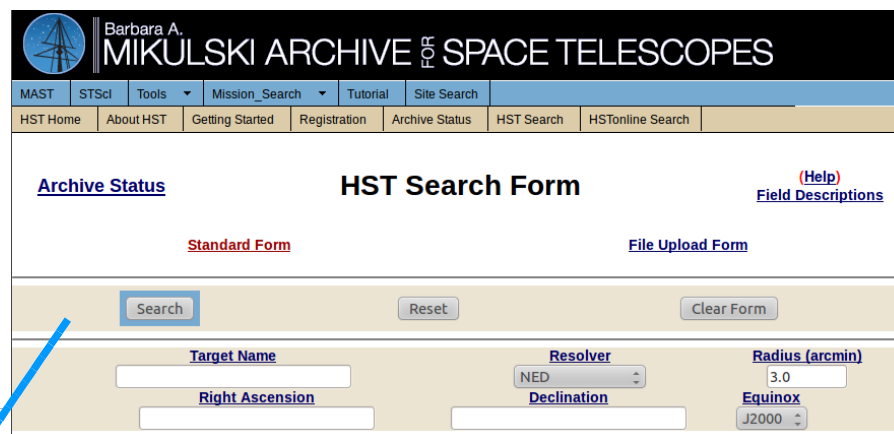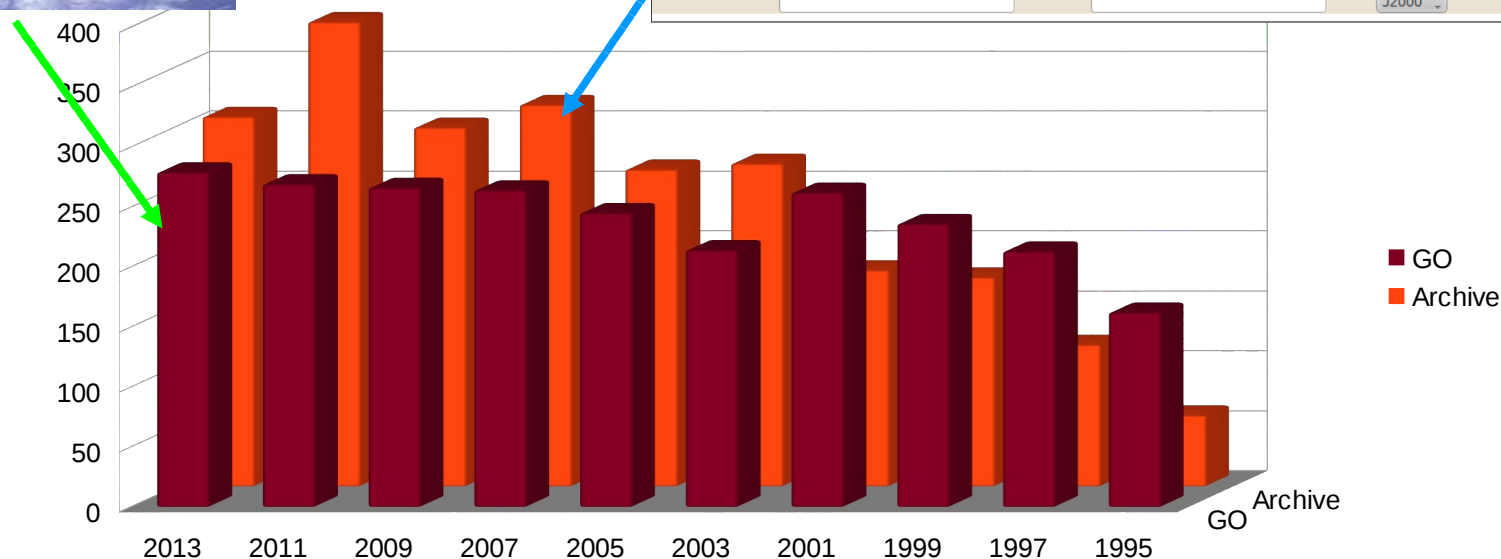# *Introduction to the Virtual Observatory and the School*

Enrique Solano

Centro de Astrobiología (INTA-CSIC).
Spanish Virtual Observatory, Madrid. Spain.

Archives are important: Efficiency

Archives are important: Legacy

- End of IUE operations: 1996.

INES
IUE Newly Extracted Spectra

SAO/NASA Astrophysics Data System (ADS)

Query Results from the ADS Database

Go to bottom of page

Retrieved **200** abstracts, starting with number **1**. Total number selected: **511**.

Sort options

#	Bibcode Authors	Score Title	Date	List of Links Access Control Help					
1	☐ 2015ApJ...812...97S Sanad, M. R.	1.000 Ultraviolet Spectroscopy of PQ Gem and V405 Aur from the HST and IUE Satellites	10/2015	A	E F		D	R	U
2	☐ 2015Icar..246..206S Schindhelm, Eric; Stern, S. Alan; Gladstone, Randy; Zangari, Amanda	1.000 Pluto and Charon's UV spectra from IUE to New Horizons	01/2015	A		D	R C	U

Archives are important: Science
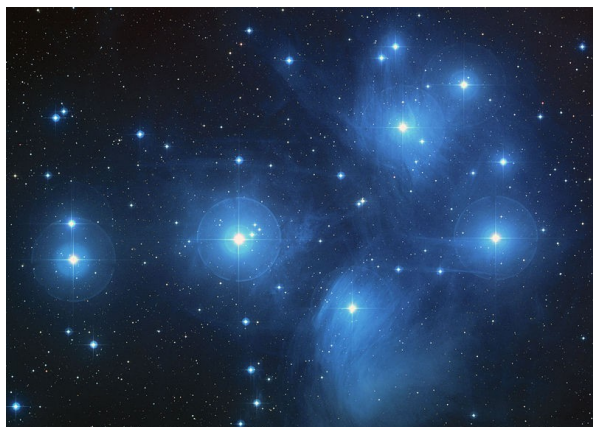

Supernova 2012Z in Spiral Galaxy

NASA and ESA
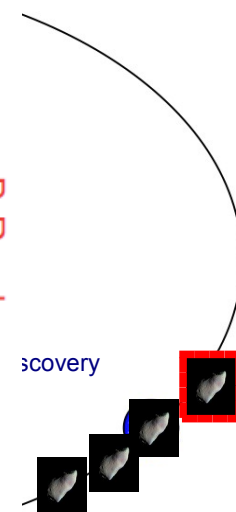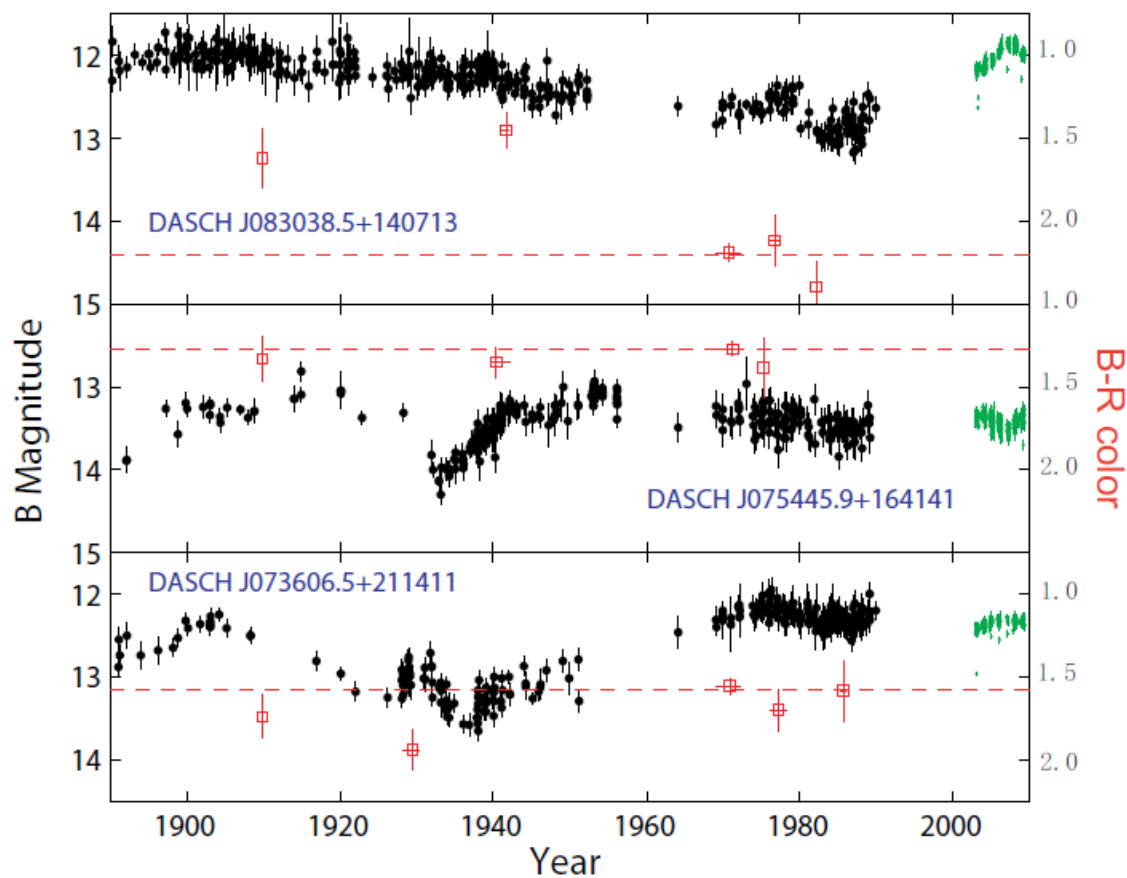
Observatories and archives

Why a Virtual Observatory?

What else is needed?

Multiwavelength astronomy
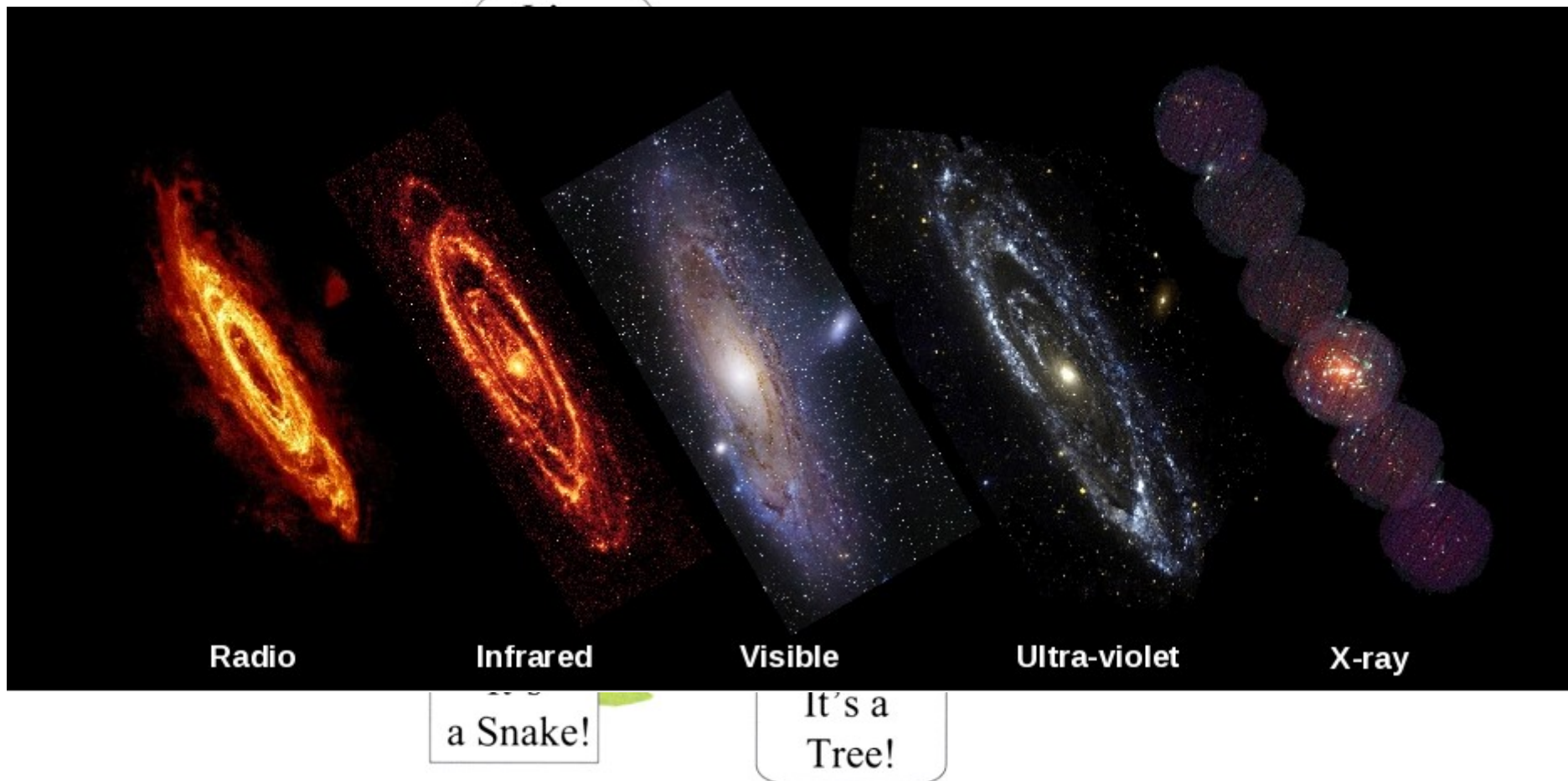
Archives: Weaknesses
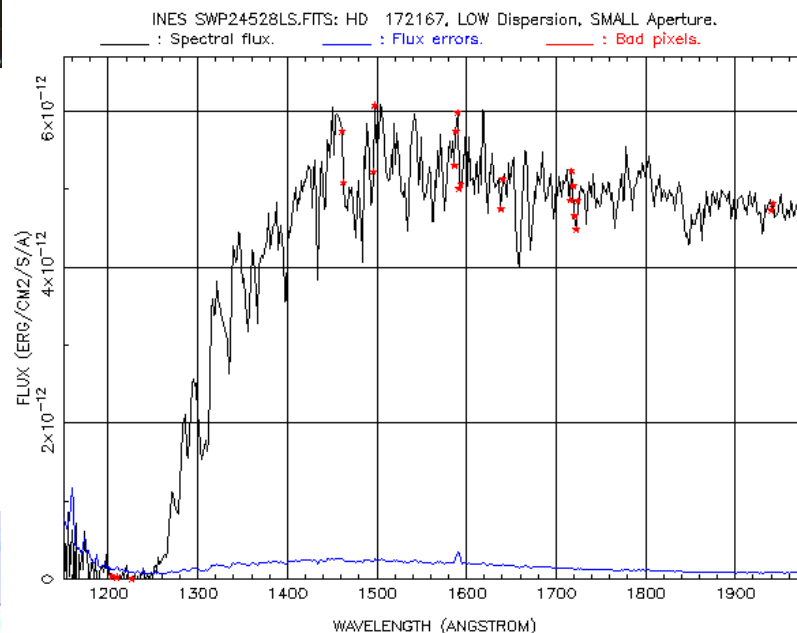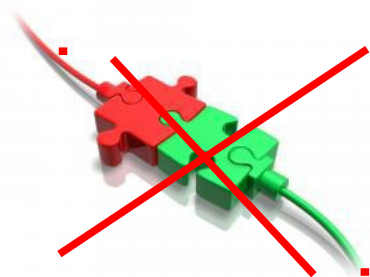
Astronomy with archives

Knowledge
Information
Data
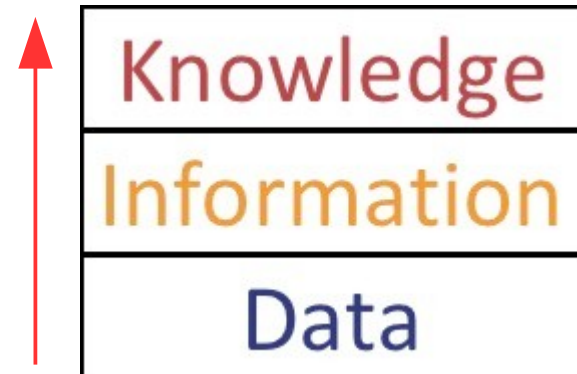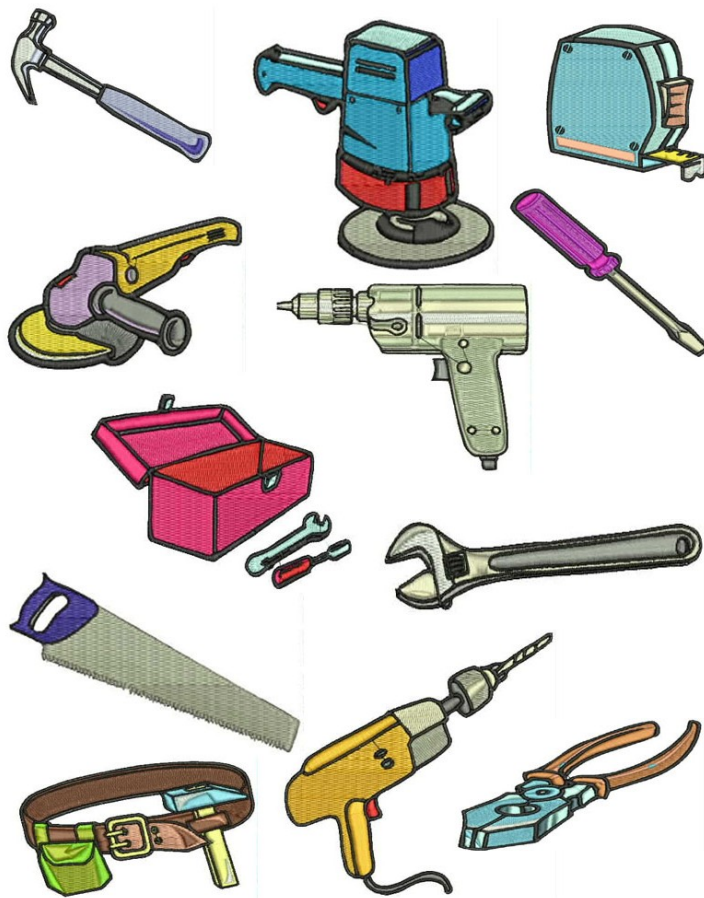
What is the Virtual Observatory?

- **Goal:** Easy and efficient access and analysis of the information hosted in astronomical archives.

The VO bottom-up approach

Science

Tools

Stds
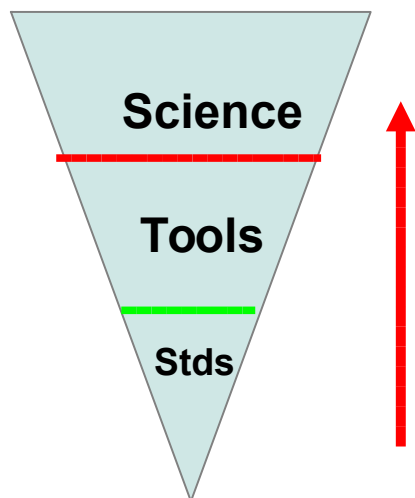
VO tools

VO science
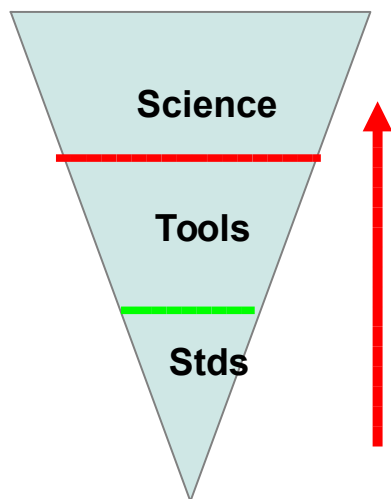
- *Science that clearly benefits from using VO tools and services.*

Science

Tools

Stds

X-match: GALEX – 2MASS.
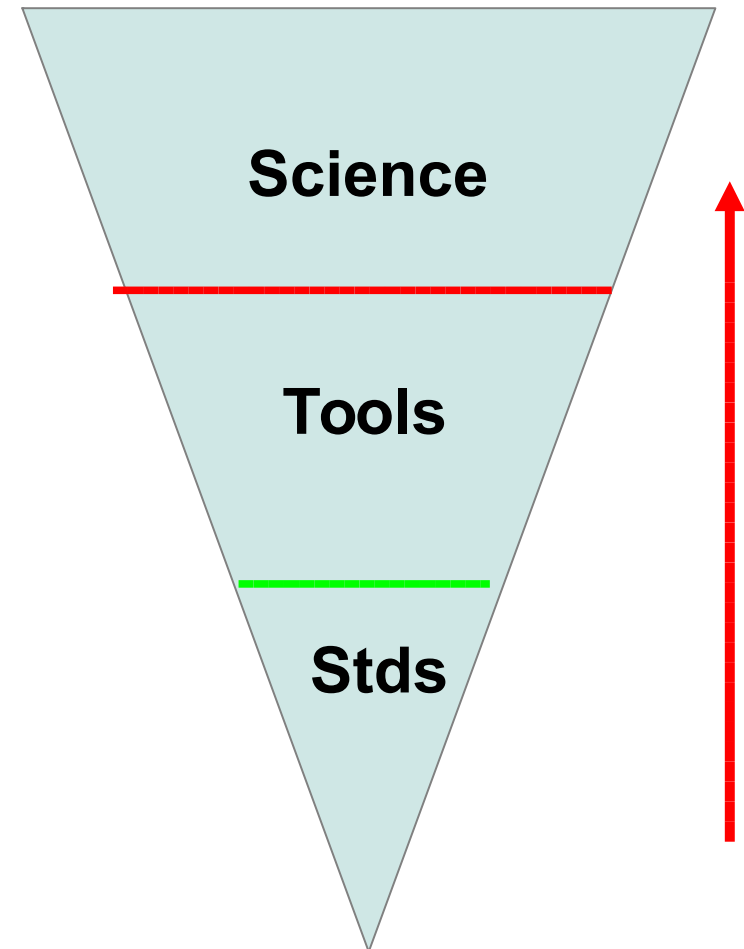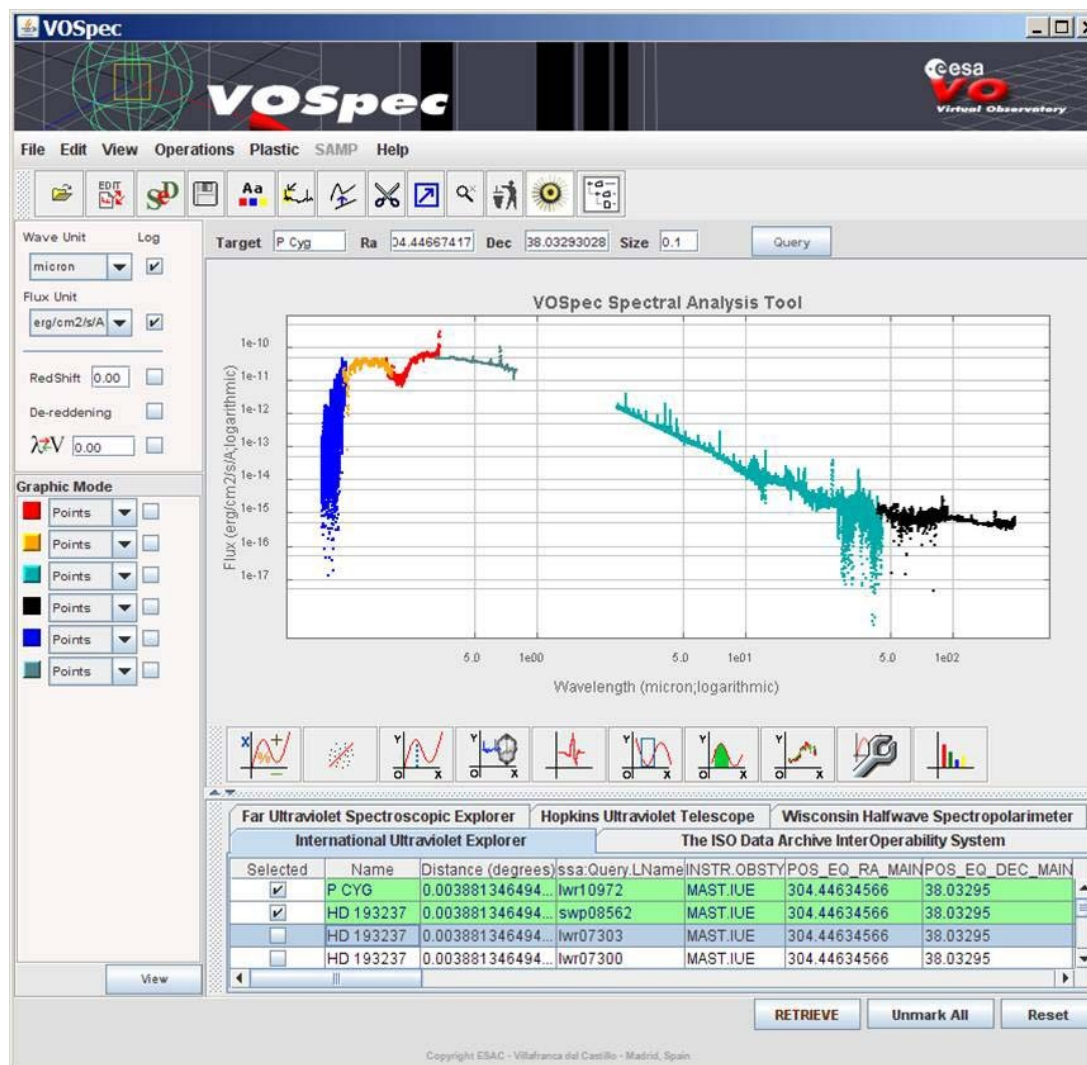
All-sky surveys
GALEX: > 75 Msources
2MASS: >400 Msources

sds
OBs
WDs
CVs
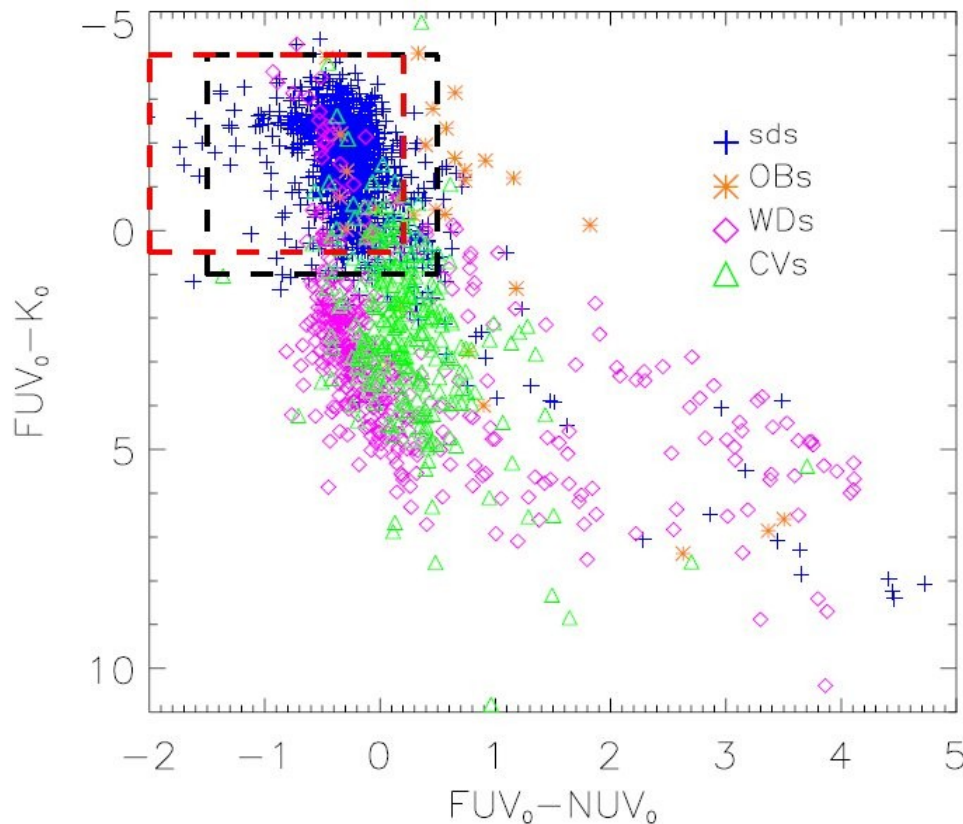
To keep in mind

- VO: Federation of data centres sharing data through a common set of standars.

- VO tools:

  - Not a "does-it-all" software

  - Different tools for different problems

- VO science: A reality since 5-10 years ago.

- What is VO for?

  - For programmers, for data centres, for astronomers, for big data projects.

  - For educators, amateurs, general public.

The school

- Goals:

    - Teach participants on how to efficiently use the VO tools for their own research.

    - Gather your feedback and requirements on VO tools and services (in particular the ESFRI).

- Methodology:

    - Tutorials based on real science cases.

    - Feedback form.

- Ample experience.

The school

- 43 participants + 11 tutors

- Countries:

    - The VO partners: France, Germany, Italy, Spain, UK.

    - The ESFRI partners: CTA, ASTRON, ESO.

    - External countries: Belgium, Greece, Lithuania, Poland, Portugal, Slovakia.

- Scientific profile: Graduate / PhD (30), Postdoc. (11), Senior (3)

The school: Schedule

Day 1. Tuesday 15 December

- 08:15 Bus leaving hotel to CAB-Villafranca
- 09:15 Arrival at CAB-Villafranca. Registration
- 09:30 - 10:15 Introductory talks
    - 09:30 - 09:35 Welcome and logistics (Enrique Solano)
    - 09:35 - 09:50 The ASTERICS project (Francoise Genova)
    - 09:50 - 10:15 Introduction to the VO and the school (Enrique Solano)

The school

Day 1. Tuesday 15 December

Day 2. Wednesday 16 December

- 10:15 - 11:15 Tutorial #1 (1h45m).
  - Title: 📄 The CDS tutorial (LAST UPDATE: Dec 11th).
  - VO-tools: Simbad, Vizier, Aladin
  - Tutor: Ada Nebot + Caroline Bot + F. X. Pineau

- 11:15 - 11:45 Coffee break

- 11:45 - 12:30 Tutorial #1 (cont.).

- 12:30 - 13:30 Tutorial #2 (1h45m)
  - Title: 🌐 Discovery of Brown Dwarfs mining the 2MASS and SDSS databases
  - VO-tools: Aladin, Topcat
  - Tutor: F. Jiménez + E. Solano + G. Iafrate

The school

Day 3. Thursday 17 December

- 08:30 Bus leaving hotel to CAB-Villafranca

- 09:30 - 11:15 Participants' projects (groups)

- 11:15 - 11:45 Coffee break

- 11:45 - 13:00 Participants' projects (groups)

- 13:00 - 13:30 Project presentations

- 13:30 - 15:00 LUNCH

- 15:00 - 15:45 Project presentations (cont.)

- 15:45 - 16:15 Feedback

- 16:15 - 16:30 Wrap-up

- 16:45 Bus leaving CAB-Villafranca to hotel.