



calcos Documentation

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Contents:

PRIMARY USER INTERFACE: CALCOS()

1. To run this task from within Python:

```
>>> import calcos
>>> calcos.calcos("rootname_asn.fits")
>>> calcos.calcos("rootname_rawtag_a.fits")

>>> from stsci.tools import teal
>>> teal.teal("calcos")
```

2. To run this task using the TEAL GUI to set the parameters under PyRAF:

```
>>> import calcos
>>> teal calcos # or 'epar calcos'
```

3. To run this task from the operating system command line:

```
# Calibrate an entire association.
% calcos rootname_asn.fits

# Calibrate xyz_rawtag_a.fits (and xyz_rawtag_b.fits, if present)
% calcos xyz_rawtag_a.fits
```

```
calcos.calcos(asntable, outdir=None, verbosity=None, find_target={'cutoff': None, 'flag':
False}, create_csum_image=False, raw_csum_coords=False, only_csum=False,
binx=None, biny=None, compress_csum=False, compression_parameters='gzip, -
0.01', shift_file=None, save_temp_files=False, stimfile=None, livetimefile=None,
burstfile=None)
```

Calibrate COS data.

This is the main module for calibrating COS data.

Parameters

asntable: str :

The rootname (with “_asn”) of an association file, or the rootname (with “_raw”) of a raw file. If the value of a raw FUV file is specified and files for both segments are present, then both of those files will be calibrated (i.e. without having to explicitly list both files).

Returns

status: int :

0 is OK; 5 means no file was found that could be calibrated.

Other Parameters

outdir: str or None, optional :

Name of output directory.

verbosity: int {0, 1, 2} or None, optional :

If not None, set verbosity to this level.

find_target: dictionary, optional :

Keys are “flag” and “cutoff”. flag = True means use the location of the target in the cross-dispersion direction if the standard deviation (pixels) of the location is less than or equal to cutoff (if cutoff is positive). flag = False means use the location determined from the wavecal.

create_csum_image: boolean, optional :

If True, write an image that reflects the counts detected at each pixel (includes deadcorr but not flatcorr), for OPUS to add to the cumulative image.

raw_csum_coords: boolean, optional :

If True, use raw pixel coordinates (rather than thermally and geometrically corrected) to create the csum image.

only_csum: boolean, optional :

If True, create a csum image, but most other files will not be written.

binx, biny: int or None, optional :

Binning factor for the X and Y axes, or None, which means that the default binning (currently 1) should be used.

compress_csum: boolean, optional :

If True, compress the “calcos sum” image.

compression_parameters: string, optional :

Two values separated by a comma; the first is the compression type (rice, gzip or hcompress), and the second is the quantization level. The default is “gzip,-0.01”.

shift_file: str, optional :

If specified, this text file contains values of shift1 (and possibly shift2) to override the values found via wavecal processing.

save_temp_files: boolean, optional :

By default, the _x1d_a.fits and _x1d_b.fits files (if FUV) will be deleted after concatenating to the _x1d.fits file. Specify save_temp_files=True to keep these files.

stimfile: str, optional :

If specified, the stim positions will be written to (or appended to) a text file with this name.

livetimefile: str, optional :

If specified, the livetime factors will be written to (or appended to) a text file with this name.

burstfile: str, optional :

If specified, burst information will be written to (or appended to) a text file with this name.

class `calcos.Association` (*asntable, outdir, cl_args*)

Read and interpret the association table.

Parameters

asntable: str :

The rootname (with “_asn”) of an association file, or the rootname (with “_raw”) of a raw file (or pair of files if FUV).

outdir: str or None :

Name of output directory.

cl_args: dictionary :

Some of the command-line arguments, or their defaults.

Constructor.

class `calcos.Observation` (*input, outdir, memtype, suffix, shift_file, first*)

Get information about an observation from its headers.

This base class is not directly used; one of its subclasses will be invoked, depending on DETECTOR and OBSMODE.

Parameters

input: str :

The name of an input raw file.

outdir: str :

An empty string or the name of the output directory.

memtype: str :

Read from the association table; used to distinguish between wavecal and science observation.

suffix: str :

Suffix to the rootname, but just “_rawtag” or “_rawaccum” (i.e. excluding “_a” or “_b” if the data were taken with the FUV detector); this may be reset internally to “_corrtag” or “_rawimage” or “_rawacq”.

shift_file: str or None :

The name of the shift file (command-line argument), if one was specified.

first: boolean :

True if the current file is the first of two for FUV.

Invoked by a subclass.

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