

HERSCHEL USERS GROUP

MINUTES OF NINTH MEETING ESAC, 18-19 June 2015

Members attending: D. Elbaz, P. Hartogh, L. Hunt, C. Kramer, A. Noriega-Crespo, D. Rigopoulou (chair), G. Stacey, A. Weiss, M. Meixner (remotely),

HSC Staff attending: J. Bakker, G. Pilbratt, P. Garcia-Lario, M. Kidger, A. Marston, B. Merin, E. Verdugo

SUMMARY

The 9th Herschel Users Group (HUG) took place in mid June 2015 at ESAC and was the last but one meeting to take place in the Herschel “post operations” phase. The discussion during the meeting was centred on the Herschel Science Archive (HSA), its functionalities and ease of access and, the various documents that describe the mission/products. In what follows we summarise **a number of recommendations focusing on documentation and archival/user provided data products.**

1. Documentation

Herschel’s Legacy relies as much on the excellent quality of the archival data products as well as in the documentation describing the final products. Although a significant amount of documents already exist, the difficult task remains to make the information available to the wider astronomical community in a way that is accessible to novice users. The HUG commends the HSC and the ICC teams for the effort they have invested so far in documenting the various aspects of such a complex mission. However, the HUG would like to make a series of recommendations on further improving the documentation:

1.1 availability of a summary document: this document will act as an executive summary for the mission. Such a document will be addressed to users completely unfamiliar with Herschel (available online only).

1.2 availability of pocket-guides: short concise documents that give an overview of instrumental capabilities and data products (one per instrument). These can be cross-linked to the more detailed guides that already exist.

1.3 x-linking of the various documents: cross-linking of the documents should be implemented as much as possible

1.4 tagging: tagging for all documents where this is possible /achievable (ie available manpower) should be implemented as this will help those users not familiar with the Herschel data to navigate their way around the documentation/archival products.

1.5 filename conventions: Some extra thought needs to be given to the naming scheme of the files which is hard to grasp even for the well seasoned Herschel users. A short document describing the conventions used in the naming of the various files would be tremendously useful. Some examples where information seems to be missing or is incomplete:

- Chapter 5 of the PACS Data Reduction Guide: Spectroscopy (pacs_spec.pdf) does not discuss name conventions at all. There is no Chapter 5 in the HIPE Owner's Guide (hipeowner.pdf). No information is given in Data Products Known Issues.
- The Product Definition Document (pdd.pdf) is 2254 pages long and contains a detailed description of each parameter used in the headers of each data file. Perhaps it would be useful to offer a brief summary of the name conventions used eg for standalone data products. Could the definitions be summarized somewhere which is easily accessible to the novice user?

Although the HSC will cease to exist beyond 2017, some thought should be given to maintenance of the links beyond this date.

2. Herschel Science Archive Products

The final Legacy products should be made as 'user-friendly' as possible, although we need to remember, of course, that all Herschel data products are the result of a sophisticated data reduction. Nevertheless, every effort should be made to remove (as much as possible) instrumental signatures from the final legacy products. **The HUG strongly recommends that the final Legacy products have as few extensions as possible and their naming sequence is simplified as much as possible.**

2.1 General comments applicable to all data products

2.1.1 Effort should be made to collect/make available Spectroscopic data (standalone products or later on UPDPs or expertly reduced data (i.e. by experienced teams). These should be made available through the HSA.

2.1.2 Full mosaic images for SPIRE-P and PACS-P data should be made available through the HSA. The possibility to do science from the Herschel mosaics highly depends on the consistency of the strategies used to produce those mosaics, including the choice of pixel sizes for the projection. We therefore suggest including projected (PhotProject) mosaic images for all the survey fields. The selected pixel size should be chosen such that is it integer multiplicative factors of pixel sizes from band to band so as to make comparisons between bands easier (that would correspond to a pixel size of roughly Nyquist/2).

2.1.3 Calibration models currently available within the HSA should be made available elsewhere (linked from documentation, outside of HSA).

2.1.4 The header of the files should clearly explain the units of the data and perhaps instructions of how to convert them to conventional units.

2.2 Instrument specific comments

2.2.1 SPIRE-P standalone products should have only three extensions: the science data, error map and coverage map

2.2.2 PACS-P standalone products should have only three extensions: the science data, error map and coverage map

2.2.3 PACS-P JScanam data are currently distributed as the final PACS-P data products. Although differences are small UniMap data should also be made available because of the superior error maps they provide (as foreseen for inclusion in the ultimate HIPE release).

2.2.4 For each PACS line scan, wavelength range or blue/red SED range there should be an associated ASCII spectral file and possibly a link to the "postcard gallery".

2.2.5 HIFI: At the time of writing the HIFI ICC has already delivered HPDP HIFI data. Also, it should be made clear that electrical standing waves in bands 6 & 7 will remain in the data but HIPE will be able to remove them.

3. User provided products

The HUG would like to see 'HELP' and 'Via Lactea' products made available to the wider community.

The SPIRE and PACS Point Source Catalogues should also be made available.

4. Repository

A number of options were presented and discussed during the meeting. The HUG strongly favours using a Twiki as the repository (similar to that used by Planck) in the near future before moving to one of ESA's repositories (long term).

5. Virtual Observatory

The HUG recommends that the following files be made available through the VO:

Standalone products

Mosaics of Herschel images

Photometric catalogues (UPDPs or HPDPs if possible)

PACS & HIFI data cubes (spectroscopy)