Chandra X-ray Center

AHELP for CIAO 3.4

ploty

Context: sherpa

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Synopsis

Sets the unit type for the y−axis of a plot.

Syntax

```
sherpa> PLOTY [#] {COUNTS | RATE || ONE | ENERGY | WAVE | ENERGY2 |
WAVE2 }

where # may specify the number of the dataset; the default dataset is 1.
```

Description

The command PLOTY actually controls two aspects of plot appearance: whether rates or raw data are shown; and whether the amplitudes in each bin are to be multiplied by the energy/wavelength of the bin.

RATE vs. COUNTS

If the user specifies COUNTS, the raw input data will be displayed (even if these data are not actually counts, but something else, such as fluxes). What is displayed if the argument RATE is given depends on whether:

- the exposure time is provided;
- an ancillary response file (ARF) is provided;
- the energy or wavelength grid is provided; and/or
- the instrument model is defined (see the INSTRUMENT command).

The user can further customize plots using one of the following PLOTY settings:

Argument:	Description:
ONE	No multiplication by energy or wavelength.
ENERGY	Multiply the amplitudes in each bin by the bin energies.
WAVE	Multiply the amplitudes in each bin by the bin wavelengths.
ENERGY2	Multiply the amplitudes in each bin by the bin energies squared.
WAVE2	Multiply the amplitudes in each bin by the bin wavelengths squared.

The plot labeling function assumes exposure times in seconds, ARFs with effective area information in cm^2, and energies/wavelengths in keV/Angstroms. If necessary, the user can change the label with the ChIPS

command YLABEL.

Note that in CIAO 3.0, the user cannot have separate PLOTY settings for source and background datasets with the same dataset #, i.e., changing PLOTY changes the plot appearance for both the source and the background datasets.

Also note that PLOTY controls not just the appearance of 1D plots, but also the output generated by the WRITE command. This may be changed in a future version of Sherpa.

Example

Reset the y−axis units to counts, after they have automatically been set to rate with the definition of an instrument model:

```
sherpa> READ DATA data/example.pha
sherpa> RSP[instrumentA](example.rmf, example.arf)
The inferred file type is ARF.  If this is not what you want, please
specify the type explicitly in the data command.
sherpa> INSTRUMENT = instrumentA
sherpa> LPLOT DATA
<Rate data are displayed.>
sherpa> PLOTY COUNTS
sherpa> LPLOT DATA
<Counts data are displayed.>
```

Bugs

See the Sherpa bug pages online for an up−to−date listing of known bugs.

See Also

sherpa

> close, cplot, fefplot, getx, gety, image, lplot, open, oplot, splot

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Example