

# **Monthly Progress Report**

**(Month Ending January 2002)**

**GLAST Large Area Telescope (LAT)**

LAT-MR-00615-01

March 13, 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 January, 2002.

## 2.0 Recent Progress and Status

A joint DOE/NASA review was held January 8-11 at SLAC. The committee was asked to review technical progress, cost estimates, international contributions, schedule, and management. The action items resulting from the review are presently being addressed. The top five are:

- Approve implementing agreement (Responsibility: DOE/NASA)
- Resolve cost/funding issues (Responsibility: DOE/NASA JOG)
- Notify DOE/NASA when project will be ready for the Delta Baseline/PDR Review (Responsibility: LAT)
- Conduct a DOE/NASA Delta Baseline/PDR Review (Responsibility: DOE/NASA & LAT)
- Conduct a DOE/NASA CDR (Responsibility: DOE/NASA & LAT)

**Tracker:** Design of the tower assembly tooling commenced. The probe station for the clean room was received, as well as the PC boards for the engineering model electronics modules.

**Calorimeter:** Functional and performance testing of the GCFE Version 4 chip was completed. The layout of version 2 of the Verification Model circuit board commenced. The schematic design of the GCRC test board was completed.

**ACD:** In light of the DOE/NASA review this month, the focus of ACD activity has been on preparation of schedule and cost information for the delta review. The detailed mapping between the tile detector assemblies and the photomultiplier tubes was completed. Another visit was made to Fermilab to check on the progress of the tile detector assemblies. It is expected that several units will be ready for testing in the next month.

**Electronics:** Assembly and test activities continue for the Tracker/Calorimeter TEM electronics design for the first pre-engineering model, and also for the global trigger-CPU interface card and data CPU's for the first pre-engineering model. Conceptual design work has commenced on the generic power conditioning card.

**Mechanical Systems:** Equipment is being procured and fabricated for the grid EM thermal contact testing, and the test setup has commenced.

### **3.0 Schedule Status**

The status of significant milestones identified in the Project Management Plan for the LAT project is summarized in Attachment 1. Level 3 milestone status is included as Attachment 2.

### **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.

### **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.

The favorable cost variance in 4.1.6 ACD is due to a delay in hardware purchases; in response to the DOE/NASA review, a new cost/schedule plan is being developed which will take this into consideration. The schedule variance is attributed to attention being diverted to preparations for the delta PDR/baseline review.

The favorable cost variance in 4.1.7 Electronics is caused by a combination of invoicing delays and the use of existing (rather than purchased) equipment.

The favorable cost variance in 4.1.8 Mechanical Systems is due to a delay in staffing one engineering position, and a delay in subcontractor invoicing. The schedule variance is attributed to attention being diverted to preparations for the delta PDR/baseline review.

Actual costs against 4.1.9 I&T are lower than planned due to delayed subcontractor invoicing and outstanding commitments. As with 4.1.6 ACD, a new cost/schedule plan is being developed which will take this into consideration.

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; less travel was undertaken than planned.

The favorable cost variance in 4.1.B Instrument Operations Center is due in part to the delay in NASA funding to Stanford University in turn delaying M&S and travel expenditures, and in part to credit given to more work completed than planned for the month.

The favorable cost variance in 4.1.C Education & Public Outreach is due to SSU's not receiving funding in time to correspond with scheduled work. This funding was received in mid-January, so the variance is expected to be reduced next month.

The favorable cost variance in 4.1.E reflects a correction, part of the process of closing out the subsystem (closeout expected to be completed by March).

## **6.0 Change Control and Contingency Analysis**

There were no change control actions this month.

## **7.0 Staffing**

Attachments 9-12 demonstrate the staffing plan, and reports of actual manpower received.

## Attachment 1 Milestones, Levels 1-2

Activity Description	Finish Date	Fiscal Year											
		FY01	FY02	FY03	FY04	FY05	FY06						
<b>DOE / NASA Headquarters (Level 1)</b>													
Launch Instrument	03/01/06*												▼
<b>Project Office (Level 2)</b>													
Launch Balloon Flight	08/01/01A	▼											
Instrument Preliminary Design Review	01/08/02A		▼										
Instrument Critical Design Review	08/05/02*			▼									
1st Two Towers Ready for Calibration	08/15/03*				▼								
Start LAT Integration	01/02/04*					▼							
Pre Environmental Testing Review	07/09/04*						▼						
Instrument Pre-Ship Review	01/07/05*							▼					
LAT Ready for Integration ( RFI ) to Spacecraft	03/22/05*								▼				
Run Date		03/07/02 09:06		<b>GLAST LAT PROJECT</b>				0222				Sheet 1	
© Primavera Systems, Inc.		<b>Project Milestones (Level 1-2)</b>				MS (L1-2)							

## Attachment 2 Level 3 Milestones (One-Year View)

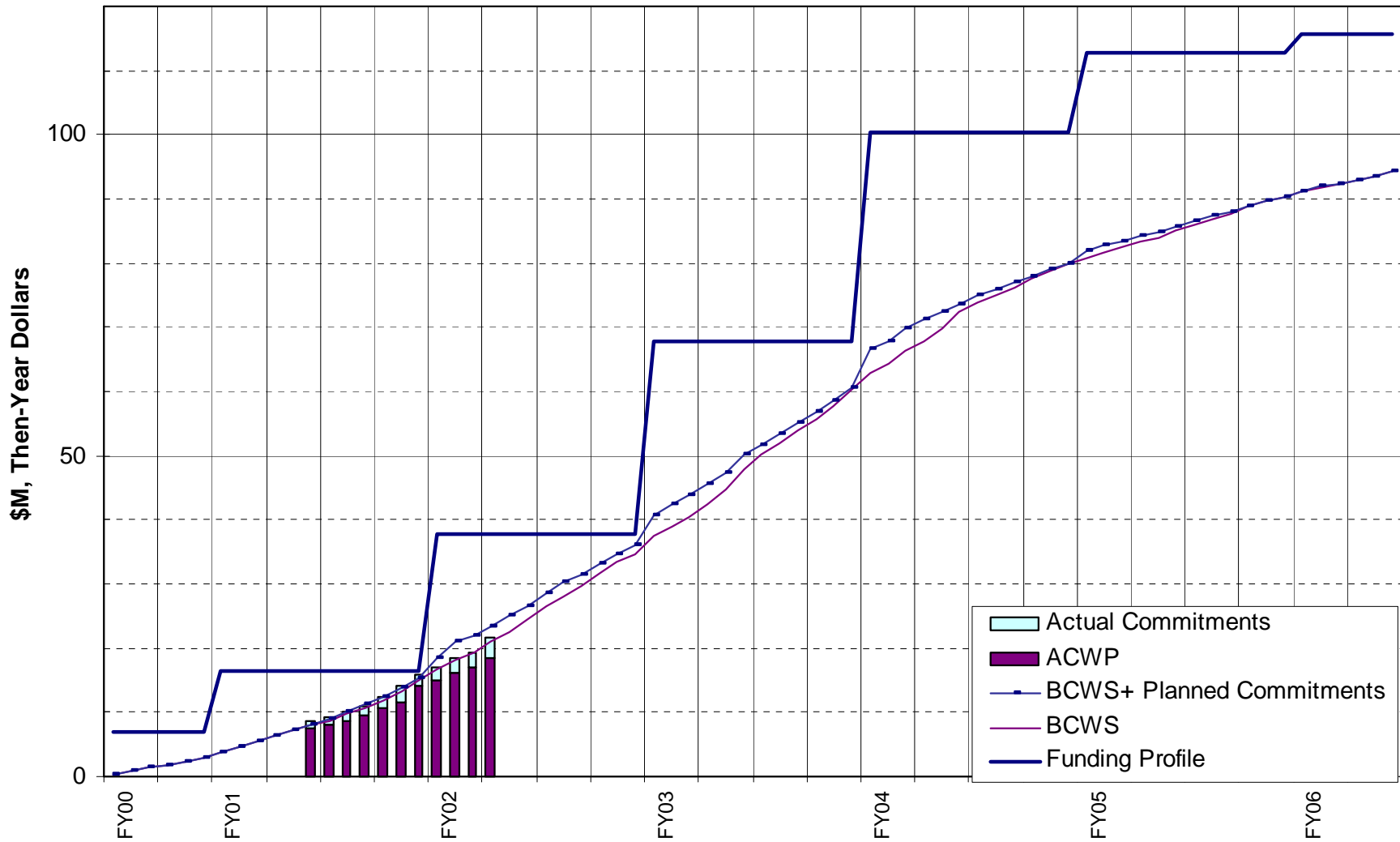
Activity Description	Finish Date	ND	AV	FY01			FY02			FY03		
				Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2
<b>Instrument Project Office (Level 3)</b>												
Mechanical Systems PDR	08/15/01A	2	8			▼						
Electronics & DAQ PDR	08/16/01A	2	7			▼						
Flight Software PDR	08/16/01A	2	7			▼						
IOC PDR	08/17/01A	2	B			▼						
Science Analysis Software PDR	08/17/01A	2	D			▼						
Com Card for TKR EM Function Test-Elec to TKR	10/16/01A	4	7				▼					
Electronics Pre-Eng Model from Elec to Tracker	11/01/01A	4	7				▼				•	
Pre-EM TEM-from Elec to CAL	11/01/01A	5	7				▼				•	
VME Com Card (TEM Sim)-from Elec to CAL	11/05/01A	5	7				▼					
(2) Mini MCM's from Tracker to Elec	11/06/01A	7	4				▼	•				
VM Versions of CAL AFFE-CAL to Elec	12/14/01A	7	5				▼				•	
PDR Submittals Due	12/15/01A						▼					
(1) Prototype Electronics Module (Elec to ACD)	03/15/02*	6	7					▼				
EGSE Workstation / Software #1 (I&T to ACD)	03/15/02*	6	9					▼				
MGSE Requirements for ACD (from I&T to ACD)	03/22/02*	6	9					▼				
SLAC Facilities Specification (from I&T to ACD)	03/22/02*	6	9					▼				
EGSE EM1 H/W Release-Elec to I&T	04/22/02*	9	7						▼			
Run Date	03/07/02 09:05	<b>GLAST LAT PROJECT Project Milestones (Level 3) 1 Year View (+/- 6mo)</b>					0222 MS (L3)	Sheet 1 of 2				
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**Attachment 2, Continued  
Level 3 Milestones (One-Year View)**

Activity Description	Finish Date	ND	AV	FY01			FY02			FY03		
				Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2
<b>Instrument Project Office (Level 3)</b>												
Online System Spec from I&T to IOC	05/01/02*	B	9						▽			
Calorimeter Calibration Prototype Coding SAS-I&T	05/15/02*	9	D						▽			
Mechanical Systems CDR	05/22/02*	2	8						▽			
1st Major Release of Sim/Recon (SAS to I & T)	05/31/02*	9	D						▽			
High Voltage Power Supply (Bd & Prts)-ACD toElec	06/03/02*	7	6						▽			
Calorimeter CDR	06/05/02*	2	5						▽			
Flight Software CDR	06/12/02*	2	7						▽			
Tracker CDR	06/18/02*	2	4						▽			
Electronics & DAQ CDR	06/20/02*	2	7						▽			
ACD Pulse Height Histogram (SAS to I & T)	06/21/02*	9	D						▽			
Tracker Dead/Noisy Strips (SAS to I & T)	06/21/02*	9	D						▽			
Anticoincidence Detector CDR	06/26/02*	2	6						▽			
ACD Electronics Module - EM1 (Elec to ACD)	07/01/02*	6	7						▽			
Test/Screening Board w/ASIC for EM1 -ACD to Elec	07/01/02*	7	6						▽			
EGSE Workstation / Software #2 (I&T to ACD)	07/01/02*	6	9						▽			
(9) MCM's from Tracker to Elec	07/02/02*	7	4						▽			
CDR Submittals Due	07/12/02*	1							▽			
Run Date	03/07/02 09:05	<b>GLAST LAT PROJECT Project Milestones (Level 3) 1 Year View (+/- 6mo)</b>						0222 MS (L3)	Sheet 2 of 2			
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Attachment 3

**Budget vs Actuals vs Funding**  
**DOE + NASA Project Expenditures**





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

Monthly Contractor Financial Management Report 31-Jan-02								Report for Month Ending: 1/31/02	
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
201 Type: GLAST LAT Project								Fund Limitation: 0	
Reporting Category	Cost Incurred/Hours Worked				Estimated Cost/Hours to Complete			4/3/00	Billing
	During Month		Cum. to Date		Detail		Balance of Budget	Estimated Final Cost/Hours	Unfilled Orders Outstanding
	Actual	Planned	Actual	Planned	FEB02	MAR02			
4.1.1 INSTRUMENT MANAGEMENT	338	246	3,322	3,338	164	172	7,648	11,307	11,307
4.1.2 SYSTEM ENGINEERING	93	87	1,096	1,184	83	91	2,822	4,092	4,092
4.1.4 TRACKER	158	179	3,829	3,641	194	326	5,333	9,681	9,681
4.1.5 CALORIMETER	182	219	3,044	3,185	269	329	9,736	13,378	13,378
4.1.6 ANTICOINCIDENCE DETECTOR	472	305	1,917	2,461	234	277	7,533	9,960	9,960
4.1.7 ELECTRONICS	143	225	2,031	2,426	174	184	14,132	16,520	16,520
4.1.8 MECHANICAL SYSTEMS	47	267	789	1,712	222	267	7,010	8,288	8,288
4.1.9 INSTRUMENT INTEGRATION AND TESTING	34	100	85	375	90	100	7,019	7,294	7,294
4.1.A PERFORMANCE AND SAFETY ASSURANCE	31	59	343	431	54	59	1,750	2,206	2,206
4.1.B LAT INSTRUMENT OPERATIONS CENTER	17	17	172	199	24	26	3,489	3,711	3,711
4.1.C EDUCATION AND PUBLIC OUTREACH	12	20	305	329	20	31	2,552	2,908	2,908
4.1.D SCIENCE ANALYSIS SOFTWARE	18	53	429	425	54	58	3,159	3,700	3,700
4.1.E SUBORBITAL FLIGHT TEST	-110	0	1,195	1,321	0	0	126	1,321	1,321
Total	1,434	1,777	18,556	21,026	1,582	1,920	72,309	94,366	94,366

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

Monthly Contractor Financial Management Report 31-Jan-02								Report for Month Ending: 1/31/02		
To: Liz Citrin, GLAST Project Manager (NASA) Ev Valle, LAT Project Manager (DOE)				From: Tanya Boysen, LAT Project Controls Manager				Budget Value		
								Cost:	Fee:	
								0	0	
201 Type: GLAST LAT Project								Fund Limitation: 0		
Reporting Category	Cost Incurred/Hours Worked				Estimated Cost/Hours to Complete			4/3/00	Billing	
	During Month		Cum. to Date		Detail		Balance of Budget	Estimated Final Cost/Hours		Unfilled Orders Outstanding
	Actual	Planned	Actual	Planned	FEB02	MAR02		Project Estimate	Budget Value	
DG *** GSFC	447	338	2,788	3,490	266	311	9,759	13,124	13,124	
DH *** HEPL	100	93	2,139	2,143	83	92	7,188	9,502	9,502	
DL *** SLAC	611	906	8,387	9,581	789	1,009	36,426	46,611	46,611	
DN *** NRL	224	309	4,079	4,366	368	435	14,476	19,358	19,358	
DS *** SSU	12	20	305	329	20	31	2,502	2,858	2,858	
DT *** Texas A&M	0	0	0	16	0	0	16	16	16	
DU *** UCSC	40	110	858	1,100	55	42	1,943	2,898	2,898	
<b>Total</b>	<b>1,434</b>	<b>1,777</b>	<b>18,556</b>	<b>21,026</b>	<b>1,581</b>	<b>1,920</b>	<b>72,310</b>	<b>94,366</b>	<b>94,366</b>	

RL LABOR	490	1,382	11,469	13,737	927	1,029	42,969	56,394	56,394
FTE	87.8	195.4	1,105.1	1,862.7	166.0	166.0	6,247.7	7,684.8	7,684.8
HOURS	14,755	32,826	190,233	304,877	25,202	27,908	1,023,132	1,266,475	1,266,475
RT TRAVEL	20	60	396	521	42	48	2,955	3,442	3,442
RM MATERIAL & SERVICES	841	301	6,446	6,472	582	810	24,749	32,587	32,587
RX MPS & LAB TAX	83	34	245	296	30	34	1,635	1,944	1,944
<b>Total (not incl FTE/Hours)</b>	<b>1,434</b>	<b>1,777</b>	<b>18,556</b>	<b>21,026</b>	<b>1,581</b>	<b>1,921</b>	<b>72,309</b>	<b>94,366</b>	<b>94,366</b>

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

Cost Performance Report - Work Breakdown Structure											Run Date: 3/7/02		
Contractor: Location:					Contract Type/No:			Project Name/No: GLAST LAT Project		Report Period: 12/31/01 1/31/02			
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	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)
4.1.1 INSTRUMENT MANAGEMENT	246	253	338	7	-85	3,338	3,318	3,322	-20	-5	11,307	11,307	0
4.1.2 SYSTEM ENGINEERING	87	85	93	-2	-8	1,184	1,182	1,096	-2	86	4,092	4,092	0
4.1.4 TRACKER	179	141	158	-37	-16	3,641	3,513	3,829	-128	-316	9,681	9,681	0
4.1.5 CALORIMETER	219	186	182	-33	4	3,185	3,131	3,044	-54	86	13,378	13,378	0
4.1.6 ANTICOINCIDENCE DETECTOR	305	199	472	-106	-272	2,461	2,190	1,917	-271	273	9,960	9,960	0
4.1.7 ELECTRONICS	225	105	143	-120	-38	2,426	2,306	2,031	-119	276	16,520	16,520	0
4.1.8 MECHANICAL SYSTEMS	267	46	47	-221	-1	1,712	1,342	789	-370	553	8,288	8,288	0
4.1.9 INSTRUMENT INTEGRATION AND TEST	100	100	34	0	66	375	375	85	0	290	7,294	7,294	0
4.1.A PERFORMANCE AND SAFETY ASSURA	59	59	31	0	28	431	431	343	0	88	2,206	2,206	0
4.1.B LAT INSTRUMENT OPERATIONS CENTI	17	31	17	14	14	199	220	172	21	48	3,711	3,711	0
4.1.C EDUCATION AND PUBLIC OUTREACH	20	15	12	-5	2	329	344	305	15	40	2,908	2,908	0
4.1.D SCIENCE ANALYSIS SOFTWARE	53	61	18	8	43	425	428	429	3	-1	3,700	3,700	0
4.1.E SUBORBITAL FLIGHT TEST	0	0	-110	0	110	1,321	1,321	1,195	0	126	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	1,777	1,281	1,434	-495	-152	21,026	20,101	18,556	-925	1,545	94,366	94,366	0
Management Resrv.											0	0	0
Total	1,777	1,281	1,434	-495	-152	21,026	20,101	18,556	-925	1,545	94,366	94,366	0

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

Cost Performance Report - Work Breakdown Structure											Run Date: 3/7/02		
Contractor: Location:					Contract Type/No:			Project Name/No: GLAST LAT Project		Report Period: 12/31/01 1/31/02			
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 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)
DG *** GSFC	338	232	447	-106	-214	3,490	3,219	2,788	-271	431	13,124	13,124	0
DH *** HEPL	93	119	100	26	19	2,143	2,154	2,139	11	16	9,502	9,502	0
DL *** SLAC	906	595	611	-311	-17	9,581	9,043	8,387	-538	656	46,611	46,611	0
DN *** NRL	309	250	224	-59	27	4,366	4,288	4,079	-79	208	19,358	19,358	0
DS *** SSU	20	15	12	-5	2	329	344	305	15	40	2,858	2,858	0
DT *** Texas A&M	0	0	0	0	0	16	16	0	0	16	16	16	0
DU *** UCSC	110	70	40	-40	31	1,100	1,036	858	-63	179	2,898	2,898	0
Gen. and Admin.	0	0	0	0	0	0	0	0	0	0	0	0	0
Undist. Budget											0	0	0
Sub Total	1,777	1,281	1,434	-495	-152	21,026	20,101	18,556	-925	1,545	94,366	94,366	0
Management Resrv.											0	0	0
Total	1,777	1,281	1,434	-495	-152	21,026	20,101	18,556	-925	1,545	94,366	94,366	0

## Attachment 8 LAT Performance Analysis, January 2002

	WBS	BAC	BCWS	BCWP	ACWP	SV \$	CV \$	% BCWS	% BCWP	% ACWP	SV Trend	CV Trend	SPI	CPI	Cpi_Fcst	3moCpi_Fcst	CpiSpi_Fcst
1	4	94,366	21,026	20,101	18,556	-925	1,545	22.28	21.30	19.66	↓	↓	0.956	1.083	87,115	95,379	90,270
2	4.1	94,366	21,026	20,101	18,556	-925	1,545	22.28	21.30	19.66	↓	↓	0.956	1.083	87,115	95,379	90,270
3	4.1.1	11,307	3,338	3,318	3,322	-20	-5	29.52	29.34	29.38	↑	↓	0.994	0.999	11,323	12,881	11,371
4	4.1.2	4,092	1,184	1,182	1,096	-2	86	28.94	28.89	26.78	↔	↓	0.999	1.079	3,793	3,905	3,796
5	4.1.4	9,681	3,641	3,513	3,829	-128	-316	37.60	36.28	39.55	↓	↔	0.965	0.917	10,552	13,385	10,797
6	4.1.5	13,378	3,185	3,131	3,044	-54	86	23.81	23.40	22.76	↓	↔	0.983	1.028	13,009	14,483	13,182
7	4.1.6	9,960	2,461	2,190	1,917	-271	273	24.71	21.98	19.24	↓	↓	0.890	1.143	8,718	9,955	9,560
8	4.1.7	16,520	2,426	2,306	2,031	-119	276	14.68	13.96	12.29	↓	↓	0.951	1.136	14,547	15,359	15,194
9	4.1.8	8,288	1,712	1,342	789	-370	553	20.66	16.19	9.52	↓	↔	0.784	1.702	4,871	14,116	5,997
10	4.1.9	7,294	375	375	85	0	290	5.14	5.14	1.17	↔	↔	1.000	4.409	1,654	1,972	1,654
11	4.1.A	2,206	431	431	343	0	88	19.55	19.55	15.55	↔	↑	1.000	1.257	1,754	1,463	1,754
12	4.1.B	3,711	199	220	172	21	48	5.35	5.93	4.63	↑	↑	1.107	1.280	2,899	2,264	2,635
13	4.1.C	2,908	329	344	305	15	40	11.31	11.84	10.48	↓	↔	1.047	1.131	2,572	7,671	2,470
14	4.1.D	3,700	425	428	429	3	-1	11.49	11.57	11.61	↑	↑	1.007	0.997	3,711	2,241	3,688
15	4.1.E	1,321	1,321	1,321	1,195	0	126	100.00	100.00	90.48	↔	↑	1.000	1.105	1,195	1,321	1,195
16	[PMB]	94,366	21,026	20,101	18,556	-925	1,545	22.28	21.30	19.66	↓	↓	0.956	1.083	87,115	95,379	90,270

### LEGEND

BAC: Budget At Complete

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

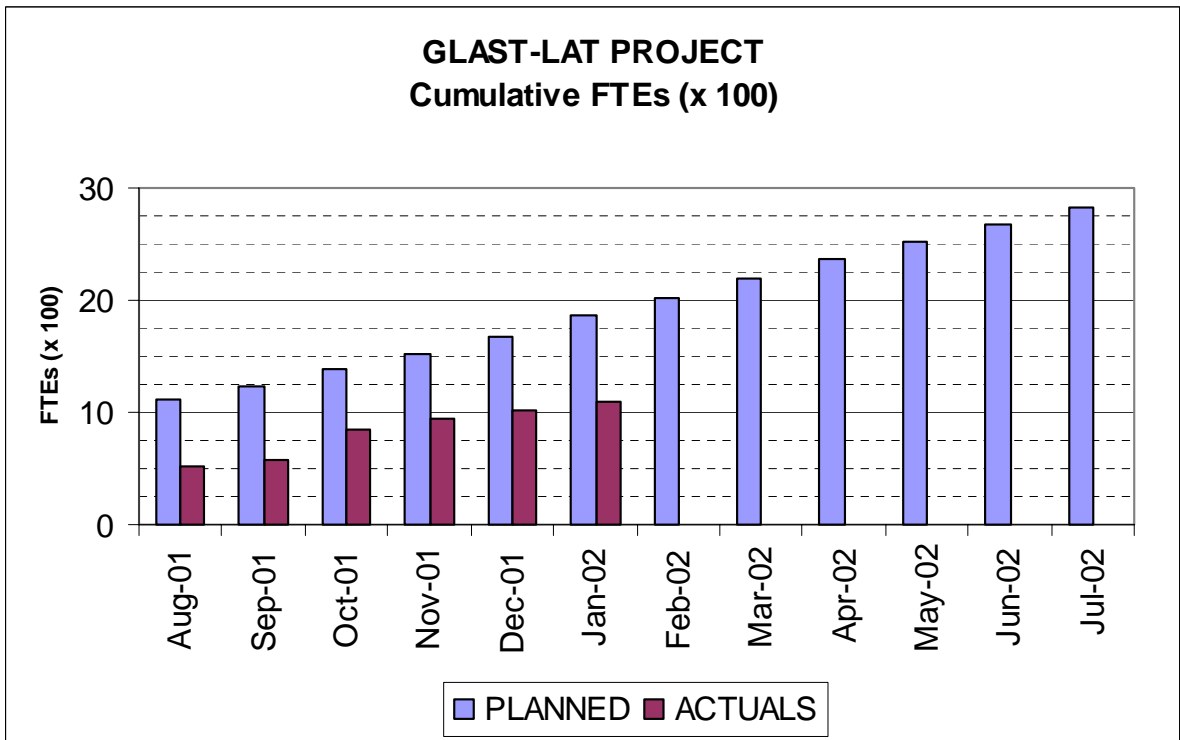
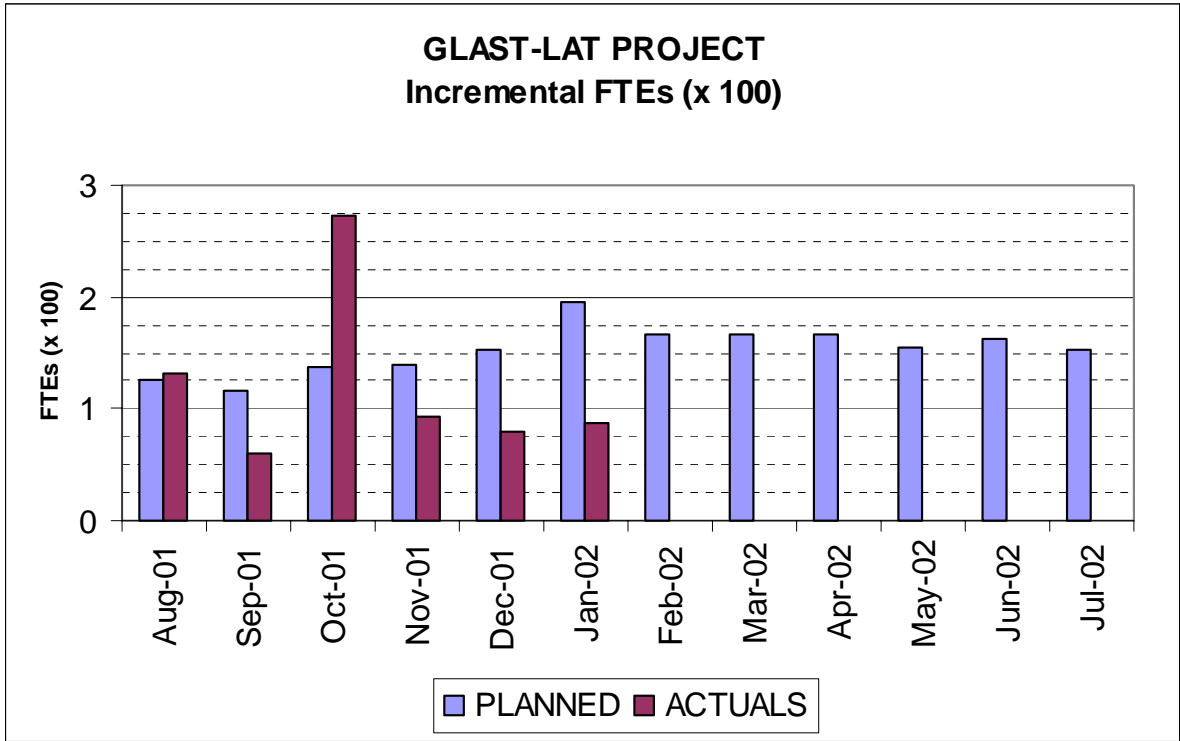
Cpi\_Fcst: CPI (to date) EAC Forecast = BAC / CPI

3MoCpi\_Fcst: 3 Month Moving Avg. EAC Forecast =  $ACWP + [ACWP(\text{last 3 mo.}) / BCWP(\text{last 3 mo.})] * (BAC - BCWP)$

CpiSpi\_Fcst: Combination CPI and SPI EAC Forecast =  $ACWP + (BAC - BCWP) / (CPI * SPI)$

<span style="color: red;">█</span>	Worse than -15%	<span style="color: green;">█</span>	Between -5% and 10%
<span style="color: yellow;">█</span>	Between -15% and -5%	<span style="color: blue;">█</span>	Better than 10%
Change Threshold: 10%			

**Attachment 9  
LAT Manpower**



**Attachment 10**  
**LAT Manpower Data, through January 2002, by WBS**

Program: 201		Description: GLAST LAT Project				Approval: Program Manager										
Run Date: 3/7/02		Status Date: 1/31/02				Functional Manager										
		Cost Account Manager														
		PRIOR	AUG01	SEP01	OCT01	NOV01	DEC01	JAN02	Cum- to-Date	FEB02	MAR02	APR02	MAY02	JUN02	JUL02	
CAPW[3]																
4.1.1 INSTRUMENT MANAGEMENT																
FTE	PLANNED	67.6	5.9	5.9	10.2	10.6	10.6	10.6	121.2	10.6	10.2	10.2	10.2	10.2	10.6	
	ACTUALS	41.2	4.3	4.2	22.7	16.3	8.0	9.9	106.6	0.0	0.0	0.0	0.0	0.0	0.0	
4.1.2 SYSTEM ENGINEERING																
FTE	PLANNED	13.1	2.3	2.1	1.7	1.7	1.7	1.5	23.9	1.8	1.8	1.8	1.8	1.8	2.1	
	ACTUALS	6.8	0.7	0.5	0.5	0.5	0.4	0.7	10.2	0.0	0.0	0.0	0.0	0.0	0.0	
4.1.4 TRACKER																
FTE	PLANNED	206.5	19.4	23.0	23.9	24.9	25.4	25.8	349.0	25.0	23.1	23.4	24.5	25.3	27.2	
	ACTUALS	152.3	7.5	-22.0	105.3	26.1	24.4	23.2	316.7	0.0	0.0	0.0	0.0	0.0	0.0	
4.1.5 CALORIMETER																
FTE	PLANNED	302.3	37.1	36.4	39.1	38.9	38.5	47.0	539.3	46.4	48.0	47.5	47.6	48.1	47.5	
	ACTUALS	47.6	60.8	16.1	-1.5	12.0	13.9	10.1	159.0	0.0	0.0	0.0	0.0	0.0	0.0	
4.1.6 ANTICOINCIDENCE DETECTOR																
FTE	PLANNED	81.6	8.2	11.7	22.9	21.6	27.5	25.1	198.7	23.6	21.6	21.1	13.9	20.0	18.3	
	ACTUALS	0.0	0.0	16.8	29.5	0.0	0.0	15.8	62.1	0.0	0.0	0.0	0.0	0.0	0.0	
4.1.7 ELECTRONICS																
FTE	PLANNED	73.8	10.2	10.7	15.0	11.7	17.2	42.5	181.1	14.9	14.3	16.2	12.0	10.9	10.2	
	ACTUALS	29.5	8.8	15.7	46.5	7.2	11.3	8.4	127.3	0.0	0.0	0.0	0.0	0.0	0.0	
4.1.8 MECHANICAL SYSTEMS																
FTE	PLANNED	32.8	4.3	5.0	5.0	9.3	4.3	10.7	71.5	7.9	8.1	10.1	10.8	9.2	3.7	
	ACTUALS	24.9	4.3	4.5	4.7	3.8	3.8	3.3	49.3	0.0	0.0	0.0	0.0	0.0	0.0	
4.1.9 INSTRUMENT INTEGRATION AND TESTING																
FTE	PLANNED	0.0	0.0	0.0	7.3	7.3	7.3	7.3	29.2	7.3	7.3	7.3	7.3	7.3	7.3	
	ACTUALS	0.0	0.0	0.0	0.8	2.1	2.6	2.8	8.3	0.0	0.0	0.0	0.0	0.0	0.0	
4.1.A PERFORMANCE AND SAFETY ASSURANCE																
FTE	PLANNED	18.0	1.5	1.5	2.6	2.6	2.6	2.6	31.2	2.6	2.6	2.6	2.6	2.6	2.6	
	ACTUALS	11.2	0.9	1.0	1.8	1.9	3.6	2.0	22.5	0.0	0.0	0.0	0.0	0.0	0.0	
4.1.B LAT INSTRUMENT OPERATIONS CENTER																
FTE	PLANNED	10.0	0.5	0.8	0.8	0.8	1.1	0.9	14.9	1.4	1.4	1.4	1.4	1.4	0.9	
	ACTUALS	0.0	0.0	0.0	5.2	9.0	1.2	1.4	16.7	0.0	0.0	0.0	0.0	0.0	0.0	
4.1.C EDUCATION AND PUBLIC OUTREACH																
FTE	PLANNED	20.1	2.4	1.9	1.4	1.4	1.4	1.4	29.9	1.4	1.5	1.5	1.5	1.5	4.2	
	ACTUALS	1.8	16.7	3.2	0.0	5.6	1.9	1.4	30.5	0.0	0.0	0.0	0.0	0.0	0.0	
4.1.D SCIENCE ANALYSIS SOFTWARE																
FTE	PLANNED	97.1	7.4	6.8	6.9	8.7	14.4	20.2	161.4	23.0	26.2	24.0	21.0	24.4	17.9	
	ACTUALS	59.2	5.0	4.2	26.7	7.9	8.5	9.1	120.7	0.0	0.0	0.0	0.0	0.0	0.0	
4.1.E SUBORBITAL FLIGHT TEST																
FTE	PLANNED	76.0	25.8	9.7	0.0	0.0	0.0	0.0	111.5	0.0	0.0	0.0	0.0	0.0	0.0	
	ACTUALS	7.3	21.8	15.6	30.8	0.0	0.0	-0.2	75.3	0.0	0.0	0.0	0.0	0.0	0.0	
Grand Totals:																
	PLANNED	998.8	124.9	115.4	136.8	139.4	152.1	195.4	1862.7	165.8	166.1	167.0	154.6	162.7	152.4	
	ACTUALS	381.8	130.8	59.7	273.0	92.5	79.6	87.8	1105.1	0.0	0.0	0.0	0.0	0.0	0.0	

**Attachment 11**  
**LAT Manpower Data, through January 2002, by Organization**

Program: 201		Description: GLAST LAT Project		Approval: Program Manager												
Run Date: 3/7/02		Status Date: 1/31/02		Functional Manager												
		Cost Account Manager														
		PRIOR	AUG01	SEP01	OCT01	NOV01	DEC01	JAN02	Cum- to-Date	FEB02	MAR02	APR02	MAY02	JUN02	JUL02	
OBS																
DG *** GSFC																
FTE	PLANNED	116.4	29.0	12.9	25.6	24.3	29.7	28.2	266.0	27.0	24.8	24.4	17.0	23.2	20.6	
	ACTUALS	0.0	0.0	30.7	42.6	0.0	0.0	14.8	88.1	0.0	0.0	0.0	0.0	0.0	0.0	
DH *** HEPL																
FTE	PLANNED	110.0	6.0	13.5	5.3	4.9	6.4	6.5	152.5	5.9	6.5	8.0	6.0	6.4	6.2	
	ACTUALS	0.0	0.0	0.0	98.5	22.6	7.4	8.3	136.9	0.0	0.0	0.0	0.0	0.0	0.0	
DL *** SLAC																
FTE	PLANNED	243.4	28.5	27.6	35.2	41.5	46.5	54.3	477.0	51.6	52.9	53.4	50.1	51.8	41.0	
	ACTUALS	207.5	25.0	22.2	25.8	27.9	28.3	30.7	367.4	0.0	0.0	0.0	0.0	0.0	0.0	
DN *** NRL																
FTE	PLANNED	126.1	12.3	9.3	18.0	15.3	15.0	40.4	236.4	14.7	16.2	15.3	15.1	15.3	15.3	
	ACTUALS	61.0	87.5	28.9	2.3	15.8	20.6	13.5	229.4	0.0	0.0	0.0	0.0	0.0	0.0	
DS *** SSU																
FTE	PLANNED	20.1	2.4	1.9	1.4	1.4	1.4	1.4	29.9	1.4	1.5	1.5	1.5	1.5	4.2	
	ACTUALS	1.8	16.7	3.2	0.0	5.6	1.9	1.4	30.5	0.0	0.0	0.0	0.0	0.0	0.0	
DU *** UCSC																
FTE	PLANNED	87.2	6.1	5.7	7.0	5.6	5.8	5.9	123.2	5.0	5.0	4.7	4.7	4.7	4.7	
	ACTUALS	48.3	1.7	5.2	59.5	7.8	8.1	7.1	137.7	0.0	0.0	0.0	0.0	0.0	0.0	
DW *** UW																
FTE	PLANNED	16.8	1.0	1.0	1.0	1.0	1.0	0.9	22.5	1.6	0.8	0.9	0.9	0.9	0.9	
	ACTUALS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
FF *** France																
FTE	PLANNED	200.0	28.0	28.6	28.6	28.7	28.0	34.1	376.0	35.6	36.2	36.4	37.2	36.9	35.6	
	ACTUALS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
FI *** Italy																
FTE	PLANNED	48.7	9.5	12.5	12.5	14.7	16.1	16.6	130.5	15.9	15.0	15.2	14.9	14.9	16.7	
	ACTUALS	63.3	0.0	-30.6	14.5	10.9	11.6	10.3	80.0	0.0	0.0	0.0	0.0	0.0	0.0	
FJ *** Japan																
FTE	PLANNED	30.2	2.3	2.3	2.3	2.3	2.3	2.7	44.2	2.7	2.7	2.7	2.7	2.7	2.7	
	ACTUALS	0.0	0.0	0.0	29.8	1.9	1.8	1.8	35.2	0.0	0.0	0.0	0.0	0.0	0.0	
FK *** Sweden																
FTE	PLANNED	0.0	0.0	0.0	0.0	0.0	0.0	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	
	ACTUALS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Grand Totals:																
	PLANNED	998.8	124.9	115.4	136.8	139.4	152.1	195.4	1862.7	165.8	166.1	167.0	154.6	162.7	152.4	
	ACTUALS	381.8	130.8	59.7	273.0	92.5	79.6	87.8	1105.1	0.0	0.0	0.0	0.0	0.0	0.0	

4.1 GLAST LAT															
Contributed	PLANNED	358.9	46.1	47.8	48.3	52.0	57.6	70.2	680.9	72.1	74.7	73.2	72.3	74.7	70.7
	ACTUALS	63.4	0.0	-28.7	46.8	12.8	13.3	11.9	119.4	0.0	0.0	0.0	0.0	0.0	0.0
Funded	PLANNED	639.9	78.8	67.6	88.6	87.4	94.4	125.2	1181.8	93.7	91.4	93.9	82.3	88.0	81.7
	ACTUALS	318.4	130.8	88.4	226.2	79.7	66.3	75.9	985.7	0.0	0.0	0.0	0.0	0.0	0.0
Grand Totals:															
	PLANNED	998.8	124.9	115.4	136.8	139.4	152.1	195.4	1862.7	165.8	166.1	167.0	154.6	162.7	152.4
	ACTUALS	381.8	130.8	59.7	273.0	92.5	79.6	87.8	1105.1	0.0	0.0	0.0	0.0	0.0	0.0