



## point\_source

June 2, 2019

### Abstract

Calculates the xspec normalization per square arcminute for the Cosmic X-ray background after removal of point sources to some limiting level (`min_flux`). ELF is shorthand for the  $\log N$ - $\log S$ .

## 1 Instruments/Modes

Instrument	Mode
EPIC	Imaging

## 2 Use

pipeline processing	no
interactive analysis	yes

## 3 Description

Calculates the xspec normalization per square arcminute for the Cosmic X-ray background after removal of point sources to some limiting level (`min_flux`). ELF is shorthand for the  $\log N$ - $\log S$ .

We assume that  $\text{integral}[\text{ELF}]$  from 0 to infinity is less than `cxrb_norm`, or that:

$$\text{CXRB} = X + \text{integral}[\text{ELF}]_0^{\infty}$$

Therefore, for any given “blank sky” observation where the brightest point source has a flux `smax`, the total X-ray emission in the field would be:

$$X + \text{integral}[\text{ELF}]_0^{\text{smax}}$$

The currently available functions are:

`hms`: Hasinger, Miyaji, & Schmidt (2005), from ROSAT, XMM, & Chandra):

`mushotzky`: (????):

`cappelluti`: Cappelluti et al (2008), from COSMOS:

`mateos`: Mateos et al (2008), from XMM'

Output: Xspec normalization for power law in units of photons/cm<sup>2</sup>/s/am<sup>2</sup>/keV



Examples::

```
point-source func=mateos min_src_flux=5.e-14 cxrb_norm=10.6 index=1.40
```

## 4 Parameters

This section documents the parameters recognized by this task (if any).

Parameter	Mand	Type	Default	Constraints
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<b>func</b>	yes	string	mateos	
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Name of logN-logS function.

hms (Hasinger, Miyaji, & Schmidt 2005)

mushotzky (REF TBD)

cappelluti (Cappelluti et al. 2008)

mateos (Mateos et al. 2008)

<b>min_src_flux</b>	yes	real	1.0e-14	
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Source flux cutoff in erg/cm<sup>2</sup>/s.

<b>cxrb_norm</b>	yes	real	10.6	
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Normalization of the cosmic X-ray background.

<b>index</b>	yes	real	1.46	
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Photon power law index.

## 5 Input Files

## 6 Output Files

## 7 Algorithm

## 8 Comments

## References