

Herschel Legacy Product task force meeting #10
19/09/2017- 14:00 CEST - Room C031

Minutes of Meeting.

Present: KE, EV, DT, JCS (p.t.), PGL

The goal of this meeting is to look at what will be finally achieved by the end of the year on the topic of legacy products, and discuss the hand-over of any task to the small team that will still work on Herschel next year.

1. Review of action items

AI	Description	Actionee	Due date
HPDP9-AI1	Fix typos on README.html following input from Alvar	DT	29/09/2017 Done
HPDP9-AI2	Fix broken links on README.html following input from Alvar	DT/IV	29/09/2017 Done
HPDP9-AI3	Reformat all README.html and copy to repository	AG	06/10/2017 To late to be done
HPDP9-AI4	Update README.xml for HiRes in order to use the html release note instead of the markdown	IV	29/09/2017 Done

2. Status HSA 9.0beta1:

Juan-Carlos presents the latest status of the catalogue interface (both simple form and ADQL forms) – see <http://archives.esac.esa.int/ehsadev/whsa/>

Several decisions and actions are identified:

- Need to check why the fields “SPSC_ID” and “NAME” in the SPIRE and PAS PSC tables resp. have been turned into source_id in the interface
- We accepted the fact that obsids is not present in the SPIRE catalogue, and noted that for the PACS one it only represents the OBSID001 used to extract the source. We also accepted to keep the functionality of the clickable obsid in this column of the PACS PSC despite of the limitation above
- Add hyperlinks to catalogue cosmos pages under their name in the simple form page
- Some more information is needed on the catalogues
 - “nickname” of catalogue (both for simple and ADQL forms)
 - Description of all columns: this can be derived from the explanatory supplements for PPSC, SPSC and HIFI line catalogue. JCS will take care of it. For the SPIRE line feature for mapping DT has provided inputs by email. For the SPIRE line feature for spare, IV will have to do it
 - Selection of columns to be ticked on by default in the simple form

- ADQL query examples
- David will send examples of the HIFI and SPIRE line catalogues, together with the extra info mentioned above

For the record, the information provided on the above is summarized in the Appendix for these minutes.

3. Current status of HPDP objectives per instrument and their schedule

a. Final status of HPDP/ADP deliveries by end of 2017

Highly-Processed Data Products:

The following table summarizes the status of all contemplated HPDPs to date.

HPDP name	Status	Expected delivery	Priority/custodian
HIFI			
Expert-reduced Spectral SScans	Delivered	06/2017	1 / DT
Expert-reduced Spectral Maps	V2 delivered	2a Tentative end of 2017	1 / SFB
Flux Uncertainty error budget tables	Delivered	N/A	2 / DT
OFF spectra data products	Delivered	N/A	2 / DT,MR
Non-averaged level 2 (UPDP)	Delivered	N/A	2 / DT
Spectral line catalogue	Overdue	2018	3 / DT
Fix of anomalous observations	De-scoped	06/2017	3 / DT
PACS			
PACS-S red leak range	To be consolidated	2018	1 / EP
PACS -S blue edge	TBD	2018	2 / KE/EP
PACS-S unchopped baseline correction	De-scoped	11/2017	2 / KE
PACS-S ON-OFF spectra	Delivered	11/2017	2 / KE
PACS-S POC	De-scoped	09/2017	3 / EP
PACS-S fix of anomalous observations	De-scoped	10/2017	3 / KE
PACS-S non-standard AOT	De-scoped	09/2017	3 / EP
PACS-S extremely bright sources	As UPDP	Unknown	3 / UPDP
HPPSC	V1 delivered	V2 2018?	1 /Konk.
PACS-P Unimap HPDP	Delivered	07/2017	1 / LC/DT
PACS-P JScanam HPDP	Delivered	03/2017	3 / JGC
PACS-P Mini-Scan level 2.5	De-scoped	NA	3 / LC
Unimap on cosm. fields revisited	As UPDP	Unknown	3/ UPDP
SPIRE			
SPIRE-S background correction	Delivered	2016, rev. 2017	1 / IV
SPIRE-S SECT and POCT calibration spectra	Delivered	12/2016	1 / RH

SPIRE-S high absResolution spectra	Delivered	12/2016	2 / RH
SPIRE-S non-averaged spectra	Delivered	12/2016	2 / RH, IV
SPIRE-P HiRes products	Delivered	01/2017	2 / IV
SPIRE-S spectral feature catalogue	V1 delivered	V2 2018	2 / IV
HSPSC	V2 delivered	V3 2018	2 / IV
SPIRE-P level3 maps of Gal plane	De-scoped	Unknown	3 / ICC
SPIRE-S fix of anomalous observations	De-scoped	07/2017	3 / IV
SPIRE-P Improved Maps	On-going	2018	3 / IV
SPIRE-P astrometry corrected maps	Delivered	06/2017	3 / IV

Ancillary Data Products:

All targeted ADPs have been delivered and can be downloaded from the HSA.
ADPs are now in maintenance mode.

ADP name	Status	Expected delivery	Priority/ Custodian
HIFI			
HIFI Trend Analysis Data Products	Delivered	N/A	3 / DT
HIFI Tsys Data Products	Delivered	N/A	3 / DT
HIFI Beam Data Products	Delivered	N/A	1 / DT
HIFI OBSW images	Delivered	12/2016	3 / DT
HIFI LCUSW and Safety tables	Delivered	12/2016	3 / DT
ILT diplexer data products	De-scoped	01/2017	3 / DT
ILT gascell data products	Delivered	03/2017	3 / DT
SEU monitoring data products	Delivered	01/2017	3 / DT
SPIRE			
SPIRE-S and SPIRE-P Beams	Delivered	N/A	1 / IV
SPIRE-P filter transmission curve	Delivered	N/A	1 / IV
SPIRE-S diffraction losses	Delivered	N/A	1 / IV
SPIRE OBSW images	Delivered	N/A	3 / RH
Trend monitoring data products	Delivered	N/A	3 / IV
CDMS simulator	De-scoped	Best effort basis	3 / RH, IV
Noise spectra for SPIRE-S	Delivered	03/2017	3 / IV, RH
PACS			
PACS-P and PACS-S Beams	Delivered	04/2017	1 / LC, EP
PACS-P filter transmission curve	Delivered	04/2017	1 / LC
PACS OBSW (CDU and SPU)	Delivered	12/2016	3 / ICC
Trend monitoring data products	Delivered	12/2016	3 / ICC
SEU monitoring/log	Delivered	12/2016	3 / ICC
PACS-S calibration source spectra	Delivered	07/2017	3 / DT

b. Status of HPDP ingestions and readiness of README.xml files

The following tasks will still be needed in 2018:

HPDP name	Products	README.xml	Cosmos	HSA
HIFI				
Expert-reduced Spectral Maps	DONE	TBD	TBD	TBD
Flux Uncertainty error budget tables	DONE	DONE	TBD	DONE
OFF spectra data products	DONE	DONE	TBD	TBD
Spectral line catalogue	TBD	TBD	TBD	TBD
PACS				
PACS-S red leak range	TBD	TBD	TBD	TBD
PACS -S blue edge	TBD	TBD	TBD	TBD
PACS-S ON-OFF spectra	DONE	TBD	DONE	TBD
HPPSC	DONE	DONE	DONE	TBD
SPIRE				
SPIRE-S background correction	DONE	DONE	TBD	DONE
SPIRE-S SECT and POCT calibration spectra	DONE	DONE	TBD	DONE
SPIRE-S high absResolution spectra	DONE	DONE	TBD	DONE
SPIRE-S spectral feature catalogue	V2 TBD	V2 TBD	V2 TBD	V2 TBD
HSPSC	V3 TBD	V3 TBD	V3 TBD	V3 TBD
SPIRE-P Improved Maps	TBD	TBD	TBD	TBD
SPIRE-P astrometry corrected maps	DONE	DONE	TBD	DONE

Although this needs to be confirmed with Ivan, who could not attend the meeting, the idea reg. custody of the above tasks would be:

- The population of the cosmos pages is performed by the HPDP provider. This means David for HIFI, Ivan for SPIRE, and probably Ivan for PACS (based on the content of the associated release notes)
- The generation of all README.xml files is done by Ivan, with guidance from HPDP provider reg. details on e.g. prime postcards, file names, etc
- All missing HIFI HPDPs shall be done by David, all missing HPDPs by Ivan, and for the PACS ones David/Elena will take care of the red lead refurbishment, and Elena will take care of the blue edge continuation after Katrina's initial delivery

c. Status of legacy repository

Before he left, Alvar ran another checks for spelling typos and broken links. After some actions from Ivan and Jon Brumfit, the only broken link left is that to the red leak tarball that had to be withdrawn from the repository, but is effectively still linked from the Readme.html. This has been removed (the README.html is now effectively empty until the redleak HPDP is repaired).

There remains a handful of typos that could be fixed e.g. by Mark or Ivan.

On top of that, David has prepared a set of directories to host the source files of release notes, as well as top level documents, see:

<http://archives.esac.esa.int/hsa/legacy/other/.documentationForHSC/>

DT and KE will populate this area by the end of January 2018. Some files are needed from Elena. Ivan will take care of the SPIRE bit.

4. Appendix: proposed ancillary information on PSC and line catalogues

[Extract from emails sent on Dec. 20th]

Catalogue names

On simple form:

HPPSC 70
HPPSC 100
HPPSC 160
HSPSC 250
HSPSC 350
HSPSC 500
HIFI line native
HIFI line smooth
SPIRE line sparse
SPIRE line mapping

On ADQL form

HPPSC: hsa.pacs_point_source_070, hsa.pacs_point_source_100,
hsa.pacs_point_source_160
HSPSC: hsa.spire_point_source_250, hsa.spire_point_source_350,
hsa.spire_point_source_500
HIFI: hsa.hifi_spectral_line_native, hsa.hifi_spectral_line_smoothed
SPIRE: hsa.spire_spectral_feature_sparse, hsa.spire_spectral_feature_mapping
(note: there maybe other catalogues to come, like the continuum ones, but I leave that to Ivan to comment).

Column descriptions

For the PSCs and the HIFI line catalogue, they can be found in the respective explanatory supplements. For the SPIRE line feature catalogue, the following can be used:

[this should definitely be revised by Ivan]

obsid: Observation ID
object: Target name

map_sampling: Type of mapping sampling on the sky: full or intermediate
frequency: fitted frequency of the detected spectral feature [GHz]
frequencyError: error on the fitted frequency of the detected spectral feature [GHz]
SNR: Signal-to-noise ratio of the flux of the fitted frequency of the detected spectral feature
array: name of the SPIRE-S array: either PSW or SSW
row: row number of the pixel in the map cube
column: column number of the pixel in the map cube
ra: right ascension of the pixel [deg]
dec: declination of the pixel [deg]
featureFlag: flag used to indicate the quality of the spectral feature fit: first digit indicates good/poor (0/1) fit. Second digit indicates low/high (0/1) noise region
velocity: assumed LSR velocity of the target [km/s]
velErr: error on Vel [km/s]

Columns to be selected by default in simple form

[this should definitely be revised by Ivan]

HPPSC

name,band,ra,dec,flux,snr,rms,fwhmxfit,fwhmyfit,ssomapflag

HSPSC

SPSCID,RA,DEC,FLUX,SNR,FWHM1,FWHM2,SSOCONT_FLAG

HIFI spectral line catalogue - native

obsid, name, species, transition, restFrequency, eup, v0, flux, signalToNoiseRatio

SPIRE spectral feature catalogue - mapping

obsid, object,frequency, SNR, array, ra, dec, velocity

Description of catalogues for ADQL form

HPPSC

This table contains all entries from the PACS point source catalogue in the [Band] micron band.
It contains all parameters derived from the fitted sources in this particular band, together with flags providing additional warnings and quality measures.

where [Band] can take values 70, 100, 160

HSPSC

This table contains all entries from the SPIRE point source catalogue in the [Band] micron band.

It contains all parameters derived from the fitted sources in this particular band, together with flags providing additional warnings and quality measures.

where [Band] can take values 250, 350 and 500.

HIFI spectral line catalogue - native

This table contains all entries from the HIFI spectral line catalogue at native resolution. It covers line identified in 270 individual obsids, and provides for each of them the parameters derived from the fitted spectral features, together with the ancillary spectroscopic information extracted from the spectral database used in their identification.

Note: for the smoothed catalogue, the number 270 will change to 278.

SPIRE spectral feature catalogue - mapping

This table all entries from the SPIRE spectral feature catalogue derived from mapping observations. It covers features identified in 179 individual obsids, and provides for each of them the parameters derived from the fitted lines, together with the information about the pixel they are associated with in the corresponding cube.

Note: The number 179 above should be changed to TBD for the sparse catalogue (need to ask Ivan)

Some examples of ADQL queries

a. Select extended objects from SPIRE 250 mic catalogue

```
select * from hsa.spire_point_source_250 where extsrc_flag is true
```

b. Select sources with flux snr above 10 from SPIRE 250 mic catalogue

```
select * from hsa.spire_point_source_250 where flux/flux_err > 10
```

c. Select all CO line detection with SNR>10 in HIFI

```
select * from hsa.hifi_spectral_line_native where (species = "CO, v=0") AND (signal_to_noise_ratio > 10)
```

d. Select all lines from extra-galactic origin in SPIRE line catalogue

```
select * from hsa.spire_spectral_feature_sparse where velocity > 100
```

e. Select all species observed by HIFI between 500 and 520 GHz
select species, transition, rest_frequency, flux from hsa.hifi_spectra_line_native
where (rest_frequency > 500) and (rest_frequency < 520)

f. Select all SPIRE spectral features from the sparse spectra where the number of
repetition is larger than 1
select * from hsa.spire_spectral_feature_sparse as spire
inner join hsa.hsa.metadata_expert_panels as aot
on spire.obsid = aot.obsid
where aot.numrep > 1