Science Tools Update, April 5, 2007

Science Tools Working Group

Met this week. The next meeting will be face-to-face at SLAC on April 18-19.

The current version of ScienceTools remains **v8**.

Data products: Some issues related to cleaning up the definition of FT2 have been posted for comment. We had some discussion about TT vs. UTC and how what comes down in the LAT science data telemetry gets related to TT. Also, Anders has been thinking about questions like how versions of processing will be kept track of in the L1 pipeline and recorded with events or runs (and eventually find its way to the FT1 files). This is surprisingly subtle; most likely the CALIB_VERSION and RECON_VERSION keywords now defined for FT1 will need modification.

Databases and related utilities

No news

Likelihood analysis

Jim has added the **gtexposure** tool to the Science Tools. Basically, it calculates exposure vs. time for a given direction on the sky. It is described in his What's New in ST since DC2? presentation last week at the collaboration meeting.

GRB tools

From James: "James worked with Eric Winter to regenerate test data for the evtbin packages using DC1 data. This was a "warm-up" project but useful to do because the previous test data was very old and out of date. Fortunately, the update uncovered no new bugs."

Pulsar tools

Masa reports that the first version of **gtpspec** is available and it seems to work. Significances of results for separate runs for different Pdot values can be interpreted by keeping track of the trials factors that each run reports individually.

From James: "James and Masa finished rationalizing the time corrections in **gtpspec** and **gtpsearch**. All times are now corrected for pdot cancellation and binary demodulation, thus resolving the subtle bug described [previously]. In addition, they discovered that the period search tools were using TSTART /TSTOP from the event header to set up the start and stop times of the search, but that using the GTIs (start time of first GTI to stop time of last GTI) is more correct, and results in better searches. The effect is particularly strong in **gtpspec**. With all these changes, they checked in and tagged the first version of the
pulsar tools to contain the **gtpspec** binary."

Observation simulation

Jim has fixed a bug that caused a small (1/2 pixel typically) offset between the positions of diffuse sources in simulations and corresponding DiffuseSource counterparts in likelihood models. Riccardo Rando and Luigi Tibaldo had noticed this problem.

Max has implemented a new way to simulate timing noise - one he likes much better than his previous versions - and this is in the latest version of PulsarSpectrum.

User interface and infrastructure (& utilities)

No news.

Source Catalog

Did not meet this week.