



# emosaic\_prep

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## Abstract

`emosaic_prep` is a task to separate processed calibrated event files (as output from `epproc` and `emproc`) for EPIC PN and MOS observations in EPIC Mosaic mode into several pseudo-exposures corresponding to the different pointings of the mosaic observation.

## 1 Instruments/Modes

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

## 2 Use

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

## 3 Description

`emosaic_prep` is a task to separate processed calibrated event files (as output from `epproc` and `emproc`) for EPIC PN and MOS observations in EPIC Mosaic mode into several pseudo-exposures corresponding to the different pointings of the mosaic observation.

The corresponding calibrated event lists are separated per pointing using the information contained in the ODF Attitude History File. Directories for each pointing are created directly above the working directory with fix names `my-working-dir/``prep_mosaic-001`, `my-working-dir/``prep_mosaic-002`, .... In each of the directories a reduced calibrated event list will be located, containing only the events corresponding to that pointing. The nomenclature of those files is `RRRR_000000000000_Ejinstj_EEEE_ImagingEvts_Pjposj.ds` with `RRRR` = revolution, `OOO...` for observation ID, `jinstj` more EPN, EMOS1 or EMOS2 and `jposj` for position of the pointing in the sequence. The calibrated event files get pseudo-exposures ID, so that the processing software (see `emosaicproc`) can handle them as separated exposures. By default they start by 11 counting upwards (controlled by parameter `pseudoexpid.`

GTI cuts can be applied to any of the original full event files.



## 4 Parameters

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

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

|                  |    |         |  |  |
|------------------|----|---------|--|--|
| <b>pnevtfile</b> | no | dataset |  |  |
|------------------|----|---------|--|--|

PN event file corresponding to the whole multi-pointing ODF, as derived with `eproc`

|                  |    |         |  |  |
|------------------|----|---------|--|--|
| <b>pngtifile</b> | no | dataset |  |  |
|------------------|----|---------|--|--|

Eventual GTI file applying to PN data

|                    |    |         |  |  |
|--------------------|----|---------|--|--|
| <b>mos1evtfile</b> | no | dataset |  |  |
|--------------------|----|---------|--|--|

MOS1 event file corresponding to the whole multi-pointing ODF, as derived with `emproc`

|                    |    |         |  |  |
|--------------------|----|---------|--|--|
| <b>mos1gtifile</b> | no | dataset |  |  |
|--------------------|----|---------|--|--|

Eventual GTI file applying to MOS1 data

|                    |    |         |  |  |
|--------------------|----|---------|--|--|
| <b>mos2evtfile</b> | no | dataset |  |  |
|--------------------|----|---------|--|--|

MOS2 event file corresponding to the whole multi-pointing ODF, as derived with `emproc`

|                    |    |         |  |  |
|--------------------|----|---------|--|--|
| <b>mos2gtifile</b> | no | dataset |  |  |
|--------------------|----|---------|--|--|

Eventual GTI file applying to PN data

|                    |    |     |    |  |
|--------------------|----|-----|----|--|
| <b>pseudoexpid</b> | no | int | 10 |  |
|--------------------|----|-----|----|--|

Basis for giving every pointing derived pseudo-exposure a pseudo-exposure ID.

|                  |     |         |  |  |
|------------------|-----|---------|--|--|
| <b>atthkfile</b> | yes | dataset |  |  |
|------------------|-----|---------|--|--|

`atthkgen` output file (eg. `*ATtthk.ds`)

## 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.

**label** (*error*)  
explanation

**label** (*warning*)  
explanation  
*corrective action*: this is the corrective action



## 6 Input Files

1. EPIC MOSAIC mode event list per instrument (as obtained from SAS tasks `emproc` and `epproc` or from their incarnations in the official PPS).
2. GTI files

## 7 Output Files

The output is located in different directories, *prep\_mosaic\_xxx*, with *xxx* running from 001 to the maximum of pointings allowed within one observation ( $\approx 070$ ). In each directory, an event file per EPIC instrument used is created containing the events corresponding to the given pointing in the sequence. On top of that, several links to the input event files as well as to SAS summary file and attitude information file are created.

## 8 Algorithm

## 9 Comments

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## References