

PACS Spectroscopy Data Products, Data Processing, and Data Reduction

This part of the PACS presentation is provided only as a video recording, available on the workshop website.

Here we add a summary of where to get hold of further documentation that explains in more detail the subjects discussed in this presentation.

Technical information

<http://herschel.esac.esa.int/twiki/bin/view/Public/PacsCalibrationWeb?template=viewprint>

The PACS Observer Manual: about the instrument and its observing modes

AOT release notes: How to plan an observation, including the dos and don'ts for different observing modes

Information about the calibration updates and their history can be found on the link above.

Technical information

<http://herschel.esac.esa.int/twiki/bin/view/Public/PacsCalibrationWeb?template=viewprint>

Spectrometer calibration: the calibration and performance documents can be found in the link above.

The beam images at various wavelengths can also be found on that link

Calibration for photometer scan maps: various technical notes and reports in the link given above, the beam maps can also be found here.

Mappers and a comparison between them: also in the link given above

Documentation

<http://herschel.esac.esa.int/twiki/bin/view/Public/PacsCalibrationWeb?template=viewprint>

Latest documentation: PACS Data Reduction Guide, Known Issues and What's New are on the link above.

PACS Data Reduction Guide and the PACS Products Explained: running the pipeline, inspecting PACS data, post-processing, and explaining the products PACS provides. They are part of the HIPE help documentation.

Documentation

<http://herschel.esac.esa.int/twiki/bin/view/Public/PacsCalibrationWeb?template=viewprint>

Cookbooks, tutorials and scripts: via the link above. Scripts to do various data analyses are provided in HIPE. Cookbooks to accompany these and to explain certain aspects of working with PACS data will be provided later this year via this page. If you are interested in these, please get in touch earlier (via the Herschel Helpdesk).

The Level 2/2.5 cube acronyms defined

HPS = Herschel PACS Spectroscopy

3D = cube

EQ = this cube has an equidistant wavelength grid (i.e. each bin size is the same)

final R|B = Red or Blue camera

HPS3D[R|B] = Copy of the Level 1 PacsCube: ignore

HPS3D**R**[R|B] = Rebinned cube (first of the final pipeline cubes)

HPST**BR**[R|B] = Rebinned cube as a table (columns of fluxes, wavelengths, positions)

Spatially resampled/mosaic cubes:

HPS3D**D**[R|B] = Drizzled cube (using drizzle task)

HPS3D**P**[R|B] = Projected cube (using specProject task)

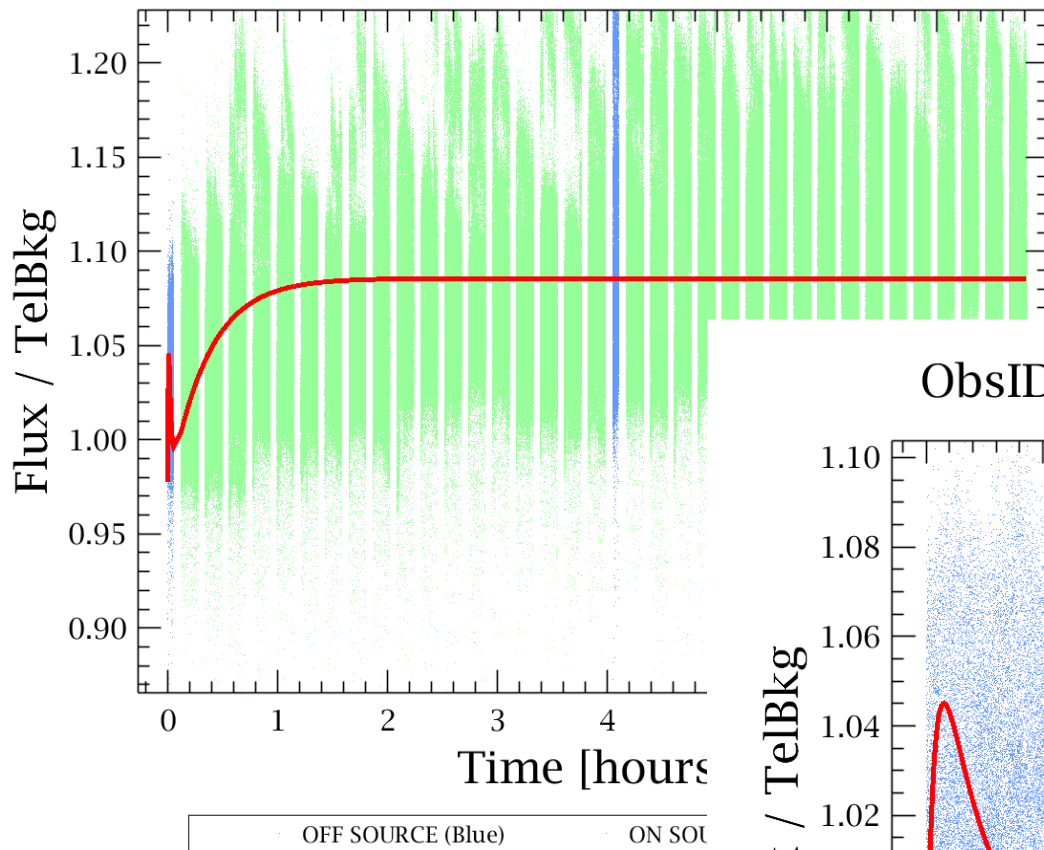
HPS3D**I**[R|B] = Interpolated cube (using specInterpolate task)

Which cubes are suited for what

A guideline: there are always ifs and buts. Note: rebinned cubes can be used for all observations but they are not the most convenient.

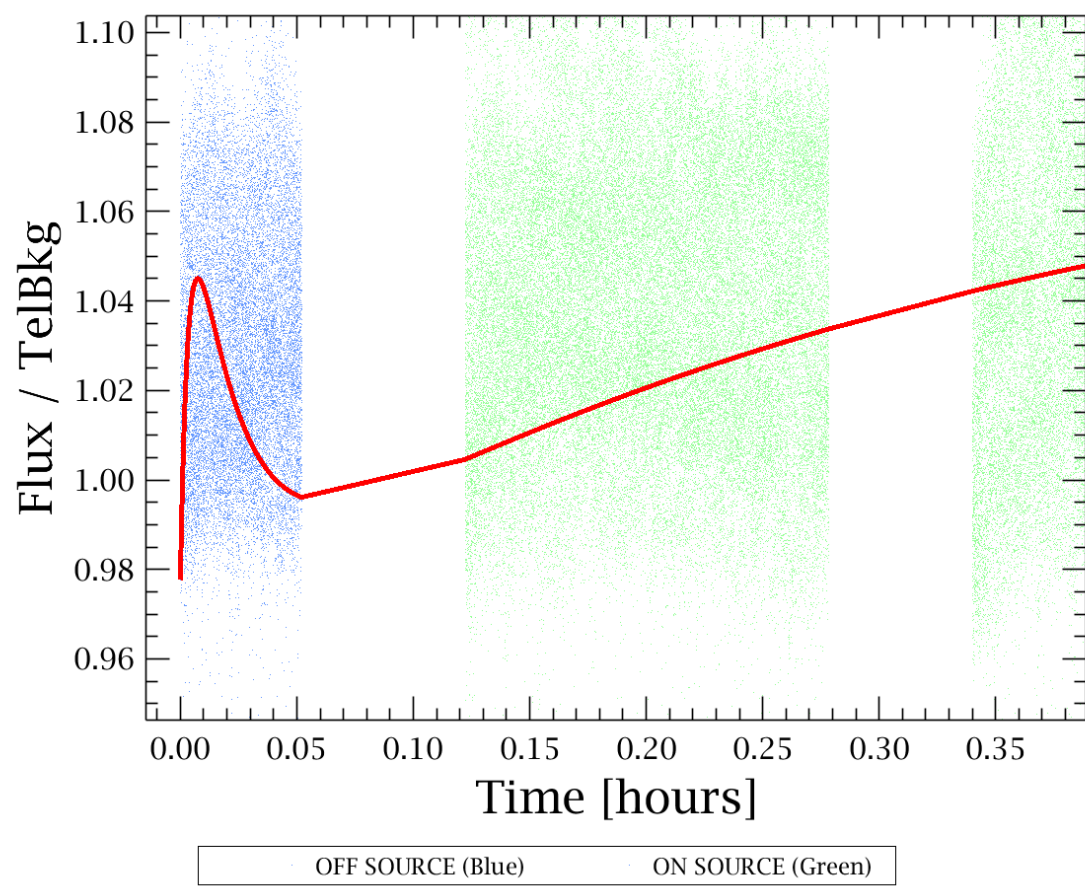
- *Pointed observations of point sources:* rebinned cubes and point source correction tasks.
- *Undersampled observations (single pointing or large-step raster):* rebinned cubes ideally for the spectral measurements, but can use interpolated cubes (check results against rebinned cubes, if you are happy with the comparison you can use the interpolated cube results).
- *Nyquist or oversampled mapping observations, line scan:* ideally the drizzle cubes **however**, in SPG 13 and HIPE track 13, due to an oversight, these cubes have incorrect fluxes for the chop-nod mode observations. Use the projected cubes or contact the Helpdesk for more information.
- *Nyquist or oversampled mapping range scans:* projected cubes.

ObsID 1342238726 -- module 12



Unchopped line scan: blue is the off-source, green the on-source

ObsID 1342238726 -- module 12



A difference in the response of the instrument between the first off-source and the on-source for this observation will lead to a slightly undersubtracted background level