The SVO role in the Consolider-GTC project. Similarities and potential collaborations in the REG

F. Jiménez-Esteban, E. Solano, M. Arevalo, C. Rodrigo

Spanish Virtual Observatory
Centro de Astrobiología (INTA-CSIC), PO Box 78, E-28691 Vva de la Cañada, Madrid.

Abstract

The Spanish Virtual Observatory (SVO) participation in large scientific consortia is characterized by its intrinsically multidisciplinary nature. In these frameworks SVO collaborates with the research groups providing scientific and technical support in VO-related matters. A good example of this kind of collaboration is the SVO participation in the Consolider-GTC project. In this poster, as examples of our lines of work, we describe different types of collaborations that can help REG members to identify potential synergies with their research projects.

The Spanish Virtual Observatory Group

The SVO officially started in June 2004. It was created with the main goal of ensuring an efficient coordination of the lines of work of the Spanish astronomical community in the VO framework. It is the contact-point for the international VO-projects as well. Complementing the 10 FTEs working for the SVO there is a thematic network formed by 177 people from 34 Spanish institutes. Our main lines of work are: VO-archives, VO-tools and VO-science.

VO-Science

Some scientific cases proposed by several Consolider GTC groups have been carried out by the SVO group:

- **Identification of new OB stellar associations and clusters** by cross-matching existing catalogues and applying colour criteria. The analysis covers the whole sky using several distance modules in an iterative way.

- **Identification of supergiant stars in obscured stellar cluster** by cross-matching existing catalogues and applying colour criteria. Hundreds of candidates have been already confirmed in follow-up observations.

- **Identification of peculiar high proper motion objects** by cross-matching the whole Tycho-2 and 2MASS catalogues, and studying their kinematic and photometric properties using Virtual Observatory tools.

Verification of the high proper motion of TYC 6017-419-1

- **AVOCADO: A Virtual Observatory Census to Address Dwarfs Origins.** Characterize dwarf galaxies in the local universe using both multiwavelength imaging and spectral data from several archives. The SVO has developed a specific VO-tool for this purpose (see right).

- **Proper motion study of the Lupus clouds** by using several astrometric catalogues. See homonym poster presented by B. López Martí et al. in this conference.

References:
- Bayo, A., Rodrigo, C., Barrado Y Navascués, D., Solano, E., Gutiérrez, R., Morales-Calderón, M., & Allard, F. 2008, A&A, 492, 277
- Molla, M., García-Vargas, M.L., & Bressan, A. 2009, MNRAS, 398, 451

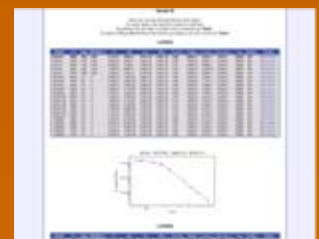## Development of VO-archive systems

SVO designs and develops VO-compliant archive systems to ensure the efficient management of the astronomical information associated to a particular science case. Two examples are ASK, a non-supervised galaxy classification system, and the Spitzer-Taurus archive, a legacy project of Spitzer satellite. SVO has developed the data archives, the system access, the data visualization and download, and the VO registry service.

Development of VO-tools and implementation of theoretical models

When there is not a suitable VO-tool to tackle a particular scientific problem, SVO can develop the necessary VO-tools. In this sense, SVO created VOSA (VO Sed Analyzer; Bayo et al. 2008) to study YSO. VOSA allows the user to gather photometric information available throughout the VO, and to query in an automatic and transparent way different collections of theoretical models, to calculate their synthetic photometry, and to perform a statistical test to determine which model best reproduces the observed data.

In the framework of AVOCADO, the SVO has imroved VOSA to also study galaxies. To do that, SVO has implemented into the VO the POPSTAR (Mollá et al. 2009) collection of evolutionary synthesis models for galaxies.