

Conversions of Intensity Scales and Frequency Units

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- One can change the axis **labeling** in SpectrumExplorer:
 - add an auxiliary x-axis
 - alter that axis: micron, wavenumber, velocity, etc., but also **HIFI-specific USB, LSB, IF**
- One can change the **actual units** in the product or spectrumdataset:
 - **`convertWavescale(ds=spectrum, to="micrometer")`**
 - Velocity, frequency, wavelength, wavenumber units
- Specifically for HIFI Timeline Products or **HIFI Spectral Data Sets**:
 - **`ConvertFrequencyTask`**
 - USB, LSB, IF and Velocity
 - For velocity, supply reference frequency and sideband
 - see HIFI Data Reduction Guide Chapter 15.1

- HIFI-specific HIPE task ConvertK2Jy
- Operates on ObsContext, HIFI Timeline Product, SpectrumDataSet, or SimpleSpectrum
- Converts "brightness temperature" [K] to Jy in the Rayleigh Jeans approximation
- Converts from TA^* or TMB to Jy:
 - applying η_{MB} if necessary
 - needs source size as input (diameter in arcsec):
 - Set to 0.0 for point sources

Gets effective aperture and beam efficiencies from HIFI cal tree. If no cal tree is available, parameters are estimated from standard relations.

General IPAC unit conversion tool, can be run in two different ways:

- within **HIPE** as a plugin: **Tools -> Plugins**
- from website: nhscdmz4.ipac.caltech.edu:8081/conversions/

Converts:

- Flux
- Flux Density
- Intensity
- Integrated Intensity
- Encircled Area

Includes Help Files

General IPAC unit conversion tool



