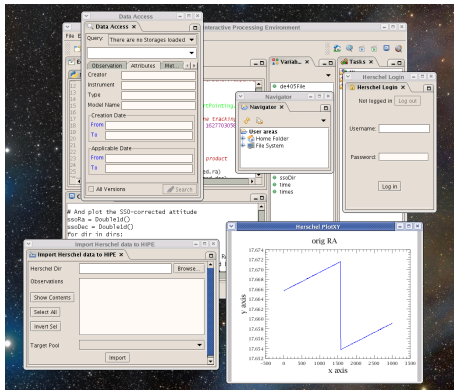# Read Me First

1. Welcome to HIPE!

Welcome to HIPE, the **H**erschel **I**ntegrated **P**rocessing **E**nvironment.

An integrated graphical environment

HIPE brings several applications together under a common, consistent interface. From data retrieval to plotting, from image analysis to scripting, powerful utilities are one click away.

From raw data fresh off the Herschel Archive to publication-ready plots, all you need to get science out of your observations.
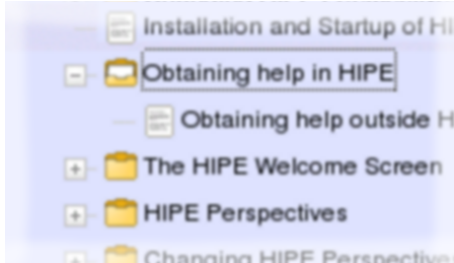
The power of Java and Jython

HIPE is based on Java, one of the most popular programming languages. The multi-platform nature of Java allows HIPE to work flawlessly under Window, Mac OS and many Linux and UNIX flavours.

Jython is the Java-based version of Python, used worldwide for quick development of complex applications.

Help at your fingertips

Extensive documentation on HIPE is available for viewing in your web browser or printing in PDF format. Powerful search and bookmarking facilities will ensure you never get lost.

2. Why should I use HIPE?

There are several good reasons why HIPE is the best choice for reducing Herschel data. Here are a few we thought of:

- It was especially developed to handle Herschel data types!

- It includes all the routines you need to go from off-the-satellite data format to publication-ready results.

- It's the best place to develop your own reduction routines, thanks to the Jython language and the wealth of available functions.

- It is a modern and actively developed application. This ensures fast help and resolution of problems.

3. Where to go next

HIPE comes with tons of documentation, and you may feel a bit lost at first. Below are some helpful pointers to what you should read next.

- The **Quick Start Guide** will guide you through your first data reduction steps, from getting observations from the Herschel Science Archive to reducing them and analysing the results.

- The **Frequently Asked Questions** contain common issues and their solutions. Have a look here if you get stuck, you might be lucky and find an answer.

- The **What's New** lists all the new features since the last HIPE version.

- The **HIPE Owner's Guide** describes all the general features of HIPE.

- The **Data Analysis Guide** describes all the data analysis tools shipped with HIPE. The main emphasis is on graphical interface, but advanced sections cover command line interactions.

- **Scripting and Data Mining** is an advanced guide you should read if you want to develop your own scripts, or understand the internals of third-party scripts. It also describes some legacy software still used within the Herschel project.

- The **User Reference Manuals** contain information on many of the most used functions available in HIPE via the command line. There is one manual for the core software features, common to all instruments, plus three instrument-specific manuals. Beware that these manuals are still in heavy development, and entries are of varying quality.

- The **Product Definition Document** contains the definitions of all the *data products* used by the Herschel software. Products are the standard format for raw and reduced data.

- The **Developer's Reference Manuals**, together with the **API documentation**, offer advanced information on the internals of the Herschel software for developers and expert users. You should not have to consult these document unless you are developing advanced scripts. However, you may have to look at the *API documentation* for features not yet covered by other guides. The *Scripting and Data Mining* guide contains instructions on how to use the API documentation.

In addition, each instrument offers documentation on data reduction and analysis:

- **HIFI:**

  - The **HIFI User's Manual** is a document for all HIFI users giving descriptions in a HowTo format of HIFI specific tasks and tools, including the HIFI pipeline. Also other HIFI specific information such as flag values and (eventually) things learnt from PV. You are expected to look at the *Data Analysis Guide* before being able to follow this manual.

  - The **HIFI Pipeline Specification** describes each step of the pipeline in detail, discussing assumptions, mathematics, algorithms, and changes to the data. Not a beginner document, but useful if you are interested in modifying the HIFI pipeline or just learning more about it. First you should become more familiar with HIPE and Jython constructs.

- **PACS:**

  - In the **PACS Data Reduction Guide** you learn about the structure of PACS data, how to run the pipeline, how to inspect and understand the intermediate and final products. Also given are instructions about issues to consider for particular types of AOT and targets. It is the guide you follow to reduce your data from raw to science quality.

  - The following PACS manuals are for internal use and do not contain useful information for external users: *The Simulator User Documentation*, *Contributing to the PCSS*, *DP-PACS General User Documentation* and *The PACS Advanced User Manual*.

- **SPIRE:**

  - The **SPIRE User's Manual** is an in-depth reference to the data processing pipelines for SPIRE photometry and spectroscopy data. Aimed at more advanced users who wish to exploit their data sets beyond the standard pipeline processing available through the Herschel Science Archive.

    > **Note**
    >
    > The documentation structure has changed with respect to previous releases of HIPE. We think it has now become more coherent and intuitive. To help you with the transition, the *What's New* document contains a detailed description of what has changed.
    >
    > [What's New in User Release 2.0](#)