[포SF-07] A Search for the Very Low Luminosity Objects in Gould's Belt Clouds

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We present results of searching for the Very Low Luminosity Objects (VeLLOs; internal luminosity : Lint < 0.1L⊙) in the Gould's Belt clouds using observations from 3.6 to 160 micron by the Spitzer Space Telescope. The clouds are Auriga, Cepheus, Corona Australis, IC5146, Lupus V, Musca, and Scorpius, having the properties of low-mass star-forming such as the Taurus cloud. The Spitzer observations were made with the imaging arrays IRAC at 3.6, 4.5, 5.8, and 8 micron and the MIPS at 24, 70, and 160 micron. The observing sensitivity of the Spitzer data is estimated to be about Lint ≥ 5×10-3(d/140pc)2 L⊙, a factor of 20 better than that of the Infrared Astronomical Satellite (IRAS). The observing data were processed by the c2d Legacy pipeline. We used the same criteria by Dunham et al. to select VeLLOs among which the most important criterion is a flux density at 70 micron that is directly converted to the internal luminosity. We identified a total of 68 new embedded VeLLO candidates with Lint < 0.1L⊙, 15 in Auriga, 14 in Cepheus, 6 in Corona Australis, 26 in IC5146, 2 in Lupus V, and 5 in Scorpius. This search will lead us new adventure toward a future systematic study of the VeLLOs.

[포SF-08] Chemical Structure in Taurus Molecular Cloud-1 (TMC-1)

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We present a study of a low-mass star-forming region, Taurus Molecular Cloud-1 (TMC-1), with Spitzer Space Telescope, MAMBO at IRAM 30m Telescope, and the FCRAO 14m Telescope. TMC-1 ridge has been observed in many molecular lines. According to those molecular observations, CCS and other cyanopolyynes are abundant in the southeast part of TMC-1 ridge, and NH3, N2H+, and SO are abundant in its northwest part. Based on the results, many papers have suggested that the southeast part is chemically younger than the northwest part. They also suggested that the high density of the northwest part caused the fast chemical evolution, which were the results calculated with C34S. However, CS is not a very good tracer for density because of its chemical effect (CS is easily depleted from gas as density is growing). The best tracer of density is the optically thin dust continuum emission at submillimeter. The MAMBO map is the first map to cover the whole ridge in dust continuum. It is very interesting to compare this observation with other molecular observations. The contradiction between the dust emission and the molecular emission could be explained by not the density but the other reasons. Using the chemical models, we are looking for possible explanations of the chemical evolution in TMC-1.