

Monthly Progress Report

(Month Ending May 2002)

GLAST Large Area Telescope (LAT)

LAT-MR-00824-01

July 25, 2002

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, 2002.

At the end of May, the project was in the midst of a major planning revision which was initiated in April. The schedule was extended by six months, reflecting a shift in the instrument delivery date, and the end of the fabrication project was defined (acceptance of the LAT instrument by the GLAST Mission). LAT project management decided it more appropriate to evaluate performance against this new plan, rather than the old plan. The new plan was formally adopted in the July 10 CCB meeting.

2.0 Recent Progress and Status

A face-to-face Instrument Design Team meeting was held May 30-31, to address integration & testing, calibration, procedure and records for environmental tests, formats for readiness reviews, instrument operation procedures, and preparation for and distribution of science analysis software.

Tracker: The last lot of carbon-carbon material for the engineering model has been shipped to INFN Pisa and is being machined; the order for the flight quantity is in final negotiation with the vendor (first batch of material scheduled for November 2002). The redesigned ASICs have been submitted to Mosis with a late August delivery. The prototype tower was reassembled and made ready for vibration testing at Ames in early June (Editor's note: this test subsequently uncovered a weakness in the bottom tray, and an Anomaly Review Committee was appointed by the Instrument Project Manager to report on its findings by July 25, 2002). The first half of the INFN SSD procurement was completed.

Calorimeter: The Phase 1 PIN photodiode qualification evaluation was completed. It was found that thermal cycling creates micro-cracking in the optical epoxy; investigations are underway. Radiation testing on the PIN photodiode was successfully completed. The crystal dimensions were redefined, based on a detailed tolerance and clearance study. An extensive study of PIN photodiode-CsI bonds is in progress. Bonding tooling has been designed and prototypes fabricated and tested. The static and thermo-mechanical analysis of the Calorimeter structure is complete; a modal analysis is being reworked. Design and layout for the revised GCFE ASIC testboard was completed (the major change is the revised pinout for GCFE V7 ASIC).

ACD: Both analog and digital ASICs were submitted for fabrication. An FPGA implementation of the digital ASIC was made for interface testing. Qualification photomultiplier tubes were delivered and successfully tested, with one additional constraint to which the vendor has agreed. A review of the phototubes was held in preparation for the flight procurement. An end-to-end Tile Detector Assembly (scintillator, waveshifting fibers, optical connector, clear fibers, photomultiplier tube)

was tested. It meets the signal requirements, although the light loss was larger than expected in the connector and clear fibers. Additional testing will be performed.

Mechanical Systems: The LAT thermal model is complete, and analyses are ongoing. The LAT structural model is being updated, and will be completed next month. A meeting was held to review progress towards the delta PDR and a list of action items and recommendations was collected for use in finalizing the work for the review. Parts and test equipment have been ordered for the heat pipe EM test, bolted-joint thermal-vacuum tests, and the CAL-Grid bolted joint coupon tests. The Radiator Level IV specification is complete and being reviewed by Lockheed Martin. The Thermal Control System Level-IV Specification, and Grid Box Level-IV Specification have been drafted and are being reviewed. Interface definition drawings for all subsystems are being drafted.

Integration & Test: The conceptual design of the universal handling fixture was completed. The SCL GLAST global trigger software interface was completed, as well as the SCL GLAST trigger interface controller software interface. A review of the cleanroom progress was held; it is estimated that the AC will be qualified in two months. The newly-hired MGSE engineer started work this month. The Van de Graff control panel was completed.

3.0 Schedule Status

The status of significant (Levels 1 and 2) milestones identified in the Project Management Plan (LAT-MD-00054-06, currently in review) for the LAT project is summarized in Attachment 1. Level 3 milestone status is included as Attachment 2. There are no variances in the Level 1 – 3 milestones to report this month.

4.0 Financial Status

Attachment 3 depicts the costs and commitments 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. For clarity, the hours worked/FTE lines no longer include contributed 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.

Schedule variances are minimal.

The unfavorable cost variance in 4.1.4 Tracker is due to several factors. More fabrication and material costs were incurred than planned to preserve the engineering model schedule. Errors found in the second ASIC submission required redesign and resubmission. The prototype tower scope expanded (full mechanical mockup rather than mini-tower), requiring additional materials & testing. It is expected that these variances will be resolved within the Tracker plan in this fiscal year.

The unfavorable cost variance in 4.1.6 ACD is due to an incorrect cost transfer from 4.1.E Suborbital Flight Test (will be corrected in June), increased manpower requirements in project scheduling and composite design and stress analysis, and Goddard MPS and lab tax costs arriving earlier than planned. A change in electronics packaging has delayed the BEA schedule; this is being aggressively addressed by ACD management, who have reported positive results.

The unfavorable cost variance in 4.1.9 Integration & Test stems partially from credit not being given to some IFCT work actually performed during this period (will be corrected next reporting period), and partially from more manpower being applied than planned.

The favorable cost variance in 4.1.A Performance & Safety Assurance is due to the delay in the hire of a part-time parts engineer at NRL, an NRL subcontractor invoicing delay, and less travel undertaken than planned.

The favorable cost variance in 4.1.C Education & Public Outreach is attributed to a delay in funding (funding was brought up to date in June).

The favorable cost variance in 4.1.E Suborbital Flight Test is due to past GSFC costs erroneously transferred to other locations within the LAT project. This will be reversed in the next reporting period. This subsystem is expected to be closed out shortly.

6.0 Change Control and Contingency Analysis

Twelve change requests were approved by the LAT Configuration Control Board during May (previously reported in the April 2002 monthly report).

Change Request No.	Description	Submitted By	CCB Meeting	Current Status
LAT-XR-00548-02	Tracker Sidewall Material – Delta Temperature Decrease	T. Borden/ M. Nordby	5/2/02	Approved \$50K
LAT-XR-00549-01	Increased Management Manpower	W. Althouse	5/2/02	Approved \$1,143K
LAT-XR-00684-01	Tracker FY01 Reconciliation	T. Borden	5/2/02	Approved \$254K
LAT-XR-00685-02	New I&T Plan	E. Bloom	5/15/02	Approved -\$333K
LAT-XR-00691-01	New ACD Plan	D. Thompson	5/2/02	Approved \$69K
LAT-XR-00699-01	Calorimeter – New Base Program	N. Johnson	5/2/02	Approved \$2,324K
LAT-XR-00700-01	CDE Bonding Studies	N. Johnson	5/2/02	Approved \$418K
LAT-XR-00703-01	System Test Plan	T. Thurston	5/2/02	Approved \$707K
LAT-XR-00711-01	Tracker Flight ASIC Procurement	T. Borden	5/8/02	Approved \$10K
LAT-XR-00713-01	Calorimeter Electronic Parts, Qualification & Test	N. Johnson	5/8/02	Approved \$921K
LAT-XR-00716-01	New Mechanical Systems Plan	M. Nordby	5/8/02	Approved \$4,304K
LAT-XR-00743-01	New Calorimeter Base Program Error Correction	N. Johnson	5/22/02	Approved \$48K

Two change requests were submitted during July, and are reflected in the internal baseline for this reporting period. This baseline is being presented for approval at the July 30-August 1, 2002 DOE/NASA Review. The completion of the fabrication project is defined to be upon successful completion of a pre-ship review, and acceptance of the instrument by the GLAST Mission. The resulting fabrication phase cost baseline is \$100.0M. Funding applicable to that baseline is \$121.2M; resulting contingency is \$21.2M.

Change Request No.	Description	Submitted By	CCB Meeting	Current Status
LAT-XR-00825-01	Schedule Extension and Fabrication Phase Definition	W. Althouse	7/10/02	Approved
LAT-XR-00821-01	Procurement of Dual PIN Photodiodes	N. Johnson	7/10/02	Approved \$400K

7.0 Staffing

Attachments 9-10 demonstrate the staffing plan, and reports of actual manpower received.

Not all participating institutions are reporting actual manpower data, especially those which do not receive project funding. Until this process can be improved, Attachment 9 will show only the status of project-funded manpower (to better provide a meaningful report).

There was an overstatement of SLAC actual manpower last reporting period, and the correction was made this period.

Attachment 1 Milestones, Levels 1-2

Activity Description	Target Finish Date	Variance	Finish Date							
				FY01	FY02	FY03	FY04	FY05	FY06	
DOE Headquarters (Level 1)										
CD-0 Approval	06/25/01A	0	06/25/01A	▼						
CD-1 Approval	07/01/02*	0	07/01/02*		▼					
CD-2 Approval	12/13/02*	0	12/13/02*			▼				
CD-3 Approval	07/15/03*	0	07/15/03*				▼			
TEM Power Supply Eng. Model 2 Complete	03/15/04*	0	03/15/04*					▼		
Flight GRID Complete	09/15/04*	0	09/15/04*						▼	
LAT Integrated on Thermal-Vacuum Mount	07/15/05*	0	07/15/05*							▼
LAT Shipment for Observatory Integration	10/17/05*	0	10/17/05*							▼
CD-4 Approval	12/15/05*	0	12/15/05*							▼
DOE/NASA Project Managers (Level 1)										
Launch Balloon Flight	08/01/01A	0	08/01/01A	▼						
Instrument Preliminary Design Review	01/08/02A	0	01/08/02A		▼					
I-CDR (Critical Design Review)	04/30/03*	0	04/30/03*			▼				
TKR, CAL FM A, B Available for Calibration Unit	02/17/04*	0	02/17/04*				▼			
Start LAT Integration	06/15/04*	0	06/15/04*					▼		
Pre Environmental Testing Review	02/15/05*	0	02/15/05*						▼	
PSR-(Instrument Pre-Ship Review)	07/07/05*	0	07/07/05*							▼
LAT Ready for Integration (RFI) to Spacecraft	09/22/05*	0	09/22/05*							▼
Run Date	07/11/02 16:14	GLAST LAT PROJECT Project Milestones (Level 1-2)		LAT3 z1 - MS (L1-2)/z1- MS (L1-2)						Sheet 1
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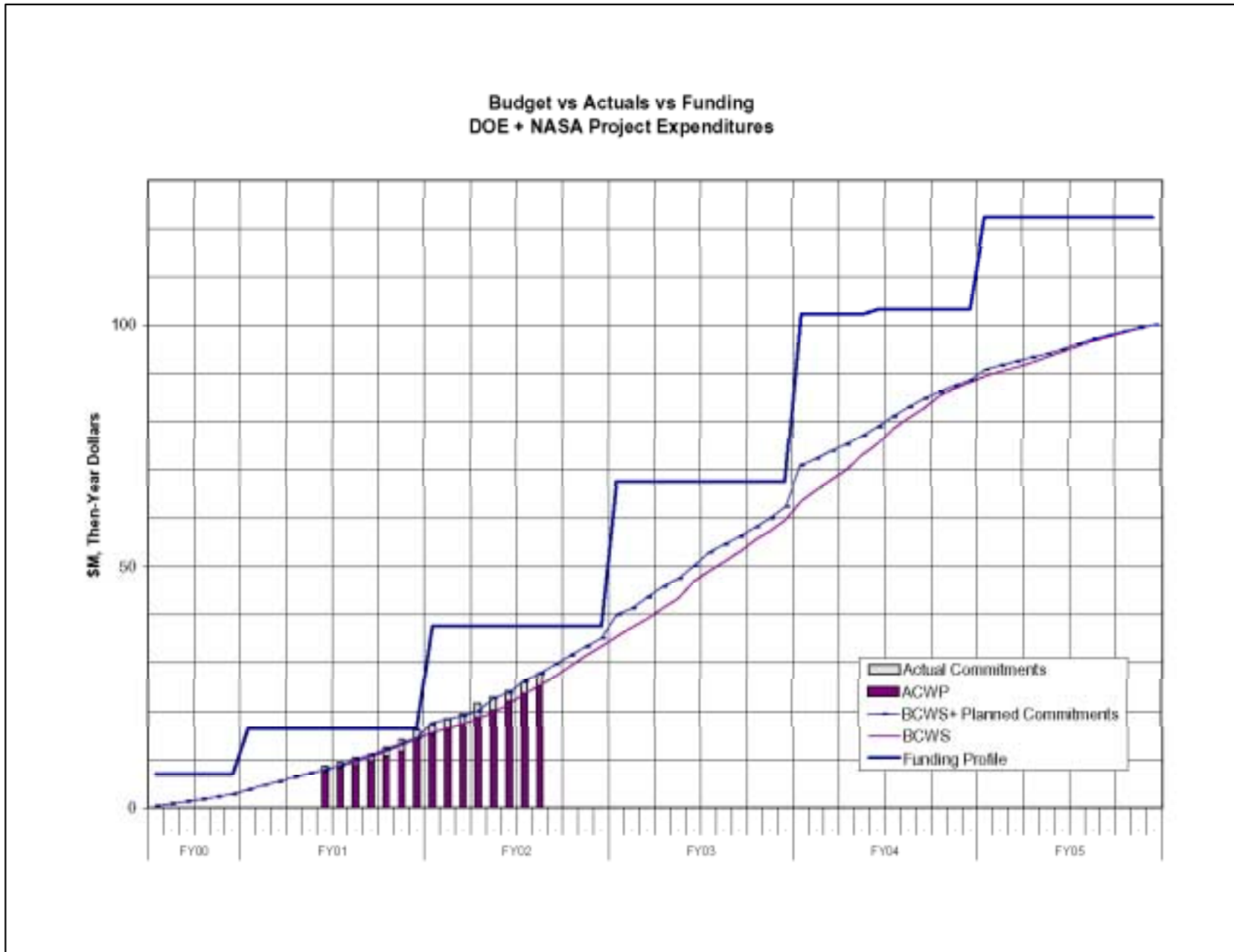
Attachment 2 (Page 1 of 2)
Level 3 Milestones (One-Year View)

Activity Description	Target Finish Date	Variance	Finish Date	ND	AV	FY01			FY02			FY03			
						Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3		
Instrument Project Office (Level 3)															
TEM Reg Descrip-ELX to I&T/Online*	12/10/01A	0	12/10/01A	9	7			▼							
VM Versions of CAL AFPE-CAL to Elec	12/14/01A	0	12/14/01A	7	5			▼							
Prelim Mech Dwgs for EM TKR - TKR to I&T	01/09/02A	0	01/09/02A	9	4			▼							
TEM H/W driver, init ver-ELX to I&T/Online	02/22/02A	0	02/22/02A	9	7			▼							
MGSE Requirements for ACD (from I&T to ACD)	03/22/02A	0	03/22/02A	6	9			▼							
SLAC Facilities Specification (from I&T to ACD)	03/22/02A	0	03/22/02A	6	9			▼							
Online System Spec from I&T to IOC	03/29/02A	0	03/29/02A	B	9			▼							
TEM Data Taking Desc-ELX to I&T/Online	04/01/02A	0	04/01/02A	9	7			▼							
(1) Prototype Electronics Module (Elec to ACD)	04/08/02A	0	04/08/02A	6	7			▼							
AEM reg descrip-ELX to I&T/Online	04/12/02A	0	04/12/02A	9	7			▼							
EGSE Workstation / Software #1 (I&T to TKR)	04/12/02A	0	04/12/02A	4	9			▼							
EGSE Workstation / Software #1 (I&T to ELX)	04/12/02A	0	04/12/02A	7	9			▼							
EGSE Workstation / Software #1 (I&T to CAL)	04/15/02A	0	04/15/02A	5	9			▼							
EGSE Workstation / Software #1 (I&T to ACD)	04/16/02A	0	04/16/02A	6	9			▼							
EGSE Workstation / Software #2 (I&T to ACD)	04/16/02A	0	04/16/02A	6	9			▼							
EGSE EM1 H/W Release-Elec to I&T	04/22/02A	0	04/22/02A	9	7			▼							
Def of Data format from ELX/FSW to I&T/Online	05/01/02A	0	05/01/02A	9	7			▼							
Run Date	07/11/02 16:13	GLAST LAT PROJECT Project Milestones (Level 3) 1 Year View (+/- 6mo)				LAT3	Sheet 1 of 2								
Data Date	06/01/02					LT - MS (L3)									
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Attachment 2, Continued (Page 2 of 2)
Level 3 Milestones (One-Year View)

Activity Description	Target Finish Date	Variance	Finish Date	ND	AV	FY01		FY02				FY03					
						Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3				
Instrument Project Office (Level 3)																	
GEM register description-ELX to I&T/Online	05/02/02A	0	05/02/02A	9	7				▼								
GEM data taking desc-ELX to I&T/Online	05/02/02A	0	05/02/02A	9	7				▼								
1st Major Release of Sim/Recon (SAS to I & T)	06/12/02	0	06/12/02	9	D				▼								
Flight Software CDR	06/12/02*	0	06/12/02*	2	7				▼								
Electronics & DAQ CDR	06/20/02*	0	06/20/02*	2	7				▼								
Tracker Dead/Noisy Strips (SAS to I & T)	06/21/02*	0	06/21/02*	9	D				▼								
Anticoincidence Detector CDR	06/26/02*	0	06/26/02*	2	6				▼								
Calorimeter Calibration Prototype Coding SAS-I&T	07/08/02	0	07/08/02	9	D				▼								
Science Analysis Software CDR	09/04/02*	0	09/04/02*	2	D								▼				
(9) MCM's from Tracker to Elec	09/20/02	0	09/20/02	7	4								▼				
AEM H/W driver final ver-ELX to I&T/Online	09/20/02	0	09/20/02	9	7								▼				
ACD Electronics Module - EM1 (Elec to ACD)	09/20/02	0	09/20/02	6	7								▼				
Test/Screening Board w/ASIC for EM1 -ACD to Elec	09/20/02	0	09/20/02	7	6								▼				
GEM H/W driver, init ver-ELX to I&T/Online	11/12/02	0	11/12/02	9	7								▼				
High Voltage Power Supply (Bd & Prts)-ACD toElec	11/15/02*	0	11/15/02*	7	6								▼				
TEM H/W driver, final ver-ELX to I&T/Online	11/19/02	0	11/19/02	9	7								▼				
Run Date 07/11/02 16:13						GLAST LAT PROJECT						Sheet 2 of 2					
Data Date 06/01/02						Project Milestones (Level 3)						LAT3					
© Primavera Systems, Inc.						1 Year View (+/- 6mo)						LT - MS (L3)					
												FL - MS (L3)					

Attachment 3



**Attachment 4
LAT Costs, through May 2002, by WBS**

Monthly Contractor Financial Management Report 31-May-02								Report for Month Ending: 5/31/02	
To: Liz Citrin, 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	
	Actual	Planned	Actual	Planned	JUN02	JUL02	Budget	Project Estimate	Budget Value
4.1.1 INSTRUMENT MANAGEMENT	219	321	4,198	4,161	295	242	6,868	11,602	11,602
4.1.2 SYSTEM ENGINEERING	109	103	1,681	1,657	115	119	2,732	4,647	4,647
4.1.4 TRACKER	143	101	4,561	4,335	172	246	4,897	9,877	9,877
4.1.5 CALORIMETER	381	351	4,211	4,373	346	368	12,423	17,348	17,348
4.1.6 ANTICOINCIDENCE DETECTOR	338	204	3,048	2,623	210	261	6,761	10,280	10,280
4.1.7 ELECTRONICS	248	80	2,705	2,839	100	116	12,816	15,738	15,738
4.1.8 MECHANICAL SYSTEMS	123	285	1,406	1,538	405	404	9,635	11,850	11,850
4.1.9 INTEGRATION & TEST	20	85	490	381	112	168	5,883	6,654	6,654
4.1.A PERFORMANCE AND SAFETY ASSURANCE	33	61	469	662	56	62	1,593	2,180	2,180
4.1.B LAT INSTRUMENT OPERATIONS CENTER	21	22	251	276	27	38	2,236	2,552	2,552
4.1.C EDUCATION AND PUBLIC OUTREACH	26	29	378	461	26	85	2,109	2,598	2,598
4.1.D SCIENCE ANALYSIS SOFTWARE	51	40	623	599	41	61	2,603	3,328	3,328
4.1.E SUBORBITAL FLIGHT TEST	-172	0	1,205	1,321	0	0	115	1,321	1,321
Gen. and Admin.	0	0	0	0	0	0	0	0	0
Total	1,539	1,682	25,226	25,225	1,905	2,170	70,672	99,973	99,973

Attachment 5
LAT Costs, through May 2002, by Organization and Cost Code

Monthly Contractor Financial Management Report 31-May-02								Report for Month Ending: 5/31/02		
To: Liz Citrin, 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	
									Estimated Final Cost	
		During Month		Cum. to Date		Detail		Balance of Budget	Project Estimate	Budget Value
		Actual	Planned	Actual	Planned	JUN02	JUL02			
DG *** GSFC		188	240	3,982	3,787	242	297	8,721	13,242	13,242
DH *** HEPL		92	104	2,516	2,479	99	145	4,833	7,593	7,593
DL *** SLAC		780	860	11,839	11,463	1,061	1,116	36,213	50,229	50,229
DN *** NRL		417	390	5,468	5,836	432	477	17,252	23,629	23,629
DS *** SSU		26	29	378	461	26	85	2,059	2,548	2,548
DT *** Texas A&M		0	0	0	16	0	0	16	16	16
DU *** UCSC		36	58	1,043	1,183	47	50	1,576	2,716	2,716
Total		1,539	1,682	25,226	25,225	1,907	2,170	70,670	99,973	99,973

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	JUN02	JUL02				
RL LABOR		824	880	14,699	15,924	966	1,097	37,848	54,610	54,610	
<i>FTE (DOE/NASA)</i>		99.2	84.3	1,374.2	1,395.9	98.0	99.0	3,258.9	4,830.1	4,830.1	
<i>HOURS (DOE/NASA)</i>		17,460	14,840	235,324	230,281	15,677	17,469	529,087	797,556	797,556	
RT TRAVEL		19	53	470	717	49	68	2,640	3,227	3,227	
RM MATERIAL & SERVICES		621	664	9,310	7,990	815	920	27,360	38,404	38,404	
RX MPS & LAB TAX		76	85	748	595	77	85	2,823	3,733	3,733	
Total (not incl FTE/Hours)		1,539	1,682	25,226	25,225	1,907	2,170	70,670	99,973	99,973	

**Attachment 6
LAT Performance, through May 2002, by WBS**

Cost Performance Report - Work Breakdown Structure													
Contractor: Location:						Contract Type/No:			Project Name/No: GLAST LAT Project		Report Period: 4/30/02 5/31/02		
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 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			
Item	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
4.1.1 INSTRUMENT MANAGEMENT	321	321	219	0	102	4,161	4,161	4,198	0	-37	11,602	11,602	0
4.1.2 SYSTEM ENGINEERING	103	83	109	-20	-26	1,657	1,676	1,681	19	-5	4,647	4,647	0
4.1.4 TRACKER	101	89	143	-12	-54	4,335	4,312	4,561	-23	-249	9,877	9,877	0
4.1.5 CALORIMETER	351	335	381	-16	-46	4,373	4,351	4,211	-22	140	17,348	17,348	0
4.1.6 ANTICOINCIDENCE DETECTOR	204	184	338	-21	-154	2,623	2,541	3,048	-81	-507	10,280	10,280	0
4.1.7 ELECTRONICS	80	97	248	18	-150	2,839	2,858	2,705	19	153	15,738	15,738	0
4.1.8 MECHANICAL SYSTEMS	285	274	123	-11	151	1,538	1,551	1,406	13	146	11,850	11,850	0
4.1.9 INTEGRATION & TEST	85	73	20	-12	53	381	378	490	-3	-112	6,654	6,654	0
4.1.A PERFORMANCE AND SAFETY ASSURA	61	61	33	0	29	662	662	469	0	194	2,180	2,180	0
4.1.B LAT INSTRUMENT OPERATIONS CENT	22	13	21	-9	-8	276	263	251	-12	13	2,552	2,552	0
4.1.C EDUCATION AND PUBLIC OUTREACH	29	19	26	-10	-7	461	447	378	-14	69	2,598	2,598	0
4.1.D SCIENCE ANALYSIS SOFTWARE	40	27	51	-13	-24	599	584	623	-15	-39	3,328	3,328	0
4.1.E SUBORBITAL FLIGHT TEST	0	0	-172	0	172	1,321	1,321	1,205	0	115	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	1,682	1,575	1,539	-107	36	25,225	25,106	25,226	-119	-120	99,973	99,973	0
Management Resrv.											0	0	0
Total	1,682	1,575	1,539	-107	36	25,225	25,106	25,226	-119	-120	99,973	99,973	0

**Attachment 7
LAT Performance, through May 2002, by Organization**

Cost Performance Report - Work Breakdown Structure													
Contractor: Location:				Contract Type/No:				Project Name/No: GLAST LAT Project		Report Period: 4/30/02 5/31/02			
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	Current Period					Cumulative to Date					At Completion		
	Budgeted Cost		Actual Cost	Variance		Budgeted Cost		Actual Cost	Variance			Latest Revised	
	Work Scheduled	Work Performed	Work Performed	Schedule	Cost	Work Scheduled	Work Performed	Work Performed	Schedule	Cost	Budgeted	Estimate	Variance
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
DG *** GSFC	240	219	188	-21	31	3,787	3,706	3,982	-81	-276	13,242	13,242	0
DH *** HEPL	104	66	92	-38	-26	2,479	2,460	2,516	-19	-56	7,593	7,593	0
DL *** SLAC	860	830	780	-31	50	11,463	11,486	11,839	23	-353	50,229	50,229	0
DN *** NRL	390	389	417	-1	-28	5,836	5,825	5,468	-11	357	23,629	23,629	0
DS *** SSU	29	19	26	-10	-7	461	447	378	-14	69	2,548	2,548	0
DT *** Texas A&M	0	0	0	0	0	16	16	0	0	16	16	16	0
DU *** UCSC	58	52	36	-6	16	1,183	1,166	1,043	-17	123	2,716	2,716	0
Gen. and Admin.	0	0	0	0	0	0	0	0	0	0	0	0	0
Undist. Budget											0	0	0
Sub Total	1,682	1,575	1,539	-107	36	25,225	25,106	25,226	-119	-120	99,974	99,974	0
Management Resrv.											0	0	0
Total	1,682	1,575	1,539	-107	36	25,225	25,106	25,226	-119	-120	99,974	99,974	0

Attachment 8 LAT Performance Analysis, May 2002

WBS	BAC	BCWS	BCWP	ACWP	SV \$	CV \$	% BCWS	% BCWP	% ACWP	SV Trend	CV Trend	SPI	CPI	CPI_Fest	3moCpi_Fest	CpiSpi_Fest
4.1	99,973	25,225	25,106	25,226	-119	-120	25.23	25.11	25.23	↑	↓	0.995	0.995	100,452	100,452	100,810
4.1.1	11,602	4,161	4,161	4,198	0	-37	35.86	35.86	36.18	↑	↑	1.000	0.991	11,705	11,705	11,705
4.1.2	4,647	1,657	1,676	1,681	19	-5	35.66	36.06	36.17	↑	↓	1.011	0.997	4,660	4,660	4,628
4.1.4	9,877	4,335	4,312	4,561	-23	-249	43.90	43.66	46.18	↑	↓	0.995	0.945	10,447	10,447	10,479
4.1.5	17,348	4,373	4,351	4,211	-22	140	25.20	25.08	24.27	↑	↓	0.995	1.033	16,791	16,791	16,853
4.1.6	10,280	2,623	2,541	3,048	-81	-507	25.51	24.72	29.65	↑	↓	0.969	0.834	12,329	12,329	12,626
4.1.7	15,738	2,839	2,858	2,705	19	153	18.04	18.16	17.19	↑	↓	1.007	1.057	14,896	14,896	14,815
4.1.8	11,850	1,538	1,551	1,406	13	146	12.98	13.09	11.86	↑	↓	1.008	1.104	10,738	10,738	10,660
4.1.9	6,654	391	378	490	-3	-112	5.72	5.68	7.37	↑	↓	0.993	0.771	8,634	8,634	8,693
4.1.A	2,180	662	662	469	0	194	30.38	30.38	21.50	—	—	1.000	1.413	1,543	1,543	1,543
4.1.B	2,552	276	283	251	-12	13	10.80	10.32	9.83	↑	↓	0.958	1.050	2,430	2,430	2,530
4.1.C	2,598	461	447	378	-14	69	17.75	17.20	14.55	↓	↓	0.969	1.182	2,197	2,197	2,255
4.1.D	3,328	599	584	623	-15	-39	17.99	17.55	18.73	↑	↓	0.976	0.937	3,551	3,551	3,624
4.1.E	1,321	1,321	1,321	1,205	0	115	100.00	100.00	91.26	—	↑	1.000	1.096	1,205	1,205	1,205
[PMB]	99,973	25,225	25,106	25,226	-119	-120	25.23	25.11	25.23	↑	↓	0.995	0.995	100,452	100,452	100,810

LEGEND

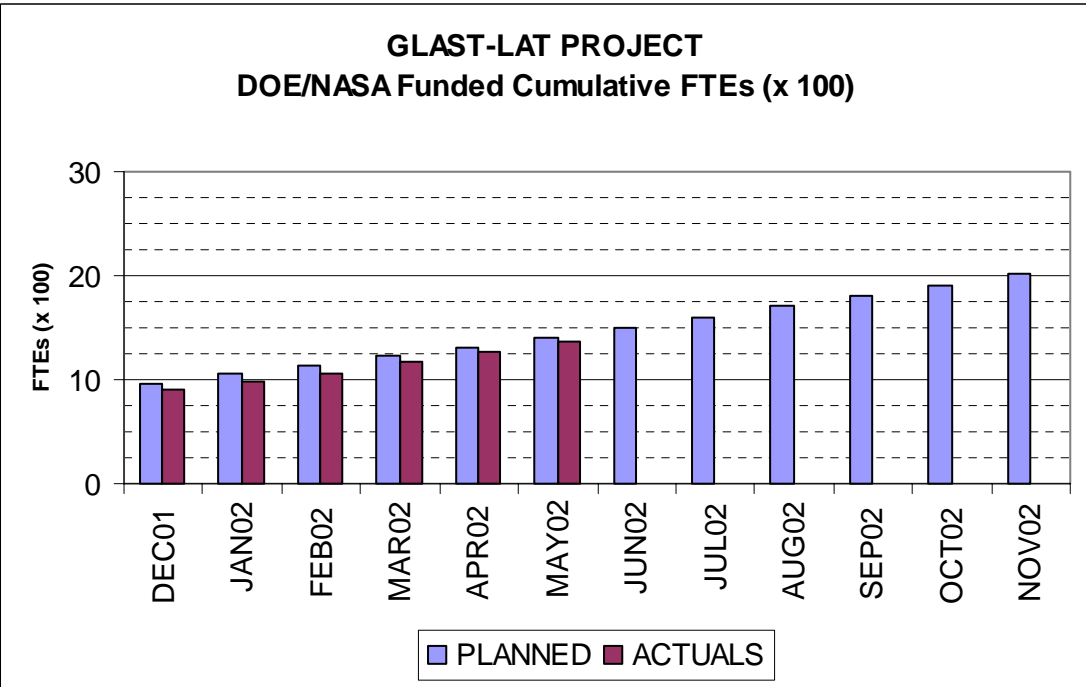
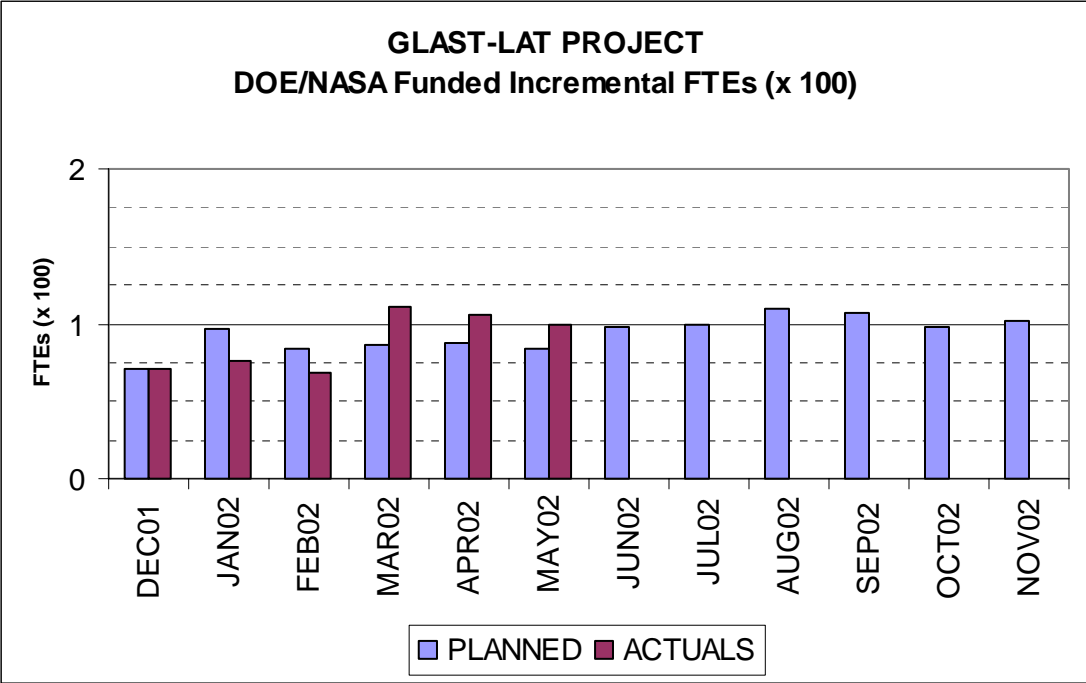
BCWS: Budgeted Cost of Work Scheduled (to date)
 BCWP: Budgeted Cost of Work Performed (to date)
 ACWP: Actual Cost of Work Performed (to date)

SV \$: Schedule Variance = BCWP - BCWS
 CV \$: Cost Variance = BCWP - ACWP
 SPI: Schedule Performance Index = BCWP/BCWS
 CPI: Cost Performance Index = BCWP/ACWP

% BCWS: Percent Scheduled = BCWS/BAC
 % BCWP: Percent Complete = BCWP/BAC
 % ACWP: Percent Spent = ACWP/BAC

■	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 2002, by Organization

Program: LAT3		Description: GLAST LAT Project		Approval: Program Manager													
Run Date: 7/11/02		Status Date: 5/31/02		Functional Manager					Cost Account Manager								
									Cum-to-								
				PRIOR	DEC01	JAN02	FEB02	MAR02	APR02	MAY02	Date	JUN02	JUL02	AUG02	SEP02	OCT02	NOV02
OBS																	
DG *** GSFC																	
FTE	PLANNED	152.2	18.2	18.1	24.6	22.6	23.1	24.6	283.4	24.2	24.9	25.1	25.4	26.4	26.1		
	ACTUALS	73.3	0.0	14.8	8.6	53.3	29.1	25.9	205.0	0.0	0.0	0.0	0.0	0.0	0.0		
DH *** HEPL																	
FTE	PLANNED	137.5	5.5	6.6	6.9	6.7	6.3	7.7	177.1	7.8	8.5	7.3	6.9	7.2	8.0		
	ACTUALS	120.3	7.4	8.3	7.4	7.2	5.3	6.0	162.0	0.0	0.0	0.0	0.0	0.0	0.0		
DL *** SLAC																	
FTE	PLANNED	348.7	35.2	34.7	42.1	47.0	43.3	43.0	593.9	54.7	51.1	60.0	55.0	46.5	49.8		
	ACTUALS	308.7	28.9	33.3	28.8	33.5	48.9	37.8	519.9	0.0	0.0	0.0	0.0	0.0	0.0		
DN *** NRL																	
FTE	PLANNED	178.9	15.0	39.8	14.3	21.3	21.7	15.2	306.2	20.7	21.6	23.7	24.5	22.1	22.5		
	ACTUALS	195.4	24.1	11.0	16.4	9.5	31.5	23.5	311.3	0.0	0.0	0.0	0.0	0.0	0.0		
DS *** SSU																	
FTE	PLANNED	27.2	1.3	1.4	1.4	1.4	1.5	1.5	35.8	1.5	4.2	1.5	1.5	1.7	1.7		
	ACTUALS	27.3	1.9	1.4	0.9	1.6	1.5	2.4	37.0	0.0	0.0	0.0	0.0	0.0	0.0		
DU *** UCSC																	
FTE	PLANNED	108.1	4.5	4.5	4.8	4.8	4.8	6.0	137.4	4.8	4.8	4.8	4.8	5.1	5.1		
	ACTUALS	122.5	8.1	7.1	6.4	5.8	4.6	4.9	159.3	0.0	0.0	0.0	0.0	0.0	0.0		
DW *** UW																	
FTE	PLANNED	21.2	1.0	0.9	0.9	0.9	0.9	0.9	26.7	1.1	1.0	0.9	0.9	0.9	0.9		
	ACTUALS								0.0								
FF *** France																	
FTE	PLANNED	319.8	19.4	32.6	34.3	35.6	35.9	35.8	513.4	35.9	37.1	37.3	36.0	35.5	35.1		
	ACTUALS								0.0								
FI *** Italy																	
FTE	PLANNED	93.2	13.2	12.1	12.9	14.3	13.7	14.2	173.5	14.6	15.1	14.0	12.9	16.5	16.9		
	ACTUALS	61.0	11.6	10.3	10.9	10.9	10.9	11.9	127.3	0.0	0.0	0.0	0.0	0.0	0.0		
FJ *** Japan																	
FTE	PLANNED	39.9	2.3	2.7	2.8	2.8	2.8	2.8	56.0	2.8	2.8	2.8	2.8	2.8	2.8		
	ACTUALS	31.7	1.8	1.8	1.8	1.8	1.8	1.8	42.2	0.0	0.0	0.0	0.0	0.0	0.0		
FK *** Sweden																	
FTE	PLANNED	0.0	0.0	4.4	4.6	4.6	4.6	4.6	22.8	4.6	4.6	4.6	4.6	4.6	4.6		
	ACTUALS	0.0	0.0	4.4	4.6	4.6	4.6	4.6	22.8	4.6	4.6	4.6	4.6	4.6	4.6		
Grand Totals:																	
	PLANNED	1426.7	115.4	157.6	149.7	162.0	158.7	156.1	2326.2	172.6	175.7	182.2	175.3	169.1	173.5		
	ACTUALS	940.1	83.8	87.9	81.2	123.6	133.4	114.1	1564.1	0.0	0.0	0.0	0.0	0.0	0.0		
4.1 GLAST LAT																	
Contributed																	
	PLANNED	541.7	43.9	61.5	65.4	75.6	70.4	71.8	930.3	74.6	76.5	73.0	68.0	70.7	71.4		
	ACTUALS	97.1	13.3	11.9	12.6	12.6	27.5	14.9	189.9	0.0	0.0	0.0	0.0	0.0	0.0		
Funded																	
	PLANNED	885.0	71.4	96.2	84.3	86.4	88.3	84.3	1395.9	98.0	99.3	109.1	107.3	98.4	102.1		
	ACTUALS	843.0	70.5	76.1	68.6	111.0	106.0	99.2	1374.2	0.0	0.0	0.0	0.0	0.0	0.0		
Grand Totals:																	
	PLANNED	1426.7	115.4	157.6	149.7	162.0	158.7	156.1	2326.2	172.6	175.7	182.2	175.3	169.1	173.5		
	ACTUALS	940.1	83.8	87.9	81.2	123.6	161.7	85.9	1564.1	0.0	0.0	0.0	0.0	0.0	0.0		