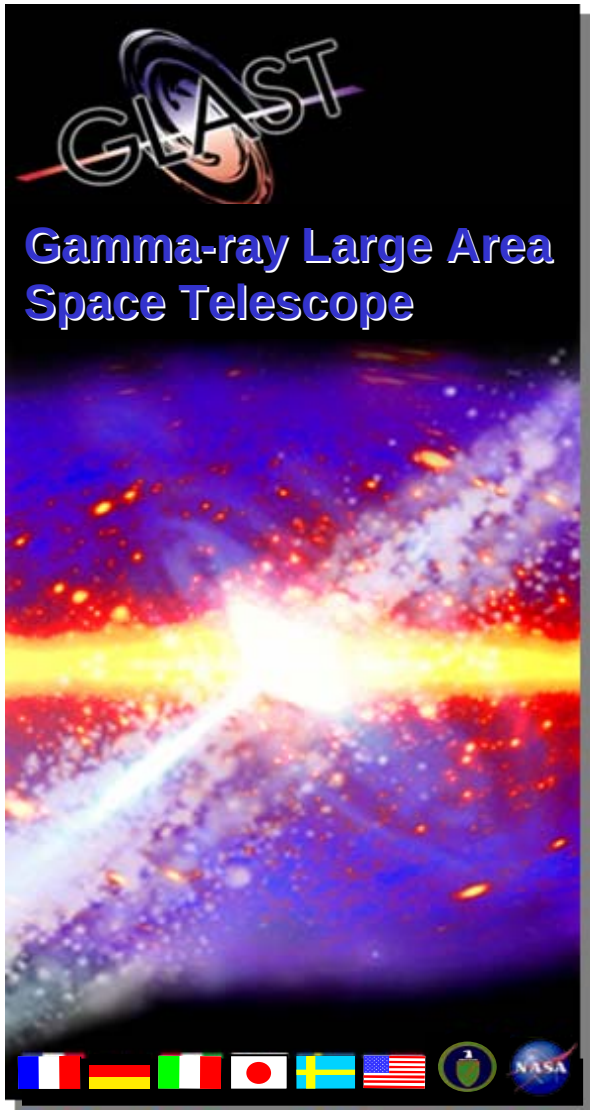

GLAST Large Area Telescope

Instrument Science Operations Center

Monthly Status Review
30 March 2006

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ISOC Management

- ISOC Operations Facility
  - Floor plan of operations control room area finalized
  - In detailed schematic design stage
  - Preliminary schedule
    - Sept 2006: Control room construction complete
    - Nov 2006: Control room ready
    - Jan 2007: Dataflow lab extension complete
- ISOC office consolidation in Bdg 84/Central Lab Annex
  - Initial allocation of block of offices for ISOC in Bldg 84
  - Working details of who sits where
  - First office moves in next 2 months
- Events
  - Data Challenge 2
  - Mission Operations Review at GSFC
    - Very successful review
    - 3 Recommendations, 12 RFAs
    - None specific to ISOC

CHS Activity

- Continued on-orbit Narrative Procedure development
  - Change Task Messaging
  - Change Task Command Confirmation
  - Request Dwell Telemetry
- Modified CCR 492-0019 for the Ops Data Products to delete ISOC request for VC11 (TDRS MA alert data) from MOC
  - MOC to notify ISOC of LAT instrument alerts
  - BAP to forward burst alert packets to ISOC
- Documents in review
  - *ISOC Configuration Management Plan (LAT-MD-04835)*
  - *ISOC Test Plan (LAT-MD-05150)*

CHS Software

- **Software Releases**
  - Completed release 1.3.1 of the CHS software.
    - Includes bug-fixes and improvements to the packet-archiving code, as well as utilities for examining data
- **Updated software release schedule**
  - adapts to changes in GRT schedule and staff diverted to I&T support
  - shifts some development drivers to GRTs 6 & 7
  - adds release 2.2 (Nov 07) to support Jan 07 “Day-in-the-Life” exercises
  - corresponding changes made to level 3 and GSRD requirements testing schedules
- **Data Handling**
  - Monitoring & troubleshooting of automated data delivery to SVAC pipeline.
- **Instrument Commissioning Support**
  - CHS s/w provided analysis support to Systems Engineering for commissioning issues
    - ACD parity errors
    - Dropped datagrams

CHS Software Release Schedule

Release#	Date	GSFC tests supported	New Capabilities (& Comments)
0.1	14 April 2005	(none)	(Pre-release tag for CCB of HSK-import code in pipeline)
0.5	15 April 2005	(none)	(Pre-release tag for CCB of HSK-import migration to U14 volume)
1.0	3-Jun-05	GRT 2	■ receive real time HK, Diag, Alert packets from MOC ■ receive level 0 HK, Diag, Alert packets from MOC ■ provide basic mission planning
1.1	29-Sep-05	none	(following release 1.1, involvement of the IOCs in GRT4 was removed; 1.1 had no major new capabilities, but was an up-to-date version of the dev SW)
1.2	16-Nov-05	GRT 3	■ receive level 0 science data from MOC ■ remove duplicate packets ■ ingest new orbital and mission planning products
1.3	22-Feb-06	Engineering tests only	■ EU convert L0 data ■ limit check L0 data ■ basic logging + webapp for browsing log ■ basic trending
1.4	17-May-06	Engineering tests only	■ calculate derived parameters from L0 data
2.0	28-Jun-06	GRT 5	■ Mission Planning activity feedback (phase 1) ■ LAT configuration tracking & management ■ Trending enhancements (trend calib params, scatter plots) ■ additional logging (more log message types generated & viewable) ■ process level 0 science data into LS-002 (FT1) level 1 product & send to GSSC
2.1	7-Sep-06	GRT 6	(adds contingency capabilities) ■ anomaly tracking & notification system (automatic notification for 24/7 operation) ■ calculate derived low-rate science counter parameters from L0 data ■ trending ■ reports (phase 1) ■ logging (all capabilities)
2.2	7-Nov-06	Engineering tests, DITL, ETE 1	(supports Jan '07 Day-in-the-Life exercises, ETE 1 and engineering tests) ■ mission planning activity input ■ mission planning GUI ■ mission planning activity feedback (all capabilities) ■ integrated mission planning capability ■ full logging
3.0	14-Feb-07	GRT 7, ETEs 2	(clean up and regression testing of all previously released capabilities) ■ reports (all) ■ refinements to mission planning and LAT config tracking & management ■ process level 0 science data into level 1 & level 2 products & send to GSSC ■ generate GCN notices & send
4.0	15-May-07	ETEs 3-6, Mission Sims	■ refinements to mission planning and LAT config tracking & management ■ GUI enhancements ■ bug fixes

Ground System Test Status

- Completed Acceptance Test Report for CHS Software Release 1.3 (LAT-TD-08021)
- GRT 5 Preparations
  - Ground Readiness Test Team (GRTT) agreed on data sets to use and which element to supply each set
    - ISOC to provide
      - correlated HK & Sci data for 3 contacts (passes) – these will be replayed by the Portable Spacecraft Simulator (PSS) during GRT (we plan to use data acquired from cleanroom to create this data set)
      - LAT SAA Definition Update sample
    - ISOC to receive
      - TDRSS Forecast Schedule from MOC
      - As-flown Timeline from MOC
  - Agreed on GRT 5 requirements and tentative test procedure
- Upcoming testing milestones
  - May 17 SW release 1.4
  - June 28 SW release 2
  - July 25-26 GRT 5
  - Sep 7 SW release 2.1
  - Sep/Oct GRT 6
  - Nov 7 SW release 2.2
  - Jan 07 Day-in-the-Life exercise
  - Feb 07 SW release 3
  - Mar 07 GRT 7

Requirements Tracking

Requirement Category	GRT 2	GRT 3	GRT 5	GRT 6	GRT 7	total
Misc (Facility, Redundancy, Security, Doc, etc.)	5	2	16	27	12	62
Mission Planning	1	1	3		59	64
Telemetry Processing	5	3	14	13	7	42
Science Data Processing		1	2	4	29	36
Telemetry Monitoring		1	25	9	3	38
Logging			9		1	10
Trending			22			22
Anomaly Tracking & Notification				16	1	17
total	11	8	91	69	112	291

LAT Config Tools

- Preparing for operational deployment of FMX (from Tony Waite)
  - Manages FSW logical and physical filesystems
  - Basis for tracking LAT config files
  - MySQL database
- FMX installed on lat-hobbit1 for test with LICOS and MOOT
  - Populated with FSW B0-6-3, B0-6-4, B0-6-5, B0-6-6
- FMX Master/slave db installation on SLAC/MCR
  - Servers identified
  - Firewall ports negotiated
  - FMX will be mirrored and backed up
- FMX usage will be incorporated in next LICOS point release
  - Deployed in parallel to existing LICOS methods
- MOOT + FMX in later LICOS release
  - Will require variant of config loading scripts such as IntSeApp.py

Science Operations

- Quick Look Science
  - Detailed QL requirements in review (S. Digel)
- Revisiting LAT Activation Plan (from S. Ritz)
  - Expanding it to incorporate more details relevant to Science Operations
  - Provides additional drivers for science operations concept
- Science Operations Concepts (with L. Bator)
  - Revisiting SO elements in ISOC data flow diagrams
- Science Operations - Monitoring (with SAS)
  - Documenting monitoring functions
- LAT Commissioning
  - Support online/FSW activities (data analysis, ACD commissioning and pipeline)
  - Support LAT Commissioning meetings
  - Incorporating config and operations constraints into ISOC
  - Analyzing multiple trigger engine data needed for LAT final tests (with Italian collaborators)
  - Working with System Engineering on Science Verification Requirements

SAS

- **DC2**
  - **Kickoff meeting happened 1-3 March**
    - **~110 attendees**
    - **Analysis underway now for DC2 sky**
      - **Working out as well as we could have expected!**
      - **Analysis results; user forum here:**

https://confluence.slac.stanford.edu/display/DC2/Home

  - **More details at:**

http://www-glast.slac.stanford.edu/software/DataChallenges/DC2/MarchWorkshop/

http://glast-ground.slac.stanford.edu/dc2/animation/

SAS: Beamtest Support

- Active workshop in Pisa last week
- Much offline work to do!
  - Trying to leverage manpower in Italy & France
  - Will transfer beamtest data to SLAC pipeline for processing
  - Set up SAS infrastructure for code management, installers etc
  - Release package defined
  - Will do first round of simulations in pipeline early next week
  - Working on “Offline-lite” for onsite quick turnaround of raw data + Event display
  - Have to work out how to include beamline data in with Calibration Unit data
  - Pipeline 2 design/implementation underway – targeting beamtest for deployment

SAS: Sundry

- BIG job of upgrading our major external libraries
  - ROOT, Geant4, Gaudi, CLHEP
  - Almost done now (beamtest code to use this version)

- ISOC databases: development and integration
  - Activities (mission planning)
  - Archive (FastCopy data ingest)
  - “eLog” for shift work
  - Pipeline for processing
  - Quicklook for Level 2
  - Offline Calibrations
  - Trending