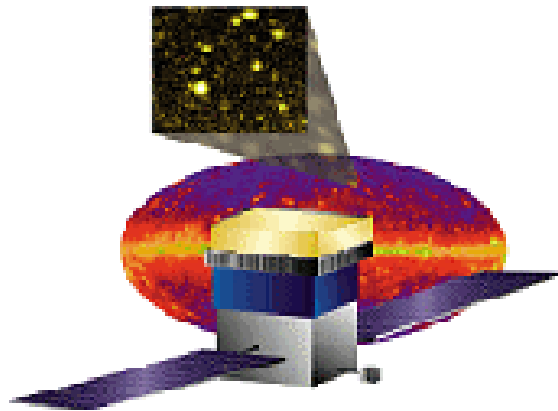


Monthly Progress Report

(Month Ending May 2003)

GLAST Large Area Telescope (LAT)



LAT-MR-02237-01

July 8, 2003

1.0 Introduction

This monthly progress report is submitted to the GLAST Project Office at the Goddard Space Flight Center and the Department of Energy SLAC Site Office. The report summarizes LAT project status as of the end of May, 2003.

2.0 Recent Progress and Status

The combination NASA CDR and DOE CD-3 review was held at SLAC, May 12-16.

4.1.4 Tracker

Testing of the Engineering Model (EM) mini-tower continued, demonstrating cosmic ray self-triggering and tracking. The bottom tray closeouts were completed and delivered to Italy. The EM trays were cleaned and vacuum cycled, and SSD ladder mounting has begun. The sidewall material for the full EM tower was shipped to Italy. Flight ASIC wafer testing is underway. Design and drawings for the tower assembly fixture were completed. Tooling for the multichip module mounting and wire-bond encapsulation was designed; the tools are in production.

4.1.5 Calorimeter

Flight prototype photodiodes have been returned from France since they can no longer support diode qualification. Qualification testing has commenced at GSFC. The first 72 flight CsI crystals have been delivered to Sweden. A visit to Amcrys verified the operation of the second crystal test bench. The production rate will be 250 crystals per month. Arrangements are being made to manufacture crystal detector elements at Swales Aerospace. Over 200 front end (version 9) and readout controller (version 5) ASIC parts have been received. There is good communication between the readout controller and front end ASICs up to 40 MHz (the requirement is 20 MHz). A problem was discovered with the front end ASIC (version 9) overload recovery circuit; the design will be modified for the next submission. Thermal vacuum testing of the engineering model began, with no significant problems found.

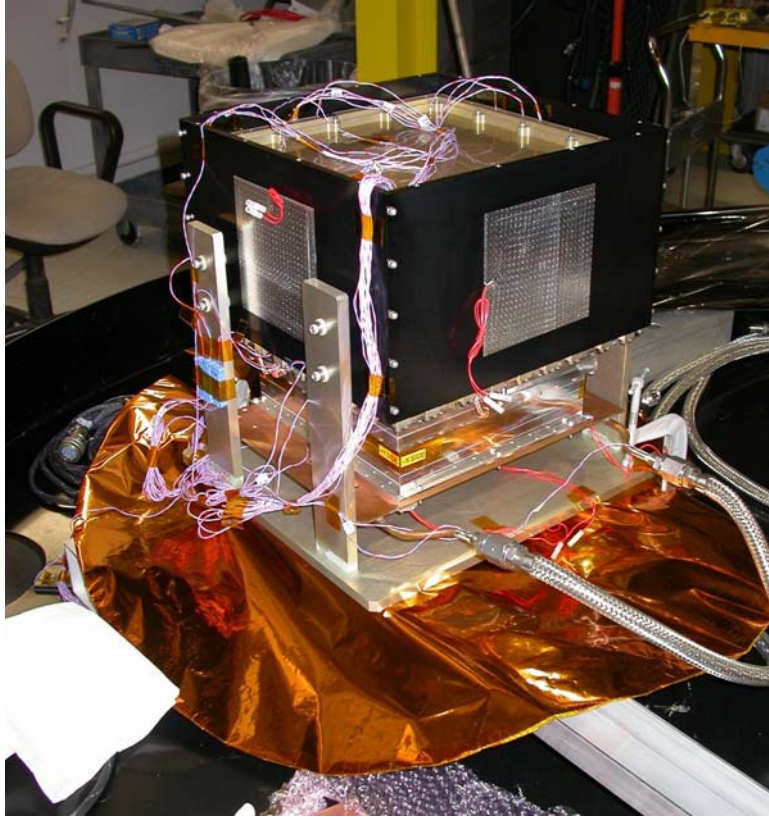


Figure 1: EM Calorimeter is installed in (black) LAT grid simulator with heater strips attached on mounting plate in thermal vacuum chamber at NRL. Heaters and cold plates are attached below. The LN2-cooled shroud has been removed for installation and connections, but bottom shroud is visible.

4.1.6 Anticoincidence Detector

The readout controller ASIC (version 2) and the front end ASIC (versions 5 and 6) were tested. Version 3 of the readout controller was submitted for flight build. Analog ASIC design continues. The new phototube design was verified to be light-tight. The phototubes are being tested at a rate of four per day; the last set of 60 is underway. Two engineering unit high voltage bias supplies were fabricated. Fabrication of the flight shell and flight tile detector assemblies continues, as well as the assembly of the base electronics assembly test unit.

4.1.7 Electronics

The layout of the LAT Communications Board (LCB) compact PCI board was started, and the LCB driver was designed. The GASU box and board have been fabricated. An alternative tower supply solution was designed. The first release of the test executive was made. Flight software released PBS (Pretty Basic Stuff, timer interrupts, etc.).

4.1.8 Mechanical Systems

The grid box assembly drawings are being checked. An analyst was hired, to perform detailed grid box stress analyses. The Calorimeter-grid interface definition is underway, as are the cross-LAT plate and radiator definitions.

4.1.9 Integration & Test

The I&T team supported the Tracker EM mini-tower investigations at SLAC; some prototypical functional and beam tests were completed as well as many prototypical science verification and calibration distributions. Internet access to the LAT assembly area video/sensors was completed. The BGO gamma ray detector array data acquisition system is operational; calibration with a Co source and Van de Graaff simulator has commenced. The LAT Test Executive (version 1.3.0) was released. EM data was delivered to Science Analysis Software; it was read successfully and produced useful output.

3.0 Schedule Status

The status of significant milestones identified in the Project Management Plan (LAT-MD-00054-08) for the LAT project is summarized in Attachments 1 and 2. Attachment 1 presents the status of the Level 1 and Level 2 milestones. Attachment 2 shows the status of the Level 3 milestones planned to occur during the six months preceding and following the current month. Unfavorable variance projections greater than one week to the future milestones are discussed below.

Engineering Model (1x4) Grid (1M1001380)

Baseline/Target Finish: 12/02/02 Projected Finish: 08/08/03 Variance: -168 days
Lack of sufficient manpower, and vendor machine failure, have resulted in the delay of this milestone. In addition, in order to ensure design maturity, the completion of this milestone was even further delayed, pending the Calorimeter-grid interface definition. An existing 1x1 grid bay mockup will be used to develop test procedures and electrical ground support equipment (EGSE).

Tracker Engineering Model (1M1001430)

Baseline/Target Finish: 12/09/02 Projected Finish: 08/11/03 Variance: -164 days
The delivery of the full Tracker EM has been delayed by the redesign of the bottom tray. In the meantime, the upgraded EM minitower will be delivered to I&T in early July, and will be used with the aforementioned 1x1 grid bay mockup to develop test procedures and EGSE. The delay of the full tower can be accommodated in the I&T schedule with no further impact.

GEM H/W Driver, Final Version, Elex to I&T/Online (1M1001390)

Baseline/Target Finish: 01/07/03 Projected Finish: 06/16/03 Variance: -111 days
Resources have been diverted from the completion of this milestone to other tasks with higher priority. This milestone has been further delayed (until end-July) by the need for

additional hardware testing. This delay can be accommodated in the Integration & Test schedule with no further impact.

Online EM2 Release #1 to Flight Software (1M1001500)

Baseline/Target Finish: 04/30/03 Projected Finish: 06/16/03 Variance: -32 days

The completion of this milestone has been delayed by the completion of the final version of the GEM H/W Driver (Milestone 1M1001390, above). It is expected to be completed by July. This can be accommodated in the Flight Software schedule with no further impact.

4.0 Financial Status

Attachment 3 depicts the costs, commitments, and performance through the end of the current reporting period.

Attachments 4 and 5 summarize the actual costs through the current period, by WBS level 3 and institution, respectively. The hours worked/FTE lines include only DOE/NASA-funded labor.

5.0 Performance Status (Comparison to Project Baseline)

Attachment 6 is a Cost Performance Report (CPR) for the end of the current reporting period, by WBS level 3. The CPR shows the time-phased budget to date (BCWS), the earned value (BCWP), and the actual costs through the end of the month (ACWP). Attachment 7 shows the same information for each participating DOE- and/or NASA-funded institution. The schedule variance is equal to the difference between the budget-to-date and the earned value and represents a measure of the ahead (positive) or behind (negative) schedule position. The cost variance is equal to the difference between the earned value and the actual costs.

Attachment 8 shows performance analysis (by WBS level 3), including trends in the schedule and cost variances from the previous period. Cumulative cost variances exceeding 10% of the BCWP and cumulative schedule variances exceeding 10% of BCWS (favorable and unfavorable) are discussed below.

4.1.4 Tracker

The favorable cost variance is due to a delayed invoice payment for 1,331 silicon strip detectors. An agreement has been made to increase the quantity being ordered by Japan and reduce the quantity ordered by the US. The procurement arrangement is being adjusted and the invoice is expected to be paid in June.

4.1.6 Anticoincidence Detector

The flight shell and tile detector assembly procurements were not received on schedule. This is not considered critical path, and the schedule is expected to recover by the end of

the fiscal year. Manpower was diverted from the MGSE design work to support the tile shell assembly design. A recovery plan is underway which preserves the MGSE design work, but it is expected that MGSE hardware procurements will be deferred until next fiscal year.

The unfavorable cost variance is due to higher labor costs than planned for the tile shell assembly and base electronics assembly (BEA) work. Contract labor support is being reduced in favor of NASA/Goddard civil servant labor, where appropriate.

A cost to complete exercise was conducted by the ACD subsystem management; the results are being analyzed to determine how much work can be carried out during the remainder of this fiscal year, within the current budget.

4.1.8 Mechanical Systems

The unfavorable schedule variance is due to filling key engineering and design positions slower than planned. These positions have been filled, and the baseline schedule is expected to be restored by the end of the fiscal year.

4.1.A Performance & Safety Assurance

The favorable cost variance is due to the delay in the hire of a part-time parts engineer at NRL (now on board), specific mission-assurance-related activities being covered by other LAT subsystems, and less travel taken than planned.

4.1.B Instrument Operations Center

The schedule variance results from a delay in hiring additional planned resources. The LAT management is working with SLAC management to address the long-term management and staffing of the subsystem.

A change in the subsystem management has resulted in a temporary favorable cost variance. The budget will be adjusted once longer-term plans have been made for management of this subsystem.

4.1.D Science Analysis Software

Hiring delays at Stanford/HEPL and GSFC have resulted in a favorable cost variance. These hires have now been completed.

6.0 Change Control and Contingency Analysis

No change requests were approved by the LAT Configuration Control Board during this period. The fabrication phase cost baseline remains at \$107.9M. Funding applicable to that baseline is \$121.7M; the resulting contingency is \$13.8M.

7.0 Staffing

Attachments 9-10 demonstrate the staffing plan, and reports of actual manpower received. Note from Attachment 10 that not all participating organizations are providing manpower data.

Attachment 1 Milestones, Levels 1-2

Activity ID	Activity Description	Target Finish Date	Variance	Scheduled Finish Date	FY01	FY02	FY03	FY04	FY05	FY06
DOE/NASA Joint Oversight Group (Level										
1M1P000000	DOE Critical Decision (CD) 0 Approval	06/25/01A	0	06/25/01A	▼					
1M1P000010	CD-1 Approval	07/01/02*	-15	07/23/02A		▼				
1M1P000020	CD-2 Approval	12/13/02*	23	11/08/02A			▼			
1M1P000030	CD-3 Approval	07/15/03*	0	07/15/03*				▼		
1M1P000060	Flight GRID Complete	09/15/04*	0	09/15/04*					▼	
1M1P000040	CD-4 Approval	03/15/06*	0	03/15/06*						▼
DOE/NASA Federal Project Managers (Level										
1M1BF00000	Launch Balloon Flight	08/01/01A	0	08/01/01A	▼					
1M1000100	Instrument Preliminary Design Review	01/08/02A	0	01/08/02A		▼				
1M1000110	I-CDR (Critical Design Review)	04/30/03*	-12	05/16/03A			▼			
1M1000730	TKR, CAL FM A, B Available for Calibration Unit	02/17/04*	0	02/17/04*				▼		
1M1000740	Start LAT Integration	06/15/04*	0	06/15/04*					▼	
1M1000700	Pre Environmental Testing Review	02/15/05*	0	02/15/05*						▼
1M1000120	PSR-(Instrument Pre-Ship Review)	07/07/05*	0	07/07/05*						▼
1M1000140	LAT Ready for Integration (RFI) to Spacecraft	09/22/05*	0	09/22/05*						▼
Run Date	06/24/03 15:51	GLAST LAT PROJECT Project Milestones (Level 1 and 2)			0319 LT_MS1-2	Sheet 1 of 1				
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Attachment 2 (Page 1 of 2)
Level 3 Milestones (One-Year View)

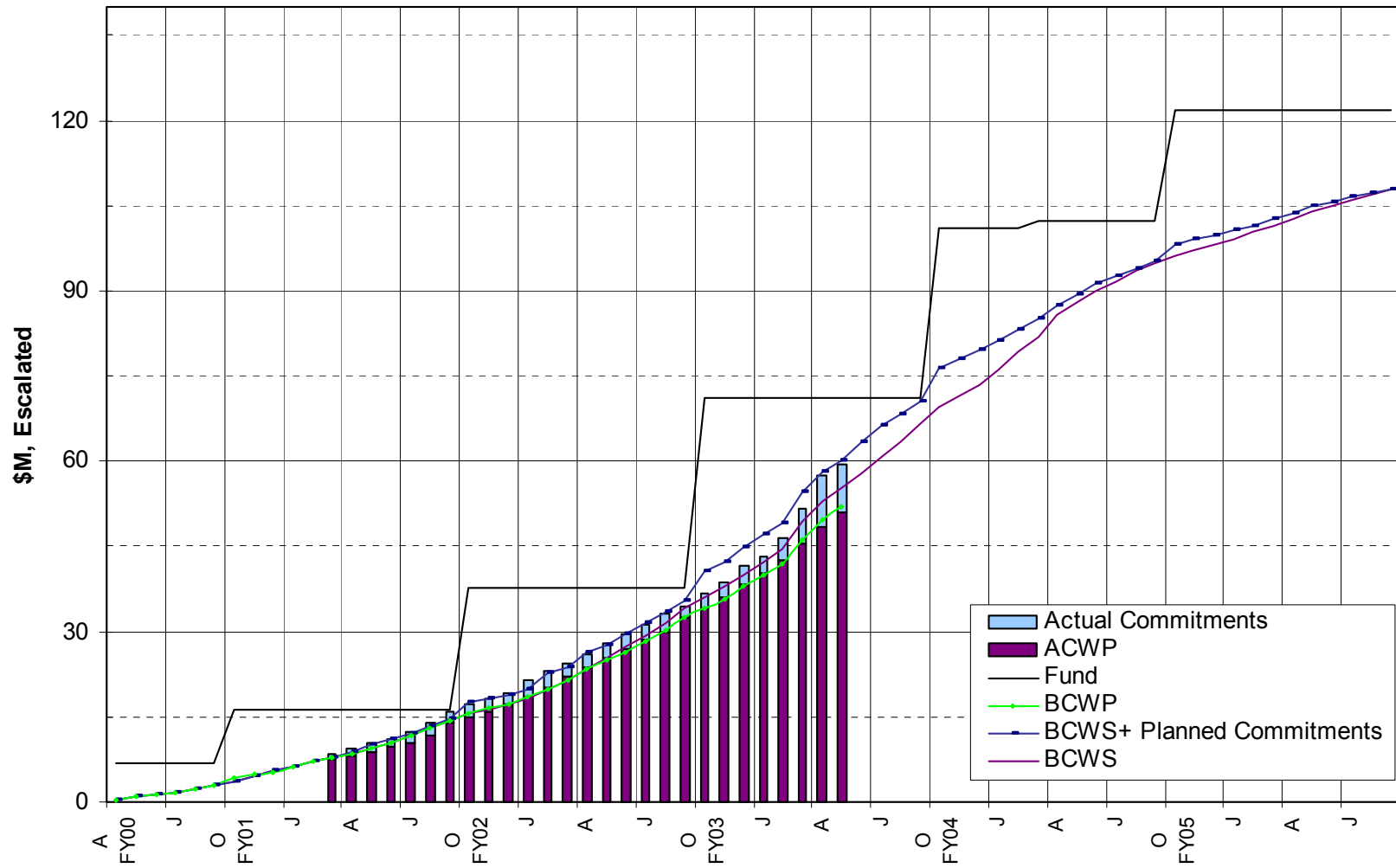
Activity ID	Activity Description	Target Finish Date	Variance	Scheduled Finish Date	AV	ND	FY03		FY04	
Instrument Project Office (Level 3)										
1M1001380	Delivery of EM (1X4) Grid to I&T/MSGE	12/02/02*	-168	08/08/03*	8	9				
1M1001280	As-Built dwgs for EM TKR-TKR to I&T	12/05/02	-1	12/06/02A	4	9	▼			
1M1001510	EM1 EGSE WS-S/W R2 I&T to ACD	12/05/02	-6	12/13/02A	9	6	▼			
1M1001511	EM1 EGSE WS-S/W R2 I&T to CAL	12/05/02	-6	12/13/02A	9	5	▼			
1M1001512	EM1 EGSE WS-S/W R2 I&T to ELX	12/05/02	-6	12/13/02A	9	7	▼			
1M1001513	EM1 EGSE WS-S/W R2 I&T to IOC	12/05/02	-6	12/13/02A	9	B	▼			
1M1001514	EM1 EGSE WS-S/W R2 I&T to TKR	12/05/02	-6	12/13/02A	9	4	▼			
1M1001430	Delv of TKR EM to SLAC I&T/MGSE	12/09/02*	-164	08/11/03*	4	9				
1M1001360	FSW system spec-ELX/FSW to I&T/Online	12/20/02	4	12/16/02A	7	9	▼			
1M1001460	IPS description-ELX to I&T/Online	12/23/02	5	12/16/02A	7	9	▼			
1M1001210	AEM H/W driver, init ver-ELX to I&T/Online	01/02/03*	25	11/15/02A	7	9	▼			
1M1001310	AEM data taking desc-ELX to I&T/Online	01/02/03*	25	11/15/02A	7	9	▼			
1M1000980	Doc defining Backsplash Test Model (ACD to I&T)	01/03/03*	0	01/03/03A	6	9	▼			
1M1001390	GEM h/w driver, final ver-ELX to I&T/Online	01/07/03	-111	06/16/03	7	9				
1M1001130	Tracker Tower & Tray Alignment (SAS to I&T)	01/22/03*	11	01/06/03A	D	9	▼			
1M57000020	CAL AFFE Engr Model-CAL to Elec	02/03/03*	-11	02/19/03A	5	7	▼			
1M7941350	High Voltage Power Supply (Bd & Prts)-ACD toElec	02/03/03*	-66	05/07/03A	6	7	▼			
Run Date	06/24/03 15:52	GLAST LAT PROJECT Project Milestones (Level 3) 1 Year View (+/- 6mo)			0319 LTX1 - MS (L3) FLX1- MS (L3)	Sheet 1 of 2				
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**Attachment 2, Continued (Page 2 of 2)
Level 3 Milestones (One-Year View)**

Activity ID	Activity Description	Target Finish Date	Variance	Scheduled Finish Date	AV	ND	FY03		FY04			
Instrument Project Office (Level 3)												
1M7941380	EGSE Workstation / Software #3 (I&T to ACD)	03/03/03*	216	04/15/02A	9	6						
1M7941320	(2) ACD Electronics Modules - EM2 (Elec to ACD)	04/24/03	59	01/30/03A	7	6						
1M1001490	SIS description-ELX to I&T	04/30/03*	23	03/28/03A	7	9						
1M1001500	Online EM2 release #1 to FSW	04/30/03	-32	06/16/03	9	7						
1M19500500	CU IPS - ELX to I&T/Online	04/30/03*	11	04/15/03A	7	9						
1M7941340	(11) FREE Bds & ASICS, (1) Fully Tested Bd - EM2	05/07/03*	-8	05/19/03A	6	7						
1M7941150	EGSE EM2 Release-Elec to I&T	06/12/03*	0	06/12/03*	7	9						
1M1001570	CU Monte Carlo sim from SAS to I&T/SVAC	06/13/03*	156	10/22/02A	D	9						
1M1001550	Online EM2 release #2 to ELX	06/26/03	0	06/26/03	9	7						
1M59000000	EM from CAL to I&T	07/07/03*	0	07/07/03	5	9						
1M1000910	(36) MCM's for EM2 from Tracker to Elec	07/18/03	-3	07/23/03	4	7						
1M75000000	(6) EM2 TEM-from Elec to CAL	08/25/03	20	07/28/03	7	5						
1M19500400	CU S/C Simulator - ELX to I&T Online	08/29/03*	0	08/29/03*	7	9						
1M1001520	EM CAL Returned to NRL (arrives on dock)	09/08/03*	4	09/02/03	9	5						
1M1000920	EM2 TEM for Qual Towers A,B from Elec to Tracker	10/16/03*	0	10/16/03*	7	4						
Run Date							06/24/03 15:52	GLAST LAT PROJECT Project Milestones (Level 3) 1 Year View (+/- 6mo)			0319 LTX1 - MS (L3) FLX1- MS (L3)	Sheet 2 of 2
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Attachment 3

Budget vs Actuals vs Performance DOE + NASA Project Expenditures 4.1 LAT



**Attachment 4
LAT Costs, through May 2003, by WBS**

Monthly Contractor Financial Management Report									Report for Month Ending: 5/31/03	
To: Kevin Grady, GLAST Project Manager (NASA) Ev Valle, LAT Project Manager (DOE)					From: Tanya Boysen, LAT Project Controls Manager				Budget Value	
									Cost: 0	Fee: 0
LAT3 GLAST LAT Project			Type:						Fund Limitation: 0	
Reporting Category	Cost Incurred				Estimated Cost				4/3/00 Billing	
	During Month		Cum. to Date		Detail		Balance of Budget	Estimated Final Cost		Unfilled Orders Outstanding
	Actual	Planned	Actual	Planned	JUN03	JUL03		Project Estimate	Budget Value	
4.1.1 INSTRUMENT MANAGEMENT	268	347	7,846	7,871	326	357	6,828	15,357	15,357	
4.1.2 SYSTEM ENGINEERING	272	175	3,401	3,429	175	172	2,705	6,453	6,453	
4.1.4 TRACKER	256	260	7,315	8,784	163	227	3,211	10,915	10,915	
4.1.5 CALORIMETER	465	278	8,268	9,165	576	536	8,449	17,830	17,830	
4.1.6 ANTICOINCIDENCE DETECTOR	372	418	7,812	7,802	450	244	3,518	12,025	12,025	
4.1.7 ELECTRONICS	343	351	5,550	5,633	323	296	10,502	16,672	16,672	
4.1.8 MECHANICAL SYSTEMS	558	277	4,657	5,236	384	486	4,845	10,373	10,373	
4.1.9 INTEGRATION & TEST	112	132	1,851	1,923	149	157	4,430	6,588	6,588	
4.1.A PERFORMANCE AND SAFETY ASSURANCE	13	29	761	1,120	29	30	787	1,607	1,607	
4.1.B LAT INSTRUMENT OPERATIONS CENTER	1	33	263	607	33	32	2,184	2,512	2,512	
4.1.C EDUCATION AND PUBLIC OUTREACH	48	45	851	925	45	48	1,739	2,684	2,684	
4.1.D SCIENCE ANALYSIS SOFTWARE	74	84	1,225	1,432	70	74	2,227	3,595	3,595	
4.1.E SUBORBITAL FLIGHT TEST	0	0	1,325	1,321	0	0	-4	1,321	1,321	
Gen. and Admin.	0	0	0	0	0	0	0	0	0	
Total	2,781	2,430	51,125	55,249	2,723	2,659	51,423	107,930	107,930	

Attachment 5
LAT Costs, through May 2003, by Organization and Cost Code

Monthly Contractor Financial Management Report								Report for Month Ending: 5/31/03		
To: Kevin Grady, GLAST Project Manager (NASA) Ev Valle, LAT Project Manager (DOE)				From: Tanya Boysen, LAT Project Controls Manager				Budget Value		
				Cost: 0		Fee: 0				
LAT3 GLAST LAT Project		Type:						Fund Limitation: 0		
Reporting Category	Cost Incurred				Estimated Cost			4/3/00	Billing	
	During Month		Cum. to Date		Detail		Balance of Contract	Estimated Final Cost		Unfilled Orders Outstanding
	Actual	Planned	Actual	Planned	JUN03	JUL03		Project Estimate	Budget Value	
DG *** GSFC	323	446	8,785	9,116	478	274	5,037	14,573	14,573	
DH *** HEPL	216	165	3,447	3,997	149	184	5,153	8,934	8,934	
DL *** SLAC	1,592	1,269	26,074	27,358	1,259	1,440	25,744	54,517	54,517	
DN *** NRL	544	453	10,304	12,066	741	668	12,587	24,300	24,300	
DO *** Financial Plan Transfer/Sub Out	0	0	32	32	0	0	0	32	32	
DS *** SSU	48	45	851	922	45	47	1,665	2,609	2,609	
DT *** Texas A&M	0	0	15	16	0	0	0	16	16	
DU *** UCSC	58	43	1,588	1,700	43	38	998	2,666	2,666	
DW *** UW	0	8	29	42	8	9	237	283	283	
Total	2,781	2,430	51,125	55,249	2,723	2,659	51,423	107,930	107,930	

Reporting Category	Cost Incurred/Hours Worked				Estimated Cost/Hours to Complete			Estimated Final Cost/Hours		Unfilled Orders Outstanding
	During Month		Cum. to Date		Detail		Balance of Budget	Project Estimate	Budget Value	
	Actual	Planned	Actual	Planned	JUN03	JUL03				
RL LABOR	1,322	1,195	29,510	30,041	1,252	1,304	26,276	58,342	58,342	
<i>FTE (DOE/NASA)</i>	<i>121.8</i>	<i>101.8</i>	<i>2,562.8</i>	<i>2,642.5</i>	<i>106.0</i>	<i>102.0</i>	<i>2,258.1</i>	<i>5,028.9</i>	<i>5,028.9</i>	
<i>HOURS (DOE/NASA)</i>	<i>20,461</i>	<i>17,103</i>	<i>429,346</i>	<i>434,945</i>	<i>17,887</i>	<i>17,905</i>	<i>365,204</i>	<i>830,342</i>	<i>830,342</i>	
RT TRAVEL	13	73	734	1,436	64	72	2,497	3,367	3,367	
RM MATERIAL & SERVICES	1,493	1,046	19,030	21,730	1,312	1,270	20,818	42,430	42,430	
RX MPS & LAB TAX	-47	116	1,852	2,042	94	15	1,830	3,791	3,791	
Total (not incl FTE/Hours)	2,781	2,430	51,125	55,249	2,723	2,659	51,423	107,930	107,930	

**Attachment 6
LAT Performance, through May 2003, by WBS**

Cost Performance Report - Work Breakdown Structure													
Contractor: Location:					Contract Type/No:			Project Name/No: GLAST LAT Project		Report Period: 4/30/03 5/31/03			
Quantity	Negotiated Cost		Est. Cost Authorized Unpriced Work		Tgt. Profit/ Fee %	Tgt. Price	Est Price	Share Ratio	Contract Ceiling	Estimated Contract Ceiling			
1	0		0		0	0	0		0	0			
CAPW[3]	Current Period					Cumulative to Date					At Completion		
	Budgeted Cost		Actual Cost	Variance		Budgeted Cost		Actual Cost	Variance		Budgeted	Latest Revised Estimate	Variance
	Work Scheduled	Work Performed	Work Performed	Schedule	Cost	Work Scheduled	Work Performed	Work Performed	Schedule	Cost			
Item	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
4.1.1 INSTRUMENT MANAGEMENT	347	347	268	0	79	7,871	7,871	7,846	0	26	15,357	15,357	0
4.1.2 SYSTEM ENGINEERING	175	175	272	0	-97	3,429	3,429	3,401	0	29	6,453	6,453	0
4.1.4 TRACKER	260	269	256	8	13	8,784	8,111	7,315	-672	797	10,915	10,915	0
4.1.5 CALORIMETER	278	351	465	73	-114	9,165	8,570	8,268	-595	302	17,830	17,830	0
4.1.6 ANTICOINCIDENCE DETECTOR	418	384	372	-34	12	7,802	6,813	7,812	-989	-999	12,025	12,025	0
4.1.7 ELECTRONICS	351	230	343	-121	-113	5,633	5,382	5,550	-251	-168	16,672	16,672	0
4.1.8 MECHANICAL SYSTEMS	277	234	558	-43	-323	5,236	4,617	4,657	-619	-40	10,373	10,373	0
4.1.9 INTEGRATION & TEST	132	86	112	-46	-26	1,923	1,819	1,851	-104	-32	6,588	6,588	0
4.1.A PERFORMANCE AND SAFETY ASSURA	29	29	13	0	16	1,120	1,120	761	0	359	1,607	1,607	0
4.1.B LAT INSTRUMENT OPERATIONS CENT	33	16	1	-17	15	607	519	263	-88	256	2,512	2,512	0
4.1.C EDUCATION AND PUBLIC OUTREACH	45	29	48	-16	-19	925	900	851	-25	49	2,684	2,684	0
4.1.D SCIENCE ANALYSIS SOFTWARE	84	58	74	-26	-17	1,432	1,371	1,225	-61	146	3,595	3,595	0
4.1.E SUBORBITAL FLIGHT TEST	0	0	0	0	0	1,321	1,321	1,325	0	-4	1,321	1,321	0
Gen. and Admin.	0	0	0	0	0	0	0	0	0	0	0	0	0
Undist. Budget											0	0	0
Sub Total	2,430	2,208	2,781	-222	-573	55,249	51,846	51,125	-3,403	721	107,930	107,930	0
Contingency											13,783	13,783	
Total	2,430	2,208	2,781	-222	-573	55,249	51,846	51,125	-3,403	721	121,713	121,713	

**Attachment 7
LAT Performance, through May 2003, by Organization**

Cost Performance Report - Organization													
Contractor: Location:						Contract Type/No:			Project Name/No: GLAST LAT Project		Report Period: 4/30/03 5/31/03		
Quantity	Negotiated Cost		Est. Cost Authorized Unpriced Work		Tgt. Profit/ Fee %	Tgt. Price	Est Price	Share Ratio	Contract Ceiling	Estimated Contract Ceiling			
1	0		0		0	0	0		0	0			
OBS Item	Current Period					Cumulative to Date					At Completion		
	Budgeted Cost		Actual Cost Work Performed	Variance		Budgeted Cost		Actual Cost Work Performed	Variance		Budgeted	Latest Revised Estimate	Variance
	Work Scheduled	Work Performed		Schedule	Cost	Work Scheduled	Work Performed		Schedule	Cost			
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
DG *** GSFC	446	412	323	-34	89	9,116	8,127	8,785	-989	-658	14,573	14,573	0
DH *** HEPL	165	112	216	-53	-104	3,997	3,817	3,447	-180	370	8,934	8,934	0
DL *** SLAC	1,269	1,132	1,592	-137	-460	27,358	25,870	26,074	-1,487	-203	54,517	54,517	0
DN *** NRL	453	472	544	19	-72	12,066	11,366	10,304	-701	1,062	24,300	24,300	0
DO *** Financial Plan	0	0	0	0	0	32	32	32	0	0	32	32	0
DS *** SSU	45	29	48	-16	-19	922	898	851	-25	46	2,609	2,609	0
DT *** Texas A&M	0	0	0	0	0	16	16	15	0	0	16	16	0
DU *** UCSC	43	42	58	-1	-16	1,700	1,679	1,588	-21	91	2,666	2,666	0
DW *** UW	8	8	0	0	8	42	42	29	0	12	283	283	0
Gen. and Admin.	0	0	0	0	0	0	0	0	0	0	0	0	0
Undist. Budget											0	0	0
Sub Total	2,430	2,208	2,781	-222	-573	55,249	51,846	51,125	-3,403	721	107,930	107,930	0
Contingency											13,783	13,783	
Total	2,430	2,208	2,781	-222	-573	55,249	51,846	51,125	-3,403	721	121,713	121,713	

Attachment 8 LAT Performance Analysis, May 2003

	WBS	BAC	BCWS	BCWP	ACWP	SV \$	CV \$	% BCWS	% BCWP	% ACWP	SV Trend	CV Trend	SPI	CPI	Cpi_Fcst	CpiSpi_Fcst
2	4.1	107,930	55,249	51,846	51,125	-3,403	721	51.19	48.04	47.37	↔	↓	0.938	1.014	106,429	110,059
3	4.1.1	15,357	7,871	7,871	7,846	0	26	51.26	51.26	51.09	↔	↑	1.000	1.003	15,307	15,307
4	4.1.2	6,453	3,429	3,429	3,401	0	29	53.15	53.15	52.70	↔	↓	1.000	1.008	6,398	6,398
5	4.1.4	10,915	8,784	8,111	7,315	-672	797	80.47	74.31	67.01	↔	↔	0.923	1.109	9,843	10,053
6	4.1.5	17,830	9,165	8,570	8,268	-595	302	51.41	48.07	46.37	↑	↓	0.935	1.037	17,202	17,822
7	4.1.6	12,025	7,802	6,813	7,812	-989	-999	64.89	56.66	64.97	↔	↔	0.873	0.872	13,787	14,654
8	4.1.7	16,672	5,633	5,382	5,550	-251	-168	33.79	32.28	33.29	↓	↓	0.956	0.970	17,192	17,734
9	4.1.8	10,373	5,236	4,617	4,657	-619	-40	50.48	44.51	44.90	↔	↓	0.882	0.991	10,463	11,241
10	4.1.9	6,588	1,923	1,819	1,851	-104	-32	29.20	27.62	28.10	↓	↓	0.946	0.983	6,703	6,980
11	4.1.A	1,607	1,120	1,120	761	0	359	69.71	69.71	47.35	↔	↔	1.000	1.472	1,092	1,092
12	4.1.B	2,512	607	519	263	-88	256	24.15	20.67	10.48	↓	↔	0.856	1.971	1,274	1,445
13	4.1.C	2,684	925	900	851	-25	49	34.47	33.54	31.72	↓	↓	0.973	1.057	2,538	2,585
14	4.1.D	3,595	1,432	1,371	1,225	-61	146	39.82	38.12	34.06	↓	↓	0.957	1.119	3,212	3,301
15	4.1.E	1,321	1,321	1,321	1,325	0	-4	100.00	100.00	100.29	↔	↔	1.000	0.997	1,325	1,325

LEGEND

BAC: Budget At Complete
SV \$: Schedule Variance = BCWP - BCWS
% BCWS: Percent Scheduled = BCWS/BAC

BCWS: Budgeted Cost of Work Scheduled (to date)
CV \$: Cost Variance = BCWP - ACWP
% BCWP: Percent Complete = BCWP/BAC

BCWP: Budgeted Cost of Work Performed (to date)
SPI: Schedule Performance Index = BCWP/BCWS
% ACWP: Percent Spent = ACWP/BAC

ACWP: Actual Cost of Work Performed (to date)
CPI: Cost Performance Index = BCWP/ACWP

SV Trend: Schedule Variance Trend = SV\$ / BCWS

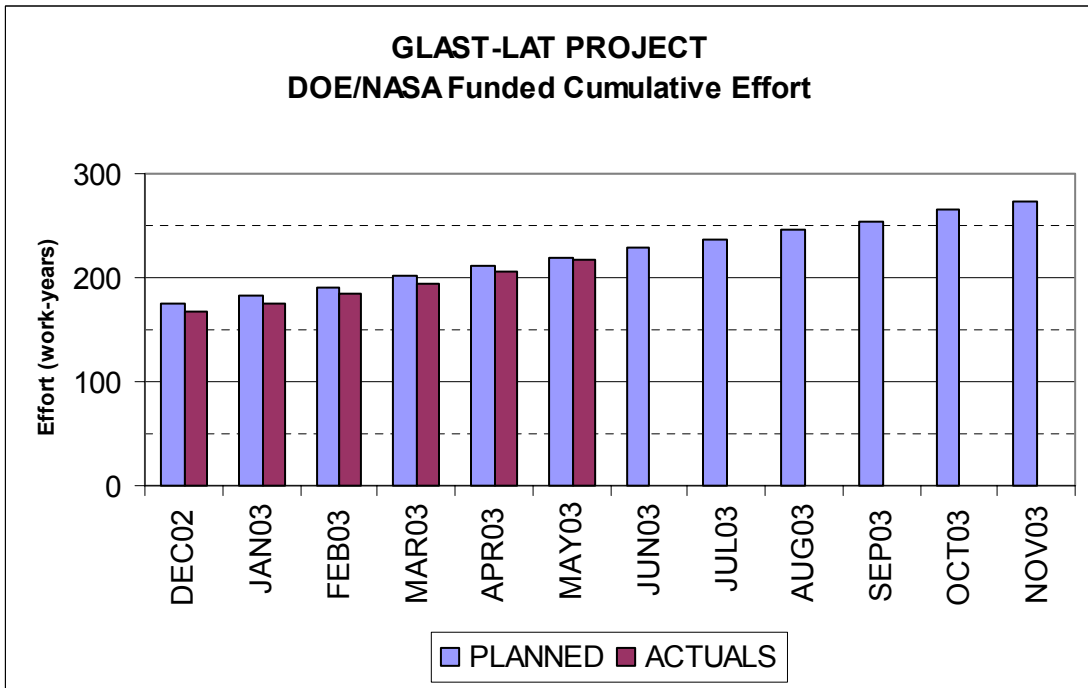
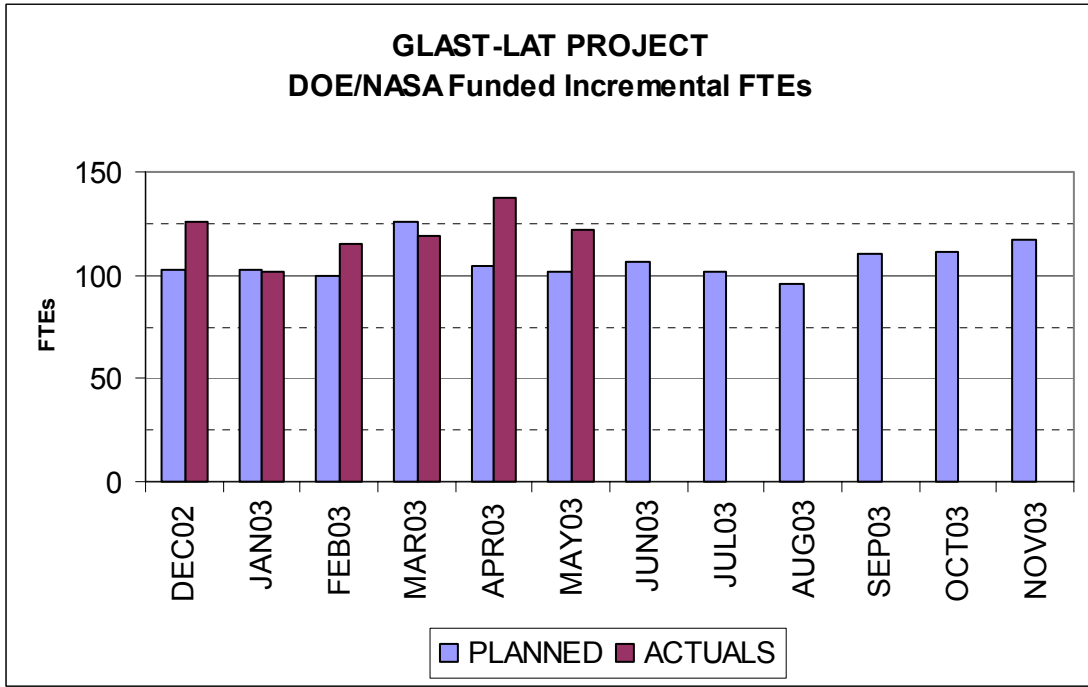
CV Trend: Cost Variance Trend = CV\$ / BCWP

Cpi_Fcst: CPI (to date) EAC Forecast = BAC / CPI

CpiSpi_Fcst: Combination CPI and SPI EAC Forecast = ACWP + (BAC - BCWP) / (CPI * SPI)

	Worse than -15%		Between -5% and 10%
	Between -15% and -5%		Better than 10%
Change Threshold 10%			

**Attachment 9
LAT Manpower (DOE/NASA-Funded)**



Attachment 10
LAT Manpower Data, through May 2003, by Organization

Program: LAT3		Description: GLAST LAT Project		Approval: Program Manager Functional Manager Cost Account Manager												
Run Date: 6/24/03		Status Date: 5/31/03														
CAPW[3]		PRIOR	DEC02	JAN03	FEB03	MAR03	APR03	MAY03	Cum-to Date	JUN03	JUL03	AUG03	SEP03	OCT03	NOV03	
4.1.1 INSTRUMENT MANAGEMENT																
FTE	PLANNED	228.9	11.1	11.1	4.8	47.5	18.1	18.0	339.4	16.7	16.8	16.8	16.8	15.0	15.0	
	ACTUALS	224.1	12.5	11.8	13.9	36.7	15.5	15.4	329.8	0.0	0.0	0.0	0.0	0.0	0.0	
4.1.2 SYSTEM ENGINEERING																
FTE	PLANNED	41.2	2.0	1.8	1.9	-6.1	1.6	1.6	44.0	1.6	1.6	1.6	1.6	1.5	1.5	
	ACTUALS	28.9	1.2	1.2	1.4	2.0	1.7	1.2	37.6	0.0	0.0	0.0	0.0	0.0	0.0	
4.1.4 TRACKER																
FTE	PLANNED	556.7	27.3	26.1	26.6	15.3	28.3	28.1	708.4	19.9	17.6	18.5	20.5	21.2	20.7	
	ACTUALS	521.3	25.3	21.4	22.9	18.9	24.1	25.6	659.5	0.0	0.0	0.0	0.0	0.0	0.0	
4.1.5 CALORIMETER																
FTE	PLANNED	1091.5	44.2	48.5	49.2	45.0	43.3	44.0	1365.7	51.8	52.4	48.7	50.7	55.5	67.3	
	ACTUALS	342.8	24.9	16.0	16.5	18.1	17.2	21.4	456.8	0.0	0.0	0.0	0.0	0.0	0.0	
4.1.6 ANTICOINCIDENCE DETECTOR																
FTE	PLANNED	352.6	19.0	19.5	18.3	53.2	23.3	20.6	506.5	20.3	15.5	16.4	19.8	19.0	16.7	
	ACTUALS	333.2	39.1	30.3	27.2	29.4	42.3	29.0	530.4	0.0	0.0	0.0	0.0	0.0	0.0	
4.1.7 ELECTRONICS																
FTE	PLANNED	269.4	13.3	19.1	21.1	16.1	18.6	18.5	376.2	17.9	17.9	13.7	21.6	21.3	20.8	
	ACTUALS	280.6	10.8	13.6	18.6	22.2	25.1	20.0	390.8	0.0	0.0	0.0	0.0	0.0	0.0	
4.1.8 MECHANICAL SYSTEMS																
FTE	PLANNED	155.2	7.5	8.4	7.8	-4.9	8.1	6.5	188.7	4.0	4.6	5.3	6.9	6.2	4.6	
	ACTUALS	108.9	9.2	9.5	10.6	-7.3	7.8	8.5	147.3	0.0	0.0	0.0	0.0	0.0	0.0	
4.1.9 INSTRUMENT INTEGRATION AND TESTING																
FTE	PLANNED	107.1	13.2	10.2	7.5	8.3	9.8	9.5	165.6	12.8	11.5	16.9	12.3	12.3	11.1	
	ACTUALS	100.1	8.3	8.2	11.4	10.3	9.8	9.8	157.9	0.0	0.0	0.0	0.0	0.0	0.0	
4.1.A PERFORMANCE AND SAFETY ASSURANCE																
FTE	PLANNED	57.2	2.6	2.6	2.6	-7.0	0.9	0.9	59.7	0.9	0.9	0.9	0.9	0.9	0.9	
	ACTUALS	45.6	2.1	2.0	2.1	-4.0	1.0	0.7	49.4	0.0	0.0	0.0	0.0	0.0	0.0	
4.1.B LAT INSTRUMENT OPERATIONS CENTER																
FTE	PLANNED	27.2	2.2	2.2	2.2	2.3	2.3	2.4	40.7	2.4	2.2	2.2	1.9	1.8	1.8	
	ACTUALS	22.7	1.7	-1.8	0.0	0.0	0.0	0.1	22.8	0.0	0.0	0.0	0.0	0.0	0.0	
4.1.C EDUCATION AND PUBLIC OUTREACH																
FTE	PLANNED	47.9	1.6	2.0	2.0	2.0	2.0	2.9	60.3	2.9	2.9	2.9	2.9	2.3	2.4	
	ACTUALS	52.9	3.0	1.7	2.3	4.5	4.3	3.3	72.0	0.0	0.0	0.0	0.0	0.0	0.0	
4.1.D SCIENCE ANALYSIS SOFTWARE																
FTE	PLANNED	354.9	23.1	20.2	25.0	24.7	24.7	24.7	497.2	24.5	24.1	23.0	23.6	27.7	27.8	
	ACTUALS	205.9	10.5	11.5	11.6	12.1	11.5	10.7	273.9	0.0	0.0	0.0	0.0	0.0	0.0	
4.1.E SUBORBITAL FLIGHT TEST																
FTE	PLANNED	111.9	0.0	0.0	0.0	0.0	0.0	0.0	111.9	0.0	0.0	0.0	0.0	0.0	0.0	
	ACTUALS	75.3	0.0	0.0	0.0	0.0	0.0	0.0	75.3	0.0	0.0	0.0	0.0	0.0	0.0	
Grand Totals:																
	PLANNED	3401.6	167.1	171.9	168.8	196.4	180.7	177.7	4464.2	175.5	167.9	166.9	179.5	184.7	190.5	
	ACTUALS	2342.1	148.6	125.6	138.6	142.8	160.2	145.6	3203.5	0.0	0.0	0.0	0.0	0.0	0.0	