

Science Tools Update, May 19, 2009

Science Tools Working Group

The current release of the Science Tools is still **v9r12**.

Data products: Reprocessing for Pass 7 is being tested, at the Merit file level.

Databases and related utilities

No news

Likelihood analysis

From Jim:

- I re-implemented the **BandFunction** available for Likelihood analyses in order to allow users to specify the energy scale for evaluating the power-law parts of that function (J. Ballet request). The [workbook documentation](#) has been updated (Likelihood v14r8)
- I modified **gtfindsrc**, **gttsmap**, the TS calculation in **gtlike** and **pyLikelihood**, and the upper limits calculation in **pyLikelihood** to use the new function in the optimizers package, `Optimizer::find_min_only` (in optimizers v2r15p9), which skips the covariance matrix calculation at the best-fit location. This should speed up the execution of these tools [possibly by a factor of a few]. (Likelihood v14r9, pyLikelihood v1r12p2)
- The error radius returned by **gtfindsrc** now includes the 1.51 factor derived by [Juergen](#). This means that the reported value can be directly interpreted as 68% containment radius.

GRB tools

No news

Pulsar tools

Masa reports that he is continuing to work on improving the unit tests for the pulsar tools

Observation simulation

From Jim: "I modified the Isotropic source used in **gtobssim** to model the extragalactic diffuse component. Users can now specify a cone on the sky over which the incident photons will be generated. Here is an example xml definition:

```
<source name="Extragalactic_diffuse_20">
  <spectrum escale="MeV">
    <SpectrumClass name="Isotropic" params="flux=10.7,gamma=2.1,emin=20.,emax=2e5,ra=0,dec=0,radius=20"/>
    <use_spectrum frame="galaxy"/>
  </spectrum>
</source>
```

(celestialSources/genericSources v1r13)

User interface and infrastructure (& utilities)

No new news

Source Catalog

No meeting last week