ctools - Bug #1967

ctbin throws error for far-away events

03/16/2017 04:29 PM - Kelley-Hoskins Nathan

Priority: High Due date: Assigned To: Knödlseder Jürgen % Done: 100% Category: Estimated time: 0.00 hour Target version: 1.5.0 Estimated time: 0.00 hour Description I'm running ctbin in python, but its throwing an error. My ctbin setup:					
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Response name: Energy dispersion: Not used Save energy range: undefined === GCTAEventList === Number of events: 165 (loaded) Time interval 56833.2768518518 - 56833.2803703704 days Energy interval: 0.85 - 70 TeV Region of interest: RA=265.844955432731, DEC=-29.0057519755548 [0,0] Radius=2.24999914622635 deg event:Dir=RA=266.897430419922, DEC=-29.9585800170898 [0.0112254320541442,-0.0174205200340758] Energy=6.10820293426514 TeV Time=257236727.350771 s (TT) it throws this error: Traceback (most recent call last): File "./test.py", line 12, in <module> veripy.model counts profile 2(obs, center, temp dir=proftemp) File "/nv/hp11/nkellevh3/data/software/veripy/src/obs.py", line 1160, in model counts profile 2 cb.run() File "/nv/hp11/nkelleyh3/data/software/ctools/lib/python3.5/site-packages/ctools/tools.py", line 1358, in run return tools.ctbin run(self) RuntimeError: *** ERROR in GWcsTAN::prj s2x(int, int, int, int, double*, double*, double*, double*, int*): 1 (phi,theta) coordinates were invalid. By inserting couts into ctbin.cpp, I can see that it comes from the line: GSkyPixel pixel = m counts.dir2pix(dir); in ctbin::fill_cube(GCTAObservation* obs).

After poking around, it turns out that observation is a galactic center observation and ctbin is centered on the crab, so the event it was trying to bin was more than a few degrees outside the counts cube. But, this situation seems like it should result in an empty counts cube, not a (difficult to diagnose) error message. Is this working as expected?

History

#1 - 04/05/2017 08:01 AM - Knödlseder Jürgen

- Status changed from New to In Progress
- Assigned To set to Knödlseder Jürgen
- Priority changed from Normal to High
- Target version set to 1.3.0
- % Done changed from 0 to 10

I agree that the error message is a bit cryptic and that type of error could be catched and translated into a more understandable message.

The exception comes from the WCS classes which convert sky positions into pixel numbers. An exception occurs if the conversion cannot be done, which can happen when a position very far off the centre of the projection is requested.

I will try to make this more explicit.

#2 - 06/07/2017 05:45 PM - Knödlseder Jürgen

- Target version changed from 1.3.0 to 1.4.0

#3 - 08/01/2017 09:49 AM - Knödlseder Jürgen

- Target version changed from 1.4.0 to 1.5.0

#4 - 01/22/2018 04:44 PM - Knödlseder Jürgen

- Status changed from In Progress to Closed

- % Done changed from 10 to 100

This bug is corrected since some time using the following code:

```
GSkyPixel pixel;

try {

    pixel = m_counts.dir2pix(dir);

}

catch (std::exception &e) {

    num_invalid_wcs++;

    continue;

}
```