Exporting HIFI Data to Other Software Packages

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Export Options

There are several ways to export data from HIPE to other software packages.

1)Through file export:

- To 'Standard' FITS: applicable task 'simpleFitsWriter'
- To ASCII: applicable task 'exportSpectrumToAscii'
- To GILDAS/CLASS-FITS: 'hiClass'

2)Through external software interactions

- To plugins (e.g., CASSIS): see CASSIS demo this afternoon
- To VO Tools

Export To CLASS

- Export to CLASS (via CLASS FITS) with the HIPE task hiClass:
  - Works only for HIFI spectra!
  - Level 1, level 2, and individual spectra can be exported
  - Both on source sky spectra and calibration spectra can be exported
  - In CLASS, frequencies are stored in the header as channel width and reference frequency instead of N frequencies for N channels.
  - For more information, see Chapter 19 in HIFI Data Reduction Guide.

Output to CASSIS Plugin

- When the CASSIS plugin is installed, CASSIS will show up as an option under the “Open With” button.
- The HIFI spectrum can then be plotted, manipulated, and fitted using all tools available in the CASSIS environment.
- CASSIS needs to be installed following the Tools-->Plugins button
- See the CASSIS demo by Emmanuel Caux this afternoon and tomorrow

Output to VO Tools

- Single HIFI DSB spectra, cubes and SSB (deconvolved) spectra can be sent to VO Tools, such as Vospec.
- However, clicking on a HIFI spectrum with the right mouse button and then "Send to-->VOSpec" does not work properly
- Several steps need to be done to prepare the spectra for use with VOSpec:
  - Convert intensity (Kelvin) units to flux
  - 1D HIFI spectra are stored in 2D arrays: convert to 1D arrays
- See demo and Chapter 20 in the HIFI Data Reduction Guide for more detalils.

Export Options

Extra slides

What is sent to CLASS

- The Fluxes
- ObsId, BbType, BbId, SequenceNumber
- The name of the observed source,
- Frequencies
  - Rest Frequency,
  - Image Frequency,
  - Channel References,
  - Frequency Step.

(HiClass always chooses the centre of the spectrum as the reference.)

- Dates of observation, instrument (HIFI plus spectrometer and polarization).
- Pointing information.....
- Tsys – but need level 1 output for Tsys
- not – Weights, spur table, history, etc....
- Header says Vlsr =0 (info is elsewhere)

Read into CLASS

- file out myspectra.hifi m ! Prepare a CLASS file (multi)

- fits read myspectra.fits ! ingest the fits

(should get good messages) as .hifi file is made

- file in myspectra.hifi ! normal CLASS now

- find ! identify full file contents

- get 1 !
- pl ! plot

Export to 'Standard' FITS

- Export to FITS (generic FITS)
  - See Chapter 1.16 in the Herschel Data Analysis Guide
  - To save a "product" to FITS – use the GUI
    - Produce a product from an observation context
    - Select the product in the Variables view and open the applicable folder in the Tasks view. Double click on the simpleFitsWriter task to launch it.

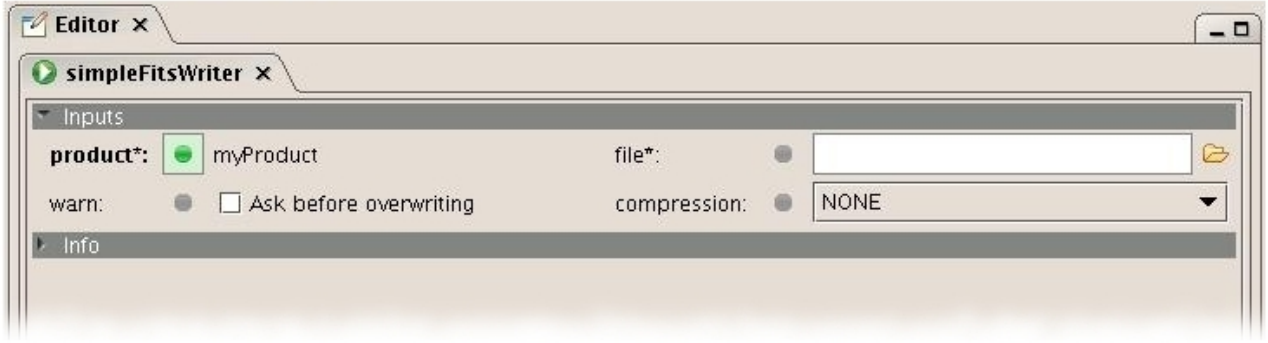

Figure 1.17. FITS save task dialogue window.

Export to ASCII

Export to ASCII Easiest way:

- Open an observation
- Place a spectra into the variable area
- Open applicable
- exportSpectrumToASCII

Also to make single Hifi Spectrum

- from herschel.hifi.pipeline.util.data import ConvertSingleHifiSpectrum
- newspectrum=SingleHifiSpectrum(spectra),index=1,description="HI FI comb")