proton_scale

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Abstract

This task extracts the BACKSCAL keyword and average soft proton intensity from the detector map for a specified region. These values are necessary in the spectral fitting process of multiple regions which are linked.

1 Instruments/Modes

Instrument	Mode
EPIC	Imaging

2 Use

pipeline processing	no
interactive analysis	yes

3 Description

proton_scale extracts the BACKSCAL keyword and average soft proton intensity from the detector map for a specified region. These values are necessary in the spectral fitting process of multiple regions which are linked.

Warning and requirements: *proton_scale* is part of the *esas* package integrated into SAS, but it is limited to work within the *esas* data reduction scheme. This is specially true wrt the structure and names of the input files. In particular, *proton_scale* assumes that another task from the package, *mos-spectra*, has been successfully run for the exposure to be used.

4 Parameters

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

Parameter	Mand	Type	Default	Constraints

caldb	yes	string		

Directory containing all the ESAS specific calibration files

mode	yes	int	1	

mode – 1: do a single region, 2: do multiple regions with the required input provided in a text file (parameter spfile).

det	yes	int	1	1—2—3

FOR MODE=1 - Detector, `1` for MOS1, `2` for MOS2, and`3` for PN

maskfile	yes	string	region	

FOR MODE=1 - File name for the mask file. This is the `mos`*prefix*`-obj-im-sp-det.fits` file produced for the region by *mos-spectra*.

specfile	yes	string	specfile	

FOR MODE=1 - File name for the spectral file for the region.

spfile	yes	string		

FOR MODE=2 - ASCII text file with the input for multiple regions. The file should contain, on separate lines, the detector number (det), mask file name (mask), and spectral file name (spec) for each region.

5 Input Files

The detector map, product from running *mos_spectra*, following the particular nomenclature used in the esas package.

6 Output Files

Screen output only – *mode=1*: *BACKSCAL* keyword value converted to units of arcmin^{-2} and the average soft proton flux. *mode=2*: Ordered pairs of the *BACKSCAL* keyword value converted to units of arcmin^{-2} and the relative soft proton value normalized to that of the first region.

7 Algorithm

8 Comments

References