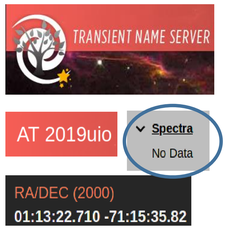
Transient characterization using the Virtual Observatory

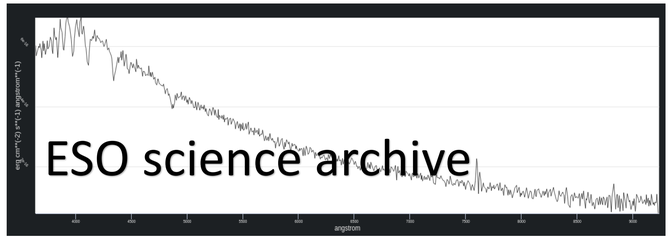
E. Solano[a], A. Velasco[a], C. Rodrigo[a], A. Ederoclite[b] , L.M. Peci[c]
a. Centro de Astrobiología (CAB), CSIC-INTA. Madrid, Spain
b. Centro de Estudios de Física del Cosmos de Aragón (CEFCA).Teruel, Spain
c. Real Instituto y Observatorio de la Armada.San Fernando, Spain

Introduction

- ***Transients*** can be defined as astrophysical phenomena whose duration is significantly shorter than the typical timescale of the stellar and galactic evolution. Supernovae, novae, gamma-ray burst,..., are some examples of transient events.
- Fast, multiwavelength **follow-up** observations are often required to properly understand the true nature of the transient.
- Looking for information in **astronomical archives** can be a complementary approach but, sometimes, these **searches are not conducted in an optimal way**.

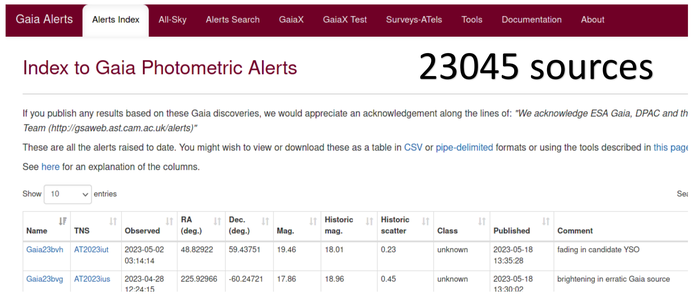


BUT

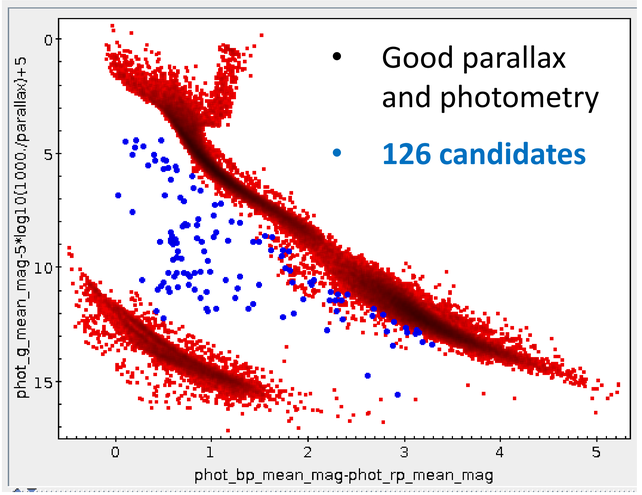


Goal

- Use the opportunities the Virtual Observatory offers in terms of discovery, access and analysis of astronomical data to improve this approach.
- Build an automated workflow to validate and characterise candidate Cataclysmic Variables (CVs) identified among the Gaia Science Alerts.

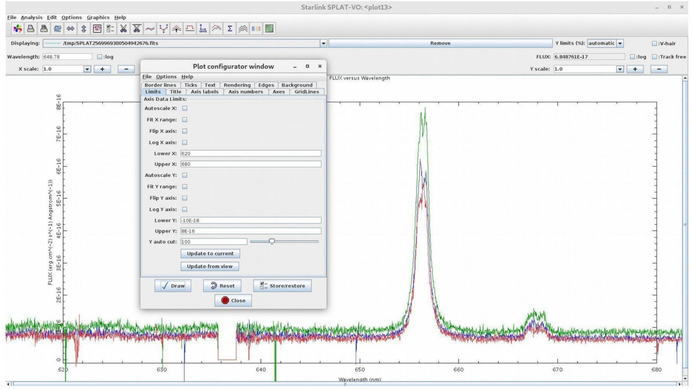


Step #1: Selection by position in the HR diagram



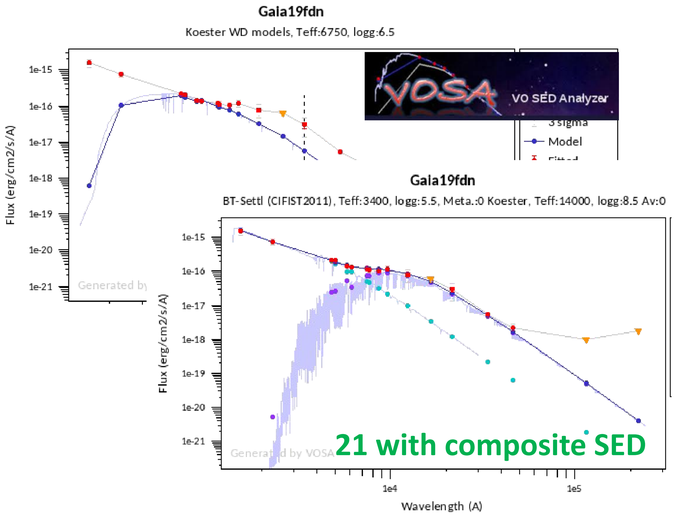
- Good parallax and photometry
- **126 candidates**

Step #2: Emission in Halpha



- Look for spectra in VO archives.
- Identify Halpha emission.
- **53 with spectra (18 with Halpha emission)**

Step #3: Composite SED



What's next?

- Identification of new candidates in the daily searches.
- Spectroscopic follow-up of the most promising candidates.
- Exploration of other alert systems with many more candidates (e.g. ZTF).