



AHELP for CIAO 3.4

## farf2d

Context: [sherpa](#)

*Jump to:* [Description](#) [Examples](#) [Bugs](#) [See Also](#)

## Synopsis

A 2-D file-based ancillary response model. Alternate names include FEXPMAP and FEXPMAP2D.

## Description

FARF2D is a file-based model whose primary use is to represent 2-D exposure maps in arbitrary units (seconds, cm<sup>2</sup>, etc.).

Note the following about exposure maps:

- The exposure map image must be of the same size as the data image, and it must have the same plate-scale (i.e., bins in each image must have the same size in arc-seconds, etc.).
- If an exposure map and a point-spread function (PSF) are to be used in the same instrument stack, then the images containing both must have the same plate-scale.

See the documentation on the INSTRUMENT command. See also the RSP2D instrument model.

### FARF2D Parameters

Number	Name	Description
1	file	exposure map file name
2	norm	normalization

## Example 1

Input an exposure map for use with a dataset:

```

sherpa> DATA data/data.fits
sherpa> PARAMPROMPT OFF
Model parameter prompting is off
sherpa> FEXPMAP[emap]
sherpa> emap.file = "data/data_expmap.fits"
sherpa> INSTRUMENT = emap
  
```

In this example, the instrument model component FEXPMAP is established, the exposure map file is input using this model's file parameter, and the instrument model stack is set for dataset number 1.

The CIAO 2.3 equivalent of this command is:

```
sherpa> DATA data/data.fits
sherpa> PARAMPROMPT OFF
Model parameter prompting is off
sherpa> GRIDMODEL[gm]
sherpa> gm.file = "data/data_expmap.fits"
sherpa> EXPMAP 1 = gm
```

## Example 2

Use a point–spread function file in addition to an exposure map:

```
sherpa> FEXPMAP[emap]
sherpa> emap.file = "data/data_expmap.fits"
sherpa> FPSF[psfunc]
sherpa> psfunc.file = "data/data_psf.fits"
sherpa> INSTRUMENT = emap*psfunc
```

This may also be done with the RSP2D command:

```
sherpa> RSP2D[r]
sherpa> r.empfile = "data/data_expmap.fits"
sherpa> r.psf file = "data/data_psf.fits"
sherpa> INSTRUMENT = r
```

## Bugs

See the [Sherpa bug pages](#) online for an up–to–date listing of known bugs.

## See Also

*sherpa*

[atten](#), [bbody](#), [bbodyfreq](#), [beta1d](#), [beta2d](#), [box1d](#), [box2d](#), [bpl1d](#), [const1d](#), [const2d](#), [cos](#), [delta1d](#), [delta2d](#), [dered](#), [devaucouleurs](#), [edge](#), [erf](#), [erfc](#), [farf](#), [fpsf](#), [fpsf1d](#), [frmf](#), [gauss1d](#), [gauss2d](#), [gridmodel](#), [hubble](#), [jdpileup](#), [linebroad](#), [lorentz1d](#), [lorentz2d](#), [models](#), [nbeta](#), [ngauss1d](#), [poisson](#), [polynom1d](#), [polynom2d](#), [powlaw1d](#), [ptsrc1d](#), [ptsrc2d](#), [rsp](#), [rsp2d](#), [schechter](#), [shexp](#), [shexp10](#), [shlog10](#), [shloge](#), [sin](#), [sqrt](#), [stephi1d](#), [steplo1d](#), [tan](#), [tpsf](#), [tpsf1d](#), [usermodel](#), [xs](#), [xsabsori](#), [xsacisabs](#), [xsapec](#), [xsbapec](#), [xsbody](#), [xsbodyrad](#), [xsbevrav](#), [xsbevriv](#), [xsbknpower](#), [xsbmc](#), [xsbremss](#), [xsbvapec](#), [xsc6mekl](#), [xsc6pmekl](#), [xsc6pvmkl](#), [xsc6vmekl](#), [xscabs](#), [xscemekl](#), [xscvmkl](#), [xscflow](#), [xscmpbb](#), [xscmpls](#), [xscmpst](#), [xscmpstt](#), [xsconstant](#), [xscutoffpl](#), [xscyclabs](#), [xsdisk](#), [xsdiskbb](#), [xsdiskline](#), [xsdiskm](#), [xsdisko](#), [xsdiskpn](#), [xsdust](#), [xsedge](#), [xsequil](#), [xsexpabs](#), [xsexpdec](#), [xsexpfac](#), [xsgabs](#), [xsgaussian](#), [xsgnei](#), [xsgrad](#), [xsgrbm](#), [xshighecut](#), [xshrefl](#), [xslaor](#), [xslorentz](#), [xsmeka](#), [xsmekal](#), [xsmkcf flow](#), [xsnei](#), [xsnotch](#), [xsnpshock](#), [xsnsa](#), [xsnteea](#), [xspcfabs](#), [xspgpwrlw](#), [xspexray](#), [xspexriv](#), [xsphabs](#), [xsplabs](#), [xsplcabs](#), [xsposm](#), [xspowerlaw](#), [xspshock](#), [xspwab](#), [xsraymond](#), [xsredden](#), [xsredge](#), [xsrefsch](#), [xssedov](#), [xssmedge](#), [xsspline](#), [xssrcut](#), [xssresc](#), [xssssice](#), [xsstep](#), [xstbabs](#), [xstbgrain](#), [xstbvarabs](#), [xsuvred](#), [xsvapec](#), [xsvvarabs](#), [xsvbremss](#), [xsvequil](#), [xsvgnei](#), [xsvmcflow](#), [xsvmeka](#), [xsvmekal](#), [xsvnei](#), [xsvnpshock](#), [xsvphabs](#), [xsvpshock](#), [xsvraymond](#), [xsvsedov](#), [xswabs](#), [xswndabs](#), [xsxion](#), [xszbbody](#), [xszbremss](#), [xszedge](#), [xszgauss](#), [xszhighect](#), [xszpcfabs](#), [xszphabs](#), [xszpowerlw](#), [xsztbabs](#), [xszvarabs](#), [xszvfeabs](#), [xszvphabs](#), [xszwabs](#), [xszwndabs](#)

*slang*

[usermodel](#)

## Ahelp: farf2d – CIAO 3.4

Astrophysical Observatory.  
60 Garden Street, Cambridge, MA 02138 USA.  
Smithsonian Institution, Copyright © 1998–2006. All rights reserved.

<http://xc.harvard.edu/ciao3.4/farf2d.html>  
Last modified: December 2006

