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How to contribute to Herschel with software and data

A.M. Heras

Herschel Science Centre / ESTEC

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Extract from Policies and Procedures Document (part of the KP AO)

Besides fulfilling their scientific goals, **Key Programme consortia must provide data products** which will:

- I. allow for early science exploitation by the community, based on the data products themselves;
- II. provide the community with information usable as the basis of follow-up proposals for Herschel observing time during the mission.

The Key Programme consortia are also required **to share the methods employed to generate the data products provided to the HSC**. It is possible that these methods could be incorporated into or adapted for use in the standard HSC data processing software for public release.

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Data products contribution (i)

- Contributed data products may be:
 - Refined processing of Herschel level-2 products (per AOR)
 - Level-3 products (per AOR or result from the combination of AORs)
 - Catalogues:
 - Astronomical Source catalogues
 - Spectral line lists
 - Others
 - Other KP related data, e.g.:
 - Model SEDs
 - Reference spectral line lists

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Data products contribution (ii)

- KP data products shall be made available to the HSC at the end of the proprietary period:
 - By giving the link of the Web site where the KP products are provided
 - Through links to electronic catalogues, e.g. CDS
 - As “Highly Processed Data Products” delivery to be uploaded in the Herschel Science Archive (similar to the ISO Data Archive)
- The Herschel Science Archive offers:
 - Integration of the KP processed data products in the HSA data model
 - Queriable access and retrieval of KP processed data products
 - Queriable access and retrieval of KP catalogues
 - Access and retrieval of associated documentation
 - Access and retrieval of ancillary data (e.g. modelled data)
 - Links to the publications in NASA ADS
 - Links to the catalogue in CDS

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Data products contribution (iii)

- Data products shall conform to the guidelines provided by the HSC:
 - Compulsory Metadata keywords
 - FITS standard
- Delivered data products to follow the Herschel product definitions:
 - Level-2 and -3 products (spectra, images and cubes)
 - Spectral line catalogue product
 - Astronomical Source catalogue product
 - Others to be specified

Product definitions will be provided in the DP documentation pack

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Example: Contributed products in ISO Archive



ISO Data Archive

File Print/Save Find Field Documentation Publications Help

Query Specification Latest Results Shopping Basket Login/Register Logout Request Monitor

Not Logged In Idle

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Query Specification

Execute Query Cancel Query View/Edit SQL

Sort Criteria: Observation Start Time Sort Order: Ascending

Search Target By: Name Type Equatorial Galactic Ecliptic

Radius Target In FOV
 Box Ignore FOV

Name: for SIMBAD Radius: 5 arcmin

File With Target List: Locate File Coordinates Display: Sexagesimal

Wavelength [μm]:

Obs Type: Standard Data Non-Standard Data Engineering Data

All	CAM	None	All	LWS	None	All	PHT	None	All	SWS	None
CAM01			LWS01			PHT03			SWS01		
CAM03			LWS02			PHT04			SWS02		
CAM04			LWS03			PHT05			SWS06		
			LWS04			PHT17			SWS07		

Inc Parallel Inc Serendipity

Search Quality Flags: CAM PHT LWS SWS

Close: **Highly Processed Data Products (HPDP)** Clear

- CAM photometry of faint 6.7 μm sources in the SSA13 field [Search Catalogue](#)
- ISOCAM 12 micron Atlas of Bright Spiral Galaxies [Search Catalogue](#)
- Mid-IR Spectro Imaging ISOCAM CVF Observations** [Search Catalogue](#)
- CAM CVF spectra of the circumstellar environment of YSO [Search Catalogue](#)
- Interactively reduced LWS L03 spectra: Orion/Sgr B2 reg:** [Search Catalogue](#)

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Example: Contributed catalogue query panel in ISO Archive

Catalogue of 6.7 microns sources in the SSA13 field

Search Target By: Name Type Equatorial Galactic Ecliptic

Radius Target In FOV
 Box Ignore FOV

Name: for SIMBAD Radius: 5 arcmin

File With Target List Locate File

Catalogue Search Criteria

ID number	<input type="text"/>	X position pixel	<input type="text"/>
Y position pixel	<input type="text"/>	S/N	<input type="text"/>
Isophotal flux uJy	<input type="text"/>	Auto_ap flux uJy	<input type="text"/>
Aperture flux uJy	<input type="text"/>	Flux bias correction	<input type="text"/>
Max F bias correct.	<input type="text"/>	Min F bias correct.	<input type="text"/>
Bias_c S/N	<input type="text"/>	Max Bias_c S/N	<input type="text"/>
Min Bias_c S/N	<input type="text"/>	Total flux 1 uJy	<input type="text"/>
Max_err tot_flux 1 uJy	<input type="text"/>	Min_err tot_flux 1 uJy	<input type="text"/>
Total flux 2 uJy	<input type="text"/>	Max_err tot_flux 2 uJy	<input type="text"/>
Min_err tot_flux 2 uJy	<input type="text"/>	Completeness	<input type="text"/>
Max completeness	<input type="text"/>	Min completeness	<input type="text"/>
Position uncertainty a	<input type="text"/>	Max pos. uncertainty e	<input type="text"/>
Min pos. uncertainty a	<input type="text"/>	Obs_number1	<input type="text"/>

Close Clear

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Data products contribution (iv)

- Contributed data products shall be accompanied by documentation
 - Description of the product
 - Description of the algorithms, methods and processing steps involved in the creation of the product
 - Reference to articles if applicable

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DP tools contribution

- KP consortium developed tools used to generate KP products may be shared with the community through the HSC at the end of the proprietary period:
 - Executable
 - Documentation
 - Test data
- It is highly encouraged that the tools are developed in HIPE
- KP tools will be made available to the community :
 - Through links in the HSC pages to KP Web sites
 - If considered of general interest they may be adopted in Herschel DP (pipelines or IA) and included in the HIPE installer

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DP tools contribution in HIPE

- Developing tools yourself:
 - In Jython,
 - Or in Java
- Consider using “Task” concept:
 - Especially for processing steps
 - Common syntax for all tasks
 - Parameter checking
 - Makes your functionality easy accessible to others
- Then HIPE automatically provides:
 - A default parameter dialog
 - An association with selectable products

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Contributor's manual

- Detailed guidelines on data products and tools contribution will be gathered in the document “Herschel products and DP tools contributor's manual”
- It will be distributed as part of the DP documentation pack

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DP User's feedback

- A beta version of HIPE will be made available to the KP consortia in March 2009
- The DP User's Group represents the interests of the astronomical community and the calibration scientists:
 - Composition: Mission Scientist, ICC representatives, HSC/Community Support, HSC/Herschel Operations Team, NHSC representative, DP Scientific Coordinator
- Letter from DPUG to KP PIs:
 - Asking to nominate a DP contact person in the consortium for DP matters
 - Includes questionnaire on DP issues to help us define the coordination strategy
- Feedback is really welcome!

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