

Galactic distribution of AKARI YSO candidates

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The AKARI [1] satellite carried out photometric and spectroscopic observations in the mid- and far-infrared wavelength range. Young stellar objects (YSOs) have significant amount of circumstellar matter, therefore they are very bright in the far-infrared domain. Flux densities measured at 65, 90, 140 and 160 μm were used from the AKARI Far-Infrared Bright Source Catalog (FIS BSC) [2] to build a new catalog of YSO candidates.

We used discriminant analysis to distinguish between the YSOs and the background objects, which are also bright infrared sources. Additional near-infrared state-of-the-art WISE [3] data was also used. As a result we classified ~ 40000 objects as YSO candidates with a probability higher than 0.5. The misclassification rate based on SIMBAD associates was found to be $\sim 7\%$.

We studied the YSO distribution on pc scale by comparing it to those of the cold cores (ECC) [4]. The result was tested with Monte-Carlo simulations. We found that there are significantly more ECC objects associated with YSO candidates than it can be predicted by the simulated samples. Also we found that the available parameters of ECC objects (temperature, core temperature, β parameter) are not varying significantly as a function of the associated YSO number.

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[3] Wright, E. L., Eisenhardt, P. R. M., Mainzer, A. K. et al., *AJ*, **2010**, 140, 1868

[4] Planck Collaboration, *A&A*, **2011**, 536, 23