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 AHELP for CIAO 3.4

## get\_pflux

Context: [sherpa](#)

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### Synopsis

get\_flux(), get\_pflux(), and get\_bpflux() calculate the photon flux (unconvolved) for source and background datasets using the module functions in Sherpa.

### Syntax

```

Struct_Type get_flux(Struct_Type)
Struct_Type get_bflux(Struct_Type)
Struct_Type get_flux([Integer_Type[, {Float_Type |
Array_Type}[, String_Type]])
Struct_Type get_bflux([Integer_Type[, {Float_Type |
Array_Type}[, String_Type]])

Error Return Values: NULL

Arguments:

(1) Structure of form returned by get_flux_str; or

(1) Dataset number (default 1)

(2) Evaluation point, or lower-upper bounds (default use all data)

(3) Model component or stack name (default use all appropriate models)
  
```

### Description

The get\_pflux and get\_bpflux functions retrieve the photon flux, nominally in units of photons/cm<sup>2</sup>/s (if the flux is computed over a range), or photons/cm<sup>2</sup>/s/keV (or per Angstrom) (if the flux is computed at a single point). The actual units depend upon the units of the input data and whether or not instrument models (e.g. RMF, RSP etc.) have been specified, etc.

The output of get\_flux\_str(), a structure, can be used as input to get\_pflux() and get\_bpflux(). One would retrieve this default structure, modify its field values, and pass it to get\_pflux() et al. See the example below.

Note that numerical arguments are interpreted using Sherpa's current ANALYSIS setting.

The structure output by these functions contains the following fields:

### get\_flux Structure Fields

Field	Description
dataset	the dataset for which the flux is evaluated
range	the single point at which the flux is computed, or the range over which the flux is integrated; if NULL, the integral is done over the entire dataset range
comp	the model stack or component for which the flux is computed; if NULL, the whole source/bg stack is used
value	the computed flux value
units	the flux units

See the related Sherpa command FLUX for more information.

Also see these related Sherpa/S–Lang module functions:

### Related Sherpa/S–Lang Module Functions

Name	Description
get_pflux2d	Returns photon fluxes in 2–D images
get_eflux   get_beflux	Returns the unconvolved energy flux for source or background datasets
get_eflux2d	Returns energy fluxes in 2–D images
get_mcounts_sum   get_bmcounts_sum	Returns the sum of convolved model counts in source and background datasets
get_mcounts_sum2d	Returns sums of model counts in 2–D images
get_dcounts_sum   get_bdcounts_sum   get_net_counts_sum	Returns the sum of observed counts in source and background datasets
get_dcounts_sum2d	Returns sums of observed counts in 2–D images

## Example 1

Fit an absorbed power law function to the data set and compute the flux between 2 and 10 keV:

```

sherpa> source= xsphabs[abs]*pow[p1]
sherpa> fit
LVMQT: V2.0
LVMQT: initial statistic value = 1401.63
LVMQT: final statistic value = 235.824 at iteration 5
      abs.nH  0.0626393  10**22 atoms/cm**2
      p1.gamma  1.70739
      p1.ampl  6.81852e-05

sherpa> foo=get_pflux(1,[2,10])
sherpa> print(foo)
dataset      = 1
range        = Float_Type[2]
comp         = NULL
value        = 7.88051e-05
units        = photons/cm**2/s
    
```

```
sherpa> print(foo.value)
7.88051e-05
```

## Example 2

Define a structure foo and use it to compute the flux between 2 and 10 keV:

```
sherpa> foo = get_flux_str()
sherpa> print(foo)
dataset          = 1
range            = NULL
comp             = NULL
sherpa> foo.range = [2,10]
sherpa> print(get_flux(foo).value)
0.000166532
sherpa> print(get_flux(foo).units)
photons/cm**2/s
sherpa> print(get_pflux([2,10], "p").value)
0.000166532
```

## Bugs

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

## See Also

*chandra*

[guide](#)

*sherpa*

[bye](#), [calc\\_kcorr](#), [dataspace](#), [dcounts](#), [dollarsign](#), [echo](#), [eflux](#), [eqwidth](#), [erase](#), [flux](#), [get](#), [get\\_dcounts\\_sum](#), [get\\_dir](#), [get\\_eflux](#), [get\\_eqwidth](#), [get\\_filename](#), [get\\_flux2d](#), [get\\_flux\\_str](#), [get\\_lfactorial](#), [get\\_mcounts\\_sum](#), [get\\_source\\_components](#), [get\\_verbose](#), [groupbycounts](#), [guess](#), [is](#), [journal](#), [list](#), [list\\_par](#), [mcounts](#), [numbersign](#), [paramest](#), [plot\\_eprof](#), [plot\\_rprof](#), [prompt](#), [reset](#), [run](#), [set](#), [set\\_analysis](#), [set\\_axes](#), [set\\_coord](#), [set\\_dataspace](#), [set\\_dir](#), [set\\_verbose](#), [setplot](#), [sherpa-module](#), [sherpa\\_plotfns](#), [sherpa\\_utils](#), [show](#), [simspec](#), [use](#), [version](#)

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URL:  
[http://cxc.harvard.edu/ciao3.4/get\\_pflux.html](http://cxc.harvard.edu/ciao3.4/get_pflux.html)  
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