Chandra X-ray Center

Bugs: acis_process_events

A list of bugs fixed in CIAO 3.4 is included at the end of this document.

Caveats

1. *Aspect files must be arranged in chronological order*

   acis_process_events assumes that the aspect files given in the acaofffile and
   alignmentfile parameters are arranged in chronological order. If the files are not in order, the tool
   will exit with an error.

   If you have not altered the original filenames, a simple "ls" will put them in order, as the time is listed in
   the filename:

   ```
   unix% pwd
   /data/459/primary

   unix% ls -1 pcad*
   pcadf063874624N002_asol1.fits
   pcadf063875522N002_asol1.fits
   pcadf063902942N002_asol1.fits
   ```

   Otherwise, get the value from the TSTART header keyword:

   ```
   unix% dmkeypar pcad_1.fits TSTART echo+
   63875522.3455031
   ```

   and put the files in chronological order.

2. *CONTENT keyword value is set to "EVT1"* *(14 Feb 2007)*

   acis_process_events always sets the CONTENT keyword in the output file to "EVT1", regardless
   of whether the input is an evt1.fits or evt2.fits file. (Note that there are only specific cases in which an
   evt2 file may be used as input to acis_process_events.)

   Workaround:

   While the CONTENT value will not negatively affect any analysis downstream, users can change the
   value with dmhedit if they so choose.

Bugs

1. *Status bits in the input file are not reset when reprocessing data*

When `acis_process_events` is used to reprocess event data, it does not unset status bits in the input data file. For example, `acis_process_events` does not recalculate the bad pixel status bits. If events have status bits set in the input event file, then the values are *always* copied to the same bits in the column STATUS of the output file. If the <u>badpixfile</u> is set to a value other than "NONE" (the default), then only *additional* status bits can be set in the output file. This limitation will be fixed in a future release.

2. ***PHA_RO value in reprocessed files*** *(06 Mar 2007)*

After the a file is reprocessed, the values of PHA_RO in the output file are equal to the values of PHA (after the CTI and tgain adjustments) in the original file. They *should* be equal to the summed pulse height of the original, unadjusted event island (PHAS).

Note that the PHA_RO values are not used by any CIAO tool be default, so this should not affect subsequent analysis steps.

3. ***Stop−time for afterglow bad pixels*** *(06 Mar 2007)*

There is a bug where the stop−time of afterglow badpixels is not being correctly used. Once marked as bad, the afterglow badpixels are continued to be marked as bad (bit 16) until the end of the observation.

Bugs fixed in CIAO 3.4

The following is a list of bugs that were fixed in the CIAO 3.4 software release.

1. ***Pixels identified as having bias values that are too high or too low are not recorded in the STATUS column of the event file.***

`acis_process_events` should set bit 4 in this case. The bias value pixels are correctly recorded in STATUS bit 16 of the bad pixel file (`bpix1.fits`).