



The Cepheus Region of the Herschel Gould Belt Survey



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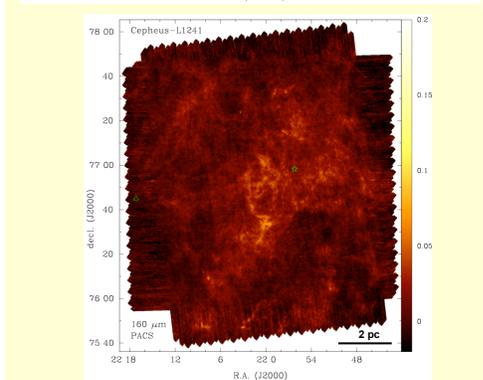
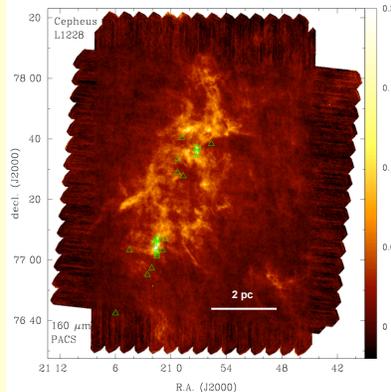
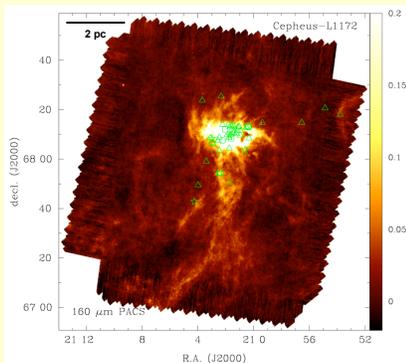
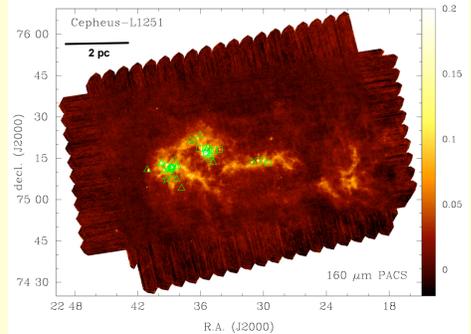
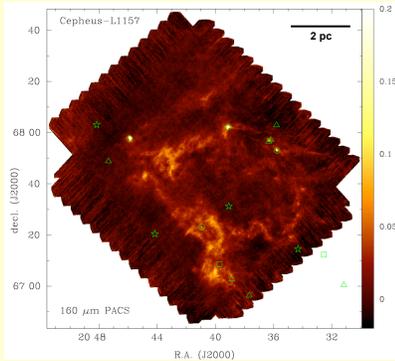
The Herschel Space Telescope has been obtaining astonishing far-infrared/submillimeter data since its launch in May 2009. We are working with 70, 160, 250, 350, and 500 micron data taken in parallel mode with the PACS and SPIRE instruments of five clouds in the Cepheus star formation region: L1157, L1172, L1228, L1241, and L1251. These data are part of the larger Key Project, the Herschel Gould Belt Survey (André & Saraceno, 2005). These data are rich with filamentary structures, protostars, and bubbles. With these data, we will characterize both the compact sources as well as the non-compact structures associated with each cloud. By overlaying SPITZER data, it will be possible to identify pre- and protostellar cores and deduce respective core mass functions. The Cepheus region is a typical member of the Herschel Gould Belt Survey which as a whole will include many other excellent targets for future observations with ALMA and other interferometers.



Discovering the origin of the Initial Mass Function is an ongoing quest in the field of star formation. Through multi-wavelength far-infrared and submillimeter observations with Herschel's SPIRE and PACS instruments, core mass functions will be deduced for nearby star formation regions. As Herschel's wavelength range includes the peak of a protostar's emission, this is the ideal instrument with which to detect prestellar and protostellar cores.

The Herschel PACS 160 μm images of the five regions in the Cepheus Flare with the SPITZER young stellar object candidates overlaid (Kirk et al. 2009). Map units are Jansky per 6.4 arcsec pixel.

- Class I
- Class Flat
- △ Class II
- ☆ Class III



Future Outlook

*Five regions within the Cepheus flare (L1157, L1172, L1228, L1241, and L1251) have been observed with the Herschel Space Telescope. Each image is approximately one square degree. These regions are rich with filamentary structures, bubbles, and protostellar objects.

*Source extraction algorithms will be run on each field and an SED for each source will be produced. Initial mass functions for these star formation regions will contribute toward an understanding of the origin of the stellar initial mass function. As an example, see the paper on the Polaris and Aquila regions by André et al. (2010).

References: * André, P. et al., 2010, A&A518, 102
* André, P. & Saraceno, P., 2005, ESASP, 577, 179
* Kirk, J. et al., 2009, ApJS, 185, 198

