

Monthly Progress Report

(Month Ending September 2001)

GLAST Large Area Telescope (LAT)

November 30, 2001

LAT-MR-00452-01

1.0 Introduction

This is the first LAT Monthly Progress Report 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 September, 2001, and reflects the pre-baseline status of the project.

2.0 Recent Project and Status

Tracker: The first lot of silicon strip detectors (SSD's) was received at SLAC and shipped to INFN Pisa. A completed, working SSD ladder is being connected to readout electronics to evaluate the effect of the wire bonding and encapsulation on the strips.

Calorimeter: 106 logs of cesium iodide for the engineering model were delivered to our partners in Sweden; acceptance testing and verification (metrology) has been successfully completed. The logs were then delivered to our French partners. The engineering model electrical and mechanical PIN tests were completed, as part of the dual PIN photodiode acceptance testing program.

Electronics: The pre-engineering model of the GLT-CPU interface card has been tested.

Mechanical Systems: The prototype tests of the grid heat pipes were developed, process test drawings were detailed, and test parts were procured. The assembly tests themselves were executed.

Balloon Flight: The development of the analysis software was completed. Data was processed, analysis was done, and the preliminary report was delivered to the GLAST project office (LAT-TD-00373-01).

3.0 Schedule Status

The status of significant milestones identified in the Project Management Plan for the LAT project is summarized in Attachment 1.

4.0 Financial Status

Attachment 2 depicts the costs and commitments through the end of the current reporting period. Attachments 3 and 4 summarize the actual costs through the current period, by WBS level 3 and institution, respectively.

5.0 Performance Status (Comparison to Project Baseline)

Attachment 5 is a Cost & Schedule Status Report (CSSR) for the end of the current reporting period, by WBS level 3. The CSSR shows the time-phased budget to date (BCWS), the earned value (BCWP), and the actual costs through the end of the month (ACWP). Attachment 6 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.

There are no significant schedule variances due to the pre-baseline nature of the project.

The cost variances are generally attributed to the "under development" state of the Project Management Controls System. We are still working on smooth and timely transmission of actual cost information, and several subsystem cost plans were not fully implemented in the LAT PMCS by the end of September.

Of significance, the positive 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 positive cost variance in 4.1.4 Tracker is the result of an invoicing delay for the first lot of silicon strip detectors. The negative cost variance in 4.1.E Balloon Flight is due to extending the development program, and will be reconciled prior to baseline.

6.0 Change Control and Contingency Analysis

There were no change control actions this month.

7.0 Staffing

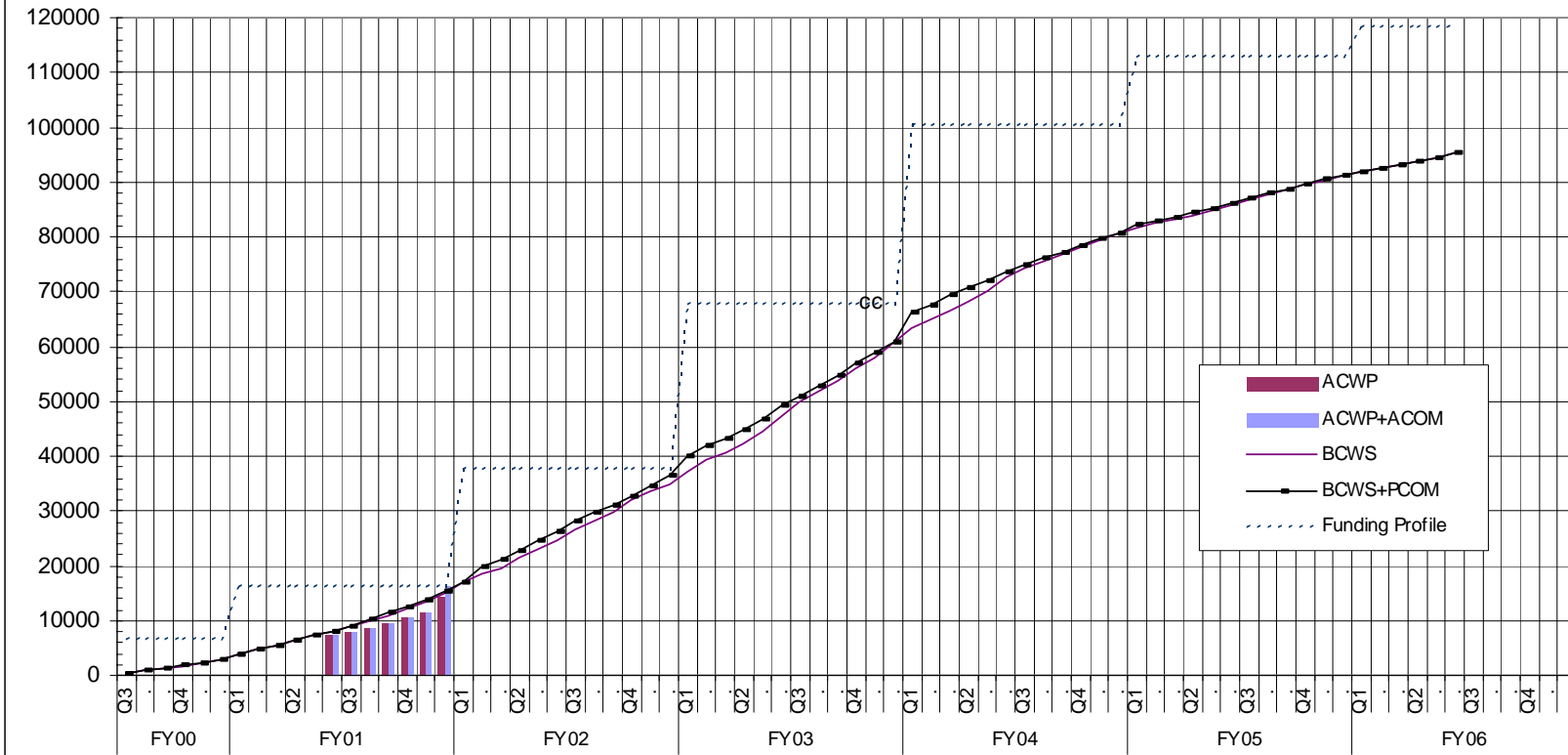
Attachments 7-9 demonstrate the draft staffing plan, and reports of actual manpower received, for a one-year period.

Attachment 1 Level 1 and Level 2 Milestones

Activity Description	Finish	Timeline																							
		FY00		FY01		FY02		FY03		FY04		FY05		FY06											
Gamma Ray Large Area Space Telescop																									
4.1.1 INSTRUMENT MANAGEMEN																									
<i>DOE / NASA Headquarters (Level 1)</i>																									
Launch Instrument	03/01/06*	▼																							
<i>Project Office (Level 2)</i>																									
Launch Balloon Flight	08/01/01A	▼																							
Instrument Preliminary Design Review	01/07/02*	▼																							
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	11/30/01 17:47	*** DRAFT ***												Project Mangement Milestones Level 1-2						Sheet 1					
© Primavera Systems, Inc.																									

Attachment 2
LAT Actual Costs & Commitments, through September 2001

GLAST-LAT Project
Budget vs Actuals vs Funding
Summary in \$K
DRAFT as of 11/14/01



**Attachment 3
LAT Costs, through September 2001, by WBS**

Monthly Contractor Financial Management Report 30-Sep-01						NASA form 533M Approved OMB # 2700-001		Report for Month Ending: 9/30/01	
To:				From:				Contract Value	
								Cost: 0	Fee: 0
090A GLAST LAT Project		Type:			Contract Number and Latest Definitized Amendment No:		Fund Limitation: 0		
Reporting Category	Cost Incurred/Hours Worked				Estimated Cost/Hours to Complete		4/3/00 Billing		Unfilled Orders Outstanding
	During Month		Cum. to Date		Detail	Balance of	Estimated Final Cost/Hours		
	Actual	Planned	Actual	Planned	OCT01	Contract	Contractor Estimate	Contract Value	
4.1.1 INSTRUMENT MANAGEMENT	335	177	2,403	2,427	268	8,708	11,379	11,379	
4.1.2 SYSTEM ENGINEERING	239	82	860	719	104	3,031	3,995	3,995	
4.1.4 TRACKER	368	502	2,715	3,061	191	6,776	9,681	9,681	
4.1.5 CALORIMETER	191	136	2,296	2,342	269	11,063	13,628	13,628	
4.1.6 ANTICOINCIDENCE DETECTOR	1,033	107	1,895	1,823	319	8,314	10,528	10,528	
4.1.7 ELECTRONICS	48	128	1,520	1,621	269	14,825	16,614	16,614	
4.1.8 MECHANICAL SYSTEMS	55	382	466	1,140	296	7,487	8,249	8,249	
4.1.9 INSTRUMENT INTEGRATION AND TESTING	0	0	0	1	109	7,253	7,362	7,362	
4.1.A PERFORMANCE AND SAFETY ASSURANCE	12	15	229	237	68	1,922	2,220	2,220	
4.1.B LAT INSTRUMENT OPERATIONS CENTER	10	15	110	134	20	3,713	3,843	3,843	
4.1.C EDUCATION AND PUBLIC OUTREACH	20	22	199	253	27	2,682	2,908	2,908	
4.1.D SCIENCE ANALYSIS SOFTWARE	59	13	331	300	21	3,482	3,834	3,834	
4.1.E SUBORBITAL FLIGHT TEST	365	1	1,339	1,030	0	-309	1,030	1,030	
Gen. and Admin.	0	0	0	0	0	0	0	0	
Total	2,735	1,581	14,364	15,089	1,961	78,946	95,271	95,271	

Attachment 4
LAT Costs, through September 2001, by Organization and Cost Code

Monthly Contractor Financial Management Report 30-Sep-01						NASA form 533M Approved OMB # 2700-001		Report for Month Ending: 9/30/01	
To:				From:				Contract Value	
								Cost:	Fee:
								0	0
090A	Type:				Contract Number and Latest Definitized Amendment No:			Fund Limitation:	
GLAST LAT Project								0	
Reporting Category	Cost Incurred/Hours Worked				Estimated Cost/Hours to Complete		4/3/00	Billing	
	During Month		Cum. to Date		Detail	Balance of Contract	Estimated Final Cost/Hours		Unfilled Orders Outstanding
	Actual	Planned	Actual	Planned	OCT01		Contractor Estimate	Contract Value	
DG GSFC	1,505	139	2,742	2,541	356	10,475	13,572	13,572	
DH SU-HEPL	106	71	1,829	1,722	94	7,744	9,666	9,666	
DL SU-SLAC	797	1,113	5,817	6,569	996	39,708	46,521	46,521	
DN NRL	229	158	3,107	3,169	397	16,235	19,739	19,739	
DS SSU	20	22	199	253	27	2,632	2,858	2,858	
DT Texas A&M	0	16	0	16	0	16	16	16	
DU UCSC	79	62	670	819	91	2,138	2,899	2,899	
Gen. and Admin.	0	0	0	0	0	0	0	0	
Total	2,735	1,581	14,364	15,089	1,961	78,946	95,271	95,271	
LABOR	1,919	612	9,904	9,552	1,311	49,901	61,116	61,116	
MM	73	43	586	737	98	4,049	4,733	4,733	
HRS	13,258	7,804	94,458	122,052	14,942	662,835	772,234	772,234	
M&S	791	926	4,134	4,932	559	25,026	29,720	29,720	
TRAVEL	25	22	326	330	77	3,011	3,414	3,414	
TAXES	0	21	0	275	15	1,007	1,022	1,022	
Total (not incl FTE/Hrs)	2,735	1,581	14,364	15,089	1,962	78,945	95,271	95,271	

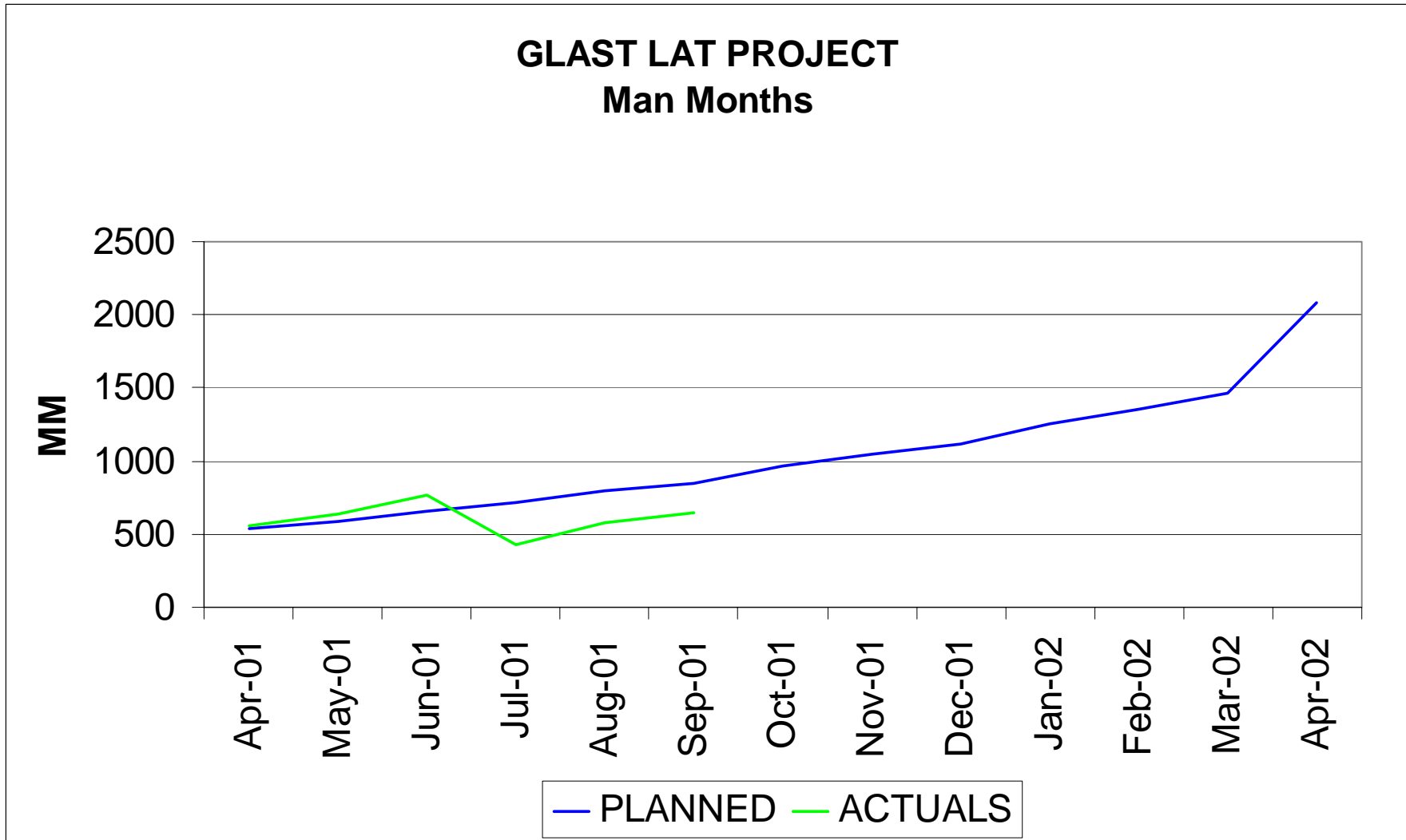
Attachment 5
LAT Performance, through September 2001, by WBS

Cost/Schedule Status Report								
	Contract Type/No:		Project Name/No: GLAST LAT Project		Report Period: 8/31/01 9/30/01		Signature: Title/Date: 11/30/01	
(1) Original Contract Target Cost 0	(2) Negotiated Contract Changes 0		(3) Current Target Cost (1) + (2) 0		(4) Estimated Cost of Authorized Unpriced Work 0		(5) Contract Budget Base (3) + (4) 0	
Performance Data								
CAPW[3]	Cumulative to Date					At Completion		
	Budgeted Cost		Actual Cost Work Performed	Variance		Budgeted	Latest Revised Estimate	Variance
	Work Scheduled	Work Performed		Schedule	Cost			
4.1.1 INSTRUMENT MANAGEMENT	2,427	2,427	2,403	0	24	11,379	11,379	0
4.1.2 SYSTEM ENGINEERING	719	719	860	0	-141	3,995	3,995	0
4.1.4 TRACKER	3,061	3,039	2,715	-22	325	9,681	9,681	0
4.1.5 CALORIMETER	2,342	2,339	2,296	-4	42	13,628	13,628	0
4.1.6 ANTICOINCIDENCE DETECTOR	1,823	1,823	1,895	0	-72	10,528	10,528	0
4.1.7 ELECTRONICS	1,621	1,625	1,520	5	105	16,614	16,614	0
4.1.8 MECHANICAL SYSTEMS	1,140	1,135	466	-5	669	8,249	8,249	0
4.1.9 INSTRUMENT INTEGRATION AND TEST	1	1	0	0	1	7,362	7,362	0
4.1.A PERFORMANCE AND SAFETY ASSURANCE	237	237	229	0	7	2,220	2,220	0
4.1.B LAT INSTRUMENT OPERATIONS CENTER	134	137	110	3	27	3,843	3,843	0
4.1.C EDUCATION AND PUBLIC OUTREACH	253	253	199	0	54	2,908	2,908	0
4.1.D SCIENCE ANALYSIS SOFTWARE	300	300	331	0	-31	3,834	3,834	0
4.1.E SUBORBITAL FLIGHT TEST	1,030	1,030	1,339	0	-309	1,030	1,030	0
Gen. and Admin.	0	0	0	0	0	0	0	0
Undist. Budget						0	0	0
Sub Total	15,089	15,066	14,364	-23	702	95,271	95,271	0
Management Resrv.						0	0	0
Total	15,089	15,066	14,364	-23	702	95,271	95,271	0

**Attachment 6
LAT Performance, through September 2001, by Organization**

Cost/Schedule Status Report								
	Contract Type/No:		Project Name/No:		Report Period:		Signature:	
			GLAST LAT Project		8/31/01	9/30/01	Title/Date: 11/30/01	
(1) Original Contract Target Cost 0	(2) Negotiated Contract Changes 0		(3) Current Target Cost (1) + (2) 0		(4) Estimated Cost of Authorized Unpriced Work 0		(5) Contract Budget Base (3) + (4) 0	
Performance Data								
OBS	Cumulative to Date					At Completion		
	Budgeted Cost		Actual Cost Work Performed	Variance		Budgeted	Latest Revised Estimate	Variance
	Work Scheduled	Work Performed		Schedule	Cost			
DG GSFC	2,541	2,541	2,742	0	-201	13,572	13,572	0
DH SU-HEPL	1,722	1,726	1,829	4	-103	9,666	9,666	0
DL SU-SLAC	6,569	6,523	5,817	-46	706	46,521	46,521	0
DN NRL	3,169	3,178	3,107	9	71	19,739	19,739	0
DS SSU	253	253	199	0	54	2,858	2,858	0
DT Texas A&M	16	16	0	0	16	16	16	0
DU UCSC	819	830	670	11	160	2,899	2,899	0
DW UW	0	0	0	0	0	0	0	0
FF France	0	0	0	0	0	0	0	0
FI Italy	0	0	0	0	0	0	0	0
FJ Japan	0	0	0	0	0	0	0	0
Gen. and Admin.	0	0	0	0	0	0	0	0
Undist. Budget						0	0	0
Sub Total	15,089	15,066	14,364	-23	702	95,271	95,271	0
Management Resrv.						0	0	0
Total	15,089	15,066	14,364	-23	702	95,271	95,271	0

Attachment 7
LAT Manpower , through September 2001



Attachment 8
LAT Manpower Data, through September 2001, by WBS

Program: 090A		Description: GLAST LAT Project		Approval: Program Manager										
Run Date: 11/30/01		Status Date: 9/30/01		Functional Manager										
		Cost Account Manager												
CAPW[3]		APR01	MAY01	JUN01	JUL01	AUG01	SEP01	Cum Acts	OCT01	NOV01	DEC01	JAN02	FEB02	MAR02
4.1.1 INSTRUMENT MANAGEMENT														
MM	PLANNED	52	5	5	6	6	5	79	13	9	8	15	9	11
	ACTUALS	157	16	14	-127	5	4	68	0	0	0	0	0	0
4.1.2 SYSTEM ENGINEERING														
MM	PLANNED	7	2	2	2	3	2	17	3	1	1	3	1	2
	ACTUALS	27	2	2	-21	1	0	11	0	0	0	0	0	0
4.1.4 TRACKER														
MM	PLANNED	144	20	18	17	20	17	235	27	19	17	32	20	22
	ACTUALS	217	17	64	-133	8	7	181	0	0	0	0	0	0
4.1.5 CALORIMETER														
MM	PLANNED	79	8	10	9	11	7	124	14	10	8	13	8	12
	ACTUALS	21	11	13	4	66	13	128	0	0	0	0	0	0
4.1.6 ANTICOINCIDENCE DETECTOR														
MM	PLANNED	0	0	0	0	0	0	0	0	0	0	0	0	0
	ACTUALS	0	0	0	0	0	11	11	0	0	0	0	0	0
4.1.7 ELECTRONICS														
MM	PLANNED	53	5	6	9	11	9	94	18	10	13	21	14	15
	ACTUALS	30	12	12	-23	10	13	54	0	0	0	0	0	0
4.1.8 MECHANICAL SYSTEMS														
MM	PLANNED	20	4	3	6	5	4	42	14	5	3	13	8	10
	ACTUALS	65	17	15	-66	5	4	40	0	0	0	0	0	0
4.1.9 INSTRUMENT INTEGRATION AND TESTING														
MM	PLANNED	0	0	0	0	0	0	0	9	6	6	10	7	8
	ACTUALS	0	0	0	0	0	0	0	0	0	0	0	0	0
4.1.A PERFORMANCE AND SAFETY ASSURANCE														
MM	PLANNED	13	1	1	1	2	1	20	4	2	2	4	2	3
	ACTUALS	46	4	3	-36	1	1	19	0	0	0	0	0	0
4.1.B LAT INSTRUMENT OPERATIONS CENTER														
MM	PLANNED	9	1	0	0	1	1	11	1	1	1	1	1	1
	ACTUALS	0	0	0	0	0	0	0	0	0	0	0	0	0
4.1.C EDUCATION AND PUBLIC OUTREACH														
MM	PLANNED	14	2	2	2	3	2	25	2	1	1	2	1	2
	ACTUALS	0	1	0	0	18	3	23	0	0	0	0	0	0
4.1.D SCIENCE ANALYSIS SOFTWARE														
MM	PLANNED	81	7	7	7	8	6	115	11	12	12	33	20	30
	ACTUALS	0	0	0	59	5	3	68	0	0	0	0	0	0
4.1.E SUBORBITAL FLIGHT TEST														
MM	PLANNED	59	3	7	8	10	0	87	0	0	0	0	0	0
	ACTUALS	0	0	0	7	24	13	44	0	0	0	0	0	0
Grand Totals:														
	PLANNED	533	58	62	67	78	54	851	114	77	72	146	91	115
	ACTUALS	563	80	124	-335	143	73	647	0	0	0	0	0	0

Attachment 9
LAT Manpower Data, through September 2001, by Organization

Program: 090A		Description: GLAST LAT Project														
Run Date: 11/30/01		Status Date: 9/30/01														
		Prior Cum to 4/01														
OBS				APR01	MAY01	JUN01	JUL01	AUG01	SEP01	Cum to Date	OCT01	NOV01	DEC01	JAN02	FEB02	MAR02
DG GSFC																
	MM	PLANNED	26	2	1	2	3	4	1	40	3	2	2	5	3	4
		ACTUALS	0	0	0	0	0	0	23	23	0	0	0	0	0	0
DH SU-HEPL																
	MM	PLANNED	91	4	4	5	6	7	3	120	7	4	5	9	5	7
DL SU-SLAC																
	MM	PLANNED	149	21	26	24	29	31	24	304	55	34	34	74	47	58
		ACTUALS	425	58	69	63	-354	27	18	307	0	0	0	0	0	0
DN NRL																
	MM	PLANNED	88	7	9	12	11	14	8	149	22	14	11	19	13	18
		ACTUALS	11	14	11	13	13	96	24	181	0	0	0	0	0	0
DS SSU																
	MM	PLANNED	13	2	2	2	2	3	2	25	2	1	1	2	1	2
		ACTUALS	0	0	1	0	0	18	3	23	0	0	0	0	0	0
DU UCSC																
	MM	PLANNED	66	5	6	6	6	7	5	99	9	5	4	7	4	5
		ACTUALS	0	56	-2	-13	5	2	4	52	0	0	0	0	0	0
DW UW																
	MM	PLANNED	13	1	1	1	1	1	1	19	1	1	1	1	1	1
FF France																
	MM	PLANNED	4	0	0	0	0	0	0	4	1	1	0	2	2	5
FI Italy																
	MM	PLANNED	13	5	7	7	7	9	8	56	12	13	12	22	11	13
		ACTUALS	0	0	0	61	0	0	0	61	0	0	0	0	0	0
FJ Japan																
	MM	PLANNED	22	2	2	2	2	2	2	35	3	2	2	4	3	3
Grand Totals:																
		PLANNED	484	49	58	62	67	78	54	851	114	77	72	146	91	115
		ACTUALS	435	127	80	124	-335	143	73	647	0	0	0	0	0	0

4.1 GLAST LAT																
Contributed																
	MM	PLANNED	92	12	14	14	14	18	14	179	23	22	21	44	27	38
		ACTUALS	0	0	0	61	0	0	2	62	0	0	0	0	0	0
Funded																
	MM	PLANNED	392	37	44	47	52	60	40	672	91	55	50	102	64	77
		ACTUALS	435	127	80	64	-335	143	71	585	0	0	0	0	0	0
Grand Totals:																
		PLANNED	484	49	58	62	67	78	54	851	114	77	72	146	91	115
		ACTUALS	435	127	80	124	-335	143	73	647	0	0	0	0	0	0