



epicspeccombine

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Abstract

Combines a list of spectrum files to create one combined spectrum file and the corresponding rmf, arf and bkg files

1 Instruments/Modes

| Instrument | Mode |
|------------|---------|
| EPIC MOS | IMAGING |
| EPIC PN | IMAGING |

2 Use

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

3 Description

The **epicspeccombine** is a SAS implementation of the “Combining the spectra of the 3 EPIC cameras” thread that can be found at http://xmm.esac.esa.int/sas/current/documentation/threads/epic_merging.shtml. For convenience, this task should be used in combination with **multixmmselect** and **multiespecget** tasks.

epicspeccombine task requires as an input a set of source spectra, background spectra, plus the corresponding response and effective area files of the three EPIC cameras as produced by the **multiespecget**. Although, it is not mandatory the use of **multiespecget** task prior **epicspeccombine** execution, it is highly recommended because **multiespecget** task sets accordingly all the parameters related to spectral range or energy binning. Nevertheless, the user can use his own files, but in this case, the user has to ensure that the spectra files have a common spectral range and a common binnig. Also, the user has to provide the response and ancilliary files with the same energy binning.

epicspeccombine task assumes that the spectral extraction regions are identical for all the EPIC input files.



Firstly, this task merges together the source+background and background spectra files into a single set of merged source+background spectrum and background spectrum. Then, the redistribution matrix and effective area vector files are also combined together into a single response file.

The files for each of the input parameters: **pha**, **bkg**, **rmf** and **arf** have to be introduced in order. Its means, **epicspeccombine** assumes that the order of the input list is the same and it is correct.

The algorithm, together with the weights used to combine the response files are properly described in the SAS thread web page.

4 Parameters

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

| Parameter | Mand | Type | Default | Constraints |
|-----------|------|------|---------|-------------|
|-----------|------|------|---------|-------------|

| | | | | |
|------------|-----|------|--|--|
| pha | yes | list | | |
|------------|-----|------|--|--|

A list of source+background spectrum files. It has to share with the background spectrum files a common spectral range and a common binning.

| | | | | |
|------------|-----|------|--|--|
| bkg | yes | list | | |
|------------|-----|------|--|--|

A list of background spectrum files. It has to share with the source+background spectrum files a common spectral range and a common binning.

| | | | | |
|------------|-----|------|--|--|
| rmf | yes | list | | |
|------------|-----|------|--|--|

A list of redistribution matrix files.

| | | | | |
|------------|-----|------|--|--|
| arf | yes | list | | |
|------------|-----|------|--|--|

A list of effective area files.

| | | | | |
|----------------|----|------|-----------------|--|
| filepha | no | file | epic_spc_src.ds | |
|----------------|----|------|-----------------|--|

The file name for the output srouce+backgroundcombined spectrum.

| | | | | |
|----------------|----|------|-----------------|--|
| filebkg | no | file | epic_spc_bkg.ds | |
|----------------|----|------|-----------------|--|

The file name for the output combined background spectrum.

| | | | | |
|----------------|----|------|-------------|--|
| filersp | no | file | epic_rsp.ds | |
|----------------|----|------|-------------|--|

The file name for the output combined response matrix.



5 Errors

This section documents warnings and errors generated by this task (if any). Note that warnings and errors can also be generated in the SAS infrastructure libraries, in which case they would not be documented here. Refer to the index of all errors and warnings available in the HTML version of the SAS documentation.

pairing (*error*)

The number of events files does not match the number of rmf or bkg files. There must be a one-to-one pairing.

specChannelIntervalError (*error*)

Different PI channel interval found in spectrum files.

6 Input Files

- 1.

7 Output Files

- 1.

8 Algorithm

9 Comments

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References