

HIPE, HIPE, HOORAY!

Stephan Ott (Herschel Science Centre, ESTEC) on behalf of the Herschel Science Ground Segment Consortium <http://herschel.esac.esa.int/DpHiPeContributors.shtml>

Herschel Data Processing overview

- The Herschel Data Processing system combines data retrieval, pipeline execution, product quality assessment and interactive scientific analysis in one single environment
- All tools for data reduction and analysis, e.g. also the expert applications for instrument calibration are part of the Herschel Interactive Processing Environment HIPE. Therefore the community has access to the same system as the instrument specialists
- The Herschel Data Processing software is coded in Java/Jython to be license free and portable for different operating systems. Currently Linux, MacOS X ("Leopard and Snow Leopard") and Windows ("XP and Vista") are supported
- The Herschel Data Processing software is available under the GNU lesser general public license
- Herschel Science Centre (ESA), the Instrument Control Centres (HIFI, PACS and SPIRE) and NHSC jointly manage and contribute to the Herschel Data Processing System

Current status of Herschel Data Processing

- HIPE 2 was released to the scientific community March 2010 and is the current operational version
- HIPE 3 is undergoing its final validation stage
- HIPE 4 is the current development version to be released summer 2010
- Currently, a cycle of four releases per year is planned to accommodate the fast evolution of the instrumental knowledge and data processing algorithms in the early phase of the mission

Examples of the capabilities of the Herschel Data Processing System

SPIRE Parallel Mode

PCC249, credits M. Juvela, V.M. Pelkonen and Cold Cores Consortium



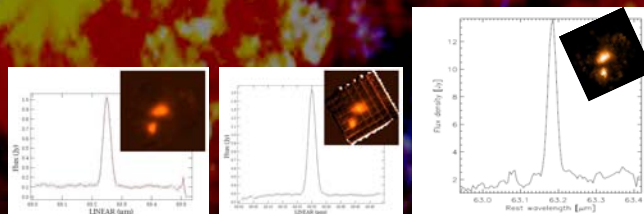
Pipeline Level 2 Product

Quick HIPE Reduction

Thorough HIPE Reduction

PACS Line Spectroscopy

NGC 4214, credits E. Sturm, D. Cormier and SHINING Consortium



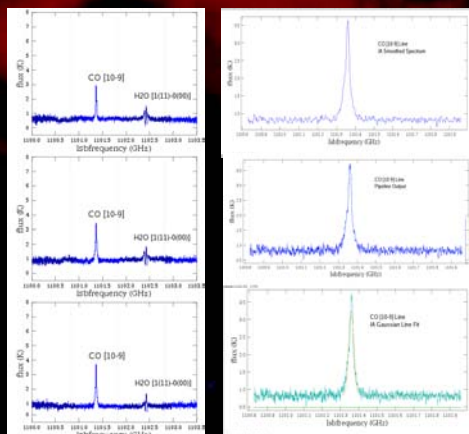
Pipeline Level 2 Product

Quick HIPE Reduction

Thorough HIPE Reduction

HIFI Mapping DBS Raster

DR21, credits F. Helmich and HIFI Consortium

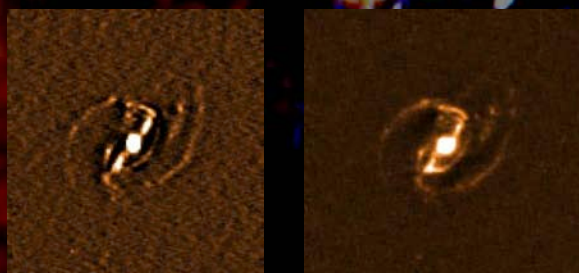


Pipeline Level 2 Product

Quick HIPE Reduction

PACS Photometer Scan Mapping

NGC 1097, credits R. Kennicutt and Kingfish Consortium



Pipeline Level 2 Product

Quick HIPE Reduction

How to download, learn more and contribute to HIPE

- Download HIPE from http://herschel.esac.esa.int/HIPE_download.shtml
- Learn more about Herschel Data Processing in http://herschel.esac.esa.int/Data_Processing.shtml
- Join the Herschel Data Processing Interest lists
 - PACS Photometry (point source)
 - SPIRE Photometry (point source and small maps)
 - Large maps and point source extraction for PACS and SPIRE
 - PACS Spectroscopy
 - SPIRE Spectroscopy
 - Spectral maps for PACS, SPIRE and HIFI
 - HIFI Point sources and spectral scan
 - HIPE General
 - HIPE Contribution

Planned Improvements

- Support of Windows 7
- Updater to inform users when a new HIPE version is available
- Speed-up delivery cycle from code-freeze to release to the community
- Reduction of memory imprint and product size for PACS
- Mosaic generation using cross-scans
- Automatic generation of scientifically meaningful SPIRE FTS spectra
- Improved standing wave removal and spurs detection for HIFI
- Refinement of instrument algorithms and calibration
- Improving the user friendliness of HIPE

Background: Rosette cloud, credits ESA/PACS & SPIRE Consortium/HOBYS Key Programme Consortia

