The Observations of IR-excess Clouds and the Polaris Flare

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We present two interim observation results of the survey for molecular clouds toward far-IR excess clouds in high galactic latitude and the observations toward dense region in the Polaris Flare searching for gravitationally bound cores, which are carried out using SRAO 6m and TRAO 14m telescope.

First, we have been observing 14 IR excess clouds of Reach et al.(1998) in northern hemisphere. All of 14 IR excess clouds were mapped in 12CO(J=1-0). We could detect CO emission from 3 IR excess clouds. The dust temperatures of these 3 IR excess clouds with CO emission are all around 17K(colder ones) and the amount of IR excess are about 1 kJy, suggesting that the colder clouds are well shielded from external UV radiation. And we are going to make the map of optical depth(τ) excess as a molecular tracer. On the other hands, for the clouds without CO emission, it is also a question whether the region is metal deficient or another phase of Carbon in it.

Second, we have mapped the southern region of the one of high-latitude molecular clouds complex, the Polaris Flare, in 12CO(J=1-0; 4′ grid) and 13CO(J=1-0; 2′ grid). And the observation of high density tracer using TRAO 14m telescope is scheduled on March. We could find the clumpy structures and expect that there are several gravitationally bound cores and cores under infall motion.