mssllib

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Abstract

A library of utilities used by MSSL SAS tasks

1 Instruments/Modes

Instrument	Mode
OM	fast
OM	imaging

2 Description

The following library functions are implemented:

- COPYIMAGE: copies an image from one dataset to another.
- COPYTABLE: copies a table from one dataset to another.
- GETFILTERID: Gets the ID of an OM filter.
- PARSE: Parses a list of comma separated strings into an array of strings and a number of components.
- SORT: sorts a list of real numbers into ascending numerical order.
- READMODES: reads the CCD modes extension of a dataset.
- READHIST: reads a tracking history dataset.
- TMPFILENAME: creates a temporary filename
- REALSAME: tests whether two real numbers are the same to within a tolerance
- OMASTROMCORRECT: Astrometry correction module
- OMUTILITY: Various utility subroutines
- OMPHOTOMETRY: Various photometry subroutines for use by omdetect, omphotom and omsource
- OMSOURCEFLAGS: Various source-flagging subroutines

- OMCOINCCORR: Various subroutines for doing coincidence-loss correction
- OMDISTORTION: Various subroutines for doing distortion correction
- OMMAGNITUDE: Subroutines for computing instrumental magnitudes
- OMNUMERICS: Various numerical algorithms (eg sorting)
- OMSKYBACKGROUND: Various subroutines for computing the sky-background.
- OMCONSTANTS: Stores various constants
- OMFUNCTIONS: Various mathematical functions
- BRENT: Contains two function for finding a root of an equation (taken from Numerical Recipes)
- OMMINUM: Program for finding the minimum of a function
- OMINTERPOLATE: Various interpolation routines
- LEASTSQUARES: Various least-squares routines

3 Notes on individual modules

3.1 omphotometry_mod

3.2 subroutine pointsourcephotometry4

1. Added on 03.04.09
2. **Purpose** to perform aperture photometry using an exposure image.
3. **Input parameters**
   - **exposureConstant** The median value of the exposure image that each image pixel has been multiplied by.
   - **radius** - photometry aperture radius
   - **Image (real 32)** The 2-d image to be used for the photometry
   - **Exposure image (real 32)** The 2-d exposure image to be used for the photometry
4. **Input/output variables**
   - source - On input structure contains the source coordinates and various other parameters computed by **omdetect**. On output it will have its photometric raw count-rate components set.

3.3 subroutine extendedsourcephotometry4

1. Added on 03.04.09
2. **Purpose** to perform aperture photometry on extended sources using an exposure and background image.
3. **Input parameters**

- **exposureConstant** The median value of the exposure image that each image pixel has been multiplied by.
- **Image (real 32)** The 2-d image to be used for the photometry
- **backgroundImage (real 32)** The 2-d background image to be used to subtract the background
- **Exposure image (real 32)** The 2-d exposure image to be used for the photometry
- **elevelimage** (integer 16) The 2-d image identifying the pixels assigned to each extended source

4. **Input/output variables**

- source - On input structure contains the source coordinates and various other parameters computed by **omdetect**. On output it will have its photometric raw count-rate components set.

References