COMBINING MULTI-WAVELENGTH DATA WITH ALADIN

Thomas Boch, Pierre Fernique, and François Bonnarel
CDS, Observatoire astronomique de Strasbourg, Strasbourg, France

ABSTRACT

Dealing with multi-wavelength data and associated metadata has become a must-have in modern astronomy. The Aladin VO (Virtual Observatory) portal can help in this task at various levels:

- It provides access through VO standards to numerous data services delivering tables, images and spectra.
- It offers visualization, exploration and combination of multi-wavelength data thanks to a set of tools (multiview, RGB composition, blink mode, transparency, cross-match).
- It interacts with other VO tools through the SAMP protocol, and will soon with astronomical analysis packages (PyRAF, IDL).
- A script allows the user to launch the same set of queries over a list of positions or objects.

Key words: Virtual Observatory; visualization; protocols; standards.

1. ACCESSING DATA

In addition to a predefined list of image and catalog servers, Aladin can access (see Fig. 1) any server described in the IVOA Registry (Benson et al., 2008). This includes servers providing images, catalogs, and spectra.

For each data server, a description of associated metadata (eg images FoV) helps the user to choose data of interest (see Fig. 2).

2. VISUALIZING AND COMPARING DATA

Once loaded in Aladin, data can be visualized and combined with the following tools:

- images can be combined to create a color RGB image, or an animated blink sequence.
- a multi-view mode splits the main window in several panels and allows one easy comparison of different images covering the same region (see Fig. 3).
- enabling image transparency allows to overlay one image on the top of another and proves to be another useful way to compare multi-wavelength images, in addition to more classical image contour overlay.
- catalogs data coming from different services can be cross-identified using the Aladin cross-match tool.
- the filters tool lets the user change the way catalog sources are displayed, using associated measurements to draw for instance a circle proportional to the number of counts.
3. INTERACTING WITH OTHER TOOLS

Loaded data can be saved in FITS or JPEG format for images, in CSV or VOTable (Ochsenbein et al., 2008) for tabular data. Snapshots of the current view can also be saved in various formats: JPEG, PNG or EPS for inclusion in a publication.

In addition, Aladin can collaborate with any VO tool supporting SAMP, the Simple Application Messaging Protocol (Taylor M. B. et al., 2008).

SAMP support allows to:

- send data from an application to another. It allows Aladin to request VOSpec (Osuna et al., 2005) to display a given spectrum.
- share the selection of a set of astronomical objects between Aladin and TOPCAT (Taylor M. B., 2005) for instance. This mechanism allows one to have linked views between different independent applications.

We are currently working on enabling interaction between Aladin and classical astronomical analysis packages such as IDL.

4. LAUNCHING BATCH QUERIES

Besides the interactive mode, Aladin can be controlled to perform some batch queries over a large set of positions:

- either by a Perl/Python/... script sending the needed script commands through Aladin standard input
- or through a graphical interface allowing easy input of the script and of the associated parameters

5. LINK

The Aladin software and the associated documentation are available at http://aladin.u-strasbg.fr/

ACKNOWLEDGMENTS

This work has been supported by the EU-funded (FP6) VOTECH\(^1\) project.

REFERENCES


Taylor M. B. 2005, ASPC 347, 29


\(^1\)http://eurovotech.org/