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# What's New in User Release 1.0.0

Herschel Data Processing

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## 1. Summary

New features include:

- HIPE

Herschel Interactive Processing Environment (HIPE) new functionality added for user release 1.0 with respect to user release 0.6.7:

- Introduction of preferences.
- Better integration with Mac OS X.
- Bugfixes.

See Section 2 and DpHipe for more information.

- Dataset

- Added creator property.
- New History support.
- Added a mechanism for appending rows.

See Section 3 for more information.

- Plot

Bugfixes and stability improvements.

- Random scale of PlotXY.
- NullPointerException when clicking on "Save as Default" in Property Panel.
- NullPointerException when mouse moves on the Plot.
- Other fixes.

- Task

- Lifecycle of task parameters.
- Improved support for task dialogs.

See Section 4 for more information.

- Utilities Toolbox

- ImportUfDirToPal and ExportPalToUfDir tasks.

See Section 5 for more information.

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- Virtual Observatory

- Prototype integration.

See Section 6 for more information.

- Calibration Sources Database

- New Object model.
- New Product Browser.
- Jython code minimized.

See Section 7 for more information.

- Observation Context

- Compulsory metadata updated.

See Section 8 for more information.

- HSA Pool (Herschel Science Archive Access)

- Performance improvements.
- Modified HAIO (Herschel Archive Inter-Operability) for handling both 'L' and 'l' long identifiers in queries.

See Section 9 for more information.

- TablePlotter and OverPlotter

The functionalities on searching, sorting the column names in the column selector have been introduced. Subtract the time offset changed to an option which is accessible through a reference menu.

- Implemented quick access to a column by name.
- Implemented sorting by column name.
- Subtract time offset is now optional.

See Section 10 for more information.

- Numeric Toolbox

- LinearInterpolator now accepts arguments of more types.
- LinearInterpolation now works with monotonous data.
- Updated documentation for Bilinear.

See Section 11 for more information.

- SPIRE

Improvements to the processing of FTS data:

- Improved the Phase Correction processing module.
- Modified data products to propagate Pointing information.

See Section 12 for more information.

## 2. HIPE

HIPE is still under development in many areas. Here is some functionality provided in 1.0, in its core framework. This list does not include improvements in particular views like the PAL query view, ICC-particular tools, etc., which should be explained in their own specific packages.

New functionalities available:

- Introduction of preferences.

Preferences icon in the Welcome view is now functional: a dialog with preferences is opened. It can be opened also with menu option Edit -> Preferences, or pressing Alt+Enter. The preferences dialog is still to be completed with preferences of more areas.

- Better integration with Mac OS X.

Command-Q key combination is now detected so that HIPE asks for saving changes, instead of closing the application directly. Preferences and About are now visible in standard OS X menus.

- Bugfixes.

This version contains fixes for bugs found in the previous release.

## 3. Dataset

New functionalities available:

- Added creator property.

A new property 'hcss.ia.dataset.creator' has been added to the dataset package. When a product is created, if this property contains a value, the 'creator' product metadata is populated with the value of this property.

- New History support.

Product and History have been modified to work with the new History design. See History Design for more information.

- Added a mechanism for appending rows.

`TableDataset.addRow()` is deprecated, while `TableDataset.addRowsByIndex()` and `TableDataset.addRowsByName()` have been added.

## 4. Task

New functionalities available:

- Lifecycle of task parameters.

Minimized retained parameter values between task executions.

- Improved support for task dialogs.

General improvements in GUI components for task dialogs. Floating point parameters now support special values (NaN, Infinity).

## 5. Utilities Toolbox

New functionalities available:

- ImportUfDirToPal and ExportPalToUfDir tasks

Allows to move observations between local pools and tarballs from Herschel.

## 6. Virtual Observatory

New functionalities available:

- Prototype integration.

Prototype integration with external applications such as Aladin and VOSpec.

## 7. Calibration Sources Database

New functionalities available:

- New Object model.

A new model based on PAL Contexts has been created. CalsDB products do not contain CompositeDataset. These products have been transformed into PAL Contexts containing references (ProducRef) to other products.

- New Product Browser.

Search windows have been added.

- Jython code is minimized.

Most jython code has been refactored as Java code.

- The documentation has been updated.

The new data model and GUI are described in the documentation and documentation of all Java classes is provided, which is useful when writing scripts to work the database.

## 8. Observation Context

New functionalities available:

- Compulsory metadata updated:

- AUTHOR is not compulsory any more.
- CREATOR is SPGvM.N (e.g. SPGv1.0).
- ORIGIN is either "Herschel Science Centre" or "Instrument Control Centre"
- TELES is "Herschel Space Observatory"

## 9. HSA Pool (Herschel Science Archive Access)

New functionalities available:

- Performance improvements.

The performance of HSA queries and product retrieval was improved.

- Modified HAIO (Herschel Archive Inter-Operability) for handling both 'L' and 'I' long identifiers in queries.

HsaPool can handle 'L' and 'I' long identifiers when connecting to HAIO.

## 10. TablePlotter and OverPlotter

New functionalities available:

- Implemented quick access to a column by name.

The name search can be achieved by typing characters into the text field in column selector and then pressing the return key. The results will be displayed in the drop down menu.

- Implemented sorting by column name.

The name sorting can be achieved by clicking into the text box and hitting return without entering a character. A sorted list will be displayed in the drop down menu.

- Subtract time offset is now optional.

Subtract time offset was changed to an option. This option can be turned on and off through the preference menu. By default, the time offset is subtracted before plotting the x,y scatter data. In OverPlotter, the time offset can be set individually for each layer.

## 11. Interpolation Toolbox

New functionalities available:

- LinearInterpolator now accepts arguments of more types.

The new constructors for Int1d, Short1d, Long1d and Float1d were added.

- LinearInterpolation now works with monotonous data.

LinearInterpolation works for monotonous input data, instead of just for ascending data.

- Updated documentation.

More examples in Bilinear in JavaDoc and URM were added. An error in cubic spline JavaDoc was corrected.

## 12. SPIRE

New functionalities available in the FTS pipeline:

- Phase Correction:

The Phase Correction processing module has been modified so that it correctly scales the output interferograms for all three SPIRE FTS resolution options.

- Pointing:

The SPIRE FTS pipelines and the SPIRE FTS Level-1 data products have been modified so as to propagate Pointing Information. The Create Interferogram processing module now affixes to each of the interferograms in its output product the time-averaged RA and DEC. This information is stored in the RA and DEC metadata keywords. In addition, these pointing values are propagated to the spectra produced by the FTS pipelines, each of which also contains RA and DEC metadata keywords.