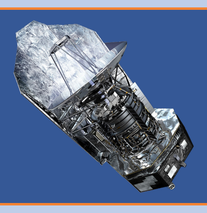
HeDaM: The Herschel Database in Marseille

Yannick Roehlly, Véronique Buat, Sébastien Heinis, Chrystel Moreau, Stéphane Gimenez
Laboratoire d'Astrophysique de Marseille



Abstract

The Herschel Database in Marseille (HeDaM) is an information system operated by the CeSAM [1] (Centre de donnéeS Astrophysiques de Marseille). Gathering the data from various Herschel Space Laboratory surveys, HeDaM is both a collaboration tool between scientists and a way to distribute the public data to a wider community.

With HeDaM, users have access to the direct download of catalogues and maps, but also to value-adding services like: multi-λ FITS stamps, integration with Aladin applet and Topcat, and multiple cone-searches.

Context of HeDaM birth

At *Laboratoire d'Astrophysique de Marseille*, various scientists are deeply involved in some cosmological and extra-galactic surveys of ESA's Herschel Space Laboratory.

These projects needed a tool to centralize Herschel and ancillary data for their members in the proprietary phase and, eventually, distribute this data to the scientific community. For this, HeDaM was created.

Technologies used in HeDaM

- HeDaM is based on CNES' SITools[2] Tomcat application;
- The catalogue data is stored on a PostgreSQL base with pgSphere add-on for spatial searches
- We use Perl a lot for scripting and additional services.

Functionalities provided by SITools

SITools allows us to classify the datasets to help data search (*Fig 1*). On selected catalogues(*Fig 2*), we can perform searches by defined criteria (*Fig 3*) and display the result table (*Fig 4*).

Figure 1: Dataset classification with SITools

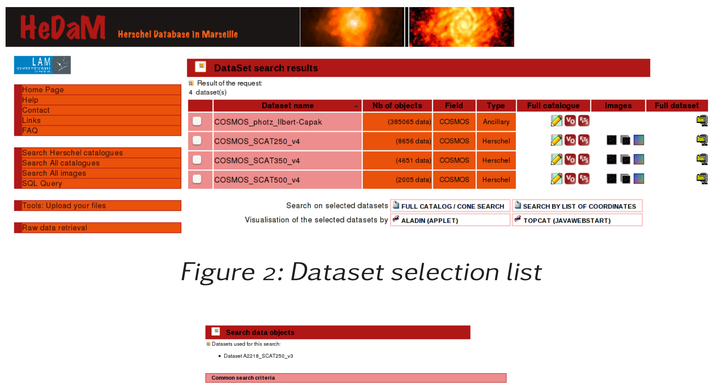


Figure 2: Dataset selection list

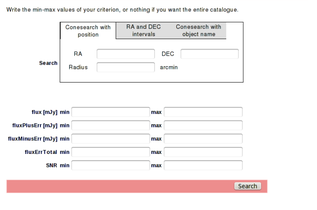


Figure 3: Search criteria

Figure 4: Result table

.../...

Functionalities provided by SITools (...)

We developed extensions to SITools to export the result tables to CSV and VO-Table XML.

We are also displaying pretty images – like composite ones – to illustrate the datasets (*Fig 5*).

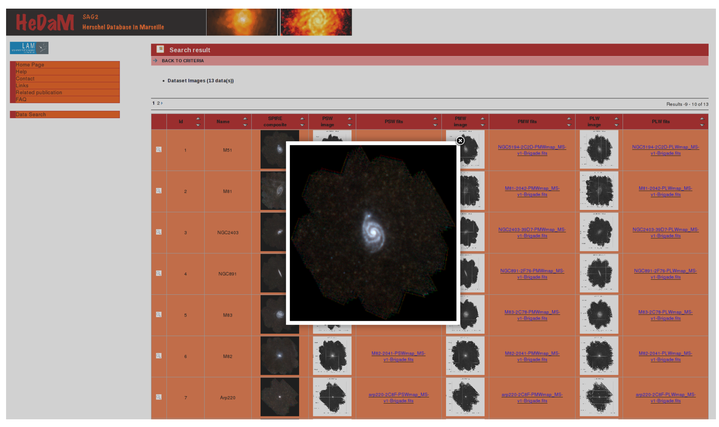


Figure 5: A composite image of a galaxy

Displaying source detailed informations

We adapted SITools to make use of CeSAM tools to display multi-λ FITS stamps for each source.

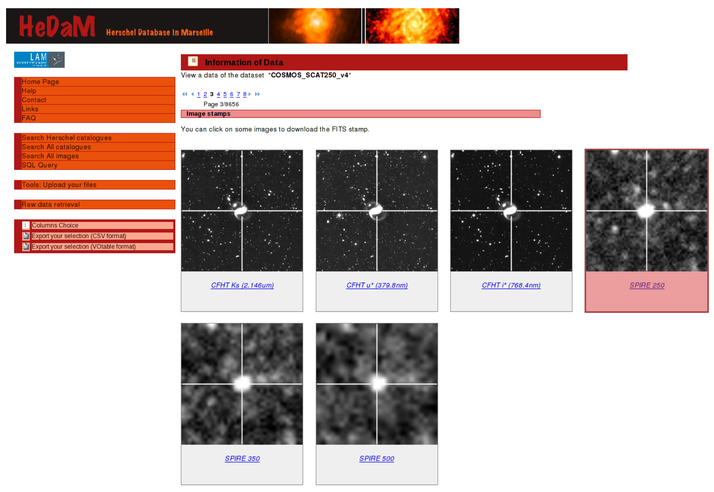


Figure 6: Source detailed view

List based extraction

We developed a way to perform a multiple cone-search on selected catalogues around a list of points.

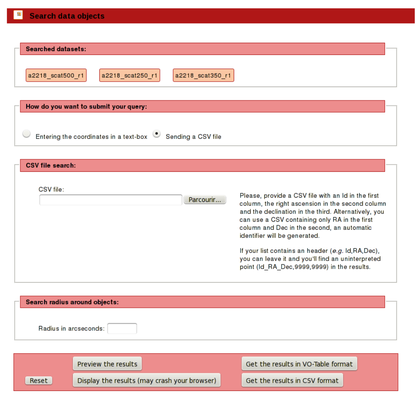


Figure 7: Search by list, submitting the list

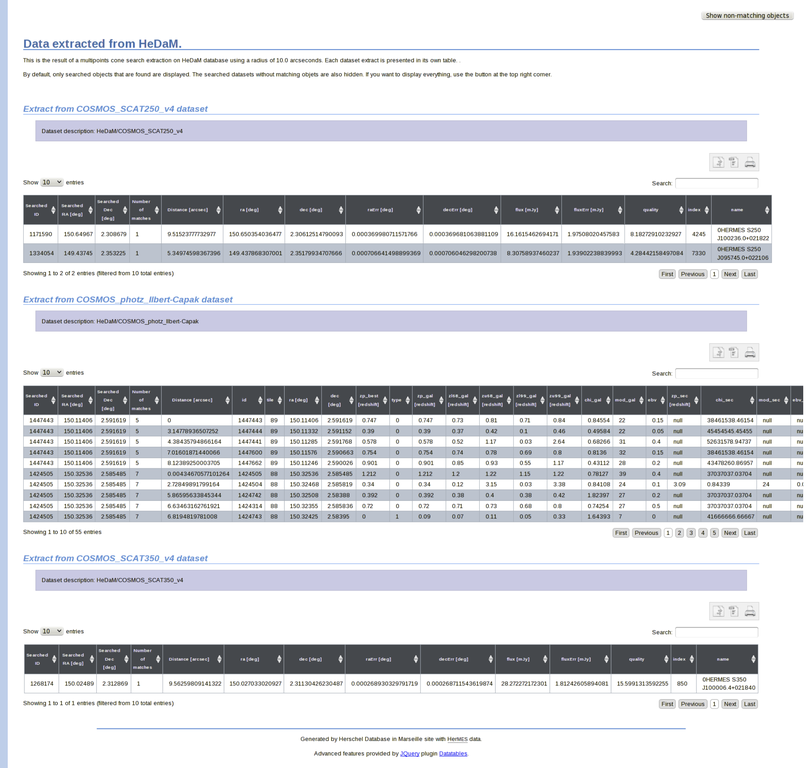


Figure 8: Search by list, the result

The use of VO-Table XML for providing the result allows us to display it directly in a browser *via* a XSLT transformation as shown in figure 8.

Direct data download

We adapted the dataset selection page to allow our users to directly download the catalogues in VO-Table XML and FITS formats as well as the image maps (*Fig 2*).

Integration with other tools

The users can also display the full datasets directly in a CDS Aladin[3] applet (catalogues and images) or in an automatic *javawebstart* Topcat[4] installation.

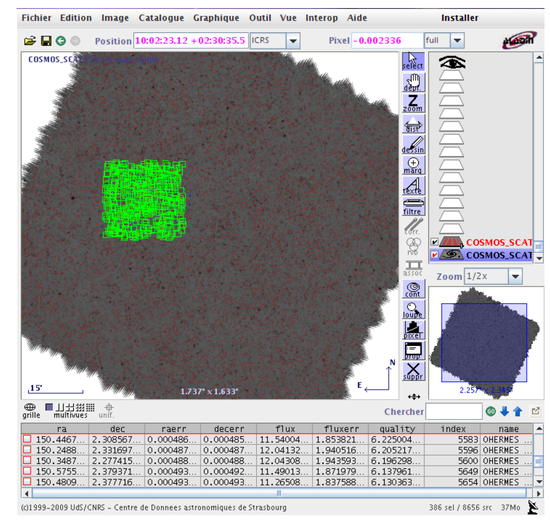


Figure 9: Catalogue on top of an image in Aladin

Evolution

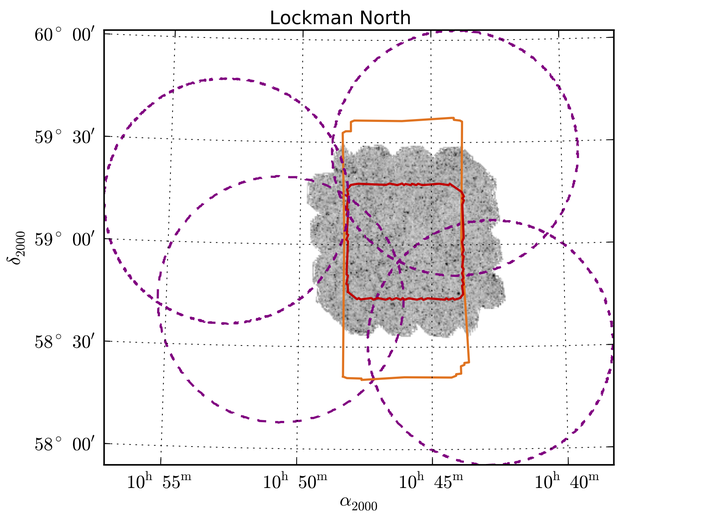


Figure 10: Printing image footprints on another image map

We are currently working to provide our users with a way to visualise the footprints of the data available in HeDaM – using Google Sky API – and to get pretty prints of them.

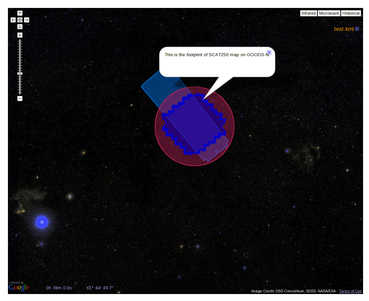


Figure 11: Displaying image footprints with Google Sky

To do this, we are using Python and Felix STOEHR's *footprintfinder*[5] for footprint creation and *matplotlib* with Lee J. JOON *pywcsgrid2*[6] for printing.

References

[1] FENOUILLET, 2010, ADASS, poster #013
[2] MALAPERT, 2010, ADASS, poster #010
[3] http://aladin.u-strasbg.fr
[4] http://www.star.bris.ac.uk/~mbt/topcat/
[5] http://www.stecf.org/software/ASTROsoft/Footprintfinder/
[6] http://leejjoon.github.com/pywcsgrid2/

Illustrations courtesy of HerMES and VNGS surveys.

Contact

← Talk to Yannick during the conference

Find this poster ↓ on the web →

http://hedam.oamp.fr/misc/adass2010poster/

Created with LaTeXbeamerposter http://www-i6.informatik.rwth-aachen.de/~dreuw/latexbeamerposter.php