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# THE CIDA-VISTA SURVEY IN ORION OB1

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RESUMEN

Presentamos los resultados preliminares de un sondeo óptico-infrarrojo sobre un área de ∼30 grados$^2$ en la asociación Orión OB1, en las regiones extra-nube, donde las poblaciones estelares jóvenes son más evolucionadas. La combinación de un sondeo óptico multi-época con un mapeo profundo en el cercano infrarrojo, abre una ventana a lo que podemos esperar de la nueva generación de sondeos a gran escala como VISTA y LSST.

ABSTRACT

We present the preliminary results of an optical-infrared survey spanning an area ∼30 deg$^2$ in the Orion OB1 association, across the off-cloud regions, where the young stellar populations are more evolved. The combination of a multi-epoch optical survey with a deep mapping in the near-infrared, opens a window into what we can expect of the new generation of large scale surveys like VISTA and LSST.

*Key Words:* open clusters and associations: individual (Orion OB1) — stars: low-mass — stars: pre-main sequence

## 1. ORION OB1

Most stars the Galaxy were formed in OB associations, vast complexes containing both high and low mass stars, and exhibiting all the stages of star formation and early stellar evolution (Briceño et al. 2007a).

The Orion OB1 association is one of the nearest ($d \sim 400$ pc) large giant molecular cloud complexes, a region of about 75 pc in diameter, in which the process of star formation has proceeded during at least 10 million years (Blaauw 1964; Briceño 2008). With a wide range of ages and environmental conditions, Orion exhibits all stages of the star formation process, from very young, embedded clusters, to older, fully exposed OB associations, as well as both clustered and distributed populations. Despite its proximity its full stellar population has not been thouroughly studied, in part because the large extent of Orion on the sky has made comprehensive surveys difficult until recently, resulting in that almost all existing studies have concentrated on the youngest stars projected onto the molecular clouds, which only offer a snapshot of the present moment of star formation in this complex.

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## 2. SEARCHING FOR THE LOWEST MASS STARS AND DISKS IN THE ORI OB1 OFF-CLOUD POPULATION

In order to build a complete picture of star formation in Orion, a comprehensive census of the widely distributed, more evolved young stellar populations is needed. This has been the goal of the CIDA-Variability Survey of Orion (CVSO; Briceño et al. 2001). The problem in studying more evolved pre-main sequence stars has been finding a suitable sample. These elusive objects are much more difficult to identify than their younger counterparts, because their parent molecular clouds have long since dissipated, and no longer serve as markers of these populations (Briceño et al. 2001, 2005, 2007a).

The CVSO is a wide-area survey spanning ∼180 deg$^2$ across most of the Orion OB1 association, with an emphasis on the off-cloud regions, namely the ∼4 Myr old Ori OB1a sub-association, which encompasses the Orion belt stars, and the widely extended ∼10 Myr old OB1a region to the west of the A and B molecular clouds (Figure 1). The CVSO was also conceived as a synoptic survey, taking advantage of the fact that photometric variability is a defining characteristic of all solar-like pre-main sequence (PMS), ever since their discovery (Joy 1945). The effectiveness of photometric variability to detect young stars in the off-cloud regions, traditionally very difficult to identify through other methods has been demonstrated by the discovery of the 25 Ori cluster, an aggregate of over 200 PMS stars surrounding the B2 star 25 Orionis (Briceño et al. 2007b). There-