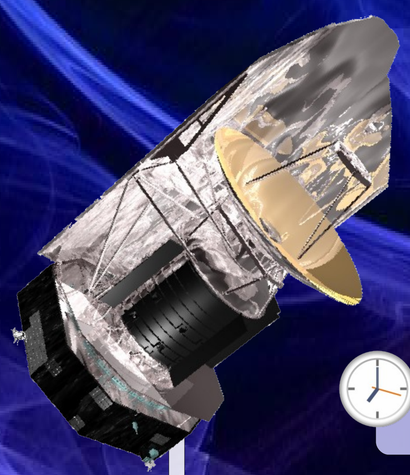
Herschel Interactive Processing Environment
Open to the World and the Future



t = 0

ESOC, Darmstadt

Mission Operations

t = 24h

ESAC, Madrid

Herschel Science Centre

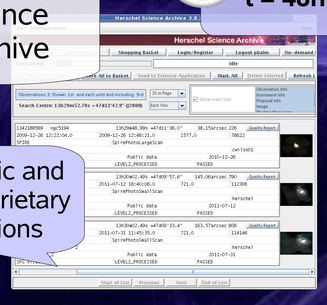
t = 32h

Data Reduction Pipeline

Task 1 → Task 2 → Task 3 → Task 4

Science Archive

t = 48h



7,500 public and 15,000 proprietary observations

SAMP

Easy access to data in Science Archive

Introduction

Herschel is ESA's space-based infrared observatory. It was launched on May 14, 2009 and is in routine science operations. The Herschel Interactive Processing Environment, HIPE, is Herschel's interactive analysis package.

HIPE is the first open-source astronomy data analysis package fully written in Java and Jython, which allows:
• a modern GUI with command echoing,
• sophisticated interoperability and extensibility
• access to the vast amounts of Java libraries.

These aspects may make HIPE the seed for the astronomy working environment of the future.

HIPE

Flexibility to incorporate your ideas

New major versions twice per year

The flexibility of HIPE is founded on the modularity of the data reduction pipelines, which are built from individual tasks. This allows bright ideas from the community to be integrated into the system quickly and easily.

• Excellent FITS format support: Reads data from all ESA astronomy archives (ISO, XMM, Hubble, ...), as well as data from other tools such as IRAF

• Support for ASCII tables and VO tables

Free for Use and Reuse

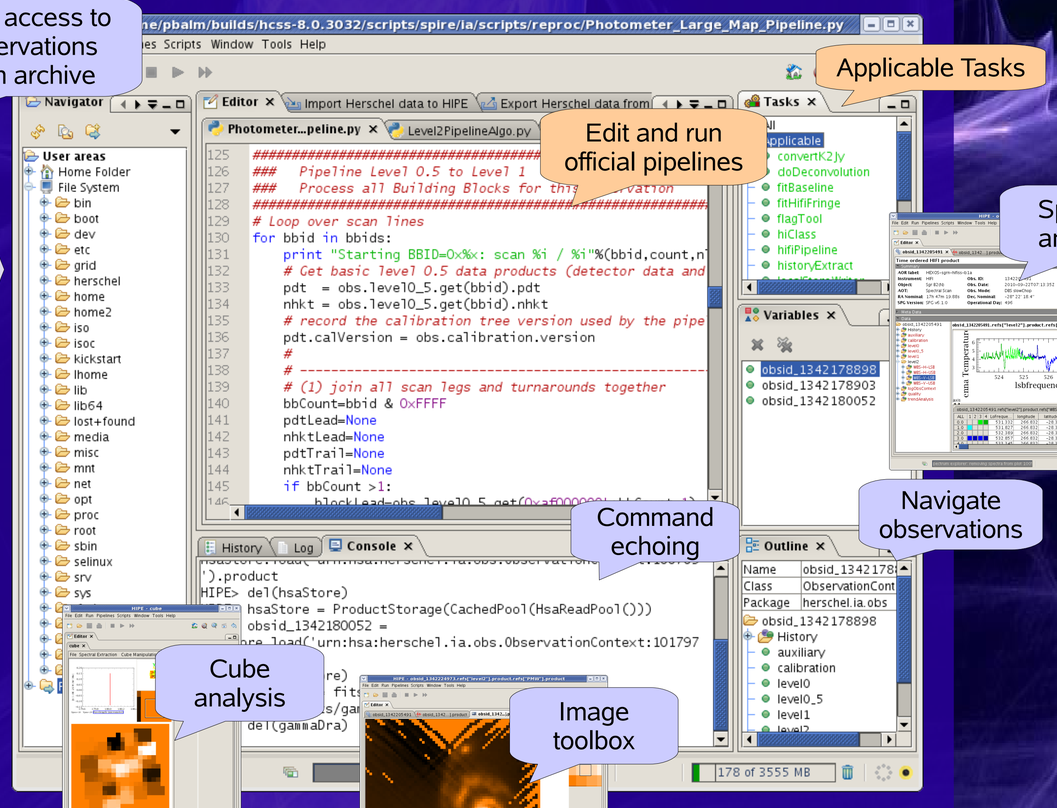
1,000 active users

• 100% Java + Jython
• LGPL license
• Free for use and inclusion in commercial applications
• Source code available
• Public access to development builds (25 per day)

HIPE: Reprocess and Analyse

- **Easy access to data**
- **Run, tune and rerun official pipelines**
- **Extensive set of analysis tools**
- **All in a single package**

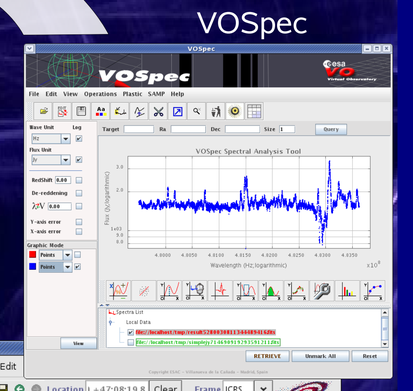
Easy access to observations from archive

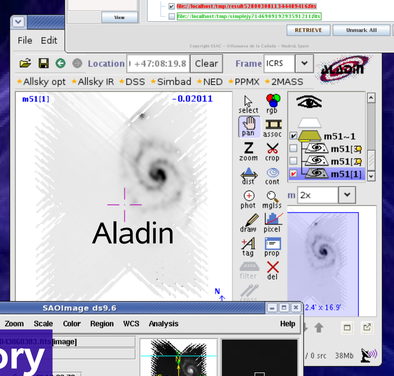


Send to HIPE for combined analysis

SAMP

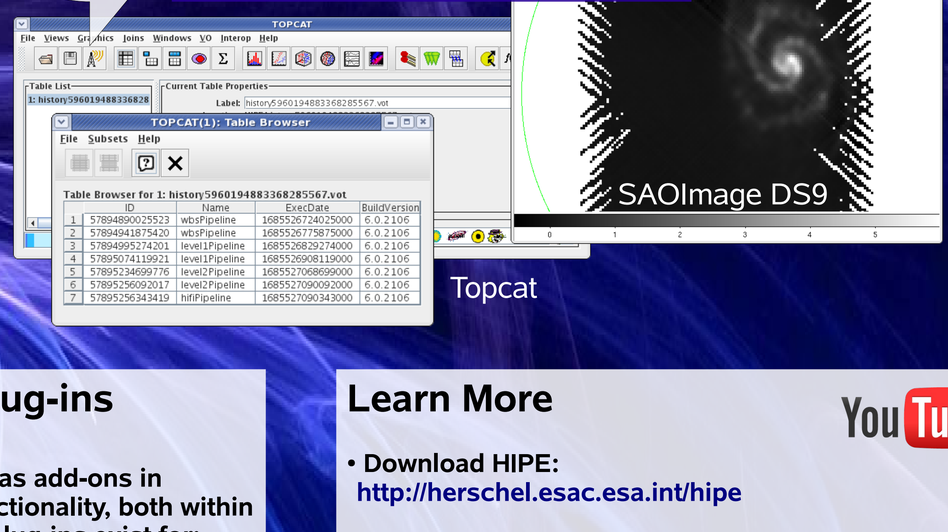
Spectral analysis





SAMP

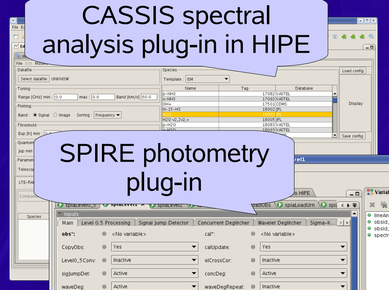
Send to Virtual Observatory for comparison with data from other missions



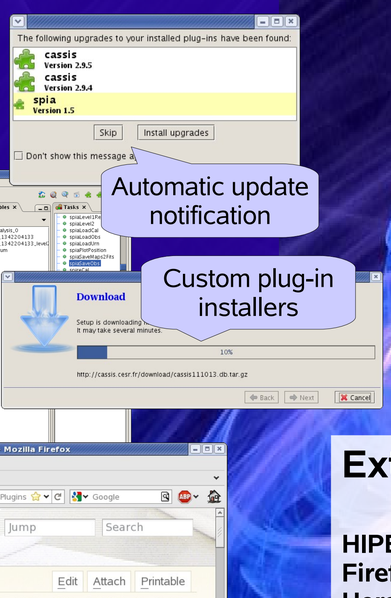
Topcat

HIPE: Customise using Plug-ins

CASSIS spectral analysis plug-in in HIPE

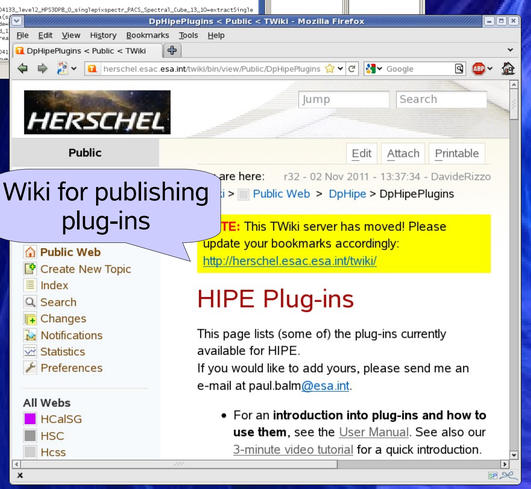


SPIRE photometry plug-in



Automatic update notification

Custom plug-in installers



Wiki for publishing plug-ins

Extensible and Customizable using Plug-ins

HIPE can easily be extended using plug-ins. As versatile as add-ons in Firefox, plug-ins are an easy way to offer specialised functionality, both within Herschel and for other projects. Publicly available HIPE plug-ins exist for:
• adding specific photometric and spectral analysis and line identification tools and viewers,
• spacecraft engineering database access,
• input/output of data from specific tools, and more.
Using plug-ins it is easy to add support for mission-specific data formats.

HIPE plug-ins also promote collaboration in a distributed environment:
• share scripts, Java libraries and even data
• automatically notify users of new versions of plug-ins, which greatly eases propagating updates to the entire community.

Learn More

• Download HIPE:
http://herschel.esac.esa.int/hipe

• Ask questions:
http://herschel.esac.esa.int/esupport/

• Join the discussions in the HIPE Community:
http://hipecommunity.wikispaces.com/

• Check out the learnhipe channel on YouTube
http://www.youtube.com/user/learnhipe

• @learnhipe on twitter

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