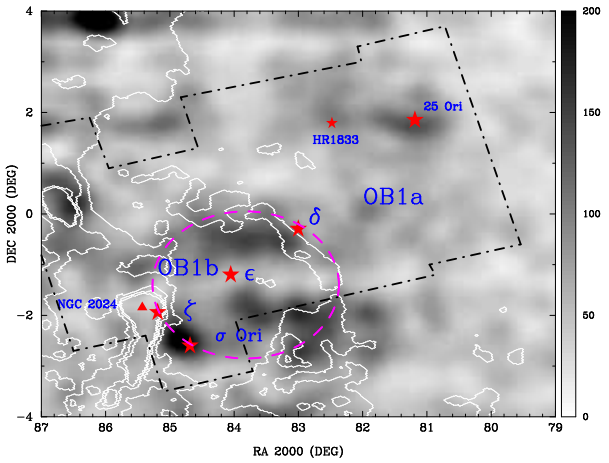

Fig. 1. The surface density of candidate PMS stars in the CVSO, selected for being detected as variable and located above the main sequence in color-magnitude diagrams (grey scale map). The area of the VISTA ZYJHK galactic science verification study is indicated by the dash-dot line. The two main sub-associations in Orion are indicated: the ∼4 Myr old OB1b (dashed line circle) and older (∼10 Myr), more extended OB1a. The three bright stars of Orion's belt, 25 Ori and σ Ori are plotted as large stars; NGC 2024 is indicated by a triangle. The CVSO-VISTA dataset encompasses a ~ 30 deg^2 area that includes almost the entire OB1b region and part of OB1a, including the recently discovered 25 Ori cluster (Briceño et al. 2007b). Among several stellar overdensities revealed by this map is the HR 1833 group, just east of 25 Ori.

fore, the CVSO is providing for the first time the "big picture" of star formation in Orion.

Recently, the European Southern Observatory (ESO) recemtly comissioned its Visible and IR Survey Telescope for Astronomy (VISTA). The galactic science verification for the telescope was decided to be carried out in Orion OB1, as a combination of a multi-band mini survey and a synoptic observation of a smaller region of particular interest. The YZJHK survey was done over ∼30 deg^2 area encompassing almost all of Ori OB1b and several square degrees across the older OB1a region, including the 25 Ori cluster, plus an extension toward the Orion B cloud, which included the NGC 2024 and σOri clusters. For the multi-epoch observations we targeted the 25 Ori cluster in the J and H bands. The VISTA observations in Orion reach about 4 magnitudes deeper than 2MASS, to limits of $J \sim 20.2$, $H \sim 19.2$, $K \sim 18.4$, $Z \sim 22.7$, $Y \sim 21.0$. This dataset, combined with the CVSO optical catalogs offer a powerful tool to look for very low mass young stars, young brown dwarfs and detect near-IR excess emission from warm dusty inner disks.

3. PRELIMINARY RESULTS

• The spatial distribution of young populations in OB1a and OB1b is highly structured. We find several new stellar groupings, in addition to the 25 Ori cluster. An example is an overdensity just west of 25 Ori, located around the B2V star HR 1833; another is the ϵ Ori group (located just south-west of the central star of Orion's belt). The existence of these groups shows that spatial structure can survive in these associations even after 10 Myr, though the groups themselves are probably gravitationally unbound.

• Brown dwarfs seem to be distributed similarly to their higher mass stellar counterparts, This suggests a similar formation processes or that both brown dwarfs and low-mass stars had similar early dynamical evolution.

• We find that the fraction of near-IR excesses, attributed to excess emission from warm inner disks, evolve in brown dwarfs similar to what is observed in higher mass (solar-like) TTS (Briceño et al. (2007b); though brown dwarfs seem to have somewhat higher disk fractions).

The combination of the synoptic CVSO with the VISTA mini-survey of Orion offer a window into what we can expect from upcoming surveys like VISTA and LSST.

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