

GLAST Large Area Telescope

Instrument Science Operations Center

+

WBS 4.1.D

Science Analysis Software

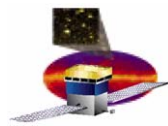
Monthly Status Review

1 December 2005

Rob Cameron

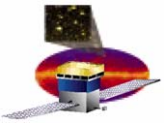
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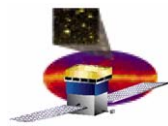
ISOC Management

- ❑ **ISOC Operations Facility**
 - **GLAST/ISOC space requirements in Bld84: Central Lab Annex submitted to SLAC management**
 - **ISOC representation on office/lab space allocation committee (Cameron/Dubois)**
- ❑ **I&T coordination**
 - **Coordinating off-project support needs at NRL/SASS with I&T**
 - **Planning of workstations at SASS for realtime monitoring and data filtering + format translation**
 - **Telecon with MOC on “mini-MOC” capabilities at SASS**
- ❑ **Beam Test**
 - **Continued coordination of staffing and M&S needs for ISOC & beam test**
- ❑ **Other**
 - **Discussions with Japanese LAT collaboration representatives on Japanese presence at SLAC ISOC**
 - **Kickoff of Quicklook Working Group, to define quicklook science processing & data delivery requirements in ISOC**
 - **Initial detailed definition of QL requirements by end of 2005**
 - **Worked with Project Scientist to provide ITAR control matrix for review**



CHS Activity

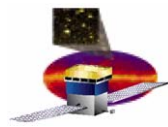
- ❑ **Housekeeping data issues**
 - Continued discussions with MOC about processing and sending LAT 96-analog data separate from Level 0
 - Proposed that ISOC accesses spacecraft data through MOC online Data Trending and Analysis System (DTAS) and online MOC-hosted ITOS pages
- ❑ **Initial meeting with Elizabeth Ferrara to identify scope of LAT operation procedure development**
- ❑ **Reviewed and updated CHS dataflow diagrams**
- ❑ **GOWG and GIMGOM meetings**
 - Discussed MOR preparations
 - Planning for next Operations TIM
 - At SASS: 18,19 January 2006
- ❑ **Document Review**
 - Ops Data Product ICD CCRs
 - Baseline of Mission Operations Agreement (MOA) is in final review and signature cycle
 - Review of FSW Users Guide continues



CHS Testing

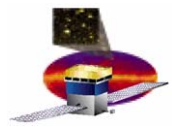
- ❑ **GRT3 status**
 - **Final preparations in place**
 - **test procedures being finalized – includes (re)reviews by ISOC, weekly coordination telecons, lots of email**
 - **Pre-test mission planning data product exchange**
 - **received mission planning products from MOC & GSSC**
 - **verification that these match Ops Data Products ICD is I/P**
 - **generated LAT Science Timeline and sent to MOC & GSSC**
 - **to receive two more products before GRT3 (14 Dec)**
 - **any issues still pending with these on 14 Dec will be entered in GSFC issue-tracking database (SOARS) as GRT3 issues**

- ❑ **Upcoming testing milestones**
 - **07 Dec: GRT3 Test Readiness Review**
 - **13 Dec: dry run for GRT3**
 - **14 Dec: GRT3 (official run-for-the-record)**
 - **July 06: next GRT (GRT5) moved from late-March 06 with one or more engineering tests before that**



CHS: Software Development Activity

- ❑ **Software Releases**
 - Released version 1.2.0 of the ISOC software for pre-GRT3 acceptance testing
 - Performed acceptance testing
 - 7 tests used to verify:
 - ingest of 5 mission planning products from MOC & GSSC
 - ingest of L0 Science data files from MOC
 - handling overlaps in L0 data
 - All issues were reported in Jira, addressed, & passed retests
 - Test report in LATDocs – ‘LAT-TD-07700-01’
 - available via Confluence at <http://confluence.slac.stanford.edu/display/ISOC/Acceptance+Tests>
 - Released version 1.2.1 to close out test discrepancies
 - this code release to be used for GRT3
- ❑ **ISOC / FSW Integration**
 - Used FSW tools to create sample CCSDS-format physics event data for GRT3
 - 3 overlapping L0 datasets provided for GRT3 playback
 - ~2.5 GB total size
- ❑ **Operations Data Products handling**
 - Created sample LAT timeline package for GRT3



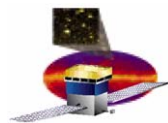
CHS: Software Development Activity (cont.)

- ❑ **Data Handling**
 - Began implementing run-boundary extraction software to support pipeline dispatch of science data
- ❑ **Trending**
 - Integrated Systems-Engineering-provided EU conversion & limits information into Trending database
 - Updated trending-data ingest software to work with the common I&T / ISOC T&C database interface
- ❑ **I&T Support**
 - Completed integration of FASTCopy data-transfer system onto two instances of mobile-rack hardware
 - Configured a data relay via SSH tunnels through the Cleanroom DMZ network
- ❑ **Other**
 - Reformatted and applied calibrations to LAT radiator thermal test data collected at Lockheed Martin, for analysis by LAT thermal engineers



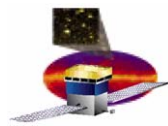
LAT Configuration Database Activity

- ❑ **Databases and Infrastructure TIM, 16 November**
 - **Look ahead to LAT System Test**
 - **Example considered: performing a LAT calibration**
 - <http://confluence.slac.stanford.edu/pages/viewpage.action?pageId=7183>
 - **Near-term procedure**
 - **Use LATTE4-derived config files, plus conversion tools, to deliver configuration to LAT**
 - **Next: Enhanced FMX (FSW file management tool) functionality**
 - **“Callable” FMX derivative, for interaction with MOOT and LICOS**
 - **FMX-like support for operation from RAM (instead of EEPROM)**
 - **Portable FMX, for remote operation at NRL, SASS**



SAS: November Activity

- **Focused on DC2 prep with I&T stable**
 - **Sim/recon ready for “final” background analysis**
 - **1000M background events generated; 20M “allGammas”**
 - **10000 batch jobs run in SLAC pipeline; 10000 at Lyon**
 - **Reliability fixes made big difference!**
 - **7000 CPU-hrs obtained in 36 hrs in SLAC runs**
 - **First round of Instrument Response Functions determination started**
 - **Setting up machinery for background interleave with DC2 signal**
 - **Determining rate dependence vs geomagnetic latitude**
 - **Testing generation of DC2 skymodel in full sim/recon**
 - **Using ScienceTools Checkout 3 version**
 - **Was a good idea to try this early! Squishing some unexpected bugs...**



SAS: November Activity (cont.)

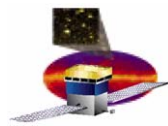
- ❑ **New LAT “Instrument” Data Server portal version released**
 - **Personalized history keeping, better input checking etc**
- ❑ **LAT Astro Data Server being optimized**

- ❑ **20 Quad-CPU/4 GB RAM linux servers being added to SLAC batch farm in GLAST’s name**

- ❑ **10 servers to replace our original 4 for web servers, Java application servers, mySql database servers (with mirroring) etc**

- ❑ **Let go SAS software developer; looking for replacement in-house now**

- ❑ **Pipeline web front end received more improvements**
 - **Can now produce plots from database on throughput; time latencies etc.**



SAS: Upcoming

- ❑ **Background analysis finalized; first round IRFs ready.**
- ❑ **Last few details to iron out: eg update of DC1 package to output Level 1 FITS file for photon list to SSC**
- ❑ **Meeting with ISOC/PVOers to set desirements for high level data diagnostics; how to leverage existing technology developed for software system tests and trending**
 - **Follow-up meeting next with developers to plot path to implementation**
 - **Attempt to include Quicklook and “Level 2” diagnostics**
- ❑ **DataCatalogue integrated with DataServer**
- ❑ **Astro Server ready for DC2**
- ❑ **Pipeline II requirements/design agreed to**
- ❑ **Core software meeting in January to examine the many external code upgrades needed (among other things).**