

# Science Tools Update, September 14, 2006

## Science Tools Working Group

We met this week and most probably will meet again in 2 weeks. This report covers the last 3 weeks, which were quiet ones for Science Tools.

The current version of the Science Tools remains **v7r4p1**. An incremental update may be in the works shortly.

**Data products:** No news. The status of the Science Data Products ICD is on the agenda for the Operations Technical Interchange Meeting to be held at Goddard at the end of the month.

## Databases and related utilities

No news. The LAT Dataserver Working Group, a Service Challenge Subcommittee to be chaired by Julie, is going to start doing what committees do, "to help sharpen input to the Data Handling group for features and functionality to be built in to the LAT dataservers. It should result in a long term (1 year) plan."

Tom reports that a request for quotes is out for the production server systems to be used at the GSSC and the hardware is expected to be in place by the end of the year. My understanding is that this is for the LAT event/photon data; the other GLAST data products, which can be served using a standard Browse-type system will be handled on HEASARC systems.

## Likelihood analysis

Jim has fixed, or is in the process of fixing, a couple of bugs: with how one-sided time-range cuts (say when only a lower-limit is specified) are handled and with how the diffuse response columns are named by **gtdiffresp** when event class cuts have been made.

In the near term he is also working on a method to speed up evaluations of the likelihood function by not recomputing parts that relate to sources whose parameters are not changing, such as sources in the border region around a region of interest. I think that the suggestion for doing this came from Jean. The implementation certainly has to be done carefully but could make a marked improvement for evaluation of models with a lot of static sources.

Analia is continuing to work on introducing a 'confidence level' for warning users when counts in each energy bin are significantly different from the model predictions. This would be evaluated on the summary counts spectra output from likelihood. If this turns out to be useful, presumably checks on other aspects (such as spatial agreement) could be added.

## GRB tools

No news. We may have an update next time on whether a temporal-spectral model fitting tool will be developed.

## Pulsar tools

Tom reported that he talked with David Smith at the collaboration meeting about the nuts and bolts of translating radio ephemerides into the D4 (pulsar database) format. Apparently at Bordeaux they have been working on some scripts to do this; when they are happy that the scripts are debugged, Tom will set up a system at GSSC to receive radio ephemerides and ingest them in to D4. I did not think to ask about details about how the ephemerides are to be delivered, if anyone is reading this. This also raised questions about how D4 is to be delivered to users in real life.

From Masa: "The pulsar tools now accept one more time format (MJD in addition to GLAST) and two more time systems (TAI and UTC in addition to TDB and TAI) for manual input of a time, such as a reference time (reftime) and an ephemeris epoch (epheepoch). What we plan to do in this build cycle are: cleaning up the codes, testing, identifying/fixing bugs, and updating manuals."

## Observation simulation

No news.

## User interface and infrastructure

From James: "James began work to reconcile differences between the new parameter interface (Ape) and the Ciao tools parameter interface. The goal is to matching behavior with all major parameter-based astronomical software packages as a prelude for introducing Ape into the Science Tools."

Chuck has updated the 'splash page' for the science tools section of the user workbook and is considering coming up with an even more clear way for neophytes to find what they need in the workbook. He is also working with Vincent to incorporate documentation for **gtsrcid**.

David is still looking for good citizens like you to read, comment on, and contribute to the Cicerone document. Several sections need beefing up.

## Source Catalog

The catalog group met last week and I don't recall why I report on it in these meetings. The presentations were a continuation of discussions of algorithms for source detection.