

GLAST Large Area Telescope

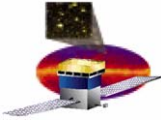
Monthly Mission Review

LAT Flight Software Status

October 29, 2007

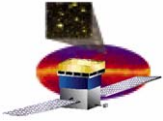
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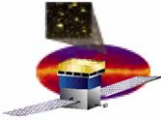
FSW Status

- **FSW B1-0-4 ready for upload 10/30/07**
 - **FQT and LICOS CPT testing against Testbed in progress**
 - **Release handed to I&T online for preparation of LICOS_* releases that go with the new build**
 - **Some scripts require updating to take advantages of new filters and features**
- **During the process of putting out the FSW release, a few problems were uncovered and several rebuilds were done**



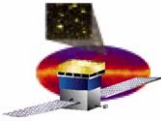
Update to FSW build names

- The build that will be uploaded to the LAT (B1-0-4) will contain the following functionality:
 - Low rate science counters can be routed to SDI
 - Bug fixes to GRB algorithm
 - Tweaks to PIG/LIM to adjust delays and fix bugs
 - Filter statistics added to science stream to monitor performance of onboard event filter
 - Report HSK information on LAT power and LAT physics acquisition
- Staged FSW releases to minimize impact on testing/debugging between now and upload
 - B1-0-2
 - Built on 10/18
 - Discovered problems in response to GRB messages
 - Several problems in ground software coherency
 - Internal release – does not include housekeeping additions
 - B1-0-3
 - Built on 10/22, rebuilt on 10/26
 - Cleaned up the minor issues in B1-0-2 in a coherent build
 - This build is viable, fully tested, and can be uploaded to the LAT
 - Housekeeping additions omitted from this build
 - B1-0-4
 - Built on 10/27
 - Includes B1-0-3 + housekeeping additions (in other words, everything)
 - Undergoing a repeat of B1-0-3 testing
 - No issues so far



Issues and concerns

- **Duplicate event ID bug**
 - Repaired in B1-0-3 and B1-0-4
- **GRB feature**
 - GBM repoint recommendation immediately followed by closeout
 - Addressed in B1-0-3 and B1-0-4
- **Miscellaneous ground software issues**
 - Repaired in B1-0-3 and B1-0-4
- **Solaris 5.10 issues**
 - Nothing has been done to address compiler warnings at this time...



Duplicate event IDs

- During the last CPT, there were several runs containing events with duplicate event IDs
 - Affected runs: 077015242 (July 14), 077015893, 077015894, 077015895, 077015896
 - Problem was not discovered immediately:
 - Error flagged in digi report only if counters go backwards.
 - Not all events with duplicate event IDs cause this to happen.
 - Affects all runs that include diagnostic filter; exacerbated in runs with low acceptance rates
- Bug was discovered/fix in EFC in B1-0-2 during implementation of FSW-999
 - Every event that is read out gets passed through the software filters that are enabled for that run.
 - Each software filter determines whether it can veto the event before it unpacks the event. If it doesn't have to unpack the event, it won't.
 - The bug: The diagnostic filter always assumed that the event it was processing had been previously unpacked and grabbed the GEM contribution from where it was supposed to be.
 - This worked when another filter had already unpacked the event.
 - When only the diagnostic filter passed the event, the diagnostic filter was grabbing a stale GEM sequence number from the previous event and we saw duplicate event IDs
- The fix: Diagnostic filter now unpacks an event if it has not been previously unpacked.