195
G30.23−0.23	18:47:18.8	−02:30:23.96	0.158	G336.39+0.41	16:31:13.1	−47:39:48.37	0.161
G30.23+0.08	18:46:13.5	−02:21:50.91	0.179	G336.41+0.22	16:32:07.9	−47:47:05.76	0.151
G30.25−0.85	18:49:32.9	−02:46:34.96	0.165	G336.41−0.29	16:34:21.5	−48:07:26.09	0.196
G30.25−0.19	18:47:14.3	−02:28:29.20	0.155	G336.41−0.62	16:35:50.8	−48:20:50.16	0.159
G30.27−0.23	18:47:23.4	−02:28:03.34	0.272	G336.42+0.13	16:32:33.9	−47:50:06.10	0.455
G30.31+0.01	18:46:35.6	−02:19:48.43	0.155	G336.42+0.60	16:30:31.7	−47:30:29.41	0.156
G30.31+0.02	18:46:35.3	−02:19:33.33	0.150	G336.43+0.60	16:30:34.8	−47:30:39.09	0.156
G30.32+0.10	18:46:17.5	−02:16:48.50	0.206	G336.43−0.16	16:33:51.8	−48:01:23.28	0.330
G30.32+0.30	18:45:37.4	−02:11:08.58	0.187	G336.44+0.70	16:30:11.0	−47:26:02.94	0.178
G30.33−0.13	18:47:09.2	−02:22:46.35	0.153	G336.44−0.03	16:33:20.4	−47:55:25.04	0.154
G30.33+0.18	18:46:02.5	−02:13:37.47	0.157	G336.45−0.03	16:33:21.4	−47:55:24.66	0.163
G30.34−0.25	18:47:35.2	−02:25:12.79	0.377	G336.45+0.52	16:30:58.0	−47:32:52.81	0.154
G30.34+0.04	18:46:34.4	−02:17:15.67	0.160	G336.45−0.21	16:34:09.6	−48:02:47.46	0.480
G30.35+0.45	18:45:07.2	−02:05:36.12	0.154	G336.45−0.03	16:33:22.5	−47:55:24.23	0.156
G30.35−0.12	18:47:08.3	−02:20:58.88	0.151	G336.45+0.42	16:31:25.9	−47:36:57.79	0.197
G30.35−0.84	18:49:43.6	−02:40:34.94	0.201	G336.45−0.31	16:34:38.2	−48:06:55.77	0.151
G30.36+0.29	18:45:41.3	−02:09:24.54	0.153	G336.46−0.29	16:34:33.1	−48:05:41.07	0.393
G30.36−0.09	18:47:03.7	−02:19:42.24	0.193	G336.46+0.43	16:31:25.8	−47:35:49.84	0.151
G30.39−0.58	18:48:52.7	−02:31:35.74	0.167	G336.46+0.08	16:32:57.0	−47:50:04.73	0.157
G30.39−0.39	18:48:11.0	−02:26:11.47	0.221	G336.47+0.57	16:30:52.8	−47:29:58.30	0.189
G30.40−0.46	18:48:27.6	−02:27:39.75	0.263	G336.47+0.37	16:31:43.2	−47:37:42.70	0.160
G30.41−0.75	18:49:30.1	−02:35:08.99	0.159	G336.48−0.32	16:34:46.1	−48:06:00.09	0.206
G30.42−0.19	18:47:32.7	−02:19:15.50	0.237	G336.48−0.07	16:33:40.5	−47:55:41.37	0.204
G30.43−0.38	18:48:13.2	−02:24:01.57	0.268	G336.49−0.04	16:33:35.0	−47:54:14.71	0.200

Table A.1. continued.

IRDC name	R.A. ($^{h}:^{m}:^{s}$) (J2000)	Decl. ($^{\circ}:':''$) (J2000)	$C_{24\mu m}$	IRDC name	R.A. ($^{h}:^{m}:^{s}$) (J2000)	Decl. ($^{\circ}:':''$) (J2000)	$C_{24\mu m}$
G30.43−0.10	18:47:14.3	−02:16:24.73	0.151	G336.49−0.19	16:34:14.7	−47:59:44.93	0.153
G30.43−0.21	18:47:38.0	−02:19:22.83	0.155	G336.50+0.54	16:31:04.9	−47:29:42.89	0.160
G30.44−0.46	18:48:32.0	−02:25:58.52	0.161	G336.50+0.13	16:32:53.4	−47:46:47.08	0.172
G30.44−0.25	18:47:45.7	−02:20:02.13	0.242	G336.50+0.56	16:31:01.0	−47:28:58.38	0.168
G30.44+0.11	18:46:28.9	−02:10:08.79	0.157	G336.51−0.14	16:34:05.6	−47:56:58.78	0.151
G30.44−0.19	18:47:33.8	−02:18:22.30	0.162	G336.51+0.28	16:32:18.9	−47:39:59.94	0.252
G30.44−0.10	18:47:14.7	−02:15:48.54	0.245	G336.51+0.62	16:30:50.1	−47:25:56.11	0.252
G30.44−0.16	18:47:27.7	−02:17:28.32	0.153	G336.52+0.19	16:32:41.6	−47:43:08.91	0.415
G30.45−0.30	18:47:58.8	−02:20:57.03	0.334	G336.52+0.11	16:33:03.8	−47:46:14.41	0.308
G30.45−0.14	18:47:24.2	−02:16:26.54	0.350	G336.53+0.47	16:31:32.1	−47:31:36.65	0.170
G30.45−0.09	18:47:14.4	−02:15:00.91	0.154	G336.54+0.31	16:32:16.2	−47:37:40.50	0.211
G30.54−0.03	18:47:09.3	−02:08:38.92	0.174	G336.54+0.54	16:31:18.6	−47:27:59.90	0.157
G30.54−0.41	18:48:32.5	−02:19:16.77	0.161	G336.55+0.15	16:32:59.3	−47:43:47.66	0.450
G30.54−0.59	18:49:10.5	−02:23:41.54	0.225	G336.55−0.13	16:34:13.7	−47:55:12.83	0.295
G30.54−0.21	18:47:49.1	−02:13:12.45	0.150	G336.55−0.23	16:34:41.9	−47:59:09.92	0.368
G30.55+0.12	18:46:39.0	−02:03:46.64	0.167	G336.56−0.06	16:33:55.5	−47:51:43.23	0.416
G30.55−0.69	18:49:33.6	−02:25:54.76	0.182	G336.57+0.09	16:33:19.9	−47:45:20.36	0.453
G30.56−0.31	18:48:12.6	−02:15:22.24	0.293	G336.57−0.14	16:34:21.6	−47:54:45.13	0.238
G30.56−0.03	18:47:12.0	−02:07:33.88	0.226	G336.57+0.17	16:33:00.5	−47:41:45.63	0.221
G30.56−0.47	18:48:48.2	−02:19:30.26	0.151	G336.58−0.27	16:34:58.1	−47:59:29.09	0.216
G30.57−0.05	18:47:17.7	−02:07:30.30	0.219	G336.58−0.16	16:34:28.5	−47:54:46.92	0.214
G30.57+0.30	18:46:02.4	−01:57:51.28	0.204	G336.58−0.17	16:34:31.9	−47:55:15.09	0.154
G30.57−0.08	18:47:24.0	−02:08:18.54	0.156	G336.58+0.15	16:33:07.2	−47:42:05.62	0.210
G30.57−0.08	18:47:24.9	−02:08:16.95	0.150	G336.58−0.09	16:34:11.4	−47:51:46.88	0.195
G30.57−0.24	18:47:58.3	−02:12:30.65	0.392	G336.59+0.25	16:32:42.4	−47:37:35.97	0.183
G30.57−0.49	18:48:51.9	−02:19:18.81	0.217	G336.59+0.34	16:32:22.2	−47:34:00.20	0.490
G30.59−0.21	18:47:55.1	−02:11:09.38	0.167	G336.60+0.06	16:33:36.0	−47:45:24.64	0.155
G30.59+0.15	18:46:37.7	−02:01:11.28	0.281	G336.60+0.41	16:32:03.0	−47:30:46.06	0.221
G30.60−0.19	18:47:50.1	−02:09:47.43	0.182	G336.60+0.16	16:33:08.3	−47:40:58.69	0.261
G30.60−0.23	18:48:00.8	−02:11:03.81	0.206	G336.60−0.20	16:34:43.5	−47:55:36.09	0.181
G30.60−0.52	18:49:03.0	−02:18:44.04	0.154	G336.60+0.47	16:31:50.2	−47:28:29.18	0.165
G30.61−0.20	18:47:54.2	−02:09:21.57	0.174	G336.60−0.10	16:34:18.6	−47:51:35.00	0.222
G30.61+0.17	18:46:35.0	−01:59:10.51	0.190	G336.60−0.22	16:34:49.4	−47:56:11.41	0.194
G30.61+0.15	18:46:40.5	−01:59:38.64	0.153	G336.61−0.35	16:35:25.7	−48:01:22.08	0.154
G30.62−0.06	18:47:26.4	−02:05:05.98	0.153	G336.61+0.47	16:31:51.0	−47:27:54.70	0.152
G30.62−0.11	18:47:37.0	−02:06:22.81	0.184	G336.61+0.04	16:33:42.8	−47:45:21.94	0.162
G30.62+0.24	18:46:21.2	−01:56:39.61	0.309	G336.62+0.55	16:31:32.5	−47:24:14.85	0.172
G30.62−0.35	18:48:28.5	−02:12:54.87	0.152	G336.62+0.04	16:33:47.0	−47:45:11.51	0.155
G30.63−0.04	18:47:21.6	−02:03:59.52	0.243	G336.62+0.05	16:33:43.5	−47:44:36.56	0.157
G30.63−0.06	18:47:27.1	−02:04:30.80	0.208	G336.63+0.27	16:32:48.3	−47:35:31.40	0.320
G30.63−0.18	18:47:52.7	−02:07:42.84	0.296	G336.64+0.02	16:33:56.8	−47:45:11.85	0.179
G30.64−0.73	18:49:51.8	−02:22:44.13	0.162	G336.64+0.08	16:33:42.0	−47:42:34.17	0.339
G30.64−0.16	18:47:48.4	−02:06:36.56	0.159	G336.66+0.10	16:33:40.5	−47:40:32.08	0.254
G30.64−0.37	18:48:34.6	−02:12:25.62	0.153	G336.68−0.92	16:38:15.9	−48:21:24.97	0.169
G30.65−0.05	18:47:26.1	−02:03:17.76	0.246	G336.68−0.20	16:35:03.0	−47:52:08.10	0.180
G30.66−0.01	18:47:18.9	−02:01:22.94	0.440	G336.68+0.08	16:33:49.5	−47:40:42.01	0.166
G30.66−0.42	18:48:47.9	−02:12:34.88	0.263	G336.68−0.11	16:34:38.5	−47:48:17.48	0.187
G30.67+0.09	18:47:00.5	−01:58:18.35	0.163	G336.68+0.18	16:33:24.3	−47:36:44.06	0.473

Table A.1. continued.

IRDC name	R.A. ($^{h}:^{m}:^{s}$) (J2000)	Decl. ($^{\circ}:':''$) (J2000)	$C_{24\mu m}$	IRDC name	R.A. ($^{h}:^{m}:^{s}$) (J2000)	Decl. ($^{\circ}:':''$) (J2000)	$C_{24\mu m}$
G30.67+0.07	18:47:03.7	−01:58:42.90	0.161	G336.68−0.50	16:36:24.4	−48:04:13.66	0.159
G30.68+0.15	18:46:46.1	−01:56:14.28	0.196	G336.68+0.05	16:33:58.2	−47:41:32.94	0.151
G30.68−0.52	18:49:10.5	−02:14:17.07	0.191	G336.68+0.35	16:32:42.0	−47:29:37.47	0.166
G30.69−0.26	18:48:15.0	−02:06:53.22	0.634	G336.70+0.29	16:32:59.3	−47:31:18.82	0.166
G30.69−0.07	18:47:35.9	−02:01:49.45	0.620	G336.70−0.14	16:34:53.6	−47:48:38.95	0.300
G30.69−0.44	18:48:55.7	−02:11:53.16	0.249	G336.71+0.57	16:31:50.6	−47:19:33.24	0.183
G30.69+0.05	18:47:10.2	−01:58:11.17	0.228	G336.71−0.59	16:36:55.4	−48:06:40.84	0.151
G30.70+0.15	18:46:50.2	−01:55:27.38	0.174	G336.71−0.17	16:35:04.6	−47:49:33.44	0.153
G30.71+0.22	18:46:34.7	−01:52:46.91	0.161	G336.72+0.36	16:32:45.1	−47:27:38.42	0.159
G30.71−0.36	18:48:39.8	−02:08:31.67	0.204	G336.72+0.32	16:32:55.1	−47:29:12.55	0.176
G30.71+0.16	18:46:48.5	−01:54:12.45	0.348	G336.72+0.46	16:32:19.0	−47:23:30.23	0.285
G30.71−0.07	18:47:38.5	−02:00:20.47	0.408	G336.72−0.07	16:34:38.0	−47:44:59.48	0.150
G30.72−0.31	18:48:29.5	−02:06:47.68	0.177	G336.72+0.10	16:33:55.6	−47:38:04.34	0.176
G30.72−0.18	18:48:02.0	−02:03:11.13	0.456	G336.72+0.35	16:32:50.0	−47:27:41.77	0.184
G30.72−0.57	18:49:26.4	−02:13:43.70	0.151	G336.73−0.06	16:34:39.2	−47:43:57.54	0.232
G30.73−0.44	18:48:59.8	−02:09:48.32	0.153	G336.74−0.09	16:34:48.3	−47:44:56.17	0.180
G30.73−0.86	18:50:28.8	−02:21:08.78	0.179	G336.74−0.04	16:34:37.0	−47:42:57.83	0.154
G30.73−0.55	18:49:23.9	−02:12:33.51	0.184	G336.75−0.08	16:34:47.0	−47:44:06.85	0.163
G30.74−0.11	18:47:50.7	−02:00:03.51	0.227	G336.75−0.22	16:35:25.5	−47:49:53.00	0.181
G30.75+0.11	18:47:03.5	−01:53:45.63	0.337	G336.75−0.01	16:34:30.6	−47:41:06.91	0.194
G30.75−0.09	18:47:47.3	−01:58:59.13	0.268	G336.76+0.08	16:34:10.1	−47:37:07.96	0.367
G30.75−0.68	18:49:52.4	−02:14:58.19	0.166	G336.76−0.04	16:34:40.9	−47:41:52.47	0.154
G30.76+0.24	18:46:36.4	−01:49:36.31	0.252	G336.76−0.04	16:34:42.0	−47:41:52.05	0.150
G30.76−0.78	18:50:15.7	−02:17:18.84	0.223	G336.76+0.03	16:34:24.7	−47:39:09.12	0.189
G30.76−0.13	18:47:56.6	−01:59:25.08	0.152	G336.77+0.10	16:34:05.4	−47:35:56.50	0.194
G30.76+0.07	18:47:15.0	−01:53:56.37	0.219	G336.77−0.16	16:35:15.2	−47:46:29.55	0.153
G30.77−0.73	18:50:05.4	−02:15:34.60	0.171	G336.77+0.31	16:33:12.4	−47:27:23.76	0.206
G30.77−0.12	18:47:54.8	−01:58:42.54	0.182	G336.77−0.91	16:38:35.5	−48:16:45.44	0.176
G30.78−0.09	18:47:49.7	−01:57:32.70	0.359	G336.77−0.20	16:35:25.8	−47:47:59.81	0.167
G30.78−0.12	18:47:56.5	−01:57:56.49	0.333	G336.77−0.01	16:34:37.5	−47:40:23.45	0.171
G30.78−0.48	18:49:13.4	−02:07:46.67	0.198	G336.78+0.33	16:33:09.2	−47:26:23.37	0.162
G30.79−0.21	18:48:17.0	−02:00:23.80	0.236	G336.78−0.14	16:35:11.8	−47:45:11.76	0.302
G30.80−0.18	18:48:11.5	−01:58:39.04	0.198	G336.78−0.04	16:34:46.2	−47:41:14.45	0.276
G30.81+0.24	18:46:43.1	−01:47:02.99	0.161	G336.78−0.92	16:38:40.1	−48:16:34.13	0.153
G30.81−0.28	18:48:34.2	−02:01:04.68	0.275	G336.79−0.00	16:34:37.5	−47:39:15.53	0.171
G30.81−0.11	18:47:57.8	−01:56:16.58	0.218	G336.79+0.25	16:33:32.8	−47:29:11.62	0.239
G30.81+0.15	18:47:02.8	−01:49:06.50	0.164	G336.80−0.06	16:34:54.5	−47:41:11.02	0.183
G30.81−0.18	18:48:11.9	−01:57:51.78	0.156	G336.80−0.32	16:36:03.5	−47:51:36.69	0.153
G30.81+0.19	18:46:53.4	−01:47:47.82	0.203	G336.80−0.29	16:35:57.5	−47:50:24.02	0.189
G30.82−0.20	18:48:16.8	−01:58:15.14	0.186	G336.81−0.24	16:35:44.0	−47:48:03.06	0.181
G30.83−0.38	18:48:56.2	−02:02:49.69	0.164	G336.81−0.08	16:35:02.4	−47:41:38.72	0.233
G30.83+0.39	18:46:11.5	−01:41:37.33	0.204	G336.81−0.60	16:37:20.6	−48:02:37.78	0.154
G30.83−0.36	18:48:52.6	−02:02:14.77	0.164	G336.82−0.26	16:35:51.4	−47:48:24.01	0.177
G30.83+0.07	18:47:21.4	−01:50:12.66	0.327	G336.82−0.27	16:35:55.1	−47:48:50.83	0.208
G30.84+0.22	18:46:49.8	−01:45:55.43	0.177	G336.82+0.63	16:32:00.0	−47:12:06.25	0.167
G30.84−0.14	18:48:07.3	−01:55:35.24	0.182	G336.82−0.31	16:36:05.8	−47:50:21.36	0.169
G30.85+0.24	18:46:46.2	−01:44:39.14	0.177	G336.82+0.03	16:34:37.0	−47:36:17.24	0.345
G30.85+0.19	18:46:56.6	−01:45:57.50	0.309	G336.83−0.58	16:37:22.2	−48:00:45.52	0.194

Table A.1. continued.

IRDC name	R.A. ($^{h}:^{m}:^{s}$) (J2000)	Decl. ($^{\circ}:':''$) (J2000)	$C_{24\mu m}$	IRDC name	R.A. ($^{h}:^{m}:^{s}$) (J2000)	Decl. ($^{\circ}:':''$) (J2000)	$C_{24\mu m}$
G30.85−0.05	18:47:48.7	−01:52:32.74	0.379	G336.83+0.15	16:34:08.5	−47:30:59.95	0.471
G30.85−0.16	18:48:11.4	−01:55:26.33	0.200	G336.84−0.21	16:35:45.6	−47:45:33.47	0.373
G30.85−0.14	18:48:07.6	−01:54:51.71	0.160	G336.84−0.15	16:35:29.0	−47:42:51.04	0.151
G30.85−0.23	18:48:27.6	−01:57:22.70	0.224	G336.85−0.75	16:38:10.4	−48:06:40.81	0.189
G30.85+0.09	18:47:19.1	−01:48:33.17	0.166	G336.85+0.09	16:34:29.7	−47:32:47.31	0.308
G30.85+0.25	18:46:44.7	−01:44:08.46	0.158	G336.85+0.05	16:34:40.3	−47:34:13.02	0.564
G30.85−0.11	18:48:02.4	−01:54:03.65	0.200	G336.86+0.55	16:32:31.0	−47:13:42.48	0.155
G30.87+0.04	18:47:30.9	−01:48:57.29	0.160	G336.86+0.00	16:34:55.1	−47:35:44.95	0.399
G30.87−0.49	18:49:24.3	−02:03:22.56	0.159	G336.87+0.30	16:33:37.8	−47:23:30.85	0.247
G30.87+0.05	18:47:30.4	−01:48:45.49	0.157	G336.87−0.11	16:35:25.6	−47:40:00.92	0.358
G30.87−0.14	18:48:10.3	−01:53:49.94	0.329	G336.87+0.54	16:32:35.8	−47:13:22.19	0.153
G30.88+0.15	18:47:08.7	−01:45:13.54	0.206	G336.87−0.25	16:36:04.0	−47:45:40.78	0.153
G30.89−0.51	18:49:30.5	−02:02:57.13	0.174	G336.89−0.78	16:38:27.6	−48:06:14.33	0.152
G30.89+0.05	18:47:31.6	−01:47:24.08	0.173	G336.89−0.80	16:38:33.5	−48:06:37.65	0.151
G30.90−0.06	18:47:56.9	−01:50:24.07	0.230	G336.89−0.70	16:38:08.1	−48:02:44.41	0.154
G30.90−0.01	18:47:46.9	−01:48:35.35	0.298	G336.91+0.09	16:34:42.2	−47:30:24.16	0.189
G30.91+0.08	18:47:27.5	−01:45:55.56	0.166	G336.91−0.40	16:36:50.5	−47:50:00.07	0.209
G30.91+0.71	18:45:12.8	−01:28:08.58	0.311	G336.91−0.06	16:35:22.9	−47:36:29.04	0.157
G30.92−0.13	18:48:14.2	−01:51:17.91	0.170	G336.91+0.22	16:34:10.0	−47:24:51.01	0.232
G30.92−0.06	18:47:58.4	−01:49:16.44	0.225	G336.92+0.09	16:34:43.9	−47:29:51.94	0.153
G30.92+0.69	18:45:18.6	−01:28:42.46	0.173	G336.93−0.65	16:38:02.2	−47:59:18.44	0.184
G30.92−0.71	18:50:17.3	−02:06:56.39	0.153	G336.93−0.89	16:39:08.0	−48:08:55.19	0.164
G30.92−0.80	18:50:35.9	−02:09:16.59	0.165	G336.94+0.13	16:34:38.9	−47:27:02.25	0.341
G30.92+0.14	18:47:16.4	−01:43:32.72	0.366	G336.94+0.01	16:35:10.7	−47:31:55.69	0.360
G30.92+0.10	18:47:25.6	−01:44:39.49	0.281	G336.95+0.06	16:35:00.2	−47:29:27.91	0.200
G30.93−0.21	18:48:33.3	−01:52:35.17	0.161	G336.95−0.04	16:35:26.5	−47:33:24.11	0.161
G30.93+0.22	18:47:00.7	−01:40:38.29	0.178	G336.95+0.47	16:33:14.1	−47:12:34.02	0.256
G30.94−0.07	18:48:02.3	−01:48:16.69	0.174	G336.96−0.32	16:36:40.9	−47:44:34.48	0.186
G30.94−0.27	18:48:45.8	−01:53:43.51	0.252	G336.96−0.24	16:36:20.4	−47:41:26.06	0.298
G30.94−0.16	18:48:21.9	−01:50:38.41	0.426	G336.96−0.03	16:35:25.9	−47:33:03.20	0.153
G30.95−0.24	18:48:40.8	−01:52:43.98	0.210	G336.96−0.34	16:36:46.8	−47:45:26.21	0.169
G30.95−0.28	18:48:49.4	−01:53:32.29	0.215	G336.96−0.05	16:35:32.4	−47:33:53.35	0.159
G30.95+0.02	18:47:45.7	−01:45:04.13	0.159	G336.97−0.50	16:37:30.8	−47:51:22.98	0.154
G30.97+0.34	18:46:39.3	−01:35:28.95	0.167	G336.97−0.08	16:35:40.6	−47:34:17.73	0.325
G30.98+0.04	18:47:43.2	−01:43:13.40	0.201	G336.98−0.83	16:39:01.7	−48:04:09.46	0.227
G30.99+0.33	18:46:42.6	−01:34:51.32	0.180	G336.98+0.45	16:33:25.8	−47:12:30.13	0.355
G30.99−0.12	18:48:18.4	−01:46:46.49	0.367	G336.98−0.15	16:36:01.4	−47:36:40.64	0.183
G31.00−0.83	18:50:51.5	−02:06:06.53	0.165	G337.00−0.12	16:35:57.5	−47:34:42.11	0.417
G31.00+0.78	18:45:08.7	−01:21:45.67	0.233	G337.00−0.70	16:38:34.2	−47:58:10.05	0.159
G31.00+0.10	18:47:33.9	−01:40:21.17	0.153	G337.00+0.05	16:35:15.4	−47:27:44.11	0.172
G31.01+0.12	18:47:29.7	−01:39:32.00	0.156	G337.01−0.69	16:38:33.4	−47:57:22.73	0.161
G31.01+0.51	18:46:07.2	−01:28:56.12	0.164	G337.01+0.05	16:35:19.2	−47:27:26.47	0.155
G31.01−0.12	18:48:22.2	−01:45:50.50	0.152	G337.01+0.54	16:33:09.7	−47:07:11.48	0.150
G31.01+0.00	18:47:55.7	−01:42:25.22	0.182	G337.02+0.07	16:35:14.3	−47:26:10.19	0.293
G31.03+0.78	18:45:12.0	−01:20:23.83	0.198	G337.02−0.70	16:38:38.7	−47:57:18.21	0.153
G31.03+0.27	18:47:00.9	−01:34:17.40	0.331	G337.03−0.71	16:38:42.7	−47:57:21.38	0.211
G31.03−0.18	18:48:36.8	−01:46:23.95	0.170	G337.03+0.19	16:34:44.8	−47:20:59.03	0.164
G31.04+0.15	18:47:26.0	−01:37:07.06	0.250	G337.03+0.06	16:35:18.4	−47:26:05.85	0.162

Table A.1. continued.

IRDC name	R.A. ($^{h}:^{m}:^{s}$) (J2000)	Decl. ($^{\circ}:':''$) (J2000)	$C_{24\mu m}$	IRDC name	R.A. ($^{h}:^{m}:^{s}$) (J2000)	Decl. ($^{\circ}:':''$) (J2000)	$C_{24\mu m}$
G31.05+0.77	18:45:16.1	−01:19:25.81	0.188	G337.03−0.31	16:36:56.2	−47:41:03.07	0.176
G31.05+0.14	18:47:30.2	−01:36:30.85	0.152	G337.03−0.05	16:35:48.9	−47:30:40.01	0.166
G31.07+0.71	18:45:29.6	−01:20:10.06	0.200	G337.03+0.20	16:34:41.9	−47:20:10.72	0.163
G31.08+0.78	18:45:17.4	−01:17:51.89	0.159	G337.03+0.09	16:35:12.8	−47:24:55.38	0.153
G31.08+0.03	18:47:56.4	−01:37:45.91	0.174	G337.03+0.20	16:34:44.7	−47:20:23.69	0.155
G31.09+0.14	18:47:34.1	−01:34:39.28	0.205	G337.05+0.16	16:34:56.5	−47:21:03.37	0.182
G31.09−0.10	18:48:25.7	−01:40:52.40	0.162	G337.05+0.14	16:35:04.5	−47:22:08.47	0.192
G31.09−0.05	18:48:16.0	−01:39:36.65	0.188	G337.05−0.08	16:36:00.6	−47:30:47.34	0.318
G31.09−0.13	18:48:32.0	−01:41:37.03	0.151	G337.05−0.37	16:37:19.0	−47:42:34.00	0.229
G31.09+0.23	18:47:16.6	−01:31:55.99	0.258	G337.06+0.04	16:35:32.5	−47:25:31.67	0.157
G31.10−0.14	18:48:36.0	−01:41:34.27	0.150	G337.06−0.89	16:39:40.1	−48:02:54.05	0.201
G31.11−0.76	18:50:48.4	−01:58:09.83	0.152	G337.06−0.20	16:36:35.9	−47:35:02.78	0.233
G31.11+0.08	18:47:49.4	−01:35:04.75	0.175	G337.07−0.00	16:35:46.3	−47:26:44.82	0.221
G31.11+0.15	18:47:34.2	−01:32:51.12	0.184	G337.08−0.04	16:35:57.7	−47:28:06.23	0.173
G31.17+0.06	18:47:59.7	−01:32:17.02	0.151	G337.08+0.35	16:34:16.2	−47:12:10.81	0.246
G31.18+0.07	18:48:00.5	−01:31:35.76	0.184	G337.08−0.77	16:39:11.1	−47:56:57.35	0.170
G31.19+0.06	18:48:02.2	−01:31:08.67	0.152	G337.09−0.78	16:39:16.9	−47:57:12.15	0.167
G31.20+0.32	18:47:07.7	−01:23:52.11	0.161	G337.09−0.09	16:36:12.8	−47:29:17.17	0.317
G31.20+0.08	18:48:00.1	−01:30:30.99	0.198	G337.10+0.20	16:34:57.7	−47:17:15.29	0.199
G31.20−0.15	18:48:49.8	−01:36:31.74	0.169	G337.10−0.84	16:39:35.5	−47:59:16.78	0.171
G31.21+0.31	18:47:10.8	−01:23:34.72	0.154	G337.12−0.01	16:35:59.2	−47:24:50.76	0.278
G31.22−0.42	18:49:48.5	−01:42:43.78	0.157	G337.12+0.23	16:34:56.1	−47:14:57.59	0.157
G31.23−0.04	18:48:28.6	−01:32:07.92	0.164	G337.12+0.00	16:35:57.1	−47:24:11.79	0.229
G31.23−0.07	18:48:33.6	−01:32:46.84	0.175	G337.15+0.31	16:34:42.9	−47:10:51.18	0.152
G31.23+0.14	18:47:50.1	−01:27:07.06	0.186	G337.15−0.39	16:37:45.0	−47:38:49.48	0.419
G31.23−0.05	18:48:30.9	−01:32:18.41	0.158	G337.15−0.23	16:37:03.9	−47:32:28.81	0.226
G31.23+0.06	18:48:07.6	−01:29:19.03	0.319	G337.15−0.01	16:36:06.8	−47:23:27.88	0.204
G31.23+0.02	18:48:16.0	−01:30:19.39	0.285	G337.15+0.03	16:35:56.6	−47:21:48.96	0.187
G31.24−0.14	18:48:51.9	−01:34:12.64	0.267	G337.15−0.12	16:36:35.4	−47:27:43.95	0.155
G31.27+0.08	18:48:07.0	−01:26:41.03	0.154	G337.16−0.92	16:40:09.8	−47:59:54.55	0.191
G31.28−0.16	18:48:59.0	−01:32:17.53	0.151	G337.16−0.74	16:39:20.5	−47:52:32.07	0.161
G31.29+0.14	18:47:55.4	−01:24:01.53	0.165	G337.16−0.18	16:36:53.1	−47:30:09.11	0.211
G31.29+0.14	18:47:57.0	−01:23:35.04	0.170	G337.16−0.13	16:36:40.1	−47:27:52.77	0.252
G31.31−0.14	18:48:58.4	−01:30:18.05	0.170	G337.16−0.11	16:36:36.6	−47:27:06.15	0.156
G31.32−0.03	18:48:35.7	−01:26:52.87	0.157	G337.16−0.20	16:37:01.2	−47:30:47.62	0.168
G31.32−0.06	18:48:42.2	−01:27:25.12	0.231	G337.16−0.73	16:39:20.4	−47:51:47.65	0.202
G31.36+0.04	18:48:26.1	−01:23:06.01	0.182	G337.17−0.19	16:36:58.3	−47:30:04.92	0.221
G31.37−0.15	18:49:06.5	−01:27:20.59	0.162	G337.17+0.03	16:36:00.7	−47:20:58.04	0.186
G31.39+0.30	18:47:33.8	−01:14:26.16	0.281	G337.17−0.77	16:39:33.8	−47:53:06.45	0.158
G31.39−0.26	18:49:32.9	−01:29:11.39	0.319	G337.18+0.09	16:35:47.1	−47:18:28.08	0.167
G31.42−0.70	18:51:09.9	−01:39:51.20	0.154	G337.18−0.01	16:36:11.8	−47:22:15.49	0.156
G31.42+0.13	18:48:14.1	−01:17:04.77	0.196	G337.18−0.76	16:39:32.0	−47:52:24.07	0.153
G31.42−0.09	18:49:00.7	−01:22:57.65	0.177	G337.19+0.38	16:34:33.3	−47:05:52.89	0.168
G31.43+0.17	18:48:06.3	−01:15:46.88	0.155	G337.19−0.39	16:37:57.3	−47:37:17.68	0.325
G31.44−0.58	18:50:47.2	−01:35:19.37	0.187	G337.20−0.04	16:36:25.3	−47:22:33.75	0.224
G31.44−0.10	18:49:04.4	−01:22:08.43	0.189	G337.20+0.36	16:34:42.0	−47:06:21.85	0.235
G31.46+0.19	18:48:05.6	−01:13:27.99	0.164	G337.20−0.07	16:36:36.5	−47:23:42.55	0.212
G31.48+0.32	18:47:38.6	−01:09:01.66	0.166	G337.22−0.04	16:36:30.9	−47:21:45.07	0.161

Table A.1. continued.

IRDC name	R.A. ($^{h}:^{m}:^{s}$) (J2000)	Decl. ($^{\circ}:':''$) (J2000)	$C_{24\mu m}$	IRDC name	R.A. ($^{h}:^{m}:^{s}$) (J2000)	Decl. ($^{\circ}:':''$) (J2000)	$C_{24\mu m}$
G31.50−0.29	18:49:51.6	−01:24:43.84	0.174	G337.23−0.01	16:36:26.0	−47:19:39.06	0.207
G31.51−0.28	18:49:49.1	−01:23:40.31	0.176	G337.24−0.38	16:38:05.2	−47:34:42.79	0.213
G31.51+0.24	18:47:59.6	−01:09:18.55	0.194	G337.24−0.10	16:36:50.3	−47:23:11.64	0.242
G31.52+0.44	18:47:17.1	−01:03:13.11	0.173	G337.24+0.64	16:33:39.5	−46:53:22.30	0.209
G31.55−0.64	18:51:10.4	−01:31:19.75	0.153	G337.25−0.40	16:38:12.0	−47:34:52.74	0.177
G31.55−0.08	18:49:13.0	−01:16:06.70	0.216	G337.25+0.01	16:36:26.4	−47:18:31.80	0.182
G31.55−0.63	18:51:09.3	−01:30:42.69	0.151	G337.25+0.45	16:34:31.5	−47:00:24.43	0.156
G31.56−0.23	18:49:45.8	−01:19:41.94	0.153	G337.25−0.12	16:36:59.5	−47:23:17.06	0.152
G31.57−0.08	18:49:14.7	−01:15:14.66	0.159	G337.26−0.12	16:37:00.6	−47:23:16.53	0.150
G31.57+0.25	18:48:04.3	−01:06:04.83	0.162	G337.26−0.61	16:39:10.7	−47:42:30.83	0.154
G31.57−0.09	18:49:17.0	−01:15:05.58	0.176	G337.26−0.10	16:36:58.1	−47:22:09.69	0.197
G31.58+0.04	18:48:50.3	−01:11:18.42	0.158	G337.27+0.41	16:34:45.9	−47:01:25.91	0.217
G31.58+0.21	18:48:14.5	−01:06:27.81	0.238	G337.27+0.38	16:34:53.2	−47:02:23.33	0.184
G31.58+0.23	18:48:09.6	−01:05:46.24	0.172	G337.27−0.39	16:38:16.2	−47:33:32.83	0.163
G31.59−0.29	18:50:01.4	−01:19:55.45	0.150	G337.27−0.21	16:37:28.6	−47:26:12.98	0.189
G31.60+0.20	18:48:16.9	−01:05:28.48	0.198	G337.29+0.01	16:36:34.4	−47:16:39.48	0.396
G31.60+0.17	18:48:24.6	−01:06:15.22	0.171	G337.29+0.08	16:36:15.9	−47:13:24.67	0.188
G31.61+0.19	18:48:21.2	−01:05:38.28	0.261	G337.30−0.50	16:38:51.2	−47:36:45.65	0.180
G31.61+0.28	18:48:00.9	−01:03:01.91	0.179	G337.30−0.86	16:40:26.6	−47:50:48.48	0.182
G31.62+0.17	18:48:26.1	−01:05:19.21	0.152	G337.30−0.18	16:37:28.5	−47:23:50.11	0.150
G31.63+0.15	18:48:30.6	−01:05:32.73	0.248	G337.32+0.28	16:35:30.9	−47:04:10.70	0.169
G31.63+0.26	18:48:08.4	−01:02:25.60	0.162	G337.32−0.37	16:38:21.8	−47:30:23.26	0.229
G31.64+0.05	18:48:54.7	−01:07:23.59	0.184	G337.32+0.02	16:36:38.7	−47:14:36.44	0.157
G31.65−0.44	18:50:40.8	−01:20:36.87	0.194	G337.33−0.77	16:40:10.5	−47:46:17.20	0.179
G31.67−0.49	18:50:52.8	−01:20:47.59	0.185	G337.33−0.50	16:38:57.7	−47:35:14.45	0.238
G31.67+0.29	18:48:06.0	−00:59:13.93	0.150	G337.33−0.10	16:37:14.9	−47:19:18.12	0.190
G31.67+0.28	18:48:08.4	−00:59:29.12	0.172	G337.33+0.27	16:35:38.0	−47:04:10.74	0.201
G31.68−0.18	18:49:46.8	−01:11:45.85	0.266	G337.35−0.08	16:37:11.1	−47:17:37.79	0.193
G31.69−0.11	18:49:32.9	−01:09:14.22	0.306	G337.35+0.01	16:36:49.3	−47:14:07.45	0.202
G31.70−0.03	18:49:16.5	−01:06:42.74	0.213	G337.35−0.10	16:37:18.2	−47:18:15.62	0.165
G31.70−0.49	18:50:56.5	−01:19:28.12	0.282	G337.38+0.01	16:36:55.0	−47:12:44.27	0.297
G31.72−0.49	18:50:57.8	−01:17:49.62	0.211	G337.38−0.20	16:37:52.3	−47:20:53.71	0.163
G31.74−0.26	18:50:10.8	−01:10:39.54	0.185	G337.39−0.26	16:38:07.8	−47:22:52.86	0.177
G31.75−0.64	18:51:34.6	−01:20:44.49	0.195	G337.40−0.84	16:40:44.7	−47:45:33.82	0.174
G31.75−0.75	18:51:56.8	−01:23:34.26	0.155	G337.40+0.31	16:35:43.9	−46:59:41.58	0.153
G31.77+0.13	18:48:51.2	−00:58:23.59	0.171	G337.41−0.83	16:40:45.5	−47:44:53.56	0.156
G31.78−0.09	18:49:40.1	−01:04:04.98	0.177	G337.42−0.30	16:38:27.5	−47:23:13.79	0.220
G31.78−0.87	18:52:26.5	−01:25:21.88	0.153	G337.43−0.54	16:39:32.1	−47:32:16.42	0.175
G31.78−0.51	18:51:09.2	−01:15:18.96	0.156	G337.43−0.85	16:40:56.0	−47:44:44.33	0.159
G31.79−0.13	18:49:47.7	−01:04:30.33	0.179	G337.44−0.49	16:39:23.3	−47:29:59.89	0.156
G31.79−0.00	18:49:21.7	−01:00:45.01	0.162	G337.44+0.22	16:36:15.0	−47:01:10.57	0.184
G31.80−0.17	18:49:59.2	−01:05:14.71	0.221	G337.46−0.03	16:37:25.6	−47:10:35.82	0.183
G31.81−0.02	18:49:27.7	−01:00:25.06	0.205	G337.47−0.39	16:39:03.9	−47:24:42.32	0.242
G31.81−0.22	18:50:09.8	−01:05:39.81	0.207	G337.48−0.73	16:40:36.7	−47:37:33.75	0.155
G31.82−0.04	18:49:33.0	−01:00:08.37	0.173	G337.49−0.00	16:37:25.1	−47:08:19.87	0.153
G31.83−0.25	18:50:19.6	−01:05:33.09	0.169	G337.50−0.02	16:37:31.8	−47:08:25.91	0.172
G31.84−0.02	18:49:31.0	−00:58:45.88	0.168	G337.50−0.20	16:38:20.8	−47:15:47.95	0.179
G31.85−0.32	18:50:36.9	−01:06:45.72	0.159	G337.50−0.75	16:40:45.1	−47:37:24.71	0.159

Table A.1. continued.

IRDC name	R.A. ($^{h}:^{m}:^{s}$) (J2000)	Decl. ($^{\circ}:':''$) (J2000)	$C_{24\mu m}$	IRDC name	R.A. ($^{h}:^{m}:^{s}$) (J2000)	Decl. ($^{\circ}:':''$) (J2000)	$C_{24\mu m}$
G31.85−0.24	18:50:19.0	−01:04:23.84	0.161	G337.51−0.76	16:40:50.7	−47:37:51.22	0.159
G31.85+0.10	18:49:07.4	−00:55:09.56	0.185	G337.51+0.31	16:36:07.9	−46:54:47.20	0.170
G31.86−0.40	18:50:52.9	−01:08:14.07	0.178	G337.51−0.10	16:37:55.8	−47:11:24.91	0.166
G31.86+0.18	18:48:50.4	−00:52:25.74	0.159	G337.51−0.18	16:38:17.5	−47:14:41.46	0.242
G31.87+0.26	18:48:35.4	−00:49:44.77	0.157	G337.51−0.25	16:38:34.3	−47:17:13.63	0.150
G31.88+0.15	18:48:59.5	−00:51:49.18	0.233	G337.51−0.09	16:37:53.2	−47:10:45.33	0.161
G31.89−0.35	18:50:45.9	−01:05:13.21	0.164	G337.51−0.48	16:39:37.3	−47:26:21.93	0.153
G31.89−0.51	18:51:21.1	−01:09:20.17	0.225	G337.51−0.24	16:38:33.0	−47:16:32.93	0.227
G31.89+0.13	18:49:04.0	−00:51:46.04	0.163	G337.52−0.50	16:39:42.4	−47:26:34.79	0.157
G31.89−0.32	18:50:41.3	−01:04:10.23	0.222	G337.52+0.33	16:36:06.9	−46:53:32.39	0.151
G31.90−0.30	18:50:36.4	−01:03:14.65	0.196	G337.52−0.19	16:38:23.1	−47:14:14.76	0.170
G31.91−0.51	18:51:23.2	−01:08:41.53	0.157	G337.53+0.06	16:37:17.2	−47:03:53.89	0.200
G31.93−0.20	18:50:19.7	−00:58:57.99	0.198	G337.53+0.21	16:36:37.9	−46:57:45.41	0.155
G31.94−0.77	18:52:21.5	−01:13:50.22	0.151	G337.53+0.32	16:36:10.7	−46:53:27.57	0.162
G31.94+0.07	18:49:22.9	−00:50:51.03	0.288	G337.53−0.24	16:38:36.7	−47:15:40.87	0.164
G31.96−0.05	18:49:50.5	−00:53:00.83	0.163	G337.53+0.23	16:36:35.8	−46:56:54.99	0.182
G31.97−0.37	18:50:59.4	−01:01:21.59	0.211	G337.54−0.08	16:37:57.2	−47:09:06.12	0.463
G31.97−0.51	18:51:31.3	−01:05:11.01	0.179	G337.54+0.33	16:36:12.6	−46:52:32.80	0.156
G31.98−0.40	18:51:06.4	−01:01:49.85	0.155	G337.55−0.84	16:41:21.3	−47:39:19.33	0.162
G31.98+0.05	18:49:31.1	−00:49:30.85	0.178	G337.55−0.05	16:37:50.4	−47:07:29.48	0.185
G31.99−0.38	18:51:03.1	−01:00:52.25	0.168	G337.55−0.26	16:38:46.7	−47:15:39.51	0.169
G31.99−0.61	18:51:54.1	−01:07:10.84	0.191	G337.55−0.59	16:40:16.4	−47:28:53.04	0.203
G31.99+0.07	18:49:27.9	−00:48:18.68	0.154	G337.56−0.25	16:38:45.6	−47:15:05.15	0.150
G31.99−0.10	18:50:05.0	−00:53:00.46	0.163	G337.57−0.24	16:38:47.0	−47:14:21.95	0.158
G31.99−0.51	18:51:32.9	−01:04:09.61	0.160	G337.57−0.16	16:38:24.2	−47:10:48.99	0.271
G32.00−0.88	18:52:52.5	−01:13:45.54	0.174	G337.57+0.23	16:36:42.9	−46:54:57.74	0.323
G32.00−0.67	18:52:07.9	−01:08:01.99	0.189	G337.57−0.42	16:39:34.8	−47:21:14.34	0.209
G32.00−0.20	18:50:27.0	−00:54:57.36	0.239	G337.58−0.41	16:39:36.0	−47:20:32.09	0.152
G32.01+0.07	18:49:30.7	−00:47:32.89	0.319	G337.59+0.01	16:37:45.7	−47:03:32.13	0.246
G32.02+0.03	18:49:40.5	−00:48:07.11	0.169	G337.60+0.04	16:37:39.8	−47:01:49.82	0.167
G32.03+0.08	18:49:30.6	−00:46:11.61	0.153	G337.60−0.38	16:39:31.5	−47:18:36.80	0.159
G32.03−0.86	18:52:52.4	−01:11:37.21	0.152	G337.60+0.05	16:37:37.1	−47:00:53.77	0.164
G32.04−0.33	18:50:58.7	−00:56:49.68	0.340	G337.61+0.07	16:37:34.5	−46:59:55.79	0.151
G32.04−0.15	18:50:20.3	−00:51:30.94	0.152	G337.61−0.41	16:39:42.2	−47:19:06.84	0.189
G32.06+0.02	18:49:46.1	−00:46:15.12	0.249	G337.61+0.02	16:37:47.9	−47:01:39.62	0.165
G32.06−0.41	18:51:17.4	−00:57:53.58	0.234	G337.62−0.37	16:39:31.8	−47:17:16.26	0.153
G32.06−0.32	18:51:00.2	−00:55:11.91	0.198	G337.62−0.32	16:39:19.9	−47:15:16.36	0.167
G32.07+0.13	18:49:23.5	−00:42:17.83	0.158	G337.62−0.29	16:39:10.9	−47:13:54.00	0.241
G32.08−0.33	18:51:04.8	−00:54:28.05	0.201	G337.62+0.27	16:36:45.0	−46:51:15.85	0.177
G32.08−0.32	18:51:00.8	−00:53:57.77	0.153	G337.63−0.12	16:38:28.7	−47:06:33.96	0.256
G32.08−0.07	18:50:09.3	−00:47:15.58	0.182	G337.64−0.37	16:39:37.2	−47:16:21.72	0.153
G32.09−0.38	18:51:15.9	−00:55:24.99	0.176	G337.64+0.64	16:35:13.6	−46:35:33.43	0.166
G32.10−0.09	18:50:13.7	−00:47:04.97	0.156	G337.64+0.26	16:36:51.9	−46:50:44.31	0.168
G32.10−0.16	18:50:29.6	−00:48:37.79	0.162	G337.66−0.59	16:40:41.6	−47:24:02.08	0.151
G32.11−0.04	18:50:03.5	−00:44:58.91	0.206	G337.67+0.30	16:36:47.3	−46:48:05.26	0.215
G32.14−0.10	18:50:21.2	−00:45:05.29	0.150	G337.67−0.29	16:39:22.3	−47:11:50.03	0.174
G32.14+0.03	18:49:53.5	−00:41:28.17	0.158	G337.67−0.26	16:39:15.6	−47:10:26.74	0.161
G32.14+0.18	18:49:22.0	−00:37:22.12	0.171	G337.67−0.05	16:38:19.8	−47:01:49.50	0.164

Table A.1. continued.

IRDC name	R.A. ($^{h}:^{m}:^{s}$) (J2000)	Decl. ($^{\circ}:':''$) (J2000)	$C_{24\mu m}$	IRDC name	R.A. ($^{h}:^{m}:^{s}$) (J2000)	Decl. ($^{\circ}:':''$) (J2000)	$C_{24\mu m}$
G32.14+0.18	18:49:20.3	−00:37:05.03	0.159	G337.67+0.33	16:36:40.9	−46:46:33.65	0.161
G32.15−0.52	18:51:50.6	−00:56:08.77	0.179	G337.68+0.32	16:36:44.9	−46:46:51.53	0.157
G32.15+0.21	18:49:15.2	−00:36:00.57	0.155	G337.68+0.16	16:37:29.0	−46:53:09.27	0.169
G32.15−0.37	18:51:20.2	−00:51:51.27	0.163	G337.69+0.01	16:38:09.8	−46:58:46.76	0.261
G32.16+0.23	18:49:11.9	−00:34:51.26	0.156	G337.69−0.18	16:38:59.6	−47:06:03.47	0.158
G32.16−0.37	18:51:20.6	−00:51:20.75	0.155	G337.70−0.27	16:39:24.6	−47:09:13.95	0.230
G32.16+0.08	18:49:45.0	−00:38:59.36	0.259	G337.70−0.03	16:38:21.8	−46:59:36.07	0.179
G32.17+0.18	18:49:24.8	−00:35:49.79	0.264	G337.70+0.14	16:37:40.0	−46:53:06.69	0.151
G32.18+0.19	18:49:23.0	−00:34:57.93	0.154	G337.71+0.28	16:37:04.5	−46:46:57.02	0.212
G32.18+0.07	18:49:49.9	−00:38:09.45	0.155	G337.72+0.31	16:36:59.1	−46:45:18.85	0.223
G32.20−0.27	18:51:03.5	−00:46:18.07	0.158	G337.72−0.02	16:38:24.3	−46:58:21.77	0.180
G32.21+0.15	18:49:34.6	−00:34:33.04	0.180	G337.73−0.23	16:39:20.6	−47:06:40.35	0.203
G32.23−0.11	18:50:33.9	−00:40:19.36	0.168	G337.73−0.39	16:40:04.0	−47:13:08.37	0.166
G32.24−0.27	18:51:07.9	−00:44:19.34	0.192	G337.73−0.24	16:39:24.6	−47:06:55.40	0.153
G32.25−0.38	18:51:33.1	−00:46:38.90	0.175	G337.73−0.07	16:38:41.1	−47:00:12.75	0.155
G32.27−0.39	18:51:37.9	−00:46:08.37	0.159	G337.75−0.26	16:39:34.6	−47:07:12.64	0.163
G32.28+0.01	18:50:12.9	−00:34:34.53	0.168	G337.75−0.40	16:40:10.1	−47:12:21.28	0.188
G32.28+0.07	18:49:59.8	−00:32:44.97	0.191	G337.75−0.29	16:39:42.0	−47:07:56.88	0.164
G32.29−0.88	18:53:24.5	−00:58:08.34	0.163	G337.75−0.42	16:40:15.8	−47:13:01.00	0.172
G32.31+0.22	18:49:30.7	−00:27:03.29	0.156	G337.75−0.38	16:40:07.4	−47:11:31.23	0.209
G32.32−0.41	18:51:46.4	−00:43:57.41	0.161	G337.76−0.54	16:40:50.6	−47:17:37.09	0.160
G32.32−0.88	18:53:27.8	−00:56:51.63	0.201	G337.77−0.22	16:39:26.6	−47:04:19.58	0.177
G32.32+0.09	18:50:00.1	−00:29:59.06	0.256	G337.77−0.15	16:39:09.6	−47:01:43.13	0.175
G32.32+0.23	18:49:31.0	−00:26:12.19	0.188	G337.77−0.53	16:40:51.0	−47:16:59.19	0.233
G32.33−0.30	18:51:25.1	−00:40:21.24	0.151	G337.77−0.13	16:39:04.0	−47:00:48.28	0.184
G32.35−0.85	18:53:24.2	−00:54:06.12	0.803	G337.77−0.61	16:41:12.0	−47:20:04.99	0.152
G32.37−0.11	18:50:49.1	−00:32:57.26	0.176	G337.77+0.20	16:37:39.6	−46:47:37.97	0.164
G32.39+0.40	18:49:01.4	−00:17:48.35	0.154	G337.77−0.35	16:40:02.6	−47:09:20.73	0.173
G32.40−0.09	18:50:47.2	−00:31:00.53	0.152	G337.77−0.61	16:41:11.8	−47:19:37.27	0.170
G32.40−0.12	18:50:54.6	−00:31:38.63	0.168	G337.78−0.48	16:40:40.8	−47:14:28.72	0.169
G32.41+0.07	18:50:14.6	−00:26:18.76	0.185	G337.79−0.49	16:40:44.0	−47:14:18.78	0.156
G32.42−0.12	18:50:54.4	−00:30:41.10	0.158	G337.80+0.18	16:37:48.8	−46:47:02.89	0.182
G32.44−0.27	18:51:29.4	−00:33:46.03	0.160	G337.80−0.07	16:38:58.4	−46:57:01.06	0.188
G32.47−0.72	18:53:09.5	−00:44:22.93	0.152	G337.81+0.34	16:37:10.6	−46:40:18.81	0.181
G32.48−0.29	18:51:39.3	−00:32:12.84	0.172	G337.81−0.06	16:38:54.1	−46:56:07.45	0.165
G32.48+0.34	18:49:24.5	−00:14:46.70	0.189	G337.81+0.00	16:38:39.7	−46:53:42.95	0.165
G32.50−0.29	18:51:40.6	−00:31:15.10	0.151	G337.82−0.50	16:40:54.5	−47:13:37.75	0.185
G32.50−0.30	18:51:42.0	−00:31:25.36	0.152	G337.82−0.45	16:40:40.4	−47:11:24.85	0.170
G32.51−0.30	18:51:43.2	−00:30:43.70	0.166	G337.82+0.34	16:37:13.3	−46:39:42.92	0.156
G32.52−0.66	18:53:01.5	−00:39:46.75	0.151	G337.83+0.01	16:38:41.3	−46:52:25.63	0.173
G32.53−0.38	18:52:03.5	−00:32:09.93	0.179	G337.83−0.28	16:39:59.7	−47:04:04.98	0.179
G32.53+0.04	18:50:33.1	−00:20:14.44	0.154	G337.85−0.29	16:40:04.9	−47:03:42.62	0.194
G32.54−0.66	18:53:03.6	−00:38:41.45	0.158	G337.85−0.55	16:41:13.7	−47:14:00.10	0.162
G32.55−0.63	18:52:59.8	−00:37:42.62	0.168	G337.85−0.19	16:39:38.7	−46:59:31.52	0.158
G32.55−0.65	18:53:02.9	−00:37:51.25	0.155	G337.85−0.55	16:41:13.8	−47:13:41.28	0.162
G32.56−0.50	18:52:32.2	−00:33:40.07	0.194	G337.86−0.28	16:40:04.4	−47:02:33.13	0.262
G32.57+0.43	18:49:13.6	−00:07:44.25	0.169	G337.86−0.54	16:41:15.3	−47:13:09.85	0.188
G32.57−0.13	18:51:14.8	−00:23:06.20	0.226	G337.86+0.03	16:38:45.9	−46:50:18.14	0.186

Table A.1. continued.

IRDC name	R.A. ($^{h}:^{m}:^{s}$) (J2000)	Decl. ($^{\circ}:':''$) (J2000)	$C_{24\mu m}$	IRDC name	R.A. ($^{h}:^{m}:^{s}$) (J2000)	Decl. ($^{\circ}:':''$) (J2000)	$C_{24\mu m}$
G32.57−0.12	18:51:12.6	−00:22:24.38	0.167	G337.86+0.06	16:38:36.7	−46:48:52.67	0.194
G32.60+0.49	18:49:06.1	−00:04:14.96	0.161	G337.87−0.42	16:40:43.5	−47:07:55.61	0.160
G32.62−0.32	18:51:59.2	−00:25:29.00	0.150	G337.87−0.22	16:39:50.3	−46:59:52.96	0.157
G32.62+0.04	18:50:44.2	−00:15:27.60	0.151	G337.87−0.40	16:40:39.2	−47:07:10.05	0.163
G32.64+0.11	18:50:30.4	−00:12:46.27	0.154	G337.88−0.38	16:40:34.6	−47:05:49.49	0.170
G32.64−0.78	18:53:41.7	−00:36:52.88	0.175	G337.88−0.01	16:39:00.2	−46:51:13.59	0.300
G32.65−0.15	18:51:26.7	−00:19:00.14	0.155	G337.88−0.62	16:41:39.7	−47:15:12.16	0.213
G32.66−0.15	18:51:27.7	−00:18:38.49	0.152	G337.88−0.32	16:40:21.5	−47:03:16.90	0.220
G32.66−0.80	18:53:48.4	−00:36:29.44	0.171	G337.88−0.57	16:41:27.9	−47:13:08.17	0.158
G32.67+0.52	18:49:07.6	+00:00:13.92	0.296	G337.90−0.56	16:41:29.2	−47:12:22.30	0.272
G32.69+0.49	18:49:14.5	+00:00:39.93	0.151	G337.91+0.12	16:38:30.7	−46:44:37.05	0.226
G32.70+0.10	18:50:38.9	−00:09:33.82	0.194	G337.91−0.16	16:39:44.5	−46:55:47.65	0.152
G32.70+0.90	18:47:47.8	+00:12:28.75	0.157	G337.91−0.33	16:40:31.2	−47:02:35.89	0.189
G32.70+0.49	18:49:16.4	+00:01:11.61	0.208	G337.91−0.22	16:40:02.9	−46:58:13.33	0.158
G32.70−0.02	18:51:05.8	−00:12:44.23	0.161	G337.91−0.22	16:40:02.3	−46:57:52.35	0.154
G32.71−0.30	18:52:06.2	−00:20:20.07	0.236	G337.92−0.14	16:39:41.0	−46:54:23.17	0.339
G32.72+0.25	18:50:10.4	−00:04:33.59	0.179	G337.93−0.55	16:41:33.4	−47:10:17.27	0.155
G32.73−0.05	18:51:13.8	−00:12:17.43	0.152	G337.93−0.25	16:40:13.9	−46:58:16.91	0.239
G32.73−0.04	18:51:12.6	−00:12:03.81	0.152	G337.93−0.30	16:40:28.4	−47:00:22.61	0.162
G32.73−0.16	18:51:38.0	−00:14:50.28	0.156	G337.94−0.06	16:39:26.5	−46:50:15.63	0.379
G32.73+0.08	18:50:47.5	−00:08:22.09	0.155	G337.95+0.11	16:38:43.7	−46:43:21.46	0.163
G32.74+0.42	18:49:35.4	+00:01:31.34	0.163	G337.95−0.38	16:40:53.5	−47:02:58.03	0.153
G32.75+0.43	18:49:34.8	+00:02:01.82	0.157	G337.95−0.55	16:41:36.7	−47:09:25.76	0.171
G32.79−0.63	18:53:25.6	−00:24:36.34	0.154	G337.95−0.20	16:40:05.2	−46:55:38.14	0.410
G32.81−0.62	18:53:25.9	−00:23:48.63	0.161	G337.95−0.58	16:41:44.4	−47:10:25.99	0.151
G32.82−0.21	18:51:59.8	−00:11:52.03	0.184	G337.95−0.03	16:39:22.2	−46:48:53.15	0.174
G32.83−0.19	18:51:55.4	−00:10:44.30	0.235	G337.97+0.04	16:39:08.2	−46:44:49.03	0.158
G32.83+0.15	18:50:42.4	−00:01:17.66	0.166	G337.98−0.47	16:41:24.9	−47:04:56.65	0.335
G32.84−0.36	18:52:32.4	−00:14:44.43	0.189	G337.99−0.39	16:41:04.5	−47:01:07.37	0.150
G32.84−0.03	18:51:23.8	−00:05:40.00	0.241	G337.99+0.56	16:36:57.3	−46:23:10.92	0.183
G32.84+0.35	18:50:01.0	+00:05:01.73	0.161	G337.99+0.05	16:39:11.5	−46:43:41.53	0.181
G32.86+0.35	18:50:03.4	+00:05:26.27	0.160	G338.00−0.47	16:41:29.9	−47:04:07.53	0.213
G32.88−0.25	18:52:14.5	−00:09:50.02	0.165	G338.01+0.11	16:38:57.1	−46:40:37.30	0.176
G32.88+0.32	18:50:13.0	+00:06:11.77	0.154	G338.01+0.04	16:39:15.1	−46:43:12.02	0.150
G32.89−0.35	18:52:35.7	−00:11:59.28	0.153	G338.02−0.42	16:41:19.4	−47:01:27.01	0.161
G32.89+0.31	18:50:14.5	+00:06:11.51	0.151	G338.02+0.71	16:36:25.7	−46:16:05.42	0.160
G32.92+0.00	18:51:24.9	−00:00:31.36	0.228	G338.02−0.04	16:39:38.9	−46:45:53.36	0.256
G32.92+0.09	18:51:05.6	+00:02:04.56	0.164	G338.03+0.10	16:39:04.6	−46:39:45.54	0.175
G32.94−0.22	18:52:14.0	−00:05:43.74	0.162	G338.03−0.21	16:40:26.2	−46:52:11.23	0.472
G32.96−0.22	18:52:16.0	−00:04:35.82	0.171	G338.03−0.05	16:39:45.8	−46:45:57.18	0.151
G32.96−0.41	18:52:56.6	−00:09:46.08	0.194	G338.03+0.06	16:39:17.2	−46:41:33.83	0.181
G32.96+0.02	18:51:25.9	+00:01:51.10	0.199	G338.03−0.10	16:40:00.1	−46:47:53.61	0.197
G32.97−0.41	18:52:59.0	−00:09:18.35	0.156	G338.04−0.16	16:40:15.4	−46:49:33.53	0.202
G32.97−0.10	18:51:51.1	−00:00:30.14	0.152	G338.05+0.09	16:39:13.2	−46:39:28.40	0.257
G32.97−0.08	18:51:48.1	−00:00:02.86	0.150	G338.05−0.58	16:42:08.8	−47:05:51.43	0.157
G32.98−0.10	18:51:52.2	+00:00:06.91	0.172	G338.05+0.06	16:39:21.7	−46:40:32.98	0.166
G32.99−0.70	18:54:01.2	−00:15:53.09	0.164	G338.06+0.69	16:36:37.5	−46:14:55.61	0.180
G33.01+0.10	18:51:13.6	+00:06:49.83	0.160	G338.06+0.72	16:36:31.4	−46:13:41.90	0.153

Table A.1. continued.

IRDC name	R.A. ($^{h}:^{m}:^{s}$) (J2000)	Decl. ($^{\circ}:':''$) (J2000)	$C_{24\mu m}$	IRDC name	R.A. ($^{h}:^{m}:^{s}$) (J2000)	Decl. ($^{\circ}:':''$) (J2000)	$C_{24\mu m}$
G33.03−0.08	18:51:54.4	+00:02:42.00	0.350	G338.06−0.46	16:41:40.3	−47:00:56.54	0.157
G33.03+0.05	18:51:26.5	+00:06:29.31	0.184	G338.07−0.02	16:39:44.8	−46:43:07.75	0.153
G33.03−0.41	18:53:04.3	−00:05:52.72	0.175	G338.07+0.11	16:39:11.9	−46:38:00.51	0.155
G33.05−0.29	18:52:41.8	−00:01:51.80	0.160	G338.07−0.15	16:40:19.7	−46:48:13.30	0.157
G33.08−0.52	18:53:34.3	−00:06:12.38	0.152	G338.07+0.05	16:39:28.6	−46:40:25.58	0.235
G33.09−0.53	18:53:35.7	−00:06:05.90	0.158	G338.07−0.16	16:40:23.2	−46:48:35.65	0.177
G33.10−0.01	18:51:46.1	+00:08:33.95	0.265	G338.07−0.47	16:41:43.9	−47:00:45.51	0.178
G33.10+0.01	18:51:42.9	+00:09:11.36	0.157	G338.08+0.77	16:36:24.4	−46:10:41.34	0.156
G33.10−0.54	18:53:40.7	−00:05:41.52	0.157	G338.09−0.07	16:40:03.3	−46:44:10.93	0.162
G33.10−0.06	18:51:58.0	+00:07:31.86	0.152	G338.09−0.44	16:41:43.1	−46:58:50.62	0.353
G33.10−0.05	18:51:56.5	+00:07:45.46	0.157	G338.09+0.17	16:39:01.6	−46:34:15.41	0.153
G33.11−0.05	18:51:55.7	+00:08:25.86	0.156	G338.10−0.30	16:41:05.6	−46:52:47.20	0.150
G33.14+0.05	18:51:37.8	+00:12:51.22	0.211	G338.10−0.11	16:40:16.5	−46:45:18.73	0.295
G33.17+0.02	18:51:48.8	+00:13:08.68	0.162	G338.11−0.05	16:40:02.3	−46:42:28.86	0.181
G33.17−0.04	18:52:00.0	+00:11:43.40	0.206	G338.11−0.02	16:39:56.3	−46:41:17.06	0.259
G33.17−0.16	18:52:27.1	+00:08:17.78	0.169	G338.12+0.61	16:37:15.3	−46:15:15.25	0.167
G33.19−0.08	18:52:11.2	+00:11:43.64	0.334	G338.13−0.12	16:40:24.5	−46:44:16.91	0.181
G33.19−0.52	18:53:45.3	−00:00:10.36	0.181	G338.13−0.38	16:41:33.8	−46:54:41.76	0.150
G33.20−0.18	18:52:32.8	+00:09:15.75	0.151	G338.14+0.59	16:37:23.4	−46:15:17.41	0.156
G33.20−0.17	18:52:31.0	+00:09:46.17	0.153	G338.15+0.61	16:37:21.6	−46:13:59.49	0.169
G33.22−0.42	18:53:27.1	+00:03:37.09	0.171	G338.16−0.02	16:40:07.7	−46:38:56.69	0.203
G33.22−0.21	18:52:41.5	+00:09:41.27	0.151	G338.18+0.37	16:38:30.6	−46:22:22.71	0.155
G33.22−0.21	18:52:43.3	+00:09:28.76	0.169	G338.18+0.64	16:37:21.1	−46:11:29.13	0.170
G33.23−0.41	18:53:27.3	+00:04:52.76	0.152	G338.18+0.09	16:39:44.7	−46:33:34.11	0.151
G33.24+0.03	18:51:52.7	+00:17:14.30	0.170	G338.19+0.17	16:39:24.2	−46:30:00.57	0.156
G33.24+0.27	18:51:01.6	+00:23:48.04	0.214	G338.19−0.46	16:42:10.4	−46:55:04.09	0.158
G33.29−0.37	18:53:25.5	+00:08:54.36	0.163	G338.20+0.12	16:39:40.3	−46:31:28.47	0.164
G33.32−0.19	18:52:50.2	+00:15:41.68	0.185	G338.20+0.14	16:39:35.2	−46:30:40.17	0.185
G33.33−0.53	18:54:02.7	+00:07:03.99	0.200	G338.21−0.46	16:42:14.7	−46:54:30.40	0.154
G33.36−0.01	18:52:14.3	+00:22:44.00	0.211	G338.21−0.09	16:40:35.2	−46:39:25.78	0.180
G33.36−0.56	18:54:13.7	+00:07:37.95	0.181	G338.21+0.36	16:38:38.5	−46:21:33.14	0.154
G33.37−0.58	18:54:18.0	+00:07:17.00	0.160	G338.21−0.50	16:42:23.4	−46:55:38.80	0.171
G33.38−0.56	18:54:16.2	+00:08:38.74	0.192	G338.21−0.12	16:40:43.5	−46:40:31.09	0.255
G33.40−0.07	18:52:33.2	+00:22:57.17	0.220	G338.21−0.74	16:43:29.2	−47:04:57.74	0.161
G33.42−0.69	18:54:45.5	+00:07:04.67	0.175	G338.22−0.46	16:42:15.2	−46:53:50.20	0.151
G33.42+0.13	18:51:52.6	+00:29:31.09	0.208	G338.22+0.12	16:39:46.2	−46:30:35.94	0.185
G33.43−0.14	18:52:50.5	+00:22:45.59	0.199	G338.23−0.08	16:40:37.6	−46:38:09.93	0.245
G33.45−0.08	18:52:40.1	+00:25:31.79	0.221	G338.23+0.29	16:39:02.3	−46:23:33.54	0.182
G33.45−0.05	18:52:33.4	+00:26:26.71	0.239	G338.23−0.33	16:41:46.1	−46:48:14.53	0.192
G33.56−0.05	18:52:45.4	+00:32:29.08	0.332	G338.24+0.26	16:39:12.6	−46:24:27.89	0.295
G33.57+0.03	18:52:29.7	+00:34:54.91	0.239	G338.24−0.38	16:41:59.2	−46:49:33.74	0.165
G33.60+0.04	18:52:31.3	+00:36:31.17	0.175	G338.24−0.02	16:40:26.3	−46:35:29.46	0.161
G33.61−0.07	18:52:55.0	+00:34:18.27	0.151	G338.24−0.01	16:40:23.5	−46:34:59.22	0.162
G33.61+0.03	18:52:34.4	+00:37:05.71	0.150	G338.24−0.45	16:42:18.3	−46:52:17.83	0.210
G33.64−0.05	18:52:55.1	+00:36:12.59	0.273	G338.25+0.19	16:39:32.4	−46:26:46.48	0.182
G33.67−0.03	18:52:53.3	+00:38:22.78	0.184	G338.25−0.16	16:41:02.9	−46:40:33.00	0.153
G33.67−0.04	18:52:55.7	+00:38:24.03	0.175	G338.25+0.08	16:40:02.1	−46:31:08.06	0.150
G33.68−0.73	18:55:23.1	+00:20:11.13	0.160	G338.25+0.74	16:37:10.1	−46:04:20.58	0.151

Table A.1. continued.

IRDC name	R.A. ($^{h}:^{m}:^{s}$) (J2000)	Decl. ($^{\circ}:':''$) (J2000)	$C_{24\mu m}$	IRDC name	R.A. ($^{h}:^{m}:^{s}$) (J2000)	Decl. ($^{\circ}:':''$) (J2000)	$C_{24\mu m}$
G33.70−0.01	18:52:52.5	+00:40:48.79	0.261	G338.26−0.43	16:42:16.6	−46:50:44.77	0.251
G33.71−0.03	18:52:58.5	+00:40:30.51	0.194	G338.26+0.26	16:39:17.3	−46:23:08.47	0.156
G33.72+0.21	18:52:06.8	+00:47:38.68	0.157	G338.26−0.09	16:40:48.6	−46:36:50.90	0.193
G33.73−0.20	18:53:37.1	+00:37:19.06	0.164	G338.27+0.13	16:39:53.2	−46:28:00.13	0.258
G33.74−0.19	18:53:34.8	+00:37:55.45	0.151	G338.28+0.76	16:37:12.6	−46:02:35.55	0.164
G33.74−0.01	18:52:56.7	+00:42:50.44	0.196	G338.29+0.16	16:39:50.0	−46:26:10.36	0.238
G33.74−0.13	18:53:23.6	+00:39:32.67	0.154	G338.30+0.57	16:38:05.7	−46:08:58.81	0.152
G33.75+0.26	18:52:00.8	+00:50:33.84	0.226	G338.30−0.47	16:42:39.8	−46:50:23.61	0.186
G33.76−0.00	18:52:57.7	+00:44:26.06	0.195	G338.31−0.52	16:42:52.0	−46:52:02.80	0.185
G33.77+0.26	18:52:02.8	+00:51:40.10	0.168	G338.31+0.09	16:40:13.9	−46:27:53.44	0.609
G33.77+0.22	18:52:11.5	+00:50:37.49	0.153	G338.31−0.41	16:42:24.9	−46:47:28.41	0.226
G33.79+0.10	18:52:39.3	+00:48:14.15	0.165	G338.31−0.30	16:41:56.8	−46:43:15.70	0.169
G33.81+0.20	18:52:19.4	+00:52:10.21	0.158	G338.31+0.06	16:40:20.8	−46:28:38.42	0.151
G33.81+0.19	18:52:21.7	+00:52:15.24	0.163	G338.32−0.17	16:41:23.4	−46:37:38.83	0.262
G33.81+0.01	18:53:00.0	+00:47:25.50	0.176	G338.32+0.06	16:40:23.1	−46:28:27.72	0.177
G33.82−0.22	18:53:50.3	+00:41:05.98	0.242	G338.32−0.11	16:41:08.5	−46:35:08.83	0.172
G33.88−0.07	18:53:24.2	+00:48:58.54	0.161	G338.33+0.30	16:39:22.8	−46:18:30.59	0.168
G33.91+0.17	18:52:37.0	+00:56:42.96	0.220	G338.33+0.29	16:39:27.0	−46:18:52.58	0.176
G33.93−0.30	18:54:18.8	+00:45:04.79	0.194	G338.33−0.35	16:42:14.6	−46:44:18.28	0.194
G33.94+0.01	18:53:15.2	+00:54:16.15	0.157	G338.33+0.60	16:38:05.3	−46:06:09.03	0.177
G33.96−0.32	18:54:27.2	+00:46:16.95	0.155	G338.33−0.40	16:42:28.5	−46:46:19.77	0.215
G33.98−0.28	18:54:19.8	+00:48:14.06	0.209	G338.34+0.26	16:39:37.0	−46:19:34.43	0.221
G33.99−0.30	18:54:26.4	+00:48:17.81	0.269	G338.34−0.37	16:42:21.7	−46:44:30.34	0.156
G33.99−0.09	18:53:42.0	+00:54:15.03	0.161	G338.34+0.30	16:39:25.6	−46:17:43.53	0.162
G34.02−0.33	18:54:36.6	+00:49:02.05	0.207	G338.35+0.62	16:38:05.8	−46:05:09.22	0.213
G34.11+0.19	18:52:53.2	+01:07:57.82	0.153	G338.35−0.36	16:42:20.4	−46:44:03.49	0.159
G34.13+0.07	18:53:22.6	+01:05:35.84	0.289	G338.35+0.29	16:39:29.9	−46:18:00.00	0.156
G34.17+0.09	18:53:22.5	+01:08:16.94	0.152	G338.35+0.13	16:40:12.6	−46:24:12.54	0.221
G34.17+0.11	18:53:18.2	+01:09:19.55	0.171	G338.35−0.05	16:40:58.9	−46:31:15.90	0.213
G34.18+0.08	18:53:25.6	+01:08:31.70	0.171	G338.37−0.57	16:43:19.1	−46:51:10.62	0.164
G34.22+0.20	18:53:03.7	+01:14:30.51	0.164	G338.37−0.82	16:44:27.1	−47:01:07.11	0.163
G34.22+0.19	18:53:07.9	+01:14:05.46	0.164	G338.37−0.40	16:42:35.6	−46:44:12.72	0.194
G34.23+0.22	18:53:01.3	+01:15:19.42	0.173	G338.38−0.23	16:41:54.6	−46:37:14.65	0.178
G34.23+0.94	18:50:27.1	+01:35:05.96	0.248	G338.39+0.16	16:40:11.9	−46:21:34.82	0.860
G34.25+0.20	18:53:07.0	+01:16:06.81	0.171	G338.39−0.05	16:41:07.6	−46:29:41.68	0.290
G34.31−0.89	18:57:07.6	+00:49:19.45	0.153	G338.40−0.07	16:41:15.9	−46:30:21.42	0.152
G34.31−0.80	18:56:48.7	+00:51:51.59	0.161	G338.40−0.67	16:43:52.3	−46:53:40.88	0.231
G34.35−0.72	18:56:35.1	+00:55:45.42	0.227	G338.40+0.26	16:39:50.6	−46:17:03.34	0.155
G34.35−0.48	18:55:43.7	+01:02:50.53	0.154	G338.41+0.14	16:40:24.7	−46:21:17.79	0.620
G34.35−0.91	18:57:17.3	+00:50:55.57	0.154	G338.42−0.17	16:41:46.1	−46:33:08.47	0.179
G34.38−0.66	18:56:24.9	+00:59:12.56	0.185	G338.42+0.46	16:39:02.0	−46:07:55.08	0.165
G34.38−0.37	18:55:23.5	+01:07:06.84	0.161	G338.42+0.26	16:39:55.8	−46:15:57.58	0.317
G34.38+0.21	18:53:20.3	+01:23:01.14	0.231	G338.43−0.68	16:44:02.6	−46:52:44.86	0.196
G34.42−0.73	18:56:45.2	+00:59:30.80	0.164	G338.44+0.04	16:40:55.3	−46:24:11.88	0.339
G34.43+0.02	18:54:06.0	+01:20:19.48	0.153	G338.44+0.30	16:39:47.3	−46:13:29.95	0.166
G34.44+0.24	18:53:19.9	+01:26:52.33	0.192	G338.44−0.71	16:44:13.8	−46:53:32.23	0.228
G34.44−0.73	18:56:48.0	+01:00:34.60	0.153	G338.44+0.01	16:41:05.8	−46:25:09.27	0.418
G34.45−0.75	18:56:51.3	+01:00:28.95	0.159	G338.45+0.05	16:40:55.4	−46:23:24.32	0.156

Table A.1. continued.

IRDC name	R.A. ($^{h}:^{m}:^{s}$) (J2000)	Decl. ($^{\circ}:':''$) (J2000)	$C_{24\mu m}$	IRDC name	R.A. ($^{h}:^{m}:^{s}$) (J2000)	Decl. ($^{\circ}:':''$) (J2000)	$C_{24\mu m}$
G34.45+0.26	18:53:18.2	+01:28:12.36	0.196	G338.45+0.28	16:39:54.4	−46:13:56.67	0.172
G34.46+0.24	18:53:21.5	+01:28:04.51	0.156	G338.52−0.77	16:44:47.4	−46:52:33.51	0.154
G34.47+0.25	18:53:21.4	+01:28:48.10	0.164	G338.52+0.59	16:38:50.2	−45:58:26.52	0.193
G34.49−0.57	18:56:19.3	+01:07:20.19	0.159	G338.52−0.13	16:41:59.6	−46:27:01.99	0.182
G34.49+0.56	18:52:17.8	+01:38:34.43	0.156	G338.52−0.01	16:41:29.2	−46:22:20.95	0.183
G34.51+0.55	18:52:21.7	+01:39:36.35	0.188	G338.53+0.39	16:39:44.2	−46:05:52.84	0.157
G34.57+0.94	18:51:04.2	+01:53:12.80	0.431	G338.53+0.70	16:38:26.4	−45:53:42.15	0.158
G34.58+0.49	18:52:41.1	+01:41:15.36	0.150	G338.53+0.09	16:41:03.0	−46:17:49.78	0.274
G34.59−0.14	18:54:57.5	+01:24:57.63	0.180	G338.53+0.16	16:40:45.6	−46:14:50.54	0.289
G34.59−0.17	18:55:03.9	+01:24:11.98	0.183	G338.54+0.05	16:41:17.8	−46:19:15.04	0.248
G34.61−0.14	18:55:00.9	+01:25:43.70	0.166	G338.54−0.18	16:42:17.3	−46:27:55.77	0.217
G34.62−0.90	18:57:43.9	+01:05:21.11	0.160	G338.54+0.24	16:40:27.4	−46:11:11.02	0.184
G34.64−0.05	18:54:44.4	+01:29:43.31	0.156	G338.54−0.08	16:41:52.3	−46:24:07.12	0.164
G34.64+0.10	18:54:12.2	+01:34:03.28	0.158	G338.55+0.01	16:41:29.3	−46:20:28.71	0.220
G34.66−0.57	18:56:36.9	+01:16:38.25	0.156	G338.55+0.48	16:39:27.6	−46:01:49.34	0.169
G34.69+0.60	18:52:30.4	+01:50:33.71	0.160	G338.55+0.26	16:40:24.0	−46:10:20.92	0.198
G34.70+0.58	18:52:35.3	+01:50:27.94	0.158	G338.55−0.07	16:41:50.1	−46:23:21.77	0.168
G34.71+0.00	18:54:39.4	+01:34:52.10	0.171	G338.55+0.11	16:41:03.4	−46:16:07.62	0.356
G34.71−0.84	18:57:40.2	+01:11:47.36	0.186	G338.55+0.21	16:40:37.9	−46:12:01.88	0.257
G34.72−0.62	18:56:54.7	+01:18:15.50	0.166	G338.56+0.55	16:39:09.3	−45:58:15.54	0.186
G34.73−0.56	18:56:43.8	+01:20:41.16	0.187	G338.56+0.16	16:40:51.8	−46:13:53.94	0.158
G34.73−0.63	18:56:57.4	+01:18:57.22	0.245	G338.57+0.19	16:40:45.7	−46:12:18.07	0.175
G34.74−0.13	18:55:10.8	+01:32:58.67	0.281	G338.57+0.13	16:41:02.6	−46:14:48.09	0.228
G34.76+0.36	18:53:29.0	+01:47:37.38	0.153	G338.57+0.32	16:40:12.8	−46:07:09.41	0.165
G34.76+0.35	18:53:31.4	+01:47:25.23	0.157	G338.57+0.47	16:39:33.5	−46:00:56.51	0.159
G34.77+0.34	18:53:34.9	+01:47:09.38	0.171	G338.57+0.11	16:41:09.0	−46:15:21.12	0.152
G34.77−0.73	18:57:22.8	+01:18:01.04	0.151	G338.57+0.11	16:41:08.9	−46:15:10.55	0.162
G34.77−0.55	18:56:46.0	+01:23:13.52	0.292	G338.58+0.29	16:40:23.5	−46:07:39.03	0.303
G34.78−0.81	18:57:40.7	+01:16:20.85	0.181	G338.58−0.45	16:43:37.0	−46:36:48.60	0.175
G34.81−0.94	18:58:13.2	+01:14:44.88	0.157	G338.59+0.07	16:41:22.9	−46:15:43.62	0.275
G34.84+0.43	18:53:23.5	+01:53:47.60	0.199	G338.59+0.48	16:39:36.4	−45:59:20.45	0.155
G34.85+0.32	18:53:47.2	+01:51:15.82	0.225	G338.60+0.21	16:40:48.3	−46:10:14.97	0.222
G34.86−0.59	18:57:02.2	+01:26:50.85	0.153	G338.60+0.12	16:41:11.7	−46:13:33.89	0.241
G34.88−0.26	18:55:54.7	+01:36:50.65	0.157	G338.60+0.56	16:39:17.1	−45:55:52.85	0.161
G34.89−0.15	18:55:32.2	+01:40:50.48	0.166	G338.60+0.46	16:39:43.6	−45:59:51.97	0.170
G34.90−0.43	18:56:33.8	+01:33:20.66	0.179	G338.60−0.73	16:44:57.5	−46:47:05.02	0.177
G34.91+0.94	18:51:41.8	+02:11:28.79	0.700	G338.60+0.32	16:40:20.3	−46:05:17.93	0.207
G34.91+0.14	18:54:34.0	+01:49:26.99	0.266	G338.61+0.04	16:41:33.2	−46:16:16.98	0.152
G34.93+0.44	18:53:29.8	+01:58:33.14	0.161	G338.61+0.27	16:40:35.5	−46:07:22.12	0.206
G34.94+0.17	18:54:30.3	+01:51:34.81	0.152	G338.61+0.37	16:40:10.7	−46:03:19.03	0.171
G34.94−0.37	18:56:24.0	+01:37:05.12	0.160	G338.61−0.75	16:45:03.3	−46:47:19.41	0.161
G34.94−0.32	18:56:14.0	+01:38:25.90	0.151	G338.61+0.45	16:39:50.9	−45:59:56.67	0.197
G35.03−0.13	18:55:42.4	+01:48:22.73	0.159	G338.62+0.77	16:38:28.2	−45:47:03.41	0.168
G35.05+0.08	18:55:00.0	+01:55:22.71	0.207	G338.62+0.66	16:38:56.8	−45:50:54.68	0.205
G35.05−0.83	18:58:15.9	+01:30:36.08	0.175	G338.62+0.24	16:40:47.5	−46:07:49.86	0.234
G35.08+0.00	18:55:20.4	+01:54:29.36	0.192	G338.63−0.89	16:45:45.5	−46:52:14.09	0.154
G35.08−0.36	18:56:38.6	+01:44:28.58	0.201	G338.63−0.45	16:43:47.8	−46:34:50.99	0.294
G35.08−0.84	18:58:19.9	+01:31:39.92	0.164	G338.63+0.46	16:39:52.2	−45:58:47.55	0.170

Table A.1. continued.

IRDC name	R.A. ($^{h}:^{m}:^{s}$) (J2000)	Decl. ($^{\circ}:':''$) (J2000)	$C_{24\mu m}$	IRDC name	R.A. ($^{h}:^{m}:^{s}$) (J2000)	Decl. ($^{\circ}:':''$) (J2000)	$C_{24\mu m}$
G35.08−0.83	18:58:18.1	+01:32:21.08	0.153	G338.64+0.34	16:40:24.7	−46:02:51.49	0.243
G35.09−0.29	18:56:25.3	+01:47:22.68	0.194	G338.64+0.70	16:38:52.6	−45:48:29.06	0.176
G35.11−0.81	18:58:16.7	+01:34:15.39	0.225	G338.65+0.31	16:40:32.7	−46:03:41.21	0.167
G35.11−0.21	18:56:09.0	+01:50:47.93	0.154	G338.65+0.23	16:40:53.7	−46:06:50.34	0.152
G35.12−0.37	18:56:44.0	+01:46:33.18	0.248	G338.66+0.46	16:39:56.6	−45:57:20.29	0.191
G35.12−0.83	18:58:23.6	+01:34:19.32	0.153	G338.67−0.15	16:42:37.5	−46:21:16.33	0.163
G35.12+0.88	18:52:17.5	+02:21:14.74	0.163	G338.67+0.49	16:39:52.0	−45:55:19.80	0.163
G35.13+0.34	18:54:14.7	+02:06:17.02	0.197	G338.68+0.16	16:41:18.2	−46:08:24.66	0.275
G35.13−0.01	18:55:28.5	+01:57:06.16	0.233	G338.68−0.36	16:43:36.3	−46:29:03.12	0.207
G35.14−0.85	18:58:29.7	+01:34:41.81	0.164	G338.68+0.44	16:40:07.2	−45:57:10.69	0.210
G35.14−0.41	18:56:54.9	+01:46:52.79	0.157	G338.68−0.38	16:43:42.4	−46:29:37.08	0.153
G35.14−0.84	18:58:27.3	+01:35:07.18	0.177	G338.69−0.06	16:42:18.9	−46:16:46.94	0.183
G35.14−0.05	18:55:39.4	+01:56:39.11	0.190	G338.69−0.79	16:45:32.2	−46:45:23.06	0.238
G35.14+0.34	18:54:15.6	+02:07:23.93	0.165	G338.69−0.46	16:44:04.3	−46:32:20.01	0.212
G35.15−0.01	18:55:30.8	+01:58:08.95	0.163	G338.69−0.05	16:42:18.1	−46:16:10.43	0.159
G35.16+0.93	18:52:11.0	+02:24:24.80	0.190	G338.70+0.57	16:39:36.8	−45:51:06.65	0.297
G35.17−0.71	18:58:03.7	+01:40:11.15	0.175	G338.71−0.90	16:46:05.2	−46:48:32.91	0.164
G35.20−0.09	18:55:53.5	+01:58:51.45	0.161	G338.72−0.05	16:42:24.2	−46:15:07.81	0.150
G35.21−0.78	18:58:22.0	+01:40:25.72	0.217	G338.72+0.69	16:39:11.3	−45:45:19.55	0.170
G35.22−0.17	18:56:13.7	+01:57:31.12	0.170	G338.72+0.61	16:39:34.6	−45:48:37.45	0.178
G35.23+0.94	18:52:18.0	+02:28:33.96	0.190	G338.73−0.47	16:44:16.0	−46:30:50.11	0.286
G35.24−0.80	18:58:29.6	+01:41:06.25	0.217	G338.73+0.70	16:39:12.7	−45:44:23.91	0.237
G35.25+0.19	18:54:59.8	+02:09:00.22	0.152	G338.74−0.33	16:43:39.9	−46:25:04.91	0.265
G35.26−0.28	18:56:42.0	+01:56:45.13	0.152	G338.74−0.30	16:43:32.7	−46:23:40.00	0.153
G35.27−0.37	18:57:01.7	+01:54:44.62	0.170	G338.75+0.69	16:39:19.9	−45:44:16.24	0.217
G35.29−0.90	18:58:55.6	+01:41:16.94	0.174	G338.75+0.12	16:41:46.7	−46:06:40.64	0.176
G35.29−0.91	18:58:58.8	+01:41:17.26	0.196	G338.75−0.47	16:44:20.6	−46:29:44.55	0.298
G35.31−0.73	18:58:21.3	+01:46:52.60	0.158	G338.76−0.64	16:45:07.2	−46:36:15.74	0.157
G35.31−0.71	18:58:17.8	+01:47:28.01	0.167	G338.76+0.82	16:38:49.0	−45:38:28.62	0.177
G35.32−0.76	18:58:29.0	+01:46:33.38	0.214	G338.76−0.56	16:44:46.7	−46:32:53.89	0.190
G35.32−0.77	18:58:33.0	+01:46:10.64	0.170	G338.77−0.31	16:43:43.5	−46:23:16.40	0.178
G35.32+0.13	18:55:20.3	+02:11:06.97	0.197	G338.77+0.67	16:39:27.4	−45:44:10.02	0.212
G35.32+0.17	18:55:12.3	+02:12:15.09	0.230	G338.77+0.78	16:39:01.0	−45:39:28.87	0.191
G35.32−0.76	18:58:31.2	+01:46:49.38	0.158	G338.78+0.65	16:39:37.4	−45:44:26.06	0.158
G35.32+0.19	18:55:07.5	+02:12:58.04	0.157	G338.79−0.08	16:42:46.9	−46:12:57.13	0.167
G35.33−0.61	18:57:58.5	+01:51:06.50	0.155	G338.79+0.45	16:40:30.9	−45:51:50.04	0.236
G35.33+0.90	18:52:36.7	+02:32:39.34	0.158	G338.80+0.26	16:41:21.0	−45:59:05.02	0.179
G35.34+0.92	18:52:33.4	+02:33:34.76	0.157	G338.80+0.59	16:39:56.0	−45:45:44.52	0.414
G35.34+0.11	18:55:26.6	+02:11:44.89	0.202	G338.80−0.47	16:44:31.9	−46:27:28.88	0.243
G35.36−0.12	18:56:17.1	+02:06:36.52	0.197	G338.80−0.48	16:44:36.8	−46:28:04.40	0.198
G35.36−0.95	18:59:14.4	+01:43:53.07	0.171	G338.81−0.28	16:43:43.6	−46:20:01.95	0.167
G35.38−0.95	18:59:16.4	+01:44:49.84	0.154	G338.81+0.45	16:40:34.3	−45:51:01.05	0.156
G35.38+0.08	18:55:38.5	+02:12:59.14	0.190	G338.82−0.36	16:44:06.2	−46:22:40.83	0.171
G35.38−0.34	18:57:07.2	+02:01:41.23	0.175	G338.82−0.39	16:44:15.6	−46:24:04.08	0.152
G35.39+0.85	18:52:53.8	+02:34:30.80	0.176	G338.82+0.77	16:39:14.4	−45:37:57.36	0.177
G35.41−0.36	18:57:13.4	+02:02:25.74	0.152	G338.82−0.38	16:44:11.7	−46:23:14.81	0.231
G35.41−0.88	18:59:04.7	+01:48:14.41	0.178	G338.82−0.24	16:43:35.2	−46:17:41.97	0.156
G35.41−0.51	18:57:46.4	+01:58:23.43	0.173	G338.82+0.15	16:41:56.4	−46:02:30.66	0.197

Table A.1. continued.

IRDC name	R.A. ($^{h}:^{m}:^{s}$) (J2000)	Decl. ($^{\circ}:':''$) (J2000)	$C_{24\mu m}$	IRDC name	R.A. ($^{h}:^{m}:^{s}$) (J2000)	Decl. ($^{\circ}:':''$) (J2000)	$C_{24\mu m}$
G35.42−0.50	18:57:45.5	+01:59:11.67	0.165	G338.83+0.48	16:40:30.8	−45:49:08.13	0.207
G35.42+0.07	18:55:45.0	+02:14:52.28	0.163	G338.83+0.45	16:40:38.6	−45:50:03.08	0.273
G35.43+0.14	18:55:30.3	+02:16:56.40	0.315	G338.83−0.46	16:44:35.9	−46:25:56.38	0.172
G35.43−0.36	18:57:16.1	+02:03:36.27	0.171	G338.83+0.35	16:41:04.1	−45:53:55.00	0.238
G35.43−0.05	18:56:11.1	+02:12:07.56	0.175	G338.83+0.71	16:39:33.5	−45:39:34.93	0.182
G35.45−0.06	18:56:15.2	+02:12:27.25	0.162	G338.83−0.56	16:45:03.8	−46:29:44.02	0.237
G35.45+0.27	18:55:04.6	+02:21:44.28	0.156	G338.84−0.23	16:43:38.9	−46:16:22.07	0.168
G35.45+0.07	18:55:47.1	+02:16:34.25	0.151	G338.84−0.45	16:44:37.4	−46:25:04.86	0.167
G35.46+0.07	18:55:48.8	+02:16:42.35	0.197	G338.85+0.68	16:39:43.1	−45:40:04.73	0.217
G35.46−0.04	18:56:11.9	+02:13:52.29	0.196	G338.85−0.62	16:45:22.8	−46:31:17.48	0.163
G35.47−0.31	18:57:11.1	+02:06:51.07	0.356	G338.85−0.43	16:44:34.7	−46:24:05.67	0.152
G35.49+0.08	18:55:48.6	+02:18:54.91	0.151	G338.86−0.48	16:44:48.5	−46:25:16.27	0.329
G35.50−0.28	18:57:07.5	+02:09:29.76	0.265	G338.86−0.63	16:45:28.9	−46:31:09.50	0.189
G35.51+0.04	18:56:00.5	+02:18:35.13	0.168	G338.88+0.45	16:40:50.9	−45:48:16.58	0.200
G35.51−0.06	18:56:22.1	+02:16:05.42	0.151	G338.88−0.64	16:45:36.4	−46:31:02.16	0.214
G35.51+0.03	18:56:02.9	+02:18:37.65	0.155	G338.90+0.46	16:40:53.4	−45:46:35.82	0.177
G35.53+0.07	18:55:55.4	+02:20:29.08	0.188	G338.90+0.19	16:42:02.4	−45:56:59.50	0.160
G35.53+0.14	18:55:41.5	+02:22:20.70	0.200	G338.91+0.42	16:41:04.9	−45:47:55.08	0.169
G35.53−0.26	18:57:07.1	+02:11:39.26	0.308	G338.92+0.44	16:41:00.5	−45:46:33.03	0.157
G35.55−0.42	18:57:41.9	+02:08:07.47	0.170	G338.92+0.77	16:39:37.4	−45:33:39.56	0.186
G35.55−0.67	18:58:34.9	+02:01:27.58	0.158	G338.92−0.63	16:45:41.1	−46:28:47.99	0.240
G35.55−0.58	18:58:17.0	+02:03:55.82	0.175	G338.92+0.21	16:42:02.0	−45:55:55.39	0.156
G35.55−0.05	18:56:23.3	+02:18:41.98	0.321	G338.92+0.55	16:40:34.0	−45:42:07.74	0.242
G35.56−0.16	18:56:47.8	+02:15:45.85	0.233	G338.92−0.43	16:44:49.1	−46:20:24.42	0.336
G35.56−0.14	18:56:44.6	+02:16:22.05	0.153	G338.93−0.23	16:43:58.0	−46:12:18.14	0.212
G35.56−0.14	18:56:44.4	+02:16:32.17	0.156	G338.93−0.03	16:43:06.0	−46:04:23.75	0.219
G35.57−0.93	18:59:32.8	+01:55:10.44	0.191	G338.93+0.45	16:41:01.5	−45:45:21.66	0.216
G35.57−0.20	18:56:57.3	+02:15:13.41	0.185	G338.94+0.00	16:43:00.3	−46:03:03.74	0.216
G35.57−0.67	18:58:38.4	+02:02:24.32	0.156	G338.95+0.71	16:39:58.1	−45:34:29.66	0.221
G35.57−0.90	18:59:26.4	+01:56:19.91	0.193	G338.95+0.54	16:40:44.4	−45:41:20.08	0.277
G35.59+0.15	18:55:44.5	+02:26:12.80	0.165	G338.95−0.44	16:44:58.6	−46:19:29.43	0.187
G35.60−0.23	18:57:07.7	+02:15:56.72	0.161	G338.96−0.42	16:44:54.5	−46:18:23.38	0.154
G35.60+0.02	18:56:14.8	+02:22:59.39	0.291	G338.96−0.24	16:44:09.6	−46:11:33.69	0.176
G35.60−0.25	18:57:12.3	+02:15:41.08	0.360	G338.96+0.65	16:40:18.4	−45:36:17.63	0.237
G35.60+0.12	18:55:52.7	+02:25:56.90	0.228	G338.97−0.65	16:45:59.9	−46:26:56.98	0.239
G35.62+0.05	18:56:09.2	+02:24:40.81	0.256	G338.98−0.33	16:44:35.5	−46:14:04.10	0.156
G35.63−0.07	18:56:36.2	+02:22:30.23	0.368	G338.98−0.37	16:44:46.3	−46:15:36.76	0.176
G35.67+0.19	18:55:45.3	+02:31:16.73	0.150	G338.98+0.64	16:40:25.1	−45:35:35.91	0.185
G35.67−0.17	18:57:02.5	+02:21:27.70	0.175	G338.98−0.35	16:44:42.4	−46:14:41.34	0.152
G35.67−0.18	18:57:05.7	+02:21:24.05	0.151	G338.99+0.35	16:41:39.4	−45:46:52.37	0.181
G35.69−0.17	18:57:05.3	+02:22:41.39	0.179	G338.99+0.46	16:41:12.7	−45:42:34.95	0.177
G35.70−0.07	18:56:44.8	+02:25:56.12	0.171	G338.99−0.39	16:44:54.3	−46:15:57.30	0.150
G35.73−0.88	18:59:40.5	+02:05:28.50	0.197	G338.99+0.38	16:41:35.8	−45:45:39.42	0.216
G35.74−0.89	18:59:44.2	+02:05:12.83	0.153	G339.00+0.33	16:41:49.0	−45:47:36.61	0.221
G35.79−0.14	18:57:08.6	+02:28:43.38	0.192	G339.00−0.79	16:46:42.0	−46:31:26.94	0.156
G35.79−0.64	18:58:56.8	+02:15:00.76	0.152	G339.00+0.35	16:41:44.8	−45:46:31.57	0.161
G35.81−0.18	18:57:18.9	+02:28:45.82	0.184	G339.00+0.56	16:40:49.8	−45:37:56.13	0.330
G35.82−0.19	18:57:22.9	+02:28:47.38	0.160	G339.00−0.68	16:46:13.5	−46:26:41.76	0.155

Table A.1. continued.

IRDC name	R.A. ($^{h}:^{m}:^{s}$) (J2000)	Decl. ($^{\circ}:':''$) (J2000)	$C_{24\mu m}$	IRDC name	R.A. ($^{h}:^{m}:^{s}$) (J2000)	Decl. ($^{\circ}:':''$) (J2000)	$C_{24\mu m}$
G35.83−0.22	18:57:30.9	+02:28:29.38	0.156	G339.00+0.39	16:41:35.3	−45:44:49.07	0.162
G35.85−0.23	18:57:35.0	+02:29:10.61	0.246	G339.00+0.36	16:41:41.1	−45:45:38.78	0.167
G35.85+0.18	18:56:07.7	+02:41:00.31	0.152	G339.01−0.21	16:44:12.2	−46:08:04.88	0.220
G35.95−0.09	18:57:16.8	+02:38:37.06	0.157	G339.02+0.35	16:41:47.5	−45:45:31.27	0.153
G35.98−0.04	18:57:09.0	+02:41:31.77	0.190	G339.02+0.21	16:42:24.1	−45:50:58.29	0.158
G35.98−0.06	18:57:13.2	+02:41:13.62	0.151	G339.02+0.60	16:40:43.9	−45:35:25.15	0.161
G36.01+0.65	18:54:43.1	+03:02:07.54	0.150	G339.02+0.38	16:41:40.1	−45:44:01.22	0.208
G36.02−0.81	18:59:56.6	+02:22:43.81	0.168	G339.03+0.75	16:40:06.9	−45:29:00.56	0.157
G36.07−0.95	19:00:31.5	+02:21:23.88	0.290	G339.03−0.38	16:45:00.0	−46:13:36.85	0.208
G36.10+0.64	18:54:56.8	+03:06:42.24	0.160	G339.03−0.82	16:46:58.0	−46:30:58.50	0.193
G36.11−0.74	18:59:53.5	+02:29:20.84	0.156	G339.03+0.39	16:41:40.1	−45:43:12.80	0.163
G36.23+0.57	18:55:26.8	+03:11:51.31	0.151	G339.04+0.73	16:40:14.4	−45:29:29.18	0.203
G36.26−0.08	18:57:48.4	+02:55:18.85	0.171	G339.05−0.38	16:45:04.7	−46:12:43.14	0.152
G36.33+0.17	18:57:01.0	+03:06:14.90	0.153	G339.05+0.45	16:41:29.8	−45:40:13.72	0.152
G36.35−0.08	18:57:58.5	+03:00:08.06	0.193	G339.06+0.61	16:40:49.7	−45:33:29.73	0.171
G36.38−0.14	18:58:13.6	+03:00:38.05	0.172	G339.06+0.18	16:42:40.6	−45:50:25.83	0.188
G36.40−0.08	18:58:03.6	+03:02:46.02	0.202	G339.06−0.24	16:44:32.6	−46:06:50.98	0.246
G36.41−0.16	18:58:20.6	+03:01:06.22	0.226	G339.07+0.25	16:42:24.5	−45:47:25.32	0.172
G36.42−0.95	19:01:09.9	+02:40:05.98	0.621	G339.07−0.25	16:44:35.8	−46:07:03.81	0.175
G36.45+0.64	18:55:34.0	+03:25:15.22	0.151	G339.08+0.39	16:41:51.8	−45:41:32.72	0.189
G36.45−0.08	18:58:08.9	+03:05:34.01	0.152	G339.09−0.69	16:46:34.8	−46:23:09.55	0.224
G36.45−0.08	18:58:08.6	+03:05:44.09	0.152	G339.09−0.28	16:44:47.7	−46:06:55.26	0.313
G36.45+0.61	18:55:41.1	+03:24:38.08	0.173	G339.11+0.45	16:41:42.8	−45:37:45.65	0.164
G36.66−0.11	18:58:39.3	+03:16:00.25	0.294	G339.11−0.15	16:44:18.4	−46:01:07.96	0.204
G36.67−0.15	18:58:47.0	+03:15:43.40	0.172	G339.11+0.55	16:41:17.8	−45:33:21.86	0.165
G36.69−0.12	18:58:43.1	+03:17:11.89	0.180	G339.12−0.10	16:44:07.6	−45:58:59.99	0.187
G36.74−0.14	18:58:53.6	+03:19:09.63	0.158	G339.12+0.47	16:41:39.1	−45:36:02.27	0.161
G36.75−0.15	18:58:57.1	+03:19:32.39	0.205	G339.14+0.22	16:42:49.0	−45:45:24.84	0.170
G36.81−0.21	18:59:15.2	+03:21:09.30	0.152	G339.14−0.06	16:44:01.7	−45:56:16.92	0.163
G36.87−0.20	18:59:20.5	+03:24:26.00	0.223	G339.14−0.52	16:46:03.5	−46:14:12.62	0.246
G36.89−0.39	19:00:04.4	+03:20:35.43	0.179	G339.14+0.74	16:40:36.2	−45:24:28.92	0.174
G36.90+0.87	18:55:33.8	+03:55:42.84	0.173	G339.15−0.92	16:47:50.1	−46:29:20.09	0.151
G36.90−0.42	19:00:10.4	+03:20:39.18	0.153	G339.15+0.49	16:41:42.1	−45:34:12.08	0.153
G36.92−0.44	19:00:17.2	+03:20:42.66	0.158	G339.16+0.22	16:42:54.9	−45:44:27.43	0.206
G36.92−0.44	19:00:16.2	+03:20:55.84	0.150	G339.17−0.85	16:47:35.8	−46:25:47.22	0.167
G36.93−0.46	19:00:22.4	+03:20:53.81	0.198	G339.17+0.23	16:42:53.6	−45:43:38.77	0.155
G36.93+0.92	18:55:28.1	+03:58:47.38	0.155	G339.17+0.01	16:43:50.4	−45:52:10.31	0.157
G36.94+0.92	18:55:28.4	+03:59:27.98	0.190	G339.18+0.18	16:43:07.1	−45:45:12.70	0.154
G36.96+0.92	18:55:31.1	+03:59:55.95	0.161	G339.18−0.74	16:47:09.3	−46:21:00.33	0.252
G36.96+0.67	18:56:25.3	+03:53:28.86	0.186	G339.20+0.20	16:43:09.8	−45:43:15.51	0.180
G36.97−0.17	18:59:25.0	+03:30:51.99	0.168	G339.21−0.66	16:46:54.3	−46:16:43.44	0.262
G36.98−0.16	18:59:23.4	+03:32:05.51	0.194	G339.21−0.47	16:46:05.2	−46:09:14.06	0.166
G37.01−0.27	18:59:50.0	+03:30:08.51	0.191	G339.21−0.38	16:45:42.5	−46:05:46.91	0.191
G37.08−0.15	18:59:32.7	+03:37:20.73	0.305	G339.21−0.64	16:46:50.0	−46:15:35.03	0.154
G37.09−0.34	19:00:15.3	+03:32:25.23	0.153	G339.23+0.09	16:43:44.2	−45:46:27.91	0.249
G37.10−0.40	19:00:29.2	+03:31:24.24	0.159	G339.23+0.34	16:42:39.9	−45:36:30.05	0.154
G37.10−0.34	19:00:15.3	+03:33:18.82	0.176	G339.23−0.44	16:46:02.6	−46:06:51.92	0.176
G37.11−0.15	18:59:36.1	+03:38:42.24	0.168	G339.23−0.48	16:46:12.0	−46:08:14.12	0.178

Table A.1. continued.

IRDC name	R.A. ($^{h}:^{m}:^{s}$) (J2000)	Decl. ($^{\circ}:':''$) (J2000)	$C_{24\mu m}$	IRDC name	R.A. ($^{h}:^{m}:^{s}$) (J2000)	Decl. ($^{\circ}:':''$) (J2000)	$C_{24\mu m}$
G37.13−0.24	18:59:57.8	+03:37:25.06	0.153	G339.23+0.17	16:43:23.6	−45:42:56.96	0.275
G37.15+0.07	18:58:52.6	+03:46:57.68	0.157	G339.24+0.27	16:42:59.0	−45:38:49.33	0.249
G37.15−0.21	18:59:53.9	+03:39:39.88	0.159	G339.24+0.33	16:42:42.4	−45:36:07.91	0.158
G37.16+0.08	18:58:52.5	+03:48:15.49	0.207	G339.25−0.21	16:45:06.7	−45:57:01.54	0.165
G37.17+0.07	18:58:56.1	+03:47:49.83	0.172	G339.25−0.41	16:45:59.6	−46:04:46.09	0.295
G37.22−0.03	18:59:21.6	+03:48:01.66	0.151	G339.26−0.00	16:44:13.6	−45:48:45.99	0.223
G37.23−0.11	18:59:40.7	+03:46:21.86	0.162	G339.26+0.01	16:44:09.7	−45:48:08.38	0.206
G37.25+0.89	18:56:09.1	+04:14:38.32	0.172	G339.26−0.37	16:45:49.8	−46:02:45.19	0.275
G37.26+0.00	18:59:20.3	+03:51:23.65	0.260	G339.27+0.37	16:42:39.3	−45:33:14.37	0.205
G37.30−0.15	18:59:57.5	+03:48:49.02	0.201	G339.27−0.17	16:45:01.7	−45:54:45.67	0.177
G37.31−0.17	19:00:02.9	+03:48:48.50	0.157	G339.28−0.82	16:47:54.6	−46:19:45.65	0.186
G37.31−0.26	19:00:22.7	+03:46:34.08	0.175	G339.29−0.81	16:47:52.6	−46:18:56.60	0.159
G37.31+0.71	18:56:53.8	+04:13:33.56	0.168	G339.29−0.77	16:47:43.3	−46:17:04.73	0.219
G37.33−0.16	19:00:02.4	+03:50:12.80	0.212	G339.30−0.40	16:46:07.8	−46:02:32.03	0.206
G37.34−0.62	19:01:41.7	+03:38:37.87	0.151	G339.30+0.13	16:43:49.2	−45:41:26.80	0.191
G37.36+0.07	18:59:15.8	+03:58:23.08	0.171	G339.30−0.49	16:46:32.9	−46:05:48.94	0.176
G37.37−0.12	18:59:57.6	+03:53:43.28	0.226	G339.31−0.38	16:46:05.0	−46:00:53.93	0.268
G37.38−0.16	19:00:08.1	+03:52:47.17	0.223	G339.32+0.83	16:40:52.5	−45:13:15.47	0.154
G37.38−0.31	19:00:41.0	+03:49:00.44	0.178	G339.32−0.48	16:46:32.8	−46:04:38.32	0.174
G37.39−0.03	18:59:42.4	+03:57:18.41	0.151	G339.32−0.49	16:46:36.9	−46:05:00.42	0.151
G37.40−0.04	18:59:44.4	+03:57:19.73	0.168	G339.32−0.66	16:47:19.8	−46:11:19.26	0.150
G37.40−0.24	19:00:28.2	+03:51:55.45	0.154	G339.33+0.23	16:43:28.9	−45:36:26.70	0.261
G37.40−0.29	19:00:39.1	+03:50:37.39	0.181	G339.33−0.38	16:46:09.3	−46:00:25.33	0.151
G37.41−0.28	19:00:36.4	+03:51:22.14	0.155	G339.33+0.07	16:44:11.9	−45:42:46.31	0.170
G37.41−0.27	19:00:35.5	+03:51:37.39	0.151	G339.33−0.48	16:46:34.1	−46:03:54.98	0.179
G37.42+0.17	18:59:00.7	+04:04:10.01	0.174	G339.33−0.49	16:46:36.7	−46:04:14.92	0.156
G37.44−0.15	19:00:13.4	+03:56:38.31	0.242	G339.34−0.50	16:46:40.4	−46:04:24.68	0.163
G37.46+0.86	18:56:38.4	+04:25:21.80	0.157	G339.34+0.08	16:44:10.8	−45:41:57.80	0.178
G37.47−0.29	19:00:46.4	+03:54:13.68	0.204	G339.34−0.75	16:47:48.5	−46:14:03.42	0.150
G37.47−0.28	19:00:43.4	+03:54:53.64	0.164	G339.35−0.47	16:46:36.2	−46:02:55.41	0.208
G37.48+0.05	18:59:33.5	+04:04:15.51	0.237	G339.35−0.40	16:46:17.8	−46:00:08.66	0.306
G37.48−0.71	19:02:16.4	+03:43:28.13	0.157	G339.35−0.66	16:47:28.3	−46:10:16.16	0.152
G37.48−0.16	19:00:19.4	+03:58:36.06	0.152	G339.35−0.89	16:48:27.4	−46:18:53.96	0.153
G37.49−0.06	18:59:58.2	+04:01:58.41	0.342	G339.36−0.18	16:45:24.0	−45:50:59.49	0.281
G37.49−0.15	19:00:19.4	+03:59:19.66	0.238	G339.37+0.55	16:42:15.6	−45:21:42.77	0.206
G37.50+0.20	18:59:03.2	+04:09:20.98	0.151	G339.37+0.16	16:43:57.3	−45:37:11.45	0.248
G37.51−0.69	19:02:16.4	+03:45:16.56	0.197	G339.38−0.42	16:46:29.1	−45:59:13.42	0.183
G37.51+0.09	18:59:28.9	+04:06:59.58	0.158	G339.39+0.29	16:43:25.1	−45:31:12.45	0.160
G37.51+0.07	18:59:33.8	+04:06:33.90	0.188	G339.39−0.43	16:46:35.4	−45:59:02.06	0.184
G37.53−0.20	19:00:33.0	+03:59:53.81	0.226	G339.40−0.48	16:46:49.9	−46:01:06.08	0.153
G37.53−0.23	19:00:38.7	+03:59:13.02	0.154	G339.40−0.47	16:46:46.8	−46:00:36.81	0.151
G37.54−0.65	19:02:10.5	+03:48:06.52	0.164	G339.40−0.67	16:47:40.7	−46:08:11.05	0.195
G37.54+0.03	18:59:45.5	+04:06:44.76	0.150	G339.41−0.65	16:47:38.3	−46:07:05.78	0.157
G37.54−0.57	19:01:52.3	+03:50:29.61	0.180	G339.41+0.15	16:44:08.3	−45:35:37.60	0.187
G37.54+0.49	18:58:06.4	+04:19:29.64	0.168	G339.42−0.42	16:46:38.7	−45:57:53.43	0.258
G37.54+0.05	18:59:41.8	+04:07:20.11	0.188	G339.42+0.01	16:44:45.3	−45:40:39.85	0.179
G37.54+0.28	18:58:52.8	+04:13:42.57	0.157	G339.43−0.50	16:47:01.0	−46:00:20.02	0.168
G37.56+0.15	18:59:21.5	+04:11:02.43	0.162	G339.43+0.14	16:44:16.0	−45:35:06.14	0.176

Table A.1. continued.

IRDC name	R.A. ($^{h}:^{m}:^{s}$) (J2000)	Decl. ($^{\circ}:':''$) (J2000)	$C_{24\mu m}$	IRDC name	R.A. ($^{h}:^{m}:^{s}$) (J2000)	Decl. ($^{\circ}:':''$) (J2000)	$C_{24\mu m}$
G37.58−0.03	19:00:01.0	+04:07:09.02	0.153	G339.43+0.68	16:41:58.2	−45:13:58.70	0.180
G37.58+0.23	18:59:07.1	+04:14:07.15	0.155	G339.44−0.51	16:47:06.2	−46:00:20.01	0.166
G37.58−0.07	19:00:10.9	+04:05:58.34	0.226	G339.44+0.01	16:44:49.8	−45:40:00.40	0.174
G37.59−0.17	19:00:32.7	+04:04:12.58	0.154	G339.45−0.85	16:48:38.9	−46:12:44.38	0.151
G37.60−0.69	19:02:26.8	+03:50:15.93	0.151	G339.46−0.92	16:48:59.6	−46:15:23.60	0.184
G37.60−0.03	19:00:05.0	+04:08:32.20	0.160	G339.46−0.50	16:47:08.4	−45:58:57.58	0.171
G37.60+0.01	18:59:57.2	+04:09:32.26	0.164	G339.46−0.54	16:47:19.5	−46:00:07.75	0.162
G37.60−0.72	19:02:33.1	+03:49:36.22	0.151	G339.47+0.22	16:44:05.5	−45:30:18.92	0.153
G37.61−0.05	19:00:09.7	+04:08:05.14	0.160	G339.48+0.22	16:44:05.3	−45:29:57.75	0.152
G37.62+0.23	18:59:10.5	+04:16:26.73	0.182	G339.48−0.49	16:47:10.0	−45:57:25.04	0.285
G37.62−0.49	19:01:44.5	+03:56:55.48	0.164	G339.50+0.74	16:41:54.7	−45:08:25.63	0.160
G37.63−0.66	19:02:22.2	+03:52:24.18	0.154	G339.51−0.86	16:48:54.9	−46:10:32.92	0.165
G37.65+0.26	18:59:07.0	+04:19:13.61	0.160	G339.51+0.70	16:42:08.0	−45:09:22.36	0.185
G37.69+0.19	18:59:26.8	+04:18:57.81	0.169	G339.51−0.87	16:48:59.5	−46:10:55.27	0.163
G37.72+0.00	19:00:11.0	+04:15:46.34	0.201	G339.52−0.12	16:45:42.0	−45:41:16.65	0.171
G37.73−0.02	19:00:17.1	+04:15:46.22	0.154	G339.52−0.01	16:45:14.9	−45:37:07.41	0.172
G37.74−0.26	19:01:09.6	+04:09:40.08	0.159	G339.60−0.33	16:46:55.5	−45:46:10.24	0.164
G37.76+0.19	18:59:34.6	+04:22:45.89	0.161	G339.60+0.23	16:44:28.1	−45:24:00.05	0.160
G37.76−0.67	19:02:37.8	+03:59:15.66	0.152	G339.61−0.45	16:47:29.4	−45:50:07.23	0.160
G37.76−0.07	19:00:31.2	+04:15:44.06	0.177	G339.61+0.02	16:45:25.6	−45:31:37.39	0.165
G37.76+0.20	18:59:32.2	+04:23:26.53	0.159	G339.62+0.30	16:44:16.8	−45:20:22.76	0.152
G37.78−0.07	19:00:32.7	+04:16:37.74	0.217	G339.63−0.79	16:49:03.2	−46:02:11.95	0.156
G37.78−0.15	19:00:48.6	+04:14:40.48	0.150	G339.64−0.14	16:46:16.0	−45:36:31.62	0.210
G37.79−0.58	19:02:22.9	+04:03:39.63	0.174	G339.64−0.10	16:46:05.2	−45:34:51.44	0.173
G37.80−0.57	19:02:21.3	+04:04:09.67	0.160	G339.65+0.11	16:45:10.5	−45:26:30.87	0.157
G37.80−0.28	19:01:19.8	+04:12:27.76	0.179	G339.71+0.10	16:45:29.0	−45:24:23.76	0.181
G37.81−0.58	19:02:25.2	+04:04:17.82	0.180	G339.72−0.56	16:48:22.1	−45:49:11.13	0.162
G37.82−0.22	19:01:09.0	+04:14:38.36	0.217	G339.72+0.26	16:44:50.3	−45:17:34.35	0.168
G37.82−0.18	19:01:02.2	+04:16:06.67	0.156	G339.73+0.21	16:45:04.5	−45:18:53.46	0.163
G37.83−0.27	19:01:21.5	+04:13:41.90	0.180	G339.73+0.25	16:44:54.4	−45:17:06.07	0.184
G37.83+0.13	18:59:55.2	+04:24:49.95	0.158	G339.75+0.21	16:45:08.7	−45:18:18.77	0.191
G37.83+0.22	18:59:37.1	+04:27:37.03	0.179	G339.79−0.33	16:47:37.9	−45:37:23.46	0.201
G37.84+0.78	18:57:37.8	+04:43:21.13	0.178	G339.80−0.59	16:48:48.1	−45:46:48.48	0.154
G37.84−0.07	19:00:40.2	+04:20:10.82	0.331	G339.80+0.08	16:45:54.6	−45:20:41.07	0.162
G37.85+0.12	18:59:59.0	+04:25:44.64	0.160	G339.82+0.20	16:45:24.9	−45:15:16.20	0.197
G37.88−0.16	19:01:01.9	+04:19:50.31	0.279	G339.82+0.22	16:45:20.2	−45:14:29.52	0.162
G37.88−0.08	19:00:45.7	+04:22:07.67	0.199	G339.82+0.72	16:43:13.0	−44:55:02.53	0.194
G37.89−0.29	19:01:31.0	+04:16:57.41	0.271	G339.83+0.06	16:46:06.4	−45:20:13.93	0.163
G37.90+0.02	19:00:27.0	+04:25:55.04	0.161	G339.85+0.06	16:46:09.4	−45:19:30.20	0.157
G37.91−0.27	19:01:30.2	+04:18:36.27	0.207	G339.86−0.31	16:47:48.7	−45:33:29.48	0.181
G37.93−0.08	19:00:51.5	+04:24:55.49	0.153	G339.86−0.39	16:48:09.0	−45:36:17.75	0.308
G37.94−0.09	19:00:54.4	+04:24:35.75	0.165	G339.88−0.39	16:48:12.4	−45:35:27.44	0.377
G37.94−0.00	19:00:36.4	+04:27:31.85	0.170	G339.88−0.42	16:48:23.2	−45:36:37.23	0.218
G37.95−0.26	19:01:33.1	+04:20:55.79	0.165	G339.88−0.57	16:49:02.7	−45:42:16.12	0.259
G37.96−0.07	19:00:53.3	+04:26:13.83	0.196	G339.88+0.19	16:45:43.0	−45:12:33.05	0.159
G37.96−0.39	19:02:01.8	+04:17:39.42	0.167	G339.89−0.50	16:48:46.2	−45:39:09.19	0.172
G38.04+0.08	19:00:28.9	+04:34:44.77	0.202	G339.89+0.64	16:43:49.5	−44:54:33.70	0.194
G38.05+0.69	18:58:19.3	+04:52:12.35	0.150	G339.90+0.92	16:42:39.1	−44:43:29.11	0.159

Table A.1. continued.

IRDC name	R.A. ($^{h}:^{m}:^{s}$) (J2000)	Decl. ($^{\circ}:':''$) (J2000)	$C_{24\mu m}$	IRDC name	R.A. ($^{h}:^{m}:^{s}$) (J2000)	Decl. ($^{\circ}:':''$) (J2000)	$C_{24\mu m}$
G38.05+0.70	18:58:17.3	+04:52:39.49	0.177	G339.90−0.39	16:48:17.9	−45:34:32.99	0.371
G38.12+0.73	18:58:18.2	+04:56:51.05	0.174	G339.91+0.26	16:45:31.5	−45:08:51.07	0.159
G38.14+0.74	18:58:18.5	+04:58:30.84	0.162	G339.91−0.53	16:48:57.8	−45:39:29.72	0.176
G38.19−0.21	19:01:47.2	+04:34:51.27	0.151	G339.92+0.66	16:43:48.4	−44:52:38.91	0.152
G38.19−0.21	19:01:47.0	+04:35:01.37	0.152	G339.92−0.53	16:48:59.7	−45:38:53.35	0.155
G38.20+0.13	19:00:36.1	+04:44:52.62	0.175	G339.93−0.18	16:47:30.5	−45:24:54.13	0.171
G38.20+0.84	18:58:05.6	+05:04:23.66	0.228	G339.94+0.32	16:45:20.8	−45:05:10.96	0.151
G38.21+0.86	18:58:00.1	+05:05:10.31	0.201	G339.94+0.46	16:44:46.6	−44:59:37.43	0.155
G38.22+0.73	18:58:29.2	+05:02:29.13	0.168	G339.95−0.36	16:48:21.3	−45:31:11.82	0.163
G38.22+0.77	18:58:22.7	+05:03:33.42	0.158	G339.95+0.11	16:46:18.0	−45:12:41.73	0.203
G38.23+0.78	18:58:18.6	+05:04:05.83	0.215	G339.96−0.18	16:47:36.6	−45:23:28.82	0.205
G38.24−0.09	19:01:29.0	+04:41:03.45	0.155	G339.96−0.37	16:48:26.1	−45:30:45.00	0.157
G38.34−0.81	19:04:13.2	+04:26:35.83	0.173	G339.96−0.39	16:48:31.7	−45:31:25.18	0.160
G38.35−0.04	19:01:27.9	+04:48:01.24	0.154	G339.97−0.17	16:47:35.3	−45:22:27.56	0.190
G38.35+0.72	18:58:46.6	+05:09:09.31	0.152	G339.97−0.10	16:47:18.9	−45:19:55.78	0.310
G38.36−0.90	19:04:35.7	+04:25:09.77	0.192	G339.98−0.39	16:48:36.3	−45:30:33.00	0.159
G38.38−0.03	19:01:29.1	+04:49:56.56	0.202	G339.99−0.90	16:50:51.4	−45:49:51.38	0.162
G38.39−0.15	19:01:57.9	+04:47:12.48	0.232	G340.00−0.18	16:47:44.9	−45:21:52.15	0.155
G38.42−0.17	19:02:03.9	+04:48:22.28	0.178	G340.00+0.01	16:46:55.2	−45:14:25.61	0.158
G38.45−0.19	19:02:12.5	+04:49:14.18	0.168	G340.01−0.37	16:48:37.2	−45:28:30.13	0.312
G38.45−0.20	19:02:13.7	+04:49:18.67	0.154	G340.01−0.20	16:47:52.3	−45:21:50.98	0.184
G38.46+0.10	19:01:12.7	+04:57:54.73	0.170	G340.01+0.64	16:44:17.5	−44:49:20.16	0.154
G38.57−0.04	19:01:53.1	+04:59:41.24	0.158	G340.02−0.29	16:48:18.1	−45:25:14.18	0.151
G38.57−0.04	19:01:52.5	+04:59:54.71	0.161	G340.02+0.64	16:44:17.4	−44:48:42.38	0.155
G38.61−0.03	19:01:56.3	+05:02:16.63	0.153	G340.02−0.55	16:49:26.2	−45:34:53.85	0.203
G38.62+0.15	19:01:17.6	+05:08:02.22	0.174	G340.02−0.89	16:50:56.0	−45:47:50.22	0.156
G38.64+0.44	19:00:18.7	+05:16:33.75	0.155	G340.03−0.69	16:50:07.3	−45:39:57.96	0.151
G38.74+0.06	19:01:50.9	+05:11:34.36	0.155	G340.04+0.01	16:47:05.0	−45:12:48.24	0.201
G38.82+0.78	18:59:24.1	+05:35:38.14	0.151	G340.04−0.18	16:47:55.3	−45:19:56.15	0.187
G38.83+0.79	18:59:23.3	+05:36:17.14	0.197	G340.05−0.02	16:47:13.7	−45:13:10.73	0.168
G38.84−0.42	19:03:45.0	+05:03:42.14	0.218	G340.05−0.29	16:48:25.3	−45:23:41.63	0.335
G38.84−0.59	19:04:20.5	+04:59:14.32	0.163	G340.06+0.54	16:44:51.1	−44:51:09.18	0.165
G38.84−0.60	19:04:23.8	+04:59:00.41	0.166	G340.07−0.09	16:47:36.6	−45:14:59.07	0.151
G38.85−0.53	19:04:09.5	+05:01:18.61	0.153	G340.07+0.51	16:45:03.9	−44:51:39.30	0.210
G38.85−0.42	19:03:46.5	+05:04:24.08	0.150	G340.09−0.23	16:48:18.2	−45:19:34.54	0.248
G38.85−0.42	19:03:47.2	+05:04:27.30	0.155	G340.10−0.80	16:50:49.1	−45:41:07.74	0.162
G38.86−0.54	19:04:11.2	+05:01:35.02	0.158	G340.10−0.82	16:50:54.6	−45:41:51.26	0.264
G38.90−0.34	19:03:34.9	+05:09:12.42	0.227	G340.10−0.83	16:50:59.1	−45:42:21.47	0.265
G38.91−0.49	19:04:07.3	+05:05:47.55	0.216	G340.10−0.42	16:49:10.0	−45:26:18.61	0.179
G38.91−0.50	19:04:09.9	+05:05:36.79	0.151	G340.10−0.56	16:49:46.2	−45:31:36.84	0.175
G38.92−0.32	19:03:32.0	+05:11:00.44	0.162	G340.12−0.17	16:48:09.6	−45:16:06.76	0.192
G38.93−0.32	19:03:32.5	+05:11:32.72	0.150	G340.12−0.11	16:47:52.1	−45:13:24.97	0.372
G38.94−0.48	19:04:08.1	+05:07:27.73	0.162	G340.12−0.20	16:48:16.7	−45:16:45.56	0.162
G38.95−0.43	19:03:58.6	+05:09:40.38	0.173	G340.13−0.20	16:48:18.5	−45:16:48.15	0.157
G38.96−0.64	19:04:44.3	+05:03:57.56	0.186	G340.13−0.41	16:49:13.8	−45:24:18.85	0.157
G38.97−0.47	19:04:09.7	+05:09:24.29	0.378	G340.13−0.49	16:49:36.9	−45:27:41.57	0.242
G38.98−0.62	19:04:42.4	+05:05:38.87	0.181	G340.14+0.36	16:45:56.1	−44:54:03.90	0.152
G39.29−0.19	19:03:45.5	+05:34:17.61	0.159	G340.15+0.93	16:43:32.6	−44:31:45.55	0.158

Table A.1. continued.

IRDC name	R.A. ($^{h}:^{m}:^{s}$) (J2000)	Decl. ($^{\circ}:':''$) (J2000)	$C_{24\mu m}$	IRDC name	R.A. ($^{h}:^{m}:^{s}$) (J2000)	Decl. ($^{\circ}:':''$) (J2000)	$C_{24\mu m}$
G39.33−0.32	19:04:17.4	+05:32:41.38	0.172	G340.16+0.91	16:43:40.7	−44:32:11.26	0.159
G39.35−0.25	19:04:04.9	+05:35:38.62	0.200	G340.16−0.39	16:49:14.4	−45:22:21.86	0.190
G39.37−0.18	19:03:52.7	+05:38:52.80	0.167	G340.17−0.30	16:48:52.4	−45:18:36.84	0.168
G39.55−0.26	19:04:27.8	+05:45:54.64	0.192	G340.17−0.28	16:48:49.3	−45:17:57.76	0.165
G40.29−0.17	19:05:32.5	+06:28:08.56	0.171	G340.17−0.22	16:48:32.3	−45:15:25.97	0.226
G40.90−0.25	19:06:57.7	+06:58:21.92	0.151	G340.17−0.34	16:49:05.6	−45:20:10.02	0.161
G40.92−0.12	19:06:31.5	+07:03:10.92	0.203	G340.18−0.87	16:51:25.0	−45:40:11.25	0.189
G40.95−0.06	19:06:20.3	+07:06:20.82	0.177	G340.18−0.25	16:48:43.2	−45:16:24.35	0.330
G40.95−0.25	19:07:02.4	+07:01:03.56	0.187	G340.19−0.07	16:47:57.5	−45:08:43.07	0.155
G40.99−0.25	19:07:06.1	+07:03:18.67	0.158	G340.19−0.42	16:49:30.2	−45:22:00.20	0.152
G41.00−0.10	19:06:34.7	+07:07:46.25	0.154	G340.20+0.43	16:45:50.8	−44:48:59.66	0.399
G41.01−0.27	19:07:12.9	+07:03:49.56	0.158	G340.20−0.08	16:48:03.1	−45:08:46.57	0.258
G41.04−0.38	19:07:39.1	+07:02:14.47	0.157	G340.21−0.27	16:48:53.6	−45:15:47.02	0.159
G41.06+0.02	19:06:15.7	+07:14:06.91	0.195	G340.21−0.22	16:48:40.5	−45:13:35.84	0.445
G41.06−0.18	19:07:00.3	+07:08:50.11	0.312	G340.22−0.18	16:48:31.9	−45:11:38.92	0.449
G41.08−0.16	19:06:57.7	+07:10:03.90	0.231	G340.22−0.05	16:48:00.4	−45:06:42.69	0.164
G41.09−0.28	19:07:23.8	+07:07:17.71	0.354	G340.22−0.78	16:51:13.0	−45:34:39.25	0.257
G41.09−0.25	19:07:18.5	+07:08:17.90	0.158	G340.23−0.00	16:47:48.7	−45:04:30.12	0.235
G41.10−0.11	19:06:48.0	+07:12:36.01	0.199	G340.23−0.71	16:50:56.1	−45:31:37.91	0.162
G41.12−0.06	19:06:40.4	+07:14:54.69	0.155	G340.23−0.31	16:49:09.4	−45:16:00.32	0.168
G41.12−0.27	19:07:24.7	+07:09:23.66	0.150	G340.23−0.40	16:49:32.9	−45:19:26.27	0.221
G41.14+0.08	19:06:11.9	+07:20:09.68	0.152	G340.25−0.24	16:48:55.3	−45:12:32.15	0.381
G41.15+0.08	19:06:13.6	+07:20:34.52	0.159	G340.25−0.39	16:49:35.5	−45:18:06.35	0.163
G41.17−0.26	19:07:29.5	+07:12:18.46	0.210	G340.25−0.34	16:49:21.8	−45:16:03.10	0.195
G41.18−0.19	19:07:14.1	+07:14:57.05	0.307	G340.27−0.11	16:48:26.2	−45:06:39.76	0.153
G41.18+0.02	19:06:29.3	+07:20:55.60	0.164	G340.27−0.11	16:48:27.4	−45:06:41.27	0.152
G41.19−0.14	19:07:05.8	+07:16:48.23	0.156	G340.27−0.34	16:49:27.4	−45:15:26.07	0.184
G41.21−0.13	19:07:05.6	+07:17:54.28	0.152	G340.27+0.38	16:46:20.7	−44:47:29.14	0.227
G41.21−0.20	19:07:20.5	+07:16:03.79	0.161	G340.28−0.32	16:49:22.7	−45:14:32.00	0.166
G41.21−0.14	19:07:06.3	+07:17:57.50	0.152	G340.28+0.54	16:45:40.2	−44:41:06.38	0.179
G41.21−0.21	19:07:22.6	+07:15:58.08	0.158	G340.28−0.14	16:48:35.2	−45:07:13.53	0.319
G41.22+0.09	19:06:18.7	+07:25:01.74	0.167	G340.28−0.38	16:49:40.9	−45:16:31.76	0.206
G41.24+0.09	19:06:21.4	+07:25:34.39	0.161	G340.29−0.40	16:49:46.6	−45:16:58.23	0.177
G41.30−0.23	19:07:36.2	+07:19:54.06	0.164	G340.29−0.08	16:48:23.5	−45:04:18.97	0.243
G41.36−0.19	19:07:34.8	+07:24:16.83	0.172	G340.31−0.38	16:49:44.6	−45:15:10.43	0.221
G41.52+0.25	19:06:18.4	+07:44:47.63	0.151	G340.32−0.44	16:50:01.4	−45:17:09.88	0.158
G41.52+0.25	19:06:17.4	+07:45:15.07	0.153	G340.32−0.40	16:49:52.4	−45:15:40.78	0.235
G41.83−0.76	19:10:29.7	+07:33:26.60	0.168	G340.32−0.79	16:51:35.4	−45:30:27.03	0.160
G41.97+0.53	19:06:08.2	+08:16:53.51	0.165	G340.32−0.11	16:48:37.4	−45:04:19.36	0.167
G41.99+0.53	19:06:08.5	+08:17:52.09	0.150	G340.33−0.24	16:49:12.3	−45:08:48.61	0.286
G42.01−0.49	19:09:50.9	+07:50:54.97	0.159	G340.34−0.08	16:48:35.1	−45:02:12.66	0.156
G42.03−0.60	19:10:18.7	+07:48:57.92	0.161	G340.35−0.30	16:49:33.6	−45:10:30.08	0.251
G42.14−0.58	19:10:25.9	+07:54:59.45	0.163	G340.35−0.07	16:48:34.2	−45:01:28.98	0.174
G42.16−0.67	19:10:45.6	+07:53:40.89	0.154	G340.35−0.10	16:48:41.3	−45:02:31.92	0.184
G42.16−0.62	19:10:37.7	+07:55:18.42	0.248	G340.35−0.44	16:50:09.9	−45:15:22.28	0.194
G42.26−0.55	19:10:32.9	+08:02:09.74	0.226	G340.37−0.09	16:48:44.1	−45:01:30.42	0.179
G42.27−0.55	19:10:32.6	+08:02:57.55	0.151	G340.38−0.61	16:50:59.1	−45:20:51.94	0.163
G42.27−0.54	19:10:31.5	+08:03:19.82	0.185	G340.38−0.28	16:49:34.5	−45:08:18.99	0.270

Table A.1. continued.

IRDC name	R.A. ($^{h}:^{m}:^{s}$) (J2000)	Decl. ($^{\circ}:':''$) (J2000)	$C_{24\mu m}$	IRDC name	R.A. ($^{h}:^{m}:^{s}$) (J2000)	Decl. ($^{\circ}:':''$) (J2000)	$C_{24\mu m}$
G42.47−0.39	19:10:21.9	+08:17:52.46	0.153	G340.38−0.14	16:48:59.3	−45:02:33.87	0.170
G42.55−0.18	19:09:46.2	+08:27:56.65	0.171	G340.39−0.39	16:50:05.7	−45:12:07.77	0.403
G42.64−0.12	19:09:42.3	+08:34:18.42	0.160	G340.39−0.13	16:48:58.8	−45:02:02.33	0.163
G42.76−0.18	19:10:08.9	+08:39:07.34	0.155	G340.39−0.11	16:48:52.6	−45:01:00.36	0.248
G42.83−0.11	19:10:01.1	+08:45:01.15	0.161	G340.40−0.42	16:50:16.5	−45:12:53.35	0.175
G43.14−0.07	19:10:27.4	+09:02:30.93	0.290	G340.40−0.31	16:49:46.7	−45:08:20.68	0.165
G43.17−0.03	19:10:22.1	+09:05:02.21	0.877	G340.42−0.33	16:49:55.5	−45:08:15.54	0.271
G43.18−0.03	19:10:23.0	+09:06:03.25	0.458	G340.44−0.60	16:51:12.5	−45:17:39.00	0.163
G43.20−0.10	19:10:41.3	+09:04:58.56	0.228	G340.46−0.21	16:49:34.3	−45:02:03.80	0.152
G43.22−0.10	19:10:42.6	+09:05:48.44	0.165	G340.46−0.23	16:49:38.8	−45:02:40.25	0.161
G43.26−0.13	19:10:54.0	+09:07:15.01	0.212	G340.48−0.58	16:51:16.0	−45:15:19.67	0.166
G44.05+0.39	19:10:32.1	+10:03:48.17	0.155	G340.48−0.33	16:50:09.0	−45:05:14.24	0.167
G44.06+0.39	19:10:31.9	+10:04:32.50	0.153	G340.48−0.56	16:51:10.1	−45:14:10.94	0.154
G44.06+0.05	19:11:46.0	+09:55:02.60	0.157	G340.48−0.53	16:51:03.1	−45:13:01.39	0.168
G44.11−0.04	19:12:10.7	+09:55:17.53	0.167	G340.48−0.79	16:52:10.5	−45:22:46.91	0.160
G44.13+0.46	19:10:24.2	+10:10:12.04	0.151	G340.49−0.77	16:52:08.1	−45:21:57.15	0.155
G44.14+0.22	19:11:18.8	+10:03:52.40	0.155	G340.52−0.84	16:52:30.8	−45:23:07.08	0.154
G44.15+0.22	19:11:20.0	+10:04:22.78	0.150	G340.55−0.14	16:49:37.1	−44:54:51.00	0.208
G44.19+0.03	19:12:03.9	+10:01:14.81	0.176	G340.61+0.07	16:48:51.8	−44:44:10.84	0.155
G44.20+0.05	19:12:02.6	+10:02:26.16	0.152	G340.64−0.15	16:49:56.9	−44:51:13.95	0.152
G44.25+0.16	19:11:42.6	+10:08:09.88	0.215	G340.70−0.10	16:49:55.8	−44:46:31.96	0.167
G44.26+0.34	19:11:05.3	+10:13:16.52	0.152	G340.70−0.92	16:53:31.1	−45:17:36.84	0.230
G44.27−0.09	19:12:38.9	+10:02:24.96	0.153	G340.71−0.25	16:50:39.9	−44:51:50.52	0.176
G44.28−0.09	19:12:39.6	+10:02:28.14	0.153	G340.77−0.12	16:50:17.6	−44:44:18.81	0.242
G44.28−0.10	19:12:41.6	+10:02:20.88	0.150	G340.78−0.84	16:53:29.7	−45:11:14.85	0.154
G44.29+0.48	19:10:37.4	+10:18:50.59	0.184	G340.79−0.89	16:53:42.4	−45:12:37.85	0.237
G44.29−0.09	19:12:42.2	+10:03:08.79	0.221	G340.79−0.84	16:53:30.1	−45:10:34.49	0.160
G44.31+0.01	19:12:21.9	+10:06:44.72	0.177	G340.81−0.92	16:53:55.9	−45:12:45.85	0.200
G44.33−0.02	19:12:30.5	+10:07:35.90	0.162	G340.83−0.22	16:50:56.9	−44:44:45.49	0.184
G44.34+0.12	19:12:02.6	+10:11:33.31	0.180	G340.84−0.13	16:50:35.9	−44:41:26.43	0.209
G44.52−0.74	19:15:28.8	+09:57:07.32	0.155	G340.87−0.25	16:51:11.8	−44:44:23.74	0.203
G44.52−0.79	19:15:39.0	+09:56:00.73	0.185	G340.87−0.11	16:50:37.6	−44:39:14.04	0.172
G44.52−0.74	19:15:28.4	+09:57:28.61	0.150	G340.91−0.68	16:53:13.7	−44:59:05.77	0.150
G44.87−0.45	19:15:04.6	+10:24:12.55	0.154	G340.91−0.92	16:54:17.4	−45:08:15.27	0.151
G45.14−0.47	19:15:41.5	+10:37:48.63	0.185	G340.91−0.07	16:50:35.3	−44:35:42.95	0.179
G45.22+0.00	19:14:07.2	+10:55:19.31	0.152	G340.92−0.28	16:51:30.5	−44:43:02.70	0.171
G45.28−0.91	19:17:31.0	+10:32:37.81	0.154	G340.94−0.36	16:51:58.4	−44:45:22.23	0.166
G45.38−0.00	19:14:25.7	+11:03:22.74	0.223	G340.95−0.32	16:51:47.7	−44:43:20.54	0.186
G45.55+0.14	19:14:13.6	+11:16:31.66	0.159	G340.95−0.28	16:51:37.8	−44:41:52.99	0.243
G45.66+0.04	19:14:50.2	+11:19:38.44	0.166	G340.97−0.36	16:52:05.0	−44:44:02.63	0.154
G45.67−0.28	19:15:59.8	+11:11:04.41	0.158	G340.98−0.35	16:52:03.7	−44:43:26.09	0.173
G45.76−0.21	19:15:53.9	+11:17:51.02	0.173	G340.98−0.11	16:51:02.7	−44:33:55.63	0.182
G45.78−0.34	19:16:24.6	+11:15:14.78	0.228	G340.99−0.12	16:51:06.8	−44:33:48.98	0.188
G45.86+0.29	19:14:16.2	+11:37:03.15	0.174	G341.00−0.35	16:52:06.5	−44:42:27.77	0.151
G45.95+0.08	19:15:14.1	+11:36:16.74	0.151	G341.00−0.31	16:51:56.0	−44:40:48.31	0.240
G45.97+0.03	19:15:26.6	+11:35:47.82	0.151	G341.00−0.10	16:51:02.7	−44:32:40.24	0.153
G46.27−0.25	19:17:00.2	+11:43:56.03	0.179	G341.00−0.13	16:51:10.4	−44:33:39.01	0.200
G46.30−0.62	19:18:25.2	+11:34:45.71	0.152	G341.01−0.10	16:51:04.0	−44:32:22.92	0.150

Table A.1. continued.

IRDC name	R.A. ($^h:^m:^s$) (J2000)	Decl. ($^\circ:':''$) (J2000)	$C_{24\mu m}$	IRDC name	R.A. ($^h:^m:^s$) (J2000)	Decl. ($^\circ:':''$) (J2000)	$C_{24\mu m}$
G46.34−0.28	19:17:15.6	+11:46:53.34	0.150	G341.01−0.51	16:52:50.8	−44:47:27.88	0.151
G46.34−0.28	19:17:15.3	+11:47:03.46	0.150	G341.03+0.81	16:47:14.1	−43:56:09.59	0.187
G46.35−0.28	19:17:17.0	+11:47:16.37	0.150	G341.04−0.33	16:52:08.5	−44:39:38.23	0.200
G46.37−0.08	19:16:36.2	+11:53:41.11	0.175	G341.04−0.12	16:51:14.1	−44:31:31.11	0.308
G46.49−0.13	19:17:01.9	+11:59:02.21	0.160	G341.05−0.22	16:51:44.3	−44:35:04.48	0.155
G47.69−0.40	19:20:18.1	+12:54:48.62	0.199	G341.05−0.16	16:51:28.1	−44:32:23.12	0.179
G47.74−0.38	19:20:17.6	+12:58:14.58	0.172	G341.10+0.87	16:47:14.2	−43:50:43.21	0.154
G48.09−0.80	19:22:31.4	+13:04:41.26	0.176	G341.10+0.85	16:47:18.6	−43:51:20.60	0.178
G48.44−0.70	19:22:48.9	+13:26:18.47	0.155	G341.10−0.35	16:52:29.7	−44:37:35.33	0.166
G48.47+0.08	19:20:03.3	+13:49:25.49	0.169	G341.12−0.28	16:52:14.0	−44:34:15.16	0.154
G48.54−0.07	19:20:44.3	+13:49:24.25	0.152	G341.12+0.10	16:50:37.4	−44:19:32.29	0.170
G48.54−0.80	19:23:23.1	+13:28:47.62	0.152	G341.12+0.80	16:47:37.2	−43:52:17.69	0.172
G48.55+0.25	19:19:35.5	+13:58:33.75	0.159	G341.14−0.43	16:52:56.3	−44:38:50.66	0.283
G48.56−0.81	19:23:26.7	+13:29:40.62	0.159	G341.14−0.12	16:51:37.8	−44:26:42.26	0.156
G48.57+0.18	19:19:52.2	+13:58:18.31	0.208	G341.15+0.95	16:47:05.0	−43:45:24.22	0.164
G48.58−0.61	19:22:47.0	+13:36:06.06	0.162	G341.16−0.22	16:52:06.5	−44:30:04.47	0.168
G48.59−0.50	19:22:22.9	+13:40:02.97	0.210	G341.16−0.27	16:52:22.3	−44:31:38.38	0.228
G48.60−0.60	19:22:46.4	+13:37:13.87	0.168	G341.22−0.29	16:52:36.5	−44:29:49.46	0.244
G48.60−0.33	19:21:48.0	+13:45:18.38	0.166	G341.22+0.90	16:47:31.9	−43:44:07.11	0.208
G48.60−0.63	19:22:52.4	+13:37:01.91	0.165	G341.23−0.42	16:53:14.9	−44:34:28.81	0.179
G48.61−0.70	19:23:10.6	+13:35:12.22	0.215	G341.25−0.31	16:52:48.5	−44:29:11.99	0.186
G48.62+0.12	19:20:10.7	+13:58:41.84	0.151	G341.25−0.27	16:52:38.7	−44:27:25.72	0.157
G48.63+0.16	19:20:03.2	+14:00:35.20	0.160	G341.28+0.18	16:50:49.9	−44:08:48.01	0.219
G48.64−0.22	19:21:27.6	+13:50:13.34	0.153	G341.30−0.25	16:52:45.1	−44:24:32.47	0.236
G48.64−0.79	19:23:31.3	+13:34:25.60	0.156	G341.31+0.33	16:50:19.4	−44:01:47.16	0.175
G48.64+0.14	19:20:08.9	+14:00:50.34	0.220	G341.33+0.16	16:51:06.2	−44:07:16.77	0.154
G48.66−0.29	19:21:46.0	+13:49:12.76	0.305	G341.36+0.29	16:50:36.8	−44:01:03.31	0.152
G48.66+0.02	19:20:38.5	+13:58:21.53	0.152	G341.40+0.25	16:50:58.0	−44:01:04.80	0.201
G48.67−0.01	19:20:46.3	+13:57:46.23	0.178	G341.41+0.26	16:50:57.9	−44:00:04.83	0.159
G48.69−0.10	19:21:07.4	+13:56:11.65	0.153	G341.41+0.24	16:51:04.1	−44:00:40.77	0.175
G48.69−0.01	19:20:48.8	+13:59:00.20	0.193	G341.42+0.96	16:47:59.6	−43:32:18.97	0.162
G48.71−0.73	19:23:27.6	+13:39:17.19	0.163	G341.42+0.26	16:51:00.5	−43:59:37.40	0.173
G48.71−0.19	19:21:29.2	+13:54:39.21	0.182	G341.57−0.28	16:53:50.7	−44:13:04.13	0.155
G48.74+0.21	19:20:05.6	+14:08:04.34	0.176	G341.59+0.24	16:51:40.8	−43:52:20.90	0.153
G48.75−0.10	19:21:15.9	+13:59:30.09	0.203	G341.59+0.23	16:51:44.4	−43:52:38.44	0.180
G48.75−0.28	19:21:54.0	+13:54:36.87	0.172	G341.62+0.22	16:51:51.4	−43:51:50.69	0.178
G48.75−0.01	19:20:56.6	+14:02:12.74	0.161	G341.65−0.31	16:54:17.2	−44:10:29.49	0.214
G48.76+0.01	19:20:52.5	+14:03:16.66	0.157	G341.69+0.10	16:52:36.4	−43:52:55.74	0.159
G48.76−0.44	19:22:30.4	+13:50:43.89	0.191	G341.81+0.33	16:52:05.3	−43:38:49.10	0.267
G48.77−0.40	19:22:21.4	+13:52:12.62	0.174	G341.82+0.47	16:51:28.5	−43:32:50.47	0.165
G48.77−0.29	19:21:58.7	+13:55:13.75	0.255	G341.84+0.32	16:52:12.3	−43:38:03.68	0.154
G48.79−0.15	19:21:29.8	+14:00:00.40	0.187	G341.86−0.21	16:54:32.5	−43:56:54.71	0.167
G48.79−0.45	19:22:34.7	+13:51:49.58	0.159	G341.87+0.46	16:51:43.9	−43:31:13.92	0.154
G48.79−0.12	19:21:23.6	+14:01:15.26	0.202	G341.89+0.39	16:52:06.4	−43:32:35.05	0.218
G48.79−0.38	19:22:20.5	+13:54:02.88	0.199	G341.90−0.19	16:54:37.6	−43:54:24.15	0.183
G48.80−0.45	19:22:37.1	+13:52:00.38	0.190	G341.91−0.28	16:55:01.2	−43:57:15.96	0.151
G48.81−0.53	19:22:54.5	+13:50:47.29	0.158	G341.93−0.28	16:55:04.3	−43:56:16.30	0.165
G48.82−0.12	19:21:26.7	+14:02:28.50	0.151	G341.93+0.31	16:52:34.3	−43:33:58.67	0.193

Table A.1. continued.

IRDC name	R.A. ($^{h}:^{m}:^{s}$) (J2000)	Decl. ($^{\circ}:':''$) (J2000)	$C_{24\mu m}$	IRDC name	R.A. ($^{h}:^{m}:^{s}$) (J2000)	Decl. ($^{\circ}:':''$) (J2000)	$C_{24\mu m}$
G48.83+0.15	19:20:29.1	+14:10:45.35	0.198	G341.94+0.37	16:52:21.3	−43:31:27.89	0.152
G48.83−0.40	19:22:28.4	+13:55:21.30	0.206	G341.94+0.33	16:52:30.8	−43:32:48.27	0.158
G48.83−0.50	19:22:50.6	+13:52:38.95	0.199	G341.94−0.16	16:54:36.1	−43:51:07.26	0.163
G48.83−0.19	19:21:43.7	+14:01:21.15	0.316	G341.94−0.18	16:54:44.1	−43:52:04.04	0.273
G48.85−0.25	19:21:58.1	+14:00:40.72	0.153	G341.95+0.25	16:52:53.4	−43:35:06.57	0.151
G48.86−0.10	19:21:27.3	+14:05:16.22	0.210	G341.96+0.06	16:53:45.1	−43:41:50.78	0.203
G48.86−0.22	19:21:53.6	+14:01:57.98	0.150	G341.98−0.15	16:54:42.8	−43:49:26.37	0.178
G48.86−0.62	19:23:21.6	+13:50:44.91	0.262	G341.99−0.12	16:54:35.8	−43:47:38.30	0.183
G48.87−0.26	19:22:03.0	+14:01:17.91	0.210	G342.00−0.53	16:56:25.1	−44:02:36.42	0.188
G48.87−0.41	19:22:36.9	+13:57:01.34	0.314	G342.00+0.20	16:53:16.5	−43:34:50.60	0.260
G48.87−0.73	19:23:45.7	+13:48:11.02	0.206	G342.01+0.41	16:52:24.4	−43:26:21.19	0.235
G48.88−0.41	19:22:36.1	+13:57:39.79	0.189	G342.02−0.53	16:56:29.3	−44:01:42.50	0.169
G48.88−0.68	19:23:36.9	+13:50:06.98	0.152	G342.03+0.44	16:52:20.6	−43:24:28.17	0.154
G48.89−0.56	19:23:10.4	+13:54:00.90	0.166	G342.03−0.53	16:56:33.4	−44:01:04.27	0.157
G48.89−0.54	19:23:08.1	+13:54:38.90	0.150	G342.03+0.13	16:53:43.5	−43:36:07.26	0.160
G48.90−0.07	19:21:26.4	+14:08:15.29	0.207	G342.04+0.11	16:53:47.6	−43:36:25.85	0.157
G48.90−0.18	19:21:50.1	+14:05:24.02	0.154	G342.08−0.12	16:54:58.0	−43:43:13.49	0.187
G48.91−0.44	19:22:46.9	+13:58:18.90	0.172	G342.10+0.51	16:52:17.0	−43:18:27.15	0.185
G48.92−0.17	19:21:49.5	+14:06:17.69	0.205	G342.10+0.37	16:52:55.0	−43:23:42.68	0.152
G48.92−0.59	19:23:21.0	+13:54:44.19	0.198	G342.11+0.51	16:52:22.5	−43:17:53.93	0.155
G48.92−0.45	19:22:50.8	+13:58:48.47	0.224	G342.12+0.40	16:52:51.2	−43:21:52.40	0.269
G48.93−0.38	19:22:37.3	+14:01:01.96	0.440	G342.13+0.37	16:53:00.9	−43:22:45.64	0.159
G48.93−0.21	19:21:58.7	+14:06:07.92	0.290	G342.13+0.35	16:53:05.2	−43:23:12.95	0.157
G48.93−0.06	19:21:27.7	+14:10:21.09	0.191	G342.15+0.21	16:53:44.5	−43:27:41.53	0.212
G48.94−0.46	19:22:55.9	+13:59:22.07	0.428	G342.15−0.09	16:55:02.3	−43:38:33.46	0.188
G48.95−0.35	19:22:32.9	+14:02:46.97	0.186	G342.16+0.08	16:54:20.9	−43:31:43.35	0.168
G48.95−0.14	19:21:47.1	+14:09:10.26	0.169	G342.17+0.45	16:52:49.3	−43:17:39.34	0.194
G48.96−0.54	19:23:15.6	+13:57:59.51	0.238	G342.17+0.47	16:52:44.7	−43:16:50.24	0.154
G48.96−0.04	19:21:25.0	+14:12:21.32	0.163	G342.19+0.52	16:52:35.4	−43:13:54.02	0.188
G48.97−0.47	19:22:59.7	+14:00:39.79	0.186	G342.20+0.39	16:53:09.1	−43:18:28.27	0.168
G48.97−0.46	19:22:58.4	+14:01:08.71	0.160	G342.20+0.55	16:52:30.0	−43:12:18.23	0.153
G48.97−0.66	19:23:43.3	+13:55:23.07	0.150	G342.23+0.47	16:52:58.0	−43:13:58.17	0.197
G48.98−0.04	19:21:28.5	+14:13:10.06	0.202	G342.24+0.20	16:54:06.2	−43:23:46.30	0.218
G48.99−0.69	19:23:52.3	+13:55:33.35	0.216	G342.25+0.50	16:52:53.3	−43:12:11.79	0.219
G48.99−0.58	19:23:26.9	+13:58:56.24	0.153	G342.25+0.42	16:53:13.3	−43:14:48.44	0.158
G49.00−0.16	19:21:56.0	+14:11:17.94	0.237	G342.26+0.40	16:53:20.5	−43:15:03.01	0.172
G49.00−0.77	19:24:09.1	+13:54:01.89	0.189	G342.27+0.37	16:53:29.0	−43:16:05.33	0.289
G49.01+0.06	19:21:11.1	+14:17:44.11	0.175	G342.27+0.04	16:54:53.2	−43:28:26.64	0.151
G49.01−0.48	19:23:09.0	+14:02:28.76	0.189	G342.27+0.39	16:53:25.1	−43:15:02.06	0.172
G49.01−0.29	19:22:26.3	+14:08:06.86	0.352	G342.30+0.40	16:53:27.3	−43:13:31.83	0.295
G49.01−0.63	19:23:41.1	+13:58:33.94	0.222	G342.33+0.37	16:53:43.5	−43:13:00.43	0.165
G49.02−0.01	19:21:25.7	+14:16:20.99	0.153	G342.35+0.34	16:53:54.3	−43:13:15.18	0.188
G49.02−0.50	19:23:13.4	+14:02:44.93	0.161	G342.35+0.38	16:53:43.1	−43:11:34.03	0.309
G49.02−0.33	19:22:37.8	+14:07:26.11	0.150	G342.35+0.32	16:53:59.3	−43:13:49.33	0.161
G49.03−0.61	19:23:37.1	+13:59:52.35	0.157	G342.41+0.12	16:55:04.3	−43:18:44.76	0.176
G49.03−0.13	19:21:52.7	+14:13:37.87	0.158	G342.41+0.17	16:54:52.0	−43:16:51.29	0.321
G49.03−0.45	19:23:03.1	+14:04:39.85	0.358	G342.42+0.34	16:54:07.2	−43:10:02.00	0.248
G49.03−0.36	19:22:43.5	+14:07:24.53	0.495	G342.43−0.16	16:56:17.9	−43:28:34.24	0.167

Table A.1. continued.

IRDC name	R.A. ($^{h}:^{m}:^{s}$) (J2000)	Decl. ($^{\circ}:':''$) (J2000)	$C_{24\mu m}$	IRDC name	R.A. ($^{h}:^{m}:^{s}$) (J2000)	Decl. ($^{\circ}:':''$) (J2000)	$C_{24\mu m}$
G49.04−0.20	19:22:10.6	+14:11:48.56	0.160	G342.43−0.34	16:57:07.0	−43:35:05.81	0.161
G49.04−0.06	19:21:39.3	+14:16:02.77	0.168	G342.45+0.26	16:54:36.6	−43:11:36.64	0.195
G49.04−0.38	19:22:50.1	+14:07:02.47	0.247	G342.45−0.15	16:56:22.5	−43:27:03.23	0.151
G49.04−0.49	19:23:14.4	+14:04:01.20	0.311	G342.46−0.16	16:56:23.5	−43:27:02.07	0.150
G49.04−0.07	19:21:42.9	+14:15:57.58	0.151	G342.46−0.16	16:56:26.5	−43:27:01.07	0.164
G49.05−0.33	19:22:40.1	+14:08:39.32	0.557	G342.48+0.76	16:52:33.5	−42:51:23.67	0.161
G49.05−0.07	19:21:43.6	+14:16:00.67	0.156	G342.48+0.18	16:55:00.8	−43:13:19.23	0.165
G49.06−0.52	19:23:22.8	+14:04:15.52	0.285	G342.48−0.17	16:56:32.0	−43:26:30.98	0.197
G49.08−0.06	19:21:44.1	+14:18:13.23	0.281	G342.49+0.80	16:52:28.1	−42:49:17.54	0.152
G49.10−0.36	19:22:51.5	+14:10:31.74	0.272	G342.49−0.18	16:56:38.2	−43:26:17.58	0.178
G49.10−0.16	19:22:07.1	+14:16:21.86	0.192	G342.52+0.17	16:55:12.8	−43:11:55.28	0.293
G49.10−0.12	19:21:58.9	+14:17:29.28	0.250	G342.56+0.11	16:55:35.7	−43:12:08.09	0.158
G49.10−0.79	19:24:26.2	+13:58:23.74	0.165	G342.57−0.54	16:58:26.1	−43:36:08.33	0.195
G49.10−0.51	19:23:24.8	+14:06:23.22	0.260	G342.57+0.46	16:54:09.4	−42:58:35.72	0.154
G49.10−0.19	19:22:14.8	+14:15:46.32	0.265	G342.67+0.13	16:55:54.7	−43:06:27.26	0.247
G49.11−0.46	19:23:13.8	+14:08:24.94	0.173	G342.72−0.28	16:57:48.4	−43:19:13.75	0.215
G49.11−0.38	19:22:57.7	+14:10:34.09	0.226	G342.74−0.29	16:57:56.8	−43:18:31.79	0.162
G49.11−0.59	19:23:43.8	+14:04:40.10	0.331	G342.75−0.26	16:57:50.1	−43:17:13.02	0.156
G49.11−0.47	19:23:17.1	+14:08:20.43	0.198	G342.79−0.29	16:58:06.9	−43:16:45.93	0.187
G49.12−0.35	19:22:51.3	+14:11:55.85	0.151	G342.79−0.49	16:58:58.4	−43:23:54.31	0.156
G49.12−0.27	19:22:33.6	+14:14:13.24	0.409	G342.86−0.08	16:57:28.2	−43:05:15.82	0.170
G49.12−0.53	19:23:32.2	+14:06:38.12	0.213	G342.91−0.50	16:59:25.2	−43:18:40.93	0.158
G49.12−0.57	19:23:40.5	+14:05:36.57	0.154	G342.93+0.13	16:56:48.1	−42:54:14.09	0.159
G49.12−0.70	19:24:07.5	+14:02:09.64	0.157	G342.93−0.45	16:59:17.1	−43:15:38.29	0.159
G49.12−0.71	19:24:11.0	+14:01:42.70	0.159	G343.06−0.32	16:59:09.3	−43:05:00.07	0.200
G49.13−0.59	19:23:44.7	+14:05:38.25	0.161	G343.09−0.15	16:58:32.7	−42:57:15.79	0.197
G49.14−0.38	19:23:01.6	+14:12:08.32	0.600	G343.12+0.20	16:57:08.8	−42:42:57.94	0.184
G49.14−0.31	19:22:46.2	+14:14:25.50	0.154	G343.14−0.01	16:58:06.4	−42:49:15.11	0.151
G49.15−0.46	19:23:20.4	+14:10:22.24	0.159	G343.15−0.31	16:59:25.6	−43:00:32.78	0.150
G49.15−0.12	19:22:05.5	+14:20:30.60	0.167	G343.15−0.31	16:59:25.2	−43:00:19.92	0.152
G49.16−0.47	19:23:24.2	+14:10:38.96	0.219	G343.15−0.27	16:59:13.7	−42:58:39.00	0.162
G49.17+0.11	19:21:17.1	+14:27:35.04	0.189	G343.16+0.00	16:58:08.2	−42:47:57.45	0.251
G49.17−0.16	19:22:15.6	+14:20:03.25	0.203	G343.20+0.02	16:58:12.0	−42:45:26.98	0.215
G49.17−0.11	19:22:06.9	+14:21:22.10	0.156	G343.21+0.04	16:58:08.1	−42:44:35.79	0.176
G49.18−0.49	19:23:30.3	+14:11:15.77	0.209	G343.26+0.11	16:58:01.5	−42:39:27.68	0.163
G49.18−0.51	19:23:33.7	+14:10:54.81	0.155	G343.26−0.64	17:01:15.1	−43:07:08.80	0.206
G49.19−0.51	19:23:35.2	+14:11:04.20	0.157	G343.27−0.36	17:00:03.4	−42:56:42.30	0.198
G49.19+0.03	19:21:38.0	+14:26:18.20	0.158	G343.28−0.02	16:58:36.5	−42:43:29.76	0.151
G49.19−0.48	19:23:27.8	+14:12:06.94	0.162	G343.30−0.04	16:58:45.3	−42:43:15.71	0.151
G49.19−0.25	19:22:39.2	+14:18:30.62	0.405	G343.31−0.39	17:00:18.9	−42:55:48.57	0.153
G49.20−0.08	19:22:02.9	+14:24:06.46	0.157	G343.31−0.17	16:59:22.1	−42:47:26.94	0.154
G49.20−0.15	19:22:18.6	+14:22:13.78	0.204	G343.32−0.18	16:59:25.3	−42:47:28.01	0.152
G49.21−0.43	19:23:21.4	+14:14:32.33	0.168	G343.32+0.01	16:58:36.9	−42:40:26.35	0.167
G49.22−0.07	19:22:02.9	+14:25:22.42	0.160	G343.33−0.23	16:59:40.4	−42:48:48.38	0.157
G49.22−0.51	19:23:38.5	+14:13:02.62	0.360	G343.33+0.00	16:58:41.3	−42:40:05.04	0.153
G49.23−0.14	19:22:18.2	+14:23:50.45	0.240	G343.33+0.11	16:58:15.7	−42:36:10.19	0.167
G49.23−0.53	19:23:44.2	+14:12:46.77	0.363	G343.34−0.19	16:59:31.6	−42:46:51.54	0.171
G49.23−0.47	19:23:31.7	+14:14:41.61	0.182	G343.35−0.08	16:59:06.7	−42:42:07.46	0.578

Table A.1. continued.

IRDC name	R.A. ($^{h}:^{m}:^{s}$) (J2000)	Decl. ($^{\circ}:':''$) (J2000)	$C_{24\mu m}$	IRDC name	R.A. ($^{h}:^{m}:^{s}$) (J2000)	Decl. ($^{\circ}:':''$) (J2000)	$C_{24\mu m}$
G49.24−0.46	19:23:29.5	+14:15:11.57	0.158	G343.37−0.12	16:59:21.1	−42:42:54.27	0.233
G49.24−0.56	19:23:51.2	+14:12:31.16	0.301	G343.37+0.01	16:58:46.3	−42:37:50.97	0.197
G49.24−0.06	19:22:03.3	+14:26:40.29	0.190	G343.38−0.14	16:59:27.7	−42:42:56.03	0.157
G49.25−0.39	19:23:15.4	+14:17:45.92	0.259	G343.39−0.03	16:59:01.4	−42:38:25.04	0.265
G49.25+0.01	19:21:48.3	+14:29:17.39	0.151	G343.39−0.30	17:00:10.7	−42:48:14.65	0.246
G49.25−0.48	19:23:37.3	+14:15:22.27	0.166	G343.39−0.27	17:00:05.0	−42:47:15.79	0.176
G49.26−0.06	19:22:04.8	+14:27:57.25	0.176	G343.41+0.11	16:58:28.4	−42:32:24.47	0.203
G49.28−0.18	19:22:33.4	+14:25:19.11	0.181	G343.41−0.37	17:00:32.7	−42:50:14.76	0.166
G49.30−0.61	19:24:10.8	+14:14:00.55	0.153	G343.41−0.33	17:00:21.8	−42:48:34.20	0.196
G49.30−0.33	19:23:09.4	+14:22:07.80	0.522	G343.42−0.37	17:00:35.9	−42:50:03.72	0.175
G49.31−0.60	19:24:09.8	+14:14:46.23	0.155	G343.42+0.09	16:58:38.5	−42:32:37.88	0.180
G49.32−0.24	19:22:52.5	+14:25:34.50	0.183	G343.43−0.19	16:59:51.5	−42:42:35.50	0.162
G49.32−0.20	19:22:42.2	+14:26:59.12	0.281	G343.44−0.33	17:00:28.6	−42:47:32.07	0.258
G49.34−0.10	19:22:22.2	+14:30:46.12	0.164	G343.45+0.14	16:58:30.0	−42:29:17.30	0.195
G49.34−0.44	19:23:38.1	+14:21:04.62	0.181	G343.46−0.32	17:00:30.0	−42:45:58.66	0.178
G49.34−0.33	19:23:15.3	+14:24:24.34	0.195	G343.48−0.16	16:59:54.6	−42:39:10.95	0.288
G49.35−0.47	19:23:45.5	+14:20:50.95	0.447	G343.48−0.06	16:59:27.8	−42:35:01.57	0.611
G49.36−0.09	19:22:23.8	+14:31:53.98	0.166	G343.49−0.41	17:01:00.1	−42:47:59.75	0.342
G49.36−0.33	19:23:15.8	+14:25:10.24	0.550	G343.49+0.06	16:58:58.9	−42:30:21.53	0.231
G49.36−0.70	19:24:35.9	+14:15:01.73	0.204	G343.50+0.07	16:58:59.4	−42:29:45.34	0.152
G49.36−0.74	19:24:44.9	+14:13:57.60	0.157	G343.50+0.26	16:58:10.9	−42:22:27.84	0.152
G49.37−0.55	19:24:06.0	+14:19:39.45	0.240	G343.50+0.02	16:59:12.9	−42:31:24.89	0.199
G49.38−0.40	19:23:33.6	+14:24:05.10	0.160	G343.51+0.03	16:59:12.0	−42:30:34.75	0.150
G49.40−0.46	19:23:49.2	+14:23:50.14	0.153	G343.52−0.56	17:01:45.0	−42:51:40.52	0.170
G49.41−0.34	19:23:24.0	+14:27:22.78	0.627	G343.53+0.14	16:58:46.6	−42:25:36.75	0.152
G49.41−0.34	19:23:24.0	+14:27:22.78	0.627	G343.53+0.14	16:58:47.6	−42:25:35.51	0.150
G49.41−0.13	19:22:38.7	+14:33:40.12	0.203	G343.54−0.17	17:00:07.3	−42:36:42.81	0.278
G49.41−0.46	19:23:51.5	+14:24:14.50	0.209	G343.54−0.14	17:00:00.0	−42:35:37.19	0.177
G49.42−0.52	19:24:04.5	+14:23:08.75	0.188	G343.54+0.12	16:58:54.6	−42:26:03.74	0.157
G49.43−0.27	19:23:11.4	+14:30:34.86	0.195	G343.54−0.25	17:00:30.9	−42:39:30.89	0.164
G49.43−0.44	19:23:48.3	+14:26:03.51	0.265	G343.55−0.62	17:02:05.2	−42:52:44.05	0.192
G49.43−0.26	19:23:08.4	+14:31:23.00	0.247	G343.61+0.10	16:59:12.9	−42:23:28.74	0.189
G49.44+0.53	19:20:18.3	+14:54:00.60	0.154	G343.63−0.24	17:00:43.1	−42:35:09.35	0.222
G49.46−0.10	19:22:36.9	+14:37:15.37	0.232	G343.63+0.32	16:58:20.2	−42:13:57.69	0.155
G49.47−0.49	19:24:03.3	+14:26:28.06	0.367	G343.64−0.03	16:59:51.0	−42:26:52.31	0.165
G49.47−0.22	19:23:06.1	+14:34:12.69	0.418	G343.66−0.24	17:00:49.2	−42:33:39.97	0.154
G49.48−0.11	19:22:41.9	+14:38:08.83	0.174	G343.67−0.14	17:00:27.3	−42:29:30.43	0.157
G49.51−0.18	19:23:00.1	+14:37:20.93	0.294	G343.68−0.21	17:00:46.4	−42:31:35.17	0.199
G49.53−0.46	19:24:04.8	+14:30:53.06	0.151	G343.71−0.08	17:00:18.7	−42:24:55.51	0.212
G49.54−0.18	19:23:03.7	+14:39:05.73	0.193	G343.74−0.17	17:00:49.1	−42:27:16.54	0.282
G49.54−0.45	19:24:04.7	+14:31:32.87	0.195	G343.77−0.17	17:00:53.7	−42:25:35.59	0.212
G49.54−0.01	19:22:28.7	+14:44:00.80	0.153	G343.78−0.06	17:00:26.7	−42:21:20.15	0.178
G49.55−0.28	19:23:27.1	+14:36:39.68	0.371	G343.78−0.18	17:00:57.4	−42:25:38.62	0.150
G49.55−0.53	19:24:22.1	+14:29:35.89	0.492	G343.79−0.25	17:01:18.0	−42:27:48.55	0.169
G49.56−0.42	19:23:59.9	+14:33:09.44	0.182	G343.79−0.25	17:01:20.5	−42:27:41.82	0.153
G49.57−0.32	19:23:38.0	+14:36:46.55	0.159	G343.80−0.51	17:02:27.4	−42:37:05.78	0.157
G49.57−0.53	19:24:25.2	+14:30:47.74	0.154	G343.81−0.06	17:00:34.2	−42:19:49.97	0.175
G49.57−0.19	19:23:11.0	+14:40:28.37	0.262	G343.81−0.14	17:00:55.2	−42:22:35.26	0.162

Table A.1. continued.

IRDC name	R.A. ($^{h}:^{m}:^{s}$) (J2000)	Decl. ($^{\circ}:':''$) (J2000)	$C_{24\mu m}$	IRDC name	R.A. ($^{h}:^{m}:^{s}$) (J2000)	Decl. ($^{\circ}:':''$) (J2000)	$C_{24\mu m}$
G49.59−0.52	19:24:25.1	+14:31:48.52	0.225	G343.82−0.11	17:00:47.9	−42:21:02.97	0.163
G49.59−0.24	19:23:22.4	+14:39:59.83	0.177	G343.83−0.07	17:00:40.8	−42:19:09.04	0.215
G49.60−0.01	19:22:33.8	+14:46:50.48	0.162	G343.89−0.34	17:02:02.2	−42:26:09.08	0.161
G49.60−0.31	19:23:38.8	+14:38:30.52	0.215	G343.90−0.38	17:02:12.5	−42:27:22.75	0.151
G49.60−0.51	19:24:24.4	+14:32:59.28	0.256	G343.92−0.12	17:01:09.3	−42:16:52.80	0.249
G49.61−0.01	19:22:34.4	+14:47:29.04	0.173	G343.92−0.09	17:01:04.3	−42:15:46.63	0.160
G49.61−0.14	19:23:04.1	+14:43:38.73	0.219	G343.92−0.08	17:01:00.5	−42:15:02.32	0.161
G49.61−0.27	19:23:31.3	+14:40:26.29	0.265	G343.93−0.08	17:01:02.8	−42:15:00.62	0.152
G49.62−0.50	19:24:24.4	+14:33:58.18	0.166	G343.94−0.08	17:01:03.2	−42:14:24.61	0.209
G49.62−0.24	19:23:26.4	+14:41:44.47	0.153	G343.94−0.60	17:03:18.0	−42:33:13.11	0.165
G49.62−0.49	19:24:21.4	+14:34:43.38	0.192	G343.95−0.74	17:03:56.4	−42:38:14.76	0.159
G49.62−0.23	19:23:24.2	+14:42:17.35	0.167	G343.95+0.10	17:00:21.2	−42:07:17.09	0.159
G49.63−0.19	19:23:16.4	+14:43:33.76	0.267	G343.95−0.60	17:03:20.6	−42:32:47.92	0.153
G49.63−0.41	19:24:05.3	+14:37:21.38	0.325	G343.96−0.58	17:03:17.1	−42:31:56.37	0.228
G49.63−0.38	19:23:59.5	+14:38:13.45	0.200	G343.96−0.60	17:03:22.7	−42:32:25.23	0.157
G49.63−0.32	19:23:45.6	+14:40:02.94	0.297	G343.98−0.14	17:01:29.5	−42:14:53.00	0.296
G49.63−0.13	19:23:03.8	+14:45:36.19	0.166	G344.00+0.06	17:00:40.8	−42:06:07.10	0.151
G49.63−0.11	19:22:59.8	+14:46:10.17	0.169	G344.10−0.08	17:01:37.7	−42:06:45.76	0.251
G49.64−0.37	19:23:57.7	+14:38:54.20	0.156	G344.15−0.62	17:04:04.9	−42:24:06.06	0.188
G49.64−0.50	19:24:27.2	+14:35:27.56	0.183	G344.16−0.67	17:04:20.5	−42:25:42.85	0.169
G49.65−0.36	19:23:56.9	+14:39:35.36	0.183	G344.19−0.18	17:02:20.6	−42:06:01.45	0.153
G49.65−0.38	19:24:00.5	+14:39:25.71	0.162	G344.23−0.67	17:04:35.9	−42:22:15.78	0.160
G49.65−0.34	19:23:52.3	+14:40:40.58	0.170	G344.24−0.54	17:04:04.1	−42:16:55.44	0.172
G49.67−0.55	19:24:40.7	+14:35:13.13	0.271	G344.25−0.67	17:04:38.4	−42:21:29.93	0.169
G49.67−0.21	19:23:26.4	+14:45:05.30	0.189	G344.28−0.27	17:03:03.0	−42:05:13.94	0.150
G49.67−0.47	19:24:24.0	+14:37:40.75	0.178	G344.52−0.71	17:05:41.7	−42:10:08.27	0.155
G49.67−0.04	19:22:48.5	+14:50:14.55	0.211	G344.55−0.71	17:05:47.5	−42:08:26.38	0.169
G49.68−0.00	19:22:41.3	+14:51:18.71	0.171	G344.56−0.60	17:05:20.5	−42:03:36.97	0.200
G49.68−0.22	19:23:29.8	+14:45:30.06	0.150	G344.57+0.22	17:01:55.2	−41:33:24.28	0.154
G49.68+0.01	19:22:39.1	+14:52:12.57	0.155	G344.58+0.20	17:02:00.1	−41:33:28.47	0.174
G49.69−0.10	19:23:05.0	+14:48:59.93	0.155	G344.64−0.10	17:03:29.1	−41:41:39.58	0.156
G49.69−0.48	19:24:26.6	+14:38:26.32	0.290	G344.67−0.61	17:05:45.7	−41:58:55.91	0.269
G49.69−0.37	19:24:04.3	+14:41:27.99	0.308	G344.72−0.54	17:05:38.1	−41:53:57.87	0.233
G49.69−0.65	19:25:04.1	+14:33:42.78	0.194	G344.76−0.76	17:06:42.3	−42:00:04.64	0.163
G49.70−0.11	19:23:06.9	+14:49:36.05	0.153	G344.76−0.37	17:05:00.7	−41:45:42.33	0.170
G49.70−0.54	19:24:42.3	+14:37:21.19	0.200	G344.77−0.65	17:06:16.0	−41:55:41.75	0.191
G49.71−0.25	19:23:38.9	+14:46:18.41	0.168	G344.78−0.54	17:05:48.9	−41:51:15.14	0.165
G49.71−0.22	19:23:33.5	+14:47:05.30	0.240	G344.78−0.84	17:07:06.0	−42:01:57.08	0.181
G49.72−0.29	19:23:48.5	+14:45:18.26	0.224	G344.78−0.50	17:05:39.4	−41:49:35.22	0.163
G49.72−0.42	19:24:16.8	+14:41:43.42	0.160	G344.81−0.54	17:05:53.5	−41:49:58.80	0.184
G49.72−0.31	19:23:54.3	+14:45:01.44	0.153	G344.86−0.28	17:04:56.7	−41:38:05.70	0.166
G49.74−0.37	19:24:09.0	+14:44:01.52	0.218	G344.89−0.60	17:06:25.2	−41:48:21.52	0.152
G49.74−0.47	19:24:31.1	+14:41:14.34	0.152	G344.89−0.19	17:04:41.2	−41:33:09.76	0.173
G49.74−0.12	19:23:14.5	+14:51:21.97	0.151	G344.91−0.19	17:04:45.7	−41:32:22.31	0.177
G49.74−0.09	19:23:09.2	+14:52:23.03	0.172	G344.92−0.03	17:04:05.5	−41:26:14.09	0.160
G49.75−0.44	19:24:24.9	+14:42:43.97	0.232	G344.92−0.59	17:06:29.3	−41:46:29.89	0.186
G49.75−0.48	19:24:35.2	+14:41:24.31	0.157	G344.92−0.79	17:07:20.2	−41:53:14.96	0.162
G49.75−0.47	19:24:33.5	+14:42:03.25	0.170	G344.94−0.90	17:07:52.2	−41:56:38.19	0.188

Table A.1. continued.

IRDC name	R.A. ($^{h}:^{m}:^{s}$) (J2000)	Decl. ($^{\circ}:':''$) (J2000)	$C_{24\mu m}$	IRDC name	R.A. ($^{h}:^{m}:^{s}$) (J2000)	Decl. ($^{\circ}:':''$) (J2000)	$C_{24\mu m}$
G49.75−0.54	19:24:48.6	+14:40:12.48	0.184	G344.94−0.77	17:07:18.2	−41:51:51.04	0.176
G49.76+0.42	19:21:18.4	+15:07:37.50	0.154	G344.95−0.02	17:04:08.5	−41:24:32.90	0.153
G49.76+0.43	19:21:17.9	+15:08:04.17	0.150	G344.95−0.69	17:06:59.6	−41:48:22.01	0.200
G49.77+0.43	19:21:18.6	+15:08:29.63	0.153	G344.95−0.60	17:06:38.2	−41:45:20.41	0.151
G49.78−0.35	19:24:10.0	+14:46:45.85	0.302	G344.95−0.76	17:07:19.6	−41:50:59.31	0.154
G49.78−0.22	19:23:41.5	+14:50:37.84	0.174	G344.96−0.59	17:06:35.3	−41:44:30.86	0.155
G49.78−0.02	19:22:58.3	+14:56:18.84	0.168	G344.97−0.76	17:07:22.1	−41:50:12.10	0.168
G49.79−0.25	19:23:49.0	+14:50:33.84	0.159	G344.97−0.57	17:06:34.5	−41:43:09.43	0.211
G49.79−0.39	19:24:19.6	+14:46:37.58	0.234	G344.98−0.01	17:04:12.2	−41:22:45.23	0.263
G49.80+0.02	19:22:50.8	+14:58:47.32	0.169	G344.99−0.59	17:06:40.6	−41:43:04.28	0.183
G49.81−0.15	19:23:30.4	+14:54:04.94	0.154	G345.02+0.94	17:00:19.5	−40:45:51.73	0.166
G49.83−0.43	19:24:33.4	+14:46:58.10	0.171	G345.03−0.27	17:05:28.2	−41:29:29.30	0.159
G49.83−0.18	19:23:38.5	+14:54:09.91	0.151	G345.04−0.19	17:05:08.4	−41:26:12.24	0.167
G49.87+0.36	19:21:45.6	+15:11:41.73	0.154	G345.05−0.88	17:08:07.3	−41:50:41.40	0.208
G49.88−0.51	19:24:56.9	+14:47:37.05	0.182	G345.06−0.18	17:05:12.1	−41:24:46.14	0.151
G49.90−0.29	19:24:09.4	+14:54:59.05	0.155	G345.06−0.20	17:05:16.3	−41:25:17.01	0.286
G49.92−0.51	19:25:01.2	+14:49:50.27	0.157	G345.08−0.74	17:07:36.6	−41:44:13.61	0.343
G49.95−0.54	19:25:10.5	+14:50:53.29	0.167	G345.08+0.00	17:04:26.9	−41:17:21.26	0.151
G49.99+0.05	19:23:06.8	+15:09:30.93	0.185	G345.08−0.07	17:04:45.4	−41:19:51.79	0.201
G50.02+0.06	19:23:06.9	+15:11:07.80	0.167	G345.08−0.00	17:04:30.1	−41:17:11.05	0.151
G50.06−0.63	19:25:44.0	+14:53:40.54	0.170	G345.09−0.18	17:05:16.6	−41:23:40.20	0.216
G50.07−0.01	19:23:29.3	+15:12:07.08	0.207	G345.09−0.65	17:07:15.7	−41:40:28.03	0.261
G50.07−0.58	19:25:34.5	+14:56:01.52	0.166	G345.09−0.35	17:06:01.9	−41:29:31.69	0.171
G50.09−0.57	19:25:34.4	+14:56:56.82	0.152	G345.10−0.44	17:06:24.0	−41:32:23.13	0.197
G50.15−0.49	19:25:24.0	+15:02:22.99	0.159	G345.11−0.89	17:08:20.8	−41:48:09.65	0.189
G50.19−0.47	19:25:25.0	+15:05:24.34	0.153	G345.11−0.20	17:05:26.8	−41:22:59.91	0.215
G50.21−0.51	19:25:35.5	+15:05:09.05	0.162	G345.12−0.09	17:04:58.8	−41:18:51.76	0.164
G50.27−0.51	19:25:43.9	+15:08:26.00	0.155	G345.12−0.26	17:05:42.9	−41:24:28.35	0.194
G50.38−0.40	19:25:31.6	+15:17:01.18	0.188	G345.13+0.06	17:04:23.0	−41:12:32.87	0.152
G50.39−0.39	19:25:30.1	+15:17:51.50	0.151	G345.14+0.92	17:00:47.8	−40:40:42.19	0.185
G50.39−0.39	19:25:29.7	+15:18:08.38	0.162	G345.14+0.95	17:00:42.1	−40:39:28.64	0.178
G50.40−0.41	19:25:36.6	+15:17:52.90	0.271	G345.16+0.91	17:00:54.6	−40:40:07.08	0.155
G50.70+0.22	19:23:54.1	+15:51:47.91	0.156	G345.16−0.85	17:08:21.3	−41:44:07.34	0.282
G50.77+0.19	19:24:07.2	+15:54:43.66	0.169	G345.16−0.66	17:07:34.2	−41:37:22.33	0.168
G50.77+0.08	19:24:31.5	+15:51:35.53	0.186	G345.17−0.16	17:05:26.3	−41:18:37.51	0.165
G50.82+0.15	19:24:22.4	+15:56:28.27	0.155	G345.17−0.23	17:05:44.6	−41:21:04.72	0.157
G50.83−0.11	19:25:21.5	+15:49:04.42	0.158	G345.18+0.94	17:00:51.7	−40:38:21.65	0.186
G50.83−0.12	19:25:23.4	+15:49:13.67	0.160	G345.18−0.65	17:07:33.5	−41:35:58.60	0.150
G50.84−0.12	19:25:24.6	+15:49:23.18	0.150	G345.20−0.81	17:08:19.0	−41:40:59.11	0.335
G50.86−0.00	19:25:00.6	+15:54:07.37	0.282	G345.20−0.85	17:08:30.9	−41:42:14.27	0.232
G50.88+0.17	19:24:26.5	+16:00:00.46	0.285	G345.21−0.10	17:05:18.0	−41:14:42.90	0.155
G50.89+0.27	19:24:04.0	+16:03:09.07	0.163	G345.21+0.02	17:04:48.1	−41:10:07.74	0.155
G50.89+0.28	19:24:02.1	+16:03:46.05	0.162	G345.21−0.74	17:08:02.8	−41:37:34.12	0.259
G50.94−0.16	19:25:45.0	+15:53:49.41	0.164	G345.23−0.73	17:08:04.1	−41:36:37.42	0.243
G50.95+0.06	19:24:58.2	+16:00:12.38	0.286	G345.23+0.95	17:01:00.0	−40:35:17.63	0.347
G50.95−0.04	19:25:18.9	+15:57:41.63	0.171	G345.23−0.14	17:05:33.9	−41:15:01.32	0.172
G50.96−0.03	19:25:18.5	+15:58:16.06	0.152	G345.24−0.92	17:08:55.0	−41:42:44.49	0.155
G50.99+0.05	19:25:03.3	+16:02:13.65	0.179	G345.27−0.57	17:07:31.3	−41:29:10.31	0.165

Table A.1. continued.

IRDC name	R.A. ($^{h}:^{m}:^{s}$) (J2000)	Decl. ($^{\circ}:':''$) (J2000)	$C_{24\mu m}$	IRDC name	R.A. ($^{h}:^{m}:^{s}$) (J2000)	Decl. ($^{\circ}:':''$) (J2000)	$C_{24\mu m}$
G50.99+0.09	19:24:56.3	+16:03:10.33	0.239	G345.29−0.01	17:05:11.5	−41:07:45.57	0.278
G50.99+0.04	19:25:06.4	+16:01:52.79	0.162	G345.29+0.41	17:03:25.9	−40:52:29.20	0.150
G51.00−0.18	19:25:56.8	+15:56:27.55	0.158	G345.29−0.06	17:05:26.0	−41:09:30.31	0.184
G51.03+0.28	19:24:19.3	+16:10:40.65	0.179	G345.29−0.88	17:08:54.9	−41:38:50.54	0.158
G51.04+0.12	19:24:54.3	+16:06:46.20	0.391	G345.30−0.88	17:08:56.5	−41:38:48.98	0.155
G51.05+0.09	19:25:03.1	+16:06:46.77	0.179	G345.30−0.91	17:09:04.8	−41:39:51.53	0.243
G51.11+0.23	19:24:38.2	+16:13:45.00	0.172	G345.30−0.89	17:08:57.7	−41:38:49.67	0.152
G51.11+0.03	19:25:23.6	+16:08:09.86	0.191	G345.30−0.13	17:05:44.7	−41:11:28.19	0.163
G51.15−0.06	19:25:48.2	+16:07:36.56	0.188	G345.30−0.13	17:05:46.1	−41:11:24.30	0.151
G51.15−0.10	19:25:56.8	+16:06:40.75	0.161	G345.31−0.76	17:08:28.5	−41:33:49.09	0.172
G51.19+0.12	19:25:13.2	+16:15:03.19	0.160	G345.32+0.03	17:05:06.7	−41:04:50.21	0.152
G51.20+0.09	19:25:21.4	+16:14:28.00	0.161	G345.33+0.02	17:05:11.9	−41:04:55.96	0.158
G51.20+0.08	19:25:23.4	+16:14:23.70	0.151	G345.33−0.74	17:08:24.9	−41:31:57.51	0.176
G51.21+0.07	19:25:27.4	+16:14:35.36	0.154	G345.33+0.95	17:01:17.3	−40:30:28.21	0.259
G51.23−0.12	19:26:11.4	+16:09:57.45	0.201	G345.34−0.77	17:08:35.5	−41:32:46.90	0.150
G51.25−0.13	19:26:15.2	+16:11:08.44	0.157	G345.34+0.04	17:05:08.9	−41:03:15.86	0.150
G51.37−0.05	19:26:12.3	+16:19:33.88	0.153	G345.34−0.85	17:08:57.1	−41:35:22.30	0.301
G51.46+0.01	19:26:08.7	+16:25:48.66	0.163	G345.36−0.04	17:05:32.0	−41:05:28.65	0.158
G51.47+0.00	19:26:12.0	+16:26:14.43	0.164	G345.36−0.24	17:06:23.1	−41:12:40.27	0.218
G51.58−0.07	19:26:41.9	+16:29:59.10	0.167	G345.37−0.21	17:06:16.2	−41:11:07.69	0.263
G51.66+0.52	19:24:41.2	+16:51:10.57	0.176	G345.41+0.96	17:01:31.4	−40:26:34.61	0.157
G51.67+0.02	19:26:32.4	+16:37:24.33	0.157	G345.42+0.16	17:04:52.8	−40:55:18.74	0.165
G51.68+0.66	19:24:12.2	+16:55:55.98	0.154	G345.43−0.86	17:09:15.5	−41:31:35.89	0.163
G51.71+0.78	19:23:48.5	+17:00:53.25	0.172	G345.45−0.09	17:06:02.8	−41:02:44.19	0.194
G51.71+0.77	19:23:50.3	+17:00:57.61	0.153	G345.45−0.23	17:06:39.8	−41:07:56.10	0.195
G51.72+0.66	19:24:18.0	+16:58:14.03	0.158	G345.45+0.25	17:04:38.0	−40:50:29.80	0.159
G51.73+0.69	19:24:10.5	+16:59:33.88	0.236	G345.46−0.82	17:09:12.9	−41:28:47.00	0.178
G51.73+0.77	19:23:54.3	+17:01:57.35	0.179	G345.46−0.06	17:05:56.7	−41:01:03.40	0.279
G51.75+0.58	19:24:38.5	+16:57:13.51	0.233	G345.47−0.09	17:06:07.8	−41:01:50.93	0.165
G51.77+0.47	19:25:04.5	+16:55:29.25	0.357	G345.48+0.26	17:04:38.8	−40:48:52.89	0.221
G51.77+0.43	19:25:14.8	+16:54:28.28	0.168	G345.48−0.82	17:09:15.0	−41:27:33.66	0.189
G51.78+0.57	19:24:44.4	+16:58:31.11	0.163	G345.48−0.86	17:09:25.2	−41:28:57.24	0.156
G51.81+0.75	19:24:06.5	+17:05:37.81	0.158	G345.49−0.85	17:09:25.5	−41:28:21.93	0.152
G51.81+0.57	19:24:48.1	+17:00:36.49	0.189	G345.49+0.24	17:04:47.1	−40:48:47.01	0.165
G51.82+0.52	19:25:00.1	+16:59:35.76	0.176	G345.50−0.83	17:09:22.4	−41:27:23.31	0.165
G51.83+0.65	19:24:30.7	+17:03:43.23	0.203	G345.51+0.02	17:05:47.3	−40:56:00.47	0.325
G51.84+0.78	19:24:03.0	+17:07:54.05	0.263	G345.52+0.82	17:02:28.5	−40:26:35.43	0.160
G51.84+0.63	19:24:37.0	+17:03:37.52	0.156	G345.53−0.36	17:07:26.8	−41:08:47.36	0.160
G51.86+0.71	19:24:22.1	+17:06:47.20	0.204	G345.54−0.01	17:06:00.1	−40:55:37.16	0.207
G51.86+0.35	19:25:42.6	+16:56:29.64	0.211	G345.55+0.02	17:05:55.7	−40:54:06.88	0.360
G51.86+0.65	19:24:35.2	+17:05:11.02	0.155	G345.57−0.08	17:06:22.9	−40:56:50.07	0.164
G51.88+0.54	19:25:03.0	+17:03:07.57	0.207	G345.57+0.34	17:04:37.7	−40:41:42.38	0.166
G51.88+0.65	19:24:38.8	+17:06:17.03	0.164	G345.58−0.05	17:06:17.5	−40:54:52.75	0.188
G51.88+0.44	19:25:25.8	+17:00:26.22	0.338	G345.58+0.76	17:02:55.2	−40:25:32.07	0.179
G51.89+0.39	19:25:37.4	+16:59:36.38	0.154	G345.59−0.18	17:06:51.1	−40:59:32.43	0.163
G51.92+0.71	19:24:29.1	+17:10:01.68	0.152	G345.59+0.79	17:02:48.2	−40:24:10.07	0.155
G51.93+0.72	19:24:29.1	+17:11:05.50	0.199	G345.60+0.04	17:05:58.7	−40:51:01.82	0.253
G51.96+0.52	19:25:16.0	+17:06:56.05	0.197	G345.61+0.36	17:04:38.7	−40:38:53.56	0.203

Table A.1. continued.

IRDC name	R.A. ($^{h}:^{m}:^{s}$) (J2000)	Decl. ($^{\circ}:':''$) (J2000)	$C_{24\mu m}$	IRDC name	R.A. ($^{h}:^{m}:^{s}$) (J2000)	Decl. ($^{\circ}:':''$) (J2000)	$C_{24\mu m}$
G51.96+0.68	19:24:40.2	+17:11:39.28	0.160	G345.61−0.15	17:06:48.3	−40:57:13.96	0.153
G51.97+0.83	19:24:08.4	+17:16:00.91	0.163	G345.61+0.69	17:03:18.7	−40:26:59.54	0.174
G51.98+0.37	19:25:52.0	+17:03:41.54	0.153	G345.61+0.06	17:05:57.2	−40:49:50.33	0.187
G52.02+0.27	19:26:19.3	+17:03:03.84	0.165	G345.62+0.35	17:04:44.3	−40:39:08.52	0.176
G52.04+0.79	19:24:26.5	+17:18:58.00	0.202	G345.62+0.04	17:06:03.8	−40:50:15.23	0.198
G52.07+0.70	19:24:48.8	+17:17:51.35	0.229	G345.62−0.40	17:07:55.7	−41:05:59.95	0.154
G52.09−0.53	19:29:22.2	+16:43:39.54	0.153	G345.62−0.90	17:10:02.8	−41:23:40.37	0.163
G52.10−0.51	19:29:21.1	+16:44:55.32	0.169	G345.63+0.14	17:05:39.2	−40:46:06.64	0.151
G52.12−0.52	19:29:23.6	+16:45:26.21	0.156	G345.63+0.81	17:02:52.5	−40:21:25.76	0.163
G52.12+0.70	19:24:55.6	+17:20:20.84	0.181	G345.65−0.05	17:06:31.4	−40:51:55.82	0.234
G52.13+0.68	19:25:02.5	+17:20:28.97	0.179	G345.67+0.29	17:05:08.1	−40:38:34.60	0.163
G52.14+0.78	19:24:41.6	+17:23:53.42	0.164	G345.69+0.32	17:05:03.7	−40:36:34.24	0.289
G52.15−0.52	19:29:28.4	+16:47:00.96	0.171	G345.71−0.24	17:07:30.1	−40:56:04.21	0.179
G52.15+0.80	19:24:36.7	+17:25:04.13	0.170	G345.71+0.06	17:06:14.2	−40:44:42.16	0.151
G52.16+0.77	19:24:44.4	+17:24:21.03	0.174	G345.72+0.32	17:05:09.5	−40:35:04.02	0.215
G52.16−0.59	19:29:46.3	+16:45:45.22	0.231	G345.72+0.80	17:03:11.0	−40:17:17.33	0.155
G52.17−0.47	19:29:20.2	+16:49:43.90	0.165	G345.73−0.31	17:07:51.9	−40:57:34.28	0.164
G52.25−0.62	19:30:01.3	+16:49:30.83	0.201	G345.73−0.14	17:07:09.3	−40:51:26.22	0.174
G52.25−0.57	19:29:50.9	+16:50:58.02	0.192	G345.73+0.02	17:06:27.9	−40:45:22.44	0.157
G52.26−0.63	19:30:05.6	+16:50:02.35	0.158	G345.74+0.01	17:06:31.7	−40:45:21.33	0.157
G52.29+0.08	19:27:32.7	+17:11:34.88	0.155	G345.75−0.03	17:06:45.8	−40:46:09.21	0.194
G52.32−0.55	19:29:56.0	+16:55:26.66	0.248	G345.78−0.25	17:07:48.2	−40:52:48.31	0.337
G52.37−0.54	19:29:59.4	+16:58:21.49	0.183	G345.78−0.19	17:07:32.8	−40:50:30.20	0.163
G52.73+0.04	19:28:33.5	+17:33:54.04	0.195	G345.81−0.10	17:07:14.2	−40:46:20.45	0.180
G52.75−0.46	19:30:27.1	+17:20:24.75	0.165	G345.82−0.16	17:07:31.9	−40:47:54.53	0.165
G52.76+0.04	19:28:38.1	+17:35:13.91	0.158	G345.84+0.77	17:03:41.1	−40:12:59.07	0.183
G52.78−0.47	19:30:33.4	+17:21:51.14	0.210	G345.84−0.37	17:08:28.7	−40:54:11.59	0.162
G52.80−0.65	19:31:16.1	+17:17:34.66	0.206	G345.85+0.29	17:05:45.0	−40:30:04.31	0.187
G52.80−0.48	19:30:38.3	+17:22:47.52	0.158	G345.87+0.81	17:03:38.7	−40:10:05.27	0.162
G52.81−0.51	19:30:46.4	+17:21:57.78	0.155	G345.88+0.29	17:05:50.1	−40:28:18.72	0.187
G52.81−0.63	19:31:12.7	+17:18:46.02	0.201	G345.90−0.23	17:08:04.9	−40:46:24.08	0.171
G52.82−0.95	19:32:25.1	+17:10:08.45	0.151	G345.90−0.20	17:07:58.2	−40:45:15.63	0.196
G52.83−0.46	19:30:38.6	+17:24:48.24	0.173	G345.90−0.32	17:08:27.6	−40:49:24.62	0.187
G52.87−0.68	19:31:30.9	+17:20:34.91	0.237	G345.92+0.53	17:04:55.3	−40:17:56.70	0.160
G52.87−0.70	19:31:34.9	+17:20:03.41	0.188	G345.92+0.56	17:04:48.4	−40:16:50.64	0.156
G52.88−0.37	19:30:22.3	+17:29:43.87	0.151	G345.92+0.57	17:04:47.3	−40:16:26.03	0.161
G52.88−0.49	19:30:50.6	+17:26:26.47	0.223	G345.94−0.90	17:11:03.6	−41:08:38.82	0.156
G52.91−0.63	19:31:24.8	+17:24:00.19	0.286	G345.94−0.43	17:09:02.1	−40:51:31.56	0.166
G52.92−0.56	19:31:09.7	+17:26:28.58	0.305	G345.95−0.13	17:07:49.3	−40:40:10.89	0.208
G52.93−0.72	19:31:44.9	+17:22:21.07	0.165	G345.97−0.12	17:07:50.2	−40:39:04.56	0.184
G52.93−0.61	19:31:21.5	+17:25:28.50	0.162	G345.98+0.59	17:04:52.1	−40:12:56.13	0.197
G52.95−0.51	19:31:02.2	+17:29:25.71	0.158	G346.03−0.06	17:07:47.4	−40:33:56.97	0.191
G52.95−0.03	19:29:16.4	+17:43:36.92	0.158	G346.06−0.09	17:07:59.6	−40:33:19.64	0.208
G52.99−0.29	19:30:20.0	+17:37:58.81	0.203	G346.14−0.01	17:07:54.0	−40:27:06.75	0.154
G53.00−0.24	19:30:10.5	+17:40:01.22	0.177	G346.14−0.03	17:07:59.8	−40:27:23.45	0.186
G53.06+0.22	19:28:35.1	+17:56:14.95	0.220	G346.15−0.00	17:07:54.1	−40:26:00.91	0.180
G53.07+0.14	19:28:52.0	+17:54:31.48	0.305	G346.15−0.04	17:08:05.1	−40:27:31.29	0.151
G53.10+0.21	19:28:41.1	+17:58:17.55	0.198	G346.18−0.20	17:08:50.4	−40:31:35.58	0.217

Table A.1. continued.

IRDC name	R.A. ($^{h}:^{m}:^{s}$) (J2000)	Decl. ($^{\circ}:':''$) (J2000)	$C_{24\mu m}$	IRDC name	R.A. ($^{h}:^{m}:^{s}$) (J2000)	Decl. ($^{\circ}:':''$) (J2000)	$C_{24\mu m}$
G53.10+0.18	19:28:48.9	+17:57:18.57	0.180	G346.20−0.28	17:09:14.4	−40:33:54.16	0.150
G53.11+0.06	19:29:16.2	+17:54:17.67	0.363	G346.22−0.10	17:08:32.4	−40:26:02.36	0.235
G53.12+0.18	19:28:50.9	+17:58:17.16	0.166	G346.23−0.17	17:08:51.8	−40:28:34.19	0.184
G53.13+0.20	19:28:47.1	+17:59:19.81	0.167	G346.30+0.19	17:07:33.9	−40:12:05.94	0.158
G53.14+0.26	19:28:34.4	+18:01:30.35	0.182	G346.30+0.52	17:06:12.0	−39:59:54.90	0.197
G53.15+0.10	19:29:11.8	+17:57:41.74	0.152	G346.32+0.32	17:07:05.0	−40:06:10.81	0.155
G53.16+0.26	19:28:37.3	+18:02:57.00	0.226	G346.34+0.01	17:08:26.3	−40:16:19.03	0.163
G53.17+0.09	19:29:17.2	+17:58:17.75	0.315	G346.35+0.12	17:08:01.9	−40:12:18.32	0.214
G53.19+0.07	19:29:24.2	+17:58:47.59	0.155	G346.36+0.02	17:08:26.7	−40:15:18.76	0.153
G53.19+0.34	19:28:23.0	+18:06:51.50	0.169	G346.36−0.37	17:10:07.2	−40:29:20.59	0.160
G53.20+0.03	19:29:33.3	+17:58:19.28	0.256	G346.37−0.65	17:11:18.7	−40:38:50.08	0.239
G53.22−0.25	19:30:36.9	+17:51:18.30	0.165	G346.40−0.49	17:10:46.0	−40:31:34.46	0.228
G53.23+0.09	19:29:23.5	+18:01:44.16	0.159	G346.49+0.22	17:08:01.1	−40:02:02.62	0.282
G53.25+0.05	19:29:35.0	+18:01:09.91	0.205	G346.49−0.12	17:09:27.3	−40:14:00.84	0.156
G53.25+0.10	19:29:23.9	+18:03:12.95	0.163	G346.79−0.19	17:10:40.2	−40:02:11.06	0.158
G53.26−0.01	19:29:50.2	+18:00:24.79	0.208	G346.79−0.16	17:10:33.6	−40:01:15.16	0.209
G53.28+0.02	19:29:45.4	+18:02:09.99	0.189	G346.82−0.17	17:10:41.3	−39:59:44.44	0.194
G53.29+0.11	19:29:26.4	+18:05:14.36	0.181	G346.86+0.02	17:10:02.3	−39:51:28.06	0.164
G53.30+0.05	19:29:42.1	+18:03:59.05	0.181	G346.86−0.03	17:10:13.4	−39:52:55.36	0.171
G53.32+0.01	19:29:52.3	+18:03:48.64	0.297	G346.86−0.00	17:10:07.3	−39:51:51.83	0.168
G53.32+0.03	19:29:46.9	+18:04:38.88	0.199	G346.88−0.19	17:10:59.4	−39:57:46.39	0.159
G53.39+0.05	19:29:50.9	+18:08:50.52	0.266	G346.89+0.08	17:09:53.6	−39:47:34.83	0.205
G53.45+0.06	19:29:55.9	+18:12:13.47	0.189	G346.93−0.08	17:10:39.7	−39:51:28.56	0.262
G53.48+0.10	19:29:52.8	+18:14:56.00	0.206	G346.93−0.30	17:11:36.4	−39:58:58.79	0.181
G53.48−0.02	19:30:17.8	+18:11:46.91	0.155	G346.94−0.29	17:11:35.4	−39:58:27.27	0.150
G53.50+0.07	19:30:02.1	+18:15:19.61	0.259	G346.95+0.13	17:09:50.9	−39:42:59.58	0.197
G53.50+0.30	19:29:10.2	+18:22:06.97	0.183	G346.95+0.07	17:10:07.6	−39:45:03.56	0.193
G53.51+0.10	19:29:55.1	+18:16:20.58	0.152	G346.96−0.03	17:10:30.9	−39:48:13.51	0.176
G53.54−0.29	19:31:25.3	+18:06:40.47	0.165	G346.97−0.26	17:11:32.3	−39:55:49.73	0.176
G53.54+0.12	19:29:54.0	+18:18:45.34	0.168	G346.97−0.22	17:11:23.7	−39:54:33.24	0.160
G53.54−0.08	19:30:39.0	+18:13:02.94	0.223	G346.98−0.08	17:10:49.9	−39:49:01.27	0.165
G53.55+0.52	19:28:25.8	+18:30:41.36	0.153	G346.99+0.10	17:10:03.6	−39:42:05.32	0.155
G53.55+0.08	19:30:04.9	+18:18:11.27	0.351	G347.00+0.13	17:09:59.8	−39:40:41.27	0.154
G53.56+0.30	19:29:17.3	+18:24:53.42	0.151	G347.00−0.09	17:10:54.7	−39:48:00.62	0.191
G53.56+0.26	19:29:27.0	+18:23:39.46	0.189	G347.01+0.04	17:10:23.7	−39:43:20.71	0.192
G53.56+0.30	19:29:18.0	+18:24:56.41	0.154	G347.01−0.09	17:10:58.0	−39:47:45.36	0.150
G53.58+0.24	19:29:33.4	+18:24:12.93	0.208	G347.02+0.30	17:09:22.4	−39:33:23.11	0.184
G53.59+0.49	19:28:39.0	+18:31:43.16	0.172	G347.05−0.14	17:11:17.3	−39:47:42.20	0.188
G53.59+0.00	19:30:26.8	+18:18:03.21	0.240	G347.05+0.05	17:10:29.5	−39:40:37.83	0.152
G53.59+0.08	19:30:10.2	+18:20:19.14	0.218	G347.06−0.27	17:11:51.9	−39:51:44.04	0.157
G53.60−0.02	19:30:32.4	+18:17:46.88	0.184	G347.06+0.04	17:10:35.4	−39:40:49.02	0.160
G53.60+0.45	19:28:49.9	+18:31:20.95	0.188	G347.09+0.03	17:10:42.7	−39:39:55.97	0.151
G53.61+0.13	19:30:01.3	+18:22:29.11	0.297	G347.10−0.06	17:11:06.1	−39:42:24.95	0.185
G53.62−0.07	19:30:45.8	+18:17:28.20	0.193	G347.11−0.31	17:12:11.4	−39:51:01.85	0.157
G53.64+0.53	19:28:35.9	+18:36:04.64	0.185	G347.11+0.13	17:10:20.4	−39:35:14.67	0.261
G53.67−0.18	19:31:15.6	+18:16:49.75	0.204	G347.12−0.35	17:12:22.7	−39:52:02.10	0.173
G53.67−0.25	19:31:32.3	+18:14:42.57	0.178	G347.12+0.01	17:10:52.0	−39:38:48.82	0.278
G53.67+0.32	19:29:26.4	+18:31:08.71	0.227	G347.13−0.18	17:11:41.2	−39:45:18.97	0.151

Table A.1. continued.

IRDC name	R.A. ($^{h}:^{m}:^{s}$) (J2000)	Decl. ($^{\circ}:':''$) (J2000)	$C_{24\mu m}$	IRDC name	R.A. ($^{h}:^{m}:^{s}$) (J2000)	Decl. ($^{\circ}:':''$) (J2000)	$C_{24\mu m}$
G53.68+0.12	19:30:11.7	+18:25:48.68	0.308	G347.13−0.14	17:11:32.5	−39:43:55.39	0.199
G53.69+0.24	19:29:45.8	+18:29:55.58	0.246	G347.14−0.10	17:11:22.8	−39:42:09.57	0.237
G53.69+0.38	19:29:15.6	+18:34:09.50	0.159	G347.14−0.01	17:11:01.0	−39:39:03.91	0.158
G53.70+0.03	19:30:34.4	+18:24:31.70	0.166	G347.14−0.24	17:11:57.4	−39:46:51.58	0.160
G53.70−0.05	19:30:52.8	+18:22:26.04	0.175	G347.15−0.03	17:11:06.5	−39:39:04.03	0.242
G53.71+0.24	19:29:48.5	+18:31:23.50	0.152	G347.15+0.24	17:10:00.9	−39:29:34.37	0.151
G53.71+0.50	19:28:52.2	+18:38:42.81	0.246	G347.16+0.14	17:10:27.4	−39:32:37.00	0.152
G53.73+0.01	19:30:43.0	+18:25:28.96	0.276	G347.16+0.24	17:10:02.7	−39:28:37.73	0.151
G53.73−0.16	19:31:20.7	+18:20:39.14	0.156	G347.17+0.11	17:10:37.1	−39:33:18.68	0.214
G53.74+0.06	19:30:31.9	+18:27:42.70	0.155	G347.17+0.29	17:09:51.2	−39:26:38.92	0.158
G53.75+0.51	19:28:54.1	+18:40:46.62	0.174	G347.18+0.08	17:10:46.2	−39:33:22.40	0.169
G53.75+0.43	19:29:11.9	+18:38:29.41	0.254	G347.18+0.18	17:10:21.9	−39:29:51.98	0.159
G53.75−0.16	19:31:23.0	+18:21:46.03	0.167	G347.20+0.10	17:10:44.0	−39:31:58.72	0.177
G53.75−0.14	19:31:18.5	+18:22:22.07	0.184	G347.20+0.13	17:10:38.6	−39:30:52.10	0.160
G53.75+0.01	19:30:44.4	+18:26:49.81	0.224	G347.23+0.12	17:10:43.6	−39:29:43.12	0.232
G53.75−0.03	19:30:53.9	+18:25:36.77	0.150	G347.23−0.06	17:11:29.1	−39:36:03.41	0.297
G53.75+0.27	19:29:47.9	+18:34:11.41	0.452	G347.25+0.16	17:10:38.8	−39:27:45.15	0.205
G53.76−0.07	19:31:04.4	+18:24:46.66	0.167	G347.25+0.10	17:10:53.2	−39:29:18.93	0.172
G53.78−0.08	19:31:06.9	+18:25:38.13	0.162	G347.26+0.13	17:10:47.4	−39:27:43.55	0.159
G53.78+0.20	19:30:06.7	+18:33:46.81	0.196	G347.27−0.07	17:11:39.4	−39:34:46.39	0.172
G53.79−0.14	19:31:22.6	+18:24:08.93	0.219	G347.28+0.18	17:10:39.3	−39:25:23.39	0.227
G53.79+0.17	19:30:13.6	+18:33:16.26	0.151	G347.28+0.11	17:10:57.0	−39:27:45.79	0.228
G53.81−0.20	19:31:37.6	+18:23:40.17	0.185	G347.28+0.07	17:11:06.1	−39:28:53.61	0.164
G53.81+0.31	19:29:45.2	+18:38:46.76	0.320	G347.28+0.28	17:10:16.0	−39:21:32.34	0.159
G53.83+0.41	19:29:26.8	+18:42:30.08	0.442	G347.30+0.30	17:10:13.9	−39:19:48.06	0.165
G53.84+0.35	19:29:38.9	+18:41:02.40	0.152	G347.31+0.19	17:10:42.4	−39:23:46.54	0.237
G53.84−0.24	19:31:51.2	+18:23:59.82	0.153	G347.31+0.26	17:10:23.6	−39:20:42.90	0.172
G53.84+0.53	19:28:58.8	+18:46:28.20	0.161	G347.34+0.30	17:10:20.6	−39:18:11.63	0.253
G53.85−0.15	19:31:31.4	+18:27:09.48	0.172	G347.34+0.05	17:11:22.9	−39:26:49.74	0.163
G53.86−0.04	19:31:09.4	+18:31:08.13	0.231	G347.35−0.29	17:12:49.4	−39:38:16.23	0.159
G53.88−0.17	19:31:38.9	+18:28:15.19	0.278	G347.35−0.05	17:11:49.4	−39:29:45.14	0.184
G53.88−0.16	19:31:38.4	+18:28:52.33	0.161	G347.36−0.29	17:12:52.8	−39:38:01.15	0.157
G53.89−0.02	19:31:08.0	+18:32:51.91	0.323	G347.37+0.02	17:11:33.7	−39:26:34.68	0.244
G53.89−0.15	19:31:35.9	+18:29:20.47	0.168	G347.37+0.07	17:11:22.3	−39:24:32.88	0.161
G53.89+0.40	19:29:33.6	+18:45:16.80	0.150	G347.38+0.20	17:10:54.3	−39:19:37.29	0.347
G53.91+0.39	19:29:39.5	+18:46:05.04	0.264	G347.40+0.11	17:11:16.8	−39:21:56.98	0.159
G53.95−0.02	19:31:15.5	+18:36:22.98	0.158	G347.40+0.13	17:11:14.5	−39:20:59.34	0.179
G53.96−0.01	19:31:15.7	+18:37:06.41	0.158	G347.42+0.13	17:11:18.1	−39:20:25.38	0.151
G53.97−0.39	19:32:40.5	+18:26:25.23	0.163	G347.42+0.17	17:11:07.8	−39:18:56.09	0.193
G53.98−0.02	19:31:17.9	+18:37:49.03	0.172	G347.44+0.17	17:11:10.4	−39:17:32.87	0.163
G53.99−0.13	19:31:43.5	+18:35:06.91	0.186	G347.55+0.37	17:10:42.1	−39:05:32.21	0.182
G53.99−0.07	19:31:31.7	+18:36:49.00	0.256	G347.58−0.54	17:14:36.5	−39:36:10.97	0.156
G54.00+0.02	19:31:11.9	+18:40:18.22	0.169	G347.58+0.14	17:11:45.5	−39:12:11.82	0.650
G54.00+0.04	19:31:08.7	+18:40:49.72	0.165	G347.58−0.53	17:14:34.3	−39:35:41.99	0.153
G54.00−0.19	19:32:00.4	+18:34:07.75	0.168	G347.59+0.28	17:11:10.6	−39:06:55.72	0.189
G54.00+0.02	19:31:14.4	+18:40:11.75	0.151	G347.59+0.31	17:11:03.4	−39:05:33.43	0.249
G54.01−0.12	19:31:45.8	+18:36:15.28	0.159	G347.60−0.06	17:12:38.1	−39:18:29.00	0.175
G54.01−0.03	19:31:25.6	+18:39:12.36	0.274	G347.60+0.28	17:11:14.1	−39:06:15.46	0.220

Table A.1. continued.

IRDC name	R.A. ($^{h}:^{m}:^{s}$) (J2000)	Decl. ($^{\circ}:':''$) (J2000)	$C_{24\mu m}$	IRDC name	R.A. ($^{h}:^{m}:^{s}$) (J2000)	Decl. ($^{\circ}:':''$) (J2000)	$C_{24\mu m}$
G54.02−0.19	19:32:02.0	+18:34:47.53	0.176	G347.61+0.06	17:12:09.3	−39:13:40.67	0.155
G54.02+0.08	19:31:03.1	+18:42:46.76	0.300	G347.61−0.02	17:12:29.8	−39:16:04.41	0.171
G54.03+0.02	19:31:16.8	+18:41:20.55	0.317	G347.62+0.15	17:11:49.1	−39:10:05.84	0.763
G54.03+0.39	19:29:54.2	+18:52:05.29	0.208	G347.62+0.29	17:11:13.9	−39:04:49.93	0.155
G54.04−0.21	19:32:07.2	+18:35:25.01	0.197	G347.62−0.01	17:12:28.8	−39:15:15.41	0.159
G54.05+0.37	19:30:02.7	+18:52:55.03	0.150	G347.63+0.00	17:12:26.9	−39:14:32.53	0.166
G54.05−0.38	19:32:47.4	+18:31:29.58	0.151	G347.64−0.03	17:12:38.0	−39:15:29.28	0.207
G54.06+0.16	19:30:49.0	+18:47:13.43	0.192	G347.64+0.00	17:12:28.9	−39:14:04.06	0.151
G54.11+0.07	19:31:14.7	+18:47:21.17	0.164	G347.64−0.21	17:13:23.8	−39:21:23.68	0.185
G54.12+0.23	19:30:40.3	+18:52:11.43	0.170	G347.65+0.05	17:12:18.9	−39:12:02.66	0.156
G54.12+0.01	19:31:28.8	+18:46:18.24	0.242	G347.66+0.04	17:12:24.3	−39:12:05.90	0.198
G54.14+0.42	19:30:00.7	+18:58:56.64	0.181	G347.67+0.06	17:12:19.2	−39:10:37.04	0.178
G54.16+0.04	19:31:28.1	+18:48:59.04	0.204	G347.67+0.13	17:12:03.8	−39:07:55.53	0.259
G54.17+0.41	19:30:05.8	+19:00:21.86	0.175	G347.68+0.20	17:11:46.5	−39:04:58.12	0.376
G54.18−0.11	19:32:02.6	+18:45:41.12	0.226	G347.70+0.26	17:11:36.1	−39:01:56.50	0.207
G54.18+0.06	19:31:26.9	+18:50:35.66	0.178	G347.70+0.19	17:11:54.8	−39:04:24.96	0.234
G54.18+0.38	19:30:15.3	+18:59:54.73	0.153	G347.72+0.08	17:12:24.2	−39:07:17.35	0.193
G54.18+0.39	19:30:12.9	+19:00:15.43	0.166	G347.72+0.13	17:12:13.3	−39:05:37.15	0.254
G54.26+0.10	19:31:26.9	+18:56:06.55	0.152	G347.73+0.33	17:11:24.4	−38:58:07.35	0.151
G54.31−0.01	19:31:58.3	+18:55:18.94	0.159	G347.74−0.28	17:13:57.2	−39:19:07.93	0.154
G54.32+0.34	19:30:39.2	+19:06:00.94	0.180	G347.74+0.30	17:11:33.2	−38:58:42.60	0.153
G54.32−0.01	19:31:59.5	+18:55:58.37	0.179	G347.74+0.18	17:12:03.6	−39:02:45.46	0.181
G54.33+0.39	19:30:30.4	+19:07:58.20	0.170	G347.75+0.31	17:11:33.2	−38:57:48.99	0.153
G54.38+0.92	19:28:38.9	+19:25:56.09	0.159	G347.77−0.13	17:13:26.0	−39:12:30.77	0.163
G54.71−0.25	19:33:39.7	+19:09:23.50	0.152	G347.79−0.12	17:13:26.8	−39:10:56.75	0.150
G55.00−0.34	19:34:36.1	+19:22:23.88	0.159	G347.80+0.02	17:12:53.1	−39:05:40.35	0.180
G55.04−0.23	19:34:15.7	+19:27:16.38	0.151	G347.84+0.19	17:12:19.6	−38:57:57.14	0.159
G55.06−0.14	19:33:57.5	+19:31:04.71	0.174	G347.84−0.36	17:14:38.2	−39:16:56.59	0.174
G55.10+0.05	19:33:20.0	+19:38:43.57	0.160	G347.85−0.23	17:14:07.5	−39:12:05.67	0.155
G55.10+0.20	19:32:47.0	+19:43:14.99	0.152	G347.85−0.40	17:14:49.1	−39:17:43.28	0.214
G55.11+0.20	19:32:48.6	+19:43:28.11	0.162	G347.86−0.24	17:14:09.1	−39:12:05.32	0.151
G55.12+0.18	19:32:55.5	+19:43:26.87	0.157	G347.89−0.43	17:15:04.8	−39:16:54.80	0.151
G55.14+0.04	19:33:28.8	+19:40:43.18	0.158	G347.91−0.23	17:14:15.2	−39:09:09.99	0.155
G55.16+0.12	19:33:11.2	+19:43:52.18	0.183	G347.91−0.05	17:13:32.5	−39:03:01.53	0.151
G55.19−0.07	19:33:59.0	+19:40:18.53	0.153	G347.92+0.10	17:12:57.2	−38:57:10.47	0.193
G55.20+0.15	19:33:09.6	+19:46:53.94	0.194	G347.93−0.43	17:15:10.7	−39:15:04.24	0.191
G55.22+0.26	19:32:49.2	+19:50:53.64	0.150	G347.94+0.01	17:13:22.4	−38:59:31.14	0.165
G55.29−0.26	19:34:54.8	+19:39:53.03	0.153	G347.94+0.03	17:13:17.6	−38:58:45.58	0.157
G56.02−0.15	19:35:58.9	+20:21:26.82	0.158	G347.97−0.01	17:13:31.6	−38:58:40.82	0.162
G56.03−0.15	19:36:01.1	+20:21:41.27	0.157	G348.00+0.26	17:12:32.1	−38:47:37.18	0.162
G56.16−0.14	19:36:15.3	+20:28:54.02	0.233	G348.02+0.48	17:11:39.6	−38:39:03.81	0.152
G56.43−0.26	19:37:14.9	+20:39:14.24	0.166	G348.08+0.40	17:12:10.7	−38:38:52.92	0.169
G57.44+0.26	19:37:26.3	+21:47:51.87	0.160	G348.09+0.24	17:12:53.2	−38:43:50.81	0.156
G57.63−0.06	19:39:02.8	+21:47:52.08	0.151	G348.10+0.25	17:12:49.8	−38:43:00.15	0.185
G57.68−0.09	19:39:14.8	+21:49:54.50	0.181	G348.10+0.63	17:11:17.1	−38:29:38.23	0.153
G57.73−0.10	19:39:24.2	+21:52:09.15	0.180	G348.10+0.51	17:11:46.6	−38:33:45.30	0.155
G58.22+0.76	19:37:11.1	+22:43:08.12	0.152	G348.10+0.49	17:11:51.7	−38:34:21.60	0.192
G58.46+0.34	19:39:18.5	+22:42:58.53	0.159	G348.11+0.52	17:11:47.0	−38:32:50.74	0.152

Table A.1. continued.

IRDC name	R.A. ($^{h}:^{m}:^{s}$) (J2000)	Decl. ($^{\circ}:':''$) (J2000)	$C_{24\mu m}$	IRDC name	R.A. ($^{h}:^{m}:^{s}$) (J2000)	Decl. ($^{\circ}:':''$) (J2000)	$C_{24\mu m}$
G58.47+0.34	19:39:20.0	+22:43:51.78	0.210	G348.12+0.75	17:10:49.9	−38:24:22.44	0.193
G58.49+0.34	19:39:21.6	+22:44:57.46	0.165	G348.12+0.48	17:11:56.5	−38:33:46.86	0.155
G58.56+0.35	19:39:27.7	+22:48:52.14	0.211	G348.13+0.30	17:12:43.5	−38:39:31.05	0.167
G58.91−0.27	19:42:33.4	+22:48:30.71	0.175	G348.14+0.42	17:12:17.1	−38:35:15.50	0.235
G59.18−0.30	19:43:15.5	+23:01:38.80	0.205	G348.16+0.50	17:11:58.2	−38:31:20.60	0.154
G59.18−0.33	19:43:22.4	+23:00:54.73	0.199	G348.17+0.40	17:12:26.6	−38:34:19.53	0.177
G59.18−0.24	19:43:02.9	+23:03:43.22	0.171	G348.17+0.61	17:11:36.6	−38:26:53.10	0.165
G59.20−0.23	19:43:03.3	+23:05:04.60	0.183	G348.18+0.60	17:11:40.0	−38:26:41.82	0.201
G59.23−0.23	19:43:05.5	+23:06:18.44	0.158	G348.19+0.78	17:10:57.9	−38:19:56.79	0.204
G59.23−0.33	19:43:28.4	+23:03:23.82	0.198	G348.20+0.76	17:11:01.7	−38:20:15.39	0.232
G59.23−0.14	19:42:46.1	+23:09:03.04	0.214	G348.22+0.35	17:12:47.9	−38:33:29.30	0.158
G59.24−0.39	19:43:44.8	+23:02:11.55	0.158	G348.23+0.40	17:12:36.8	−38:31:26.92	0.211
G59.27−0.32	19:43:31.6	+23:05:57.01	0.219	G348.24+0.59	17:11:52.8	−38:24:08.75	0.243
G59.27−0.24	19:43:13.1	+23:08:33.85	0.228	G348.25+0.35	17:12:54.1	−38:32:11.75	0.165
G59.27+0.14	19:41:48.3	+23:19:43.26	0.170	G348.26+0.10	17:13:57.8	−38:40:24.05	0.201
G59.28−0.39	19:43:48.8	+23:04:26.84	0.161	G348.28+0.13	17:13:53.6	−38:38:48.20	0.160
G59.36−0.13	19:43:00.7	+23:16:03.89	0.153	G348.28+0.11	17:13:57.1	−38:39:07.54	0.161
G59.37−0.14	19:43:02.5	+23:16:19.24	0.151	G348.28+0.48	17:12:25.9	−38:26:08.94	0.327
G59.37−0.16	19:43:08.2	+23:15:44.49	0.196	G348.28+0.35	17:12:59.4	−38:30:53.93	0.177
G59.37+0.10	19:42:09.4	+23:23:40.19	0.183	G348.28+0.51	17:12:20.4	−38:25:11.24	0.211
G59.39−0.03	19:42:41.5	+23:20:49.16	0.157	G348.28+0.65	17:11:44.5	−38:20:01.52	0.247
G59.41−0.31	19:43:46.7	+23:13:40.38	0.205	G348.29+0.13	17:13:56.5	−38:38:08.99	0.167
G59.42−0.06	19:42:51.0	+23:21:25.35	0.220	G348.30+0.14	17:13:55.2	−38:37:01.10	0.178
G59.44−0.27	19:43:41.1	+23:16:03.75	0.163	G348.30+0.71	17:11:34.2	−38:16:54.78	0.155
G59.44−0.22	19:43:31.5	+23:17:30.65	0.202	G348.31+0.51	17:12:22.9	−38:23:41.79	0.243
G59.44−0.09	19:43:01.9	+23:21:27.15	0.151	G348.31+0.46	17:12:36.0	−38:25:26.62	0.151
G59.44−0.29	19:43:48.6	+23:15:41.15	0.207	G348.31+0.34	17:13:07.3	−38:29:29.81	0.172
G59.45−0.19	19:43:25.4	+23:18:53.32	0.218	G348.32+0.11	17:14:05.4	−38:37:13.79	0.182
G59.46−0.15	19:43:17.4	+23:20:43.73	0.161	G348.32+0.72	17:11:35.4	−38:15:44.09	0.230
G59.49−0.56	19:44:54.7	+23:09:47.96	0.168	G348.32+0.64	17:11:54.2	−38:18:13.67	0.160
G59.49−0.28	19:43:51.6	+23:18:45.94	0.226	G348.33+0.10	17:14:11.3	−38:37:13.37	0.192
G59.56−0.18	19:43:37.1	+23:24:58.47	0.248	G348.34+0.65	17:11:55.9	−38:16:59.06	0.242
G59.56−0.24	19:43:51.8	+23:23:13.16	0.257	G348.35+0.48	17:12:39.1	−38:22:33.77	0.214
G59.59−0.23	19:43:53.3	+23:24:54.36	0.201	G348.36+0.52	17:12:32.1	−38:20:42.13	0.265
G59.59−0.33	19:44:14.4	+23:22:14.45	0.249	G348.38+0.46	17:12:50.7	−38:22:13.66	0.276
G59.60−0.21	19:43:50.4	+23:26:08.85	0.217	G348.38+0.41	17:13:01.0	−38:23:35.77	0.189
G59.61−0.12	19:43:31.6	+23:29:28.68	0.192	G348.38+0.43	17:12:58.6	−38:22:57.16	0.151
G59.67−0.36	19:44:34.0	+23:25:23.46	0.269	G348.39+0.54	17:12:32.4	−38:18:55.32	0.298
G59.67−0.21	19:43:59.0	+23:30:01.02	0.158	G348.39+0.42	17:13:02.5	−38:22:53.33	0.180
G59.69−0.16	19:43:49.2	+23:32:40.71	0.158	G348.40+0.49	17:12:46.8	−38:20:07.00	0.220
G59.72−0.17	19:43:56.5	+23:33:26.54	0.159	G348.41+0.54	17:12:34.6	−38:17:31.30	0.152
G59.72−0.26	19:44:17.2	+23:31:15.12	0.191	G348.47+0.59	17:12:35.7	−38:13:00.17	0.179
G59.73−0.24	19:44:12.0	+23:32:06.64	0.154	G348.50−0.43	17:16:54.9	−38:47:15.45	0.178
G59.73+0.02	19:43:14.8	+23:39:44.21	0.183	G348.51−0.48	17:17:08.1	−38:48:39.02	0.152
G59.73+0.00	19:43:18.6	+23:39:15.52	0.193	G348.51−0.51	17:17:16.3	−38:49:44.21	0.164
G59.74−0.28	19:44:22.8	+23:31:22.65	0.164	G348.54−0.09	17:15:35.1	−38:33:28.49	0.154
G59.75+0.15	19:42:48.7	+23:44:51.61	0.156	G348.54−0.48	17:17:12.1	−38:46:52.07	0.199
G59.80+0.14	19:42:57.2	+23:47:12.92	0.158	G348.54−0.52	17:17:22.3	−38:48:11.09	0.180

Table A.1. continued.

IRDC name	R.A. ($^{h}:^{m}:^{s}$) (J2000)	Decl. ($^{\circ}:':''$) (J2000)	$C_{24\mu m}$	IRDC name	R.A. ($^{h}:^{m}:^{s}$) (J2000)	Decl. ($^{\circ}:':''$) (J2000)	$C_{24\mu m}$
G59.81−0.24	19:44:24.6	+23:36:16.85	0.182	G348.57−0.38	17:16:53.5	−38:42:09.07	0.184
G59.82−0.32	19:44:43.6	+23:34:36.18	0.154	G348.58−0.48	17:17:19.1	−38:45:05.14	0.226
G59.82−0.23	19:44:22.5	+23:37:33.08	0.165	G348.60−0.25	17:16:25.1	−38:35:57.25	0.156
G59.86−0.21	19:44:24.2	+23:39:37.21	0.171	G348.63−0.53	17:17:42.5	−38:44:33.84	0.174
G59.88+0.62	19:41:17.2	+24:05:26.63	0.156	G348.64+0.40	17:13:52.9	−38:11:23.03	0.155
G59.88−0.10	19:44:02.2	+23:44:16.95	0.158	G348.65−0.50	17:17:36.7	−38:42:28.05	0.173
G59.88−0.09	19:43:59.3	+23:44:43.54	0.189	G348.66−0.46	17:17:29.5	−38:40:45.23	0.256
G59.90−0.01	19:43:42.8	+23:48:00.88	0.178	G348.66−0.53	17:17:46.8	−38:42:48.94	0.198
G59.91+0.15	19:43:08.3	+23:52:53.77	0.163	G348.68+0.32	17:14:18.0	−38:12:15.20	0.156
G59.92+0.01	19:43:41.1	+23:49:17.76	0.150	G348.69−0.45	17:17:32.7	−38:38:51.23	0.222
G59.92+0.02	19:43:38.8	+23:49:53.17	0.152	G348.70−0.40	17:17:22.5	−38:36:30.26	0.221
G59.95+0.11	19:43:22.0	+23:54:07.46	0.164	G348.72−0.34	17:17:08.0	−38:33:22.89	0.158
G60.00+0.04	19:43:44.7	+23:54:45.46	0.163	G348.73−0.46	17:17:39.7	−38:37:05.77	0.187
G60.01+0.05	19:43:44.2	+23:55:11.46	0.152	G348.74−0.28	17:16:57.7	−38:30:21.06	0.202
G60.02+0.07	19:43:42.0	+23:56:27.05	0.156	G348.75+0.31	17:14:34.1	−38:09:11.82	0.153
G60.02+0.16	19:43:20.8	+23:59:20.93	0.182	G348.76−0.24	17:16:50.6	−38:27:52.73	0.156
G60.06−0.48	19:45:50.4	+23:42:15.37	0.151	G348.76+0.28	17:14:43.8	−38:09:49.18	0.226
G60.07+0.16	19:43:26.4	+24:01:46.76	0.238	G348.77−0.52	17:18:04.3	−38:37:04.51	0.167
G60.12−0.07	19:44:24.7	+23:57:30.99	0.175	G348.78−0.41	17:17:38.2	−38:33:00.52	0.210
G60.87−0.04	19:45:58.8	+24:37:17.19	0.219	G348.78+0.24	17:14:55.9	−38:09:58.36	0.151
G60.88−0.13	19:46:20.2	+24:35:18.21	0.865	G348.79+0.22	17:15:02.7	−38:10:09.44	0.152
G60.92−0.06	19:46:08.7	+24:39:38.95	0.180	G348.80−0.55	17:18:16.7	−38:36:43.64	0.179
G60.93−0.21	19:46:45.1	+24:35:04.10	0.173	G348.80−0.26	17:17:05.1	−38:26:39.56	0.335
G60.94−0.22	19:46:47.3	+24:35:29.60	0.153	G348.82−0.50	17:18:06.9	−38:33:57.31	0.196
G60.94−0.06	19:46:13.0	+24:40:22.87	0.165	G348.82+0.23	17:15:06.1	−38:08:40.03	0.228
G60.94−0.24	19:46:52.6	+24:35:18.17	0.164	G348.83−0.48	17:18:04.0	−38:32:43.95	0.228
G60.95−0.22	19:46:48.2	+24:36:07.30	0.201	G348.85−0.29	17:17:18.6	−38:25:22.28	0.168
G60.95−0.27	19:47:00.4	+24:34:54.58	0.170	G348.85−0.28	17:17:18.9	−38:24:59.59	0.152
G60.96−0.04	19:46:10.7	+24:41:57.06	0.171	G348.86−0.46	17:18:04.6	−38:31:00.65	0.170
G60.98−0.05	19:46:15.6	+24:42:41.61	0.209	G348.88−0.44	17:18:04.8	−38:28:58.02	0.153
G61.02−0.13	19:46:37.7	+24:42:28.24	0.262	G348.89−0.39	17:17:51.6	−38:27:02.77	0.197
G61.02−0.90	19:49:34.4	+24:19:03.04	0.155	G348.89−0.45	17:18:08.6	−38:29:02.10	0.164
G61.03+0.09	19:45:48.7	+24:49:29.57	0.154	G348.90−0.36	17:17:45.4	−38:25:16.77	0.176
G61.03+0.08	19:45:52.3	+24:49:07.02	0.159	G348.91−0.49	17:18:21.8	−38:29:06.75	0.246
G61.06−0.26	19:47:13.5	+24:40:50.63	0.157	G348.94−0.48	17:18:22.7	−38:27:27.74	0.158
G61.07−0.77	19:49:10.8	+24:25:38.09	0.234	G348.94+0.07	17:16:07.7	−38:08:20.67	0.219
G61.07−0.25	19:47:13.3	+24:41:23.34	0.152	G348.95−0.45	17:18:17.6	−38:26:15.74	0.163
G61.08−0.26	19:47:14.4	+24:41:35.77	0.151	G348.95−0.35	17:17:53.6	−38:22:31.65	0.151
G61.08−0.15	19:46:51.8	+24:44:46.42	0.158	G348.97−0.53	17:18:42.8	−38:27:47.40	0.192
G61.08−0.71	19:48:59.8	+24:28:00.53	0.165	G349.02−0.74	17:19:42.9	−38:32:45.60	0.357
G61.09−0.88	19:49:39.4	+24:23:15.23	0.232	G349.02−0.35	17:18:05.2	−38:19:04.03	0.189
G61.10−0.78	19:49:16.9	+24:26:48.14	0.160	G349.05+0.04	17:16:32.6	−38:04:03.05	0.256
G61.10−0.72	19:49:04.5	+24:28:35.70	0.156	G349.07−0.43	17:18:35.1	−38:19:32.03	0.191
G61.10+0.23	19:45:25.6	+24:57:36.53	0.161	G349.08−0.19	17:17:35.3	−38:10:16.59	0.181
G61.11−0.85	19:49:33.6	+24:25:12.40	0.194	G349.09+0.05	17:16:38.4	−38:02:05.66	0.150
G61.11−0.61	19:48:40.7	+24:32:34.03	0.193	G349.11−0.49	17:18:55.3	−38:19:36.24	0.158
G61.19+0.30	19:45:22.1	+25:04:01.71	0.173	G349.12−0.25	17:17:58.0	−38:10:43.26	0.166
G61.19+0.26	19:45:32.8	+25:03:00.32	0.166	G349.15+0.09	17:16:39.6	−37:57:40.68	0.457

Table A.1. continued.

IRDC name	R.A. ($^{h}:^{m}:^{s}$) (J2000)	Decl. ($^{\circ}:':''$) (J2000)	$C_{24\mu m}$	IRDC name	R.A. ($^{h}:^{m}:^{s}$) (J2000)	Decl. ($^{\circ}:':''$) (J2000)	$C_{24\mu m}$
G61.21+0.29	19:45:26.8	+25:04:53.61	0.152	G349.16−0.01	17:17:06.9	−38:00:26.17	0.274
G61.21+0.27	19:45:31.0	+25:04:23.11	0.167	G349.16−0.10	17:17:27.6	−38:03:15.18	0.171
G61.21+0.29	19:45:27.8	+25:04:54.44	0.150	G349.17−0.39	17:18:43.2	−38:13:07.49	0.153
G61.21+0.30	19:45:26.1	+25:05:15.95	0.153	G349.20+0.12	17:16:40.3	−37:54:13.94	0.153
G61.22−0.21	19:47:22.8	+24:50:32.90	0.151	G349.20−0.19	17:17:57.0	−38:04:47.42	0.162
G61.24−0.33	19:47:51.9	+24:47:49.19	0.156	G349.21−0.53	17:19:24.0	−38:15:55.19	0.191
G61.29+0.27	19:45:43.7	+25:08:31.28	0.154	G349.26+0.02	17:17:14.0	−37:54:40.90	0.263
G61.34+0.24	19:45:56.1	+25:10:09.32	0.161	G349.26−0.14	17:17:54.5	−38:00:08.13	0.163
G61.35+0.11	19:46:27.2	+25:06:51.01	0.195	G349.26−0.12	17:17:50.7	−37:59:19.98	0.195
G61.37−0.07	19:47:12.5	+25:02:22.31	0.165	G349.27−0.55	17:19:38.3	−38:13:28.47	0.158
G61.38+0.18	19:46:15.5	+25:10:23.95	0.157	G349.27−0.52	17:19:31.8	−38:12:34.60	0.175
G61.39−0.38	19:48:25.9	+24:53:57.50	0.170	G349.28−0.12	17:17:53.5	−37:58:43.11	0.150
G61.39+0.04	19:46:48.4	+25:06:55.59	0.194	G349.30−0.05	17:17:40.7	−37:55:00.64	0.160
G61.39−0.37	19:48:23.3	+24:54:24.72	0.171	G349.31−0.12	17:17:59.0	−37:57:11.21	0.160
G61.40−0.30	19:48:09.0	+24:57:07.78	0.169	G349.31−0.38	17:19:02.5	−38:05:52.43	0.188
G61.42+0.02	19:46:56.3	+25:07:45.79	0.178	G349.32−0.05	17:17:42.7	−37:53:46.48	0.178
G61.42+0.20	19:46:16.8	+25:13:04.10	0.155	G349.32−0.36	17:19:00.8	−38:04:30.42	0.175
G61.42+0.19	19:46:17.5	+25:13:06.82	0.156	G349.40−0.20	17:18:32.9	−37:55:19.70	0.170
G61.43+0.19	19:46:18.6	+25:13:26.80	0.165	G349.42−0.19	17:18:35.9	−37:54:07.88	0.153
G61.43−0.29	19:48:10.5	+24:58:54.81	0.151	G349.45+0.15	17:17:16.5	−37:41:02.33	0.166
G61.43+0.02	19:46:59.5	+25:08:29.03	0.206	G349.45+0.49	17:15:52.5	−37:28:58.24	0.160
G61.47−0.31	19:48:18.7	+25:00:14.96	0.168	G349.46+0.51	17:15:48.8	−37:27:47.71	0.175
G61.47+0.18	19:46:27.9	+25:15:09.05	0.164	G349.46+0.17	17:17:14.8	−37:39:22.35	0.353
G61.47−0.29	19:48:14.5	+25:01:10.20	0.214	G349.48−0.20	17:18:47.8	−37:51:16.15	0.217
G61.47−0.11	19:47:35.2	+25:06:34.62	0.221	G349.49+0.16	17:17:20.8	−37:38:41.84	0.181
G61.52−0.84	19:50:27.8	+24:46:31.38	0.164	G349.56−0.48	17:20:11.3	−37:57:13.85	0.151
G61.53−0.20	19:48:03.2	+25:06:41.92	0.165	G349.62−0.19	17:19:08.7	−37:44:08.64	0.204
G61.56−0.16	19:47:58.1	+25:09:47.99	0.193	G349.69−0.20	17:19:25.4	−37:40:53.31	0.166
G61.57+0.30	19:46:12.2	+25:23:47.72	0.173	G349.69−0.18	17:19:20.4	−37:40:01.70	0.298
G61.57+0.31	19:46:11.0	+25:24:31.20	0.151	G349.75+0.07	17:18:28.1	−37:28:49.48	0.209
G61.58+0.31	19:46:10.6	+25:24:43.34	0.152	G349.75+0.00	17:18:45.9	−37:31:05.06	0.151
G61.59+0.15	19:46:48.9	+25:20:23.92	0.181	G349.75−0.26	17:19:50.2	−37:39:50.04	0.166
G61.60+0.11	19:46:59.6	+25:19:51.80	0.161	G349.76+0.14	17:18:13.4	−37:25:55.69	0.153
G61.65+0.13	19:47:02.9	+25:22:51.49	0.160	G349.77+0.02	17:18:45.5	−37:29:19.98	0.239
G61.65−0.05	19:47:44.9	+25:17:37.96	0.163	G349.78−0.39	17:20:28.6	−37:43:23.74	0.157
G61.67−0.03	19:47:40.8	+25:19:07.26	0.158	G349.79+0.16	17:18:13.7	−37:23:29.83	0.187
G61.69+0.28	19:46:32.8	+25:29:38.12	0.186	G349.79+0.51	17:16:48.9	−37:11:33.19	0.246
G61.69+0.92	19:44:07.5	+25:48:58.33	0.870	G349.86+0.55	17:16:49.3	−37:06:29.76	0.244
G61.73+0.26	19:46:43.9	+25:31:11.60	0.151	G349.87−0.44	17:20:55.0	−37:40:18.70	0.211
G61.76+0.36	19:46:24.3	+25:35:22.04	0.166	G349.89+0.56	17:16:51.1	−37:04:53.74	0.210
G61.77+0.30	19:46:39.4	+25:34:32.07	0.150	G349.91−0.52	17:21:22.4	−37:40:53.20	0.220
G61.80+0.28	19:46:47.6	+25:35:34.51	0.158	G349.92−0.14	17:19:51.0	−37:27:51.31	0.182
G62.42+0.60	19:46:57.4	+26:17:18.38	0.155	G349.96+0.48	17:17:23.8	−37:04:02.24	0.152
G62.95−0.37	19:51:54.0	+26:15:04.60	0.158	G349.98−0.44	17:21:15.1	−37:35:01.70	0.221
G62.98+0.11	19:50:06.8	+26:31:28.97	0.174	G349.98+0.48	17:17:27.0	−37:03:16.18	0.224
G62.99+0.11	19:50:09.3	+26:31:58.70	0.163	G349.99−0.33	17:20:49.9	−37:31:05.49	0.159
G63.02−0.37	19:52:02.0	+26:18:27.06	0.157	G349.99−0.42	17:21:11.5	−37:33:50.92	0.154
G63.02+0.16	19:50:00.1	+26:34:57.81	0.174	G350.01−0.51	17:21:38.5	−37:35:42.62	0.189

Table A.1. continued.

IRDC name	R.A. ($^{h}:^{m}:^{s}$) (J2000)	Decl. ($^{\circ}:':''$) (J2000)	$C_{24\mu m}$	IRDC name	R.A. ($^{h}:^{m}:^{s}$) (J2000)	Decl. ($^{\circ}:':''$) (J2000)	$C_{24\mu m}$
G63.03+0.19	19:49:55.7	+26:36:17.07	0.178	G350.08+0.70	17:16:51.0	−36:51:01.98	0.151
G63.07+0.41	19:49:08.9	+26:45:07.65	0.162	G350.09−0.21	17:20:35.6	−37:21:41.08	0.156
G63.08+0.24	19:49:50.7	+26:40:14.94	0.164	G350.09−0.21	17:20:37.3	−37:21:22.58	0.151
G63.08+0.41	19:49:11.8	+26:45:48.25	0.173	G350.11−0.45	17:21:40.6	−37:28:42.79	0.151
G63.09−0.24	19:51:43.1	+26:26:11.12	0.153	G350.15+0.01	17:19:52.2	−37:11:18.54	0.151
G63.10+0.41	19:49:15.2	+26:46:34.29	0.174	G350.24−0.51	17:22:17.5	−37:24:46.69	0.215
G63.13+0.41	19:49:18.4	+26:47:45.59	0.201	G350.26−0.49	17:22:16.6	−37:22:58.21	0.309
G63.14−0.27	19:51:56.9	+26:27:34.73	0.162	G350.28+0.91	17:16:36.0	−36:33:49.02	0.180
G63.16−0.23	19:51:50.4	+26:30:04.40	0.235	G350.28+0.09	17:19:55.6	−37:01:53.49	0.157
G63.17+0.27	19:49:56.1	+26:45:53.13	0.150	G350.33+0.67	17:17:40.2	−36:39:42.84	0.158
G63.17+0.37	19:49:33.3	+26:49:06.11	0.251	G350.34+0.94	17:16:38.6	−36:29:37.99	0.198
G63.18−0.17	19:51:37.6	+26:32:53.49	0.157	G350.36−0.31	17:21:48.0	−37:11:25.94	0.163
G63.18+0.37	19:49:33.6	+26:49:47.60	0.169	G350.40−0.02	17:20:44.7	−36:59:52.29	0.160
G63.22+0.37	19:49:39.8	+26:51:15.60	0.160	G350.41−0.06	17:20:53.7	−37:00:42.32	0.241
G63.35+0.45	19:49:39.4	+27:00:29.35	0.152	G350.41+0.93	17:16:51.7	−36:26:38.65	0.281
G66.32+0.73	19:55:27.5	+29:42:11.13	0.151	G350.42+0.95	17:16:48.8	−36:25:44.25	0.156
G66.34+0.74	19:55:29.7	+29:43:54.48	0.156	G350.43+0.92	17:16:57.8	−36:25:47.42	0.158
G66.48+0.75	19:55:46.5	+29:51:09.66	0.151	G350.43+0.89	17:17:06.2	−36:26:53.63	0.285
G66.80+0.82	19:56:16.0	+30:09:58.88	0.252	G350.44+0.74	17:17:43.6	−36:31:50.04	0.249
G66.88+0.85	19:56:20.1	+30:14:49.44	0.153	G350.44−0.27	17:21:53.9	−37:06:23.49	0.169
G66.90+0.86	19:56:19.7	+30:15:58.96	0.171	G350.52+0.86	17:17:27.6	−36:23:42.60	0.222
G66.91+0.87	19:56:21.9	+30:16:55.34	0.150	G350.52−0.27	17:22:06.5	−37:02:24.28	0.206
G292.84−0.64	11:24:22.2	−61:47:22.37	0.152	G350.52+0.82	17:17:39.7	−36:25:03.47	0.152
G293.52−0.61	11:29:58.9	−61:58:55.24	0.151	G350.53+0.71	17:18:06.3	−36:28:18.29	0.153
G293.61−0.46	11:31:05.9	−61:52:00.65	0.152	G350.53−0.74	17:24:04.2	−37:17:52.54	0.258
G293.62−0.67	11:30:38.9	−62:04:07.20	0.154	G350.53+0.92	17:17:17.1	−36:21:06.04	0.257
G293.72−0.65	11:31:29.8	−62:04:59.01	0.153	G350.54+0.80	17:17:45.8	−36:25:04.78	0.173
G293.96−0.78	11:33:04.6	−62:16:52.03	0.152	G350.54+0.82	17:17:39.6	−36:24:07.02	0.190
G293.96−0.78	11:33:05.8	−62:17:02.54	0.165	G350.54+0.71	17:18:08.3	−36:28:04.51	0.160
G294.08−0.37	11:35:09.1	−61:55:15.64	0.166	G350.54−0.25	17:22:03.6	−37:00:55.36	0.229
G294.39−0.40	11:37:32.9	−62:02:06.12	0.188	G350.55+0.04	17:20:55.0	−36:50:39.18	0.188
G294.51−0.48	11:38:21.2	−62:09:18.19	0.162	G350.55+0.95	17:17:11.0	−36:18:52.22	0.161
G294.96−0.63	11:41:45.0	−62:24:54.84	0.157	G350.56−0.71	17:24:02.0	−37:15:47.68	0.190
G294.97−0.61	11:41:48.9	−62:24:09.67	0.156	G350.56+0.76	17:17:58.9	−36:24:58.57	0.229
G294.97−0.63	11:41:47.6	−62:25:24.91	0.153	G350.57+0.97	17:17:09.3	−36:17:40.42	0.154
G294.97−0.59	11:41:54.7	−62:22:55.08	0.154	G350.58−0.42	17:22:52.6	−37:04:33.25	0.175
G294.98−0.57	11:42:01.3	−62:22:11.25	0.171	G350.59−0.43	17:22:55.9	−37:04:27.71	0.153
G295.02−0.78	11:41:52.1	−62:34:29.63	0.261	G350.60−0.43	17:22:58.6	−37:04:13.33	0.202
G295.03−0.57	11:42:24.4	−62:22:49.89	0.179	G350.61+0.82	17:17:53.0	−36:20:47.56	0.261
G295.03−0.48	11:42:40.2	−62:17:20.68	0.164	G350.62+0.67	17:18:30.7	−36:25:21.89	0.185
G295.04−0.80	11:41:57.6	−62:36:05.73	0.190	G350.62−0.68	17:24:04.7	−37:11:18.21	0.174
G295.04−0.59	11:42:28.4	−62:23:47.81	0.151	G350.63−0.27	17:22:23.6	−36:57:09.15	0.206
G295.05−0.60	11:42:31.3	−62:24:45.82	0.198	G350.63+0.68	17:18:31.6	−36:24:19.57	0.152
G295.05−0.77	11:42:09.8	−62:34:31.77	0.167	G350.64+0.67	17:18:34.2	−36:24:08.92	0.172
G295.05−0.47	11:42:52.0	−62:17:32.85	0.153	G350.65−0.26	17:22:23.7	−36:55:42.93	0.184
G295.06−0.71	11:42:21.4	−62:31:12.23	0.230	G350.65+0.68	17:18:35.9	−36:23:31.23	0.179
G295.06−0.56	11:42:44.3	−62:22:56.18	0.162	G350.67+0.77	17:18:15.7	−36:19:31.77	0.385
G295.06−0.48	11:42:55.8	−62:18:01.00	0.167	G350.67+0.53	17:19:15.5	−36:27:42.16	0.196

Table A.1. continued.

IRDC name	R.A. ($^{h}:^{m}:^{s}$) (J2000)	Decl. ($^{\circ}:':''$) (J2000)	$C_{24\mu m}$	IRDC name	R.A. ($^{h}:^{m}:^{s}$) (J2000)	Decl. ($^{\circ}:':''$) (J2000)	$C_{24\mu m}$
G295.07−0.74	11:42:22.1	−62:33:09.51	0.175	G350.68−0.15	17:22:03.3	−36:50:37.76	0.151
G295.07−0.63	11:42:39.4	−62:26:38.91	0.180	G350.69−0.02	17:21:32.4	−36:45:52.88	0.188
G295.12−0.48	11:43:25.9	−62:18:48.39	0.151	G350.69+0.63	17:18:53.3	−36:23:06.96	0.150
G295.13−0.74	11:42:51.7	−62:34:05.45	0.167	G350.69−0.48	17:23:26.2	−37:00:59.89	0.193
G295.16−0.54	11:43:33.7	−62:22:43.14	0.180	G350.69+0.03	17:21:21.0	−36:43:41.87	0.175
G295.17−0.42	11:43:56.3	−62:16:06.09	0.159	G350.69−0.15	17:22:04.8	−36:49:40.01	0.183
G295.17−0.52	11:43:44.7	−62:22:10.16	0.182	G350.70−0.46	17:23:22.5	−37:00:13.79	0.208
G295.21−0.68	11:43:40.0	−62:32:00.46	0.417	G350.70−0.01	17:21:33.2	−36:44:43.33	0.167
G295.21−0.52	11:44:04.0	−62:22:34.88	0.158	G350.70+0.90	17:17:50.8	−36:13:24.24	0.218
G295.21−0.42	11:44:17.9	−62:16:59.76	0.158	G350.70+0.81	17:18:11.1	−36:16:16.17	0.276
G295.25−0.52	11:44:21.7	−62:23:03.52	0.287	G350.71+0.67	17:18:46.0	−36:21:07.59	0.186
G295.28−0.79	11:44:03.0	−62:39:34.39	0.181	G350.71+0.03	17:21:23.3	−36:43:00.01	0.157
G295.28−0.65	11:44:21.7	−62:31:31.50	0.428	G350.71+0.84	17:18:06.4	−36:15:19.31	0.227
G295.29−0.68	11:44:19.5	−62:33:20.52	0.151	G350.71−0.44	17:23:20.4	−36:58:52.59	0.224
G295.30−0.81	11:44:10.1	−62:40:36.71	0.215	G350.72+0.02	17:21:27.4	−36:42:44.21	0.258
G295.32−0.61	11:44:47.8	−62:29:25.05	0.188	G350.72+0.05	17:21:21.6	−36:41:49.54	0.222
G295.33−0.58	11:44:54.1	−62:27:40.60	0.210	G350.73+0.72	17:18:38.1	−36:18:22.97	0.188
G295.33−0.48	11:45:07.4	−62:21:50.01	0.152	G350.73+0.81	17:18:16.8	−36:15:19.98	0.212
G295.33−0.48	11:45:09.4	−62:22:26.23	0.182	G350.73+0.70	17:18:43.8	−36:18:57.82	0.162
G295.34−0.61	11:44:55.2	−62:29:51.23	0.170	G350.74+0.97	17:17:39.2	−36:09:09.34	0.163
G295.34−0.45	11:45:17.3	−62:20:28.96	0.162	G350.74+0.89	17:17:59.5	−36:11:50.60	0.171
G295.35−0.59	11:45:03.1	−62:28:58.97	0.158	G350.74+0.92	17:17:51.9	−36:10:43.99	0.151
G295.36−0.70	11:44:52.1	−62:35:27.66	0.189	G350.75−0.58	17:24:01.3	−37:01:43.82	0.155
G295.38−0.60	11:45:16.2	−62:30:00.37	0.165	G350.75+0.88	17:18:01.8	−36:11:36.11	0.159
G296.01−0.46	11:50:54.9	−62:31:14.55	0.151	G350.75+0.95	17:17:46.3	−36:09:18.90	0.155
G296.28−0.61	11:52:54.9	−62:43:23.60	0.163	G350.75+0.12	17:21:08.2	−36:37:30.69	0.164
G296.29−0.63	11:52:55.7	−62:44:34.81	0.151	G350.75−0.59	17:24:04.4	−37:01:44.65	0.158
G296.31−0.61	11:53:05.3	−62:43:51.10	0.152	G350.76+0.90	17:17:59.1	−36:10:33.10	0.180
G296.57−0.80	11:55:01.4	−62:58:21.38	0.185	G350.76−0.21	17:22:31.7	−36:48:41.93	0.201
G296.57−0.77	11:55:04.7	−62:56:55.23	0.157	G350.76+0.95	17:17:48.2	−36:08:45.14	0.163
G296.71−0.43	11:56:53.8	−62:38:32.91	0.191	G350.76+0.92	17:17:54.3	−36:09:36.01	0.261
G296.83−0.33	11:58:06.0	−62:34:19.97	0.163	G350.77+0.89	17:18:03.8	−36:10:21.72	0.158
G297.14−0.50	12:00:25.4	−62:47:49.39	0.155	G350.78+0.78	17:18:32.1	−36:13:56.98	0.176
G297.14−0.52	12:00:24.6	−62:48:59.61	0.153	G350.79+0.90	17:18:04.2	−36:09:19.17	0.153
G297.17−0.51	12:00:40.0	−62:48:45.33	0.237	G350.79−0.30	17:22:58.0	−36:50:18.95	0.171
G297.22−0.25	12:01:31.9	−62:34:18.52	0.158	G350.79−0.27	17:22:51.3	−36:49:19.94	0.159
G297.23−0.60	12:01:01.1	−62:55:00.04	0.169	G350.79−0.32	17:23:04.5	−36:50:51.04	0.158
G297.25−0.59	12:01:12.9	−62:54:17.67	0.152	G350.79+0.80	17:18:29.7	−36:12:28.28	0.339
G297.26−0.36	12:01:39.3	−62:40:52.42	0.155	G350.79+0.76	17:18:40.4	−36:13:55.09	0.165
G297.26−0.54	12:01:22.6	−62:51:34.97	0.152	G350.79+0.94	17:17:55.5	−36:07:27.36	0.185
G297.26−0.56	12:01:21.5	−62:53:01.41	0.185	G350.81+0.57	17:19:29.0	−36:19:41.99	0.154
G297.27−0.60	12:01:21.2	−62:54:59.45	0.150	G350.82+0.88	17:18:14.1	−36:08:14.02	0.335
G297.27−0.53	12:01:29.0	−62:50:50.95	0.178	G350.82+0.48	17:19:53.1	−36:22:04.32	0.151
G297.27−0.22	12:01:59.7	−62:33:01.11	0.166	G350.82+0.78	17:18:39.1	−36:11:24.77	0.231
G297.27−0.16	12:02:06.9	−62:29:27.34	0.204	G350.83−0.62	17:24:24.3	−36:59:15.50	0.157
G297.28−0.56	12:01:29.6	−62:52:43.90	0.172	G350.83−0.49	17:23:52.7	−36:54:52.03	0.169
G297.28−0.52	12:01:33.8	−62:50:27.44	0.185	G350.83+0.48	17:19:54.6	−36:21:21.38	0.205
G297.28−0.21	12:02:06.0	−62:32:20.40	0.166	G350.84+0.45	17:20:02.6	−36:22:09.60	0.265

Table A.1. continued.

IRDC name	R.A. ($^{h}:^{m}:^{s}$) (J2000)	Decl. ($^{\circ}:':''$) (J2000)	$C_{24\mu m}$	IRDC name	R.A. ($^{h}:^{m}:^{s}$) (J2000)	Decl. ($^{\circ}:':''$) (J2000)	$C_{24\mu m}$
G297.32−0.80	12:01:27.8	−63:07:23.84	0.167	G350.84+0.81	17:18:35.3	−36:09:47.84	0.156
G297.33−0.36	12:02:15.9	−62:41:55.54	0.179	G350.84+0.55	17:19:39.6	−36:18:47.17	0.173
G297.33−0.69	12:01:43.6	−63:01:19.98	0.222	G350.84+0.93	17:18:06.2	−36:05:31.30	0.184
G297.34−0.45	12:02:14.8	−62:47:02.93	0.158	G350.85+0.71	17:19:00.2	−36:12:49.97	0.310
G297.35−0.37	12:02:24.8	−62:42:18.68	0.153	G350.85−0.63	17:24:31.8	−36:58:33.90	0.217
G297.36−0.70	12:02:00.1	−63:02:04.23	0.154	G350.85−0.32	17:23:14.1	−36:47:32.55	0.178
G297.36−0.46	12:02:24.6	−62:48:12.89	0.214	G350.86+0.56	17:19:38.7	−36:17:34.23	0.158
G297.38−0.43	12:02:34.3	−62:46:41.62	0.186	G350.86+0.16	17:21:19.4	−36:31:02.14	0.503
G297.38+0.36	12:03:51.9	−61:59:54.63	0.151	G350.87−0.62	17:24:32.3	−36:56:52.37	0.185
G297.40−0.78	12:02:12.1	−63:07:02.11	0.173	G350.88−0.24	17:22:58.7	−36:43:28.41	0.162
G297.40−0.70	12:02:20.1	−63:02:32.74	0.188	G350.88+0.51	17:19:56.4	−36:17:58.54	0.209
G297.44−0.66	12:02:44.2	−63:00:39.54	0.193	G350.89+0.54	17:19:50.0	−36:16:53.18	0.339
G297.44−0.69	12:02:43.6	−63:02:23.16	0.238	G350.89+0.59	17:19:38.0	−36:15:05.40	0.213
G297.45−0.81	12:02:35.7	−63:09:45.89	0.160	G350.89+0.68	17:19:16.9	−36:11:47.04	0.164
G297.46+0.03	12:04:02.7	−62:20:29.25	0.150	G350.90+0.80	17:18:48.6	−36:07:10.25	0.273
G297.47+0.04	12:04:06.6	−62:19:59.71	0.169	G350.91−0.62	17:24:37.7	−36:55:06.38	0.157
G297.48−0.68	12:03:00.4	−63:02:31.94	0.259	G350.92+0.43	17:20:22.2	−36:19:11.72	0.156
G297.48−0.83	12:02:51.1	−63:10:57.01	0.264	G350.92−0.54	17:24:19.5	−36:51:55.34	0.174
G297.50−0.69	12:03:10.8	−63:03:07.08	0.185	G350.93+0.75	17:19:04.8	−36:07:37.71	0.632
G297.54−0.67	12:03:32.8	−63:02:29.90	0.157	G350.93+0.51	17:20:04.1	−36:15:26.82	0.171
G297.59−0.83	12:03:44.0	−63:12:09.59	0.159	G350.94+0.66	17:19:27.5	−36:10:09.25	0.569
G297.59−0.77	12:03:53.1	−63:08:39.53	0.227	G350.94+0.44	17:20:22.9	−36:17:26.51	0.213
G297.60−0.83	12:03:52.4	−63:12:41.19	0.204	G350.94+0.87	17:18:37.9	−36:02:30.68	0.159
G297.74+0.08	12:06:27.1	−62:20:09.26	0.182	G350.95−0.41	17:23:53.2	−36:46:14.55	0.172
G297.90−0.44	12:07:03.4	−62:52:51.94	0.153	G350.95+0.85	17:18:44.4	−36:03:03.85	0.181
G297.97−0.44	12:07:40.1	−62:53:28.97	0.152	G350.95+0.83	17:18:50.7	−36:03:29.42	0.172
G297.98−0.76	12:07:15.2	−63:12:25.48	0.175	G350.96+0.45	17:20:23.3	−36:15:50.02	0.183
G298.00−0.76	12:07:26.2	−63:12:30.02	0.163	G350.97−0.37	17:23:44.9	−36:43:44.82	0.151
G298.02−0.25	12:08:21.4	−62:42:50.56	0.172	G350.97+0.66	17:19:33.6	−36:08:35.68	0.425
G298.02−0.43	12:08:07.7	−62:53:25.52	0.152	G350.97+0.54	17:20:02.5	−36:12:21.23	0.169
G298.02−0.43	12:08:08.6	−62:53:34.20	0.150	G350.98−0.34	17:23:41.9	−36:42:18.74	0.156
G298.04−0.14	12:08:41.9	−62:36:25.45	0.152	G350.98+0.54	17:20:05.2	−36:12:05.46	0.165
G298.04−0.21	12:08:36.5	−62:40:21.48	0.199	G350.99+0.83	17:18:56.5	−36:01:53.57	0.170
G298.04−0.13	12:08:44.5	−62:35:30.18	0.152	G350.99−0.34	17:23:42.8	−36:41:46.77	0.159
G298.05−0.11	12:08:51.1	−62:34:34.56	0.167	G351.00+0.89	17:18:43.1	−35:59:15.26	0.240
G298.06−0.04	12:08:59.7	−62:30:22.13	0.215	G351.00+0.44	17:20:33.4	−36:14:32.63	0.258
G298.06−0.35	12:08:37.2	−62:48:51.58	0.157	G351.01+0.62	17:19:49.5	−36:07:48.71	0.270
G298.07−0.10	12:09:01.7	−62:34:25.30	0.170	G351.01+0.77	17:19:13.4	−36:02:30.82	0.258
G298.07−0.44	12:08:34.0	−62:54:26.32	0.154	G351.01+0.76	17:19:16.9	−36:02:56.49	0.167
G298.08−0.26	12:08:53.1	−62:43:39.04	0.150	G351.01+0.93	17:18:36.1	−35:57:02.74	0.156
G298.08−0.20	12:08:57.9	−62:40:30.55	0.160	G351.01+0.46	17:20:30.1	−36:13:08.54	0.161
G298.09−0.22	12:09:00.5	−62:41:17.34	0.192	G351.02+0.37	17:20:52.4	−36:16:13.81	0.184
G298.09−0.45	12:08:41.1	−62:55:10.49	0.256	G351.02+0.93	17:18:37.4	−35:57:01.79	0.150
G298.09−0.07	12:09:16.5	−62:32:47.86	0.156	G351.02+0.33	17:21:03.4	−36:17:19.14	0.278
G298.09−0.51	12:08:39.1	−62:58:48.13	0.155	G351.02+0.44	17:20:37.9	−36:13:35.33	0.161
G298.10−0.76	12:08:17.8	−63:13:19.62	0.179	G351.02+0.81	17:19:05.7	−36:00:34.74	0.209
G298.11−0.51	12:08:44.7	−62:59:02.74	0.173	G351.03+0.97	17:18:29.9	−35:55:03.85	0.218
G298.11−0.27	12:09:08.3	−62:44:39.67	0.268	G351.03+0.79	17:19:13.7	−36:01:15.80	0.158

Table A.1. continued.

IRDC name	R.A. ($^{h}:^{m}:^{s}$) (J2000)	Decl. ($^{\circ}:':''$) (J2000)	$C_{24\mu m}$	IRDC name	R.A. ($^{h}:^{m}:^{s}$) (J2000)	Decl. ($^{\circ}:':''$) (J2000)	$C_{24\mu m}$
G298.12−0.18	12:09:19.4	−62:39:22.77	0.198	G351.03+0.67	17:19:42.8	−36:05:16.13	0.881
G298.12−0.31	12:09:08.4	−62:47:18.14	0.204	G351.06+0.33	17:21:10.8	−36:15:15.99	0.182
G298.12−0.52	12:08:51.4	−62:59:38.96	0.154	G351.07+0.45	17:20:40.5	−36:10:46.41	0.182
G298.12−0.61	12:08:44.0	−63:05:09.61	0.214	G351.07+0.47	17:20:36.9	−36:10:15.38	0.154
G298.13−0.10	12:09:31.3	−62:34:35.46	0.192	G351.07+0.76	17:19:26.9	−35:59:56.22	0.150
G298.13−0.33	12:09:11.8	−62:48:18.86	0.150	G351.08+0.76	17:19:27.8	−35:59:54.35	0.151
G298.14−0.25	12:09:25.7	−62:43:41.47	0.273	G351.08−0.46	17:24:26.3	−36:41:11.30	0.152
G298.14−0.60	12:08:55.7	−63:04:44.11	0.153	G351.08+0.81	17:19:14.7	−35:57:50.49	0.159
G298.14−0.32	12:09:20.5	−62:48:10.97	0.159	G351.08+0.75	17:19:31.7	−36:00:04.83	0.187
G298.14−0.53	12:09:02.5	−63:00:42.73	0.184	G351.09+0.40	17:20:57.4	−36:11:42.34	0.175
G298.15−0.49	12:09:09.2	−62:57:49.07	0.163	G351.10+0.87	17:19:03.5	−35:54:54.23	0.288
G298.15+0.28	12:10:16.7	−62:12:33.12	0.151	G351.10+0.93	17:18:50.6	−35:52:34.17	0.153
G298.16−0.48	12:09:15.3	−62:57:34.51	0.188	G351.11+0.96	17:18:44.2	−35:51:16.35	0.152
G298.16−0.33	12:09:27.9	−62:48:59.83	0.190	G351.11+0.97	17:18:43.8	−35:50:48.73	0.172
G298.18−0.71	12:09:03.7	−63:11:38.98	0.276	G351.12+0.35	17:21:15.6	−36:12:05.49	0.216
G298.21−0.04	12:10:18.9	−62:31:47.10	0.187	G351.12+0.60	17:20:12.6	−36:03:08.89	0.168
G298.21−0.00	12:10:23.6	−62:29:57.85	0.168	G351.12+0.71	17:19:46.1	−35:59:21.68	0.492
G298.22−0.44	12:09:48.3	−62:55:31.62	0.267	G351.14+0.48	17:20:46.2	−36:06:14.02	0.168
G298.22−0.50	12:09:43.2	−62:59:12.24	0.163	G351.15+0.67	17:20:02.0	−35:59:23.90	0.273
G298.22−0.18	12:10:09.8	−62:40:37.60	0.382	G351.15+0.76	17:19:40.8	−35:56:15.31	0.162
G298.22+0.36	12:10:54.4	−62:08:19.19	0.152	G351.15+0.56	17:20:29.5	−36:03:00.08	0.589
G298.22−0.53	12:09:40.8	−63:01:10.56	0.163	G351.15+0.96	17:18:51.2	−35:49:01.42	0.195
G298.22+0.02	12:10:28.7	−62:28:23.37	0.162	G351.16+0.84	17:19:23.5	−35:52:50.16	0.261
G298.22−0.56	12:09:40.9	−63:02:48.30	0.258	G351.18+0.36	17:21:24.0	−36:08:31.33	0.232
G298.22−0.51	12:09:45.8	−63:00:02.48	0.219	G351.18+0.96	17:18:56.4	−35:47:31.23	0.213
G298.23−0.22	12:10:12.1	−62:43:02.66	0.311	G351.20+0.92	17:19:09.5	−35:48:24.42	0.196
G298.23−0.48	12:09:50.6	−62:58:18.44	0.166	G351.20+0.39	17:21:18.6	−36:06:06.63	0.214
G298.23−0.02	12:10:29.6	−62:30:46.61	0.217	G351.21+0.95	17:19:03.4	−35:46:47.28	0.222
G298.23−0.48	12:09:54.4	−62:58:06.19	0.156	G351.23+0.79	17:19:46.1	−35:51:00.27	0.243
G298.24−0.47	12:09:55.7	−62:58:00.01	0.153	G351.23+0.55	17:20:45.9	−35:59:22.33	0.214
G298.24−0.61	12:09:45.1	−63:06:00.69	0.166	G351.24+0.36	17:21:32.9	−36:05:16.48	0.193
G298.24−0.15	12:10:23.8	−62:38:53.59	0.164	G351.25+0.83	17:19:38.7	−35:48:59.17	0.274
G298.24+0.01	12:10:37.8	−62:29:11.79	0.191	G351.25+0.35	17:21:36.8	−36:05:13.17	0.165
G298.24−0.21	12:10:22.0	−62:42:31.88	0.157	G351.25+0.78	17:19:53.5	−35:50:31.25	0.180
G298.25−0.09	12:10:33.0	−62:35:34.07	0.255	G351.26+0.39	17:21:29.1	−36:03:43.39	0.155
G298.25−0.06	12:10:36.6	−62:33:32.63	0.288	G351.26+0.44	17:21:16.5	−36:01:24.68	0.167
G298.25+0.12	12:10:51.5	−62:22:53.91	0.179	G351.27+0.80	17:19:51.7	−35:49:14.55	0.315
G298.25−0.17	12:10:28.7	−62:40:07.33	0.154	G351.28+0.36	17:21:38.3	−36:03:35.08	0.187
G298.26+0.04	12:10:52.8	−62:27:41.81	0.299	G351.28+0.85	17:19:41.2	−35:46:58.23	0.209
G298.27−0.23	12:10:32.6	−62:43:55.78	0.293	G351.28+0.74	17:20:07.6	−35:50:27.12	0.363
G298.27−0.14	12:10:42.5	−62:38:19.59	0.206	G351.29+0.44	17:21:21.8	−36:00:29.01	0.220
G298.29−0.43	12:10:25.8	−62:55:39.92	0.280	G351.29+0.91	17:19:27.2	−35:44:11.57	0.362
G298.29−0.20	12:10:44.9	−62:42:20.95	0.289	G351.30+0.57	17:20:51.5	−35:55:04.35	0.197
G298.31−0.38	12:10:41.2	−62:53:01.73	0.339	G351.31+0.83	17:19:50.5	−35:45:58.92	0.262
G298.31−0.54	12:10:27.6	−63:02:45.11	0.232	G351.32−0.92	17:27:00.5	−36:44:56.56	0.244
G298.31−0.66	12:10:18.2	−63:09:25.83	0.180	G351.32+0.86	17:19:44.4	−35:44:06.55	0.236
G298.31−0.51	12:10:32.1	−63:01:00.55	0.158	G351.33+0.52	17:21:08.4	−35:55:40.02	0.325
G298.31−0.21	12:10:57.2	−62:43:02.89	0.154	G351.35+0.84	17:19:53.7	−35:43:27.73	0.169

Table A.1. continued.

IRDC name	R.A. ($^{h}:^{m}:^{s}$) (J2000)	Decl. ($^{\circ}:':''$) (J2000)	$C_{24\mu m}$	IRDC name	R.A. ($^{h}:^{m}:^{s}$) (J2000)	Decl. ($^{\circ}:':''$) (J2000)	$C_{24\mu m}$
G298.32−0.29	12:10:53.9	−62:48:02.08	0.346	G351.36+0.45	17:21:30.5	−35:56:40.59	0.220
G298.32−0.17	12:11:04.1	−62:40:49.91	0.156	G351.36+0.54	17:21:09.2	−35:53:37.89	0.151
G298.32−0.20	12:11:03.2	−62:42:19.98	0.164	G351.36+0.77	17:20:13.7	−35:45:25.35	0.561
G298.33−0.14	12:11:12.0	−62:39:06.44	0.380	G351.37+0.47	17:21:26.1	−35:55:23.50	0.156
G298.34−0.06	12:11:21.4	−62:34:26.23	0.237	G351.38+0.45	17:21:33.8	−35:55:32.49	0.193
G298.35−0.34	12:11:05.9	−62:51:13.90	0.250	G351.39−0.10	17:23:51.0	−36:13:42.09	0.152
G298.36−0.32	12:11:12.5	−62:50:01.81	0.152	G351.39−0.54	17:25:40.2	−36:28:22.38	0.157
G298.36−0.05	12:11:37.4	−62:34:02.29	0.197	G351.40−0.09	17:23:49.8	−36:12:48.97	0.166
G298.37−0.36	12:11:14.5	−62:52:34.46	0.188	G351.41−0.53	17:25:39.0	−36:27:22.13	0.174
G298.37−0.03	12:11:42.4	−62:32:52.30	0.168	G351.41+0.55	17:21:15.2	−35:50:18.74	0.282
G298.37−0.53	12:11:02.8	−63:02:32.00	0.181	G351.42+0.89	17:19:54.5	−35:38:21.43	0.441
G298.37−0.80	12:10:40.9	−63:18:36.83	0.196	G351.43+0.58	17:21:10.2	−35:48:35.28	0.216
G298.38−0.02	12:11:47.3	−62:32:33.75	0.150	G351.44−0.11	17:24:01.0	−36:11:48.29	0.154
G298.38−0.04	12:11:47.4	−62:33:24.46	0.158	G351.44+0.61	17:21:05.9	−35:47:18.62	0.196
G298.39−0.22	12:11:35.9	−62:44:14.98	0.159	G351.45−0.81	17:26:56.0	−36:34:50.37	0.172
G298.39−0.82	12:10:48.3	−63:20:09.55	0.157	G351.45+0.86	17:20:06.0	−35:38:01.37	0.168
G298.40+0.36	12:12:26.6	−62:09:55.38	0.172	G351.45+0.65	17:20:58.5	−35:45:12.51	0.182
G298.40−0.43	12:11:24.4	−62:56:38.93	0.307	G351.45+0.66	17:20:54.9	−35:44:37.96	0.164
G298.41+0.02	12:12:08.7	−62:30:19.32	0.267	G351.45−0.10	17:24:02.8	−36:10:40.00	0.184
G298.42−0.82	12:11:01.3	−63:20:03.88	0.188	G351.47−0.46	17:25:31.6	−36:21:58.37	0.767
G298.42−0.04	12:12:05.2	−62:34:00.38	0.187	G351.49+0.42	17:21:59.4	−35:50:55.59	0.170
G298.42+0.36	12:12:36.9	−62:10:31.54	0.174	G351.49−0.56	17:26:00.4	−36:24:03.37	0.155
G298.43−0.03	12:12:11.7	−62:33:33.11	0.233	G351.49−0.91	17:27:29.2	−36:36:01.27	0.210
G298.43−0.49	12:11:37.7	−63:00:30.99	0.155	G351.50+0.01	17:23:42.2	−36:04:18.82	0.169
G298.43−0.11	12:12:08.1	−62:38:07.16	0.180	G351.51+0.86	17:20:15.6	−35:35:11.29	0.202
G298.44−0.45	12:11:41.9	−62:58:38.14	0.175	G351.51+0.69	17:20:57.1	−35:40:41.83	0.458
G298.44−0.29	12:11:59.0	−62:49:07.03	0.451	G351.51+0.64	17:21:11.1	−35:42:23.07	0.239
G298.45−0.79	12:11:19.5	−63:18:43.35	0.168	G351.53+0.73	17:20:50.3	−35:38:38.83	0.172
G298.45−0.17	12:12:10.4	−62:41:41.33	0.365	G351.53−0.35	17:25:15.7	−36:15:15.94	0.152
G298.45−0.50	12:11:44.2	−63:01:17.72	0.183	G351.54+0.91	17:20:08.9	−35:32:01.72	0.294
G298.45−0.10	12:12:17.0	−62:37:41.93	0.198	G351.54−0.58	17:26:14.1	−36:22:33.58	0.204
G298.45+0.24	12:12:45.6	−62:17:24.59	0.156	G351.55+0.73	17:20:55.3	−35:37:36.78	0.163
G298.46+0.24	12:12:49.6	−62:17:56.10	0.168	G351.55+0.65	17:21:15.4	−35:40:23.12	0.234
G298.47−0.46	12:11:57.5	−62:59:03.52	0.167	G351.55+0.69	17:21:04.1	−35:38:47.86	0.174
G298.48−0.22	12:12:21.8	−62:44:55.36	0.185	G351.55+0.20	17:23:04.0	−35:55:26.65	0.825
G298.48−0.35	12:12:11.8	−62:52:58.45	0.260	G351.56+0.62	17:21:22.7	−35:40:33.40	0.153
G298.48+0.26	12:13:00.2	−62:17:01.96	0.151	G351.56+0.73	17:20:56.8	−35:36:45.00	0.180
G298.48+0.25	12:13:01.1	−62:17:10.51	0.151	G351.57+0.18	17:23:12.8	−35:55:29.91	0.159
G298.50−0.54	12:12:06.8	−63:04:16.38	0.206	G351.57+0.49	17:21:56.6	−35:44:43.96	0.162
G298.51+0.09	12:13:02.3	−62:27:01.84	0.171	G351.57+0.59	17:21:31.6	−35:41:11.23	0.353
G298.51+0.00	12:12:57.0	−62:32:20.31	0.261	G351.57+0.72	17:21:01.9	−35:36:58.68	0.249
G298.52−0.68	12:12:08.2	−63:12:59.72	0.162	G351.57−0.56	17:26:16.1	−36:20:14.83	0.158
G298.52+0.32	12:13:27.4	−62:13:51.39	0.227	G351.58+0.54	17:21:46.6	−35:42:51.26	0.163
G298.53−0.18	12:12:53.4	−62:43:14.65	0.160	G351.58+0.56	17:21:42.3	−35:42:06.70	0.215
G298.53−0.67	12:12:14.4	−63:12:22.41	0.151	G351.58+0.27	17:22:53.4	−35:51:52.17	0.160
G298.53−0.41	12:12:36.0	−62:56:43.92	0.353	G351.59−0.86	17:27:30.6	−36:29:15.61	0.162
G298.53−0.67	12:12:15.4	−63:12:30.98	0.150	G351.60+0.08	17:23:40.6	−35:57:12.98	0.163
G298.53−0.55	12:12:25.4	−63:05:18.22	0.160	G351.61+0.62	17:21:31.5	−35:38:37.48	0.374

Table A.1. continued.

IRDC name	R.A. ($^{h}:^{m}:^{s}$) (J2000)	Decl. ($^{\circ}:':''$) (J2000)	$C_{24\mu m}$	IRDC name	R.A. ($^{h}:^{m}:^{s}$) (J2000)	Decl. ($^{\circ}:':''$) (J2000)	$C_{24\mu m}$
G298.54−0.80	12:12:06.0	−63:20:17.96	0.253	G351.61+0.09	17:23:41.0	−35:56:40.58	0.162
G298.54−0.26	12:12:53.5	−62:47:56.33	0.186	G351.62+0.08	17:23:45.1	−35:56:15.31	0.204
G298.56−0.62	12:12:30.5	−63:09:54.60	0.154	G351.63−0.58	17:26:28.1	−36:18:05.12	0.171
G298.56−0.29	12:12:59.6	−62:50:18.13	0.278	G351.63+0.76	17:21:00.3	−35:32:36.15	0.379
G298.57+0.03	12:13:30.6	−62:31:08.03	0.281	G351.63−0.46	17:25:58.8	−36:13:54.08	0.180
G298.57−0.33	12:13:04.2	−62:52:30.97	0.207	G351.64+0.59	17:21:44.0	−35:38:10.23	0.257
G298.58−0.10	12:13:21.8	−62:39:06.01	0.187	G351.64−0.59	17:26:32.4	−36:17:49.80	0.180
G298.58−0.72	12:12:34.6	−63:15:45.24	0.161	G351.64+0.20	17:23:19.0	−35:51:08.81	0.282
G298.58−0.18	12:13:17.4	−62:43:50.61	0.425	G351.65−0.47	17:26:04.4	−36:13:14.01	0.157
G298.58−0.40	12:13:00.9	−62:56:44.59	0.212	G351.65−0.60	17:26:37.5	−36:17:18.31	0.176
G298.58−0.29	12:13:09.9	−62:50:00.13	0.155	G351.66+0.12	17:23:41.3	−35:52:53.33	0.157
G298.58−0.75	12:12:34.0	−63:17:40.26	0.178	G351.68+0.43	17:22:29.3	−35:41:18.17	0.195
G298.58+0.11	12:13:42.6	−62:26:18.94	0.161	G351.68+0.81	17:20:58.1	−35:28:28.45	0.178
G298.59−0.24	12:13:16.3	−62:47:20.70	0.176	G351.68+0.74	17:21:16.4	−35:30:43.60	0.160
G298.59−0.03	12:13:35.3	−62:35:06.29	0.272	G351.69+0.83	17:20:54.8	−35:27:34.40	0.151
G298.59−0.46	12:13:02.9	−63:00:18.30	0.257	G351.70+0.57	17:21:57.3	−35:35:38.54	0.260
G298.60+0.28	12:14:01.6	−62:16:34.50	0.152	G351.70+0.44	17:22:32.3	−35:40:05.39	0.158
G298.60−0.10	12:13:33.9	−62:39:14.38	0.181	G351.70+0.45	17:22:28.4	−35:39:25.06	0.213
G298.60−0.74	12:12:46.2	−63:16:59.09	0.164	G351.71+0.55	17:22:06.9	−35:35:54.73	0.200
G298.61−0.26	12:13:26.7	−62:49:01.32	0.158	G351.71+0.43	17:22:34.6	−35:39:46.07	0.150
G298.61−0.78	12:12:47.9	−63:19:38.89	0.196	G351.72+0.79	17:21:07.7	−35:27:10.76	0.178
G298.61−0.77	12:12:48.9	−63:18:54.33	0.151	G351.73−0.58	17:26:45.1	−36:13:12.23	0.230
G298.62+0.40	12:14:22.0	−62:09:30.58	0.158	G351.73+0.47	17:22:27.9	−35:37:41.45	0.171
G298.62+0.05	12:13:56.4	−62:30:38.12	0.157	G351.73−0.60	17:26:50.9	−36:13:37.19	0.201
G298.62−0.74	12:12:55.6	−63:17:24.55	0.174	G351.75+0.61	17:21:57.8	−35:32:08.37	0.255
G298.62+0.14	12:14:04.4	−62:25:02.65	0.156	G351.75+0.53	17:22:17.4	−35:34:15.29	0.153
G298.62+0.04	12:13:57.5	−62:31:05.79	0.155	G351.76+0.53	17:22:19.2	−35:33:44.44	0.203
G298.63−0.65	12:13:08.8	−63:12:05.33	0.247	G351.77+0.57	17:22:11.6	−35:32:23.87	0.251
G298.63−0.55	12:13:18.2	−63:06:08.27	0.343	G351.78+0.76	17:21:25.8	−35:25:21.15	0.154
G298.64+0.32	12:14:25.5	−62:14:41.31	0.162	G351.78−0.60	17:27:00.4	−36:11:10.69	0.185
G298.65−0.18	12:13:53.6	−62:44:02.62	0.163	G351.78+0.77	17:21:24.9	−35:24:45.22	0.154
G298.65−0.11	12:14:01.6	−62:40:01.00	0.239	G351.79−0.41	17:26:12.9	−36:04:17.90	0.182
G298.65+0.40	12:14:39.9	−62:10:12.90	0.193	G351.79+0.68	17:21:47.5	−35:27:28.18	0.183
G298.66−0.28	12:13:53.7	−62:50:18.88	0.464	G351.79+0.19	17:23:47.2	−35:44:06.12	0.228
G298.67+0.20	12:14:33.4	−62:21:59.72	0.160	G351.80+0.22	17:23:40.2	−35:42:22.45	0.199
G298.68+0.20	12:14:37.6	−62:22:10.19	0.156	G351.80−0.47	17:26:29.8	−36:05:38.71	0.348
G298.68−0.52	12:13:43.8	−63:04:54.98	0.150	G351.81+0.64	17:21:59.5	−35:27:52.80	0.259
G298.68−0.00	12:14:24.8	−62:33:57.66	0.325	G351.81+0.50	17:22:34.2	−35:32:35.40	0.158
G298.69+0.19	12:14:42.7	−62:22:34.26	0.168	G351.82+0.66	17:21:55.9	−35:26:39.30	0.223
G298.70+0.23	12:14:49.1	−62:20:20.48	0.164	G351.83+0.47	17:22:44.0	−35:32:38.46	0.155
G298.70+0.25	12:14:50.7	−62:19:02.52	0.151	G351.84+0.46	17:22:48.7	−35:32:09.18	0.153
G298.70+0.21	12:14:49.6	−62:21:40.56	0.154	G351.84+0.48	17:22:45.9	−35:31:40.75	0.218
G298.71−0.62	12:13:51.9	−63:10:53.73	0.320	G351.85−0.60	17:27:11.8	−36:07:33.07	0.157
G298.71+0.22	12:14:56.0	−62:20:55.90	0.189	G351.86+0.69	17:21:55.6	−35:23:30.84	0.199
G298.71+0.24	12:14:57.3	−62:19:50.75	0.152	G351.86+0.66	17:22:03.6	−35:24:21.83	0.253
G298.71−0.72	12:13:45.0	−63:17:08.77	0.332	G351.87+0.60	17:22:20.7	−35:26:32.43	0.279
G298.71−0.08	12:14:33.7	−62:39:12.81	0.234	G351.87−0.74	17:27:49.3	−36:11:19.58	0.153
G298.72−0.41	12:14:12.5	−62:58:21.75	0.583	G351.88−0.24	17:25:45.4	−35:54:09.46	0.174

Table A.1. continued.

IRDC name	R.A. ($^{h}:^{m}:^{s}$) (J2000)	Decl. ($^{\circ}:':''$) (J2000)	$C_{24\mu m}$	IRDC name	R.A. ($^{h}:^{m}:^{s}$) (J2000)	Decl. ($^{\circ}:':''$) (J2000)	$C_{24\mu m}$
G298.73−0.75	12:13:51.3	−63:18:56.28	0.150	G351.88−0.37	17:26:18.9	−35:58:18.48	0.172
G298.73−0.68	12:13:57.2	−63:14:58.00	0.156	G351.91+0.55	17:22:40.5	−35:26:01.18	0.175
G298.73+0.36	12:15:16.4	−62:13:00.67	0.160	G351.97−0.30	17:26:16.2	−35:51:47.36	0.159
G298.73−0.44	12:14:18.1	−63:00:21.55	0.165	G351.97+0.66	17:22:21.6	−35:19:02.17	0.185
G298.73−0.19	12:14:36.9	−62:45:48.80	0.238	G352.00−0.58	17:27:29.8	−35:59:44.07	0.154
G298.74−0.05	12:14:50.5	−62:37:11.98	0.169	G352.01+0.67	17:22:25.4	−35:16:55.56	0.203
G298.74+0.24	12:15:12.8	−62:20:02.86	0.218	G352.01+0.07	17:24:52.1	−35:36:59.29	0.188
G298.75−0.10	12:14:51.4	−62:40:20.93	0.171	G352.03−0.24	17:26:12.3	−35:46:37.73	0.165
G298.75−0.80	12:13:59.7	−63:21:48.09	0.215	G352.03+0.08	17:24:54.4	−35:35:39.35	0.200
G298.75+0.31	12:15:22.9	−62:16:13.64	0.161	G352.04+0.79	17:22:02.9	−35:11:34.17	0.161
G298.75−0.56	12:14:18.8	−63:07:41.14	0.273	G352.04+0.77	17:22:07.0	−35:11:42.92	0.154
G298.76−0.28	12:14:44.9	−62:51:10.26	0.166	G352.06+0.78	17:22:08.5	−35:10:56.47	0.172
G298.76−0.71	12:14:13.8	−63:17:03.36	0.192	G352.06+0.60	17:22:52.7	−35:16:40.85	0.199
G298.77−0.17	12:14:55.6	−62:44:45.26	0.172	G352.07−0.25	17:26:21.5	−35:45:09.85	0.202
G298.77−0.26	12:14:50.1	−62:50:24.74	0.163	G352.07+0.68	17:22:33.6	−35:13:34.71	0.274
G298.77+0.14	12:15:20.5	−62:26:35.61	0.167	G352.08−0.14	17:25:55.6	−35:40:55.22	0.208
G298.77+0.32	12:15:35.5	−62:15:44.26	0.154	G352.08+0.67	17:22:38.5	−35:13:22.37	0.171
G298.78−0.79	12:14:13.4	−63:21:49.65	0.156	G352.09+0.37	17:23:52.2	−35:23:09.16	0.179
G298.78−0.80	12:14:12.9	−63:22:30.80	0.154	G352.12−0.12	17:25:56.4	−35:38:12.47	0.154
G298.78+0.44	12:15:48.1	−62:08:48.73	0.154	G352.12+0.81	17:22:10.9	−35:06:51.72	0.151
G298.78+0.43	12:15:47.6	−62:09:19.83	0.163	G352.12+0.39	17:23:52.6	−35:20:48.22	0.217
G298.79−0.74	12:14:23.7	−63:18:42.58	0.156	G352.12+0.74	17:22:28.9	−35:08:55.57	0.234
G298.79−0.07	12:15:16.0	−62:39:05.47	0.244	G352.13+0.57	17:23:10.0	−35:14:32.34	0.184
G298.79+0.17	12:15:33.8	−62:24:47.93	0.157	G352.15+0.43	17:23:48.2	−35:18:02.06	0.164
G298.79+0.09	12:15:29.0	−62:29:20.96	0.243	G352.15+0.82	17:22:13.1	−35:04:40.03	0.152
G298.79+0.15	12:15:33.4	−62:25:56.88	0.219	G352.16−0.38	17:27:06.8	−35:44:49.38	0.150
G298.79+0.19	12:15:36.3	−62:23:32.76	0.260	G352.17−0.39	17:27:11.7	−35:45:02.02	0.151
G298.80+0.22	12:15:39.4	−62:22:04.97	0.189	G352.17+0.76	17:22:30.3	−35:05:57.06	0.157
G298.80−0.57	12:14:42.2	−63:08:52.33	0.171	G352.20−0.07	17:25:59.8	−35:32:29.31	0.205
G298.80−0.27	12:15:07.1	−62:50:55.86	0.306	G352.22−0.08	17:26:03.2	−35:31:49.28	0.180
G298.80−0.60	12:14:42.5	−63:10:33.25	0.152	G352.22−0.04	17:25:54.2	−35:30:26.07	0.170
G298.81+0.06	12:15:35.5	−62:31:38.33	0.173	G352.24−0.53	17:27:57.0	−35:45:54.97	0.150
G298.81−0.72	12:14:40.0	−63:17:36.74	0.168	G352.24−0.53	17:27:57.8	−35:45:52.91	0.153
G298.82−0.64	12:14:46.3	−63:13:11.53	0.297	G352.24−0.42	17:27:29.9	−35:42:03.65	0.164
G298.82+0.41	12:16:05.3	−62:10:56.61	0.200	G352.25+0.79	17:22:37.8	−35:00:48.10	0.166
G298.83−0.19	12:15:25.4	−62:46:24.86	0.196	G352.25−0.39	17:27:26.5	−35:40:39.43	0.198
G298.83−0.58	12:14:56.7	−63:09:53.68	0.203	G352.26−0.10	17:26:14.8	−35:30:12.16	0.154
G298.83−0.37	12:15:13.1	−62:57:20.38	0.250	G352.28−0.40	17:27:32.0	−35:39:35.93	0.177
G298.83+0.37	12:16:07.6	−62:13:23.39	0.204	G352.28−0.42	17:27:37.9	−35:40:07.36	0.166
G298.83−0.47	12:15:08.8	−63:03:05.97	0.236	G352.28−0.10	17:26:19.3	−35:29:20.76	0.153
G298.84+0.05	12:15:47.8	−62:32:14.06	0.218	G352.30−0.09	17:26:18.6	−35:28:19.84	0.188
G298.85−0.16	12:15:39.0	−62:45:09.13	0.168	G352.34+0.73	17:23:06.9	−34:58:37.67	0.174
G298.86−0.09	12:15:51.6	−62:41:03.53	0.165	G352.39+0.83	17:22:50.2	−34:52:39.51	0.183
G298.87+0.03	12:16:01.7	−62:33:44.58	0.192	G352.40−0.61	17:28:42.8	−35:40:48.52	0.156
G298.87+0.38	12:16:30.4	−62:12:57.09	0.193	G352.42−0.18	17:27:00.1	−35:25:20.40	0.198
G298.88−0.34	12:15:45.2	−62:55:40.03	0.474	G352.43−0.17	17:27:00.1	−35:24:17.64	0.204
G298.89+0.43	12:16:41.5	−62:10:07.62	0.215	G352.45−0.17	17:27:03.4	−35:23:35.17	0.155
G298.89+0.24	12:16:30.1	−62:21:12.33	0.170	G352.45−0.17	17:27:03.7	−35:23:07.09	0.166

Table A.1. continued.

IRDC name	R.A. ($^{h}:^{m}:^{s}$) (J2000)	Decl. ($^{\circ}:':''$) (J2000)	$C_{24\mu m}$	IRDC name	R.A. ($^{h}:^{m}:^{s}$) (J2000)	Decl. ($^{\circ}:':''$) (J2000)	$C_{24\mu m}$
G298.89+0.06	12:16:17.9	−62:32:11.59	0.155	G352.46−0.15	17:26:59.8	−35:22:21.48	0.166
G298.90+0.10	12:16:22.7	−62:30:04.97	0.155	G352.46+0.74	17:23:26.1	−34:52:11.50	0.160
G298.91−0.75	12:15:28.8	−63:20:13.06	0.194	G352.48−0.11	17:26:54.3	−35:19:55.37	0.153
G298.91+0.15	12:16:33.7	−62:27:08.63	0.152	G352.48+0.71	17:23:35.5	−34:52:01.80	0.173
G298.92−0.26	12:16:07.6	−62:51:14.15	0.207	G352.51+0.76	17:23:26.5	−34:49:07.51	0.174
G298.92−0.28	12:16:06.5	−62:52:45.37	0.223	G352.53+0.68	17:23:50.9	−34:50:51.03	0.155
G298.92+0.42	12:16:57.3	−62:11:13.74	0.196	G352.55−0.19	17:27:24.3	−35:19:02.81	0.253
G298.93+0.15	12:16:40.8	−62:27:15.23	0.178	G352.56−0.16	17:27:20.1	−35:17:21.35	0.154
G298.93−0.14	12:16:23.4	−62:44:20.38	0.184	G352.60−0.61	17:29:16.0	−35:30:20.44	0.172
G298.94−0.57	12:15:54.3	−63:10:12.95	0.297	G352.61−0.14	17:27:22.5	−35:14:07.34	0.240
G298.94−0.03	12:16:33.4	−62:38:03.06	0.157	G352.62−0.61	17:29:19.3	−35:29:47.84	0.154
G298.94−0.46	12:16:04.0	−63:03:41.26	0.169	G352.63−0.27	17:27:56.7	−35:17:51.20	0.154
G298.95+0.41	12:17:14.0	−62:11:32.44	0.188	G352.63−0.04	17:27:02.2	−35:09:55.28	0.162
G298.96−0.53	12:16:08.9	−63:07:50.08	0.162	G352.64−0.26	17:27:55.9	−35:16:56.78	0.171
G298.96−0.47	12:16:14.5	−63:04:29.86	0.186	G352.65−0.15	17:27:32.6	−35:12:50.47	0.179
G298.97+0.02	12:16:55.5	−62:35:22.13	0.158	G352.70+0.63	17:24:30.6	−34:44:18.11	0.180
G298.97−0.33	12:16:31.7	−62:55:49.42	0.253	G352.70−0.07	17:27:21.5	−35:07:42.02	0.153
G298.97−0.01	12:16:54.6	−62:36:59.62	0.162	G352.72−0.58	17:29:28.7	−35:23:51.94	0.160
G298.97−0.45	12:16:23.9	−63:03:11.56	0.206	G352.73−0.60	17:29:33.8	−35:23:49.90	0.153
G298.98−0.44	12:16:26.2	−63:02:32.45	0.156	G352.77+0.59	17:24:52.7	−34:41:46.05	0.305
G299.00+0.27	12:17:26.0	−62:20:29.40	0.203	G352.80+0.57	17:25:01.8	−34:41:18.41	0.152
G299.00−0.32	12:16:45.5	−62:55:42.67	0.154	G352.81+0.78	17:24:11.5	−34:33:42.72	0.173
G299.00−0.40	12:16:41.3	−63:00:11.23	0.150	G352.81+0.69	17:24:35.5	−34:36:29.66	0.167
G299.00−0.63	12:16:24.7	−63:13:56.11	0.154	G352.82+0.65	17:24:46.1	−34:37:24.90	0.247
G299.01−0.32	12:16:50.1	−62:55:24.24	0.185	G352.83−0.08	17:27:42.8	−35:01:38.02	0.176
G299.01−0.61	12:16:31.5	−63:12:58.02	0.179	G352.83+0.84	17:24:00.2	−34:30:25.21	0.243
G299.02−0.45	12:16:45.9	−63:03:19.71	0.189	G352.84+0.89	17:23:52.1	−34:28:22.93	0.171
G299.02−0.13	12:17:09.0	−62:44:12.95	0.151	G352.85+0.79	17:24:16.1	−34:31:04.99	0.167
G299.02+0.42	12:17:46.7	−62:11:58.08	0.155	G352.86+0.84	17:24:05.4	−34:28:58.20	0.337
G299.03−0.13	12:17:13.0	−62:44:28.49	0.176	G352.86+0.97	17:23:36.1	−34:24:37.17	0.191
G299.03−0.44	12:16:52.4	−63:02:41.49	0.163	G352.88+0.29	17:26:21.0	−34:46:43.00	0.160
G299.03+0.22	12:17:39.2	−62:23:44.73	0.153	G352.88+0.86	17:24:03.4	−34:27:26.91	0.164
G299.03+0.23	12:17:41.8	−62:23:07.56	0.167	G352.88+0.29	17:26:21.8	−34:46:40.95	0.158
G299.04−0.71	12:16:37.5	−63:18:56.12	0.169	G352.88+0.47	17:25:39.4	−34:40:42.74	0.231
G299.07−0.37	12:17:20.7	−62:59:16.49	0.153	G352.88+0.66	17:24:53.6	−34:34:18.21	0.371
G299.15−0.19	12:18:14.0	−62:49:07.71	0.175	G352.88+0.55	17:25:20.1	−34:37:35.88	0.163
G299.18+0.09	12:18:47.6	−62:32:43.96	0.154	G352.89+0.92	17:23:50.7	−34:24:57.19	0.184
G299.18+0.09	12:18:50.1	−62:32:29.71	0.151	G352.89+0.95	17:23:44.3	−34:24:02.20	0.182
G299.19+0.09	12:18:51.3	−62:32:23.23	0.151	G352.89+0.60	17:25:09.1	−34:35:52.32	0.246
G299.27−0.29	12:19:08.7	−62:55:58.57	0.176	G352.89+0.78	17:24:27.2	−34:29:32.07	0.193
G299.27−0.27	12:19:13.5	−62:54:46.62	0.180	G352.89+0.83	17:24:14.3	−34:27:41.91	0.251
G299.33−0.18	12:19:51.0	−62:49:37.20	0.157	G352.90−0.10	17:28:00.8	−34:58:37.68	0.252
G299.73−0.05	12:23:24.0	−62:44:36.36	0.150	G352.90+0.71	17:24:45.1	−34:31:28.97	0.168
G300.02−0.86	12:25:11.8	−63:34:43.50	0.168	G352.91+0.51	17:25:33.8	−34:37:39.45	0.214
G300.05−0.20	12:26:03.0	−62:55:36.39	0.161	G352.91+0.89	17:24:02.2	−34:24:30.98	0.167
G300.07−0.15	12:26:16.5	−62:52:39.07	0.194	G352.92+0.67	17:24:56.4	−34:31:58.46	0.196
G300.09−0.37	12:26:16.9	−63:06:16.22	0.166	G352.92+0.56	17:25:24.1	−34:35:39.39	0.154
G300.17−0.18	12:27:06.5	−62:55:04.89	0.218	G352.92+0.89	17:24:03.8	−34:24:24.95	0.158

Table A.1. continued.

IRDC name	R.A. ($^{h}:^{m}:^{s}$) (J2000)	Decl. ($^{\circ}:':''$) (J2000)	$C_{24\mu m}$	IRDC name	R.A. ($^{h}:^{m}:^{s}$) (J2000)	Decl. ($^{\circ}:':''$) (J2000)	$C_{24\mu m}$
G300.18−0.20	12:27:10.8	−62:56:34.89	0.153	G352.92+0.93	17:23:53.7	−34:22:58.19	0.569
G300.19−0.20	12:27:19.7	−62:56:21.82	0.163	G352.92−0.14	17:28:12.8	−34:58:39.48	0.245
G300.20−0.19	12:27:25.4	−62:55:58.82	0.162	G352.93+0.31	17:26:24.5	−34:43:30.77	0.166
G300.25−0.33	12:27:41.6	−63:04:35.26	0.156	G352.93+0.68	17:24:56.5	−34:31:01.67	0.256
G300.25−0.10	12:27:53.1	−62:50:57.26	0.177	G352.93−0.07	17:27:58.5	−34:56:08.87	0.181
G300.25−0.33	12:27:43.6	−63:04:55.35	0.154	G352.93−0.11	17:28:08.3	−34:57:26.06	0.175
G300.27−0.17	12:27:58.7	−62:55:24.45	0.196	G352.93−0.03	17:27:47.6	−34:54:29.48	0.160
G300.28−0.16	12:28:06.3	−62:54:33.09	0.154	G352.94+0.52	17:25:35.7	−34:35:55.01	0.173
G300.28−0.80	12:27:35.3	−63:33:13.00	0.163	G352.94+0.50	17:25:42.0	−34:36:43.43	0.214
G300.29−0.76	12:27:40.0	−63:30:41.17	0.173	G352.94−0.13	17:28:14.6	−34:57:41.53	0.206
G300.29−0.73	12:27:45.5	−63:28:40.50	0.167	G352.94+0.78	17:24:34.7	−34:27:03.43	0.179
G300.31−0.73	12:27:52.9	−63:28:49.96	0.158	G352.94+0.75	17:24:42.6	−34:28:07.99	0.421
G300.31−0.25	12:28:19.4	−63:00:04.87	0.174	G352.95+0.23	17:26:47.7	−34:45:05.57	0.225
G300.35−0.42	12:28:32.1	−63:10:50.41	0.175	G352.95+0.69	17:24:58.1	−34:29:49.58	0.197
G300.40−0.21	12:29:08.0	−62:58:15.01	0.166	G352.95+0.38	17:26:11.4	−34:39:59.61	0.226
G300.41−0.23	12:29:09.3	−62:59:21.29	0.170	G352.95+0.63	17:25:13.1	−34:31:37.65	0.228
G300.42−0.22	12:29:15.5	−62:58:59.52	0.152	G352.96−0.15	17:28:21.2	−34:57:17.73	0.153
G300.44+0.08	12:29:42.1	−62:41:19.93	0.151	G352.96+0.88	17:24:13.1	−34:22:55.56	0.169
G300.45−0.27	12:29:29.7	−63:02:09.23	0.182	G352.96+0.94	17:23:58.6	−34:20:30.69	0.224
G300.45−0.47	12:29:22.4	−63:14:11.91	0.151	G352.96+0.35	17:26:20.4	−34:40:15.20	0.258
G300.46−0.22	12:29:36.3	−62:59:11.61	0.159	G352.96+0.96	17:23:53.4	−34:19:41.57	0.306
G300.47−0.03	12:29:49.9	−62:47:36.45	0.193	G352.96+0.48	17:25:51.3	−34:36:08.27	0.170
G300.48+0.00	12:29:57.0	−62:45:51.66	0.167	G352.97+0.46	17:25:54.9	−34:36:19.37	0.163
G300.48−0.04	12:29:55.3	−62:48:44.15	0.157	G352.97−0.51	17:29:53.0	−35:08:54.41	0.171
G300.49−0.57	12:29:38.4	−63:20:11.39	0.161	G352.97+0.42	17:26:05.9	−34:37:47.41	0.168
G300.49−0.13	12:29:58.4	−62:54:09.54	0.160	G352.97+0.93	17:24:03.9	−34:20:42.66	0.322
G300.49−0.02	12:30:04.7	−62:47:24.84	0.158	G352.97+0.67	17:25:04.7	−34:29:06.91	0.202
G300.50−0.12	12:30:01.7	−62:53:42.57	0.154	G352.97+0.84	17:24:25.1	−34:23:23.35	0.506
G300.51+0.01	12:30:13.3	−62:45:27.40	0.159	G352.98−0.51	17:29:53.8	−35:08:17.87	0.154
G300.52−0.24	12:30:09.2	−63:00:46.07	0.187	G352.98−0.17	17:28:29.4	−34:56:44.03	0.163
G300.52+0.35	12:30:36.8	−62:25:34.17	0.152	G352.98+0.20	17:27:01.5	−34:44:38.08	0.161
G300.60−0.15	12:30:55.6	−62:55:27.48	0.205	G352.99+0.69	17:25:02.6	−34:27:39.77	0.188
G300.64+0.10	12:31:24.4	−62:40:56.76	0.161	G352.99+0.71	17:24:58.1	−34:26:53.34	0.239
G300.64+0.13	12:31:30.3	−62:39:00.90	0.150	G353.01+0.62	17:25:23.0	−34:29:15.37	0.426
G300.65+0.03	12:31:26.4	−62:45:17.46	0.154	G353.01+0.47	17:25:59.9	−34:33:50.60	0.408
G300.65+0.14	12:31:31.4	−62:38:54.01	0.150	G353.02+0.54	17:25:43.9	−34:31:25.76	0.468
G300.66+0.12	12:31:37.8	−62:39:57.60	0.156	G353.02+0.69	17:25:08.1	−34:26:09.35	0.321
G300.66+0.10	12:31:38.4	−62:40:57.97	0.165	G353.04−0.20	17:28:48.3	−34:55:02.07	0.164
G300.73−0.02	12:32:07.4	−62:48:27.00	0.155	G353.05+0.77	17:24:53.4	−34:21:47.10	0.615
G300.73−0.15	12:32:05.5	−62:56:32.86	0.154	G353.06+0.27	17:26:55.9	−34:38:17.19	0.160
G300.74+0.55	12:32:38.2	−62:14:20.51	0.182	G353.08+0.29	17:26:53.6	−34:36:40.18	0.464
G300.76−0.01	12:32:27.0	−62:48:12.39	0.191	G353.10+0.45	17:26:19.8	−34:30:14.71	0.498
G300.77−0.05	12:32:30.9	−62:50:41.07	0.174	G353.10+0.25	17:27:08.9	−34:36:59.71	0.163
G300.78−0.38	12:32:21.1	−63:10:06.26	0.153	G353.10+0.17	17:27:28.8	−34:39:39.40	0.150
G300.78+0.20	12:32:43.6	−62:35:50.78	0.150	G353.11+0.25	17:27:09.1	−34:36:43.10	0.159
G300.80−0.37	12:32:33.3	−63:10:05.81	0.155	G353.11+0.53	17:26:02.4	−34:26:55.68	0.339
G300.83+0.33	12:33:12.0	−62:27:58.67	0.150	G353.12+0.81	17:24:54.1	−34:17:13.67	0.672
G300.84+0.33	12:33:20.9	−62:27:54.30	0.168	G353.12+0.57	17:25:53.7	−34:25:31.35	0.182

Table A.1. continued.

IRDC name	R.A. ($^{h}:^{m}:^{s}$) (J2000)	Decl. ($^{\circ}:':''$) (J2000)	$C_{24\mu m}$	IRDC name	R.A. ($^{h}:^{m}:^{s}$) (J2000)	Decl. ($^{\circ}:':''$) (J2000)	$C_{24\mu m}$
G300.86+0.59	12:33:37.8	−62:12:21.23	0.165	G353.14+0.54	17:26:05.7	−34:25:08.24	0.293
G300.87+0.52	12:33:41.9	−62:16:56.57	0.157	G353.15+0.49	17:26:17.6	−34:26:45.08	0.325
G300.87+0.14	12:33:28.8	−62:39:23.59	0.158	G353.15+0.06	17:28:00.9	−34:40:54.83	0.151
G300.88+0.50	12:33:46.1	−62:17:58.72	0.151	G353.16−0.20	17:29:06.7	−34:49:12.76	0.163
G300.89+0.15	12:33:35.9	−62:39:19.85	0.168	G353.16+0.43	17:26:32.8	−34:28:00.43	0.159
G300.91−0.08	12:33:38.3	−62:52:52.46	0.151	G353.16+0.68	17:25:33.1	−34:19:35.77	0.409
G300.92−0.14	12:33:45.9	−62:56:20.06	0.169	G353.17−0.22	17:29:14.1	−34:49:23.04	0.288
G300.96−0.27	12:34:00.8	−63:04:31.61	0.156	G353.17+0.03	17:28:13.1	−34:40:44.67	0.161
G300.99+0.07	12:34:28.2	−62:44:29.40	0.152	G353.17+0.40	17:26:42.3	−34:28:10.59	0.155
G301.00−0.25	12:34:22.8	−63:03:14.42	0.151	G353.18+0.01	17:28:19.4	−34:41:15.47	0.176
G301.00−0.24	12:34:24.0	−63:03:07.45	0.151	G353.18+0.37	17:26:52.4	−34:28:52.68	0.407
G301.01−0.25	12:34:29.5	−63:03:20.41	0.159	G353.19−0.20	17:29:10.3	−34:47:37.69	0.184
G301.02+0.07	12:34:41.7	−62:44:10.06	0.211	G353.19+0.66	17:25:43.8	−34:18:56.36	0.216
G301.02−0.26	12:34:32.2	−63:04:15.01	0.154	G353.20+0.49	17:26:25.7	−34:24:05.12	0.491
G301.05−0.45	12:34:39.7	−63:15:23.04	0.170	G353.20+0.28	17:27:18.6	−34:30:58.27	0.222
G301.05−0.02	12:34:55.7	−62:50:09.55	0.192	G353.21+0.02	17:28:19.7	−34:39:11.03	0.218
G301.06+0.00	12:35:02.6	−62:48:37.66	0.152	G353.22+0.39	17:26:51.6	−34:26:21.22	0.186
G301.06+0.11	12:35:07.2	−62:42:20.18	0.160	G353.22−0.10	17:28:52.0	−34:42:53.80	0.160
G301.12−0.39	12:35:20.9	−63:12:18.34	0.153	G353.22+0.60	17:26:02.1	−34:19:22.66	0.190
G301.13−0.07	12:35:36.6	−62:53:26.80	0.179	G353.22−0.09	17:28:50.0	−34:42:06.97	0.216
G301.13+0.09	12:35:42.8	−62:43:37.14	0.157	G353.23+0.28	17:27:20.8	−34:29:35.24	0.155
G301.14−0.05	12:35:44.8	−62:51:58.64	0.203	G353.23+0.36	17:27:01.5	−34:26:50.64	0.307
G301.15−0.17	12:35:43.2	−62:59:16.77	0.197	G353.23−0.20	17:29:18.4	−34:45:30.60	0.151
G301.21−0.37	12:36:10.4	−63:11:32.64	0.156	G353.23+0.28	17:27:22.1	−34:29:33.92	0.152
G301.21+0.03	12:36:23.0	−62:47:16.86	0.163	G353.23+0.68	17:25:46.2	−34:16:12.34	0.315
G301.28+0.73	12:37:21.0	−62:06:05.77	0.167	G353.23−0.11	17:28:57.7	−34:42:26.86	0.161
G301.29−0.15	12:36:57.7	−62:58:38.71	0.155	G353.25+0.65	17:25:53.7	−34:16:09.45	0.172
G301.30−0.10	12:37:04.8	−62:55:42.87	0.161	G353.25+0.15	17:27:54.8	−34:32:49.18	0.163
G301.31−0.07	12:37:10.8	−62:53:51.03	0.153	G353.25−0.10	17:28:55.6	−34:41:02.84	0.157
G301.32−0.07	12:37:15.1	−62:53:44.53	0.151	G353.25−0.50	17:30:34.9	−34:54:31.71	0.154
G301.32−0.10	12:37:15.0	−62:55:47.19	0.152	G353.25+0.40	17:26:55.1	−34:24:20.48	0.204
G301.32−0.10	12:37:18.0	−62:55:43.78	0.155	G353.25−0.10	17:28:57.3	−34:40:58.63	0.155
G301.38+0.20	12:37:55.7	−62:38:04.42	0.154	G353.26+0.10	17:28:08.3	−34:34:04.61	0.283
G301.41−0.09	12:38:05.7	−62:55:35.57	0.172	G353.26+0.74	17:25:35.5	−34:12:45.21	0.676
G301.46−0.25	12:38:25.2	−63:05:01.95	0.150	G353.26+0.80	17:25:21.1	−34:10:40.32	0.220
G301.47−0.24	12:38:33.1	−63:04:21.73	0.164	G353.26+0.12	17:28:04.7	−34:33:21.40	0.160
G301.48−0.36	12:38:33.8	−63:11:54.21	0.159	G353.26−0.09	17:28:56.1	−34:40:22.97	0.178
G301.50−0.36	12:38:41.3	−63:11:31.98	0.156	G353.26+0.64	17:25:59.4	−34:15:34.51	0.580
G301.50−0.36	12:38:43.2	−63:11:49.78	0.153	G353.27+0.25	17:27:34.8	−34:28:45.66	0.169
G301.51+0.28	12:39:07.8	−62:33:32.74	0.154	G353.27+0.39	17:27:00.6	−34:23:34.94	0.165
G301.56−0.38	12:39:17.1	−63:13:20.02	0.200	G353.28+0.32	17:27:19.4	−34:25:38.53	0.198
G301.57−0.31	12:39:21.1	−63:08:54.43	0.155	G353.28−0.21	17:29:28.3	−34:43:11.15	0.402
G301.57−0.34	12:39:22.2	−63:10:42.35	0.154	G353.28+0.45	17:26:50.0	−34:21:18.62	0.194
G301.60−0.43	12:39:37.9	−63:16:00.16	0.154	G353.29+0.57	17:26:21.2	−34:17:06.44	0.534
G301.65−0.79	12:39:51.7	−63:37:43.19	0.150	G353.29+0.84	17:25:15.1	−34:07:51.81	0.167
G301.66+0.24	12:40:24.0	−62:36:00.52	0.236	G353.29−0.09	17:28:59.4	−34:38:53.38	0.168
G301.67+0.50	12:40:33.5	−62:20:36.18	0.151	G353.29+0.94	17:24:53.6	−34:04:28.52	0.343
G301.67−0.29	12:40:17.1	−63:08:10.63	0.163	G353.29+0.50	17:26:38.7	−34:19:09.34	0.392

Table A.1. continued.

IRDC name	R.A. ($^{h}:^{m}:^{s}$) (J2000)	Decl. ($^{\circ}:':''$) (J2000)	$C_{24\mu m}$	IRDC name	R.A. ($^{h}:^{m}:^{s}$) (J2000)	Decl. ($^{\circ}:':''$) (J2000)	$C_{24\mu m}$
G301.67+0.25	12:40:30.2	−62:35:28.53	0.152	G353.29−0.07	17:28:56.9	−34:38:09.69	0.209
G301.68+0.26	12:40:31.3	−62:35:21.37	0.155	G353.29+0.42	17:26:58.2	−34:21:37.27	0.260
G301.74+0.77	12:41:17.5	−62:04:41.68	0.165	G353.30+0.78	17:25:32.7	−34:09:31.78	0.165
G301.75−0.85	12:40:45.5	−63:41:59.67	0.173	G353.30−0.34	17:30:02.9	−34:46:23.81	0.171
G301.75+0.66	12:41:19.1	−62:11:09.74	0.199	G353.31+0.30	17:27:31.0	−34:24:56.59	0.160
G301.76−0.59	12:40:59.5	−63:26:24.43	0.152	G353.31+0.27	17:27:36.3	−34:25:33.52	0.176
G301.79−0.85	12:41:05.4	−63:41:58.85	0.160	G353.32+0.45	17:26:55.5	−34:19:13.18	0.192
G301.84+0.66	12:42:05.0	−62:11:26.65	0.172	G353.33+0.75	17:25:46.0	−34:08:43.59	0.354
G301.85+0.69	12:42:08.6	−62:09:31.70	0.150	G353.34+0.84	17:25:24.2	−34:05:31.16	0.528
G301.86+0.68	12:42:15.6	−62:10:32.62	0.174	G353.34−0.30	17:30:00.3	−34:43:27.49	0.155
G301.86+0.66	12:42:16.1	−62:11:31.74	0.180	G353.34+0.79	17:25:37.0	−34:07:02.60	0.461
G301.87+0.59	12:42:21.0	−62:15:45.59	0.237	G353.34+0.68	17:26:03.6	−34:10:25.67	0.242
G301.88+0.57	12:42:24.0	−62:17:06.37	0.187	G353.35−0.04	17:28:58.0	−34:34:19.30	0.184
G301.88+0.77	12:42:28.6	−62:05:00.97	0.275	G353.36+0.66	17:26:11.8	−34:10:08.95	0.271
G301.90+0.73	12:42:34.9	−62:07:25.10	0.162	G353.37−0.32	17:30:09.6	−34:42:44.43	0.336
G301.92+0.43	12:42:42.5	−62:25:36.79	0.190	G353.37+0.74	17:25:53.5	−34:07:21.64	0.162
G301.93+0.73	12:42:50.7	−62:07:27.85	0.268	G353.37+0.59	17:26:28.0	−34:12:05.08	0.202
G301.94+0.42	12:42:52.0	−62:26:12.73	0.157	G353.37+0.97	17:24:58.8	−33:59:29.11	0.227
G301.95+0.20	12:42:51.5	−62:39:05.69	0.155	G353.37+0.69	17:26:07.0	−34:08:40.32	0.257
G301.95+0.58	12:42:59.1	−62:16:22.27	0.206	G353.38−0.63	17:31:27.5	−34:52:07.00	0.162
G301.95+0.69	12:43:00.9	−62:09:51.85	0.165	G353.38+0.86	17:25:27.5	−34:02:37.97	0.455
G301.95−0.65	12:42:38.9	−63:30:15.41	0.160	G353.39+0.64	17:26:19.3	−34:09:24.72	0.151
G301.96+0.20	12:42:56.2	−62:39:16.66	0.155	G353.39+0.96	17:25:04.3	−33:58:47.22	0.167
G301.96+0.68	12:43:06.5	−62:10:17.61	0.164	G353.39+0.51	17:26:53.3	−34:13:52.31	0.410
G301.97+0.70	12:43:13.1	−62:09:21.50	0.205	G353.39−0.60	17:31:22.8	−34:50:39.78	0.190
G301.99+0.00	12:43:09.3	−62:51:08.52	0.153	G353.40+0.65	17:26:18.7	−34:08:43.05	0.151
G301.99+0.62	12:43:21.7	−62:14:15.41	0.157	G353.40+0.35	17:27:32.9	−34:18:46.73	0.194
G302.00+0.63	12:43:24.2	−62:13:25.60	0.159	G353.40−0.01	17:28:58.5	−34:30:25.33	0.201
G302.03+0.20	12:43:35.3	−62:39:30.26	0.163	G353.40+0.03	17:28:50.0	−34:29:09.58	0.173
G302.08+0.06	12:44:00.3	−62:47:41.17	0.168	G353.41+0.90	17:25:21.7	−33:59:57.98	0.211
G302.09−0.03	12:44:03.6	−62:53:10.63	0.183	G353.41+0.97	17:25:05.3	−33:57:27.27	0.205
G302.09+0.72	12:44:15.8	−62:08:08.12	0.313	G353.41+0.76	17:25:56.7	−34:04:30.66	0.472
G302.11+0.58	12:44:20.7	−62:16:37.01	0.251	G353.42−0.08	17:29:19.3	−34:32:07.54	0.220
G302.12+0.68	12:44:27.5	−62:11:04.69	0.160	G353.42+0.67	17:26:18.9	−34:07:06.43	0.304
G302.13+0.27	12:44:29.2	−62:35:30.23	0.169	G353.42+0.60	17:26:35.4	−34:09:22.26	0.185
G302.16+0.66	12:44:51.3	−62:12:09.46	0.187	G353.42+0.34	17:27:39.0	−34:18:03.72	0.159
G302.19−0.79	12:44:46.1	−63:39:22.74	0.161	G353.42−0.18	17:29:45.2	−34:35:16.96	0.156
G302.19+0.75	12:45:07.5	−62:06:52.56	0.258	G353.44+0.33	17:27:43.7	−34:17:33.95	0.186
G302.20+0.72	12:45:10.3	−62:08:25.12	0.169	G353.44−0.19	17:29:50.3	−34:34:54.70	0.216
G302.23−0.18	12:45:13.5	−63:02:49.12	0.150	G353.44−0.31	17:30:18.3	−34:38:40.11	0.153
G302.23−0.19	12:45:15.6	−63:03:22.44	0.169	G353.44−0.40	17:30:41.2	−34:41:45.78	0.152
G302.25+0.77	12:45:34.4	−62:05:31.65	0.198	G353.44−0.18	17:29:46.0	−34:34:16.58	0.161
G302.27−0.11	12:45:34.1	−62:58:37.52	0.190	G353.44−0.11	17:29:30.3	−34:31:58.88	0.161
G302.27+0.74	12:45:44.4	−62:07:21.11	0.192	G353.44−0.41	17:30:42.8	−34:41:49.79	0.156
G302.30+0.77	12:46:03.2	−62:05:24.65	0.171	G353.44+0.58	17:26:42.2	−34:08:49.95	0.211
G302.31−0.07	12:45:57.6	−62:56:07.45	0.164	G353.44+0.95	17:25:15.7	−33:56:37.39	0.174
G302.31+0.34	12:46:02.9	−62:31:38.04	0.187	G353.44−0.21	17:29:54.4	−34:35:07.20	0.153
G302.32+0.58	12:46:09.1	−62:17:05.75	0.164	G353.44+0.66	17:26:25.4	−34:06:17.12	0.156

Table A.1. continued.

IRDC name	R.A. ($^{h}:^{m}:^{s}$) (J2000)	Decl. ($^{\circ}:':''$) (J2000)	$C_{24\mu m}$	IRDC name	R.A. ($^{h}:^{m}:^{s}$) (J2000)	Decl. ($^{\circ}:':''$) (J2000)	$C_{24\mu m}$
G302.32+0.16	12:46:07.4	−62:42:26.94	0.167	G353.44+0.31	17:27:49.0	−34:17:52.56	0.156
G302.36+0.10	12:46:23.8	−62:45:51.85	0.150	G353.44−0.48	17:31:00.7	−34:44:00.16	0.193
G302.36+0.09	12:46:25.9	−62:46:18.52	0.172	G353.44+0.56	17:26:49.2	−34:09:33.08	0.170
G302.76+0.02	12:49:53.8	−62:50:57.19	0.175	G353.45−0.05	17:29:16.9	−34:29:48.83	0.187
G302.76−0.08	12:49:58.1	−62:57:10.72	0.196	G353.45+0.62	17:26:34.4	−34:07:21.70	0.161
G302.77−0.89	12:49:58.6	−63:45:30.84	0.228	G353.45+0.74	17:26:04.6	−34:03:12.41	0.165
G302.78−0.77	12:50:02.9	−63:38:14.46	0.154	G353.45+0.82	17:25:46.8	−34:00:41.56	0.212
G302.81−0.74	12:50:21.7	−63:36:40.74	0.176	G353.45−0.12	17:29:32.6	−34:31:50.52	0.157
G302.82−0.59	12:50:28.3	−63:27:56.60	0.160	G353.45+0.92	17:25:23.0	−33:57:18.71	0.160
G302.84+0.10	12:50:35.6	−62:46:19.15	0.158	G353.52+0.75	17:26:14.4	−33:59:18.71	0.158
G302.84+0.11	12:50:36.3	−62:45:39.17	0.153	G353.52+0.91	17:25:36.0	−33:53:55.68	0.163
G302.84−0.46	12:50:39.4	−63:20:11.12	0.160	G353.52+0.86	17:25:49.2	−33:55:33.27	0.281
G302.86+0.01	12:50:46.9	−62:51:33.37	0.182	G353.53+0.89	17:25:42.0	−33:54:09.87	0.215
G302.86+0.19	12:50:48.1	−62:40:54.68	0.170	G353.53+0.57	17:27:01.1	−34:05:05.21	0.258
G302.88−0.88	12:50:56.2	−63:45:01.05	0.191	G353.53+0.66	17:26:37.8	−34:01:49.70	0.373
G302.89−0.75	12:51:04.4	−63:37:09.32	0.169	G353.53−0.48	17:31:15.6	−34:39:38.86	0.176
G302.91−0.61	12:51:12.3	−63:28:47.98	0.163	G353.54+0.93	17:25:35.2	−33:52:34.51	0.201
G302.94−0.87	12:51:30.8	−63:44:14.40	0.162	G353.55−0.22	17:30:15.1	−34:30:19.29	0.155
G303.01−0.72	12:52:11.0	−63:35:13.00	0.152	G353.55+0.82	17:26:04.4	−33:55:22.68	0.219
G303.02−0.83	12:52:11.7	−63:41:57.99	0.151	G353.56−0.42	17:31:04.0	−34:36:10.75	0.205
G303.03−0.87	12:52:18.0	−63:44:36.33	0.208	G353.56+0.78	17:26:13.8	−33:56:14.86	0.255
G303.03−0.44	12:52:18.6	−63:18:29.70	0.158	G353.57+0.67	17:26:42.5	−33:59:41.64	0.305
G303.04−0.72	12:52:22.8	−63:35:29.77	0.208	G353.58+0.74	17:26:27.8	−33:56:45.06	0.167
G303.05+0.11	12:52:29.0	−62:45:39.14	0.194	G353.58−0.46	17:31:19.0	−34:36:39.94	0.198
G303.06−0.89	12:52:36.2	−63:45:31.44	0.225	G353.58−0.69	17:32:13.5	−34:43:51.49	0.160
G303.06+0.10	12:52:34.3	−62:46:04.90	0.151	G353.59+0.85	17:26:02.0	−33:52:28.44	0.191
G303.07−0.62	12:52:37.8	−63:29:13.84	0.155	G353.59−0.45	17:31:17.9	−34:35:44.96	0.210
G303.08−0.46	12:52:46.4	−63:20:02.02	0.156	G353.60+0.86	17:26:02.6	−33:51:35.66	0.158
G303.09−0.48	12:52:50.1	−63:20:49.41	0.151	G353.60+0.66	17:26:50.7	−33:58:08.57	0.152
G303.14−0.81	12:53:19.1	−63:40:42.18	0.152	G353.61+0.73	17:26:33.4	−33:55:32.09	0.224
G303.14−0.79	12:53:21.3	−63:39:48.07	0.159	G353.61−0.08	17:29:50.9	−34:22:33.62	0.162
G303.17−0.80	12:53:33.2	−63:40:30.83	0.156	G353.61−0.46	17:31:22.8	−34:34:54.64	0.225
G303.18−0.79	12:53:39.1	−63:39:54.86	0.166	G353.61+0.95	17:25:42.7	−33:48:00.43	0.166
G303.19−0.86	12:53:48.4	−63:43:53.50	0.161	G353.62+0.90	17:25:55.8	−33:49:26.61	0.242
G303.21−0.87	12:53:55.4	−63:44:18.05	0.165	G353.62+0.80	17:26:19.7	−33:52:39.63	0.160
G303.22−0.87	12:54:02.8	−63:44:38.19	0.155	G353.63+0.88	17:26:01.1	−33:49:13.52	0.170
G303.25−0.77	12:54:17.1	−63:38:26.94	0.191	G353.64+0.78	17:26:27.7	−33:52:32.15	0.181
G303.28−0.49	12:54:33.2	−63:21:21.06	0.180	G353.64+0.39	17:28:00.6	−34:05:26.55	0.159
G303.29−0.68	12:54:36.7	−63:33:15.57	0.163	G353.65−0.07	17:29:54.5	−34:20:24.40	0.169
G303.31−0.88	12:54:50.6	−63:44:55.22	0.220	G353.65+0.74	17:26:39.5	−33:53:29.08	0.168
G303.33−0.86	12:55:04.3	−63:43:39.23	0.160	G353.66−0.05	17:29:50.8	−34:19:16.40	0.159
G303.34−0.88	12:55:09.3	−63:45:08.41	0.163	G353.66+0.81	17:26:23.7	−33:50:06.38	0.197
G303.35−0.79	12:55:11.0	−63:39:44.18	0.287	G353.67−0.08	17:30:01.5	−34:19:21.86	0.167
G303.35−0.82	12:55:11.6	−63:41:28.75	0.163	G353.69+0.90	17:26:07.0	−33:46:03.53	0.196
G303.39−0.57	12:55:32.4	−63:26:15.32	0.169	G353.70+0.73	17:26:49.5	−33:51:10.77	0.156
G303.39−0.70	12:55:34.9	−63:34:11.40	0.185	G353.70+0.74	17:26:46.1	−33:50:25.81	0.197
G303.40−0.67	12:55:39.2	−63:32:33.25	0.181	G353.73+0.74	17:26:51.1	−33:49:12.28	0.170
G303.43−0.59	12:55:51.8	−63:27:32.16	0.230	G353.74−0.02	17:29:56.0	−34:13:41.18	0.153

Table A.1. continued.

IRDC name	R.A. ($^{h}:^{m}:^{s}$) (J2000)	Decl. ($^{\circ}:':''$) (J2000)	$C_{24\mu m}$	IRDC name	R.A. ($^{h}:^{m}:^{s}$) (J2000)	Decl. ($^{\circ}:':''$) (J2000)	$C_{24\mu m}$
G303.43−0.71	12:55:54.8	−63:34:20.73	0.201	G353.75+0.88	17:26:20.7	−33:43:18.09	0.154
G303.44−0.87	12:56:03.0	−63:43:58.31	0.198	G353.82+0.26	17:29:00.2	−34:00:47.33	0.152
G303.45−0.66	12:56:03.0	−63:31:41.91	0.177	G353.83+0.27	17:29:00.4	−34:00:06.99	0.171
G303.45−0.58	12:56:04.7	−63:27:07.02	0.190	G353.83+0.76	17:27:02.9	−33:43:33.82	0.164
G303.45−0.49	12:56:03.9	−63:21:13.54	0.152	G353.85+0.24	17:29:10.7	−33:59:56.14	0.334
G303.47−0.78	12:56:16.6	−63:38:54.91	0.272	G353.89+0.25	17:29:15.2	−33:57:44.47	0.259
G303.51−0.59	12:56:38.4	−63:27:31.90	0.176	G353.91+0.26	17:29:14.9	−33:56:09.13	0.180
G303.54−0.51	12:56:50.1	−63:22:35.63	0.150	G353.91+0.25	17:29:19.4	−33:56:22.66	0.162
G303.54−0.68	12:56:54.3	−63:32:46.35	0.157	G353.95−0.15	17:31:00.5	−34:07:38.00	0.172
G303.58−0.76	12:57:18.9	−63:37:12.16	0.195	G353.95+0.24	17:29:28.3	−33:54:56.16	0.316
G303.60−0.74	12:57:25.4	−63:35:58.12	0.167	G353.96−0.14	17:31:00.2	−34:06:41.05	0.195
G303.60−0.58	12:57:24.1	−63:26:50.97	0.269	G353.97−0.17	17:31:09.2	−34:07:33.38	0.193
G303.63−0.68	12:57:42.3	−63:32:33.56	0.183	G353.97+0.27	17:29:24.1	−33:52:39.52	0.195
G303.64−0.75	12:57:49.4	−63:36:37.60	0.258	G353.99+0.57	17:28:14.1	−33:41:53.11	0.156
G303.64−0.48	12:57:47.6	−63:20:26.33	0.167	G354.00+0.35	17:29:09.2	−33:49:02.92	0.168
G303.66−0.60	12:57:55.4	−63:27:29.37	0.159	G354.00+0.87	17:27:04.2	−33:31:32.35	0.553
G303.69−0.66	12:58:11.9	−63:31:10.67	0.237	G354.00+0.36	17:29:05.9	−33:48:22.51	0.154
G303.71−0.67	12:58:27.3	−63:32:02.90	0.159	G354.03+0.46	17:28:46.3	−33:43:21.38	0.235
G303.72−0.78	12:58:32.6	−63:38:11.86	0.186	G354.06+0.00	17:30:43.0	−33:57:07.05	0.159
G303.81−0.86	12:59:22.5	−63:43:02.25	0.163	G354.14+0.09	17:30:33.4	−33:50:12.51	0.195
G303.82−0.88	12:59:26.7	−63:44:09.78	0.195	G354.17+0.09	17:30:37.9	−33:49:03.80	0.179
G303.87−0.56	12:59:50.9	−63:25:09.22	0.181	G354.17+0.07	17:30:42.7	−33:49:35.73	0.158
G303.88−0.48	12:59:51.4	−63:20:25.34	0.152	G354.19−0.06	17:31:17.4	−33:52:45.46	0.498
G303.89−0.29	12:59:53.9	−63:08:56.93	0.202	G354.20+0.06	17:30:50.5	−33:48:40.31	0.210
G303.90−0.75	13:00:11.0	−63:36:03.55	0.173	G354.26−0.50	17:33:14.2	−34:03:46.89	0.185
G303.91−0.76	13:00:15.7	−63:36:59.67	0.165	G354.27−0.51	17:33:18.4	−34:03:25.05	0.157
G303.93−0.76	13:00:22.7	−63:37:04.93	0.173	G354.28−0.50	17:33:18.6	−34:02:46.25	0.165
G303.93−0.86	13:00:25.7	−63:42:44.62	0.153	G354.28+0.30	17:30:04.5	−33:36:14.81	0.179
G304.01−0.33	13:01:01.2	−63:11:05.99	0.176	G354.31−0.49	17:33:22.1	−34:00:52.60	0.155
G304.03+0.41	13:00:56.4	−62:26:18.37	0.161	G354.31−0.07	17:31:39.7	−33:46:49.38	0.169
G304.12+0.27	13:01:45.6	−62:34:26.72	0.211	G354.32−0.09	17:31:44.1	−33:47:10.24	0.192
G304.13−0.38	13:02:05.8	−63:13:48.95	0.167	G354.35+0.38	17:29:56.4	−33:30:25.58	0.181
G304.13+0.28	13:01:51.7	−62:33:59.06	0.186	G354.36+0.28	17:30:22.7	−33:32:51.43	0.163
G304.22−0.84	13:03:02.7	−63:41:10.37	0.153	G354.37+0.38	17:29:59.6	−33:29:20.47	0.215
G304.22−0.88	13:03:04.9	−63:43:17.26	0.155	G354.37+0.30	17:30:19.2	−33:32:01.05	0.188
G304.25+0.28	13:02:50.5	−62:33:48.22	0.165	G354.37+0.26	17:30:28.8	−33:32:55.12	0.270
G304.26+0.30	13:02:56.0	−62:32:40.88	0.173	G354.40+0.55	17:29:25.8	−33:22:05.35	0.202
G304.30+0.69	13:03:10.7	−62:08:51.74	0.183	G354.41+0.49	17:29:40.0	−33:23:40.25	0.224
G304.33+0.33	13:03:32.9	−62:30:17.64	0.172	G354.41+0.28	17:30:31.3	−33:30:25.75	0.167
G304.35−0.30	13:04:00.1	−63:08:18.81	0.157	G354.42+0.50	17:29:37.6	−33:22:51.03	0.194
G304.36−0.81	13:04:17.5	−63:38:34.03	0.154	G354.42+0.57	17:29:21.4	−33:20:18.58	0.151
G304.37+0.29	13:03:54.1	−62:32:40.96	0.191	G354.45−0.49	17:33:42.2	−33:53:33.20	0.152
G304.37−0.40	13:04:12.7	−63:14:16.06	0.170	G354.46+0.42	17:30:05.2	−33:23:43.55	0.187
G304.38+0.30	13:04:02.4	−62:31:57.93	0.150	G354.46+0.46	17:29:55.7	−33:22:11.19	0.159
G304.39+0.24	13:04:09.5	−62:36:00.73	0.187	G354.50−0.59	17:34:16.9	−33:54:24.42	0.154
G304.48+0.39	13:04:49.9	−62:26:33.44	0.171	G354.51+0.37	17:30:23.7	−33:22:36.76	0.162
G304.52+0.27	13:05:15.1	−62:33:42.80	0.161	G354.52+0.02	17:31:50.0	−33:33:15.34	0.162
G304.54+0.53	13:05:17.8	−62:18:05.96	0.153	G354.56+0.47	17:30:09.9	−33:16:43.90	0.164

Table A.1. continued.

IRDC name	R.A. ($^{h}:^{m}:^{s}$) (J2000)	Decl. ($^{\circ}:':''$) (J2000)	$C_{24\mu m}$	IRDC name	R.A. ($^{h}:^{m}:^{s}$) (J2000)	Decl. ($^{\circ}:':''$) (J2000)	$C_{24\mu m}$
G304.55+0.52	13:05:22.0	−62:18:33.12	0.209	G354.56+0.45	17:30:13.4	−33:17:05.20	0.181
G304.59+0.11	13:05:56.8	−62:42:47.33	0.175	G354.57+0.51	17:29:59.4	−33:14:56.53	0.167
G304.60+0.35	13:05:54.3	−62:28:15.44	0.232	G354.58−0.60	17:34:30.0	−33:50:41.31	0.172
G304.63+0.45	13:06:07.3	−62:22:40.95	0.193	G354.62−0.44	17:33:56.8	−33:43:49.27	0.168
G304.64+0.30	13:06:14.4	−62:31:23.30	0.161	G354.62−0.61	17:34:40.0	−33:49:05.68	0.292
G304.65−0.83	13:06:54.2	−63:39:16.15	0.158	G354.64−0.65	17:34:50.9	−33:49:40.22	0.160
G304.66+0.27	13:06:27.4	−62:32:56.43	0.202	G354.64+0.52	17:30:08.2	−33:11:05.90	0.151
G304.67+0.54	13:06:21.5	−62:16:43.73	0.213	G354.64−0.65	17:34:50.5	−33:49:27.81	0.150
G304.67−0.80	13:07:03.8	−63:37:03.89	0.152	G354.65−0.65	17:34:52.5	−33:49:03.56	0.159
G304.69−0.83	13:07:14.8	−63:38:37.05	0.155	G354.65+0.44	17:30:31.9	−33:13:09.93	0.166
G304.69+0.29	13:06:39.3	−62:31:56.18	0.164	G354.67−0.69	17:35:05.5	−33:49:14.41	0.173
G304.70+0.69	13:06:36.6	−62:07:31.67	0.154	G354.67−0.66	17:34:58.3	−33:48:14.84	0.233
G304.71+0.44	13:06:48.0	−62:22:58.37	0.220	G354.69+0.41	17:30:42.8	−33:12:08.07	0.150
G304.75−0.80	13:07:46.7	−63:37:08.67	0.152	G354.70−0.58	17:34:43.4	−33:44:13.86	0.222
G304.75+0.41	13:07:08.6	−62:24:27.94	0.217	G354.73−0.50	17:34:29.8	−33:39:59.75	0.156
G304.77+0.33	13:07:19.1	−62:28:58.85	0.156	G354.74−0.48	17:34:26.5	−33:38:57.95	0.152
G304.77+0.56	13:07:13.5	−62:15:15.07	0.153	G354.74+0.62	17:30:01.1	−33:02:42.91	0.171
G304.77+0.63	13:07:13.8	−62:10:56.49	0.214	G354.76−0.69	17:35:18.2	−33:44:41.88	0.195
G304.78−0.11	13:07:38.8	−62:55:27.04	0.173	G354.78−0.52	17:34:42.2	−33:38:26.06	0.160
G304.78+0.21	13:07:28.6	−62:36:11.84	0.194	G354.80−0.58	17:34:59.0	−33:38:56.99	0.156
G304.78+0.43	13:07:23.0	−62:23:22.17	0.200	G354.80−0.59	17:35:02.0	−33:39:17.54	0.158
G304.79+0.45	13:07:30.4	−62:21:49.19	0.158	G354.80−0.54	17:34:49.4	−33:37:27.58	0.196
G304.81+0.23	13:07:45.4	−62:35:03.72	0.237	G354.80−0.65	17:35:18.0	−33:41:16.02	0.162
G304.81+0.36	13:07:41.2	−62:27:26.22	0.185	G354.80−0.60	17:35:03.9	−33:39:21.84	0.150
G304.81+0.25	13:07:47.5	−62:33:32.92	0.175	G354.82−0.65	17:35:18.6	−33:40:22.21	0.152
G304.83+0.48	13:07:48.1	−62:19:56.94	0.187	G354.87−0.58	17:35:10.0	−33:35:39.08	0.158
G304.83+0.46	13:07:49.8	−62:21:05.57	0.153	G354.91+0.46	17:31:06.9	−32:59:19.50	0.172
G304.83+0.22	13:07:58.4	−62:35:37.27	0.158	G354.93−0.61	17:35:27.9	−33:33:29.58	0.162
G304.83+0.49	13:07:49.5	−62:19:14.56	0.161	G354.94−0.52	17:35:07.9	−33:30:14.87	0.162
G304.85+0.64	13:07:53.4	−62:10:10.63	0.166	G354.94−0.61	17:35:29.1	−33:32:56.41	0.168
G304.86+0.37	13:08:09.4	−62:26:12.45	0.155	G354.97−0.68	17:35:49.2	−33:33:47.89	0.187
G304.88+0.18	13:08:22.3	−62:37:23.08	0.152	G354.97+0.20	17:32:17.7	−33:05:06.80	0.155
G304.88+0.06	13:08:27.5	−62:44:54.20	0.157	G354.97−0.47	17:35:00.1	−33:26:59.90	0.172
G304.88+0.59	13:08:11.5	−62:13:11.94	0.271	G354.98−0.46	17:35:00.2	−33:25:57.25	0.162
G304.89+0.14	13:08:28.3	−62:40:18.00	0.174	G355.01−0.58	17:35:32.4	−33:28:38.69	0.189
G304.89+0.04	13:08:35.2	−62:45:41.31	0.185	G355.03−0.60	17:35:40.2	−33:27:48.56	0.151
G304.91+0.61	13:08:22.3	−62:12:05.56	0.162	G355.05−0.59	17:35:41.0	−33:26:47.84	0.191
G304.91−0.12	13:08:50.5	−62:55:11.89	0.158	G355.05−0.61	17:35:44.7	−33:27:17.41	0.156
G304.92+0.62	13:08:29.1	−62:11:10.21	0.202	G355.06−0.48	17:35:16.6	−33:22:45.02	0.228
G304.93+0.34	13:08:44.6	−62:28:05.86	0.199	G355.06+0.09	17:32:59.7	−33:04:03.90	0.157
G304.94+0.65	13:08:37.3	−62:09:19.24	0.191	G355.07−0.70	17:36:10.6	−33:29:36.75	0.832
G304.94+0.32	13:08:49.6	−62:29:13.16	0.152	G355.07+0.11	17:32:54.5	−33:02:47.12	0.217
G304.94−0.01	13:09:01.6	−62:49:05.35	0.190	G355.07+0.09	17:33:00.7	−33:03:28.57	0.206
G304.95+0.34	13:08:53.0	−62:27:37.60	0.151	G355.09+0.08	17:33:04.3	−33:03:02.94	0.164
G304.95−0.11	13:09:12.3	−62:54:59.93	0.156	G355.10+0.06	17:33:11.7	−33:02:59.52	0.232
G304.96+0.29	13:08:59.7	−62:30:41.07	0.229	G355.11−0.77	17:36:33.5	−33:29:12.67	0.151
G304.96+0.42	13:08:55.7	−62:23:06.93	0.189	G355.14−0.02	17:33:37.6	−33:03:22.65	0.196
G304.97+0.04	13:09:14.1	−62:45:58.90	0.211	G355.15−0.65	17:36:10.0	−33:23:36.70	0.248

Table A.1. continued.

IRDC name	R.A. ($^{h}:^{m}:^{s}$) (J2000)	Decl. ($^{\circ}:':''$) (J2000)	$C_{24\mu m}$	IRDC name	R.A. ($^{h}:^{m}:^{s}$) (J2000)	Decl. ($^{\circ}:':''$) (J2000)	$C_{24\mu m}$
G304.97−0.13	13:09:23.3	−62:55:58.91	0.178	G355.17−0.02	17:33:42.5	−33:02:06.64	0.186
G304.97−0.05	13:09:21.0	−62:50:55.83	0.187	G355.18−0.44	17:35:23.8	−33:15:08.91	0.182
G304.98−0.53	13:09:40.1	−63:19:37.81	0.151	G355.19−0.40	17:35:15.9	−33:13:46.46	0.174
G304.98−0.15	13:09:28.1	−62:56:47.65	0.152	G355.19−0.08	17:33:59.8	−33:03:04.67	0.243
G304.98+0.07	13:09:22.5	−62:44:03.47	0.151	G355.19+0.04	17:33:32.5	−32:59:07.84	0.175
G304.99+0.09	13:09:23.8	−62:42:40.15	0.152	G355.20−0.49	17:35:39.2	−33:16:02.37	0.208
G305.00+0.53	13:09:11.1	−62:16:04.82	0.170	G355.20−0.66	17:36:20.9	−33:21:30.81	0.168
G305.00−0.06	13:09:32.9	−62:51:37.12	0.163	G355.20+0.02	17:33:38.0	−32:59:13.06	0.173
G305.00−0.65	13:09:58.1	−63:26:45.31	0.153	G355.21−0.36	17:35:10.2	−33:11:15.32	0.210
G305.02−0.64	13:10:05.8	−63:26:14.45	0.153	G355.21−0.65	17:36:21.8	−33:20:39.04	0.220
G305.02−0.04	13:09:43.2	−62:50:18.15	0.346	G355.22−0.46	17:35:36.9	−33:14:04.43	0.151
G305.02+0.07	13:09:41.7	−62:43:23.98	0.175	G355.22−0.23	17:34:41.2	−33:06:17.55	0.153
G305.03−0.20	13:09:53.7	−62:59:40.77	0.264	G355.25+0.12	17:33:20.4	−32:53:42.34	0.231
G305.03+0.66	13:09:22.2	−62:08:22.51	0.157	G355.27+0.01	17:33:50.8	−32:56:23.93	0.231
G305.03−0.15	13:09:53.5	−62:56:54.15	0.153	G355.27+0.31	17:32:38.3	−32:46:28.27	0.158
G305.03+0.11	13:09:45.0	−62:41:30.00	0.327	G355.27−0.26	17:34:56.0	−33:05:09.37	0.178
G305.03−0.30	13:10:02.0	−63:05:42.70	0.226	G355.27−0.27	17:34:58.0	−33:05:07.66	0.159
G305.04+0.06	13:09:49.5	−62:44:05.92	0.285	G355.28−0.20	17:34:40.9	−33:02:34.83	0.308
G305.04−0.05	13:09:55.1	−62:51:02.69	0.188	G355.28+0.14	17:33:20.3	−32:51:20.21	0.222
G305.04−0.82	13:10:27.0	−63:36:48.74	0.161	G355.29+0.02	17:33:52.2	−32:54:59.63	0.162
G305.04+0.25	13:09:46.5	−62:32:55.16	0.155	G355.33−0.32	17:35:19.3	−33:03:50.40	0.150
G305.05+0.26	13:09:47.3	−62:32:05.08	0.280	G355.34−0.33	17:35:22.3	−33:03:29.74	0.164
G305.05+0.59	13:09:35.6	−62:12:11.19	0.153	G355.41+0.11	17:33:48.7	−32:45:46.81	0.278
G305.05+0.24	13:09:50.3	−62:33:36.39	0.152	G355.50+0.05	17:34:16.5	−32:43:27.12	0.153
G305.05−0.01	13:10:00.5	−62:48:05.03	0.261	G355.53+0.23	17:33:36.4	−32:35:54.31	0.172
G305.06+0.11	13:09:59.9	−62:40:52.99	0.322	G355.55+0.24	17:33:39.2	−32:34:39.15	0.168
G305.06+0.52	13:09:45.4	−62:16:21.20	0.242	G355.55+0.26	17:33:35.0	−32:33:54.49	0.232
G305.06−0.56	13:10:28.2	−63:21:24.36	0.226	G355.55−0.04	17:34:47.2	−32:43:37.57	0.177
G305.06−0.07	13:10:09.3	−62:52:05.67	0.202	G355.58−0.06	17:34:55.0	−32:42:30.44	0.160
G305.07−0.19	13:10:16.2	−62:58:50.25	0.186	G355.59−0.77	17:37:47.0	−33:05:23.54	0.186
G305.07−0.25	13:10:19.2	−63:02:38.61	0.155	G355.61+0.08	17:34:26.2	−32:36:50.82	0.241
G305.07+0.55	13:09:49.2	−62:15:01.12	0.151	G355.61−0.80	17:37:59.1	−33:05:23.05	0.182
G305.07−0.51	13:10:31.5	−63:17:53.77	0.152	G355.62+0.59	17:32:27.2	−32:19:40.83	0.183
G305.08−0.88	13:10:46.8	−63:40:01.03	0.151	G355.63+0.08	17:34:28.6	−32:35:29.52	0.164
G305.08−0.22	13:10:21.6	−63:00:45.66	0.201	G355.66+0.29	17:33:43.8	−32:27:16.82	0.187
G305.08−0.10	13:10:17.6	−62:53:26.58	0.220	G355.69+0.09	17:34:34.7	−32:32:26.30	0.319
G305.08−0.19	13:10:22.3	−62:58:51.47	0.153	G355.73−0.11	17:35:29.9	−32:36:53.98	0.166
G305.08−0.40	13:10:31.3	−63:11:36.18	0.221	G355.74+0.25	17:34:04.6	−32:24:52.15	0.159
G305.09+0.55	13:09:57.1	−62:14:42.22	0.163	G355.74−0.29	17:36:14.2	−32:42:13.54	0.157
G305.09−0.45	13:10:36.6	−63:14:37.22	0.253	G355.75+0.06	17:34:52.1	−32:30:06.37	0.298
G305.09+0.09	13:10:18.2	−62:42:12.72	0.265	G355.76−0.51	17:37:10.4	−32:48:15.49	0.157
G305.10−0.53	13:10:44.8	−63:19:07.53	0.155	G355.77−0.83	17:38:30.5	−32:58:23.74	0.160
G305.10−0.42	13:10:40.8	−63:12:36.97	0.158	G355.77−0.55	17:37:22.1	−32:48:46.78	0.174
G305.10−0.31	13:10:37.4	−63:06:08.51	0.314	G355.77+0.15	17:34:33.7	−32:26:03.25	0.158
G305.10+0.11	13:10:21.7	−62:40:37.84	0.323	G355.78+0.18	17:34:27.3	−32:25:03.51	0.157
G305.10+0.47	13:10:09.0	−62:19:13.18	0.180	G355.78+0.17	17:34:31.2	−32:25:15.48	0.162
G305.10−0.48	13:10:45.9	−63:16:04.99	0.161	G355.78+0.48	17:33:17.2	−32:15:02.47	0.164
G305.11+0.58	13:10:06.5	−62:12:54.11	0.181	G355.78−0.92	17:38:52.3	−33:00:10.35	0.189

Table A.1. continued.

IRDC name	R.A. ($^{h}:^{m}:^{s}$) (J2000)	Decl. ($^{\circ}:':''$) (J2000)	$C_{24\mu m}$	IRDC name	R.A. ($^{h}:^{m}:^{s}$) (J2000)	Decl. ($^{\circ}:':''$) (J2000)	$C_{24\mu m}$
G305.11+0.10	13:10:28.7	−62:41:30.44	0.150	G355.78+0.18	17:34:30.2	−32:24:55.71	0.150
G305.12−0.23	13:10:42.7	−63:01:26.82	0.304	G355.79−0.19	17:35:58.1	−32:36:26.10	0.155
G305.12+0.02	13:10:33.7	−62:45:58.59	0.150	G355.81−0.54	17:37:25.4	−32:46:31.56	0.203
G305.12−0.44	13:10:52.3	−63:13:28.76	0.153	G355.82−0.50	17:37:18.3	−32:45:02.87	0.183
G305.12−0.17	13:10:42.8	−62:57:34.05	0.342	G355.82−0.84	17:38:40.1	−32:55:54.10	0.152
G305.12+0.46	13:10:19.2	−62:19:58.00	0.151	G355.82−0.51	17:37:20.8	−32:45:03.34	0.156
G305.12+0.08	13:10:34.2	−62:42:27.75	0.171	G355.82−0.84	17:38:39.9	−32:55:30.26	0.150
G305.13+0.70	13:10:13.4	−62:05:32.41	0.158	G355.83−0.68	17:38:02.1	−32:50:10.06	0.154
G305.13+0.42	13:10:26.4	−62:21:58.38	0.158	G355.84−0.83	17:38:40.6	−32:54:47.47	0.180
G305.13+0.07	13:10:40.4	−62:43:14.15	0.296	G355.85−0.46	17:37:12.3	−32:42:04.83	0.180
G305.14−0.04	13:10:45.4	−62:49:39.82	0.458	G355.86−0.84	17:38:44.2	−32:53:51.76	0.165
G305.14+0.12	13:10:42.6	−62:39:53.38	0.592	G355.86+0.26	17:34:20.8	−32:18:14.63	0.160
G305.15−0.33	13:11:02.4	−63:07:17.84	0.268	G355.88+0.10	17:35:03.8	−32:22:32.49	0.165
G305.15+0.25	13:10:39.3	−62:32:19.64	0.359	G355.88+0.29	17:34:18.6	−32:16:22.01	0.157
G305.15+0.19	13:10:45.1	−62:35:37.11	0.182	G355.89+0.30	17:34:17.2	−32:15:34.39	0.151
G305.16+0.55	13:10:34.9	−62:14:19.03	0.226	G355.92−0.35	17:36:56.9	−32:34:40.33	0.153
G305.16−0.09	13:11:01.1	−62:52:39.69	0.399	G355.96+0.06	17:35:25.7	−32:19:37.18	0.172
G305.16+0.04	13:10:57.4	−62:44:44.24	0.240	G355.98+0.19	17:34:56.6	−32:14:29.75	0.201
G305.17+0.07	13:10:57.5	−62:43:00.85	0.163	G356.00−0.42	17:37:27.4	−32:33:18.27	0.180
G305.17−0.60	13:11:27.2	−63:22:55.40	0.157	G356.01+0.14	17:35:12.6	−32:14:48.01	0.152
G305.18−0.66	13:11:31.6	−63:26:32.00	0.153	G356.02−0.79	17:38:57.7	−32:43:54.61	0.165
G305.18+0.48	13:10:45.9	−62:18:32.75	0.155	G356.18−0.53	17:38:20.9	−32:27:34.55	0.158
G305.18+0.35	13:10:51.7	−62:26:11.06	0.160	G356.24−0.02	17:36:28.2	−32:08:09.85	0.207
G305.18+0.48	13:10:48.1	−62:18:39.13	0.153	G356.26−0.05	17:36:36.7	−32:08:15.17	0.271
G305.18−0.58	13:11:30.4	−63:21:39.26	0.151	G356.27+0.26	17:35:24.6	−31:57:33.55	0.153
G305.19−0.49	13:11:30.1	−63:16:23.64	0.181	G356.28+0.29	17:35:19.4	−31:56:15.61	0.153
G305.19+0.46	13:10:52.0	−62:19:18.21	0.249	G356.29+0.28	17:35:22.1	−31:56:02.29	0.177
G305.19+0.09	13:11:08.0	−62:42:00.25	0.154	G356.30+0.66	17:33:55.5	−31:43:06.84	0.168
G305.19+0.07	13:11:09.4	−62:42:42.78	0.243	G356.33+0.10	17:36:12.6	−31:59:51.03	0.178
G305.19+0.39	13:10:57.1	−62:23:50.22	0.161	G356.34−0.06	17:36:52.4	−32:04:19.49	0.184
G305.19+0.10	13:11:09.4	−62:41:11.84	0.231	G356.35−0.05	17:36:50.8	−32:03:32.60	0.158
G305.19+0.40	13:10:57.5	−62:23:07.30	0.202	G356.36−0.08	17:36:58.7	−32:04:11.43	0.158
G305.20+0.58	13:10:54.7	−62:12:31.85	0.188	G356.36−0.01	17:36:43.3	−32:01:44.14	0.164
G305.20+0.21	13:11:09.6	−62:34:39.97	0.538	G356.36+0.71	17:33:51.9	−31:38:18.14	0.173
G305.20+0.01	13:11:18.3	−62:46:25.92	0.604	G356.37−0.01	17:36:45.1	−32:01:19.22	0.215
G305.20+0.14	13:11:13.4	−62:38:55.20	0.278	G356.38−0.10	17:37:06.7	−32:03:47.89	0.170
G305.21+0.37	13:11:08.0	−62:25:07.18	0.162	G356.38+0.10	17:36:20.9	−31:57:20.44	0.164
G305.21+0.31	13:11:12.9	−62:28:37.70	0.274	G356.38−0.06	17:36:59.1	−32:02:26.32	0.300
G305.22−0.34	13:11:40.0	−63:07:27.85	0.150	G356.38+0.18	17:36:01.9	−31:54:38.09	0.186
G305.22+0.16	13:11:20.4	−62:37:41.41	0.261	G356.39−0.09	17:37:07.1	−32:02:38.71	0.156
G305.22−0.89	13:12:05.7	−63:40:05.67	0.178	G356.40−0.08	17:37:06.5	−32:02:13.81	0.163
G305.22−0.35	13:11:43.2	−63:07:41.21	0.165	G356.40+0.08	17:36:28.7	−31:56:50.35	0.167
G305.22−0.30	13:11:41.9	−63:04:35.74	0.273	G356.41+0.03	17:36:40.4	−31:58:13.89	0.269
G305.22+0.57	13:11:07.1	−62:12:38.03	0.191	G356.41+0.12	17:36:18.8	−31:54:55.67	0.241
G305.23+0.39	13:11:16.8	−62:23:44.96	0.307	G356.41+0.06	17:36:33.8	−31:56:47.01	0.158
G305.23−0.22	13:11:42.1	−63:00:03.61	0.265	G356.42+0.07	17:36:33.5	−31:56:17.60	0.184
G305.23+0.36	13:11:19.6	−62:25:08.53	0.161	G356.42−0.05	17:37:01.9	−31:59:59.76	0.211
G305.23+0.31	13:11:22.7	−62:28:29.99	0.158	G356.42+0.09	17:36:28.7	−31:55:22.00	0.185

Table A.1. continued.

IRDC name	R.A. ($^{h}:^{m}:^{s}$) (J2000)	Decl. ($^{\circ}:':''$) (J2000)	$C_{24\mu m}$	IRDC name	R.A. ($^{h}:^{m}:^{s}$) (J2000)	Decl. ($^{\circ}:':''$) (J2000)	$C_{24\mu m}$
G305.24−0.67	13:12:08.1	−63:27:06.54	0.152	G356.53−0.44	17:38:50.9	−32:07:00.66	0.176
G305.24+0.35	13:11:25.7	−62:25:58.10	0.202	G356.53+0.21	17:36:17.7	−31:46:02.40	0.257
G305.24+0.65	13:11:14.1	−62:08:14.06	0.202	G356.54+0.03	17:36:59.2	−31:51:31.75	0.170
G305.25+0.05	13:11:40.0	−62:43:50.78	0.332	G356.55−0.43	17:38:51.2	−32:05:46.06	0.202
G305.26+0.33	13:11:34.3	−62:27:08.50	0.161	G356.56+0.20	17:36:21.9	−31:44:48.59	0.173
G305.26−0.52	13:12:10.8	−63:17:44.16	0.190	G356.60+0.09	17:36:57.0	−31:46:20.80	0.152
G305.26−0.87	13:12:26.3	−63:38:44.00	0.162	G356.66+0.57	17:35:10.3	−31:28:10.09	0.166
G305.26+0.52	13:11:30.4	−62:15:55.40	0.215	G356.67+0.55	17:35:16.7	−31:28:12.47	0.207
G305.27−0.08	13:11:55.3	−62:51:44.40	0.471	G356.67+0.57	17:35:13.2	−31:27:32.09	0.151
G305.27+0.05	13:11:49.9	−62:43:36.81	0.168	G356.73−0.01	17:37:37.4	−31:43:04.43	0.159
G305.27+0.21	13:11:45.6	−62:34:18.84	0.542	G356.81−0.43	17:39:32.9	−31:52:20.23	0.170
G305.28+0.11	13:11:52.3	−62:39:59.82	0.732	G356.86−0.01	17:37:57.9	−31:36:13.82	0.322
G305.28−0.19	13:12:05.7	−62:57:52.12	0.156	G356.86+0.33	17:36:39.4	−31:25:29.79	0.157
G305.28+0.29	13:11:46.6	−62:29:19.61	0.859	G356.88−0.03	17:38:06.5	−31:36:20.39	0.210
G305.28−0.52	13:12:20.8	−63:17:31.55	0.170	G356.96+0.15	17:37:36.3	−31:26:33.43	0.278
G305.28−0.53	13:12:24.1	−63:18:31.20	0.185	G357.00+0.23	17:37:21.3	−31:21:36.58	0.156
G305.29−0.56	13:12:26.9	−63:20:02.33	0.190	G357.01+0.23	17:37:24.6	−31:21:04.88	0.182
G305.29+0.06	13:12:02.6	−62:43:15.75	0.720	G357.04+0.15	17:37:46.9	−31:22:01.32	0.173
G305.29−0.42	13:12:23.9	−63:11:58.69	0.251	G357.06+0.19	17:37:40.2	−31:20:07.36	0.156
G305.29+0.05	13:12:04.4	−62:43:55.25	0.199	G357.07−0.78	17:41:33.2	−31:50:35.84	0.227
G305.30+0.04	13:12:06.6	−62:44:11.14	0.658	G357.08−0.76	17:41:31.4	−31:48:59.43	0.215
G305.31−0.05	13:12:18.6	−62:49:38.51	0.171	G357.13+0.31	17:37:24.0	−31:12:44.64	0.151
G305.31−0.23	13:12:27.6	−63:00:18.47	0.179	G357.14+0.31	17:37:24.8	−31:12:06.95	0.152
G305.32−0.30	13:12:31.7	−63:04:42.94	0.203	G357.15+0.31	17:37:27.1	−31:11:15.53	0.171
G305.32+0.51	13:11:58.7	−62:15:59.69	0.162	G357.17+0.73	17:35:50.6	−30:56:56.35	0.428
G305.32+0.75	13:11:49.1	−62:01:36.04	0.166	G357.19+0.07	17:38:28.8	−31:17:07.99	0.192
G305.32−0.32	13:12:36.1	−63:05:51.39	0.182	G357.22−0.05	17:39:02.3	−31:19:41.46	0.195
G305.33+0.40	13:12:06.9	−62:22:48.99	0.344	G357.23−0.07	17:39:07.2	−31:19:35.98	0.187
G305.33+0.20	13:12:15.1	−62:34:21.26	0.159	G357.23−0.07	17:39:09.5	−31:19:46.00	0.157
G305.33+0.65	13:11:56.4	−62:07:22.63	0.157	G357.24−0.04	17:39:04.7	−31:18:03.54	0.213
G305.33−0.46	13:12:45.4	−63:14:12.23	0.153	G357.36+0.15	17:38:36.6	−31:06:05.38	0.166
G305.33+0.68	13:11:57.9	−62:05:53.14	0.259	G357.40−0.57	17:41:33.0	−31:26:41.79	0.159
G305.34+0.44	13:12:12.1	−62:19:49.94	0.192	G357.42−0.56	17:41:34.4	−31:25:47.40	0.198
G305.35−0.32	13:12:49.1	−63:05:38.53	0.223	G357.43−0.54	17:41:30.5	−31:24:27.49	0.208
G305.35+0.09	13:12:32.8	−62:40:46.30	0.155	G357.45+0.35	17:38:00.2	−30:55:06.88	0.179
G305.35−0.21	13:12:46.5	−62:58:38.00	0.301	G357.46−0.34	17:40:46.7	−31:16:24.81	0.204
G305.36+0.75	13:12:07.3	−62:01:22.89	0.164	G357.48+0.55	17:37:20.2	−30:47:03.14	0.178
G305.36+0.51	13:12:18.4	−62:15:57.63	0.163	G357.49−0.33	17:40:48.8	−31:14:25.99	0.189
G305.37+0.04	13:12:43.4	−62:43:44.97	0.199	G357.51+0.18	17:38:50.6	−30:57:16.62	0.212
G305.37+0.27	13:12:34.7	−62:30:07.78	0.460	G357.55−0.33	17:40:58.5	−31:12:01.44	0.156
G305.37+0.39	13:12:30.0	−62:22:57.28	0.248	G357.55+0.28	17:38:34.2	−30:52:23.19	0.150
G305.38−0.63	13:13:17.4	−63:24:05.35	0.229	G357.56−0.30	17:40:53.2	−31:10:03.82	0.157
G305.38−0.56	13:13:18.2	−63:19:25.95	0.175	G357.57−0.34	17:41:02.7	−31:10:43.13	0.228
G305.38+0.34	13:12:39.5	−62:25:47.24	0.190	G357.57−0.36	17:41:08.8	−31:11:31.54	0.188
G305.39−0.04	13:12:56.9	−62:48:23.25	0.298	G357.59−0.35	17:41:08.8	−31:10:33.81	0.174
G305.39−0.59	13:13:22.4	−63:21:18.21	0.175	G357.59−0.34	17:41:05.7	−31:09:45.62	0.182
G305.39+0.54	13:12:33.9	−62:13:33.84	0.177	G357.63−0.32	17:41:08.4	−31:07:11.06	0.188
G305.39−0.14	13:13:04.7	−62:54:20.40	0.421	G357.67−0.29	17:41:04.5	−31:04:21.29	0.220

Table A.1. continued.

IRDC name	R.A. ($^{h}:^{m}:^{s}$) (J2000)	Decl. ($^{\circ}:':''$) (J2000)	$C_{24\mu m}$	IRDC name	R.A. ($^{h}:^{m}:^{s}$) (J2000)	Decl. ($^{\circ}:':''$) (J2000)	$C_{24\mu m}$
G305.39+0.57	13:12:34.4	−62:11:56.09	0.189	G357.67−0.16	17:40:35.1	−31:00:01.13	0.197
G305.40−0.60	13:13:26.5	−63:22:01.90	0.152	G357.67−0.66	17:42:34.4	−31:15:37.92	0.165
G305.40−0.11	13:13:08.6	−62:52:26.19	0.175	G357.68−0.31	17:41:12.9	−31:04:17.67	0.160
G305.40−0.67	13:13:34.8	−63:26:13.06	0.152	G357.70−0.29	17:41:10.7	−31:02:58.59	0.280
G305.41+0.21	13:12:58.7	−62:33:19.22	0.284	G357.73−0.08	17:40:24.6	−30:54:39.17	0.153
G305.42+0.72	13:12:40.1	−62:03:12.15	0.171	G357.74−0.08	17:40:26.5	−30:54:14.56	0.152
G305.42+0.33	13:12:57.2	−62:26:21.85	0.150	G357.75−0.07	17:40:25.1	−30:53:14.20	0.159
G305.42+0.33	13:12:58.2	−62:26:13.77	0.152	G357.77−0.31	17:41:25.7	−30:59:47.65	0.201
G305.43+0.24	13:13:06.1	−62:31:42.39	0.244	G357.79−0.31	17:41:29.7	−30:58:49.16	0.183
G305.43+0.40	13:13:00.6	−62:21:55.98	0.309	G357.87−0.03	17:40:35.8	−30:45:42.69	0.159
G305.43+0.49	13:12:57.6	−62:16:24.23	0.198	G357.88−0.05	17:40:41.0	−30:45:56.94	0.154
G305.43−0.26	13:13:31.4	−63:01:40.41	0.188	G357.88+0.16	17:39:52.3	−30:39:08.95	0.174
G305.43+0.62	13:12:53.2	−62:08:43.03	0.154	G357.90−0.13	17:41:01.9	−30:47:10.33	0.168
G305.44+0.08	13:13:16.9	−62:40:52.80	0.515	G357.94−0.09	17:40:58.4	−30:44:27.04	0.164
G305.44−0.76	13:13:56.8	−63:31:37.18	0.178	G357.94−0.32	17:41:55.2	−30:51:26.01	0.159
G305.44−0.40	13:13:41.6	−63:09:35.95	0.293	G357.98+0.06	17:40:29.3	−30:37:33.54	0.178
G305.45−0.10	13:13:30.8	−62:52:07.56	0.191	G357.98−0.50	17:42:42.4	−30:54:52.72	0.184
G305.45−0.19	13:13:36.4	−62:57:19.30	0.370	G357.99−0.34	17:42:05.6	−30:49:13.54	0.170
G305.45+0.64	13:13:02.5	−62:07:46.99	0.217	G358.00+0.09	17:40:23.8	−30:35:30.71	0.206
G305.45−0.08	13:13:34.2	−62:50:24.71	0.260	G358.02−0.04	17:40:58.0	−30:38:44.56	0.170
G305.46−0.44	13:13:51.3	−63:12:17.89	0.173	G358.02+0.10	17:40:25.8	−30:34:05.78	0.165
G305.46−0.04	13:13:33.2	−62:48:29.39	0.176	G358.03−0.18	17:41:34.0	−30:42:49.72	0.186
G305.46−0.13	13:13:40.9	−62:53:27.94	0.245	G358.04−0.04	17:41:02.0	−30:37:19.99	0.186
G305.47+0.28	13:13:26.8	−62:29:00.79	0.341	G358.06−0.49	17:42:52.2	−30:50:40.31	0.183
G305.47+0.17	13:13:33.3	−62:35:50.43	0.585	G358.07−0.47	17:42:46.9	−30:49:38.08	0.258
G305.47−0.33	13:13:56.2	−63:05:24.76	0.413	G358.08−0.03	17:41:06.2	−30:35:24.05	0.155
G305.47−0.49	13:14:04.1	−63:15:15.61	0.232	G358.09−0.46	17:42:47.7	−30:48:22.06	0.151
G305.48+0.65	13:13:15.2	−62:06:37.96	0.187	G358.09−0.12	17:41:27.9	−30:37:40.79	0.244
G305.48−0.14	13:13:50.7	−62:53:48.49	0.201	G358.11−0.41	17:42:39.5	−30:45:57.83	0.153
G305.77−0.23	13:16:27.7	−62:57:45.95	0.197	G358.11−0.39	17:42:36.1	−30:45:13.43	0.166
G305.77−0.77	13:16:56.1	−63:30:03.20	0.151	G358.15−0.88	17:44:38.2	−30:58:32.64	0.440
G305.77+0.10	13:16:11.9	−62:37:50.25	0.204	G358.20−0.35	17:42:39.8	−30:39:17.35	0.155
G305.77−0.65	13:16:51.1	−63:22:56.21	0.159	G358.22−0.65	17:43:53.9	−30:47:51.96	0.169
G305.77+0.41	13:15:57.6	−62:19:44.27	0.307	G358.22−0.37	17:42:46.4	−30:38:29.48	0.205
G305.77+0.02	13:16:17.0	−62:42:58.31	0.390	G358.23+0.12	17:40:53.8	−30:22:40.93	0.203
G305.78+0.49	13:15:54.7	−62:14:49.33	0.236	G358.24−0.45	17:43:08.9	−30:40:13.55	0.186
G305.78−0.13	13:16:26.7	−62:51:43.12	0.545	G358.25−0.73	17:44:16.7	−30:48:38.83	0.153
G305.78−0.31	13:16:38.7	−63:02:40.50	0.155	G358.27−0.42	17:43:06.6	−30:37:49.04	0.181
G305.79−0.33	13:16:41.8	−63:03:38.76	0.164	G358.29+0.14	17:40:56.9	−30:19:19.21	0.176
G305.79−0.47	13:16:52.5	−63:12:17.86	0.167	G358.30−0.00	17:41:31.6	−30:23:01.45	0.163
G305.80−0.10	13:16:34.7	−62:49:46.74	0.469	G358.30−0.64	17:44:02.9	−30:43:08.74	0.248
G305.80+0.23	13:16:19.8	−62:30:08.85	0.239	G358.32−0.00	17:41:33.8	−30:22:18.92	0.151
G305.81+0.34	13:16:19.8	−62:23:43.73	0.161	G358.35−0.01	17:41:39.2	−30:20:56.42	0.215
G305.82−0.22	13:16:55.3	−62:57:02.50	0.174	G358.38+0.43	17:40:01.8	−30:05:10.69	0.152
G305.83+0.10	13:16:43.6	−62:37:58.96	0.230	G358.39+0.08	17:41:25.0	−30:15:40.82	0.165
G305.84−0.61	13:17:22.0	−63:20:00.54	0.170	G358.39+0.06	17:41:29.3	−30:16:12.15	0.189
G305.84−0.59	13:17:22.0	−63:19:01.24	0.159	G358.40+0.20	17:40:58.3	−30:11:28.30	0.189
G305.84−0.26	13:17:04.6	−62:59:06.83	0.250	G358.40−0.25	17:42:44.5	−30:25:39.06	0.180

Table A.1. continued.

IRDC name	R.A. ($^{h}:^{m}:^{s}$) (J2000)	Decl. ($^{\circ}:':''$) (J2000)	$C_{24\mu m}$	IRDC name	R.A. ($^{h}:^{m}:^{s}$) (J2000)	Decl. ($^{\circ}:':''$) (J2000)	$C_{24\mu m}$
G305.84+0.35	13:16:35.7	−62:22:55.81	0.182	G358.41−0.76	17:44:46.5	−30:41:30.92	0.207
G305.85+0.69	13:16:22.0	−62:02:40.25	0.172	G358.42−0.48	17:43:41.0	−30:31:57.55	0.178
G305.85−0.01	13:16:59.1	−62:44:08.09	0.203	G358.42−0.53	17:43:53.2	−30:33:24.45	0.154
G305.86+0.24	13:16:49.0	−62:28:57.46	0.248	G358.42−0.63	17:44:18.6	−30:36:42.32	0.166
G305.86+0.46	13:16:38.4	−62:16:15.59	0.222	G358.42+0.13	17:41:19.0	−30:12:41.74	0.162
G305.86+0.34	13:16:46.4	−62:23:07.32	0.174	G358.44−0.05	17:42:01.9	−30:17:31.94	0.236
G305.86+0.56	13:16:35.9	−62:10:04.81	0.160	G358.44+0.04	17:41:41.7	−30:14:43.70	0.207
G305.87+0.04	13:17:06.1	−62:41:12.65	0.260	G358.44+0.12	17:41:22.0	−30:12:02.95	0.155
G305.88−0.05	13:17:12.8	−62:46:20.97	0.333	G358.44−0.78	17:44:56.3	−30:40:24.80	0.174
G305.88+0.17	13:17:01.9	−62:33:10.50	0.219	G358.44−0.55	17:44:01.0	−30:32:53.01	0.154
G305.88+0.21	13:17:00.3	−62:31:08.43	0.159	G358.45−0.40	17:43:27.0	−30:27:54.36	0.255
G305.88+0.24	13:16:59.3	−62:29:16.86	0.158	G358.46−0.50	17:43:52.2	−30:30:52.08	0.198
G305.88−0.31	13:17:30.4	−63:02:05.41	0.154	G358.46+0.11	17:41:27.5	−30:11:24.69	0.215
G305.89+0.46	13:16:52.2	−62:15:50.26	0.171	G358.46−0.38	17:43:24.4	−30:27:01.21	0.155
G305.89+0.24	13:17:05.6	−62:29:04.99	0.152	G358.46−0.63	17:44:23.1	−30:34:47.31	0.175
G305.89−0.02	13:17:19.3	−62:44:25.75	0.188	G358.46+0.19	17:41:09.9	−30:08:48.26	0.163
G305.89+0.07	13:17:16.1	−62:39:15.27	0.252	G358.47−0.39	17:43:26.7	−30:26:40.73	0.196
G305.90+0.27	13:17:07.4	−62:26:56.44	0.172	G358.47−0.66	17:44:30.8	−30:35:05.74	0.212
G305.90−0.64	13:17:58.3	−63:21:37.75	0.185	G358.48+0.19	17:41:13.7	−30:07:53.98	0.160
G305.90+0.37	13:17:05.7	−62:20:59.70	0.204	G358.48+0.29	17:40:49.4	−30:04:21.95	0.173
G305.91−0.77	13:18:10.5	−63:29:02.93	0.167	G358.49−0.47	17:43:48.8	−30:28:02.17	0.167
G305.92−0.12	13:17:38.7	−62:50:39.31	0.195	G358.49+0.00	17:41:58.1	−30:13:14.80	0.172
G305.92−0.68	13:18:09.0	−63:23:36.58	0.170	G358.49+0.19	17:41:14.3	−30:07:19.34	0.152
G305.92+0.03	13:17:33.5	−62:41:28.99	0.203	G358.49−0.44	17:43:43.8	−30:27:09.59	0.234
G305.94−0.22	13:17:55.7	−62:56:22.11	0.164	G358.50−0.59	17:44:18.1	−30:31:31.39	0.165
G305.94+0.07	13:17:42.8	−62:39:04.72	0.152	G358.50−0.02	17:42:04.5	−30:13:07.83	0.223
G305.95−0.24	13:18:03.5	−62:57:02.70	0.196	G358.50+0.29	17:40:52.9	−30:03:27.78	0.172
G305.96+0.01	13:17:53.3	−62:42:27.34	0.299	G358.51−0.26	17:43:04.2	−30:20:32.60	0.188
G305.96−0.03	13:17:55.4	−62:44:44.75	0.187	G358.52−0.03	17:42:10.9	−30:12:49.31	0.157
G305.96+0.63	13:17:23.6	−62:05:21.29	0.153	G358.53−0.38	17:43:34.3	−30:23:20.94	0.179
G305.97−0.12	13:18:07.0	−62:50:13.87	0.189	G358.53−0.23	17:42:58.1	−30:18:25.71	0.266
G305.97−0.22	13:18:12.8	−62:55:52.63	0.160	G358.53+0.10	17:41:42.3	−30:08:09.50	0.225
G305.97−0.23	13:18:13.9	−62:56:25.82	0.150	G358.54+0.41	17:40:29.4	−29:58:00.93	0.170
G305.97+0.63	13:17:28.6	−62:05:05.65	0.158	G358.54−0.05	17:42:17.1	−30:12:18.19	0.205
G305.98−0.11	13:18:09.9	−62:49:41.44	0.154	G358.54−0.26	17:43:06.8	−30:18:52.77	0.150
G305.98+0.15	13:17:56.6	−62:33:37.82	0.165	G358.54−0.39	17:43:38.9	−30:23:08.76	0.150
G305.99−0.24	13:18:21.8	−62:57:12.05	0.158	G358.54+0.07	17:41:49.0	−30:08:09.88	0.160
G305.99+0.13	13:18:01.7	−62:35:12.20	0.171	G358.56−0.38	17:43:38.6	−30:22:04.88	0.231
G305.99+0.05	13:18:07.1	−62:39:50.49	0.192	G358.56+0.02	17:42:05.1	−30:09:18.07	0.151
G305.99−0.11	13:18:17.5	−62:49:36.00	0.153	G358.56−0.79	17:45:15.9	−30:34:38.45	0.163
G306.00−0.06	13:18:16.2	−62:46:20.17	0.196	G358.56+0.06	17:41:54.6	−30:07:45.88	0.168
G306.00−0.04	13:18:15.6	−62:45:05.90	0.153	G358.57+0.09	17:41:49.6	−30:06:44.88	0.210
G306.00+0.52	13:17:46.8	−62:11:46.74	0.166	G358.57−0.58	17:44:27.9	−30:27:26.51	0.152
G306.00+0.17	13:18:06.6	−62:32:45.81	0.157	G358.58+0.04	17:42:00.9	−30:07:33.81	0.206
G306.00+0.77	13:17:36.6	−61:56:44.77	0.165	G358.58−0.59	17:44:30.7	−30:27:31.36	0.151
G306.01−0.51	13:18:46.0	−63:12:59.24	0.166	G358.58+0.02	17:42:06.0	−30:08:10.94	0.194
G306.02+0.41	13:18:06.2	−62:18:16.54	0.169	G358.58−0.49	17:44:06.6	−30:24:13.28	0.158
G306.03−0.29	13:18:46.6	−62:59:41.80	0.276	G358.58−0.40	17:43:46.2	−30:21:24.45	0.156

Table A.1. continued.

IRDC name	R.A. ($^{h}:^{m}:^{s}$) (J2000)	Decl. ($^{\circ}:':''$) (J2000)	$C_{24\mu m}$	IRDC name	R.A. ($^{h}:^{m}:^{s}$) (J2000)	Decl. ($^{\circ}:':''$) (J2000)	$C_{24\mu m}$
G306.03−0.11	13:18:38.3	−62:49:06.14	0.232	G358.59−0.13	17:42:43.5	−30:12:20.28	0.218
G306.04−0.02	13:18:35.2	−62:43:40.18	0.157	G358.60−0.38	17:43:43.6	−30:19:54.87	0.227
G306.04+0.77	13:17:54.1	−61:56:13.03	0.160	G358.60−0.06	17:42:28.3	−30:09:34.28	0.886
G306.05+0.22	13:18:26.6	−62:29:10.42	0.161	G358.60+0.05	17:42:02.7	−30:05:49.59	0.174
G306.06−0.01	13:18:48.3	−62:43:01.48	0.181	G358.61−0.02	17:42:20.1	−30:07:38.08	0.151
G306.07+0.40	13:18:27.2	−62:18:25.80	0.165	G358.61−0.13	17:42:47.5	−30:11:08.91	0.153
G306.07−0.69	13:19:28.3	−63:23:20.09	0.157	G358.61+0.04	17:42:07.5	−30:05:42.00	0.157
G306.07+0.42	13:18:30.2	−62:17:20.71	0.162	G358.62−0.01	17:42:20.0	−30:07:19.43	0.153
G306.08+0.05	13:18:54.4	−62:39:00.33	0.325	G358.62+0.17	17:41:38.6	−30:01:14.73	0.171
G306.09−0.13	13:19:08.7	−62:50:11.76	0.185	G358.64−0.39	17:43:52.0	−30:18:03.92	0.152
G306.09−0.03	13:19:02.7	−62:43:46.36	0.151	G358.64−0.11	17:42:45.8	−30:08:53.61	0.269
G306.09+0.45	13:18:38.3	−62:15:32.13	0.158	G358.67−0.52	17:44:27.3	−30:20:32.24	0.189
G306.10−0.04	13:19:06.9	−62:44:23.48	0.156	G358.67−0.49	17:44:19.8	−30:19:20.84	0.204
G306.10−0.03	13:19:08.7	−62:43:59.43	0.158	G358.68−0.50	17:44:23.8	−30:19:33.98	0.158
G306.10+0.63	13:18:34.7	−62:04:15.31	0.195	G358.68−0.46	17:44:14.7	−30:18:19.53	0.192
G306.11+0.10	13:19:04.7	−62:36:21.19	0.162	G358.68+0.01	17:42:24.3	−30:03:34.18	0.336
G306.11+0.08	13:19:08.1	−62:37:07.53	0.155	G358.68−0.09	17:42:47.2	−30:06:15.57	0.413
G306.12−0.29	13:19:33.6	−62:59:04.20	0.174	G358.70+0.01	17:42:27.3	−30:02:31.36	0.167
G306.12−0.13	13:19:25.5	−62:49:28.57	0.157	G358.72−0.82	17:45:45.5	−30:27:16.54	0.163
G306.13−0.30	13:19:39.7	−62:59:38.62	0.164	G358.72−0.71	17:45:20.1	−30:23:41.09	0.179
G306.13+0.17	13:19:15.1	−62:31:30.18	0.247	G358.73+0.11	17:42:07.6	−29:57:25.89	0.192
G306.14−0.13	13:19:34.1	−62:49:47.70	0.156	G358.73−0.04	17:42:42.9	−30:01:58.34	0.199
G306.14−0.30	13:19:45.8	−62:59:30.39	0.180	G358.74−0.46	17:44:24.4	−30:15:21.49	0.160
G306.15−0.02	13:19:35.3	−62:43:09.94	0.152	G358.74−0.49	17:44:31.4	−30:15:47.27	0.178
G306.16+0.09	13:19:31.5	−62:36:23.48	0.248	G358.75−0.46	17:44:25.6	−30:14:31.22	0.152
G306.16−0.03	13:19:40.8	−62:43:20.61	0.161	G358.76−0.50	17:44:36.7	−30:15:40.75	0.154
G306.17+0.34	13:19:26.9	−62:21:26.25	0.164	G358.76+0.45	17:40:51.9	−29:45:29.11	0.763
G306.19+0.17	13:19:42.6	−62:31:34.80	0.152	G358.76+0.01	17:42:36.4	−29:59:12.93	0.277
G306.19+0.15	13:19:43.7	−62:32:18.17	0.176	G358.77−0.49	17:44:35.8	−30:14:37.71	0.150
G306.19+0.18	13:19:44.5	−62:30:46.55	0.174	G358.78−0.50	17:44:39.6	−30:14:28.53	0.151
G306.20+0.43	13:19:32.5	−62:15:57.19	0.175	G358.79−0.84	17:46:02.5	−30:24:21.44	0.156
G306.20−0.45	13:20:24.3	−63:08:19.17	0.154	G358.81−0.84	17:46:03.8	−30:23:33.94	0.180
G306.20−0.47	13:20:27.6	−63:09:31.11	0.153	G358.81−0.30	17:43:55.7	−30:06:17.67	0.154
G306.20+0.00	13:19:59.9	−62:41:15.20	0.154	G358.81−0.38	17:44:15.2	−30:08:44.21	0.159
G306.21+0.57	13:19:30.2	−62:07:05.37	0.153	G358.84−0.38	17:44:18.2	−30:07:31.30	0.189
G306.21+0.51	13:19:37.3	−62:11:08.95	0.150	G358.84−0.65	17:45:23.1	−30:16:04.01	0.155
G306.22+0.52	13:19:40.7	−62:10:25.35	0.163	G358.84−0.68	17:45:30.5	−30:16:50.14	0.172
G306.23+0.81	13:19:27.9	−61:53:07.53	0.165	G358.84−0.07	17:43:05.8	−29:57:29.72	0.324
G306.25−0.33	13:20:44.6	−63:00:39.43	0.154	G358.85+0.08	17:42:31.9	−29:52:30.82	0.169
G306.25+0.17	13:20:16.2	−62:30:47.86	0.216	G358.85+0.06	17:42:35.7	−29:53:00.84	0.205
G306.26+0.21	13:20:18.2	−62:28:19.20	0.165	G358.86+0.04	17:42:42.5	−29:53:19.04	0.232
G306.28+0.15	13:20:29.7	−62:31:45.21	0.197	G358.86−0.70	17:45:37.7	−30:16:32.00	0.206
G306.29+0.24	13:20:29.5	−62:26:39.86	0.188	G358.86−0.66	17:45:29.4	−30:15:23.00	0.160
G306.29+0.28	13:20:31.0	−62:24:13.65	0.162	G358.86+0.09	17:42:31.5	−29:51:37.07	0.164
G306.30−0.65	13:21:29.3	−63:19:15.75	0.158	G358.86−0.65	17:45:26.8	−30:14:40.31	0.160
G306.30+0.25	13:20:35.8	−62:25:51.63	0.160	G358.86+0.00	17:42:52.4	−29:54:08.48	0.193
G306.30−0.25	13:21:06.3	−62:55:41.16	0.178	G358.87+0.03	17:42:46.9	−29:53:05.23	0.163
G306.30+0.54	13:20:20.3	−62:08:26.91	0.165	G358.88−0.16	17:43:33.1	−29:58:41.23	0.165

Table A.1. continued.

IRDC name	R.A. ($^{h}:^{m}:^{s}$) (J2000)	Decl. ($^{\circ}:':''$) (J2000)	$C_{24\mu m}$	IRDC name	R.A. ($^{h}:^{m}:^{s}$) (J2000)	Decl. ($^{\circ}:':''$) (J2000)	$C_{24\mu m}$
G306.31+0.11	13:20:49.6	−62:34:03.04	0.242	G358.89−0.07	17:43:14.3	−29:55:14.79	0.153
G306.31−0.04	13:20:58.9	−62:42:51.19	0.238	G358.90+0.00	17:42:58.2	−29:52:18.21	0.160
G306.31+0.25	13:20:42.6	−62:25:48.76	0.157	G358.90+0.07	17:42:41.7	−29:50:03.95	0.197
G306.32+0.36	13:20:41.7	−62:19:12.80	0.311	G358.90−0.31	17:44:13.3	−30:02:06.73	0.159
G306.33+0.06	13:21:04.7	−62:37:06.45	0.163	G358.91−0.07	17:43:16.6	−29:54:27.75	0.252
G306.34+0.10	13:21:04.2	−62:34:31.65	0.174	G358.92−0.41	17:44:38.1	−30:04:11.25	0.186
G306.35+0.65	13:20:39.3	−62:01:45.27	0.163	G358.93+0.74	17:40:09.4	−29:27:42.74	0.800
G306.37+0.64	13:20:48.9	−62:02:08.76	0.183	G358.93−0.30	17:44:14.1	−30:00:27.34	0.202
G306.37+0.53	13:20:57.7	−62:08:49.52	0.167	G358.93−0.10	17:43:25.6	−29:53:59.16	0.155
G306.38−0.67	13:22:12.1	−63:19:57.14	0.151	G358.93−0.10	17:43:26.5	−29:53:53.56	0.150
G306.38−0.63	13:22:11.1	−63:17:58.80	0.167	G358.94−0.05	17:43:16.5	−29:52:15.14	0.153
G306.38+0.76	13:20:47.3	−61:54:50.19	0.185	G358.94+0.81	17:39:55.6	−29:24:29.40	0.319
G306.39+0.55	13:21:03.9	−62:07:10.71	0.152	G358.95+0.05	17:42:54.3	−29:48:33.03	0.151
G306.40+0.01	13:21:42.2	−62:39:45.56	0.151	G358.95−0.23	17:43:59.9	−29:57:15.85	0.159
G306.41−0.29	13:22:04.2	−62:57:34.45	0.162	G358.98+0.08	17:42:51.8	−29:46:06.96	0.340
G306.42+0.23	13:21:37.6	−62:26:26.01	0.165	G358.99+0.06	17:42:57.8	−29:46:08.92	0.154
G306.43+0.66	13:21:19.3	−62:00:25.64	0.157	G358.99−0.34	17:44:31.9	−29:58:35.17	0.159
G306.44+0.55	13:21:29.0	−62:07:06.69	0.156	G358.99−0.10	17:43:35.7	−29:50:44.45	0.168
G306.47+0.52	13:21:48.2	−62:08:46.17	0.185	G359.00−0.12	17:43:39.7	−29:51:08.53	0.169
G306.48+0.23	13:22:09.8	−62:25:37.36	0.158	G359.03−0.01	17:43:20.6	−29:45:58.59	0.151
G306.49+0.22	13:22:15.5	−62:26:08.62	0.180	G359.05+0.00	17:43:20.7	−29:44:29.04	0.248
G306.49+0.07	13:22:27.1	−62:35:17.79	0.234	G359.06+0.10	17:42:59.0	−29:41:19.03	0.156
G306.50+0.49	13:22:04.3	−62:10:16.98	0.161	G359.06−0.04	17:43:30.6	−29:45:16.87	0.189
G306.51+0.02	13:22:39.5	−62:38:04.98	0.218	G359.07+0.13	17:42:52.0	−29:39:36.21	0.162
G306.52+0.25	13:22:30.1	−62:24:35.98	0.155	G359.07−0.13	17:43:54.5	−29:47:38.39	0.150
G306.53+0.02	13:22:51.4	−62:37:45.27	0.193	G359.08−0.03	17:43:31.2	−29:44:07.52	0.193
G306.57+0.11	13:23:05.7	−62:32:11.97	0.182	G359.08−0.09	17:43:47.5	−29:45:56.02	0.217
G306.58+0.34	13:22:54.5	−62:18:23.60	0.229	G359.10−0.03	17:43:34.8	−29:43:13.23	0.173
G306.59+0.03	13:23:17.5	−62:36:57.17	0.193	G359.11+0.69	17:40:48.2	−29:19:43.98	0.152
G306.60+0.37	13:23:04.2	−62:16:45.80	0.240	G359.12+0.69	17:40:48.0	−29:19:33.66	0.151
G306.64+0.50	13:23:13.9	−62:08:31.30	0.162	G359.12+0.08	17:43:12.1	−29:38:30.83	0.155
G306.66−0.21	13:24:10.8	−62:50:37.98	0.257	G359.13+0.07	17:43:14.7	−29:38:41.71	0.164
G306.68+0.62	13:23:26.5	−62:00:50.34	0.179	G359.13−0.34	17:44:50.9	−29:51:17.74	0.238
G306.68−0.05	13:24:11.8	−62:41:07.91	0.167	G359.14−0.54	17:45:40.3	−29:57:18.56	0.152
G306.69+0.03	13:24:12.8	−62:36:08.81	0.164	G359.14−0.54	17:45:41.1	−29:57:16.04	0.151
G306.70+0.66	13:23:33.3	−61:58:29.16	0.159	G359.15+0.78	17:40:31.2	−29:15:03.34	0.155
G306.70+0.19	13:24:05.0	−62:26:41.25	0.189	G359.16+0.68	17:40:57.1	−29:17:17.99	0.167
G306.70+0.49	13:23:45.4	−62:08:30.79	0.157	G359.17−0.12	17:44:05.4	−29:42:23.59	0.167
G306.70−0.01	13:24:18.5	−62:38:21.03	0.174	G359.19+0.12	17:43:13.2	−29:33:59.32	0.194
G306.70+0.49	13:23:47.4	−62:08:57.76	0.152	G359.19−0.07	17:43:56.2	−29:39:33.24	0.153
G306.71+0.64	13:23:40.6	−61:59:43.66	0.191	G359.19+0.15	17:43:05.6	−29:32:46.47	0.162
G306.72+0.16	13:24:17.0	−62:27:58.12	0.189	G359.19+0.57	17:41:27.3	−29:19:23.47	0.177
G306.72+0.14	13:24:19.2	−62:29:10.21	0.193	G359.20−0.46	17:45:30.0	−29:51:44.71	0.178
G306.72+0.33	13:24:08.3	−62:18:08.93	0.218	G359.20+0.40	17:42:08.8	−29:24:38.00	0.158
G306.73+0.37	13:24:09.8	−62:15:34.87	0.175	G359.20−0.24	17:44:38.4	−29:44:35.90	0.197
G306.73+0.40	13:24:10.1	−62:13:58.85	0.150	G359.21−0.20	17:44:29.1	−29:43:00.83	0.404
G306.74+0.13	13:24:30.6	−62:29:36.35	0.201	G359.21−0.08	17:44:02.7	−29:39:24.84	0.222
G306.75+0.31	13:24:26.3	−62:19:10.79	0.155	G359.21−0.06	17:43:57.6	−29:38:39.86	0.152

Table A.1. continued.

IRDC name	R.A. ($^{h}:^{m}:^{s}$) (J2000)	Decl. ($^{\circ}:':''$) (J2000)	$C_{24\mu m}$	IRDC name	R.A. ($^{h}:^{m}:^{s}$) (J2000)	Decl. ($^{\circ}:':''$) (J2000)	$C_{24\mu m}$
G306.76+0.30	13:24:27.4	−62:19:50.10	0.150	G359.21−0.44	17:45:27.9	−29:50:27.57	0.162
G306.76+0.38	13:24:23.0	−62:14:58.30	0.159	G359.21+0.57	17:41:31.0	−29:18:23.23	0.172
G306.78+0.57	13:24:20.9	−62:03:30.85	0.168	G359.22−0.25	17:44:44.5	−29:43:52.73	0.268
G306.78+0.43	13:24:30.8	−62:11:33.81	0.166	G359.22+0.21	17:42:55.6	−29:29:06.35	0.177
G306.78+0.13	13:24:51.2	−62:29:36.71	0.170	G359.23+0.15	17:43:09.9	−29:30:57.03	0.153
G306.78+0.22	13:24:45.1	−62:23:58.89	0.151	G359.23+0.02	17:43:40.9	−29:34:42.91	0.158
G306.80+0.55	13:24:33.0	−62:04:18.74	0.159	G359.23+0.01	17:43:44.7	−29:35:00.67	0.175
G306.80+0.12	13:25:04.1	−62:30:13.26	0.197	G359.24−0.18	17:44:29.6	−29:40:57.35	0.165
G306.82+0.54	13:24:43.5	−62:04:41.39	0.194	G359.24+0.54	17:41:40.9	−29:18:12.20	0.156
G306.82+0.33	13:25:00.4	−62:17:25.55	0.165	G359.24−0.19	17:44:33.2	−29:41:15.00	0.157
G306.82+0.11	13:25:15.7	−62:30:19.54	0.158	G359.24+0.14	17:43:16.5	−29:30:34.84	0.194
G306.83+0.32	13:25:03.5	−62:17:57.26	0.161	G359.25+0.09	17:43:27.8	−29:31:51.63	0.159
G306.85−0.02	13:25:40.1	−62:38:08.25	0.191	G359.25+0.55	17:41:40.4	−29:17:20.58	0.257
G306.86+0.23	13:25:23.3	−62:22:51.81	0.159	G359.26+0.46	17:42:01.3	−29:19:35.95	0.155
G306.87−0.51	13:26:20.1	−63:06:40.66	0.201	G359.26+0.34	17:42:31.0	−29:23:25.36	0.185
G306.90+0.61	13:25:20.2	−62:00:02.75	0.155	G359.26−0.20	17:44:37.6	−29:40:18.80	0.202
G306.92+0.62	13:25:28.8	−61:59:28.96	0.152	G359.26+0.10	17:43:26.8	−29:30:47.52	0.226
G306.92+0.84	13:25:14.5	−61:46:29.18	0.170	G359.26+0.36	17:42:25.7	−29:22:17.98	0.167
G306.92−0.20	13:26:26.6	−62:48:09.99	0.173	G359.27−0.60	17:46:14.3	−29:52:25.71	0.168
G306.93+0.54	13:25:39.6	−62:04:07.41	0.189	G359.27+0.29	17:42:44.0	−29:24:21.06	0.162
G306.93+0.17	13:26:05.9	−62:26:04.87	0.159	G359.27−0.13	17:44:22.3	−29:37:28.04	0.203
G306.93+0.66	13:25:32.2	−61:56:38.07	0.157	G359.27−0.75	17:46:49.9	−29:56:59.45	0.171
G306.93−0.05	13:26:21.6	−62:39:12.03	0.327	G359.27+0.06	17:43:37.6	−29:31:24.58	0.193
G306.94+0.52	13:25:44.6	−62:04:56.91	0.174	G359.27+0.44	17:42:09.1	−29:19:26.74	0.156
G306.94+0.82	13:25:24.4	−61:46:57.10	0.180	G359.27+0.49	17:41:58.3	−29:17:54.54	0.151
G306.95+0.76	13:25:37.3	−61:50:54.01	0.150	G359.27+0.36	17:42:28.6	−29:21:57.61	0.525
G306.96+0.31	13:26:11.9	−62:17:13.24	0.151	G359.28+0.64	17:41:22.3	−29:12:48.65	0.185
G306.97+0.51	13:26:02.7	−62:05:21.50	0.180	G359.28+0.54	17:41:47.0	−29:15:42.99	0.158
G306.97+0.32	13:26:18.5	−62:16:54.04	0.163	G359.28+0.64	17:41:24.6	−29:12:40.65	0.154
G306.98+0.52	13:26:06.8	−62:04:45.00	0.186	G359.29+0.04	17:43:45.4	−29:31:23.27	0.156
G306.99−0.49	13:27:23.7	−63:04:27.66	0.180	G359.29−0.17	17:44:33.8	−29:37:48.59	0.158
G306.99+0.32	13:26:25.8	−62:16:24.42	0.165	G359.29+0.35	17:42:32.4	−29:21:23.98	0.158
G306.99+0.43	13:26:18.1	−62:09:49.02	0.186	G359.29+0.06	17:43:40.3	−29:30:30.19	0.289
G307.05+0.05	13:27:16.0	−62:31:50.98	0.196	G359.29+0.10	17:43:32.3	−29:29:14.08	0.211
G307.05+0.59	13:26:39.6	−61:59:59.86	0.191	G359.29+0.38	17:42:26.2	−29:20:19.94	0.222
G307.12−0.48	13:28:29.3	−63:03:02.30	0.152	G359.30+0.04	17:43:46.4	−29:30:55.72	0.167
G307.12−0.37	13:28:24.9	−62:56:26.19	0.153	G359.30−0.20	17:44:42.2	−29:38:09.90	0.156
G307.13−0.52	13:28:38.1	−63:05:09.98	0.152	G359.30+0.63	17:41:28.2	−29:11:59.63	0.160
G307.13+0.09	13:27:56.0	−62:28:59.23	0.191	G359.30+0.51	17:41:57.2	−29:15:52.16	0.205
G307.14+0.55	13:27:27.3	−62:01:26.59	0.175	G359.31+0.60	17:41:36.1	−29:12:31.15	0.162
G307.14+0.08	13:28:02.8	−62:29:41.55	0.151	G359.31−0.18	17:44:40.4	−29:37:08.62	0.230
G307.16+0.40	13:27:48.8	−62:10:30.32	0.219	G359.31−0.01	17:44:00.9	−29:31:37.65	0.357
G307.17+0.35	13:27:54.2	−62:13:02.41	0.152	G359.32+0.28	17:42:52.6	−29:22:12.19	0.394
G307.18+0.34	13:28:03.6	−62:13:30.23	0.203	G359.32+0.37	17:42:32.4	−29:19:27.40	0.186
G307.19−0.85	13:29:36.0	−63:24:24.06	0.157	G359.32−0.57	17:46:12.6	−29:48:42.63	0.248
G307.19+0.25	13:28:13.3	−62:19:00.25	0.169	G359.32−0.09	17:44:20.9	−29:33:29.83	0.412
G307.22−0.72	13:29:43.7	−63:16:33.32	0.201	G359.33−0.41	17:45:36.4	−29:43:25.16	0.159
G307.26−0.02	13:29:08.4	−62:34:18.86	0.157	G359.33+0.13	17:43:30.4	−29:26:36.52	0.226

Table A.1. continued.

IRDC name	R.A. ($^{h}:^{m}:^{s}$) (J2000)	Decl. ($^{\circ}:':''$) (J2000)	$C_{24\mu m}$	IRDC name	R.A. ($^{h}:^{m}:^{s}$) (J2000)	Decl. ($^{\circ}:':''$) (J2000)	$C_{24\mu m}$
G307.26+0.29	13:28:45.8	−62:16:05.44	0.155	G359.34+0.14	17:43:29.1	−29:25:49.56	0.170
G307.26+0.00	13:29:10.2	−62:33:14.04	0.166	G359.35−0.19	17:44:48.5	−29:35:34.36	0.169
G307.28+0.05	13:29:12.1	−62:30:19.02	0.178	G359.36+0.05	17:43:52.8	−29:27:33.30	0.157
G307.30−0.71	13:30:23.3	−63:14:47.12	0.164	G359.36+0.04	17:43:55.4	−29:27:53.93	0.193
G307.30+0.05	13:29:24.5	−62:29:41.91	0.184	G359.36−0.82	17:47:18.2	−29:54:46.78	0.202
G307.30−0.19	13:29:43.8	−62:44:20.72	0.162	G359.36−0.13	17:44:34.7	−29:32:58.80	0.271
G307.31+0.40	13:29:03.4	−62:09:15.31	0.165	G359.37−0.42	17:45:44.8	−29:41:47.73	0.198
G307.32+0.05	13:29:32.5	−62:29:41.78	0.152	G359.38+0.03	17:44:01.0	−29:26:56.76	0.152
G307.32+0.05	13:29:33.7	−62:29:48.08	0.150	G359.38+0.04	17:43:57.8	−29:26:26.70	0.189
G307.32+0.05	13:29:35.5	−62:29:53.86	0.151	G359.38−0.70	17:46:52.5	−29:49:24.59	0.151
G307.33+0.34	13:29:17.6	−62:12:33.29	0.155	G359.39+0.57	17:41:55.8	−29:09:32.97	0.153
G307.33+0.39	13:29:16.1	−62:09:46.02	0.173	G359.39+0.02	17:44:04.4	−29:26:37.40	0.271
G307.33+0.17	13:29:32.9	−62:22:27.61	0.173	G359.40−0.59	17:46:29.4	−29:45:29.77	0.190
G307.34+0.33	13:29:22.2	−62:13:07.84	0.153	G359.40−0.22	17:45:02.5	−29:33:49.93	0.151
G307.35−0.72	13:30:50.3	−63:15:06.03	0.186	G359.40+0.06	17:43:56.4	−29:24:51.59	0.238
G307.36+0.05	13:29:56.0	−62:29:31.01	0.159	G359.40−0.80	17:47:21.2	−29:51:50.50	0.161
G307.37−0.24	13:30:21.6	−62:46:36.45	0.155	G359.41+0.09	17:43:50.6	−29:23:46.48	0.246
G307.38−0.22	13:30:28.1	−62:45:31.65	0.218	G359.41+0.31	17:42:58.8	−29:16:45.19	0.168
G307.39+0.30	13:29:50.6	−62:14:17.48	0.211	G359.41+0.16	17:43:34.5	−29:21:30.31	0.173
G307.41+0.33	13:29:58.1	−62:12:27.21	0.199	G359.41+0.17	17:43:32.8	−29:21:10.97	0.154
G307.42+0.30	13:30:06.2	−62:14:13.02	0.187	G359.41+0.54	17:42:06.3	−29:09:17.65	0.243
G307.43−0.62	13:31:22.4	−63:08:18.98	0.159	G359.41+0.59	17:41:53.8	−29:07:34.36	0.207
G307.45−0.31	13:31:11.4	−62:50:09.86	0.170	G359.41−0.20	17:45:00.8	−29:32:36.68	0.166
G307.46−0.31	13:31:15.1	−62:49:46.59	0.150	G359.41+0.18	17:43:30.7	−29:20:26.36	0.230
G307.46−0.16	13:31:05.5	−62:40:59.80	0.158	G359.42+0.16	17:43:35.5	−29:20:52.96	0.165
G307.47−0.14	13:31:07.5	−62:39:25.20	0.187	G359.42+0.08	17:43:55.1	−29:23:22.22	0.287
G307.48−0.64	13:31:53.6	−63:09:29.31	0.170	G359.42−0.03	17:44:20.8	−29:26:30.62	0.156
G307.50−0.15	13:31:21.9	−62:40:01.80	0.191	G359.43−0.04	17:44:25.0	−29:26:42.08	0.188
G307.51−0.69	13:32:14.1	−63:11:45.14	0.154	G359.43+0.35	17:42:54.3	−29:14:19.26	0.236
G307.52+0.63	13:30:30.4	−61:53:35.89	0.154	G359.43+0.15	17:43:39.2	−29:20:21.16	0.151
G307.52−0.04	13:31:24.5	−62:33:08.27	0.242	G359.44−0.01	17:44:18.1	−29:25:08.88	0.246
G307.52−0.31	13:31:48.1	−62:49:33.97	0.155	G359.45−0.04	17:44:26.2	−29:25:43.09	0.297
G307.53−0.69	13:32:22.8	−63:11:35.67	0.154	G359.45−0.05	17:44:29.9	−29:26:07.39	0.275
G307.53−0.32	13:31:54.4	−62:49:46.56	0.181	G359.56−0.16	17:45:12.9	−29:23:43.36	0.158
G307.54+0.59	13:30:45.2	−61:55:44.23	0.160	G359.56+0.82	17:41:22.3	−28:52:35.98	0.167
G307.55−0.34	13:32:02.5	−62:50:53.20	0.166	G359.56−0.15	17:45:10.5	−29:23:18.37	0.176
G307.55+0.60	13:30:51.9	−61:55:06.86	0.155	G359.57−0.30	17:45:44.5	−29:27:43.26	0.196
G307.56+0.05	13:31:38.5	−62:27:21.92	0.160	G359.57−0.21	17:45:23.7	−29:24:48.03	0.248
G307.59−0.16	13:32:10.8	−62:39:45.07	0.238	G359.57+0.03	17:44:28.2	−29:17:09.51	0.188
G307.60−0.09	13:32:11.6	−62:35:37.44	0.199	G359.57−0.10	17:45:00.1	−29:21:21.00	0.159
G307.60+0.74	13:31:06.6	−61:46:32.23	0.180	G359.57−0.44	17:46:20.1	−29:31:58.19	0.205
G307.62+0.27	13:31:53.6	−62:14:14.00	0.164	G359.58−0.31	17:45:49.5	−29:27:12.22	0.160
G307.63−0.09	13:32:24.4	−62:35:14.56	0.199	G359.58−0.10	17:45:01.7	−29:20:41.58	0.179
G307.65+0.27	13:32:04.3	−62:14:00.26	0.172	G359.58+0.00	17:44:36.6	−29:17:18.57	0.337
G307.65+0.30	13:32:05.7	−62:12:01.12	0.164	G359.59−0.23	17:45:32.6	−29:24:03.83	0.189
G307.70+0.15	13:32:42.1	−62:20:37.66	0.187	G359.60+0.12	17:44:11.1	−29:13:06.82	0.165
G307.71+0.61	13:32:07.9	−61:52:51.66	0.167	G359.60+0.34	17:43:20.1	−29:06:09.56	0.227
G307.71−0.68	13:33:59.4	−63:09:39.45	0.155	G359.60−0.21	17:45:28.1	−29:22:59.75	0.279

Table A.1. continued.

IRDC name	R.A. ($^{h}:^{m}:^{s}$) (J2000)	Decl. ($^{\circ}:':''$) (J2000)	$C_{24\mu m}$	IRDC name	R.A. ($^{h}:^{m}:^{s}$) (J2000)	Decl. ($^{\circ}:':''$) (J2000)	$C_{24\mu m}$
G307.72−0.31	13:33:30.5	−62:47:27.36	0.212	G359.61−0.23	17:45:35.0	−29:23:17.41	0.151
G307.75+0.48	13:32:39.6	−62:00:08.83	0.182	G359.61−0.22	17:45:34.3	−29:22:56.14	0.209
G307.76+0.12	13:33:15.0	−62:21:25.32	0.211	G359.63−0.01	17:44:45.7	−29:15:37.56	0.173
G307.76+0.49	13:32:45.1	−61:59:30.50	0.164	G359.64−0.17	17:45:25.6	−29:19:44.00	0.240
G307.78+0.48	13:32:52.7	−61:59:54.12	0.173	G359.65−0.34	17:46:06.3	−29:24:49.12	0.183
G307.78−0.73	13:34:39.4	−63:11:35.61	0.151	G359.66+0.16	17:44:10.8	−29:08:49.16	0.161
G307.80+0.33	13:33:16.2	−62:08:30.12	0.195	G359.68+0.01	17:44:47.7	−29:12:20.52	0.340
G307.81+0.35	13:33:22.0	−62:07:37.28	0.152	G359.68−0.44	17:46:34.8	−29:26:24.20	0.200
G307.82+0.22	13:33:39.1	−62:14:52.35	0.154	G359.69−0.39	17:46:24.8	−29:24:28.72	0.314
G307.82+0.12	13:33:48.1	−62:21:01.87	0.224	G359.69−0.26	17:45:52.8	−29:20:05.87	0.188
G307.83+0.42	13:33:23.7	−62:03:21.63	0.157	G359.69−0.43	17:46:34.3	−29:25:17.83	0.176
G307.83+0.23	13:33:43.1	−62:14:36.92	0.164	G359.70+0.86	17:41:33.4	−28:44:42.80	0.168
G307.86+0.12	13:34:04.6	−62:20:52.92	0.164	G359.70−0.25	17:45:52.7	−29:19:28.50	0.187
G307.86−0.17	13:34:32.2	−62:37:30.18	0.152	G359.70−0.03	17:45:00.5	−29:12:18.66	0.322
G307.94+0.16	13:34:42.2	−62:17:14.45	0.178	G359.70−0.14	17:45:27.1	−29:15:51.18	0.340
G307.94−0.01	13:34:59.3	−62:27:30.04	0.173	G359.72+0.02	17:44:52.7	−29:09:57.86	0.175
G307.97+0.41	13:34:38.9	−62:02:19.64	0.167	G359.72−0.01	17:45:00.2	−29:10:41.59	0.155
G307.98−0.01	13:35:17.7	−62:27:21.22	0.151	G359.72−0.53	17:47:02.1	−29:26:48.99	0.169
G307.98+0.63	13:34:22.9	−61:49:20.00	0.168	G359.73−0.55	17:47:07.1	−29:27:13.70	0.162
G307.98−0.41	13:35:54.1	−62:50:47.80	0.156	G359.73−0.31	17:46:11.4	−29:19:33.65	0.203
G308.01−0.88	13:36:52.7	−63:18:22.58	0.151	G359.73+0.06	17:44:45.0	−29:07:54.66	0.160
G308.03−0.46	13:36:22.2	−62:53:14.59	0.165	G359.74−0.50	17:46:56.9	−29:25:05.04	0.171
G308.09−0.54	13:37:01.0	−62:57:05.89	0.182	G359.74+0.62	17:42:35.3	−28:50:01.97	0.155
G308.10−0.46	13:37:02.1	−62:52:24.24	0.189	G359.74−0.70	17:47:46.0	−29:31:13.34	0.163
G308.11−0.20	13:36:42.2	−62:36:55.28	0.154	G359.74−0.26	17:46:01.6	−29:17:23.01	0.153
G308.11−0.35	13:36:57.3	−62:45:52.94	0.252	G359.75+0.07	17:44:44.5	−29:06:44.57	0.215
G308.12−0.20	13:36:46.7	−62:37:04.96	0.160	G359.75−0.35	17:46:23.2	−29:19:43.63	0.272
G308.12−0.33	13:36:59.0	−62:44:23.64	0.210	G359.76−0.04	17:45:12.1	−29:09:59.56	0.206
G308.12−0.25	13:36:53.4	−62:39:31.48	0.171	G359.76−0.69	17:47:45.6	−29:30:15.51	0.178
G308.20−0.66	13:38:10.2	−63:03:27.63	0.150	G359.76+0.63	17:42:36.4	−28:48:43.16	0.154
G308.20−0.44	13:37:52.6	−62:50:06.11	0.163	G359.76−0.09	17:45:24.2	−29:11:01.45	0.354
G308.22+0.62	13:36:25.7	−61:47:30.87	0.161	G359.77+0.06	17:44:49.3	−29:06:13.11	0.190
G308.23+0.61	13:36:30.3	−61:47:33.44	0.152	G359.77−0.04	17:45:12.4	−29:09:12.00	0.178
G308.24−0.00	13:37:29.9	−62:23:46.21	0.151	G359.77+0.18	17:44:23.3	−29:02:08.44	0.152
G308.27−0.88	13:39:12.2	−63:15:30.72	0.164	G359.78−0.06	17:45:20.4	−29:09:36.63	0.189
G308.31−0.03	13:38:07.1	−62:24:45.94	0.161	G359.78−0.35	17:46:26.7	−29:18:24.93	0.220
G308.34+0.08	13:38:13.1	−62:17:55.52	0.211	G359.78−0.06	17:45:20.0	−29:09:12.65	0.156
G308.39+0.21	13:38:25.3	−62:09:38.11	0.176	G359.78+0.10	17:44:42.7	−29:04:11.76	0.243
G308.39−0.18	13:39:03.0	−62:32:31.96	0.161	G359.79+0.08	17:44:46.9	−29:04:24.26	0.169
G308.40+0.18	13:38:34.8	−62:11:08.75	0.157	G359.79−0.02	17:45:12.9	−29:07:34.77	0.182
G308.41−0.18	13:39:12.3	−62:32:35.58	0.198	G359.79−0.27	17:46:11.6	−29:15:11.43	0.242
G308.42−0.79	13:40:20.3	−63:08:24.69	0.159	G359.79−0.55	17:47:16.7	−29:23:46.86	0.265
G308.43−0.78	13:40:22.9	−63:07:53.57	0.153	G359.80−0.26	17:46:07.6	−29:14:37.98	0.159
G308.46+0.70	13:38:17.8	−61:40:09.40	0.162	G359.80−0.68	17:47:49.0	−29:27:42.73	0.150
G308.81+0.55	13:41:27.0	−61:44:55.97	0.195	G359.81+0.02	17:45:04.8	−29:05:16.83	0.300
G308.82+0.72	13:41:16.0	−61:35:01.60	0.210	G359.82−0.25	17:46:09.3	−29:13:25.71	0.151
G308.83+0.77	13:41:11.6	−61:31:53.30	0.170	G359.82−0.33	17:46:29.3	−29:16:03.89	0.204
G308.83+0.11	13:42:19.2	−62:10:39.56	0.171	G359.82−0.57	17:47:24.9	−29:23:21.87	0.262

Table A.1. continued.

IRDC name	R.A. ($^h:^m:^s$) (J2000)	Decl. ($^\circ:':''$) (J2000)	$C_{24\mu m}$	IRDC name	R.A. ($^h:^m:^s$) (J2000)	Decl. ($^\circ:':''$) (J2000)	$C_{24\mu m}$
G308.83+0.57	13:41:34.9	−61:43:30.65	0.196	G359.82+0.27	17:44:07.8	−28:56:54.32	0.157
G308.84+0.20	13:42:12.5	−62:05:13.95	0.210	G359.82−0.09	17:45:31.6	−29:08:05.91	0.159
G308.84+0.76	13:41:17.0	−61:32:02.56	0.154	G359.82+0.13	17:44:42.4	−29:01:17.86	0.276
G308.84+0.58	13:41:39.0	−61:42:44.39	0.150	G359.82+0.28	17:44:07.5	−28:56:33.71	0.159
G308.85+0.79	13:41:21.0	−61:30:32.94	0.150	G359.83−0.11	17:45:39.2	−29:08:28.91	0.452
G308.85+0.50	13:41:50.4	−61:47:35.23	0.182	G359.83−0.27	17:46:15.9	−29:13:18.28	0.241
G308.86+0.59	13:41:43.5	−61:42:02.20	0.177	G359.84−0.21	17:46:04.8	−29:10:56.14	0.162
G308.86+0.21	13:42:25.7	−62:04:21.02	0.167	G359.84+0.19	17:44:30.4	−28:58:17.95	0.266
G308.89−0.14	13:43:15.1	−62:24:37.23	0.185	G359.85+0.06	17:45:01.6	−29:02:08.60	0.197
G308.89+0.50	13:42:11.2	−61:46:51.24	0.154	G359.85+0.20	17:44:28.8	−28:57:18.46	0.156
G308.92+0.18	13:42:56.7	−62:05:22.91	0.243	G359.86+0.22	17:44:24.9	−28:56:38.80	0.196
G308.94+0.16	13:43:09.2	−62:06:15.16	0.213	G359.86−0.34	17:46:36.1	−29:13:46.62	0.372
G308.94−0.24	13:43:51.7	−62:29:41.49	0.210	G359.86−0.22	17:46:08.0	−29:09:56.27	0.203
G308.95+0.62	13:42:29.1	−61:39:15.93	0.152	G359.86+0.14	17:44:43.8	−28:58:37.83	0.282
G308.96−0.25	13:44:01.7	−62:29:59.98	0.170	G359.87+0.25	17:44:20.4	−28:55:05.31	0.177
G308.97+0.20	13:43:18.9	−62:03:41.04	0.170	G359.87+0.18	17:44:35.5	−28:57:01.60	0.177
G308.97+0.09	13:43:31.7	−62:10:04.16	0.183	G359.87−0.50	17:47:15.4	−29:18:19.07	0.150
G308.97−0.25	13:44:07.5	−62:30:03.03	0.175	G359.88+0.15	17:44:44.1	−28:57:35.85	0.152
G308.97+0.69	13:42:32.3	−61:34:51.17	0.150	G359.88−0.00	17:45:20.6	−29:02:16.65	0.237
G308.98−0.46	13:44:35.2	−62:42:31.90	0.213	G359.88+0.14	17:44:48.6	−28:57:51.31	0.185
G308.99+0.17	13:43:31.1	−62:05:18.72	0.192	G359.88−0.52	17:47:23.6	−29:18:24.13	0.225
G308.99+0.16	13:43:33.1	−62:06:06.86	0.161	G359.89+0.09	17:45:00.5	−28:58:55.02	0.151
G308.99+0.01	13:43:49.3	−62:14:27.27	0.173	G359.90+0.03	17:45:14.3	−29:00:29.60	0.466
G309.00−0.18	13:44:12.9	−62:25:46.35	0.159	G359.90+0.20	17:44:35.2	−28:55:06.36	0.202
G309.02−0.17	13:44:22.3	−62:24:35.22	0.160	G359.90−0.53	17:47:27.1	−29:17:57.83	0.150
G309.03−0.41	13:44:52.3	−62:38:59.81	0.159	G359.90−0.47	17:47:12.8	−29:15:53.10	0.263
G309.04−0.14	13:44:31.7	−62:22:41.93	0.172	G359.91−0.30	17:46:34.6	−29:10:15.99	0.368
G309.05−0.04	13:44:22.8	−62:16:51.76	0.179	G359.92−0.21	17:46:14.7	−29:06:57.00	0.320
G309.05+0.61	13:43:17.8	−61:38:35.27	0.155	G359.92−0.35	17:46:49.3	−29:11:12.41	0.157
G309.06−0.03	13:44:28.1	−62:16:06.50	0.169	G359.92−0.07	17:45:43.1	−29:02:20.67	0.482
G309.06−0.26	13:44:55.6	−62:29:50.92	0.154	G359.93+0.17	17:44:47.7	−28:54:40.57	0.546
G309.07−0.25	13:44:57.2	−62:28:41.70	0.209	G359.93−0.34	17:46:45.5	−29:10:18.16	0.247
G309.07+0.21	13:44:09.5	−62:01:43.55	0.153	G359.94−0.31	17:46:42.4	−29:08:58.81	0.156
G309.08−0.24	13:45:00.8	−62:27:57.39	0.165	G359.94−0.35	17:46:50.1	−29:09:50.91	0.164
G309.08−0.21	13:44:58.3	−62:26:21.57	0.158	G359.95−0.13	17:46:00.0	−29:03:02.99	0.152
G309.09+0.02	13:44:37.7	−62:12:53.35	0.154	G359.95+0.02	17:45:26.0	−28:58:24.30	0.740
G309.09−0.24	13:45:06.8	−62:28:06.40	0.168	G359.96+0.10	17:45:09.2	−28:55:12.77	0.370
G309.11−0.07	13:44:57.0	−62:18:05.84	0.178	G359.96−0.14	17:46:04.9	−29:02:25.57	0.429
G309.11−0.24	13:45:16.2	−62:28:07.83	0.161	G359.97+0.45	17:43:46.4	−28:43:29.76	0.187
G309.11−0.72	13:46:09.3	−62:56:07.50	0.156	G359.98−0.43	17:47:14.4	−29:10:30.20	0.153
G309.11−0.30	13:45:23.8	−62:31:20.02	0.153	G359.98−0.55	17:47:43.2	−29:14:11.98	0.182
G309.11−0.48	13:45:44.8	−62:41:55.72	0.186	G359.98+0.71	17:42:49.3	−28:34:41.43	0.164
G309.12−0.34	13:45:31.3	−62:33:31.57	0.162	G359.98+0.28	17:44:29.8	−28:48:12.42	0.167
G309.12+0.19	13:44:39.0	−62:02:40.13	0.164	G359.99−0.83	17:48:50.1	−29:22:13.89	0.203
G309.13−0.14	13:45:17.6	−62:21:50.67	0.380	G359.99−0.33	17:46:53.4	−29:06:48.58	0.173
G309.14−0.25	13:45:33.6	−62:27:57.56	0.164	G359.99−0.32	17:46:50.5	−29:06:19.00	0.183
G309.14−0.52	13:46:03.6	−62:43:45.39	0.261				

B

Tables of sources found with *Gaussclumps* and *Clumpfind*

The resulting Gaussian sources derived from *Gaussclumps* are presented in Table B.1. Columns are (1) running number in the order *Gaussclumps* finds the source, (2)–(3) J2000 position, (4) peak intensity, (5) flux density, (6)–(7) angular *FWHM* along the major and minor axis determined from Gaussian fits before deconvolution, (8)–(10) deconvolved *FWHM*s (sizes smaller than $25.9''$ were set to $25.9''$ to compute the deconvolved sizes, in order to account for a fit inaccuracy corresponding to a 5-σ detection in peak intensity) and position angle, (11) deconvolved effective radius, $R_{\rm eff}$, (12)–(14) total mass derived from the Gaussian fit, beam-averaged H_2 column density, $N_{\rm H_2}$, and volume density, $n_{\rm H_2}$.

Sources identified by *Clumpfind* are listed in Table B.2. Columns are (1) running number in the order *Clumpfind* finds the source, (2)–(3) J2000 position, (4) peak intensity, (5) flux density, (6) deconvolved effective radius, (7)–(9) total mass, beam-averaged H_2 column density, and volume density.

Table B.1. Sources found with *Gaussclumps* and derived physical parameters.

$N_{\rm cl}$	Position		$I_{\rm peak}$	S	$\theta_{\rm maj} \times \theta_{\rm min}$	$FWHM$	PA	$R_{\rm eff}$	M	$N_{\rm H_2}$	$n_{\rm H_2}$
	R.A.(J2000)	Decl.(J2000)	(Jy/beam)	(Jy)	($''\times\ ''$)	(pc × pc)	(°)	(pc)	($M_\odot$)	($\times10^{22}$ cm^{-2})	($\times10^{4}$ cm^{-3})
IRDC G329											
1	16:00:31.7	−53:12:36	12.335	52.636	60.0 × 33.2	0.79 × 0.35	−28	0.26	2692	27.0	50.8
2	16:01:47.7	−53:11:44	8.848	18.485	35.2 × 27.7	0.39 × 0.24	−50	0.15	945	19.4	89.3
3	16:01:10.1	−53:16:04	5.034	16.961	39.7 × 39.6	0.47 × 0.47	−71	0.23	867	11.0	23.6
4	16:00:30.5	−53:12:21	2.356	2.382	21.8 × 21.6	0.20 × 0.20	78	0.10	121	5.2	41.7
5	16:01:34.2	−53:11:11	2.308	4.445	33.9 × 26.5	0.37 × 0.22	−103	0.14	227	5.1	28.3
6	16:00:32.5	−53:12:56	2.261	2.284	21.8 × 21.6	0.20 × 0.20	34	0.10	116	5.0	40.0
7	16:01:07.1	−53:16:28	1.950	2.798	31.0 × 21.6	0.31 × 0.20	26	0.13	143	4.3	25.3
8	16:01:44.4	−53:11:18	1.532	3.626	46.1 × 24.0	0.57 × 0.20	53	0.17	185	3.4	13.2
9	16:00:34.4	−53:11:56	1.557	6.299	72.4 × 26.1	0.97 × 0.21	−29	0.22	322	3.4	10.0
10	16:01:14.3	−53:15:46	1.397	3.103	36.3 × 28.6	0.41 × 0.26	−118	0.16	158	3.1	12.5
11	16:00:25.7	−53:12:19	1.192	5.855	82.1 × 27.9	1.11 × 0.25	−18	0.26	299	2.6	5.7
12	16:00:37.5	−53:13:24	1.127	4.134	51.4 × 33.3	0.66 × 0.36	0	0.24	211	2.5	5.2
13	16:01:48.5	−53:12:19	0.893	2.874	62.5 × 24.0	0.82 × 0.20	−92	0.20	147	2.0	6.1
14	16:00:33.2	−53:12:07	0.961	0.971	21.8 × 21.6	0.20 × 0.20	68	0.10	49	2.1	17.0
15	16:01:53.2	−53:11:48	0.751	2.451	58.0 × 26.3	0.76 × 0.21	−41	0.20	125	1.6	5.5
16	16:01:56.0	−53:14:55	0.700	1.277	34.5 × 24.6	0.38 × 0.20	68	0.14	65	1.5	8.6
17	16:01:05.0	−53:17:04	0.691	3.599	65.5 × 37.1	0.87 × 0.42	−75	0.30	184	1.5	2.3
18	16:02:01.2	−53:05:45	0.639	1.784	50.8 × 25.6	0.65 × 0.20	−104	0.18	91	1.4	5.4
19	16:00:29.6	−53:13:19	0.675	1.149	36.8 × 21.6	0.42 × 0.20	−41	0.15	58	1.5	6.7
20	16:00:29.2	−53:11:22	0.614	1.299	36.0 × 27.4	0.41 × 0.24	−66	0.15	66	1.3	6.2
21	16:01:43.7	−53:18:42	0.550	0.975	36.2 × 22.9	0.41 × 0.20	30	0.14	49	1.2	5.9
22	16:00:17.3	−53:09:11	0.547	4.097	77.6 × 45.0	1.05 × 0.56	−18	0.38	209	1.2	1.3
23	16:01:12.8	−53:15:54	0.554	0.560	21.8 × 21.6	0.20 × 0.20	−34	0.10	28	1.2	9.8
24	16:00:20.2	−53:11:53	0.516	3.307	93.8 × 31.9	1.28 × 0.33	−11	0.33	169	1.1	1.7
25	16:00:56.7	−53:17:17	0.481	1.762	46.0 × 37.2	0.57 × 0.43	39	0.25	90	1.1	2.1
26	16:00:41.5	−53:13:52	0.493	2.614	69.2 × 35.8	0.92 × 0.40	18	0.30	133	1.1	1.6
27	16:01:39.7	−53:11:21	0.496	1.263	38.3 × 31.1	0.44 × 0.31	0	0.19	64	1.1	3.4
28	16:00:20.1	−53:07:32	0.438	2.074	65.2 × 33.9	0.86 × 0.37	15	0.28	106	1.0	1.6
29	16:01:44.0	−53:11:59	0.490	0.585	25.8 × 21.6	0.20 × 0.20	−48	0.10	29	1.1	10.2
30	16:00:36.0	−53:13:12	0.468	0.474	21.9 × 21.6	0.20 × 0.20	0	0.10	24	1.0	8.3

Table B.1. continued.

$N_{\rm cl}$	Position		$I_{\rm peak}$	S	$\theta_{\rm maj} \times \theta_{\rm min}$	$FWHM$	PA	$R_{\rm eff}$	M	$N_{\rm H_2}$	$n_{\rm H_2}$
	R.A.(J2000)	Decl.(J2000)	(Jy/beam)	(Jy)	($''\times\,''$)	(pc × pc)	(°)	(pc)	($M_\odot$)	($\times10^{22}$ cm^{-2})	($\times10^{4}$ cm^{-3})
31	16:00:36.9	−53:11:37	0.452	1.193	57.0 × 21.6	0.74 × 0.20	−32	0.19	60	1.0	2.9
32	16:01:56.2	−53:07:02	0.384	0.765	42.6 × 21.8	0.52 × 0.20	−86	0.16	39	0.8	3.3
33	16:00:12.3	−53:08:30	0.397	1.275	45.1 × 33.2	0.56 × 0.36	−95	0.22	65	0.9	2.1
34	16:01:41.2	−53:19:14	0.385	0.653	35.1 × 22.5	0.39 × 0.20	−38	0.14	33	0.8	4.2
35	15:59:43.0	−53:12:51	0.356	1.742	52.9 × 43.1	0.68 × 0.52	−23	0.30	89	0.8	1.2
36	16:00:57.4	−53:15:40	0.363	1.720	47.0 × 47.0	0.59 × 0.59	13	0.29	87	0.8	1.2
37	16:00:48.0	−53:15:02	0.354	1.110	55.2 × 26.5	0.71 × 0.22	−51	0.20	56	0.8	2.6
38	16:01:16.1	−53:15:17	0.350	0.848	42.7 × 26.5	0.52 × 0.21	−49	0.17	43	0.8	3.2
39	16:01:49.9	−53:11:15	0.342	0.345	21.8 × 21.6	0.20 × 0.20	−68	0.10	17	0.7	6.0
40	16:00:26.6	−53:11:20	0.343	0.494	31.1 × 21.6	0.32 × 0.20	−17	0.13	25	0.8	4.4
41	16:01:17.2	−53:14:49	0.329	0.422	26.2 × 22.8	0.21 × 0.20	−26	0.10	21	0.7	7.0
42	16:00:34.2	−53:12:48	0.338	0.341	21.8 × 21.6	0.20 × 0.20	54	0.10	17	0.7	6.0
43	16:00:27.8	−53:10:52	0.310	0.468	32.5 × 21.6	0.34 × 0.20	−56	0.13	23	0.7	3.7
44	16:00:23.8	−53:13:04	0.316	0.456	31.2 × 21.6	0.32 × 0.20	−53	0.13	23	0.7	4.0
45	16:01:49.7	−53:12:45	0.309	0.499	34.5 × 21.8	0.38 × 0.20	−82	0.14	25	0.7	3.4
46	16:01:09.3	−53:16:49	0.331	0.334	21.8 × 21.6	0.20 × 0.20	−103	0.10	17	0.7	5.9
47	16:01:44.7	−53:17:28	0.266	0.722	58.6 × 21.6	0.77 × 0.20	−15	0.20	36	0.6	1.7
48	16:00:19.7	−53:08:39	0.268	0.382	30.5 × 21.8	0.30 × 0.20	−84	0.12	19	0.6	3.6
49	16:01:45.4	−53:11:21	0.312	0.316	21.8 × 21.6	0.20 × 0.20	34	0.10	16	0.7	5.5
50	16:01:49.5	−53:06:56	0.248	0.673	41.6 × 30.4	0.50 × 0.30	−59	0.19	34	0.5	1.6
51	16:00:28.3	−53:13:05	0.311	0.314	21.8 × 21.6	0.20 × 0.20	−66	0.10	16	0.7	5.5
52	16:01:55.0	−53:05:48	0.252	0.454	34.9 × 24.1	0.38 × 0.20	−1	0.14	23	0.6	3.0
53	16:00:27.5	−53:12:25	0.394	0.398	21.8 × 21.6	0.20 × 0.20	−33	0.10	20	0.9	7.0
54	16:01:48.0	−53:11:42	0.285	0.289	21.8 × 21.6	0.20 × 0.20	34	0.10	14	0.6	5.1
55	16:01:55.7	−53:09:00	0.234	0.907	60.6 × 29.8	0.80 × 0.29	63	0.24	46	0.5	1.2
56	16:01:57.7	−53:11:47	0.260	0.579	48.1 × 21.6	0.60 × 0.20	−6	0.17	29	0.6	1.9
57	16:01:07.9	−53:16:22	0.289	0.292	21.8 × 21.6	0.20 × 0.20	−34	0.10	14	0.6	5.1
58	16:00:16.2	−53:11:06	0.242	0.393	35.1 × 21.6	0.39 × 0.20	11	0.14	20	0.5	2.6
59	16:00:15.6	−53:11:58	0.245	0.558	41.4 × 25.7	0.50 × 0.20	−39	0.16	28	0.5	2.5
60	16:01:49.0	−53:15:51	0.220	0.825	55.1 × 31.7	0.71 × 0.33	63	0.24	42	0.5	1.0
61	16:01:55.0	−53:06:31	0.227	0.229	21.8 × 21.6	0.20 × 0.20	64	0.10	11	0.5	4.0

Table B.1. continued.

$N_{\rm cl}$	Position		$I_{\rm peak}$	S	$\theta_{\rm maj} \times \theta_{\rm min}$	$FWHM$	PA	$R_{\rm eff}$	M	$N_{\rm H_2}$	$n_{\rm H_2}$
	R.A.(J2000)	Decl.(J2000)	(Jy/beam)	(Jy)	($''\times\ ''$)	(pc × pc)	(°)	(pc)	($M_\odot$)	($\times10^{22}$ cm^{-2})	($\times10^{4}$ cm^{-3})
62	16:01:04.5	−53:17:41	0.240	1.001	52.3 × 37.2	0.67 × 0.43	−72	0.27	51	0.5	0.9
63	16:02:01.2	−53:06:10	0.225	0.363	34.6 × 21.8	0.38 × 0.20	−94	0.14	18	0.5	2.5
64	16:00:22.7	−53:12:26	0.297	0.300	21.8 × 21.6	0.20 × 0.20	−23	0.10	15	0.7	5.3
65	16:00:54.0	−53:15:45	0.221	0.261	25.5 × 21.6	0.20 × 0.20	−60	0.10	13	0.5	4.6
66	15:59:42.5	−53:12:05	0.209	0.532	44.5 × 26.6	0.55 × 0.22	31	0.17	27	0.5	1.8
67	16:01:15.3	−53:16:34	0.230	0.661	62.1 × 21.6	0.82 × 0.20	33	0.20	33	0.5	1.4
68	16:01:04.9	−53:16:45	0.222	0.224	21.8 × 21.6	0.20 × 0.20	−9	0.10	11	0.5	3.9
69	16:01:58.0	−53:05:44	0.214	0.216	21.8 × 21.6	0.20 × 0.20	3	0.10	11	0.5	3.8
70	16:00:33.0	−53:12:51	0.215	0.217	21.8 × 21.6	0.20 × 0.20	45	0.10	11	0.5	3.8
71	16:01:52.9	−53:07:21	0.197	0.318	34.9 × 21.6	0.39 × 0.20	−22	0.14	16	0.4	2.1
72	16:00:35.9	−53:14:08	0.210	0.472	48.0 × 21.8	0.60 × 0.20	−54	0.17	24	0.5	1.6
73	16:00:39.0	−53:11:29	0.240	0.242	21.9 × 21.6	0.20 × 0.20	−57	0.10	12	0.5	4.2
74	16:01:45.4	−53:10:45	0.206	0.320	33.2 × 21.8	0.36 × 0.20	−114	0.13	16	0.5	2.4
75	16:01:08.3	−53:15:08	0.196	0.475	51.9 × 21.8	0.66 × 0.20	−105	0.18	24	0.4	1.4
					IRDC G331						
1	16:10:27.2	−51:22:53	1.954	9.471	71.1 × 31.8	1.02 × 0.35	33	0.30	553	4.3	7.2
2	16:11:11.3	−51:27:45	1.160	5.713	57.3 × 40.1	0.80 × 0.51	10	0.32	333	2.5	3.6
3	16:10:49.7	−51:30:18	1.092	3.335	46.6 × 30.6	0.62 × 0.33	−101	0.22	194	2.4	6.0
4	16:11:07.9	−51:30:54	1.074	10.042	99.0 × 44.0	1.45 × 0.58	24	0.46	586	2.4	2.1
5	16:10:10.1	−51:16:08	1.055	2.512	35.6 × 31.2	0.42 × 0.34	−55	0.19	146	2.3	7.5
6	16:10:09.3	−51:22:59	0.997	2.887	51.6 × 26.2	0.70 × 0.22	−117	0.20	168	2.2	7.5
7	16:11:10.3	−51:28:59	0.919	5.067	67.4 × 38.2	0.96 × 0.47	56	0.34	296	2.0	2.7
8	16:10:36.0	−51:23:30	0.882	2.359	40.4 × 30.9	0.51 × 0.33	−95	0.21	137	1.9	5.4
9	16:10:23.2	−51:23:51	0.866	3.846	57.9 × 35.8	0.81 × 0.43	8	0.29	224	1.9	3.1
10	16:10:50.5	−51:15:23	0.813	1.799	35.4 × 29.2	0.42 × 0.29	53	0.18	105	1.8	6.7
11	16:10:29.6	−51:24:01	0.776	3.201	51.3 × 37.5	0.70 × 0.46	32	0.28	187	1.7	2.8
12	16:11:11.6	−51:29:47	0.659	2.432	65.4 × 26.4	0.93 × 0.23	−98	0.23	142	1.4	4.1
13	16:11:02.0	−51:31:28	0.660	2.353	52.8 × 31.5	0.72 × 0.34	−11	0.25	137	1.4	3.1
14	16:10:05.0	−51:23:35	0.609	1.717	36.4 × 36.1	0.44 × 0.43	8	0.22	100	1.3	3.3
15	16:10:26.0	−51:20:57	0.558	2.095	54.5 × 32.2	0.75 × 0.36	25	0.26	122	1.2	2.4
16	16:10:09.8	−51:25:15	0.525	2.477	82.4 × 26.7	1.20 × 0.24	−90	0.27	144	1.2	2.7

Table B.1. continued.

$N_{\rm cl}$	Position		$I_{\rm peak}$	S	$\theta_{\rm maj} \times \theta_{\rm min}$	$FWHM$	PA	$R_{\rm eff}$	M	$N_{\rm H_2}$	$n_{\rm H_2}$
	R.A.(J2000)	Decl.(J2000)	(Jy/beam)	(Jy)	($''\times\ ''$)	(pc × pc)	(°)	(pc)	($M_\odot$)	($\times10^{22}$ cm^{-2})	($\times10^{4}$ cm^{-3})
17	16:11:15.8	−51:27:18	0.484	2.162	61.0 × 34.2	0.86 × 0.40	−33	0.29	126	1.1	1.8
18	16:10:25.1	−51:27:32	0.472	2.077	66.2 × 31.0	0.94 × 0.33	57	0.28	121	1.0	1.9
19	16:10:19.2	−51:24:56	0.460	3.193	82.7 × 39.2	1.20 × 0.49	−105	0.38	186	1.0	1.1
20	16:11:14.1	−51:21:50	0.365	1.097	41.3 × 34.0	0.53 × 0.39	21	0.23	64	0.8	1.9
21	16:11:16.0	−51:29:49	0.377	0.482	27.3 × 21.9	0.25 × 0.21	−79	0.12	28	0.8	6.2
22	16:11:06.5	−51:30:22	0.365	0.378	22.3 × 21.6	0.21 × 0.21	43	0.11	22	0.8	6.2
23	16:10:35.0	−51:21:46	0.358	1.310	68.7 × 24.9	0.98 × 0.21	38	0.23	76	0.8	2.2
24	16:10:16.6	−51:23:03	0.361	1.100	60.8 × 23.4	0.85 × 0.21	−101	0.21	64	0.8	2.3
25	16:11:08.6	−51:21:58	0.361	0.529	31.3 × 21.8	0.34 × 0.21	−96	0.14	30	0.8	4.3
26	16:11:06.0	−51:29:09	0.347	0.548	33.4 × 22.0	0.38 × 0.21	26	0.14	32	0.8	3.8
27	16:10:23.2	−51:22:04	0.330	1.431	45.2 × 44.8	0.60 × 0.59	8	0.30	83	0.7	1.1
28	16:09:41.7	−51:24:05	0.313	1.491	52.1 × 42.6	0.71 × 0.55	48	0.31	87	0.7	1.0
29	16:10:53.9	−51:30:04	0.312	0.591	40.9 × 21.6	0.52 × 0.21	−20	0.17	34	0.7	2.6
30	16:10:22.5	−51:29:08	0.271	0.801	45.9 × 30.0	0.61 × 0.31	−80	0.22	46	0.6	1.6
31	16:11:03.9	−51:31:41	0.272	0.275	21.8 × 21.6	0.21 × 0.21	0	0.11	16	0.6	4.5
32	16:10:20.6	−51:24:16	0.266	0.415	29.5 × 24.7	0.30 × 0.21	−92	0.13	24	0.6	4.1
33	16:10:40.2	−51:21:21	0.252	0.712	52.9 × 24.9	0.73 × 0.21	49	0.20	41	0.6	1.9
34	16:11:02.0	−51:17:42	0.247	0.911	79.8 × 21.6	1.15 × 0.21	37	0.25	53	0.5	1.2
35	16:10:27.7	−51:22:33	0.256	0.585	49.2 × 21.6	0.67 × 0.21	−46	0.19	34	0.6	1.8
36	16:09:51.9	−51:32:10	0.245	1.927	90.0 × 40.8	1.31 × 0.52	21	0.41	112	0.5	0.6
37	16:10:14.8	−51:25:37	0.243	0.347	30.9 × 21.6	0.33 × 0.21	81	0.13	20	0.5	3.0
38	16:10:01.8	−51:17:24	0.232	0.629	53.1 × 23.8	0.73 × 0.21	−69	0.20	36	0.5	1.6
39	16:11:04.0	−51:29:33	0.237	0.317	28.8 × 21.6	0.29 × 0.21	−45	0.12	18	0.5	3.4
40	16:11:17.2	−51:26:47	0.234	0.393	36.4 × 21.6	0.44 × 0.21	−51	0.15	22	0.5	2.2
41	16:10:52.2	−51:19:37	0.218	0.932	91.5 × 21.8	1.34 × 0.21	−118	0.27	54	0.5	1.0
					IRDC G335						
1	16:29:22.8	−49:12:27	8.185	18.319	32.5 × 32.1	0.35 × 0.35	7	0.17	1002	17.9	65.2
2	16:30:06.0	−48:48:45	3.753	12.145	47.0 × 32.1	0.61 × 0.35	46	0.23	664	8.2	19.2
3	16:29:01.5	−48:50:33	2.903	6.090	33.1 × 29.6	0.36 × 0.29	−47	0.16	333	6.4	26.4
4	16:29:41.5	−49:02:03	2.332	6.056	37.1 × 32.6	0.44 × 0.36	−48	0.20	331	5.1	14.9
5	16:30:09.0	−48:47:55	1.914	10.878	62.0 × 42.7	0.85 × 0.54	−65	0.34	595	4.2	5.4

Table B.1. continued.

$N_{\rm cl}$	Position		$I_{\rm peak}$	S	$\theta_{\rm maj} \times \theta_{\rm min}$	$FWHM$	PA	$R_{\rm eff}$	M	$N_{\rm H_2}$	$n_{\rm H_2}$
	R.A.(J2000)	Decl.(J2000)	(Jy/beam)	(Jy)	($''\times\ ''$)	(pc × pc)	(°)	(pc)	($M_\odot$)	($\times 10^{22}$ cm^{-2})	($\times 10^{4}$ cm^{-3})
6	16:30:13.6	−48:47:07	1.684	7.275	49.3 × 40.9	0.64 × 0.50	32	0.29	398	3.7	6.0
7	16:29:26.0	−49:11:48	1.524	7.808	61.6 × 38.8	0.84 × 0.47	−85	0.31	427	3.3	4.8
8	16:29:17.6	−49:12:13	1.108	7.990	83.4 × 40.3	1.17 × 0.50	−22	0.38	437	2.4	2.7
9	16:29:04.0	−48:59:40	0.898	7.321	94.1 × 40.4	1.33 × 0.50	−50	0.41	400	2.0	2.1
10	16:29:03.5	−48:51:23	0.901	8.377	98.6 × 44.0	1.40 × 0.56	−80	0.44	458	2.0	1.8
11	16:28:51.7	−48:50:47	0.830	3.250	52.3 × 35.0	0.69 × 0.40	−2	0.26	177	1.8	3.4
12	16:30:10.0	−48:52:26	0.786	0.911	24.4 × 22.2	0.21 × 0.21	−70	0.10	49	1.7	15.4
13	16:29:37.5	−48:59:05	0.724	8.921	118.1 × 48.7	1.69 × 0.63	22	0.52	488	1.6	1.2
14	16:29:31.7	−49:11:03	0.703	6.335	87.8 × 47.8	1.24 × 0.62	−102	0.44	346	1.5	1.4
15	16:29:47.0	−49:04:42	0.688	2.703	50.2 × 36.5	0.66 × 0.43	−8	0.27	147	1.5	2.7
16	16:30:01.5	−48:48:15	0.712	5.217	89.0 × 38.4	1.25 × 0.46	11	0.38	285	1.6	1.8
17	16:29:39.4	−49:00:36	0.655	4.281	74.8 × 40.8	1.04 × 0.50	−42	0.36	234	1.4	1.7
18	16:29:50.5	−49:10:50	0.634	2.982	48.9 × 44.9	0.64 × 0.57	81	0.30	163	1.4	2.1
19	16:30:08.1	−48:46:57	0.674	2.408	52.4 × 31.8	0.69 × 0.34	53	0.24	131	1.5	3.2
20	16:28:57.2	−49:01:48	0.578	4.332	83.7 × 41.8	1.18 × 0.52	−85	0.39	237	1.3	1.4
21	16:29:12.1	−49:01:08	0.551	7.448	183.1 × 34.4	2.64 × 0.39	48	0.51	407	1.2	1.1
22	16:30:10.6	−48:48:55	0.557	2.930	75.4 × 32.6	1.05 × 0.35	38	0.31	160	1.2	2.0
23	16:29:21.1	−49:00:59	0.529	3.109	59.6 × 46.0	0.81 × 0.59	−16	0.35	170	1.2	1.4
24	16:29:42.7	−49:11:23	0.525	2.006	56.2 × 31.7	0.76 × 0.34	−73	0.25	109	1.2	2.4
25	16:29:24.1	−48:55:11	0.506	1.013	42.8 × 21.8	0.54 × 0.21	−89	0.17	55	1.1	4.1
26	16:28:43.2	−48:46:00	0.499	0.504	21.8 × 21.6	0.21 × 0.21	39	0.10	27	1.1	8.5
27	16:29:04.4	−48:52:04	0.507	1.193	40.8 × 26.9	0.50 × 0.23	−95	0.17	65	1.1	4.5
28	16:29:10.6	−48:59:50	0.493	1.746	50.8 × 32.5	0.67 × 0.35	−47	0.24	95	1.1	2.3
29	16:29:32.0	−48:59:27	0.464	2.296	59.2 × 39.0	0.80 × 0.47	15	0.31	125	1.0	1.5
30	16:29:46.2	−48:55:54	0.432	4.550	81.8 × 60.1	1.15 × 0.82	0	0.48	249	0.9	0.8
31	16:29:41.2	−49:02:40	0.456	1.331	60.8 × 22.4	0.83 × 0.21	−71	0.21	72	1.0	2.8
32	16:29:27.7	−48:56:52	0.437	1.637	47.8 × 36.6	0.62 × 0.43	−17	0.26	89	1.0	1.8
33	16:29:33.0	−49:09:58	0.440	3.659	80.4 × 48.2	1.13 × 0.63	56	0.42	200	1.0	0.9
34	16:29:26.3	−49:12:12	0.451	0.456	21.8 × 21.6	0.21 × 0.21	−16	0.10	24	1.0	7.7
35	16:29:07.1	−48:48:52	0.425	1.873	50.4 × 40.8	0.66 × 0.50	13	0.29	102	0.9	1.5
36	16:29:52.7	−48:54:22	0.414	2.121	67.9 × 35.2	0.94 × 0.40	26	0.31	116	0.9	1.4

Table B.1. continued.

$N_{\rm cl}$	Position		$I_{\rm peak}$	S	$\theta_{\rm maj} \times \theta_{\rm min}$	$FWHM$	PA	$R_{\rm eff}$	M	$N_{\rm H_2}$	$n_{\rm H_2}$
	R.A.(J2000)	Decl.(J2000)	(Jy/beam)	(Jy)	($''\times\ ''$)	(pc × pc)	(°)	(pc)	($M_\odot$)	($\times10^{22}$ cm^{-2})	($\times10^{4}$ cm^{-3})
37	16:29:48.2	−49:03:43	0.418	2.306	65.7 × 39.2	0.90 × 0.48	−23	0.33	126	0.9	1.2
38	16:29:39.7	−48:46:39	0.411	1.115	42.0 × 30.1	0.52 × 0.30	−70	0.20	61	0.9	2.6
39	16:29:58.5	−48:57:51	0.402	3.322	116.3 × 33.1	1.66 × 0.36	−49	0.39	181	0.9	1.1
40	16:30:00.8	−48:49:34	0.411	2.419	74.2 × 37.0	1.03 × 0.44	75	0.34	132	0.9	1.2
41	16:29:40.2	−48:47:25	0.401	0.643	32.6 × 23.0	0.36 × 0.21	61	0.14	35	0.9	4.9
42	16:29:26.7	−49:00:04	0.405	2.693	59.0 × 52.6	0.80 × 0.70	70	0.37	147	0.9	1.0
43	16:29:14.8	−49:11:02	0.396	2.998	87.0 × 40.6	1.23 × 0.50	−66	0.39	164	0.9	0.9
44	16:28:55.7	−49:03:04	0.377	1.752	68.2 × 31.8	0.94 × 0.34	−110	0.28	95	0.8	1.5
45	16:29:12.3	−49:12:21	0.384	0.866	43.0 × 24.5	0.54 × 0.21	−74	0.17	47	0.8	3.5
46	16:30:09.6	−49:00:26	0.375	1.778	49.3 × 44.8	0.64 × 0.57	29	0.30	97	0.8	1.2
47	16:29:03.0	−48:49:58	0.382	1.036	55.3 × 22.9	0.74 × 0.21	−40	0.20	56	0.8	2.6
48	16:29:09.1	−49:02:44	0.371	1.265	48.7 × 32.6	0.63 × 0.36	11	0.24	69	0.8	1.8
49	16:30:04.6	−48:48:11	0.388	0.392	21.8 × 21.6	0.21 × 0.21	68	0.10	21	0.9	6.6
50	16:29:50.4	−48:57:42	0.352	2.384	72.5 × 43.7	1.01 × 0.55	−64	0.37	130	0.8	0.9
51	16:28:52.5	−48:51:24	0.356	0.732	44.0 × 21.8	0.56 × 0.21	−112	0.17	40	0.8	2.8
52	16:29:24.3	−49:12:41	0.404	0.409	21.8 × 21.6	0.21 × 0.21	−50	0.10	22	0.9	6.9
53	16:28:55.7	−48:59:30	0.350	1.407	59.7 × 31.4	0.81 × 0.33	−77	0.26	77	0.8	1.5
54	16:28:56.5	−48:50:46	0.352	0.666	35.4 × 25.0	0.41 × 0.21	49	0.15	36	0.8	4.1
55	16:29:39.7	−48:55:38	0.330	0.906	50.3 × 25.5	0.66 × 0.21	−104	0.19	49	0.7	2.7
56	16:29:02.0	−49:02:14	0.339	1.198	68.2 × 24.2	0.94 × 0.21	59	0.22	65	0.7	2.1
57	16:29:08.6	−49:11:55	0.337	1.097	59.3 × 25.7	0.80 × 0.21	15	0.20	60	0.7	2.4
58	16:29:20.7	−49:11:49	0.350	0.354	21.9 × 21.6	0.21 × 0.21	0	0.10	19	0.8	6.0
59	16:29:46.0	−49:02:30	0.323	1.071	49.8 × 31.1	0.65 × 0.32	−21	0.23	58	0.7	1.7
60	16:29:28.6	−49:05:58	0.311	0.794	34.5 × 34.5	0.39 × 0.39	−96	0.20	43	0.7	2.0
61	16:29:37.0	−49:06:07	0.306	2.198	70.8 × 47.4	0.98 × 0.61	−23	0.39	120	0.7	0.7
62	16:29:08.1	−48:51:23	0.325	0.394	26.2 × 21.6	0.22 × 0.21	−4	0.11	21	0.7	6.3
63	16:30:11.0	−48:49:41	0.311	1.567	73.4 × 32.1	1.02 × 0.34	67	0.30	85	0.7	1.1
64	16:29:39.7	−49:01:20	0.304	0.534	36.8 × 22.2	0.43 × 0.21	−80	0.15	29	0.7	3.0
65	16:30:10.6	−49:01:25	0.291	0.603	40.6 × 23.8	0.50 × 0.21	−75	0.16	33	0.6	2.7
66	16:29:04.6	−48:50:51	0.290	0.399	29.7 × 21.6	0.30 × 0.21	37	0.12	21	0.6	4.0
67	16:29:12.1	−48:51:42	0.285	0.878	51.2 × 28.1	0.68 × 0.26	−47	0.21	48	0.6	1.8

Table B.1. continued.

$N_{\rm cl}$	Position		$I_{\rm peak}$	S	$\theta_{\rm maj} \times \theta_{\rm min}$	$FWHM$	PA	$R_{\rm eff}$	M	$N_{\rm H_2}$	$n_{\rm H_2}$
	R.A.(J2000)	Decl.(J2000)	(Jy/beam)	(Jy)	($''\times\ ''$)	(pc × pc)	(°)	(pc)	($M_\odot$)	($\times 10^{22}$ cm^{-2})	($\times 10^{4}$ cm^{-3})
68	16:30:14.1	−49:00:17	0.276	0.536	40.9 × 22.2	0.50 × 0.21	−41	0.16	29	0.6	2.4
69	16:29:26.7	−49:11:12	0.280	0.283	21.8 × 21.6	0.21 × 0.21	70	0.10	15	0.6	4.8
70	16:29:06.5	−48:52:31	0.278	0.615	46.0 × 22.5	0.59 × 0.21	−103	0.18	33	0.6	2.2
71	16:29:19.6	−49:12:28	0.298	0.301	21.8 × 21.6	0.21 × 0.21	−14	0.10	16	0.7	5.1
72	16:30:05.5	−48:52:05	0.272	0.730	49.1 × 25.5	0.64 × 0.21	−32	0.18	39	0.6	2.3
73	16:29:53.7	−48:51:06	0.255	1.320	49.2 × 49.0	0.64 × 0.64	25	0.32	72	0.6	0.8
74	16:29:41.0	−48:56:28	0.259	0.708	35.7 × 35.7	0.41 × 0.41	−75	0.21	38	0.6	1.5
75	16:29:13.1	−49:11:39	0.279	0.399	31.0 × 21.6	0.32 × 0.21	58	0.13	21	0.6	3.5
76	16:29:19.2	−48:59:27	0.258	1.366	84.4 × 29.3	1.19 × 0.29	59	0.29	74	0.6	1.0
77	16:29:46.0	−48:49:02	0.250	1.121	56.4 × 37.0	0.76 × 0.44	−60	0.29	61	0.5	0.9
78	16:29:35.0	−49:09:17	0.257	0.523	38.8 × 24.5	0.47 × 0.21	−4	0.16	28	0.6	2.6
79	16:29:27.3	−48:55:06	0.255	0.377	31.9 × 21.6	0.34 × 0.21	−9	0.13	20	0.6	3.0
80	16:28:59.5	−48:49:59	0.249	0.253	21.8 × 21.7	0.21 × 0.21	−13	0.10	13	0.5	4.3
81	16:29:34.7	−49:06:55	0.241	1.023	44.5 × 44.4	0.57 × 0.56	−12	0.28	55	0.5	0.9
82	16:30:01.7	−48:48:52	0.253	0.256	21.8 × 21.6	0.21 × 0.21	15	0.10	14	0.6	4.3
83	16:29:42.7	−48:52:23	0.225	0.996	58.2 × 35.4	0.79 × 0.41	14	0.28	54	0.5	0.8
84	16:29:58.2	−48:50:08	0.232	0.595	39.0 × 30.7	0.47 × 0.32	−90	0.19	32	0.5	1.6
85	16:30:16.7	−48:46:48	0.230	0.395	37.1 × 21.6	0.44 × 0.21	−47	0.15	21	0.5	2.2
86	16:29:26.5	−49:09:55	0.237	0.847	56.0 × 29.8	0.75 × 0.30	31	0.24	46	0.5	1.2
87	16:29:41.0	−49:04:50	0.223	0.672	40.7 × 34.6	0.50 × 0.39	−69	0.22	36	0.5	1.2
88	16:30:08.0	−48:48:04	0.287	0.290	21.8 × 21.6	0.21 × 0.21	−34	0.10	15	0.6	4.9
89	16:29:51.4	−48:49:32	0.214	0.529	41.4 × 27.8	0.51 × 0.26	−9	0.18	28	0.5	1.7
90	16:29:44.0	−48:57:16	0.221	1.096	68.6 × 33.8	0.95 × 0.38	−12	0.30	60	0.5	0.8
91	16:30:13.6	−48:47:42	0.257	0.329	27.6 × 21.6	0.25 × 0.21	−49	0.11	17	0.6	4.2
92	16:30:01.8	−48:58:35	0.212	0.480	43.3 × 24.3	0.55 × 0.21	−56	0.17	26	0.5	1.9
93	16:29:23.7	−48:54:43	0.218	0.610	59.8 × 21.8	0.81 × 0.21	−93	0.21	33	0.5	1.3
94	16:29:35.5	−49:00:23	0.216	0.218	21.9 × 21.6	0.21 × 0.21	−10	0.10	11	0.5	3.7
95	16:30:12.8	−48:46:23	0.215	0.277	27.5 × 21.8	0.25 × 0.21	−78	0.11	15	0.5	3.6
96	16:30:10.0	−48:48:38	0.233	0.236	21.8 × 21.6	0.21 × 0.21	0	0.10	12	0.5	4.0
97	16:29:03.4	−48:58:47	0.205	0.524	39.6 × 30.1	0.48 × 0.30	−45	0.19	28	0.5	1.4
98	16:29:23.6	−48:49:33	0.200	0.426	38.1 × 26.0	0.46 × 0.21	−110	0.16	23	0.4	2.2

Table B.1. continued.

$N_{\rm cl}$	Position		$I_{\rm peak}$	S	$\theta_{\rm maj} \times \theta_{\rm min}$	$FWHM$	PA	$R_{\rm eff}$	M	$N_{\rm H_2}$	$n_{\rm H_2}$
	R.A.(J2000)	Decl.(J2000)	(Jy/beam)	(Jy)	($''\times\,''$)	(pc × pc)	(°)	(pc)	($M_\odot$)	($\times10^{22}$ cm^{-2})	($\times10^{4}$ cm^{-3})
99	16:29:51.5	−48:56:50	0.208	0.365	35.4 × 23.1	0.41 × 0.21	−71	0.15	19	0.5	2.2
100	16:29:30.1	−48:57:46	0.199	0.890	50.5 × 41.4	0.66 × 0.51	15	0.29	48	0.4	0.7
101	16:29:34.0	−49:07:59	0.193	0.834	56.5 × 35.7	0.76 × 0.41	−62	0.28	45	0.4	0.7
102	16:28:59.5	−49:00:07	0.203	0.308	32.7 × 21.6	0.36 × 0.21	−67	0.14	16	0.4	2.3
103	16:29:43.0	−49:01:31	0.198	0.200	21.8 × 21.6	0.21 × 0.21	68	0.10	10	0.4	3.4
104	16:30:06.3	−48:48:55	0.208	0.210	21.8 × 21.6	0.21 × 0.21	−68	0.10	11	0.5	3.6
105	16:29:30.3	−49:05:28	0.189	0.345	39.4 × 21.6	0.48 × 0.21	−43	0.16	18	0.4	1.7
106	16:29:43.4	−49:03:09	0.196	0.309	33.7 × 21.8	0.38 × 0.21	−69	0.14	16	0.4	2.1
107	16:29:05.5	−49:00:54	0.197	0.835	59.1 × 33.4	0.80 × 0.37	2	0.27	45	0.4	0.8
108	16:29:27.2	−49:12:57	0.187	0.459	53.0 × 21.6	0.70 × 0.21	49	0.19	25	0.4	1.2
109	16:28:53.2	−49:02:43	0.185	0.318	35.9 × 22.3	0.42 × 0.21	61	0.15	17	0.4	1.9
110	16:29:22.8	−49:13:11	0.183	0.184	21.8 × 21.6	0.21 × 0.21	−72	0.10	10	0.4	3.1
111	16:29:38.0	−49:07:11	0.174	0.367	45.5 × 21.6	0.58 × 0.21	46	0.17	20	0.4	1.3
112	16:29:10.3	−48:48:38	0.180	0.182	21.8 × 21.6	0.21 × 0.21	−3	0.10	9	0.4	3.1
113	16:29:25.5	−49:12:02	0.201	0.203	21.8 × 21.6	0.21 × 0.21	−68	0.10	11	0.4	3.4
114	16:30:04.8	−48:47:01	0.211	0.325	31.6 × 22.7	0.33 × 0.21	−43	0.13	17	0.5	2.7
115	16:29:18.6	−49:00:42	0.173	0.174	21.8 × 21.6	0.21 × 0.21	56	0.10	9	0.4	3.0
116	16:29:06.9	−49:02:19	0.173	0.175	21.8 × 21.6	0.21 × 0.21	71	0.10	9	0.4	3.0
117	16:29:36.5	−48:55:25	0.169	0.284	33.4 × 23.5	0.37 × 0.21	22	0.14	15	0.4	2.0
118	16:29:44.7	−49:11:07	0.166	0.635	82.8 × 21.6	1.16 × 0.21	−11	0.25	34	0.4	0.8
119	16:29:20.0	−49:11:24	0.186	0.190	22.0 × 21.6	0.21 × 0.21	−31	0.10	10	0.4	3.2
120	16:29:33.0	−49:10:31	0.190	0.192	21.8 × 21.6	0.21 × 0.21	−68	0.10	10	0.4	3.2
121	16:29:57.5	−48:53:55	0.171	0.323	40.8 × 21.6	0.50 × 0.21	19	0.16	17	0.4	1.5
122	16:29:45.2	−49:01:54	0.185	0.238	27.7 × 21.6	0.25 × 0.21	1	0.11	13	0.4	3.0
123	16:29:37.2	−49:10:14	0.168	0.170	21.9 × 21.6	0.21 × 0.21	54	0.10	9	0.4	2.9
					IRDC G337						
1	16:36:43.5	−47:31:38	9.738	39.584	53.0 × 35.8	0.70 × 0.42	−59	0.27	2166	21.4	38.1
2	16:36:48.0	−47:31:48	4.107	10.723	44.1 × 27.6	0.56 × 0.25	30	0.19	586	9.0	31.1
3	16:37:48.7	−47:38:58	2.207	17.127	85.9 × 42.1	1.21 × 0.53	−124	0.40	937	4.8	5.1
4	16:36:43.5	−47:31:16	1.520	1.536	21.8 × 21.6	0.21 × 0.21	33	0.10	84	3.3	26.0
5	16:36:43.7	−47:32:15	1.485	4.557	65.6 × 21.8	0.90 × 0.21	−71	0.22	249	3.3	8.5

Table B.1. continued.

$N_{\rm cl}$	Position		$I_{\rm peak}$	S	$\theta_{\rm maj} \times \theta_{\rm min}$	$FWHM$	PA	$R_{\rm eff}$	M	$N_{\rm H_2}$	$n_{\rm H_2}$
	R.A.(J2000)	Decl.(J2000)	(Jy/beam)	(Jy)	($''\times\ ''$)	(pc × pc)	(°)	(pc)	($M_\odot$)	($\times10^{22}$ cm^{-2})	($\times10^{4}$ cm^{-3})
6	16:37:40.0	−47:39:17	1.282	10.521	90.9 × 42.1	1.28 × 0.53	50	0.41	575	2.8	2.9
7	16:36:51.9	−47:32:03	1.065	4.663	54.0 × 37.8	0.72 × 0.45	17	0.29	255	2.3	3.8
8	16:36:41.5	−47:31:36	1.002	1.012	21.8 × 21.6	0.21 × 0.21	34	0.10	55	2.2	17.1
9	16:36:47.5	−47:31:31	0.911	0.920	21.8 × 21.6	0.21 × 0.21	−6	0.10	50	2.0	15.6
10	16:38:23.2	−47:30:36	0.801	1.795	41.0 × 25.5	0.51 × 0.21	−55	0.16	98	1.8	8.0
11	16:37:26.8	−47:41:30	0.715	3.715	65.6 × 36.9	0.90 × 0.44	36	0.31	203	1.6	2.3
12	16:37:57.9	−47:37:25	0.716	16.595	135.4 × 79.8	1.94 × 1.12	−129	0.74	908	1.6	0.8
13	16:36:43.2	−47:30:55	0.780	0.788	21.8 × 21.6	0.21 × 0.21	−68	0.10	43	1.7	13.3
14	16:36:44.5	−47:31:01	0.778	0.786	21.8 × 21.6	0.21 × 0.21	−69	0.10	43	1.7	13.3
15	16:36:42.9	−47:31:12	0.772	0.780	21.8 × 21.6	0.21 × 0.21	4	0.10	42	1.7	13.2
16	16:37:48.0	−47:39:49	0.666	1.588	46.8 × 23.8	0.60 × 0.21	65	0.18	86	1.5	5.4
17	16:36:42.4	−47:31:21	0.722	0.730	21.8 × 21.6	0.21 × 0.21	−89	0.10	39	1.6	12.3
18	16:36:45.4	−47:32:34	0.717	0.725	21.8 × 21.6	0.21 × 0.21	73	0.10	39	1.6	12.3
19	16:36:45.5	−47:32:25	0.724	0.731	21.8 × 21.6	0.21 × 0.21	−34	0.10	40	1.6	12.4
20	16:38:58.4	−47:35:17	0.632	2.286	45.5 × 37.0	0.58 × 0.44	−53	0.25	125	1.4	2.7
21	16:36:45.4	−47:32:11	0.713	0.721	21.8 × 21.6	0.21 × 0.21	−102	0.10	39	1.6	12.2
22	16:37:35.0	−47:39:27	0.624	1.560	43.1 × 27.0	0.54 × 0.24	18	0.18	85	1.4	5.1
23	16:36:40.4	−47:36:44	0.612	0.787	27.1 × 22.2	0.24 × 0.21	10	0.11	43	1.3	10.9
24	16:37:29.6	−47:40:33	0.589	2.185	58.7 × 29.5	0.79 × 0.29	−104	0.24	119	1.3	3.0
25	16:36:49.7	−47:31:54	0.680	0.687	21.8 × 21.6	0.21 × 0.21	18	0.10	37	1.5	11.6
26	16:36:47.2	−47:31:43	0.671	0.678	21.8 × 21.6	0.21 × 0.21	34	0.10	37	1.5	11.5
27	16:37:48.7	−47:37:40	0.596	2.734	48.3 × 44.3	0.63 × 0.56	−78	0.30	149	1.3	2.0
28	16:37:55.7	−47:45:44	0.545	1.113	34.9 × 27.3	0.40 × 0.24	−5	0.16	60	1.2	5.6
29	16:36:42.4	−47:31:29	0.590	0.596	21.8 × 21.6	0.21 × 0.21	34	0.10	32	1.3	10.1
30	16:38:07.9	−47:35:03	0.476	2.210	54.7 × 39.6	0.73 × 0.48	51	0.30	120	1.0	1.6
31	16:36:54.5	−47:32:37	0.488	1.840	59.3 × 29.6	0.80 × 0.30	19	0.24	100	1.1	2.4
32	16:38:15.6	−47:33:32	0.436	2.073	66.5 × 33.3	0.91 × 0.37	40	0.29	113	1.0	1.6
33	16:36:44.7	−47:32:33	0.524	0.530	21.8 × 21.6	0.21 × 0.21	−100	0.10	29	1.1	9.0
34	16:36:45.2	−47:32:06	0.499	0.504	21.8 × 21.6	0.21 × 0.21	−103	0.10	27	1.1	8.5
35	16:37:55.5	−47:39:02	0.421	2.185	82.6 × 29.3	1.16 × 0.29	40	0.29	119	0.9	1.7
36	16:36:49.4	−47:32:20	0.461	0.465	21.8 × 21.6	0.21 × 0.21	32	0.10	25	1.0	7.9

Table B.1. continued.

$N_{\rm cl}$	Position		$I_{\rm peak}$	S	$\theta_{\rm maj} \times \theta_{\rm min}$	$FWHM$	PA	$R_{\rm eff}$	M	$N_{\rm H_2}$	$n_{\rm H_2}$
	R.A.(J2000)	Decl.(J2000)	(Jy/beam)	(Jy)	($''\times\ ''$)	(pc × pc)	(°)	(pc)	($M_\odot$)	($\times10^{22}$ cm^{-2})	($\times10^{4}$ cm^{-3})
37	16:36:58.5	−47:36:33	0.383	2.450	68.8 × 43.4	0.95 × 0.55	−80	0.36	134	0.8	1.0
38	16:38:03.2	−47:36:06	0.351	2.093	83.3 × 33.4	1.17 × 0.37	−103	0.33	114	0.8	1.1
39	16:37:51.5	−47:38:22	0.377	0.383	21.9 × 21.6	0.21 × 0.21	−2	0.10	20	0.8	6.5
40	16:37:52.9	−47:40:02	0.344	0.978	44.4 × 29.9	0.56 × 0.30	26	0.21	53	0.8	2.1
41	16:38:46.9	−47:32:08	0.311	0.769	45.4 × 25.4	0.58 × 0.21	−61	0.17	42	0.7	2.8
42	16:37:45.5	−47:38:10	0.322	0.568	32.7 × 25.2	0.36 × 0.21	−76	0.14	31	0.7	4.3
43	16:38:53.4	−47:37:05	0.289	0.636	45.8 × 22.4	0.59 × 0.21	−43	0.17	34	0.6	2.3
44	16:36:53.9	−47:41:58	0.289	1.173	51.1 × 37.0	0.67 × 0.44	−25	0.27	64	0.6	1.1
45	16:38:13.1	−47:34:31	0.281	0.611	31.9 × 31.8	0.34 × 0.34	−109	0.17	33	0.6	2.3
46	16:38:05.6	−47:37:31	0.277	0.576	44.9 × 21.6	0.57 × 0.21	39	0.17	31	0.6	2.1
47	16:36:53.9	−47:35:45	0.275	0.752	35.7 × 35.7	0.41 × 0.41	−92	0.21	41	0.6	1.6
48	16:37:33.4	−47:41:21	0.278	3.066	132.1 × 39.0	1.89 × 0.47	26	0.47	167	0.6	0.5
49	16:36:49.0	−47:38:09	0.263	0.803	57.6 × 24.7	0.78 × 0.21	−115	0.20	43	0.6	1.9
50	16:37:52.2	−47:39:19	0.308	0.312	21.8 × 21.6	0.21 × 0.21	34	0.10	17	0.7	5.3
51	16:36:43.4	−47:31:24	0.282	0.285	21.8 × 21.6	0.21 × 0.21	66	0.10	15	0.6	4.8
52	16:38:25.7	−47:31:21	0.252	0.839	66.3 × 23.4	0.91 × 0.21	−119	0.22	45	0.6	1.5
53	16:38:18.0	−47:30:20	0.258	0.732	40.8 × 32.4	0.50 × 0.35	−97	0.21	40	0.6	1.5
54	16:38:37.7	−47:31:32	0.245	0.550	45.7 × 22.9	0.58 × 0.21	−71	0.17	30	0.5	2.0
55	16:38:08.1	−47:36:42	0.255	1.048	52.4 × 36.7	0.69 × 0.43	2	0.27	57	0.6	1.0
56	16:38:33.9	−47:30:17	0.225	0.681	58.5 × 24.2	0.79 × 0.21	54	0.20	37	0.5	1.6
57	16:36:59.9	−47:34:36	0.221	0.644	37.0 × 36.8	0.44 × 0.43	5	0.22	35	0.5	1.2
58	16:37:10.3	−47:41:54	0.226	0.573	45.1 × 26.3	0.58 × 0.22	22	0.18	31	0.5	2.0
59	16:37:35.9	−47:38:27	0.234	0.729	45.6 × 31.9	0.58 × 0.34	−87	0.22	39	0.5	1.2
60	16:36:40.0	−47:34:36	0.223	0.246	23.6 × 21.8	0.21 × 0.21	−44	0.10	13	0.5	4.2
61	16:37:53.9	−47:37:56	0.257	0.535	37.8 × 25.7	0.45 × 0.21	−89	0.15	29	0.6	2.8
62	16:36:43.4	−47:32:09	0.300	0.303	21.8 × 21.6	0.21 × 0.21	68	0.10	16	0.7	5.1
63	16:36:58.7	−47:30:39	0.222	0.373	36.1 × 21.8	0.42 × 0.21	22	0.15	20	0.5	2.2
64	16:37:23.3	−47:39:14	0.213	0.388	34.0 × 25.0	0.38 × 0.21	−97	0.14	21	0.5	2.6
65	16:38:12.1	−47:35:15	0.212	0.785	65.6 × 26.4	0.90 × 0.22	31	0.22	42	0.5	1.3
66	16:36:47.0	−47:32:56	0.253	0.390	32.9 × 21.8	0.36 × 0.21	−114	0.14	21	0.6	2.9
67	16:38:24.6	−47:32:16	0.209	0.513	39.0 × 29.3	0.47 × 0.29	−85	0.18	28	0.5	1.5

Table B.1. continued.

$N_{\rm cl}$	Position		$I_{\rm peak}$	S	$\theta_{\rm maj} \times \theta_{\rm min}$	$FWHM$	PA	$R_{\rm eff}$	M	$N_{\rm H_2}$	$n_{\rm H_2}$
	R.A.(J2000)	Decl.(J2000)	(Jy/beam)	(Jy)	($''\times\ ''$)	(pc × pc)	(°)	(pc)	($M_\odot$)	($\times10^{22}$ cm^{-2})	($\times10^{4}$ cm^{-3})
68	16:37:32.2	−47:39:46	0.224	0.445	43.0 × 21.6	0.54 × 0.21	4	0.17	24	0.5	1.8
69	16:36:51.4	−47:31:39	0.250	0.253	21.8 × 21.6	0.21 × 0.21	13	0.10	13	0.5	4.3
70	16:37:05.5	−47:30:46	0.204	0.915	50.9 × 41.2	0.67 × 0.51	−63	0.29	50	0.4	0.7
71	16:38:33.4	−47:31:26	0.201	0.541	43.9 × 28.5	0.56 × 0.27	−25	0.19	29	0.4	1.4
72	16:38:14.3	−47:36:23	0.195	1.254	67.4 × 44.5	0.93 × 0.57	5	0.36	68	0.4	0.5
73	16:36:46.2	−47:35:12	0.204	0.281	29.5 × 21.9	0.29 × 0.21	−77	0.12	15	0.4	2.9
74	16:37:34.9	−47:43:47	0.193	0.387	35.2 × 26.6	0.40 × 0.23	−51	0.15	21	0.4	2.1
75	16:36:40.4	−47:32:02	0.209	0.212	21.8 × 21.6	0.21 × 0.21	66	0.10	11	0.5	3.6
76	16:37:07.0	−47:42:52	0.182	0.512	47.7 × 27.5	0.62 × 0.25	−100	0.20	28	0.4	1.3
77	16:37:20.2	−47:42:47	0.178	0.512	55.9 × 23.9	0.75 × 0.21	−117	0.20	28	0.4	1.3
78	16:37:42.9	−47:39:15	0.220	0.222	21.8 × 21.6	0.21 × 0.21	−16	0.10	12	0.5	3.8
79	16:39:02.5	−47:35:47	0.181	0.278	33.0 × 21.6	0.36 × 0.21	39	0.14	15	0.4	2.0
80	16:38:34.7	−47:30:39	0.178	0.333	40.3 × 21.6	0.50 × 0.21	45	0.16	18	0.4	1.5
81	16:37:19.7	−47:39:33	0.173	0.248	30.7 × 21.8	0.32 × 0.21	−79	0.13	13	0.4	2.2
82	16:38:57.0	−47:34:42	0.172	0.174	21.8 × 21.6	0.21 × 0.21	−65	0.10	9	0.4	3.0
83	16:36:47.0	−47:31:04	0.185	0.187	21.8 × 21.6	0.21 × 0.21	−28	0.10	10	0.4	3.2
84	16:37:43.2	−47:39:54	0.201	0.420	43.1 × 22.7	0.54 × 0.21	−41	0.17	22	0.4	1.7
85	16:38:41.4	−47:31:14	0.172	0.374	47.0 × 21.6	0.61 × 0.21	−23	0.18	20	0.4	1.3
86	16:37:23.2	−47:41:47	0.165	0.167	21.8 × 21.6	0.21 × 0.21	15	0.10	9	0.4	2.8
87	16:38:30.6	−47:31:09	0.161	0.163	21.8 × 21.6	0.21 × 0.21	−29	0.10	8	0.4	2.8
					IRDC G343						
1	17:01:33.9	−42:50:26	3.187	16.641	69.3 × 35.2	0.86 × 0.36	−3	0.28	737	7.0	11.7
2	17:01:18.6	−42:49:43	2.362	5.025	37.5 × 26.5	0.40 × 0.20	−54	0.14	222	5.2	27.1
3	17:01:32.0	−42:49:34	1.671	3.229	32.5 × 27.7	0.32 × 0.23	56	0.13	143	3.7	20.4
4	17:00:19.8	−42:49:17	1.129	6.352	64.0 × 41.0	0.79 × 0.46	50	0.30	281	2.5	3.6
5	17:00:32.2	−42:54:01	0.821	4.911	79.2 × 35.2	1.00 × 0.36	−87	0.30	217	1.8	2.8
6	17:01:00.5	−42:48:08	0.807	5.699	77.1 × 42.8	0.97 × 0.48	−112	0.34	252	1.8	2.2
7	17:01:34.9	−42:51:34	0.774	4.754	78.0 × 36.7	0.98 × 0.39	−99	0.31	210	1.7	2.5
8	17:01:21.3	−42:50:07	0.766	1.904	44.6 × 26.0	0.51 × 0.19	48	0.16	84	1.7	7.8
9	16:59:54.2	−42:43:31	0.699	1.515	37.4 × 27.0	0.40 × 0.21	−36	0.15	67	1.5	7.5
10	16:59:54.2	−42:42:33	0.692	3.525	71.6 × 33.2	0.89 × 0.33	−116	0.27	156	1.5	2.7

Table B.1. continued.

$N_{\rm cl}$	Position		$I_{\rm peak}$	S	$\theta_{\rm maj} \times \theta_{\rm min}$	$FWHM$	PA	$R_{\rm eff}$	M	$N_{\rm H_2}$	$n_{\rm H_2}$
	R.A.(J2000)	Decl.(J2000)	(Jy/beam)	(Jy)	($''\times\ ''$)	(pc × pc)	(°)	(pc)	($M_\odot$)	($\times10^{22}$ cm^{-2})	($\times10^{4}$ cm^{-3})
11	16:59:58.2	−42:54:23	0.699	1.375	38.5 × 23.9	0.42 × 0.19	−92	0.14	60	1.5	7.8
12	17:00:06.3	−42:54:03	0.678	2.972	57.7 × 35.5	0.70 × 0.37	−118	0.25	131	1.5	2.8
13	17:00:40.2	−42:51:35	0.661	2.360	41.5 × 40.2	0.46 × 0.44	7	0.23	104	1.5	3.1
14	17:00:25.6	−42:48:05	0.519	5.147	68.1 × 67.9	0.85 × 0.84	−60	0.42	228	1.1	1.1
15	17:01:30.7	−42:50:50	0.531	1.147	38.1 × 26.4	0.41 × 0.20	−27	0.14	50	1.2	6.0
16	17:01:36.9	−42:49:53	0.479	2.576	98.1 × 25.6	1.25 × 0.19	−13	0.24	114	1.1	2.8
17	17:02:10.0	−42:52:28	0.434	3.884	78.8 × 53.0	0.99 × 0.63	−82	0.40	172	1.0	1.0
18	17:00:20.1	−42:48:20	0.454	1.304	38.3 × 35.0	0.41 × 0.36	27	0.19	57	1.0	2.8
19	17:01:46.7	−42:51:35	0.401	3.718	78.8 × 54.9	0.99 × 0.66	−81	0.40	164	0.9	0.9
20	17:00:15.0	−42:49:24	0.398	0.897	33.2 × 31.6	0.33 × 0.30	34	0.16	39	0.9	3.5
21	17:00:28.5	−42:46:50	0.382	2.469	86.0 × 35.1	1.09 × 0.36	18	0.31	109	0.8	1.2
22	17:00:31.2	−42:48:09	0.354	1.615	58.8 × 36.2	0.72 × 0.38	−39	0.26	71	0.8	1.4
23	17:00:53.5	−43:00:05	0.345	1.454	60.6 × 32.4	0.74 × 0.32	−78	0.24	64	0.8	1.6
24	17:02:04.5	−42:52:13	0.346	1.385	58.1 × 32.2	0.71 × 0.31	31	0.23	61	0.8	1.7
25	17:01:32.5	−42:49:42	0.370	0.374	21.8 × 21.6	0.19 × 0.19	68	0.09	16	0.8	7.0
26	17:00:00.6	−42:43:12	0.328	2.265	68.8 × 46.8	0.86 × 0.54	−81	0.34	100	0.7	0.9
27	17:01:41.0	−42:51:52	0.331	1.310	46.8 × 39.5	0.54 × 0.43	−117	0.24	58	0.7	1.4
28	17:00:44.2	−43:00:01	0.325	0.935	43.1 × 31.1	0.49 × 0.29	18	0.19	41	0.7	2.1
29	16:59:58.4	−42:42:07	0.324	0.672	35.6 × 27.2	0.37 × 0.22	15	0.14	29	0.7	3.7
30	17:00:31.6	−42:49:23	0.308	0.727	41.9 × 26.3	0.47 × 0.20	−38	0.15	32	0.7	3.2
31	17:00:19.8	−42:43:13	0.305	0.662	35.3 × 28.7	0.37 × 0.25	45	0.15	29	0.7	3.0
32	17:01:17.8	−42:50:17	0.299	0.440	26.2 × 26.1	0.19 × 0.19	−1	0.10	19	0.7	7.5
33	17:00:09.1	−42:48:04	0.288	0.746	48.8 × 24.8	0.57 × 0.19	−97	0.16	33	0.6	2.6
34	17:01:06.4	−42:56:24	0.269	1.284	47.2 × 47.2	0.55 × 0.55	−1	0.27	56	0.6	1.0
35	17:00:27.6	−42:51:10	0.257	1.180	80.0 × 26.8	1.01 × 0.21	−44	0.23	52	0.6	1.5
36	17:00:49.0	−42:55:30	0.263	0.270	22.2 × 21.6	0.19 × 0.19	−47	0.09	11	0.6	5.1
37	17:01:03.4	−42:48:43	0.259	0.793	53.4 × 26.8	0.64 × 0.21	46	0.18	35	0.6	2.0
38	17:01:31.6	−42:49:03	0.249	0.824	68.5 × 22.6	0.85 × 0.19	−110	0.20	36	0.5	1.6
39	17:00:56.7	−42:56:33	0.234	0.782	44.5 × 35.1	0.51 × 0.36	−103	0.21	34	0.5	1.2
40	17:01:02.5	−42:47:26	0.240	0.457	33.5 × 26.6	0.33 × 0.20	−91	0.13	20	0.5	3.2
41	17:02:02.5	−42:52:50	0.227	0.846	63.1 × 27.5	0.78 × 0.22	−86	0.21	37	0.5	1.4

Table B.1. continued.

$N_{\rm cl}$	Position		$I_{\rm peak}$	S	$\theta_{\rm maj} \times \theta_{\rm min}$	$FWHM$	PA	$R_{\rm eff}$	M	$N_{\rm H_2}$	$n_{\rm H_2}$
	R.A.(J2000)	Decl.(J2000)	(Jy/beam)	(Jy)	($''\times\ ''$)	(pc × pc)	(°)	(pc)	($M_\odot$)	($\times 10^{22}$ cm^{-2})	($\times 10^{4}$ cm^{-3})
42	17:00:30.6	−42:45:44	0.222	1.011	53.9 × 39.4	0.65 × 0.43	28	0.26	44	0.5	0.8
43	17:01:46.0	−42:52:24	0.226	0.697	45.6 × 31.6	0.53 × 0.30	−99	0.20	30	0.5	1.4
44	17:00:24.1	−42:49:56	0.227	1.026	51.4 × 41.1	0.61 × 0.46	1	0.26	45	0.5	0.9
45	17:01:43.2	−42:49:04	0.211	0.582	43.2 × 29.8	0.49 × 0.27	−46	0.18	25	0.5	1.5
46	17:00:37.0	−42:50:05	0.210	0.457	42.2 × 24.0	0.48 × 0.19	−84	0.15	20	0.5	2.1
47	17:00:39.7	−42:42:37	0.210	0.650	55.6 × 26.0	0.67 × 0.19	−50	0.18	28	0.5	1.8
48	17:01:32.2	−42:52:09	0.211	0.306	30.2 × 22.4	0.28 × 0.19	48	0.11	13	0.5	3.2
49	17:00:29.7	−42:59:37	0.211	0.473	43.7 × 24.0	0.50 × 0.19	−37	0.15	20	0.5	2.1
50	17:00:45.7	−42:59:11	0.205	0.520	54.3 × 21.8	0.65 × 0.19	−88	0.17	23	0.4	1.5
51	17:00:52.0	−42:48:27	0.201	1.201	64.6 × 43.2	0.80 × 0.49	−69	0.31	53	0.4	0.6
52	17:01:53.2	−42:56:09	0.196	1.291	65.3 × 47.0	0.81 × 0.55	25	0.33	57	0.4	0.5
53	17:00:33.7	−42:46:44	0.206	0.843	49.9 × 38.2	0.59 × 0.41	−13	0.25	37	0.5	0.9
54	17:00:42.9	−42:54:26	0.188	0.625	49.0 × 31.7	0.58 × 0.30	−10	0.21	27	0.4	1.1
55	17:01:17.3	−42:53:55	0.186	1.201	54.9 × 54.9	0.66 × 0.66	−81	0.33	53	0.4	0.5
56	17:01:37.2	−42:51:04	0.227	0.230	21.9 × 21.6	0.19 × 0.19	32	0.09	10	0.5	4.3
57	17:01:16.0	−42:50:01	0.188	0.350	40.2 × 21.6	0.44 × 0.19	−22	0.14	15	0.4	1.8
58	17:00:03.0	−42:54:16	0.191	0.193	21.8 × 21.6	0.19 × 0.19	2	0.09	8	0.4	3.6
59	17:00:17.1	−42:48:10	0.189	0.334	38.1 × 21.6	0.41 × 0.19	21	0.14	14	0.4	1.9
60	17:01:15.3	−42:51:56	0.170	1.053	86.1 × 33.6	1.09 × 0.34	−2	0.30	46	0.4	0.6
61	17:00:41.9	−42:50:43	0.176	0.464	42.8 × 28.8	0.48 × 0.25	2	0.17	20	0.4	1.4
62	17:00:46.7	−42:58:12	0.171	0.308	37.8 × 22.2	0.41 × 0.19	−66	0.14	13	0.4	1.8
63	17:00:32.0	−42:50:13	0.173	0.240	28.9 × 22.4	0.25 × 0.19	55	0.11	10	0.4	2.9
64	17:00:44.2	−42:51:38	0.174	0.464	44.5 × 27.9	0.51 × 0.23	15	0.17	20	0.4	1.4
65	16:59:56.7	−42:43:25	0.171	0.173	21.8 × 21.6	0.19 × 0.19	9	0.09	7	0.4	3.2
66	17:00:02.2	−42:52:20	0.178	0.422	51.2 × 21.6	0.61 × 0.19	−35	0.17	18	0.4	1.4
67	17:00:35.4	−42:49:24	0.165	0.217	26.9 × 22.8	0.21 × 0.19	−31	0.10	9	0.4	3.4
68	17:01:03.5	−42:55:47	0.161	0.635	65.5 × 28.0	0.81 × 0.23	8	0.22	28	0.4	1.0
69	17:01:31.6	−42:50:49	0.208	0.211	21.8 × 21.6	0.19 × 0.19	0	0.09	9	0.5	4.0
70	17:01:31.7	−42:53:02	0.164	0.926	57.6 × 45.6	0.70 × 0.53	48	0.30	41	0.4	0.5
71	17:01:18.3	−42:49:32	0.168	0.170	21.8 × 21.6	0.19 × 0.19	34	0.09	7	0.4	3.2
72	17:00:37.5	−42:53:56	0.158	0.523	49.1 × 31.5	0.58 × 0.30	29	0.21	23	0.3	0.9

Table B.1. continued.

$N_{\rm cl}$	Position		$I_{\rm peak}$	S	$\theta_{\rm maj} \times \theta_{\rm min}$	$FWHM$	PA	$R_{\rm eff}$	M	$N_{\rm H_2}$	$n_{\rm H_2}$
	R.A.(J2000)	Decl.(J2000)	(Jy/beam)	(Jy)	($''\times\,''$)	(pc × pc)	(°)	(pc)	($M_\odot$)	($\times10^{22}$ cm^{-2})	($\times10^{4}$ cm^{-3})
73	17:01:21.3	−42:49:53	0.162	0.164	21.8 × 21.6	0.19 × 0.19	0	0.09	7	0.4	3.1
74	17:00:58.0	−42:48:56	0.157	0.282	38.3 × 21.8	0.41 × 0.19	−71	0.14	12	0.3	1.6
75	17:01:07.3	−42:43:00	0.148	0.590	47.7 × 39.0	0.56 × 0.42	−76	0.24	26	0.3	0.6
76	17:01:52.5	−42:46:22	0.148	0.568	48.9 × 36.6	0.57 × 0.39	−3	0.24	25	0.3	0.7
77	17:01:24.6	−42:45:09	0.146	0.211	30.9 × 21.8	0.29 × 0.19	−124	0.12	9	0.3	2.1
78	17:00:22.6	−42:54:57	0.147	0.390	35.2 × 35.1	0.36 × 0.36	1	0.18	17	0.3	1.0
79	17:01:19.5	−42:50:44	0.157	0.559	71.1 × 23.4	0.89 × 0.19	−82	0.20	24	0.3	1.0
80	17:01:22.3	−42:55:46	0.148	0.427	46.8 × 28.7	0.54 × 0.25	−17	0.18	18	0.3	1.1
81	17:02:09.8	−42:51:37	0.150	0.230	32.8 × 21.8	0.32 × 0.19	−100	0.12	10	0.3	1.9
82	17:01:51.5	−42:47:16	0.139	0.515	47.5 × 36.3	0.55 × 0.38	−109	0.23	22	0.3	0.6
83	16:59:56.7	−42:43:00	0.156	0.158	21.8 × 21.6	0.19 × 0.19	68	0.09	6	0.3	3.0
					IRDC G345						
1	17:05:10.8	−41:29:06	25.293	55.166	33.5 × 30.3	0.35 × 0.29	−63	0.16	2630	121.0	228.4
2	17:05:12.8	−41:28:11	3.185	34.502	77.5 × 65.2	1.01 × 0.84	−22	0.46	1645	75.7	5.9
3	17:05:23.1	−41:21:12	2.566	5.860	36.5 × 29.2	0.40 × 0.27	0	0.16	279	12.8	22.3
4	17:05:11.8	−41:29:50	2.587	8.664	40.0 × 39.1	0.46 × 0.44	65	0.22	413	19.0	12.6
5	17:05:07.1	−41:28:58	2.546	14.770	90.8 × 29.8	1.20 × 0.28	11	0.29	704	32.4	10.1
6	17:05:21.2	−41:31:30	2.269	20.300	77.3 × 54.0	1.01 × 0.67	−3	0.41	967	44.5	4.8
7	17:05:16.0	−41:26:39	2.169	31.890	94.9 × 72.2	1.25 × 0.94	15	0.54	1520	69.9	3.3
8	17:05:16.6	−41:24:51	1.984	12.413	67.1 × 43.5	0.86 × 0.51	24	0.33	591	27.2	5.6
9	17:05:36.2	−41:22:07	1.804	5.558	40.2 × 35.7	0.46 × 0.39	−109	0.21	265	12.2	9.8
10	17:05:08.6	−41:29:53	1.500	3.371	48.5 × 21.6	0.59 × 0.19	−11	0.17	160	7.4	11.5
11	17:05:14.1	−41:29:04	1.610	4.366	58.6 × 21.6	0.74 × 0.19	−14	0.19	208	9.6	10.6
12	17:05:10.3	−41:30:34	1.312	2.807	37.2 × 26.9	0.41 × 0.22	−117	0.15	133	6.2	14.0
13	17:04:54.7	−41:33:30	1.154	2.366	32.8 × 29.1	0.34 × 0.27	−47	0.15	112	5.2	11.8
14	17:05:13.1	−41:29:32	1.308	1.321	21.8 × 21.6	0.19 × 0.19	36	0.10	62	2.9	23.9
15	17:05:21.8	−41:26:33	1.079	3.352	51.1 × 28.4	0.63 × 0.25	−26	0.20	159	7.4	7.1
16	17:05:22.8	−41:32:51	1.054	3.616	49.2 × 32.5	0.60 × 0.33	−3	0.22	172	7.9	5.4
17	17:05:09.5	−41:28:26	1.150	1.162	21.8 × 21.6	0.19 × 0.19	75	0.10	55	2.5	21.1
18	17:05:26.1	−41:23:05	1.009	7.091	78.1 × 42.0	1.02 × 0.49	−1	0.35	338	15.5	2.7
19	17:04:59.0	−41:12:48	0.975	1.822	33.4 × 26.1	0.35 × 0.20	−105	0.13	86	4.0	13.3

Table B.1. continued.

$N_{\rm cl}$	Position		$I_{\rm peak}$	S	$\theta_{\rm maj} \times \theta_{\rm min}$	$FWHM$	PA	$R_{\rm eff}$	M	$N_{\rm H_2}$	$n_{\rm H_2}$
	R.A.(J2000)	Decl.(J2000)	(Jy/beam)	(Jy)	($''\times\ ''$)	(pc × pc)	(°)	(pc)	($M_\odot$)	($\times 10^{22}$ cm^{-2})	($\times 10^{4}$ cm^{-3})
20	17:05:16.7	−41:31:40	0.998	3.029	55.9 × 25.3	0.70 × 0.19	25	0.18	144	6.6	8.0
21	17:05:16.2	−41:23:34	0.793	3.521	64.9 × 31.9	0.83 × 0.32	−60	0.26	167	7.7	3.4
22	17:05:48.7	−41:17:27	0.715	1.402	34.4 × 26.6	0.36 × 0.21	−105	0.14	66	3.1	8.8
23	17:05:03.5	−41:31:11	0.686	2.295	49.6 × 31.4	0.61 × 0.31	−122	0.22	109	5.0	3.7
24	17:05:17.7	−41:25:43	0.731	2.004	44.6 × 28.6	0.53 × 0.26	−78	0.18	95	4.4	5.3
25	17:05:09.0	−41:29:36	0.743	0.751	21.8 × 21.6	0.19 × 0.19	−42	0.10	35	1.6	13.6
26	17:05:19.0	−41:18:14	0.637	1.593	36.7 × 31.7	0.40 × 0.32	−119	0.18	75	3.5	4.6
27	17:05:29.1	−41:26:23	0.626	4.894	70.9 × 51.5	0.92 × 0.63	21	0.38	233	10.7	1.5
28	17:05:23.3	−41:31:05	0.638	0.713	24.1 × 21.6	0.19 × 0.19	−66	0.10	33	1.6	12.9
29	17:05:10.1	−41:29:08	0.684	0.691	21.8 × 21.6	0.19 × 0.19	−68	0.10	32	1.5	12.5
30	17:05:48.7	−41:28:38	0.555	1.343	36.6 × 30.8	0.40 × 0.30	−93	0.17	64	2.9	4.3
31	17:06:25.0	−41:22:11	0.548	0.771	27.7 × 23.7	0.23 × 0.19	24	0.11	36	1.7	10.5
32	17:05:26.2	−41:21:27	0.553	1.645	52.1 × 26.6	0.64 × 0.21	14	0.18	78	3.6	4.3
33	17:06:23.1	−41:32:14	0.532	1.723	56.1 × 27.0	0.70 × 0.22	−49	0.20	82	3.8	3.8
34	17:05:16.8	−41:33:14	0.536	2.397	50.4 × 41.4	0.62 × 0.48	−7	0.27	114	5.3	2.0
35	17:05:32.5	−41:22:50	0.517	1.617	38.3 × 38.1	0.43 × 0.43	−76	0.21	77	3.5	2.7
36	17:05:04.0	−41:29:15	0.556	3.261	115.8 × 23.6	1.54 × 0.19	0	0.27	155	7.1	2.6
37	17:04:47.2	−41:14:04	0.502	0.768	26.7 × 26.7	0.21 × 0.21	55	0.11	36	1.7	10.5
38	17:05:15.3	−41:27:36	0.567	0.573	21.8 × 21.6	0.19 × 0.19	5	0.10	27	1.3	10.4
39	17:05:56.4	−41:29:41	0.512	3.314	89.9 × 33.6	1.19 × 0.35	−94	0.32	158	7.3	1.6
40	17:04:59.0	−41:17:37	0.477	0.676	29.9 × 22.1	0.28 × 0.19	41	0.12	32	1.5	7.1
41	17:05:28.7	−41:24:18	0.470	2.682	75.1 × 35.5	0.98 × 0.38	−5	0.31	127	5.9	1.6
42	17:05:13.1	−41:19:07	0.454	1.094	47.5 × 23.7	0.57 × 0.19	48	0.17	52	2.4	3.9
43	17:05:17.6	−41:32:26	0.461	1.316	60.9 × 21.9	0.77 × 0.19	−93	0.19	62	2.9	3.0
44	17:05:20.2	−41:28:17	0.448	1.420	51.4 × 28.8	0.63 × 0.26	−18	0.20	67	3.1	2.8
45	17:04:27.2	−41:20:53	0.411	1.912	60.2 × 36.0	0.76 × 0.39	41	0.27	91	4.2	1.6
46	17:05:58.9	−41:13:15	0.432	0.683	29.4 × 25.1	0.27 × 0.19	−83	0.11	32	1.5	7.5
47	17:05:11.3	−41:28:29	0.525	0.531	21.8 × 21.6	0.19 × 0.19	−103	0.10	25	1.2	9.6
48	17:04:59.2	−41:31:59	0.396	1.074	35.6 × 35.5	0.38 × 0.38	−83	0.19	51	2.4	2.5
49	17:04:32.5	−41:33:37	0.407	0.773	41.0 × 21.6	0.47 × 0.19	−26	0.15	36	1.7	3.7
50	17:05:24.3	−41:20:19	0.392	1.393	58.1 × 28.5	0.73 × 0.25	31	0.22	66	3.1	2.3

Table B.1. continued.

$N_{\rm cl}$	Position		$I_{\rm peak}$	S	$\theta_{\rm maj} \times \theta_{\rm min}$	$FWHM$	PA	$R_{\rm eff}$	M	$N_{\rm H_2}$	$n_{\rm H_2}$
	R.A.(J2000)	Decl.(J2000)	(Jy/beam)	(Jy)	($''\times\,''$)	(pc × pc)	(°)	(pc)	($M_\odot$)	($\times10^{22}$ cm^{-2})	($\times10^{4}$ cm^{-3})
51	17:05:26.5	−41:27:14	0.388	1.142	42.5 × 32.2	0.50 × 0.33	−55	0.20	54	2.5	2.3
52	17:05:10.8	−41:30:18	0.524	0.531	21.9 × 21.6	0.19 × 0.19	−90	0.10	25	1.2	9.6
53	17:05:21.7	−41:25:28	0.393	0.530	29.1 × 21.6	0.26 × 0.19	−4	0.11	25	1.2	6.0
54	17:05:35.5	−41:18:25	0.364	1.660	56.1 × 37.9	0.70 × 0.42	47	0.27	79	3.6	1.4
55	17:05:08.0	−41:28:44	0.461	0.466	21.8 × 21.6	0.19 × 0.19	−2	0.10	22	1.0	8.5
56	17:05:12.6	−41:25:08	0.398	1.512	54.4 × 32.6	0.68 × 0.33	−9	0.24	72	3.3	1.9
57	17:05:09.1	−41:26:07	0.395	1.526	63.3 × 28.5	0.81 × 0.25	39	0.23	72	3.3	2.2
58	17:04:59.0	−41:18:49	0.354	1.135	43.1 × 34.7	0.51 × 0.37	−89	0.22	54	2.5	1.9
59	17:05:20.7	−41:24:48	0.383	0.626	34.2 × 22.2	0.36 × 0.19	50	0.13	29	1.4	4.5
60	17:05:24.2	−41:32:07	0.356	0.818	49.2 × 21.8	0.60 × 0.19	−92	0.17	39	1.8	2.7
61	17:05:25.2	−41:19:13	0.331	1.741	61.0 × 40.2	0.77 × 0.46	13	0.30	83	3.8	1.1
62	17:05:18.2	−41:31:23	0.387	0.391	21.8 × 21.6	0.19 × 0.19	−88	0.10	18	0.9	7.1
63	17:05:43.0	−41:24:12	0.341	1.099	50.7 × 29.7	0.62 × 0.28	−17	0.21	52	2.4	2.0
64	17:05:30.2	−41:23:11	0.352	0.571	31.5 × 24.0	0.31 × 0.19	−19	0.12	27	1.3	5.1
65	17:05:05.4	−41:28:29	0.368	0.371	21.8 × 21.6	0.19 × 0.19	16	0.10	17	0.8	6.7
66	17:04:52.7	−41:13:25	0.322	0.966	55.8 × 25.1	0.70 × 0.19	−121	0.18	46	2.1	2.6
67	17:05:34.5	−41:15:17	0.338	0.776	46.9 × 22.8	0.57 × 0.19	−22	0.17	36	1.7	2.8
68	17:05:33.7	−41:25:18	0.326	0.431	28.1 × 21.9	0.25 × 0.19	−51	0.11	20	0.9	5.5
69	17:05:44.5	−41:19:45	0.328	0.729	40.8 × 25.4	0.47 × 0.19	51	0.15	34	1.6	3.5
70	17:06:02.2	−41:19:38	0.322	0.830	43.9 × 27.4	0.52 × 0.23	64	0.17	39	1.8	2.7
71	17:05:26.0	−41:24:30	0.335	0.929	56.5 × 22.9	0.71 × 0.19	1	0.19	44	2.0	2.4
72	17:04:44.0	−41:32:28	0.314	1.126	46.2 × 36.2	0.55 × 0.39	22	0.23	53	2.5	1.5
73	17:05:01.1	−41:28:47	0.365	1.325	47.8 × 35.4	0.58 × 0.38	20	0.23	63	2.9	1.7
74	17:05:32.0	−41:33:00	0.317	0.712	38.2 × 27.4	0.43 × 0.23	−86	0.16	33	1.6	3.1
75	17:05:27.1	−41:25:56	0.324	0.392	25.9 × 21.8	0.19 × 0.19	−106	0.10	18	0.9	7.1
76	17:06:05.0	−41:29:05	0.306	0.555	29.2 × 29.0	0.27 × 0.26	66	0.13	26	1.2	3.9
77	17:05:07.3	−41:30:47	0.364	1.205	71.5 × 21.6	0.92 × 0.19	−7	0.21	57	2.6	2.1
78	17:05:30.3	−41:15:37	0.315	0.473	32.1 × 21.8	0.32 × 0.19	−90	0.13	22	1.0	4.0
79	17:05:31.3	−41:18:50	0.304	0.504	34.6 × 22.4	0.37 × 0.19	−82	0.13	24	1.1	3.5
80	17:05:14.3	−41:26:58	0.328	0.531	35.0 × 21.6	0.37 × 0.19	−53	0.13	25	1.2	3.6
81	17:05:34.5	−41:17:24	0.285	0.822	41.0 × 32.8	0.47 × 0.34	7	0.20	39	1.8	1.7

Table B.1. continued.

$N_{\rm cl}$	Position		$I_{\rm peak}$	S	$\theta_{\rm maj} \times \theta_{\rm min}$	$FWHM$	PA	$R_{\rm eff}$	M	$N_{\rm H_2}$	$n_{\rm H_2}$
	R.A.(J2000)	Decl.(J2000)	(Jy/beam)	(Jy)	($''\times\ ''$)	(pc × pc)	(°)	(pc)	($M_\odot$)	($\times 10^{22}$ cm^{-2})	($\times 10^{4}$ cm^{-3})
82	17:04:45.0	−41:19:45	0.269	0.802	52.8 × 26.3	0.65 × 0.20	−90	0.18	38	1.8	2.2
83	17:05:38.2	−41:22:30	0.278	0.673	52.3 × 21.6	0.65 × 0.19	49	0.18	32	1.5	2.0
84	17:05:01.8	−41:30:06	0.319	0.927	44.2 × 30.7	0.52 × 0.30	0	0.20	44	2.0	2.0
85	17:05:14.5	−41:32:18	0.293	0.700	51.6 × 21.6	0.64 × 0.19	−30	0.18	33	1.5	2.1
86	17:04:56.4	−41:35:39	0.269	0.841	50.9 × 28.7	0.63 × 0.26	51	0.20	40	1.8	1.7
87	17:05:28.1	−41:29:39	0.255	0.896	48.2 × 33.9	0.59 × 0.35	27	0.23	42	2.0	1.3
88	17:04:33.0	−41:21:39	0.249	1.460	56.1 × 48.6	0.70 × 0.59	−58	0.32	69	3.2	0.7
89	17:04:37.0	−41:15:46	0.250	0.556	41.5 × 25.0	0.48 × 0.19	35	0.15	26	1.2	2.6
90	17:06:19.1	−41:22:54	0.242	0.644	45.0 × 27.6	0.54 × 0.23	55	0.18	30	1.4	1.9
91	17:05:15.0	−41:25:25	0.299	0.302	21.9 × 21.6	0.19 × 0.19	−34	0.10	14	0.7	5.5
92	17:04:44.0	−41:28:15	0.244	0.553	47.3 × 22.3	0.57 × 0.19	11	0.17	26	1.2	2.0
93	17:05:19.3	−41:26:05	0.302	0.305	21.8 × 21.6	0.19 × 0.19	−68	0.10	14	0.7	5.5
94	17:05:16.2	−41:18:32	0.246	0.334	29.3 × 21.6	0.27 × 0.19	−30	0.11	15	0.7	3.7
95	17:05:20.8	−41:27:16	0.297	0.772	55.2 × 22.0	0.69 × 0.19	−2	0.18	36	1.7	2.1
96	17:05:26.7	−41:32:19	0.262	0.504	32.4 × 27.6	0.33 × 0.23	−75	0.14	24	1.1	3.1
97	17:05:57.4	−41:28:46	0.233	0.710	43.2 × 33.0	0.51 × 0.34	51	0.21	33	1.6	1.3
98	17:05:18.5	−41:20:16	0.225	1.143	59.9 × 39.7	0.76 × 0.45	−58	0.29	54	2.5	0.8
99	17:05:11.8	−41:27:06	0.327	0.384	25.3 × 21.6	0.19 × 0.19	−38	0.10	18	0.8	7.0
100	17:05:19.7	−41:30:42	0.273	0.275	21.8 × 21.6	0.19 × 0.19	1	0.10	13	0.6	5.0
101	17:05:39.7	−41:21:52	0.228	0.232	22.0 × 21.6	0.19 × 0.19	19	0.10	11	0.5	4.2
102	17:05:17.1	−41:27:26	0.258	0.261	21.8 × 21.6	0.19 × 0.19	−64	0.10	12	0.6	4.7
103	17:05:15.0	−41:27:45	0.279	0.282	21.8 × 21.6	0.19 × 0.19	0	0.10	13	0.6	5.1
104	17:05:50.4	−41:21:40	0.230	0.555	38.4 × 29.3	0.43 × 0.27	−46	0.17	26	1.2	1.9
105	17:05:24.1	−41:30:28	0.251	0.361	29.7 × 22.6	0.28 × 0.19	−121	0.12	17	0.8	3.8
106	17:04:56.9	−41:13:04	0.220	0.425	41.8 × 21.6	0.49 × 0.19	−44	0.15	20	0.9	1.9
107	17:05:20.7	−41:21:41	0.228	0.235	22.2 × 21.6	0.19 × 0.19	−72	0.10	11	0.5	4.3
108	17:05:30.3	−41:25:12	0.231	0.294	27.5 × 21.6	0.23 × 0.19	27	0.11	14	0.6	4.1
109	17:05:40.7	−41:20:03	0.210	0.354	35.8 × 21.9	0.39 × 0.19	−64	0.14	16	0.8	2.3
110	17:05:25.1	−41:26:36	0.241	0.518	46.5 × 21.6	0.56 × 0.19	9	0.16	24	1.1	1.9
111	17:05:28.7	−41:20:57	0.226	0.330	31.6 × 21.6	0.31 × 0.19	5	0.12	15	0.7	2.9
112	17:05:15.1	−41:24:00	0.231	0.233	21.8 × 21.6	0.19 × 0.19	−17	0.10	11	0.5	4.2

Table B.1. continued.

$N_{\rm cl}$	Position		$I_{\rm peak}$	S	$\theta_{\rm maj} \times \theta_{\rm min}$	$FWHM$	PA	$R_{\rm eff}$	M	$N_{\rm H_2}$	$n_{\rm H_2}$
	R.A.(J2000)	Decl.(J2000)	(Jy/beam)	(Jy)	($''\times\ ''$)	(pc × pc)	(°)	(pc)	($M_\odot$)	($\times10^{22}$ cm^{-2})	($\times10^{4}$ cm^{-3})
113	17:05:41.7	−41:21:16	0.206	0.291	30.5 × 21.6	0.29 × 0.19	−71	0.12	13	0.6	2.8
114	17:05:00.6	−41:34:21	0.206	0.414	42.9 × 21.8	0.50 × 0.19	−103	0.16	19	0.9	1.8
115	17:04:41.4	−41:14:52	0.204	0.264	28.0 × 21.6	0.24 × 0.19	76	0.11	12	0.6	3.5
116	17:05:05.0	−41:13:40	0.209	0.212	21.9 × 21.6	0.19 × 0.19	40	0.10	10	0.5	3.8
117	17:04:52.7	−41:14:24	0.199	0.660	50.8 × 30.5	0.62 × 0.29	−50	0.21	31	1.4	1.1
118	17:06:02.2	−41:29:22	0.199	0.291	31.5 × 21.6	0.31 × 0.19	52	0.12	13	0.6	2.6
119	17:05:23.8	−41:33:49	0.210	0.538	52.4 × 22.9	0.65 × 0.19	24	0.18	25	1.2	1.6
120	17:05:20.5	−41:32:54	0.209	0.211	21.8 × 21.6	0.19 × 0.19	4	0.10	10	0.5	3.8
121	17:05:10.8	−41:31:22	0.207	0.375	35.8 × 23.6	0.39 × 0.19	20	0.14	17	0.8	2.4
122	17:05:18.2	−41:27:45	0.210	0.213	21.8 × 21.6	0.19 × 0.19	−26	0.10	10	0.5	3.9
123	17:05:34.5	−41:22:30	0.202	0.204	21.9 × 21.6	0.19 × 0.19	−61	0.10	9	0.4	3.7

Table B.2. Sources found with *Clumpfind* and derived physical parameters.

$N_{\rm cl}$	Position		$I_{\rm peak}$	S	$R_{\rm eff}$	M	$N_{\rm H_2}$	$n_{\rm H_2}$
	R.A.(J2000)	Decl.(J2000)	(Jy/beam)	(Jy)	(pc)	($M_\odot$)	($\times10^{22}$ cm^{-2})	($\times10^{4}$ cm^{-3})
IRDC G329								
1	16:00:31.2	−53:11:35	12.422	36.836	0.75	1884	27.2	1.6
2	16:00:32.5	−53:11:11	12.251	33.915	0.92	1734	26.9	0.8
3	16:01:47.7	−53:12:18	8.914	26.139	0.83	1336	19.5	0.8
4	16:01:10.3	−53:07:57	5.083	24.868	0.94	1271	11.1	0.5
5	16:01:34.2	−53:12:48	2.325	5.511	0.59	281	5.1	0.5
6	16:01:55.7	−53:09:03	0.704	1.454	0.42	74	1.5	0.4
7	16:01:43.4	−53:05:19	0.565	0.696	0.27	35	1.2	0.6
8	16:00:26.5	−53:12:36	0.564	2.097	0.45	107	1.2	0.4
9	16:00:17.1	−53:14:44	0.561	2.087	0.50	106	1.2	0.3
10	16:00:21.1	−53:12:06	0.505	3.526	0.68	180	1.1	0.2
11	16:01:55.0	−53:11:47	0.487	1.330	0.37	68	1.1	0.5
12	16:00:17.7	−53:15:14	0.487	1.532	0.40	78	1.1	0.4
13	16:00:56.9	−53:06:44	0.486	2.364	0.56	120	1.1	0.2
14	16:00:20.3	−53:16:27	0.440	1.743	0.46	89	1.0	0.3
15	16:00:12.3	−53:15:26	0.433	1.443	0.41	73	0.9	0.4
16	16:01:40.7	−53:04:48	0.411	0.711	0.29	36	0.9	0.5
17	16:01:56.5	−53:16:57	0.394	0.424	0.22	21	0.9	0.7
18	15:59:43.2	−53:11:05	0.368	1.822	0.54	93	0.8	0.2
19	16:00:57.5	−53:08:21	0.367	1.219	0.45	62	0.8	0.2
20	16:00:54.2	−53:08:15	0.345	0.552	0.26	28	0.8	0.6
21	16:00:48.2	−53:08:57	0.345	0.712	0.31	36	0.8	0.4
22	16:01:17.2	−53:09:09	0.328	0.582	0.28	29	0.7	0.4
23	16:01:44.7	−53:06:31	0.272	0.270	0.17	13	0.6	1.0
24	16:00:23.7	−53:12:36	0.271	0.658	0.30	33	0.6	0.4
25	16:01:57.0	−53:12:06	0.265	0.361	0.20	18	0.6	0.8
26	16:00:38.7	−53:12:30	0.261	0.608	0.29	31	0.6	0.4
27	16:01:55.2	−53:18:10	0.260	0.327	0.19	16	0.6	0.9
28	16:01:49.7	−53:17:03	0.255	0.324	0.19	16	0.6	0.9
29	16:01:53.2	−53:16:39	0.227	0.245	0.18	12	0.5	0.7
30	16:01:48.9	−53:08:09	0.223	0.350	0.24	17	0.5	0.5
31	16:01:46.7	−53:05:43	0.212	0.268	0.19	13	0.5	0.7
32	16:01:03.0	−53:05:55	0.205	0.402	0.26	20	0.4	0.4
33	16:01:58.5	−53:12:24	0.203	0.230	0.17	11	0.4	0.9
34	16:01:44.0	−53:04:36	0.202	0.238	0.17	12	0.4	0.8
35	16:01:16.5	−53:07:26	0.195	0.407	0.26	20	0.4	0.4
36	16:01:42.7	−53:06:07	0.186	0.218	0.17	11	0.4	0.7
37	16:00:31.2	−53:08:15	0.186	0.253	0.19	12	0.4	0.7
38	16:00:44.7	−53:10:41	0.186	0.469	0.29	23	0.4	0.3
39	16:01:55.2	−53:14:44	0.185	0.318	0.23	16	0.4	0.5
IRDC G331								
1	16:10:27.7	−51:19:13	1.995	8.787	0.72	513	4.4	0.5
2	16:10:23.8	−51:18:25	1.228	5.321	0.56	311	2.7	0.6
3	16:11:10.5	−51:14:16	1.183	7.335	0.86	428	2.6	0.2
4	16:10:49.7	−51:11:44	1.094	3.488	0.55	203	2.4	0.4
5	16:11:07.8	−51:10:55	1.088	5.780	0.60	337	2.4	0.5
6	16:10:09.5	−51:25:54	1.060	2.692	0.49	157	2.3	0.5
7	16:10:09.6	−51:19:07	0.994	2.237	0.40	130	2.2	0.7
8	16:11:10.3	−51:13:09	0.956	4.589	0.58	268	2.1	0.5

Table B.2. continued.

$N_{\rm cl}$	Position		$I_{\rm peak}$	S	$R_{\rm eff}$	M	$N_{\rm H_2}$	$n_{\rm H_2}$
	R.A.(J2000)	Decl.(J2000)	(Jy/beam)	(Jy)	(pc)	($M_\odot$)	($\times10^{22}$ cm^{-2})	($\times10^{4}$ cm^{-3})
9	16:11:10.3	−51:12:08	0.930	3.592	0.49	209	2.0	0.6
10	16:10:36.2	−51:18:31	0.895	2.843	0.57	166	2.0	0.3
11	16:11:03.2	−51:10:19	0.878	3.892	0.62	227	1.9	0.3
12	16:10:50.4	−51:26:37	0.811	1.538	0.36	89	1.8	0.6
13	16:10:29.7	−51:17:54	0.768	3.081	0.53	180	1.7	0.4
14	16:10:05.0	−51:18:25	0.632	1.902	0.42	111	1.4	0.5
15	16:11:15.6	−51:12:14	0.610	1.222	0.35	71	1.3	0.6
16	16:10:25.7	−51:21:03	0.563	2.051	0.54	119	1.2	0.3
17	16:10:09.6	−51:16:47	0.531	1.313	0.38	76	1.2	0.5
18	16:10:19.2	−51:17:00	0.469	1.994	0.48	116	1.0	0.4
19	16:10:25.2	−51:14:28	0.466	1.579	0.47	92	1.0	0.3
20	16:10:14.8	−51:16:53	0.464	1.587	0.43	92	1.0	0.4
21	16:11:14.3	−51:20:08	0.360	0.412	0.20	24	0.8	1.0
22	16:10:14.1	−51:18:55	0.360	0.836	0.34	48	0.8	0.4
23	16:11:08.6	−51:20:02	0.351	0.323	0.17	18	0.8	1.3
24	16:10:23.2	−51:20:02	0.331	1.340	0.46	78	0.7	0.3
25	16:11:04.0	−51:12:26	0.321	0.693	0.30	40	0.7	0.5
26	16:09:41.7	−51:17:54	0.317	0.680	0.32	39	0.7	0.4
27	16:10:22.6	−51:12:51	0.268	0.436	0.25	25	0.6	0.6
28	16:09:43.7	−51:18:19	0.264	0.366	0.22	21	0.6	0.7
29	16:11:02.0	−51:24:17	0.248	0.416	0.25	24	0.5	0.5
30	16:09:52.2	−51:09:48	0.242	0.999	0.44	58	0.5	0.2
31	16:10:01.7	−51:24:35	0.234	0.253	0.17	14	0.5	1.0
32	16:11:14.3	−51:20:56	0.226	0.337	0.23	19	0.5	0.6
33	16:10:54.9	−51:11:25	0.222	0.313	0.21	18	0.5	0.7
			IRDC G335					
1	16:29:23.1	−48:47:32	8.277	30.563	0.99	1672	18.1	0.6
2	16:30:06.4	−49:11:14	3.860	13.779	0.69	754	8.5	0.8
3	16:29:01.2	−49:09:24	2.955	7.169	0.60	392	6.5	0.6
4	16:29:41.5	−48:57:58	2.363	8.171	0.73	447	5.2	0.4
5	16:30:08.8	−49:11:56	2.074	12.330	0.71	674	4.5	0.7
6	16:30:14.3	−49:12:51	1.689	8.950	0.75	489	3.7	0.4
7	16:29:17.6	−48:47:45	1.098	4.841	0.56	264	2.4	0.5
8	16:29:02.5	−49:08:48	0.932	3.264	0.42	178	2.0	0.9
9	16:29:03.9	−49:00:18	0.920	6.507	0.76	356	2.0	0.3
10	16:28:51.4	−49:09:18	0.842	1.728	0.37	94	1.8	0.6
11	16:29:07.5	−49:08:36	0.829	3.334	0.57	182	1.8	0.3
12	16:30:10.0	−49:07:35	0.782	0.858	0.25	46	1.7	1.0
13	16:29:38.5	−49:00:54	0.748	5.321	0.74	291	1.6	0.2
14	16:29:16.2	−48:48:33	0.724	4.461	0.66	244	1.6	0.3
15	16:30:02.0	−49:11:50	0.703	4.968	0.73	271	1.5	0.2
16	16:29:03.7	−49:08:05	0.697	2.190	0.43	119	1.5	0.5
17	16:29:47.0	−48:55:08	0.696	2.691	0.56	147	1.5	0.3
18	16:29:39.7	−48:59:23	0.658	3.813	0.56	208	1.4	0.4
19	16:28:52.0	−49:08:42	0.640	2.053	0.53	112	1.4	0.3
20	16:29:50.7	−48:49:16	0.637	2.742	0.56	150	1.4	0.3
21	16:28:57.0	−48:58:16	0.599	2.924	0.59	160	1.3	0.3
22	16:29:32.9	−49:00:36	0.590	5.640	0.79	308	1.3	0.2
23	16:29:11.8	−48:58:53	0.583	3.566	0.64	195	1.3	0.3

Table B.2. continued.

$N_{\rm cl}$	Position		$I_{\rm peak}$	S	$R_{\rm eff}$	M	$N_{\rm H_2}$	$n_{\rm H_2}$
	R.A.(J2000)	Decl.(J2000)	(Jy/beam)	(Jy)	(pc)	($M_\odot$)	($\times 10^{22}$ cm^{-2})	($\times 10^{4}$ cm^{-3})
24	16:29:10.1	−49:00:06	0.570	2.938	0.56	160	1.2	0.3
25	16:29:02.0	−48:57:52	0.541	3.725	0.64	203	1.2	0.3
26	16:29:21.2	−48:58:59	0.536	2.363	0.58	129	1.2	0.2
27	16:29:42.0	−48:48:39	0.527	1.870	0.46	102	1.2	0.4
28	16:29:18.7	−48:59:23	0.516	2.265	0.45	123	1.1	0.5
29	16:29:23.6	−49:04:45	0.513	0.402	0.22	22	1.1	0.7
30	16:29:39.7	−48:58:53	0.472	1.427	0.40	78	1.0	0.4
31	16:29:46.5	−49:04:02	0.454	2.317	0.53	126	1.0	0.3
32	16:29:32.9	−48:49:58	0.448	2.864	0.56	156	1.0	0.3
33	16:29:27.2	−49:03:08	0.440	1.834	0.56	100	1.0	0.2
34	16:29:34.7	−48:50:16	0.430	1.566	0.46	85	0.9	0.3
35	16:29:48.2	−48:56:15	0.425	2.512	0.62	137	0.9	0.2
36	16:29:06.9	−49:11:08	0.424	1.272	0.41	69	0.9	0.3
37	16:29:52.7	−49:05:40	0.423	1.878	0.58	102	0.9	0.2
38	16:28:55.0	−49:09:06	0.417	1.513	0.43	82	0.9	0.4
39	16:29:39.7	−49:13:21	0.409	0.923	0.38	50	0.9	0.3
40	16:29:58.9	−49:02:13	0.408	1.342	0.43	73	0.9	0.3
41	16:30:01.2	−49:01:37	0.407	1.353	0.44	74	0.9	0.3
42	16:29:40.2	−49:12:33	0.397	0.628	0.31	34	0.9	0.4
43	16:28:56.5	−48:56:51	0.393	1.930	0.57	105	0.9	0.2
44	16:30:09.3	−48:59:29	0.379	1.191	0.42	65	0.8	0.3
45	16:29:09.5	−48:57:15	0.373	1.430	0.50	78	0.8	0.2
46	16:29:26.7	−49:04:51	0.360	0.556	0.25	30	0.8	0.6
47	16:30:08.8	−49:10:19	0.357	1.721	0.50	94	0.8	0.3
48	16:30:11.3	−49:10:25	0.356	1.482	0.48	81	0.8	0.3
49	16:29:50.7	−49:02:19	0.354	2.512	0.65	137	0.8	0.2
50	16:29:39.7	−49:04:21	0.351	1.454	0.53	79	0.8	0.2
51	16:29:08.8	−48:48:03	0.341	0.989	0.43	54	0.7	0.2
52	16:29:42.7	−49:03:32	0.324	2.215	0.59	121	0.7	0.2
53	16:29:28.6	−48:54:01	0.311	0.491	0.27	26	0.7	0.5
54	16:29:37.2	−48:53:55	0.310	1.149	0.42	62	0.7	0.3
55	16:30:13.6	−48:59:41	0.303	0.731	0.34	40	0.7	0.4
56	16:29:19.2	−49:00:18	0.293	1.922	0.58	105	0.6	0.2
57	16:30:10.5	−48:58:34	0.291	0.501	0.28	27	0.6	0.4
58	16:29:06.3	−49:07:29	0.291	0.677	0.33	37	0.6	0.4
59	16:29:51.4	−49:03:08	0.290	1.028	0.42	56	0.6	0.3
60	16:29:35.4	−48:53:13	0.279	0.979	0.41	53	0.6	0.3
61	16:29:10.0	−49:11:20	0.270	0.443	0.28	24	0.6	0.4
62	16:30:05.6	−49:07:53	0.268	0.526	0.29	28	0.6	0.4
63	16:29:54.0	−49:08:54	0.259	0.908	0.42	49	0.6	0.2
64	16:29:26.7	−48:49:58	0.258	1.058	0.47	57	0.6	0.2
65	16:29:49.5	−49:04:57	0.256	1.290	0.52	70	0.6	0.2
66	16:29:45.9	−49:10:56	0.253	0.745	0.39	40	0.6	0.2
67	16:29:37.7	−48:52:48	0.244	0.666	0.36	36	0.5	0.3
68	16:29:37.7	−48:49:16	0.236	0.816	0.40	44	0.5	0.2
69	16:29:23.6	−49:05:09	0.228	0.368	0.23	20	0.5	0.5
70	16:29:42.7	−49:07:35	0.225	0.652	0.36	35	0.5	0.3
71	16:29:10.1	−48:48:45	0.225	0.880	0.42	48	0.5	0.2
72	16:28:59.5	−49:00:00	0.224	1.263	0.51	69	0.5	0.2

Table B.2. continued.

$N_{\rm cl}$	Position		$I_{\rm peak}$	S	$R_{\rm eff}$	M	$N_{\rm H_2}$	$n_{\rm H_2}$
	R.A.(J2000)	Decl.(J2000)	(Jy/beam)	(Jy)	(pc)	($M_\odot$)	($\times10^{22}$ cm^{-2})	($\times10^{4}$ cm^{-3})
73	16:29:30.5	−48:54:25	0.223	0.320	0.23	17	0.5	0.5
74	16:29:51.5	−49:10:25	0.222	0.438	0.28	23	0.5	0.4
75	16:30:14.3	−49:02:44	0.210	0.218	0.17	11	0.5	0.8
76	16:29:15.6	−49:10:56	0.207	0.258	0.19	14	0.5	0.7
77	16:29:23.6	−49:10:25	0.197	0.388	0.29	21	0.4	0.3
78	16:29:34.2	−48:52:00	0.194	0.520	0.35	28	0.4	0.2
79	16:29:57.0	−49:06:04	0.191	0.480	0.32	26	0.4	0.3
80	16:30:20.6	−49:11:08	0.186	0.193	0.17	10	0.4	0.8
81	16:29:03.2	−49:10:43	0.179	0.426	0.29	23	0.4	0.3
82	16:29:26.7	−49:00:54	0.173	0.591	0.37	32	0.4	0.2
83	16:29:43.4	−48:49:10	0.166	0.332	0.26	18	0.4	0.3
84	16:29:47.0	−48:48:15	0.163	0.353	0.26	19	0.4	0.4
			IRDC G337					
1	16:36:42.9	−47:46:26	9.870	30.176	0.63	1651	21.6	2.3
2	16:36:46.5	−47:46:14	6.043	27.687	0.98	1515	13.3	0.6
3	16:37:48.5	−47:38:56	2.294	10.647	0.62	582	5.0	0.9
4	16:37:51.0	−47:39:21	1.662	9.639	0.67	527	3.6	0.6
5	16:37:40.7	−47:38:44	1.341	8.418	0.68	460	2.9	0.5
6	16:37:36.0	−47:38:26	1.008	4.412	0.54	241	2.2	0.5
7	16:38:23.6	−47:47:21	0.808	2.282	0.55	124	1.8	0.3
8	16:37:58.7	−47:40:34	0.738	3.679	0.55	201	1.6	0.4
9	16:37:27.0	−47:36:25	0.737	3.943	0.73	215	1.6	0.2
10	16:36:36.9	−47:46:20	0.723	2.359	0.42	129	1.6	0.6
11	16:37:57.0	−47:40:40	0.719	3.567	0.49	195	1.6	0.6
12	16:37:29.3	−47:37:19	0.673	2.202	0.49	120	1.5	0.4
13	16:37:48.5	−47:40:28	0.665	3.214	0.57	175	1.5	0.3
14	16:38:58.4	−47:42:41	0.631	2.479	0.59	135	1.4	0.2
15	16:36:40.0	−47:41:16	0.602	0.697	0.24	38	1.3	0.9
16	16:37:55.7	−47:32:16	0.544	0.984	0.36	53	1.2	0.4
17	16:38:00.0	−47:41:34	0.520	1.572	0.39	86	1.1	0.5
18	16:38:07.9	−47:42:53	0.502	1.995	0.52	109	1.1	0.3
19	16:38:03.0	−47:41:53	0.495	2.634	0.54	144	1.1	0.3
20	16:38:00.6	−47:41:04	0.487	1.305	0.31	71	1.1	0.8
21	16:38:15.6	−47:44:24	0.443	1.749	0.52	95	1.0	0.2
22	16:38:06.0	−47:42:47	0.415	0.856	0.37	46	0.9	0.3
23	16:37:32.4	−47:37:37	0.414	2.360	0.58	129	0.9	0.2
24	16:38:05.4	−47:40:28	0.405	2.252	0.59	123	0.9	0.2
25	16:36:58.7	−47:41:22	0.395	2.515	0.71	137	0.9	0.1
26	16:37:52.7	−47:38:02	0.380	2.295	0.64	125	0.8	0.2
27	16:38:13.3	−47:43:30	0.311	1.254	0.48	68	0.7	0.2
28	16:38:47.0	−47:45:50	0.307	0.594	0.31	32	0.7	0.4
29	16:38:53.5	−47:40:52	0.289	0.660	0.35	36	0.6	0.3
30	16:36:54.0	−47:36:00	0.287	0.703	0.36	38	0.6	0.3
31	16:36:53.7	−47:42:17	0.280	0.826	0.40	45	0.6	0.2
32	16:36:49.0	−47:39:51	0.264	0.622	0.34	34	0.6	0.3
33	16:38:26.0	−47:46:38	0.257	0.657	0.38	35	0.6	0.2
34	16:38:38.0	−47:46:26	0.248	0.350	0.25	19	0.5	0.4
35	16:38:33.7	−47:47:45	0.227	0.454	0.30	24	0.5	0.3
36	16:37:36.0	−47:39:33	0.222	0.454	0.29	24	0.5	0.4

Table B.2. continued.

$N_{\rm cl}$	Position		$I_{\rm peak}$	S	$R_{\rm eff}$	M	$N_{\rm H_2}$	$n_{\rm H_2}$
	R.A.(J2000)	Decl.(J2000)	(Jy/beam)	(Jy)	(pc)	($M_\odot$)	($\times10^{22}$ cm^{-2})	($\times10^{4}$ cm^{-3})
37	16:36:59.7	−47:43:24	0.219	0.368	0.27	20	0.5	0.4
38	16:37:10.1	−47:36:06	0.219	0.345	0.24	18	0.5	0.4
39	16:36:40.0	−47:43:24	0.217	0.211	0.17	11	0.5	0.9
40	16:38:33.7	−47:46:32	0.214	0.347	0.24	18	0.5	0.5
41	16:36:58.5	−47:47:21	0.211	0.300	0.23	16	0.5	0.5
42	16:38:24.7	−47:45:43	0.206	0.334	0.26	18	0.5	0.3
43	16:37:05.1	−47:47:15	0.200	0.424	0.29	23	0.4	0.3
44	16:38:14.5	−47:41:34	0.197	0.556	0.36	30	0.4	0.2
45	16:37:34.7	−47:34:11	0.192	0.233	0.19	12	0.4	0.6
46	16:37:05.8	−47:46:44	0.186	0.237	0.20	12	0.4	0.6
47	16:36:45.5	−47:37:25	0.182	0.387	0.29	21	0.4	0.3
48	16:37:36.5	−47:32:09	0.181	0.286	0.23	15	0.4	0.4
49	16:37:07.1	−47:35:06	0.179	0.280	0.23	15	0.4	0.4
50	16:36:50.9	−47:36:25	0.179	0.289	0.23	15	0.4	0.4
51	16:37:20.3	−47:35:12	0.177	0.337	0.27	18	0.4	0.3
52	16:38:34.4	−47:46:50	0.163	0.252	0.22	13	0.4	0.5
53	16:38:11.5	−47:41:40	0.157	0.366	0.28	20	0.3	0.3
			IRDC G343					
1	17:01:33.9	−42:48:35	1 3.253	20.415	0.96	905	7.1	0.4
2	17:01:18.3	−42:49:17	2 2.383	7.607	0.68	337	5.2	0.4
3	17:01:32.7	−42:49:17	3 2.191	8.233	0.64	365	4.8	0.5
4	17:00:19.8	−42:49:42	4 1.155	5.081	0.57	225	2.5	0.4
5	17:00:32.0	−42:44:56	5 0.825	5.076	0.68	225	1.8	0.2
6	17:01:00.8	−42:50:48	6 0.819	6.708	0.80	297	1.8	0.2
7	16:59:53.7	−42:55:28	7 0.725	1.608	0.40	71	1.6	0.4
8	16:59:53.2	−42:56:23	8 0.699	1.756	0.35	77	1.5	0.6
9	16:59:58.5	−42:44:38	9 0.698	1.285	0.32	56	1.5	0.6
10	17:00:06.1	−42:44:56	10 0.677	2.343	0.49	103	1.5	0.3
11	17:00:39.7	−42:47:22	11 0.663	2.761	0.57	122	1.5	0.2
12	16:59:57.0	−42:56:41	12 0.572	1.684	0.39	74	1.3	0.4
13	17:00:20.3	−42:50:36	13 0.541	2.299	0.44	101	1.2	0.4
14	17:00:25.3	−42:50:48	14 0.539	1.573	0.37	69	1.2	0.5
15	17:00:16.0	−42:49:30	15 0.535	1.573	0.39	69	1.2	0.4
16	17:00:23.7	−42:51:01	16 0.500	0.943	0.26	41	1.1	0.8
17	17:00:29.7	−42:50:55	17 0.457	2.107	0.47	93	1.0	0.3
18	17:00:27.6	−42:51:25	18 0.439	1.231	0.31	54	1.0	0.6
19	17:02:10.3	−42:46:39	19 0.433	1.095	0.36	48	0.9	0.4
20	17:02:04.8	−42:46:52	20 0.423	1.154	0.36	51	0.9	0.4
21	17:02:08.6	−42:46:27	21 0.420	0.903	0.26	40	0.9	0.8
22	17:00:03.4	−42:44:44	22 0.414	0.720	0.29	31	0.9	0.5
23	17:01:47.0	−42:47:28	23 0.409	2.130	0.52	94	0.9	0.2
24	17:00:27.6	−42:52:01	24 0.399	1.992	0.47	88	0.9	0.3
25	17:00:47.5	−42:38:52	25 0.392	0.624	0.26	27	0.9	0.6
26	17:02:03.5	−42:46:15	26 0.364	1.209	0.41	53	0.8	0.3
27	17:00:53.5	−42:38:52	27 0.347	1.341	0.45	59	0.8	0.2
28	17:00:44.7	−42:38:52	28 0.345	0.875	0.32	38	0.8	0.4
29	17:00:00.5	−42:55:46	29 0.327	1.355	0.46	60	0.7	0.2
30	17:00:31.5	−42:49:36	30 0.309	0.658	0.32	29	0.7	0.3
31	17:00:19.7	−42:55:46	31 0.299	0.463	0.24	20	0.7	0.5

Table B.2. continued.

$N_{\rm cl}$	Position		$I_{\rm peak}$	S	$R_{\rm eff}$	M	$N_{\rm H_2}$	$n_{\rm H_2}$
	R.A.(J2000)	Decl.(J2000)	(Jy/beam)	(Jy)	(pc)	($M_\odot$)	($\times10^{22}$ cm^{-2})	($\times10^{4}$ cm^{-3})
32	17:00:08.8	−42:50:55	32 0.286	0.600	0.28	26	0.6	0.4
33	17:01:46.0	−42:46:45	33 0.286	1.984	0.61	87	0.6	0.1
34	16:59:56.5	−42:55:58	34 0.271	0.639	0.28	28	0.6	0.4
35	17:01:06.8	−42:42:36	35 0.269	1.274	0.45	56	0.6	0.2
36	17:00:27.6	−42:47:46	36 0.256	0.955	0.39	42	0.6	0.3
37	17:00:56.9	−42:42:24	37 0.230	0.565	0.31	25	0.5	0.3
38	17:00:10.8	−42:57:54	38 0.224	0.504	0.32	22	0.5	0.2
39	17:00:45.9	−42:39:46	39 0.215	0.577	0.33	25	0.5	0.2
40	17:01:43.2	−42:49:54	40 0.209	0.317	0.23	14	0.5	0.4
41	17:00:37.0	−42:48:53	41 0.208	0.300	0.21	13	0.5	0.5
42	17:00:39.7	−42:56:23	42 0.208	0.406	0.27	17	0.5	0.3
43	17:00:51.9	−42:50:30	43 0.207	0.908	0.41	40	0.5	0.2
44	17:00:29.8	−42:39:22	44 0.204	0.271	0.20	12	0.4	0.5
45	17:00:33.7	−42:52:14	45 0.198	0.688	0.35	30	0.4	0.3
46	17:01:53.0	−42:42:49	46 0.198	0.677	0.36	30	0.4	0.2
47	17:00:32.0	−42:53:45	47 0.198	0.734	0.37	32	0.4	0.2
48	16:59:57.7	−42:52:20	48 0.197	0.358	0.26	15	0.4	0.3
49	17:00:43.0	−42:44:32	49 0.189	0.545	0.32	24	0.4	0.2
50	17:01:17.2	−42:45:02	50 0.186	1.007	0.46	44	0.4	0.2
51	17:00:09.0	−42:42:00	51 0.182	0.317	0.24	14	0.4	0.3
52	17:01:15.1	−42:47:04	52 0.174	0.488	0.33	21	0.4	0.2
53	17:00:47.0	−42:40:47	53 0.169	0.256	0.21	11	0.4	0.5
54	17:00:02.2	−42:46:39	54 0.164	0.225	0.20	9	0.4	0.5
55	17:01:16.2	−42:46:09	55 0.160	0.300	0.24	13	0.4	0.3
56	17:01:31.6	−42:45:57	56 0.158	0.567	0.35	25	0.3	0.2
57	17:01:53.7	−42:43:37	57 0.157	0.390	0.29	17	0.3	0.3
58	17:01:54.2	−42:47:10	58 0.156	0.320	0.26	14	0.3	0.3
59	17:01:07.4	−42:55:58	59 0.150	0.264	0.22	11	0.3	0.4
60	17:01:52.7	−42:52:38	60 0.150	0.217	0.19	9	0.3	0.5
61	17:00:07.0	−42:55:46	61 0.148	0.230	0.21	10	0.3	0.4
62	17:00:22.7	−42:44:01	62 0.145	0.188	0.17	8	0.3	0.5
63	17:01:51.5	−42:51:43	63 0.144	0.170	0.16	7	0.3	0.6
			IRDC G345					
1	17:05:11.0	−41:18:56	25.593	89.227	0.95	4254	56.1	1.7
2	17:05:14.8	−41:20:15	2.652	18.936	0.67	902	5.8	1.1
3	17:05:22.8	−41:26:44	2.592	8.383	0.68	399	5.7	0.4
4	17:05:20.7	−41:16:24	2.323	12.759	0.63	608	5.1	0.9
5	17:05:14.8	−41:21:03	2.258	13.677	0.54	652	5.0	1.4
6	17:05:16.8	−41:23:11	2.056	7.220	0.47	344	4.5	1.1
7	17:05:36.4	−41:25:55	1.813	5.777	0.54	275	4.0	0.6
8	17:05:18.0	−41:21:15	1.735	8.154	0.46	388	3.8	1.4
9	17:05:19.1	−41:16:36	1.707	7.775	0.55	370	3.7	0.8
10	17:05:15.3	−41:22:41	1.619	8.491	0.53	404	3.5	1.0
11	17:05:10.5	−41:17:49	1.548	7.846	0.51	374	3.4	1.0
12	17:05:10.5	−41:17:31	1.481	3.313	0.42	157	3.2	0.8
13	17:05:21.2	−41:21:28	1.406	4.871	0.44	232	3.1	0.9
14	17:05:22.7	−41:15:11	1.166	5.091	0.58	242	2.6	0.4
15	17:04:54.7	−41:14:29	1.145	2.187	0.37	104	2.5	0.7
16	17:05:25.6	−41:25:00	1.027	8.902	0.79	424	2.3	0.3

Table B.2. continued.

$N_{\rm cl}$	Position		$I_{\rm peak}$	S	$R_{\rm eff}$	M	$N_{\rm H_2}$	$n_{\rm H_2}$
	R.A.(J2000)	Decl.(J2000)	(Jy/beam)	(Jy)	(pc)	($M_\odot$)	($\times 10^{22}$ cm^{-2})	($\times 10^{4}$ cm^{-3})
17	17:05:18.0	−41:24:06	0.810	2.131	0.38	101	1.8	0.6
18	17:05:16.3	−41:24:24	0.798	2.413	0.42	115	1.7	0.5
19	17:05:48.7	−41:30:28	0.705	1.437	0.39	68	1.5	0.4
20	17:05:03.5	−41:16:48	0.699	2.989	0.59	142	1.5	0.2
21	17:05:19.1	−41:29:46	0.636	1.665	0.41	79	1.4	0.4
22	17:05:29.8	−41:21:34	0.629	1.566	0.34	74	1.4	0.7
23	17:05:18.0	−41:15:35	0.628	1.224	0.26	58	1.4	1.2
24	17:05:27.7	−41:21:58	0.571	1.319	0.33	62	1.3	0.6
25	17:05:15.8	−41:15:29	0.566	1.836	0.39	87	1.2	0.5
26	17:05:48.7	−41:19:20	0.561	1.572	0.46	74	1.2	0.3
27	17:05:27.2	−41:21:15	0.555	1.322	0.31	63	1.2	0.8
28	17:06:25.0	−41:25:49	0.549	0.629	0.21	29	1.2	1.1
29	17:06:22.6	−41:15:47	0.537	1.044	0.37	49	1.2	0.4
30	17:05:16.8	−41:14:41	0.534	1.620	0.42	77	1.2	0.4
31	17:05:32.5	−41:25:12	0.518	1.892	0.43	90	1.1	0.4
32	17:06:23.7	−41:15:41	0.516	1.002	0.35	47	1.1	0.4
33	17:04:47.2	−41:33:55	0.510	1.036	0.38	49	1.1	0.3
34	17:05:56.2	−41:18:13	0.509	1.518	0.37	72	1.1	0.5
35	17:05:55.2	−41:18:19	0.490	1.277	0.37	60	1.1	0.4
36	17:05:26.6	−41:20:45	0.476	1.690	0.44	80	1.0	0.3
37	17:05:21.7	−41:22:28	0.470	1.224	0.36	58	1.0	0.4
38	17:04:59.0	−41:30:22	0.468	0.577	0.24	27	1.0	0.7
39	17:05:18.0	−41:19:26	0.456	1.807	0.45	86	1.0	0.3
40	17:05:13.1	−41:28:51	0.451	0.963	0.34	45	1.0	0.4
41	17:04:27.2	−41:27:08	0.426	1.170	0.37	55	0.9	0.4
42	17:05:09.3	−41:21:52	0.423	2.008	0.49	95	0.9	0.3
43	17:05:59.0	−41:34:43	0.413	0.528	0.22	25	0.9	0.8
44	17:04:59.7	−41:16:00	0.398	1.113	0.38	53	0.9	0.3
45	17:04:32.7	−41:14:22	0.394	0.537	0.23	25	0.9	0.7
46	17:04:28.7	−41:27:20	0.365	0.422	0.22	20	0.8	0.7
47	17:05:35.7	−41:29:34	0.360	0.866	0.29	41	0.8	0.6
48	17:04:59.0	−41:29:09	0.349	0.909	0.37	43	0.8	0.3
49	17:05:25.6	−41:28:45	0.332	1.594	0.46	76	0.7	0.3
50	17:05:33.7	−41:22:41	0.332	0.351	0.18	16	0.7	1.0
51	17:05:42.7	−41:23:47	0.327	0.783	0.33	37	0.7	0.4
52	17:05:31.5	−41:29:09	0.326	0.510	0.25	24	0.7	0.5
53	17:04:52.5	−41:34:37	0.323	0.737	0.34	35	0.7	0.3
54	17:05:34.7	−41:32:42	0.322	0.516	0.26	24	0.7	0.5
55	17:05:44.5	−41:28:15	0.320	0.408	0.22	19	0.7	0.6
56	17:06:02.2	−41:28:21	0.317	0.556	0.26	26	0.7	0.5
57	17:05:29.8	−41:22:47	0.316	0.876	0.35	41	0.7	0.3
58	17:04:44.0	−41:15:29	0.312	0.688	0.31	32	0.7	0.4
59	17:05:32.0	−41:14:59	0.310	0.367	0.20	17	0.7	0.7
60	17:06:04.4	−41:18:56	0.306	0.677	0.29	32	0.7	0.4
61	17:05:30.3	−41:32:24	0.300	0.319	0.17	15	0.7	1.0
62	17:05:34.7	−41:30:34	0.281	0.577	0.29	27	0.6	0.4
63	17:04:45.0	−41:28:15	0.273	0.501	0.28	23	0.6	0.4
64	17:05:34.7	−41:29:52	0.261	0.329	0.19	15	0.6	0.8
65	17:04:56.5	−41:12:21	0.260	0.538	0.28	25	0.6	0.4

Table B.2. continued.

$N_{\rm cl}$	Position		$I_{\rm peak}$	S	$R_{\rm eff}$	M	$N_{\rm H_2}$	$n_{\rm H_2}$
	R.A.(J2000)	Decl.(J2000)	(Jy/beam)	(Jy)	(pc)	($M_\odot$)	($\times10^{22}$ cm^{-2})	($\times10^{4}$ cm^{-3})
66	17:05:28.2	−41:18:19	0.251	0.518	0.28	24	0.6	0.4
67	17:04:33.2	−41:26:19	0.249	0.948	0.40	45	0.5	0.2
68	17:04:36.9	−41:32:12	0.246	0.300	0.19	14	0.5	0.8
69	17:05:57.4	−41:19:14	0.229	0.439	0.26	20	0.5	0.4
70	17:05:18.5	−41:27:44	0.223	0.846	0.39	40	0.5	0.2
71	17:05:41.2	−41:27:56	0.212	0.320	0.21	15	0.5	0.6
72	17:05:14.8	−41:28:09	0.209	0.373	0.24	17	0.5	0.4
73	17:05:00.8	−41:13:40	0.200	0.287	0.20	13	0.4	0.6
74	17:04:52.5	−41:33:37	0.197	0.204	0.16	9	0.4	0.9
75	17:06:23.8	−41:25:18	0.196	0.282	0.20	13	0.4	0.6
76	17:05:29.8	−41:15:17	0.196	0.326	0.22	15	0.4	0.5
77	17:05:11.0	−41:16:36	0.192	0.308	0.20	14	0.4	0.6
78	17:04:26.1	−41:27:56	0.190	0.273	0.20	13	0.4	0.6
79	17:05:26.1	−41:29:21	0.188	0.333	0.22	15	0.4	0.5
80	17:04:23.3	−41:27:08	0.188	0.394	0.26	18	0.4	0.4

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The Son is the image of the invisible God, the firstborn over all creation. For in him all things were created: things in heaven and on earth, visible and invisible, whether thrones or powers or rulers or authorities; all things have been created through him and for him. He is before all things, and in him all things hold together. And he is the head of the body, the church; he is the beginning and the firstborn from among the dead, so that in everything he might have the supremacy. For God was pleased to have all his fullness dwell in him, and through him to reconcile to himself all things, whether things on earth or things in heaven, by making peace through his blood, shed on the cross.
Colossians 1:15-20

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