



proton

May 4, 2016

Abstract

proton uses the spectral fitting results from Xspec and model soft proton detector maps to create model soft proton contamination maps for a given observation.

1 Instruments/Modes

| Instrument | Mode |
|------------|---------|
| EPIC | Imaging |

2 Use

| | |
|----------------------|-----|
| pipeline processing | no |
| interactive analysis | yes |

3 Description

proton uses the spectral fitting results from Xspec and model soft proton detector maps to create model soft proton contamination maps for a given observation.

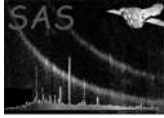
Warning and requirements: *proton* is part of the package *esas*, integrated into SAS, but (still) limited to work within *esas*' data reduction scheme. This is specially true wrt input files structure and names. In particular, *proton* assumes that another task from the package, *mos-spectra* / *pn-spectra*, and *mos_back* / *pn_back*, have been successfully run for the *mos* / *pn* exposures to be used.

4 Parameters

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

| Parameter | Mand | Type | Default | Constraints |
|---------------|------|--------|---------|-------------|
| prefix | yes | string | | |

Detector and exposure identifiers (eg. "1S001") for the MOS exposure S001) to be processed.



| | | | | |
|--|-----|---------|------|-----|
| caldb | yes | string | | |
| Directory containing all the ESAS specific calibration files | | | | |
| specname | yes | string | | |
| File name of spectrum file used in the spectral fit to determine the residual SP contamination | | | | |
| ccd[1-7] | yes | string | 1 | |
| Flag to include (1) or not (0) a CCD. | | | | |
| elow | yes | int | 400 | |
| The low energy for the band in eV | | | | |
| ehigh | yes | int | 1250 | |
| The high energy for the band in eV | | | | |
| spectrumcontrol | yes | int | 1 | |
| 1 for a power law model, 2 for a broken power law | | | | |
| pindex | no | | 0 | |
| Fitted power law index, only if spectrumcontrol=1 | | | | |
| pnorm | no | | 0 | |
| Scale factor for power law index, only if spectrumcontrol=1 | | | | |
| binds | no | | 0 | |
| Fitted soft broken power law index, only if spectrumcontrol=2 | | | | |
| bbreak | no | | 0 | |
| Break energy for broken power law model, only if spectrumcontrol=2 | | | | |
| bindh | no | | 0 | |
| Fitted hard broken power law index, only if spectrumcontrol=2 | | | | |
| bnorm | no | | 0 | |
| Normalization for broken power law, only if spectrumcontrol=2 | | | | |
| clobber | no | boolean | yes | T/F |
| Clobber existing files? | | | | |

5 Input Files

The filtered event files, products from running `mos-filter` or `pn-filter`, following the particular nomenclature used in the esas package, eg.: `mos1S001-clean.fits` or `pnS003-clean.fits`.



6 Output Files

Where MOS data are processed:

mosprefix-prot-im-det-elow-high.fits – The soft proton image in detector coordinates.

Where PN data are processed:

pnprefix-prot-im-det-elow-high.fits – The soft proton image in detector coordinates.

7 Algorithm

8 Comments

References