Science Tools Update, June 14, 2007

Science Tools Working Group

We met this week.

The current version of ScienceTools is **v8r1**, but it is not quite the same **v8r1** as last week. Owing to work that he already had in progress to implement the Proposed Tool Name Changes, when Jim fixed the bug in how Likelihood handles the HANDOFF response functions (see below), the only workable option for making a release with that bug fix but not the tool name changes was to move a tag or two and re-release **v8r1**. If you had installed it before June 13, you should remove and reinstall it.

As Jim proposed and was discussed at the Service Challenge Steering meeting on Wednesday, next week he will release **v8r1p1** which will fix the reversal of front and back designations (so EVENT_CLASS = 0 for front and 1 for back). This will be synchronized with a release of a reprocessed **obssim2** data set. **v9**, with the tool name changes and probably the Proposed Parameter Name Changes would follow.

Updated Pass 4 response functions (of which HANDOFF is the current example) are anticipated around the time that the next Service Challenge data set (3-hour simulations via Gleam) will be released. The current HANDOFF response functions will not disappear from Science Tools at that time, so the **obssi m2** data will remain analyzable. I'd guess that the new Pass 4 response functions (name TBD) will first appear in something like **v9r1**.

Regarding the GLAST Users Group meeting reported on last week, they GUG plans to have another 'beta test' of the Science Tools, sometime September-November.

Data products: No news.

Databases and related utilities

No news. Tom S. reports about 80 queries for obssim2 data have been served by the GSSC so far - this exludes queries that Tom has made to test the server. Some queries failed on June 1, but it was not immediately clear why.

Likelihood analysis

Other than Jim's finding and fixing the handoff response handling bug and apparent Likelihood bias the news is that studies of likelihood analysis - TS values and parameter biases from unbinned and binned likelihood continue. Florien & Vincent have been looking at the accuracy of the likelihood calculation in the unbinned case by comparing the value of log(Likelihood) for a 360 day-long simulation (simple point source + diffuse background) with the log(Likelihood) derived by evaluating the likelihood function for 10-day subintervals of the data set and adding the results. The difference was about 1%, and this translated to measurable differences in TS. Not clear yet whether the magnitude of the differences is a concern (about 80 out of TS = 4000 for the relatively bright point source considered).

GRB tools

No news

Pulsar tools

Masa reports that he and James continue to work on sorting out the code of **gtpsearch** for barycentering-on-the-fly. He and James also checked that the proposed parameter name changes do not affect the parameters used by the pulsar tools.

Observation simulation

Max R. **(who submitted his Ph.D. thesis today)** has checked in a fix for the initialization problems encountered with PulsarSpectrum in the recent attempts that Tom G. has made for a SC simulation via Gleam. According to Jim the problem was an infinite loop (non-convergence) in barycenter arrival time decorrections for some time intervals.

Toby reports that he has fixed the pointed observation mode of **gtorbsim**, at Dave D.'s request. So now it can generate pointed observations; keep in mind that it does not perform earth avoidance slews.
The GSSC is close - really - to having a Science Tools version of the orbit/attitude simulator written by Guiseppe R. This should supercede **gtorbsim**

User interface and infrastructure (& utilities)

No news.

Source Catalog

Did not meet this week.