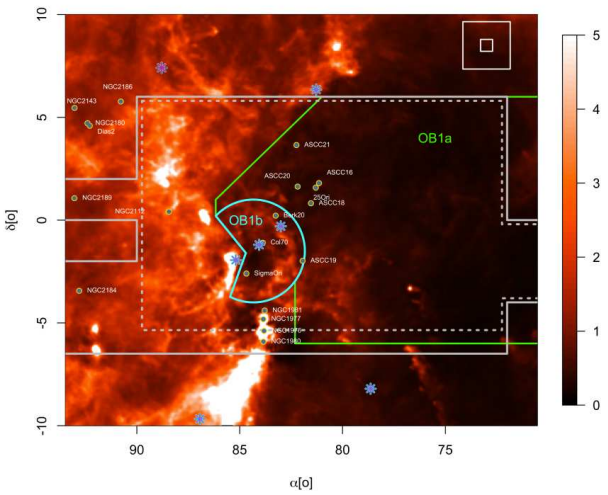

Fig. 1. Spatial distribution of the CVSO (solid gray line) and the deep optic photometric survey of Orion (dashed gray line). The colored scale indicates the A_V extinction from Schlegel maps (Schlegel et al. 1998) and the colored polygons the sub-regions OB1a and OB1b of the Orion complex. Clusters and bright stars are also indicated.

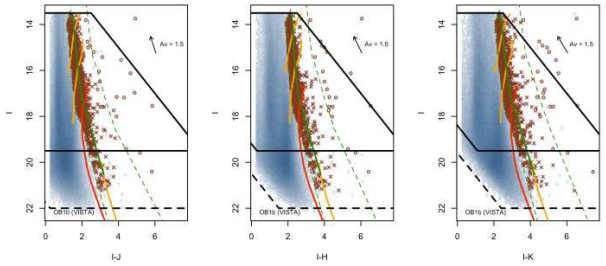

Fig. 2. Color-magnitude diagram used for the photometric candidate selection. Yellow lines indicates evolutionary tracks for 0.02 $M_\odot$ to 0.3 $M_\odot$. Red line indicates the evolutionary track for the substellar limit (0.072 $M_\odot$). The green dashed-line encloses the candidate sample. This area is centered on the isochrone corresponding to the age of the pre-main sequence stellar population obtained by Briceño et al. (2005) (green solid line). Isochrones and evolutionary tracks are from Baraffe et al. (1998). Crosses indicate the photometric candidates and circles photometric candidates with infrared excesses.

Bonnell & Bate 2006), (*iii*) premature gravitational ejection of stellar cores from their surrounding accreting material (e.g., Reipurth & Clarke 2001), (*iv*) fragmentation of massive circumstellar disks (e.g., Stamatellos & Whitworth 2009) and (*v*) photoerosion of stellar cores due to nearby massive stars (e.g., Whitworth & Zinnecker 2004). These models are not mutually exclusive (Whitworth et al. 2007) and their relevance needs to be observationally tested in terms of variables such as the initial mass function, spatial distribution, kinematics and the fraction of circumstellar disks. During the last years, several observational efforts have been carried out in order to compare observations with these models, resulting in evidence pointing for a common mechanism for brown dwarf and star formation (Whitworth et al. 2007) but with non-conclusive evidence about the relative relevance of the different theoretical escenarios proposed (Whitworth et al. 2007). In the continuation of such efforts, the observation of star forming regions under several environmental conditions and covering a range of ages is essential.

Here we summarize the latest results of an ongoing large-scale, optical photometric and spectroscopic survey of very low mass stars and brown dwarfs down to $M \sim 0.02\ M_\odot$ in the dispersed, off-cloud populations of the Orion OB1 star forming region. This sample includes regions such as Orion OB1a whose age around 10 Myr old is relevant in the study of the evolution of circumstellar disks. The observations and preliminary results presented here will be extended, explained and discussed in detail in Downes et al. (2011, in prep.).

2. THE CIDA DEEP SURVEY OF ORION

The CIDA Variability Survey of Orion (Briceño et al. 2005, CVSO) is a large scale multi-epoch optical photometric survey of the dispersed populations of Orion performed since 1998 with the Quest-I camera at the Jürgen Stock 1 m Schmidt telescope at the Venezuela National Astronomical Observatory (Baltay et al. 2002).

Based on these observations most of the pre-main sequence low-mass star population of the Orion OB1a and OB1b sub-regions has been detected and extensively studied by (e.g., Briceño et al. 2007a). In order to extend these studies down to the substellar domain we applied a co-adding technique over several epochs of the CVSO, resulting in a deep optical survey covering 200 sq. deg of the Orion star forming region with mean limiting magnitudes of $R = 21.0$ and $I = 21.5$ and completeness up to $R = 20.0$ and $I = 10.5$. The saturation occurs at $R = 13$ and $I = 13$.

With the combination of the R and I-bands optical photometry with near-IR data from the VISTA and 2MASS surveys, we select photometric candidates to stellar and sub-stellar members of Orion down to 0.02 $M_\odot$. Figure 1 shows the area covered by the survey and Figure 2 an example of the optical-near infrared color-magnitudes diagrams used for the candidate selection.