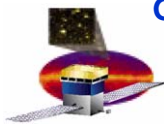**Gamma-ray Large Area Space Telescope**

GLAST Large Area Telescope

Systems Engineering
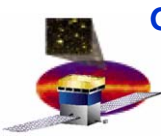
Test Status, NCRs and Verification Status

Pat Hascall
Systems Engineering
Joe Cullinan
Quality

**Stanford Linear Accelerator Center**

LAT Test Status

– **Started CPT 3**

– **Issues seen**

- **Duplicate event numbers (resolved, see FSW presentation)**

Chiller Off Results

- **Temperature rise rates for the tracker were 2 degrees per hour**
  - **Max desired temperature is 35**
  - **Starting from 20C gives about 8 hours until 35C is reached**
  - **AT was 45C**
- **GASU rate was 3 degrees per hour**
  - **AT was 50C**
  - **Starting from 20C gives about 7 hours assuming the initial rate holds**
- **Other units under analysis**
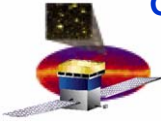
Son of the Blob

- **Trigger rates rose about midway through the run, then fell back to original rates**

- **Time is roughly consistent with opening the bay door**
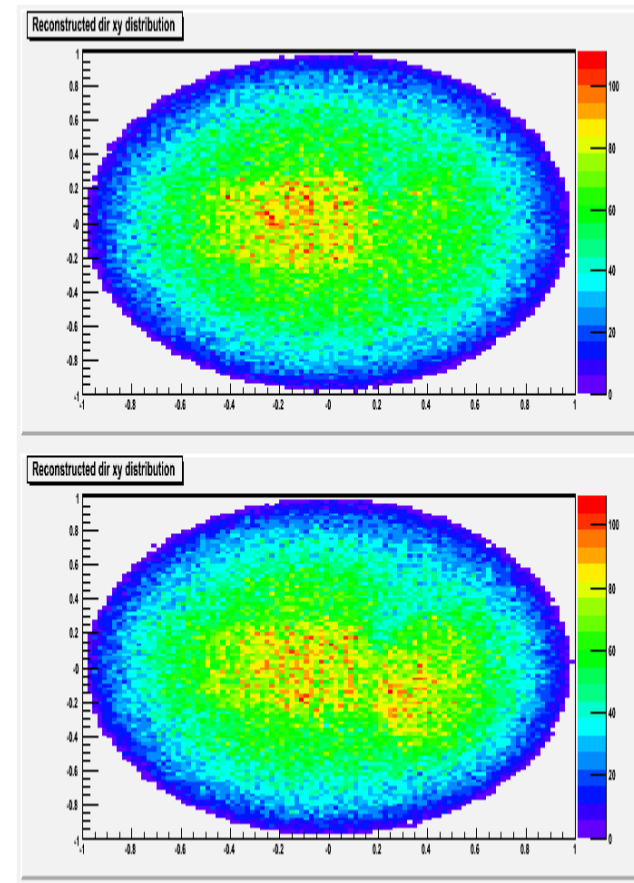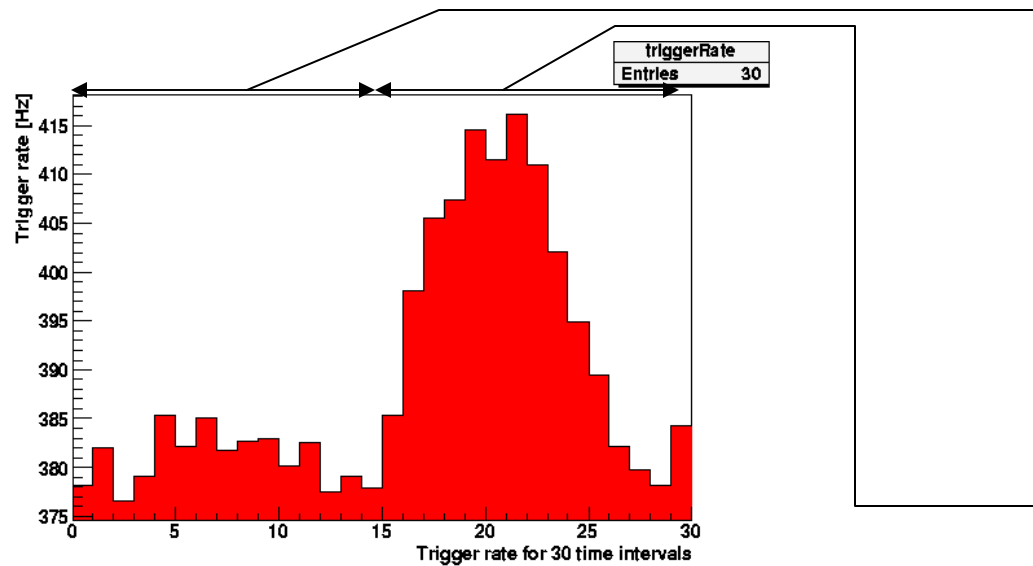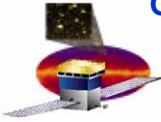
FREE Power Up

- **Issue**
  - **During the post XY aliveness test, config 2, FREE 5 had both veto drivers enabled after power up.**
- **Analysis**
  - **The power up sequence is:**
    - **FREE card powered**
    - **Both veto drivers disabled**
    - **When the bias voltage is set (for all FREE cards) the desired veto driver is enabled**
  - **With both veto drivers enabled, the 3.3V telemetry is slightly decreased for that FREE card and the 3.3V current sum is slightly elevated**
  - **Review of historical data in 450 power-ups since early 2006**
    - **Showed 15 previous incidents starting in September**
    - **All but 1 using redundant GASU**
    - **Appears equally likely across FREE cards**
  - **Likely cause for the redundant GASU cases was determined (courtesy Erik Siskind) and the fix addressed in JIRA FSW-1001**
  - **The configuration 1 instance is now resolved**
    - **Traced to previously known jump in spacecraft clock**
      - **Clock related telemetry fed through a LAT model resulted in two short intervals, consistent with timing of the two FREE cards which powered up in the unexpected state**
      - **The short intervals causes the FSW emitted commands to arrive at the FREE card before the GASU returns the clock to 20MHz**
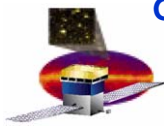
FREE Power Up (continued)

- **Resolution**
  - **JIRA-1001 was approved and will be implemented in the next FSW load**
  - **Spacecraft clock jumps have been corrected**
- **Impacts**
  - **None**
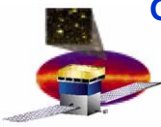
Operating Hours

- **As of Oct 26, 2007 the LAT passed 700 operating hours since the timer fix was installed**
- **B1.0.1 has 281 operating hours**
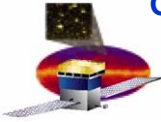
LAT Unit Operating Time (Hrs)												
SIU-P	SIU-R	GAS U-P	GAS U-R	EPU-P0	EPU-P1	EPU-R	CAL/ TKR/ TEM	ACD	ACD HV1	ACD HV2	PDU-P	PDU-R
2011	2080	1970	2121	2101	3963	2118	4091	4091	1994	2097	2016	2075
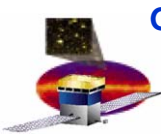
NCR Summary Status

- **Closure statement for reboot NCRs/QAR submitted and the QAR is closed**

Closure Plan	Definition	Count
Work continuing		
QAR	CND or other issue transferred to a QAR	9

LAT Level Verification Status

Category	Verification Method					Totals	
	Test	Demo	Analysis	Inspection	Children	Totals	
	# Comp	# Comp	# Comp	# Comp	# Comp	Complete	% Comp
Requirement Identified	105	63	209	37	44	458	100.0%
Flow Down Complete	105	63	209	37	44	458	100.0%
Draft Verification Plans	105	63	209	37	44	458	100.0%
Final Verification Plans	105	63	209	37	44	458	100.0%
Verification Plans Executed	104	63	194	35	15	411	89.7%
Verification Reports Submitted	104	63	194	35	15	411	89.7%
Requirements Sold	104	63	193	35	15	410	89.5%
Expect Compliance	0	0	0	0	0	0	0.0%
Verifications Plan Deferred	1	0	15	2	29	47	10.3%
Requirements Issues	0	0	0	0	0	0	0.0%
Total VPs	105	63	209	37	44	458	

- **Progress this month**
  - **All 458 VPs are Final**
  - **410 of 411 VPs planned for execution have been approved by GSFC**
    - **1 SRD VP (Background Rejection) in work by GSFC**
- **Status**
  - **VCRM version 27 released**
  - **All deferred GRB reqts will be sold post FSW B1.0 installation**