
Quick Start Guide

1. Preface



The purpose of this document is to help you get started using HIPE with the minimum of fuss, confusion, time wasted, and [Helpdesk](#) tickets raised.

This document assumes the following:

- You have installed HIPE without any issues.
- You have registered with the Herschel system. Go to <http://herschel.esac.esa.int/registration.shtml> if not.
- You have an account with permission to access the Herschel Science Archive (HSA).
- You know the observation ID for at least one set of data.

By the end of this document you will have achieved the following:

- Transferred one observation for inspection from the HSA into your HIPE session.
- Developed a broad understanding of the data structure that you see.
- Learnt how to look at your data.
- Begun to have an understanding of where you can go from here, and where in the documentation to look next.

You will *not* have transferred data onto your hard disk. To learn how to do this please see the *Data Analysis Guide*: [Section 1.2.1](#).

This document is intended to be read as you carry out these actions in HIPE. It does not describe any of the other views you see in the main HIPE window. For that, please see the [HIPE Owner's Guide](#).

2. Access the Herschel Science Archive

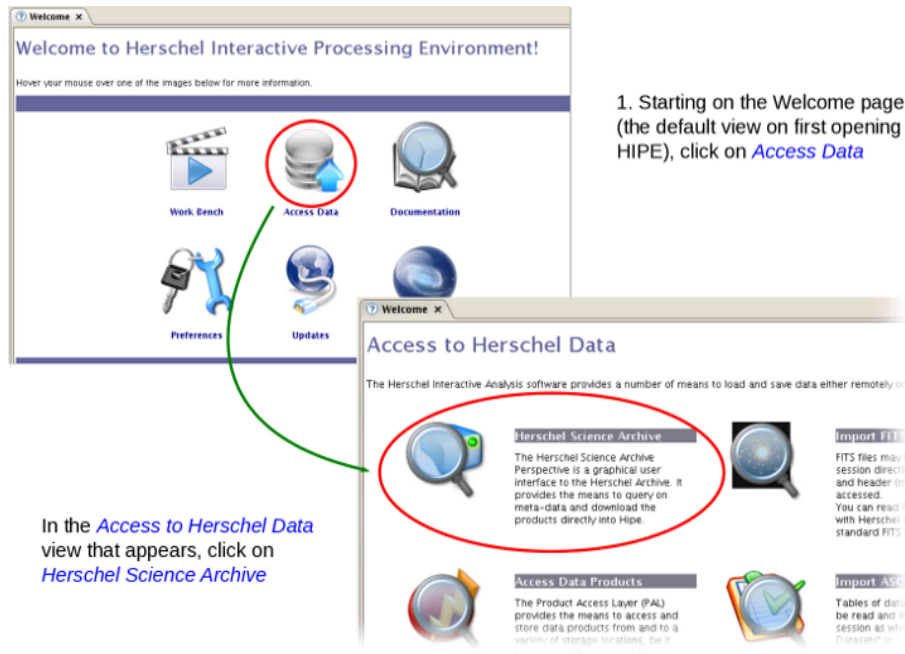


Figure 1. Accessing the Herschel Science Archive

Starting on the *Welcome* page (the default view on first opening HIPE), click on *Access Data*. In the *Access to Herschel Data* view that appears, click on *Herschel Science Archive* (see [Figure 1](#)). The *Herschel Science Archive* view appears. Use it to log into the Herschel system and open the archive interface.

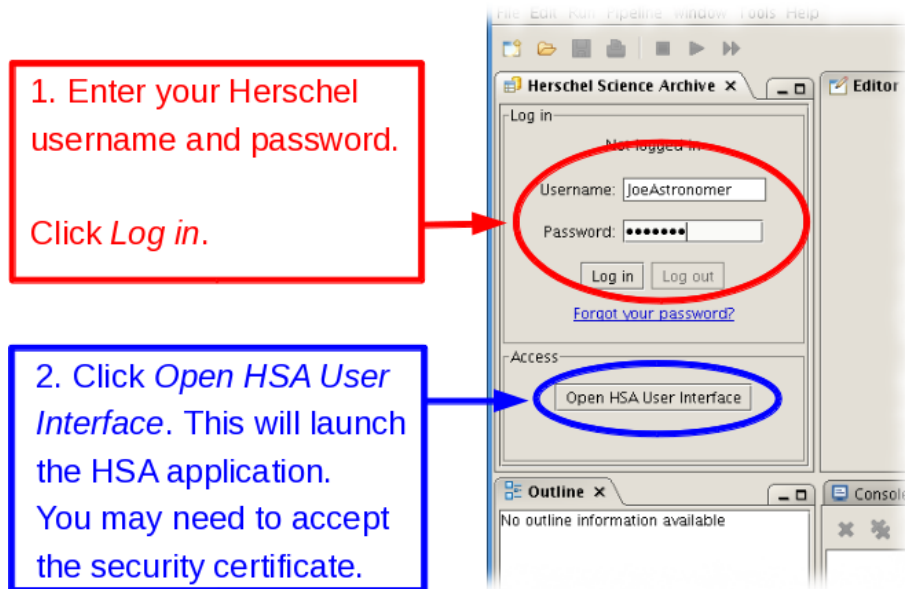



Figure 2. The HSA view

In the *Herschel Science Archive* view, enter your Herschel username and password, and click *Log in*. Then click *Open HSA User Interface*. This will launch the HSA application. You may need to accept the security certificate (see [Figure 2](#)).

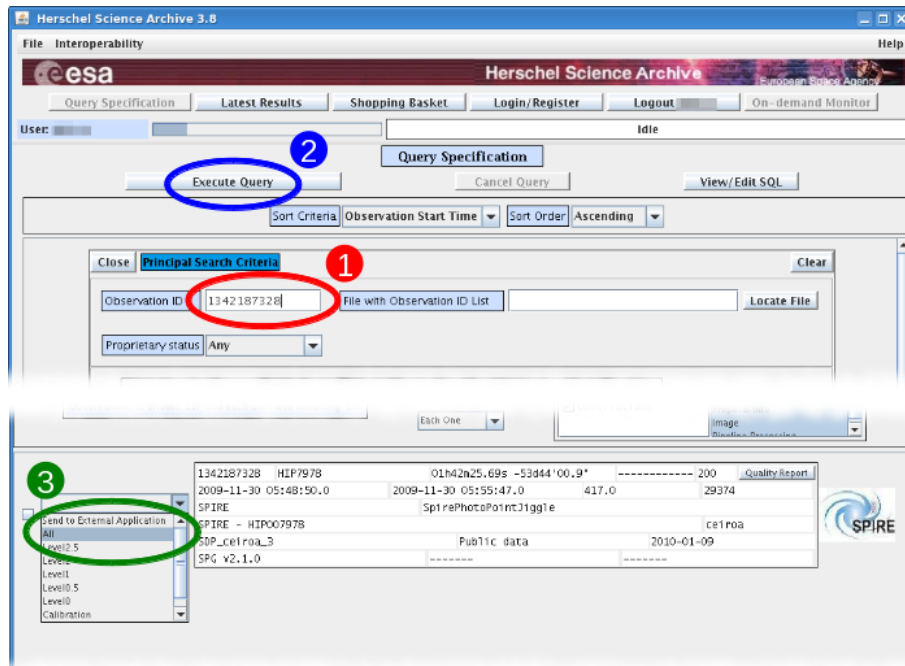


Tip

If you cannot find the username and password fields in the HIPE window, do either of the following:

- Choose *Window* → *Show View* → *Data Access* → *Herschel Science Archive*.
- Click the  icon at the top right corner of the HIPE main window, and click *Yes* in the dialogue window that appears.

3. Query the HSA



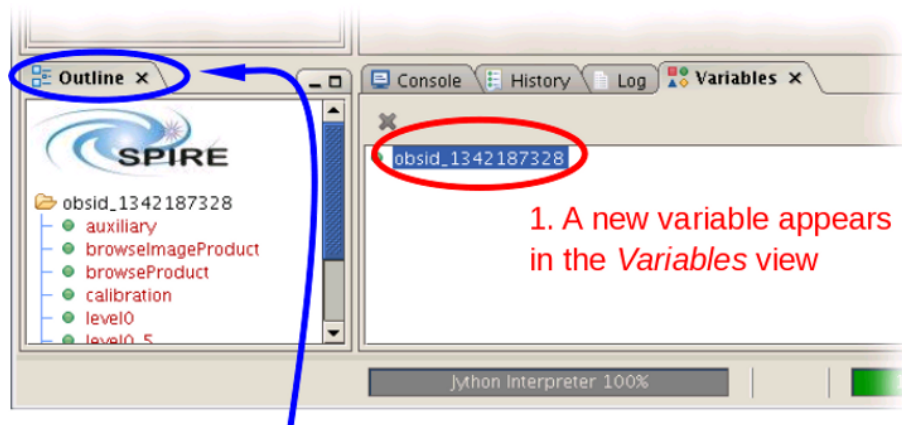
1. Enter the observation ID
2. Click *Execute Query*
3. Select *All* from the *Send to External Application* list

Figure 3. Querying the HSA

These steps are performed in the HSA application, which is not part of HIPE but communicates with it (see [Figure 3](#)). Enter a valid observation ID in the *Observation ID* field. Click *Execute Query*: you should obtain one result. Select *All* from the *Send to External Application* drop-down list next to the result.

Since any observation ID is unique, it is all you need to know to find your data. You can also do more involved queries, for instance per instrument and/or observing mode. For more information see the *Data Analysis Guide*.

4. Get the data into HIPE



1. A new variable appears in the *Variables* view
2. Click on the variable name to see an outline of the observation in the *Outline* view


Figure 4. Loading data into HIPE

Back in HIPE, data are automatically imported and appear as a new variable in the *Variables* view (see [Figure 4](#)). The variable name contains the ID of your observation. Click on the variable to see an outline of the observation in the *Outline* view.



Tip

If you cannot see the *Variables* or *Outline* views, open them via the *Window* → *Show View* → *Workbench* menu.

Note that the views could be in a different position than shown in [Figure 4](#). To restore all the views to their default positions, click the  icon at the top right corner of the HIPE main window, and click *Yes* in the dialogue window that appears.

You can also retrieve the data via the command line. To do so, follow these steps:


1. Choose *File* → *New* → *Jython Script*. An empty editor window appears in the *Editor* view. If you cannot see the *Editor* view, open it by choosing *Window* → *Show View* → *Workbench* → *Editor*.
2. Copy and paste the following code into the empty editor window. Replace *your username* and *your password* with the username and password you use to access the HSA. Replace *your obsid* with the ID of the observation you want to inspect.

```
# Set up HSA username and password
Configuration.setProperty("hcss.ia.pal.pool.hsa.haio.login_usr", "your
username")
Configuration.setProperty("hcss.ia.pal.pool.hsa.haio.login_pwd", "your password")

obsid="your obsid"

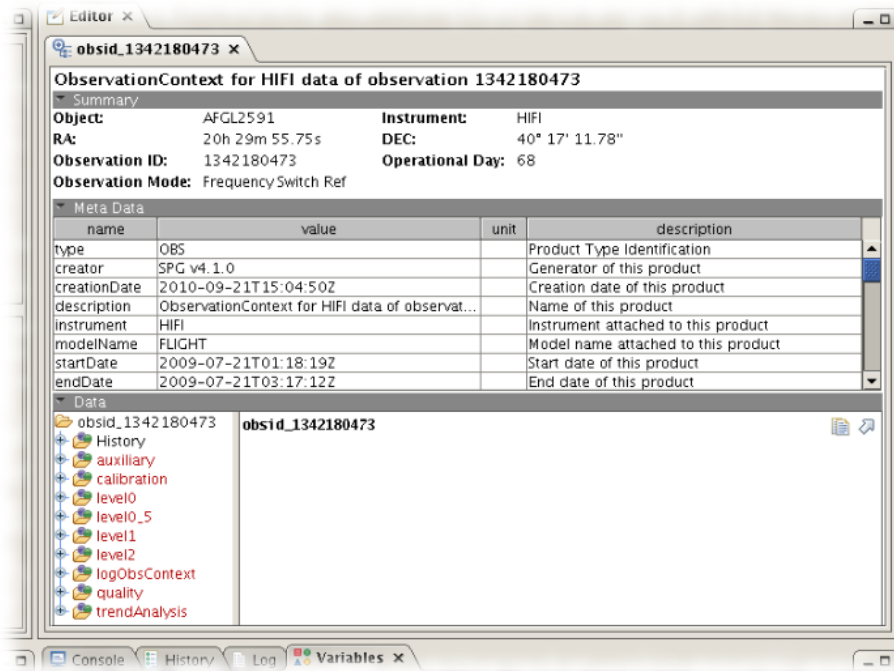
# To get data from HSA use this command
obs = getObservation(obsid, useHsa=True)
```

Note that your username and password are not encrypted. If you choose to save this script, make sure that no one else has access to it.

3. Click the  icon on the HIPE toolbar. HIPE executes the script, and a variable called *obs* appears in the *Variables* view. This variable represents your observation.

The methods described above are ideal for quickly inspecting data but do not store data on your machine. The recommended way to download and save data from the HSA is to obtain a tar file from the HSA and then use the `loadObs` task. See the *Data Analysis Guide* for details: [Section 1.2.1](#).

5. Inspect your data



- Right click on your data in the *Variables* view (here `obsid_1342180473`).
- Choose *Open With* → *Observation Viewer*.
- The Observation Viewer opens in the *Editor* view.
- Use it to browse and inspect your data.

Figure 5. Inspecting an observation

Using the *Observation Viewer* you can navigate through and inspect the contents of your observation.

To look at your Level 2 data, click on the Level 2 product in the lower left area of the Observation Viewer. The Level 2 product contains other products, which can themselves contain other products. This onion skin arrangement of products is represented in the Observation Viewer by a hierarchical structure. The data you want are right in the middle of the onion, so click on through until you reach the bottom product. Inside that you will find your data.

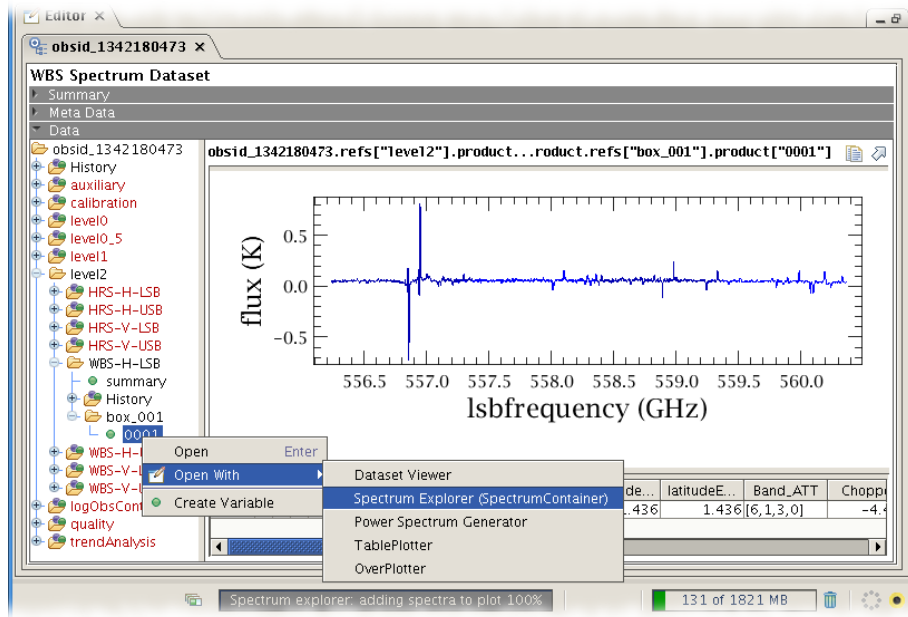


Figure 6. Opening a spectrum with the Spectrum Explorer

Typically, double clicking on a product will open the data in the most appropriate tool with which to view them. You can also right click and choose a specific viewer from the *Open With* menu. The following are the three viewers you are likely to use most often:

- Spectrum Explorer, for single point spectra (all instruments).
- [Cube Analysis Toolbox](#), for spectral cubes (all instruments).
- [Standard Image Viewer](#), for PACS and SPIRE photometry.

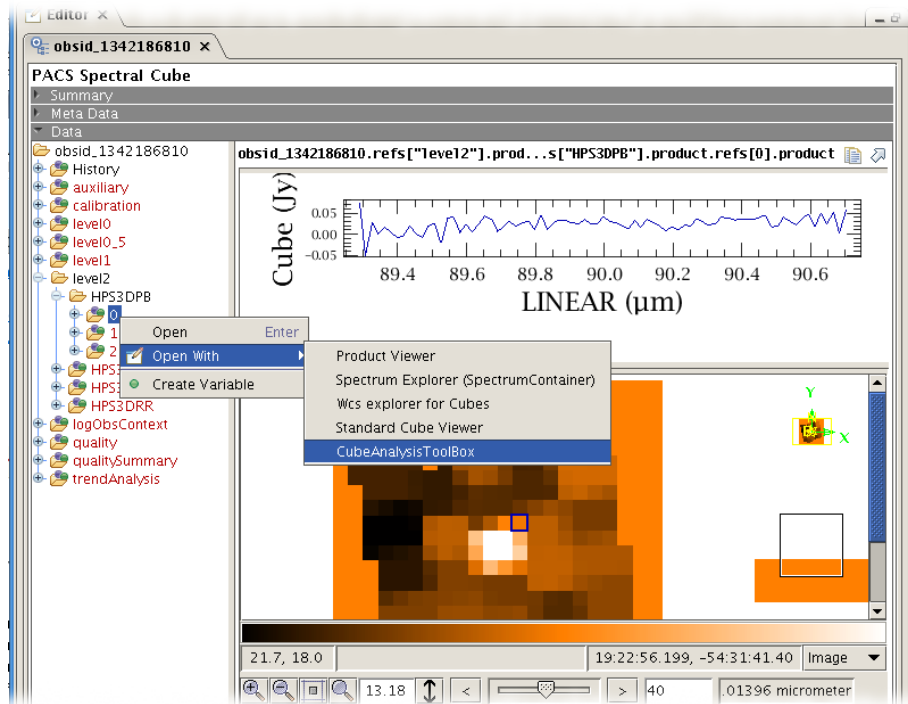


Figure 7. Opening a cube with the Cube Analysis Toolbox



What is an Observation Context?

All Herschel observations are packaged as *Observation Contexts*. An Observation Context contains all the meta data and data products associated with an observation. In other words, it is the box we give you your data in.

The structure of an Observation Context is the same for all instruments and observing modes. As you can see in [Figure 5](#) above, an Observation Context contains the following products:

History:	Contains the automatically generated script of actions performed on your data, a history of the tasks applied to the data, and the parameters belonging to those tasks.
Auxiliary Context:	All Herschel non-science spacecraft data required directly or indirectly in the processing and analysis of the scientific data.
Calibration Context:	The parameters that characterise the behaviour of the satellite and the instruments. Used for reprocessing data.
Level-0 Context:	Raw data, minimally manipulated.
Level-0.5 Context:	Data processed to an intermediate point adequate for inspection
Level-1 Context:	Detector readouts calibrated and converted to physical units, in principle instrument and observatory independent.
Level-2 Context:	Scientific analysis can be performed. These data products are at a publishable quality level and should be suitable for Virtual Observatory access.
Level-2.5 Context:	For PACS, level 2.5 products are photometric maps (<code>SimpleImage</code>) produced with MadMap, combining the scan and cross-scan AORs. For SPIRE, level 2.5 products are combined maps of any overlapping areas from the same proposal using scan mode AOTs. In contrast to PACS, the "naive" mapper is used rather than MadMap. Level 2.5 is not applicable to HIFI products.
Level-3 Context (optional):	Publishable science products with level 2 data products as input. Possibly combined with theoretical models, other observations, laboratory data, catalogues, etc. Formats should be Virtual Observatory compatible.
LogObsContext:	A log of actions performed on the Products in the ObservationContext
Quality Context:	Issues flagged by the pipelines that indicate possible issues with the quality of the data or pipelining. An empty quality report indicates no problems in processing.
Trend Analysis Context	Products useful for tracking systematic changes in instrument response over time.
Telemetry Context:	Optional - only included when the HSC deems it necessary because of a serious problem in the processing to level-0 data.

6. Moving into data analysis and reprocessing

6.1. Starting data analysis

Now that you have had a first look at your data, you will probably want to do so a little more quantitatively by, for example, fitting spectral features, or [comparing with other fits files](#), such as data from other observatories. You may wish to do some basic [photometry](#) or other image analysis among other things, for all of which you should look in the [Data Analysis Guide](#).

6.2. Reprocessing data

After looking at your data, you may decide that you are not happy with how they were reduced. Because you are supplied with raw data and all calibration and auxiliary products, you can reprocess the data yourself. The information you need to reprocess data can be found in the separate instrument guides: the HIFI User Manual, the PACS Data Reduction Guide, and the SPIRE User Manual.