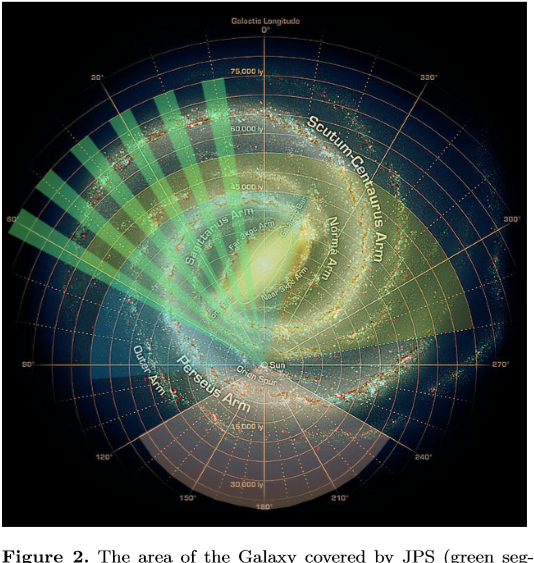
<https://arxiv.org/pdf/1509.00318.pdf>

Data from the l = 30◦ survey region, which contains the massive star-forming regions W43 and G29.96



<https://www.eaobservatory.org/jcmt/science/legacy-survey/jps/>

JCMT Galactic Plane Survey

The basic science goal of the JPS is to achieve a full census of star-formation activity in the plane of the Galaxy observable from JCMT, to a detected mass limit of around 40 solar masses at the far edge of the Galaxy. Given this limit and the latitude range (equivalent to the scale height of OB stars at ~3kpc), the specific science goals are related to high-mass star formation and can be grouped under four main headings:

**Cold Dark Clouds** and the formation of molecular clouds: In order to understand star formation we need to determine the process that produces the molecular clouds in which stars form. Cold Dark Clouds (CDCs) contain both atomic and molecular gas and have densities and temperatures that bridge the gap between the ambient atomic ISM and cold, dense molecular clouds. CDCs may therefore be sites of formation of molecular clouds out of the turbulent neutral medium.

<https://en.wikipedia.org/wiki/Submillimetre_Common-User_Bolometer_Array>

Two instruments known as the **Submillimetre Common-User Bolometer Array**, or **SCUBA**, have been used for detecting submillimetre radiation on the James Clerk Maxwell Telescope in Hawaii

<https://arxiv.org/pdf/1001.2106.pdf>

**This one seemed useful**

Hi-GAL, the Herschel infrared Galactic Plane Survey, is an Open Time Key Project of the Herschel Space Observatory. It will make an unbiased photometric survey of the inner Galactic Plane by mapping a two-degree wide strip in the longitude range | l |< 60◦ in ﬁve wavebands between 70µm and 500µm. The aim of Hi-GAL is to detect the earliest phases of the formation of molecular clouds and high-mass stars and to use the optimum combination of Herschel wavelength coverage, sensitivity, mapping strategy and speed to deliver a homogeneous census of star-forming regions and cold structures in the interstellar medium. The resulting representative samples will yield the variation of source temperature, luminosity, mass and age in a wide range of Galactic environments at all scales from massive YSOs in protoclusters to entire spiral arms, providing an evolutionary sequence for the formation of intermediate and high-mass stars

The Herschel photometric cameras PACS (Poglitsch et al. 2008) and SPIRE (Griﬃn et al. 2009) will be used in parallel mode (pMode1) to maximize survey speed and wavelength coverage. Due to the instruments wavelength multiplexing capabilities, one pMode observation delivers maps at ﬁve different wavelengths: 70 and 170µm with PACS and 250, 350 and 500µm with SPIRE. Both cameras cameras use bolometric detector arrays to map the sky by scanning the spacecraft along approximate great circles.

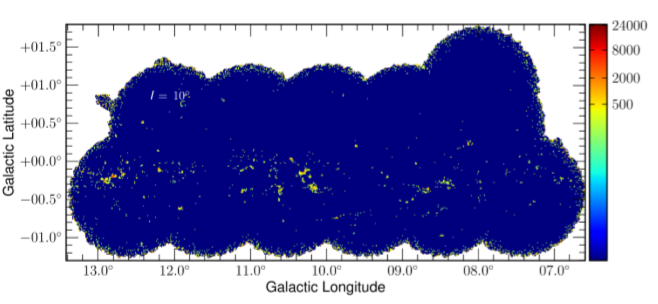
3.2. Molecular cloud formation

About a quarter of the mass in the ISM is in molecular form (Blitz 1997) and most of that material resides in giant molecular clouds (GMCs). Since GMCs are also the dominant sites of star formation, understanding their origins and evolution is essential to our understanding of the Galactic environment.

<https://en.wikipedia.org/wiki/Spectral_energy_distribution>

A **spectral energy distribution** (**SED**) is a plot of energy versus frequency or wavelength of light (not to be confused with a 'spectrum' of flux density vs frequency or wavelength).[[1]](https://en.wikipedia.org/wiki/Spectral_energy_distribution#cite_note-1) It is used in many branches of astronomy to characterize astronomical sources. For example, in [radio astronomy](https://en.wikipedia.org/wiki/Radio_astronomy) they are used to show the emission from [synchrotron radiation](https://en.wikipedia.org/wiki/Synchrotron_radiation), [free-free emission](https://en.wikipedia.org/wiki/Free-free_emission) and other emission mechanisms. In [infrared astronomy](https://en.wikipedia.org/wiki/Infrared_astronomy), SEDs can be used to classify [young stellar objects](https://en.wikipedia.org/wiki/Young_stellar_object).

<https://arxiv.org/pdf/1704.02982.pdf>



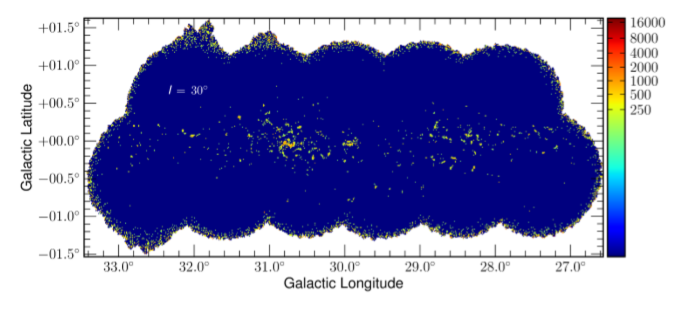


Figure 1. The JPSPR1 maps for the ﬁrst three ﬁelds, `=10◦, 20◦ and 30◦. The intensity scale is in units of mJybeam−1. Several areas can be seen where the SCUBA-2 instrument continued to take data beyond the edge of the standard circular pong3600 tile. These excursions are visible at the edges of most of the ﬁelds and the `=10◦ ﬁeld is misshapen in the top right tile. This extension is caused by the inclusion of a trial observation taken prior to the main survey that has a small positional offset from the standard grid pattern. Signiﬁcant regions can be observed in each ﬁeld with W31 found at `=18.25◦,b=-0.19◦, W39 at `=18.86◦,b=-0.48◦ and G29 and W43 found at `=29.95◦,b=-0.02◦ and `=30.75◦,b=-0.05◦, respectively