mos-spectra

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Abstract

This task processes the cleaned event file output from *mos-filter* to produce intermediate files for the creation of model particle background spectra and images by the task *mos_back*.

1 Instruments/Modes

Instrument	Mode
EPIC	Imaging

2 Use

pipeline processing	no
interactive analysis	yes

3 Description

mos-spectra processes the cleaned event file output from *mos-filter* to produce intermediate files for the creation of model particle background spectra and images by the task *mos_back*.

Warning and requirements: *mos-spectra* 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, `mos-spectra` assumes that other tasks from the package, *mos-filter* for filtering and *cheese* in *mode=2* for point source exclusion (if desired) have been successfully run for the 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	1S001	

Detector and exposure identifier (eg. "1S001") for MOS1 S001 exposure to be processed.

caldb	yes	string		

Directory containing all the ESAS specific calibration files

region	yes	int	reg.txt	

the selection expression for the desired region for the generation of the model background spectrum. If no file with the input name exists, or if the file is empty, then the default is to model the data from the entire field of view. If a specific region is desired, the region expression must be in detector coordinates. For example, a file containing `&&((DETX,DETY) IN circle(201,-219,3600))` would extract the central 3′ of the cluster Abell 1795. Note that the leading "`&&`" are required as the selection expression is added to other constraints.

mask	yes	int	0	

Flag to mask out point sources. `0` selects no masking while `1` will cause `mos-spectra` to use the output filtered source region file from `cheese` or `cheese-bands`.

elow	yes	int	400	

Energy low limit (in eV) for the band. If `elow` and `ehigh` are set to `0`, the image processing will be eliminated and only spectral files will be produced.

ehigh	yes	int	1250	

Energy high limit (in eV) for the band. If *elow* and `ehigh` are set to `0`, the image processing will be eliminated and only spectral files will be produced.

ccd1-7	yes	int	1	

Flag to include individual CCDs. `1` to include, `0` to not.

5 Input Files

Cleaned event file as processed by `mos-filter`.

6 Output Files

- `mos`*prefix*`-*obj.pi` – The observation data spectrum from the selected region from the individual ccds. The ccd number, "`*`" in the file name, runs from 1 to 7 including only the selected ccds.
- `mos`*prefix*`-*ff.pi` – The filter-wheel-closed data spectrum from the selected region from the individual ccds. The ccd number, "`*`" in the file name, runs from 1 to 7.
- `mos`*prefix*`-im*-`*elow*`-`*ehigh*`.fits` – The image of the filter-wheel-closed data from the selected region from the individual ccds for the selected band. The ccd number, "`*`" in the file name, runs from 1 to 7 and the band limits, `elow` and `ehigh` indicate the energy band.
- `mos`*prefix*`-*oc.pi` – The corner spectrum from the observation data from the individual ccds. The ccd number, "`*`" in the file name, runs from 2 to 7.

- mos*prefix*-*fc.pi – The corner spectrum from the filter-wheel-closed data from the individual ccds. The ccd number, "*" in the file name, runs from 2 to 7.
- mos*prefix*.arf – The ARF file for the mos*prefix*-obj.pi spectrum.
- mos*prefix*.rmf – The RMF file for the mos*prefix*-obj.pi spectrum.
- mos*prefix*-exp-im.fits – The exposure image for the observation data in sky coordinates from the field-of-view for all selected ccds for the full energy band.
- mos*prefix*-exp-im-*elow*-*ehigh*.fits – The exposure image for the observation data from the selected region for all selected ccds for the selected band. elow and ehigh indicate the band limits.
- mos*prefix*-exp-im-*elow*-*ehigh*-ccd1.fits – The exposure image for the observation data from the selected region for ccd #1 for the selected band. elow and ehigh indicate the band limits.
- mos*prefix*-mask-im.fits – The mask image for the observation data from the field-of-view for all selected ccds for the full energy band.
- mos*prefix*-mask-im-*elow*-*ehigh*.fits – The mask image for the observation data from the selected region for all selected ccds for the selected band. elow and ehigh indicate the band limits.
- mos*prefix*-mask-im-*elow*-*ehigh*-ccd1.fits – The mask image for the observation data from the selected region for ccd #1 for the selected band. elow and ehigh indicate the band limits.
- mos*prefix*-obj.pi – The observation data spectrum from the selected region.
- mos*prefix*-obj-im.fits – The image of the observation data in sky coordinates from the full field-of-view for all selected ccds for the full energy band.
- mos*prefix*-obj-im-*elow*-*ehigh*.fits – The image of the observation data in sky coordinates from the selected region for all selected ccds for the selected band. elow and ehigh indicate the band limits.
- mos*prefix*-obj-im-*elow*-*ehigh*-ccd1.fits – The image of the observation data from the selected region for ccd #1 for the selected band. elow and ehigh indicate the band limits.
- mos*prefix*-obj-im-sp-det.fits – Image of the selected region in detector coordinates. This image is used in the task *proton-scale*.
- mos*prefix*-obj-im-det-*elow*-*ehigh*.fits – The image of the observation data in detector coordinates from the selected region for all selected ccds for the selected band. elow and ehigh indicate the band limits.

7 Algorithm

8 Comments

References