Lynds 1340: a small molecular cloud forming three star clusters

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Since most stars form in a clustered environment, it is important to assess how this environment influences the time scale and efficiency of star formation, and the evolution of protoplanetary disks around young stars. Numerous small clusters, containing low- and intermediate mass, but no high-mass stars, can be found in our galactic environment. The role of feedback from intermediate-mass stars in shaping the time scale, efficiency, and overall history of star formation in their environment is relatively poorly studied. We performed a multiwavelength observational study of the moderate mass (some 3000 $M_\odot$), apparently isolated molecular cloud Lynds 1340, situated at a distance of 730 pc from the Sun and forming small star clusters. Based on our survey for Hα emission stars, using the WFGS2 instrument on the 2.2-m telescope of University of Hawaii, as well as on the *Spitzer* and *WISE* data bases we identified 156 low-mass pre-main sequence stars and 60 embedded protostellar (Class I and Flat SED) objects. Based on low-resolution spectroscopic observations we identified eleven intermediate-mass members of the cloud, having spectral types earlier than F5. The most massive star, associated with L1340, is a B4 type, ~ 5 $M_\odot$ star, without infrared excess and Hα emission, but illuminating a reflection nebula. We also identified some 180 possible diskless young stars associated with L1340 ,based on *SDSS* color–magnitude and color–color diagrams. The surface density distribution of young stars revealed three clusters, each consisting of some 60 members, including intermediate-mass main sequence, low-mass pre-main sequence stars and embedded protostars. Here we show the major properties of these small star clusters and their associated molecular clumps.