

Science Tools Update, June 16, 2009

Science Tools Working Group

The current release of the Science Tools is now **v9r15p2**. Here are the package [differences](#) from v9r15p1. Relative to v9r15p1 most of the important differences are in likelihood analysis, although Jim has also implemented a speed-up for observation simulation (see below).

Eric W. reports that he is starting work on a port of **v9r15p2** to the FSSC build environment. Yesterday was the freeze date for the version of the Science Tools that the FSSC will distribute at the time of the public data release. Remember that only a (large) subset of the Science Tools packages are part of the public release; these are listed in the ST_dist package.

Data products: As you probably have heard the Pass 7 classifications will need to be reworked, and the reprocessing for Pass 7 (Merit and FT1) performed again. The timescale for doing this is at least weeks. The reprocessed Pass 7 data are still available as is in the Data Catalog.

Databases and related utilities

No news

Likelihood analysis

From Jim: [these are in Science Tools **v9r15p2**]

- fixed Jean's 1/2 pixel offset problem [see, e.g., slide 7 of [Jean's report to the Diffuse group](#)] with convolved maps using MapCube models (Likelihood v15r1p4)
- completed the **SummedLikelihood** interface to include TS calculations (pyLikelihood v1r14p1)

Also, these new features mentioned [last week](#) are now in the current release:

- Fixed a bug in the event class handling in **gtdiffersp** [revealed I think by processing Pass 7 files that had an event class selection made with **gtselect**]. Likelihood v15r0p3
- Added a new function for spectral fitting: **SmoothBrokenPowerLaw** implemented by Benoit Lott. Likelihood v15r1p1 [fixed in v15r1p2, which is part of the current release]
- Added **SummedLikelihood** to Likelihood v15r0p3, pyLikelihood v1r14. This interface will allow users to combine likelihood calculations that have identical xml model definitions. **Unbinned and binned analysis can be combined as well as separate front vs back for binned analysis.**

As a reminder, **gtfindsrc** was updated in Science Tools **v9r13** to return the radius of the 68% confidence region. Formerly it had returned the sigma of a 2-dimensional gaussian fit to the profile of the likelihood surface at the position of the source. The documentation is not yet clear on this point.

GRB tools

No news

Pulsar tools

From Masa: In **v9r15p2**, the tools now recognize FERMI in addition to GLAST for timeformat and userformat parameters. And I plan to update the tutorials for the change sometime soon.

Observation simulation

From Jim: improved the algorithm to look up the livetime from flight FT2 files. Speed-ups of a factor of a few should be seen. (observationSim v8r4)

User interface and infrastructure (& utilities)

No news

Source Catalog

Last week the primary topic was again the P6v3 9-month source list, including presentations on improvements in source detection (Ludovic and Toby) and a report by Toby on elliptical fits to the source localization regions.