AI#28. SAE Release Schedule

David Band (GSSC/JCA-UMBC)

Julie McEnery (GSFC)

General Principles

- **Tools should be released in advance of when user community needs the tools**
  - GBM data released at beginning of Cycle 1, and therefore SAE GRB tools should be released around launch
  - LAT data released at beginning of Cycle 2, and therefore full SAE release before Cycle 2 proposal deadline.

- **Tool release should take advantage of experience. During 1st year LAT team will update response functions and tools based on on-orbit calibrations and analysis of real data.**

Bottom Line

∴ **Release of GBM tools before Cycle 1**

Release of LAT tools in the middle of Cycle 1, before Cycle 2 proposal deadline.

- **SAE workshop planned for middle of Cycle 2 proposal season.**

- **Timeline follows**
- **Text of plan provided at end**

Timeline

- **June, 2006—End of DC2**

- **November, 2006—GUC beta-test**

- **September, 2007—Launch**

- **October, 2007—Release of SAE tools for gamma-ray bursts**

- **November, 2007—Cycle 1 begins; GBM data released**

- **April, 2008—Release 0.9 of all SAE tools**

- **June, 2008—SAE workshop**

- **July, 2008—Cycle 2 deadline**

- **January, 2009—Release 1.0 of all SAE tools**

- **January, 2009—Cycle 2 begins; LAT data released**

Text

- When should the SAE tools be released to the scientific community? Minimally, one would require that the tools be available before the data are released to the community. Ideally, the tools should be available prior to the relevant NRA to help GIs prepare proposals. The raw LAT data will be available to the community by the beginning of Cycle 2, 14 months after launch—after two months of the checkout and one year of Cycle 1. During these 14 months the understanding of the LAT will improve, resulting in different response functions, background models and, perhaps, additional tools. The LAT team will be using the SAE tools internally, with the consequent modifications that result from actually analyzing real data. Thus, we expect substantial refinements of the SAE tools in the first few months after launch.

- Some aspects of the analysis of GLAST LAT data are likely to be significantly different from the analysis sequence familiar to some segments of the high-energy astrophysics community. An earlier release of the SAE tools may give the community more time to go up the learning curve. However, premature release of the tools with the related response functions and background models can mislead and confuse the community. Users may also be discouraged by software that is not ready for wide distribution at launch but is ready to use by the time real data become available. Therefore, the release timing must be calibrated to when it would be useful for the community, and it must be tied to milestones.

- In Cycle 1 the scientific community will have access to high level data (light curves, spectra etc) for selected sources but will not have access to the low level LAT photon data and cannot propose GLAST observations. Thus the community does not need the SAE tools necessary to analyze or simulate LAT observations during Cycle 1. Users will need the detectability of LAT sources to prepare Cycle 1 proposals. The understanding of source detectability will increase during the mission's first year and therefore simple detectability tools are planned. In many cases simple effective area plots will be sufficient.

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- On the other hand, GBM burst data will be available during Cycle 1, and therefore the basic SAE tools for burst analysis should be released before launch. The basic tool users will require to convert GBM time tagged events (TTE) into spectra is gtbin. This tool can also be used to create light curves from TTE data. The GBM team will provide background and response files for each burst. The GBM team is also creating a tool to produce response files; if this tool is sufficiently mature, it can also be released before launch. Since gtburstfit operates on both GBM and LAT data, it should also be released for use in Cycle 1; this tool creates a Bayesian Block representation of burst light curves, and fits models of the pulse shapes.

- In Cycle 2 the scientific community will have full access to the GLAST data and will be able to propose GLAST observations. Therefore, since the SAE tools include the capability to simulate observations, the full SAE suite of tools should be available before the effective NRA release date for Cycle 2. At the November, 2005, GUC meeting we discussed setting the Cycle 2 deadline in July, 2008, with a GLAST data analysis workshop in June, 2008; scheduling the workshop at a time convenient for scientists tied to the academic calendar drives this timeline. Note that this Cycle 2 timeline lengthens Cycle 1 by about 3 months, assuming the launch is in early September, 2007. This argues for releasing the full SAE no later than April, 2008. This initial release should be considered Release 0.9, with a later release, Release 1.0, just before the data become public at the beginning of Cycle 2.

- A full SAE Version 0.9 release date of April, 2008, would give the LAT and GSSC teams ~6 months of scientific operations to refine the response functions and add capabilities to the SAE that might result from analyzing real data; further refinements will probably occur during the remainder of Cycle 1. Therefore the scientific community should be warned that Release 0.9 will probably be updated by Release 1.0 just before the data become public.

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GLAST

- Note that the SAE will have been exercised by a large community of LAT, GSSC, and GBM scientists during the data challenges and during the first year of operations. In addition, the GUC will beta-test the tools in November, 2006. Therefore the developers of the SAE will have had ample opportunity to refine the tools and their interface before Release 0.9 to the broader scientific community.

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