



AHELP for CIAO 3.4

analyze_ltcv

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Synopsis

analyze_ltcv.sl – An algorithm for cleaning lightcurves

Description

The analyze_ltcv.sl script analyzes a lightcurve, e.g. created by dmextract. It performs an iterative sigma-clipping algorithm, removing those points that fall outside ± 3 sigma from the mean at each iteration until all data points are within ± 3 sigma. This algorithm is robust but not perfect; it can easily "overclean" a noisy lightcurve and should not be used blindly. The output is a graph of the lightcurve, showing suggested excluded points in red and accepted points in green, together with a list of the accepted time periods and their lengths.

The output time periods can then be used to filter the event list, either by using dmgti to create a GTI file, or directly within a DM filter expression.

The script is run from within ChIPS ("ahelp chips"), as shown in the example. To load the script:

```
chips> () = evalfile("analyze_ltcv.sl")
```

This step is only necessary once per ChIPS session.

This script is used in the [Filtering Lightcurves thread](#).

Example

```
chips> analyze_ltcv("lc_c7.fits")
```

Running analyze_ltcv.sl from within ChIPS. The screen output is:

```
((time > 77377570.949648) && (time < 77399570.949648)) ; 22.00 ksec
((time > 77404770.949648) && (time < 77406770.949648)) ; 2.00 ksec
```

These time periods can be used to filter the event list, either by using dmgti to create a GTI file, or directly within a DM filter expression.

NOTES

This script is not an official part of the CIAO release but is made available as "contributed" software via the [CIAO scripts page](#). Please see the [installation instructions page](#) for help on installing the package.

Bugs

See the [bugs page for this script](#) on the CIAO website for an up-to-date listing of known bugs.

See Also

tools

[acis_detect_afterglow](#), [acis_find_hotpix](#), [axbary](#), [destreak](#), [dmcopy](#), [lightcurve](#)

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URL:
http://cxc.harvard.edu/ciao3.4/analyze_ltrcv.html
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