URL: http://cxc.harvard.edu/sherpa3.4/threads/all.html
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Sherpa Threads for CIAO 3.4

Introductory

These threads explain the basics of *Sherpa*: reading data, establishing models, fitting, and plotting. Information on how to customize plots via the *Sherpa* state objects (a.k.a. configuration variables) is covered as well.

- Sherpa Overview
- Introduction to Fitting PHA Spectra
- Introduction to Fitting ASCII Data with Errors: Single−Component Source Models
- Data Visualization
- Sherpa Configuration: Using the State Objects
- Customizing Sherpa with a Resource File
- Sherpa and Scripts
- Introduction to the Sherpa S−Lang Module

Fitting

Sherpa provides extensive facilities for modeling and fitting data. The topics here range from basic fits using source spectra and responses to more advanced areas such as simultaneous fits to multiple datasets, accounting for the effects of pileup, and fitting spatial and grating data.

- **Spectral (1−D) Data**
  - Introduction to Fitting PHA Spectra
  - Changing the grouping scheme of a dataset within Sherpa
    Uses: the `sherpa_utils.sl` S−Lang script
  - Introduction to Fitting ASCII Data with Errors: Single−Component Source Models
  - Fitting PHA Data with Multi−Component Source Models
  - Independent Background Responses
  - Simultaneously Fitting Two Datasets
  - Simulating 1−D Data: the Sherpa FAKEIT Command
  - Simulating 1−D Data: the S−lang Script simspec
    Uses: the `simspec` script
  - Simulation for Suzaku: Evaluate HXD systematic errors
  - Using A Pileup Model
  - See also: a comparison, for low pileup fractions, of the pileup models in *Sherpa* and *XSpec* with that in ISIS.
- **Spatial (2−D) Data**
  - Fitting FITS Image Data
    Uses: the `sherpa_plotfns.sl` S−Lang script
  - Using an Exposure Map in Fitting Image Data
  - Using a PSF Image as the Convolution Kernel

    - ♦ See also: the Obtain and Fit a Radial Profile thread
- **Grating Data**

    - ♦ Fitting Grating Data
    - ♦ Fitting Multiple Orders of HRC−S/LETG Data
    - ♦ GUIDE: Fitting and Identifying Spectral Lines

Plotting

Sherpa allows the user to plot data, fits, statistics, ARFs, contours, surfaces, and more. These threads describe the basics of plotting as well as various methods for customizing plots.

- Data Visualization
- Changing the look of Sherpa plots using setplot.sl
  Uses: the `setplot.sl` S−Lang script
- Step−by−Step guide to changing the look of Sherpa plots
- Advanced customization of Sherpa plots
  Uses: the `sherpa_plotfns.sl` S−Lang script

Statistics

Sherpa provides numerous tools for determining goodness of fit, errors in parameter values, confidence intervals, and other statistical measures of a model's validity. These threads describe how to use these tools in your analysis.

- Estimating Errors and Confidence Levels
  Uses: the `paramest.sl` S−Lang script
- Step−by−Step Guide to Estimating Errors and Confidence Levels
- Accessing fit results using S−Lang
- Visit the The California−Harvard Astrostatistics Collaboration page

S−Lang

The S−Lang language and Sherpa/S−Lang module provide a powerful means of extending *Sherpa*'s capabilities through custom−made functions and scripts. The threads here introduce *Sherpa*'s S−Lang functionality and provide some examples of its use.

- Introduction to the Sherpa S−Lang Module
- Changing the grouping scheme of a dataset within Sherpa
  Uses: the `sherpa_utils.sl` S−Lang script
- Fitting FITS Image Data
  Uses: the `sherpa_plotfns.sl` S−Lang script
- Accessing fit results using S−Lang
- Advanced customization of Sherpa plots
  Uses: the `sherpa_plotfns.sl` S−Lang script
- Calculating K−corrections using S−Lang and Sherpa
  Uses: the `sherpa_utils.sl` S−Lang script
- See the Preparing to Run ChaRT thread for another example of using S−Lang to extend *Sherpa*

Miscellaneous

These threads describe other tasks that one can perform using *Sherpa*.

- Simulating 1−D Data: the Sherpa FAKEIT Command
- Simulating 1−D Data: the S−lang Script simspec
  Uses: the `simspec` script
- Simulation for Suzaku: Evaluate HXD systematic errors

Data Used in Threads

How to Download Chandra Data from the Archive

Sorted by OBSID

OBSID	Object	Instrument	Threads
1318	Capella	HETG/ACIS−S	GUIDE

Sorted by Thread

File	Thread
`sherpa.tar.gz`	Data files used in *Sherpa* Threads Last updated 09 February 2006
`sherpa_user.tar.gz`	Files for creating model, optimization method, and statistic functions in *Sherpa*, described in the User Models, Statistics, and Methods section of the *Sherpa* Manual. The `sherpa_user.tar.gz` package replaces both of the previous packages: `user_mms.tar.gz` and `user_module.tar.gz`. Last updated 29 January 2007

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