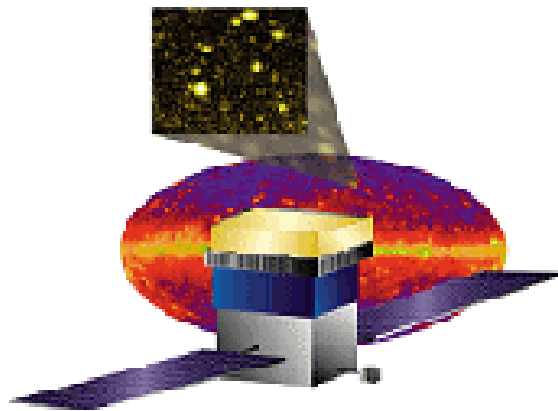


Monthly Progress Report

(Month Ending April 2003)

GLAST Large Area Telescope (LAT)



LAT-MR-02157-01

June 5, 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 April, 2003.

2.0 Recent Progress and Status

The French Space Agency, CNES, dropped GLAST from their program at the end of April. This decision appears to be final. CNES was providing funding to CEA/Saclay and IN2P3 labs for their work on the Calorimeter. A plan to move this work to the US (NRL) is being discussed with the project's DOE and NASA funding sponsors. It is expected that there will be a significant cost impact, and a minimal schedule impact.

4.1.4 Tracker

The Engineering Model (EM) mini-tower testing continued, with all eight multichip modules and cables being read simultaneously. Procurement readiness reviews were successfully held for the flight tray-panel assembly and the flight ladder assembly. Flight wafers were tested, with excellent yields on both ASIC types; preparations for lapping, dicing, and inspection are underway. The sidewall material for the EM tower is being delivered to Italy. Bottom tray closeout material testing and EM closeout fabrication has begun.

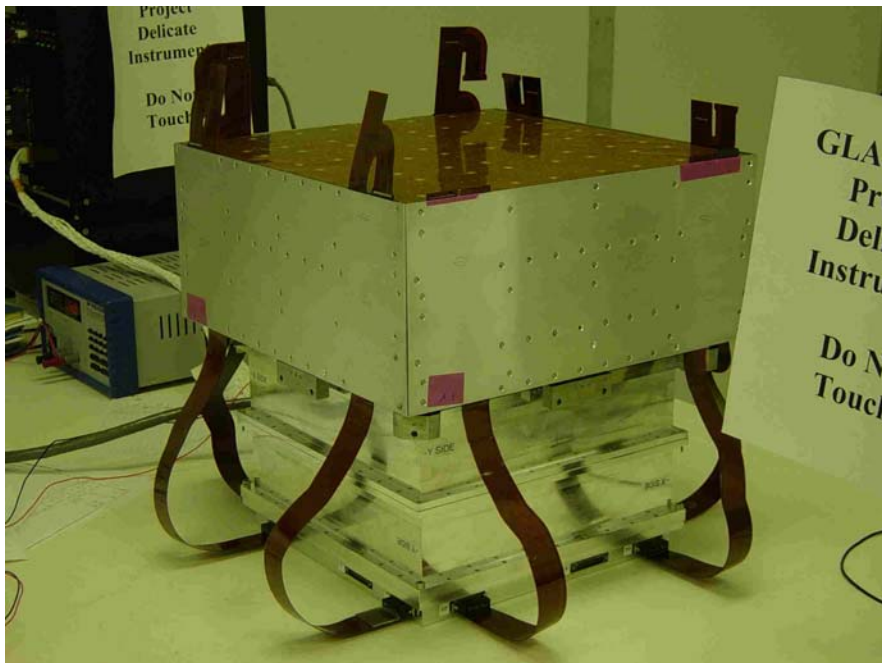


Figure 1: Tracker Engineering Model Mini-Tower

4.1.5 Calorimeter

The first 48 flight production CsI crystals have been inspected. The quality is excellent, however, two crystals were rejected due to chamfer tolerance measurement. 184 flight prototype dual pin photodiodes have been received in France for evaluation and qualification testing. Bids for manufacture and wrapping of crystal detector elements in France have been reviewed; vendor selection will occur in May. Bids have also been received for the machining of the structure aluminum parts in France, with vendor selection in early May. Functional testing of the engineering model analog front end electronics Y board has been completed. The first look at the readout controller chip (version 5) shows good communications results at 20 MHz, but some difficulty at 24 MHz; testing continues. Several tests of the engineering model were completed, with good results: comprehensive functional and muon testing, a preliminary thermal cycle test, and vibration testing to qualification levels on three axes.

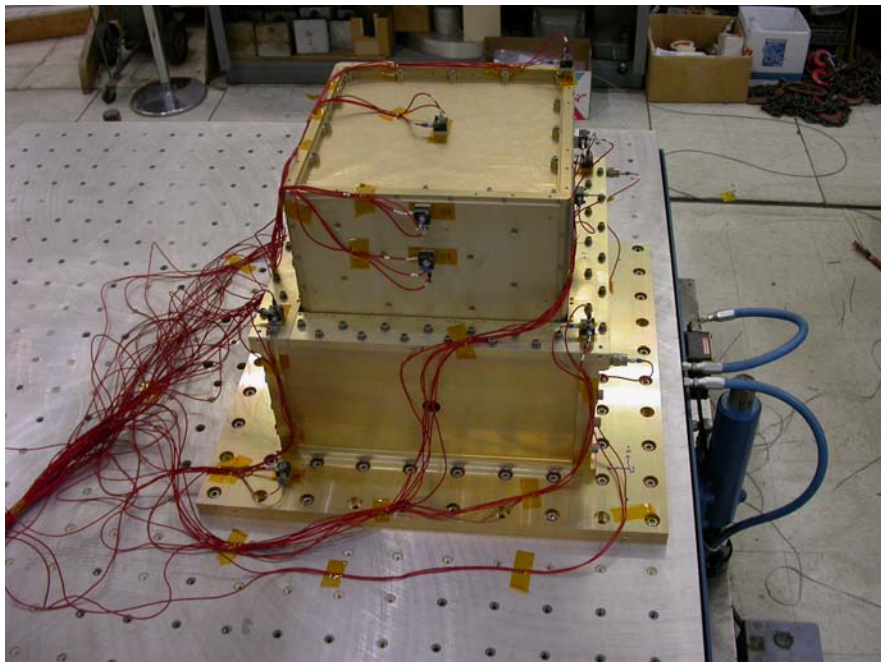


Figure 2: Calorimeter Engineering Model on the Vibration Table

4.1.6 Anticoincidence Detector

The readout controller ASIC (version 2) and the front end ASICs (versions 5 and 6) have been received; limited testing has been performed. The final 60 flight phototubes have been received, and are being tested at a rate of four per day. Testing of the new phototube housing design is underway, to make sure it is light tight. Procurements for the remaining flight hardware have been placed, including the flight shell. Fabrication of the flight tile detector assemblies has commenced. The fiber ribbon bending fixture has been completed, and a fiber ribbon has been fabricated.

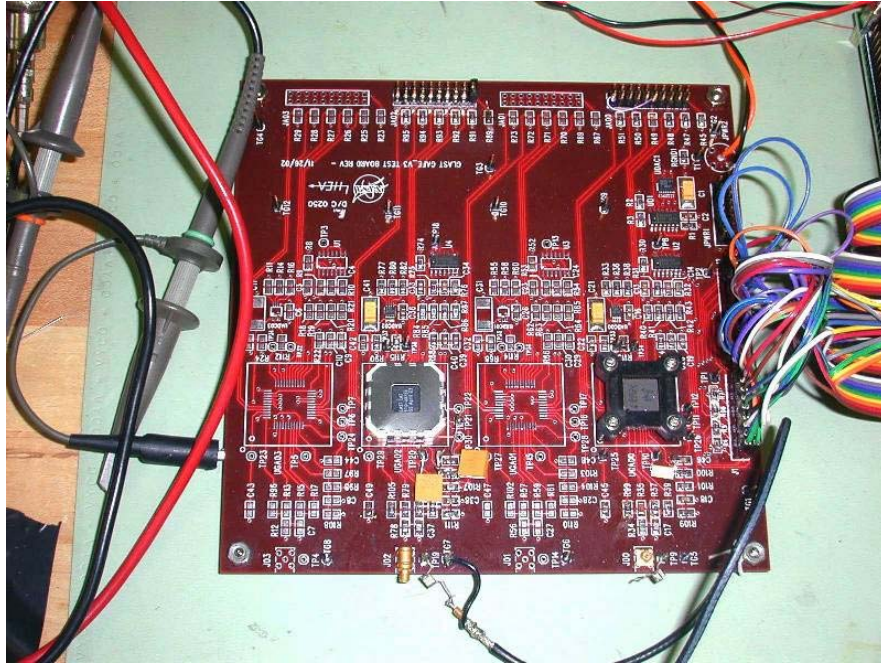


Figure 3: ACD Analog ASIC Test Board

4.1.7 Electronics

The schematics for the LAT communication board and crate backplane board have been completed. The layout of the GASU and PDU was completed and submitted for fabrication. The front-end simulator board has been fabricated, received, and is being loaded. Data acquisition ASICs were received, and are being tested. Proposals for the tower engineering model power supplies were received and review is underway.



Figure 4: Front-End Simulator Board

4.1.8 Mechanical Systems

The mass/stress optimizations for the grid box assembly were completed. The Calorimeter/grid pinned interface testing is underway. Interface definition drawings of the X-LAT plate and radiators are in progress with Lockheed Martin. A one-month extension of the Lockheed Martin Phase I contract was made. The Phase II contract will be in place by early June.

4.1.9 Integration & Test

The single bay grid for use in the engineering model is complete. A cosmic ray telescope for the engineering model was constructed. LATTE (LAT Test Executive) is now capable of running suites of applications. The BGO data acquisition system is nearly complete. A walkthrough of the LAT integration facility was conducted with the LAT safety and quality assurance managers.

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. The Instrument CDR (1M1000110) was delayed by two weeks at the request of the review co-chairs. 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: 06/11/03 Variance: -127 days
Lack of sufficient manpower, and vendor machine failure, have resulted in the delay of this milestone. In order to ensure design maturity, the completion of this milestone will be even further delayed (early August), 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 delay can be accommodated in the Integration & Test schedule with no further impact.

High Voltage Power Supply (Bd & Prts) – ACD to Electronics (1M7941350)

Baseline/Target Finish: 02/03/03 Projected Finish: 05/15/03 Variance: -72 days
Resources were diverted from the completion of this milestone to other ACD tasks with higher priority. This delay can be accommodated in the Electronics schedule with no further impact. (Note: this milestone was completed in May, as projected).

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 is dependent on the completion of the final version of the GEM H/W Driver (Milestone 1M1001390, above). The delay can be accommodated in the Flight Software schedule with no further impact.

(36) MCMs for EM2 from Tracker to Electronics (1M1000910)

Baseline/Target Finish: 07/18/03 Projected Finish: 09/25/03 Variance: -48 days
Procurement delays have resulted in the delay of this milestone. This delay can be accommodated in the Electronics 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. There was an error in the SLAC accounting system this period, resulting in duplication (overstatement) of \$2.0M in commitments. This will be corrected next 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 delivery date, does not impact significant milestones, and removes the unfavorable schedule variance by the end of the 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.

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

Four change requests were submitted to and approved by the LAT Configuration Control Board during April. A summary, including the impacts on the LAT fabrication phase cost, is below.

Change Request No.	Description	Submitted By	CCB Meeting	Current Status
LAT-XR-01870-02	Calorimeter GSI Beam Test	N. Johnson	4/23/03	Approved \$0K
LAT-XR-01998-02	LAT Power Allocation Update	W. Davis	4/23/03	Approved
LAT-XR-02000-01	ACD Base Electronics Assembly M&S	T. Johnson	4/23/03	Approved \$467K
LAT-XR-02001-01	System Engineering Milestone Changes	W. Althouse	4/23/03	Approved \$0K

The fabrication phase cost baseline is now \$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	05/16/03*			▼							
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					05/30/03 08:22					GLAST LAT PROJECT Project Milestones (Level 1 and 2)				
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										Sheet 1 of 1				

Attachment 2 (Page 1 of 3)
Level 3 Milestones (One-Year View)

Activity ID	Activity Description	Target Finish Date	Variance	Scheduled Finish Date	AV	ND	Fiscal Year			
							FY02	FY03	FY04	
Instrument Project Office (Level 3)										
1M1001420	AEM H/W driver final ver-ELX to I&T/Online	09/20/02	-40	11/15/02A	7	9	▼			
1M7941310	ACD Electronics Module - EM1 (Elec to ACD)	09/20/02	-40	11/15/02A	7	6	▼			
1M1001340	GEM H/W driver, init ver-ELX to I&T/Online	11/12/02	37	09/20/02A	7	9	▼			
1M1001410	TEM H/W driver, final ver-ELX to I&T/Online	11/19/02	36	09/30/02A	7	9	▼			
1M1001380	Delivery of EM (1X4) Grid to I&T/MSGE	12/02/02*	-127	06/11/03*	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	▼			
Run Date 05/30/03 08:23							GLAST LAT PROJECT Project Milestones (Level 3) 1 Year View (+/- 6mo)		0520 LTX1 - MS (L3) FLX1 - MS (L3)	Sheet 1 of 3
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**Attachment 2, Continued (Page 2 of 3)
Level 3 Milestones (One-Year View)**

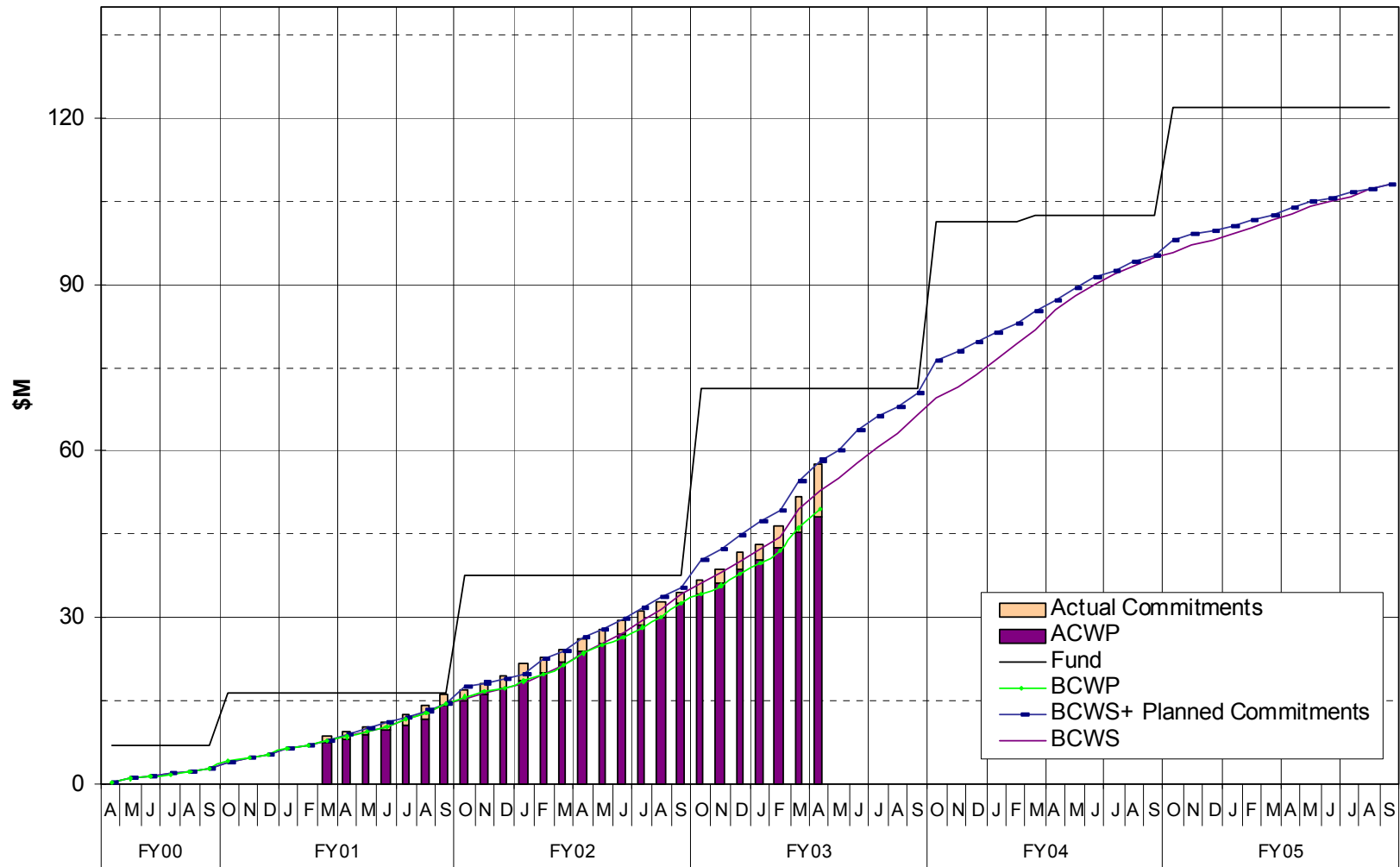
Activity ID	Activity Description	Target Finish Date	Variance	Scheduled Finish Date	AV	ND	Fiscal Year			
							FY02	FY03	FY04	
Instrument Project Office (Level 3)										
1M1001390	GEM h/w driver, final ver-ELX to I&T/Online	01/07/03	-111	06/16/03	7	9				
1M1001130	Tracker Tower & Tray Alignment (SAS to I&T)	01/22/03*	11	01/06/03A	D	9				
1M57000020	CAL AFPE 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*	-72	05/15/03*	6	7				
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*	0	05/07/03*	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	-48	09/25/03	4	7				
1M75000000	(6) EM2 TEM-from Elec to CAL	08/25/03	0	08/25/03	7	5				
1M19500400	CU S/C Simulator - ELX to I&T Online	08/29/03*	0	08/29/03*	7	9				
Run Date 05/30/03 08:23							GLAST LAT PROJECT Project Milestones (Level 3) 1 Year View (+/- 6mo)			0520 LTX1 - MS (L3) FLX1 - MS (L3)
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**Attachment 2, Continued (Page 3 of 3)
Level 3 Milestones (One-Year View)**

Activity ID	Activity Description	Target Finish Date	Variance	Scheduled Finish Date	AV	ND	Fiscal Year				
							FY02	FY03	FY04		
Instrument Project Office (Level 3)											
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							05/30/03 08:23	GLAST LAT PROJECT Project Milestones (Level 3) 1 Year View (+/- 6mo)		0520 LTX1 - MS (L3) FLX1 - MS (L3)	Sheet 3 of 3
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Attachment 3

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



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

Monthly Contractor Financial Management Report							Report for Month Ending: 4/30/03		
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	Estimated Final Cost	Unfilled Orders
	Actual	Planned	Actual	Planned	MAY03	JUN03	Budget	Project Estimate	Budget Value
4.1.1 INSTRUMENT MANAGEMENT	293	364	7,578	7,525	347	326	7,105	15,357	15,357
4.1.2 SYSTEM ENGINEERING	100	205	3,129	3,254	175	175	2,974	6,453	6,453
4.1.4 TRACKER	429	1,123	7,059	8,523	260	163	3,434	10,915	10,915
4.1.5 CALORIMETER	432	256	7,804	8,887	278	576	9,172	17,830	17,830
4.1.6 ANTICOINCIDENCE DETECTOR	650	336	7,440	7,384	418	450	3,717	12,025	12,025
4.1.7 ELECTRONICS	379	384	5,207	5,282	351	323	10,791	16,672	16,672
4.1.8 MECHANICAL SYSTEMS	365	315	4,100	4,959	277	384	5,612	10,373	10,373
4.1.9 INTEGRATION & TEST	128	152	1,739	1,791	132	149	4,567	6,588	6,588
4.1.A PERFORMANCE AND SAFETY ASSURANCE	19	30	748	1,091	29	29	801	1,607	1,607
4.1.B LAT INSTRUMENT OPERATIONS CENTER	0	32	262	574	33	33	2,184	2,512	2,512
4.1.C EDUCATION AND PUBLIC OUTREACH	57	38	803	880	32	32	1,816	2,684	2,684
4.1.D SCIENCE ANALYSIS SOFTWARE	57	90	1,150	1,348	84	70	2,291	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	2,909	3,328	48,344	52,819	2,416	2,709	54,461	107,930	107,930

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

Monthly Contractor Financial Management Report								Report for Month Ending: 4/30/03	
To: Kevin Grady, GLAST Project Manager (NASA) Ev Valle, LAT Project Manager (DOE)				From: Tanya Boysen, LAT Project Controls Manager				Budget Value	
								Cost:	Fee:
								0	0
LAT3	Type:						Fund Limitation:		
GLAST LAT Project							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	MAY03	JUN03			
DG *** GSFC	649	366	8,461	8,669	446	478	5,188	14,573	14,573
DH *** HEPL	43	193	3,232	3,832	165	149	5,388	8,934	8,934
DL *** SLAC	1,568	2,238	24,481	26,088	1,269	1,259	27,508	54,517	54,517
DN *** NRL	523	431	9,760	11,613	453	741	13,346	24,300	24,300
DO *** Financial Plan Transfer/Sub Out	0	0	32	32	0	0	0	32	32
DS *** SSU	57	37	803	878	31	31	1,743	2,609	2,609
DT *** Texas A&M	0	0	15	16	0	0	0	16	16
DU *** UCSC	60	54	1,530	1,657	43	43	1,051	2,666	2,666
DW *** UW	8	9	29	33	8	8	238	283	283
Total	2,909	3,328	48,344	52,819	2,416	2,709	54,461	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	MAY03	JUN03				
RL LABOR	1,447	1,243	28,187	28,846	1,185	1,243	27,726	58,342	58,342	
<i>FTE (DOE/NASA)</i>	<i>137.0</i>	<i>104.3</i>	<i>2,441.0</i>	<i>2,540.7</i>	<i>101.0</i>	<i>106.0</i>	<i>2,380.9</i>	<i>5,028.9</i>	<i>5,028.9</i>	
<i>HOURS (DOE/NASA)</i>	<i>24,119</i>	<i>18,349</i>	<i>408,885</i>	<i>417,842</i>	<i>16,950</i>	<i>17,734</i>	<i>386,773</i>	<i>830,342</i>	<i>830,342</i>	
RT TRAVEL	7	69	721	1,363	73	64	2,509	3,367	3,367	
RM MATERIAL & SERVICES	1,311	2,001	17,537	20,684	1,042	1,308	22,543	42,430	42,430	
RX MPS & LAB TAX	144	15	1,899	1,926	116	94	1,682	3,791	3,791	
Total (not incl FTE/Hours)	2,909	3,328	48,344	52,819	2,416	2,709	54,461	107,930	107,930	

Attachment 6
LAT Performance, through April 2003, by WBS

Cost Performance Report - Work Breakdown Structure													
Contractor: Location:					Contract Type/No:			Project Name/No: GLAST LAT Project		Report Period: 3/31/03 4/30/03			
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 Work	Variance		Budgeted Cost		Actual Cost Work	Variance		Budgeted	Latest Revised Estimate	Variance
	Work Scheduled	Work Performed		Schedule	Cost	Work Scheduled	Work Performed		Schedule	Cost			
Item	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
4.1.1 INSTRUMENT MANAGEMENT	364	364	293	0	72	7,525	7,525	7,578	0	-54	15,357	15,357	0
4.1.2 SYSTEM ENGINEERING	205	205	100	0	106	3,254	3,254	3,129	0	126	6,453	6,453	0
4.1.4 TRACKER	1,123	1,126	429	3	698	8,523	7,843	7,059	-680	784	10,915	10,915	0
4.1.5 CALORIMETER	256	606	432	350	174	8,887	8,219	7,804	-668	416	17,830	17,830	0
4.1.6 ANTICOINCIDENCE DETECTOR	336	360	650	23	-290	7,384	6,429	7,440	-955	-1,010	12,025	12,025	0
4.1.7 ELECTRONICS	384	318	379	-66	-61	5,282	5,152	5,207	-130	-55	16,672	16,672	0
4.1.8 MECHANICAL SYSTEMS	315	284	365	-31	-81	4,959	4,383	4,100	-576	283	10,373	10,373	0
4.1.9 INTEGRATION & TEST	152	109	128	-43	-19	1,791	1,733	1,739	-58	-6	6,588	6,588	0
4.1.A PERFORMANCE AND SAFETY ASSURA	30	30	19	0	11	1,091	1,091	748	0	343	1,607	1,607	0
4.1.B LAT INSTRUMENT OPERATIONS CENT	32	17	0	-15	17	574	503	262	-71	241	2,512	2,512	0
4.1.C EDUCATION AND PUBLIC OUTREACH	38	26	57	-12	-31	880	871	803	-8	68	2,684	2,684	0
4.1.D SCIENCE ANALYSIS SOFTWARE	90	67	57	-23	10	1,348	1,313	1,150	-35	163	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	3,328	3,513	2,909	186	604	52,819	49,638	48,344	-3,181	1,294	107,930	107,930	0
Contingency											13,783	13,783	
Total	3,328	3,513	2,909	186	604	52,819	49,638	48,344	-3,181	1,294	121,713	121,713	

Attachment 7
LAT Performance, through April 2003, by Organization

Cost Performance Report - Organization													
Contractor: Location:				Contract Type/No:				Project Name/No: GLAST LAT Project		Report Period: 3/31/03 4/30/03			
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	Variance		Budgeted Cost		Actual Cost Work	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	366	345	649	-21	-304	8,669	7,715	8,461	-955	-746	14,573	14,573	0
DH *** HEPL	193	152	43	-41	109	3,832	3,705	3,232	-127	474	8,934	8,934	0
DL *** SLAC	2,238	2,289	1,568	51	721	26,088	24,738	24,481	-1,350	257	54,517	54,517	0
DN *** NRL	431	717	523	286	194	11,613	10,893	9,760	-720	1,133	24,300	24,300	0
DO *** Financial Plan	0	0	0	0	0	32	32	32	0	0	32	32	0
DS *** SSU	37	26	57	-11	-31	878	869	803	-9	65	2,609	2,609	0
DT *** Texas A&M	0	0	0	0	0	16	16	15	0	0	16	16	0
DU *** UCSC	54	-24	60	-79	-84	1,657	1,637	1,530	-20	107	2,666	2,666	0
DW *** UW	9	9	8	0	1	33	33	29	0	4	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	3,328	3,513	2,909	185	604	52,819	49,638	48,344	-3,181	1,294	107,930	107,930	0
Contingency											13,783	13,783	
Total	3,328	3,513	2,909	185	604	52,819	49,638	48,344	-3,181	1,294	121,713	121,713	

Attachment 8 LAT Performance Analysis, April 2003

	WBS	BAC	BCWS	BCWP	ACWP	SV \$	CV \$	% BCWS	% BCWP	% ACWP	SV Trend	CV Trend	SPI	CPI	Cpi_Fcst	CpiSpi_Fcst
1	4.1	107,930	52,819	49,638	48,344	-3,181	1,294	48.94	45.99	44.79	↑	↑	0.940	1.027	105,117	108,755
2	4.1.1	15,357	7,525	7,525	7,578	0	-54	49.00	49.00	49.35	↔	↑	1.000	0.993	15,466	15,466
3	4.1.2	6,453	3,254	3,254	3,129	0	126	50.43	50.43	48.49	↔	↑	1.000	1.040	6,203	6,203
4	4.1.4	10,915	8,523	7,843	7,059	-680	784	78.08	71.85	64.67	↑	↑	0.920	1.111	9,824	10,064
5	4.1.5	17,830	8,887	8,219	7,804	-668	416	49.85	46.10	43.77	↑	↑	0.925	1.053	16,928	17,670
6	4.1.6	12,025	7,384	6,429	7,440	-955	-1,010	61.41	53.47	61.87	↔	↓	0.871	0.864	13,914	14,876
7	4.1.7	16,672	5,282	5,152	5,207	-130	-55	31.68	30.90	31.23	↓	↓	0.975	0.989	16,850	17,143
8	4.1.8	10,373	4,959	4,383	4,100	-576	283	47.80	42.26	39.53	↔	↓	0.884	1.069	9,703	10,438
9	4.1.9	6,588	1,791	1,733	1,739	-58	-6	27.19	26.31	26.41	↓	↓	0.968	0.996	6,611	6,774
10	4.1.A	1,607	1,091	1,091	748	0	343	67.90	67.90	46.55	↔	↔	1.000	1.459	1,102	1,102
11	4.1.B	2,512	574	503	262	-71	241	22.86	20.03	10.45	↓	↔	0.876	1.917	1,310	1,458
12	4.1.C	2,684	880	871	803	-8	68	32.78	32.47	29.94	↓	↓	0.990	1.084	2,475	2,491
13	4.1.D	3,595	1,348	1,313	1,150	-35	163	37.48	36.51	31.99	↓	↔	0.974	1.141	3,150	3,203
14	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

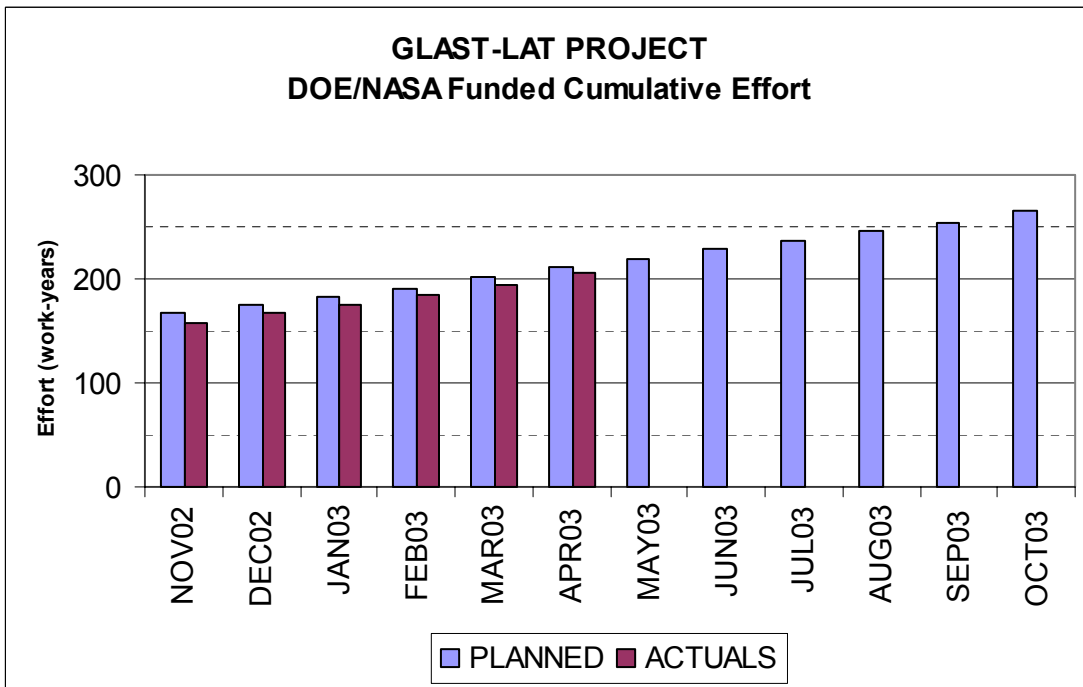
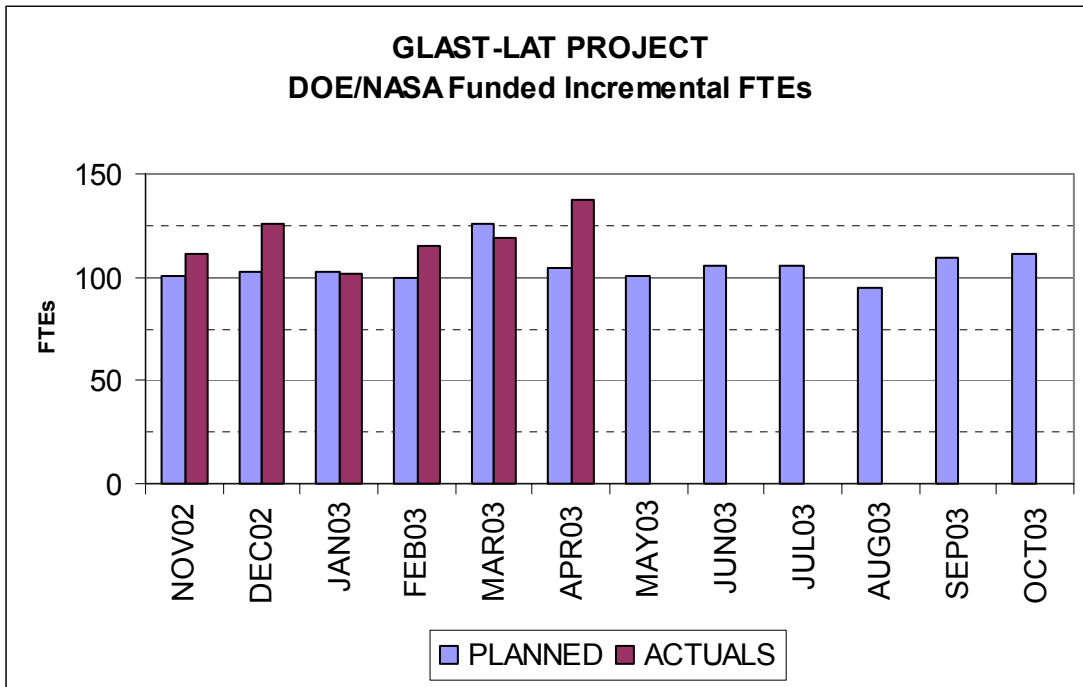
LEGEND

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 April 2003, by Organization

Program: LAT3		Description: GLAST LAT Project				Approval: Program Manager Functional Manager Cost Account Manager										
Run Date: 5/1/03		Status Date: 4/30/03														
		PRIOR	NOV02	DEC02	JAN03	FEB03	MAR03	APR03	Cum-to Date	MAY03	JUN03	JUL03	AUG03	SEP03	OCT03	
CAPW[3]																
4.1.1 INSTRUMENT MANAGEMENT																
FTE	PLANNED	217.8	11.1	11.1	11.1	4.8	47.5	18.1	321.4	18.0	16.7	16.8	16.8	16.8	15.0	
	ACTUALS	213.4	10.7	12.5	11.8	13.9	36.7	15.5	314.4	0.0	0.0	0.0	0.0	0.0	0.0	
4.1.2 SYSTEM ENGINEERING																
FTE	PLANNED	39.1	2.1	2.0	1.8	1.9	-6.1	1.6	42.4	1.6	1.6	1.6	1.6	1.6	1.5	
	ACTUALS	27.7	1.1	1.2	1.2	1.4	2.0	1.7	36.4	0.0	0.0	0.0	0.0	0.0	0.0	
4.1.4 TRACKER																
FTE	PLANNED	530.8	25.8	27.3	26.1	26.6	15.3	28.3	680.3	28.1	19.9	17.6	18.5	20.5	21.2	
	ACTUALS	496.8	24.5	25.3	21.4	22.9	18.9	24.1	633.9	0.0	0.0	0.0	0.0	0.0	0.0	
4.1.5 CALORIMETER																
FTE	PLANNED	1034.1	57.4	44.2	48.5	49.2	45.0	43.3	1321.7	44.0	51.8	52.4	48.7	50.7	55.5	
	ACTUALS	319.9	22.9	24.9	16.0	16.5	18.1	17.2	435.4	0.0	0.0	0.0	0.0	0.0	0.0	
4.1.6 ANTICOINCIDENCE DETECTOR																
FTE	PLANNED	329.7	22.9	19.0	19.5	18.3	53.2	23.3	485.9	20.6	20.3	15.5	16.4	19.8	19.0	
	ACTUALS	301.7	31.5	39.1	30.3	27.2	29.4	42.3	501.5	0.0	0.0	0.0	0.0	0.0	0.0	
4.1.7 ELECTRONICS																
FTE	PLANNED	261.7	7.7	13.3	19.1	21.1	16.1	18.6	357.7	18.5	17.9	17.9	13.7	21.6	21.3	
	ACTUALS	272.0	8.6	10.8	13.6	18.6	22.2	25.1	370.8	0.0	0.0	0.0	0.0	0.0	0.0	
4.1.8 MECHANICAL SYSTEMS																
FTE	PLANNED	141.5	13.8	7.5	8.4	7.8	-4.9	8.1	182.1	6.5	4.0	4.6	5.3	6.9	6.2	
	ACTUALS	100.4	8.5	9.2	9.5	10.6	-7.3	7.8	138.8	0.0	0.0	0.0	0.0	0.0	0.0	
4.1.9 INSTRUMENT INTEGRATION AND TESTING																
FTE	PLANNED	100.3	6.8	13.2	10.2	7.5	8.3	9.8	156.1	9.5	12.8	11.5	16.9	12.3	12.3	
	ACTUALS	90.5	9.7	8.3	8.2	11.4	10.3	9.8	148.1	0.0	0.0	0.0	0.0	0.0	0.0	
4.1.A PERFORMANCE AND SAFETY ASSURANCE																
FTE	PLANNED	54.6	2.6	2.6	2.6	2.6	-7.0	0.9	58.8	0.9	0.9	0.9	0.9	0.9	0.9	
	ACTUALS	43.7	1.8	2.1	2.0	2.1	-4.0	1.0	48.8	0.0	0.0	0.0	0.0	0.0	0.0	
4.1.B LAT INSTRUMENT OPERATIONS CENTER																
FTE	PLANNED	25.0	2.2	2.2	2.2	2.2	2.3	2.3	38.3	2.4	2.4	2.2	2.2	1.9	1.8	
	ACTUALS	22.7	0.0	1.7	-1.8	0.0	0.0	0.0	22.7	0.0	0.0	0.0	0.0	0.0	0.0	
4.1.C EDUCATION AND PUBLIC OUTREACH																
FTE	PLANNED	46.2	1.7	1.6	2.0	2.0	2.0	2.0	57.4	2.0	2.0	6.4	2.0	2.0	2.0	
	ACTUALS	47.4	5.5	3.0	1.7	2.3	4.5	4.3	68.7	0.0	0.0	0.0	0.0	0.0	0.0	
4.1.D SCIENCE ANALYSIS SOFTWARE																
FTE	PLANNED	336.7	18.2	23.1	20.2	25.0	24.7	24.7	472.6	24.7	24.5	24.1	23.0	23.6	27.7	
	ACTUALS	195.8	10.2	10.5	11.5	11.6	12.1	11.5	263.2	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	3229.4	172.2	167.1	171.9	168.8	196.4	180.7	4286.5	176.8	174.6	171.4	166.0	178.6	184.3	
	ACTUALS	2207.2	134.9	148.6	125.6	138.6	142.8	160.2	3057.9	0.0	0.0	0.0	0.0	0.0	0.0	