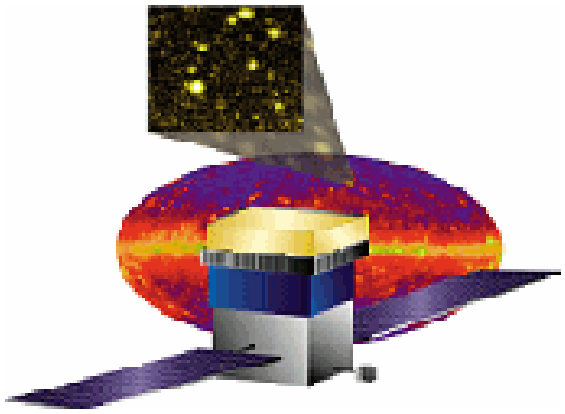
Monthly Progress Report

(Month Ending September 2005)

GLAST Large Area Telescope (LAT)



LAT-MR-07499-01

November 7, 2005

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 September, 2005.

2.0 Recent Progress and Status

4.1.4 Tracker

All sixteen flight modules have been assembled, including all flight cables. Fifteen are at SLAC; ten are integrated into the flight grid. The bad tray on the module 12 was replaced in Italy. Environmental testing for all modules was completed. A problem was discovered during environmental testing on the bottom tray of the 16th module. A bubble under the bias circuit was lifting the edge of the last ladder, breaking about 20 wire bonds. This problem is identical to that which occurred on a previous module. The bad tray was removed and replaced. Thermal vacuum of the new tray was verified at the tray level, and 1 axis of the vibration test of the module was repeated. The flight spare module (17th module) was also completed, including environmental testing, except that two flight cables need to be added. Those cables were received by the end of the month.

4.1.7 Electronics, Data Acquisition, and Flight Software

Nineteen tower electronics modules (TEMs) and tower power supplies (TPSs) have now been delivered to Integration & Test. Two TPS units on the first two towers are being modified.

The power distribution unit (PDU) flight unit is tested and review documentation is being prepared. The spare unit has been returned to the vendor for conformal coating. The GASU flight unit is assembled, and delivery expected the first week of October.

All the boards needed for the qualification crate for the spacecraft interface unit (SIU) were received at SLAC and successfully tested. The boards were assembled into a crate and environmental testing (proto-flight) will commence. Two flight spacecraft interface boards (SIBs) and a crate power supply (CPS) were received at SLAC after conformal coating. Several pre-conformal coat stage modules were received, tested, and returned to the vendor for conformal coating.

The LAT harness is nearly assembled, with some cables still being reworked. Enclosures for the heater control box were received. Parts for the harness interconnect box have been kitted. The electronics ground support equipment used for the thermal testing at Lockheed was returned to SLAC. Code has been written for the voltage and temperature monitoring of the virtual spacecraft simulator (VSC). The VSC hardware is complete, and the software development is progressing.

Work on integration and build for the engineering formal qualification testing and delivery to Integration & Test is underway. Code to write data to the solid state recorder is being used. Progress is being made on testing the LAT Calibration module for the

flight instrument. Work has started on the configuration of the LAT Physics Acquisition package, managing the event handlers, and the summary diagnostic data. The LAT instrument manager (LIM) design document was updated with new configure telecommands. Proper timestamps were included in the telemetry packets sent by the LIM and memory management packages. The first round of changes to the thermal control package was released.

4.1.8 Mechanical Systems

The grid box assembly for the static load test is complete. The test interface plate assembly is complete, less the strain gauge application, which will be completed at the testing facility. The shipping container for the second grid has been received. The radiator panels have successfully undergone thermal vacuum testing, meeting all performance requirements. The radiators have been received at SLAC. The cross-LAT (X-LAT) plate was completed, reviewed, and shipped to SLAC. A minor rework of the X-LAT plate strongback support equipment was made.

4.1.9 Integration & Test (I&T)

Ten towers are now installed on the flight grid. Receiving tests were performed for the remaining TEM/TPS modules. The test interface plate to spacecraft flexure assembly for proof testing and static load testing was completed. The LAT environmental test implementation plan draft document is being reviewed. Modifications to the thermal vacuum chamber at NRL have been identified and are being analyzed by NRL. These include new rail supports and a new trolley. A new shipping container base is being fabricated. A vendor for the environmental test stand was selected, and a manufacturing readiness review planned for early October.

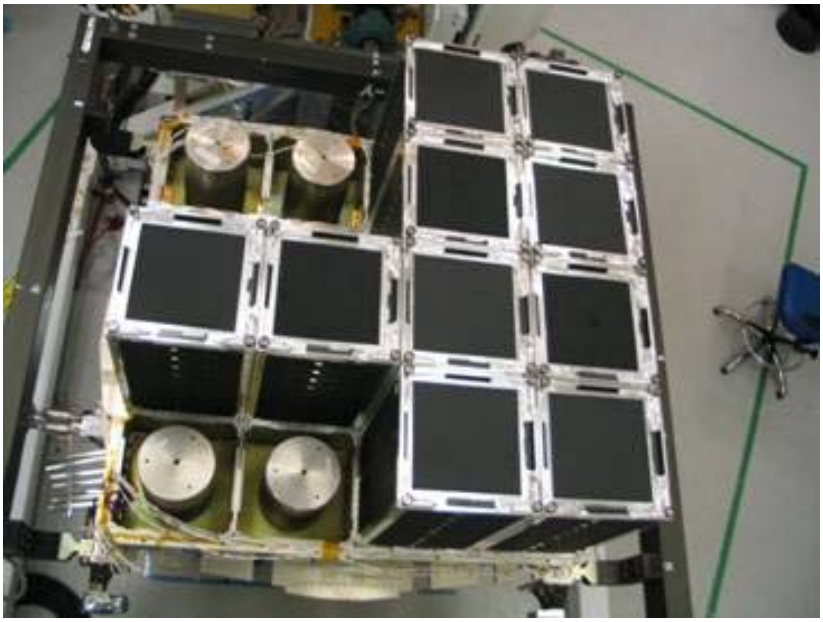


Figure 1: Ten installed towers.

4.1.B Instrument Science Operations Center (ISOC)

A ground operations technical interchange meeting (TIM) was conducted, with attendance from the mission operations center, GLAST science support center, spacecraft (GD/SASS), and the gamma-ray burst monitor groups. A LAT command and telemetry database update was delivered to GD/SASS.

Objectives for the next ISOC ground readiness test (GRT3) have been agreed on; this review is now being scheduled in mid-December. GRT3 will use ISOC software release 1.2. Acceptance test preparations continue. Discrepancies reported in GRT2 (held in June) have been corrected, verified, and closed.

Co-development of software with I&T Online continued. The integrated test and operations system to VSC adapter program was updated to the latest VSC application program interface. Development of the web-based trending system continued, with demonstrations to various user groups.

Work on the configuration database is progressing towards delivery and tracking of configuration files in LICOS.

Two deputy managers of ISOC were appointed (Richard Dubois and Eduardo do Couto e Silva). A SLAC infrastructure proposal has been submitted for construction of the operations facility.

3.0 Schedule Status

The critical path for the project is the fabrication of components of the Spacecraft Interface Unit and Event Processing Unit. There is currently six days' schedule float to the shipment of the LAT instrument.

The status of significant milestones is summarized in Attachments 1 and 2. Attachment 1 presents the status of the Level 1 and Level 2 milestones. The pre-environmental test review and pre-ship review milestones (1M1000700 and 1M1000120) have been delayed as a result of this critical path.

Attachment 2 shows the status of the remaining Level 3 milestones. The following level 3 milestones were completed during this reporting period:

Milestone Number	Description	Date Completed
1M79510	Science Test Data Output	9/08/05
1M1000270	Flight Tracker Tower 7	9/16/05
1M1000280	Flight Tracker Tower 9	9/16/05
1M79001160	Flight TEM Assy 14	9/16/05
1M79002160	Flight TEM PS Assy 14	9/16/05
1M79001170	Flight TEM Assy 15	9/16/05
1M79002170	Flight TEM PS Assy 15	9/16/05
1M79001180	Flight TEM Assy 16	9/16/05
1M79002180	Flight TEM PS Assy 16	9/16/05
1M79550	FQT Readiness Review	9/16/05
1M1000281	Flight Tracker Tower 10	9/29/05
1M1000290	Flight Tracker Tower 11	9/30/05
1M941720	Radiators Ready for I&T	9/30/05

Unfavorable variance projections greater than one week are discussed below, listed by responsible subsystem.

4.1.4 Tracker

The remaining Tracker towers have been delayed due to cable delivery delays. The primary cable vendor is produced a 10% yield. The second cable vendor also experienced some manufacturing problems, delaying the first deliveries. These delays are being mitigated by assembling and testing towers without cables, adding the cables when available. All flight cables are now available.

4.1.7 Electronics

The following milestones have been delayed at the assembly vendor. The main issue was the quality of the solder assembly of the cPCI connectors onto the cPCI boards. The LAT project continued to work with the vendor to improve the situation. The issues have been resolved and the modules are all being assembled.

* Flight PDU Box (1M17942000)
* Flight GASU Box (1M7941070)
* LCB Flight Units (1M7R050)
* Flight Event Processor Units (1M7941090)
* Flight EPU/SIUs (1M7R040, 1M7R010, 1M7R020, 1M7R030, 1M7941080)

Delays in flight software, and the addition of a Virtual Spacecraft Simulator to make LAT control/readout simpler for installation and test have led to the delay of the milestone for final electronics ground support equipment (1M7941440).

Effort required to complete the Science Test Data Output milestone (1M79510) was underestimated, complicated by the absence of a key resource. This milestone has been completed, but impacts the subsequent flight software milestones.

4.1.9 Integration & Test

Variances to the "Ready to Ship" and subsequent milestones are driven by the critical path for the project, as described above.

4.0 Financial Status

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

Attachments 4 and 5 summarize the actual costs through the current period, by WBS level 3 and institution, respectively.

Note that actual costs and manpower was not received from GSFC this reporting period.

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.

The favorable cost variance in 4.1.C Education & Public Outreach is due to outstanding commitments which have not yet been costed. This is not a concern at this time.

Note that actual costs and manpower was not received from GSFC this reporting period.

6.0 Change Control and Contingency Analysis

A summary of change requests approved and implemented during this period (Level 3 and above), including the impacts on the FY05 LAT cost contingency, is below.

Change Request No.	Description	Submitted By	FY05 Contingency Impact[1]
LAT-XR-07165-01	Mode Control Requirement Update	M. DeKlotz	N/A
LAT-XR-07260-01	Waiver: ACD Bottom Tiles, Bottom Edge Location Violations	K. Segal	N/A
LAT-XR-07261-01	Waiver: ACD Outer Volume Stay-Clear Violations	K. Segal	N/A
LAT-XR-07263-01	Waiver: ACD Base Frame Assembly Interior Volume Stay-Clear Violation	K. Segal	N/A
LAT-XR-07336-01	4.1.5 Calorimeter Closeout	N. Johnson	-$567K
LAT-XR-07349-01	Lockheed Martin Thermal Control System Testing Cost Increase	M. Campell	$540K

The cost baseline through FY05 is $155,550K Funding applicable to that baseline is $157,307K; the resulting contingency through FY05 is $1,757K.

7.0 Staffing

Attachment 9 demonstrates the staffing plan funded by DOE/NASA, and reports of actual manpower received. This report includes contracted labor which is bookkept as M&S.

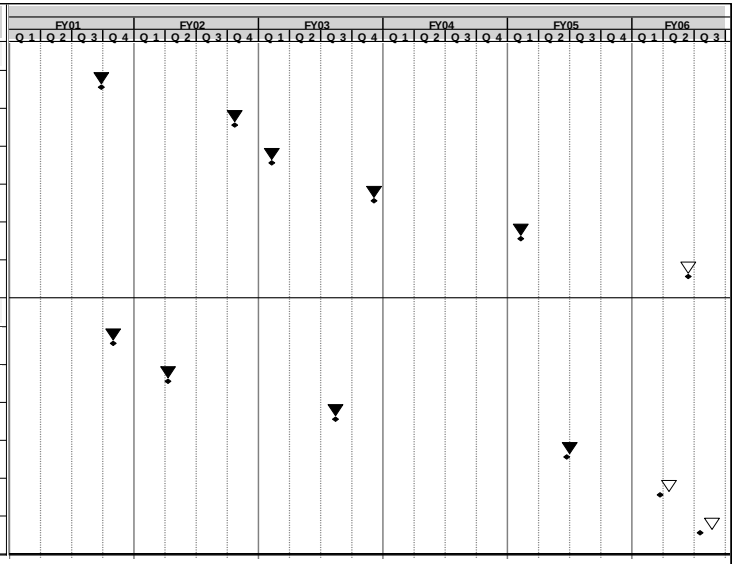
Actual incremental manpower for GSFC was not reported for this period. This impacts the 4.1.6 ACD, 4.1.1 Management, and 4.1.D Science Analysis Software subsystems.

Hardware delays have prevented the planned rampdown of Performance & Safety Assurance staff from occurring at this time.

[1] A positive number indicates a draw on contingency.

Attachment 1
Milestones, Levels 1-2

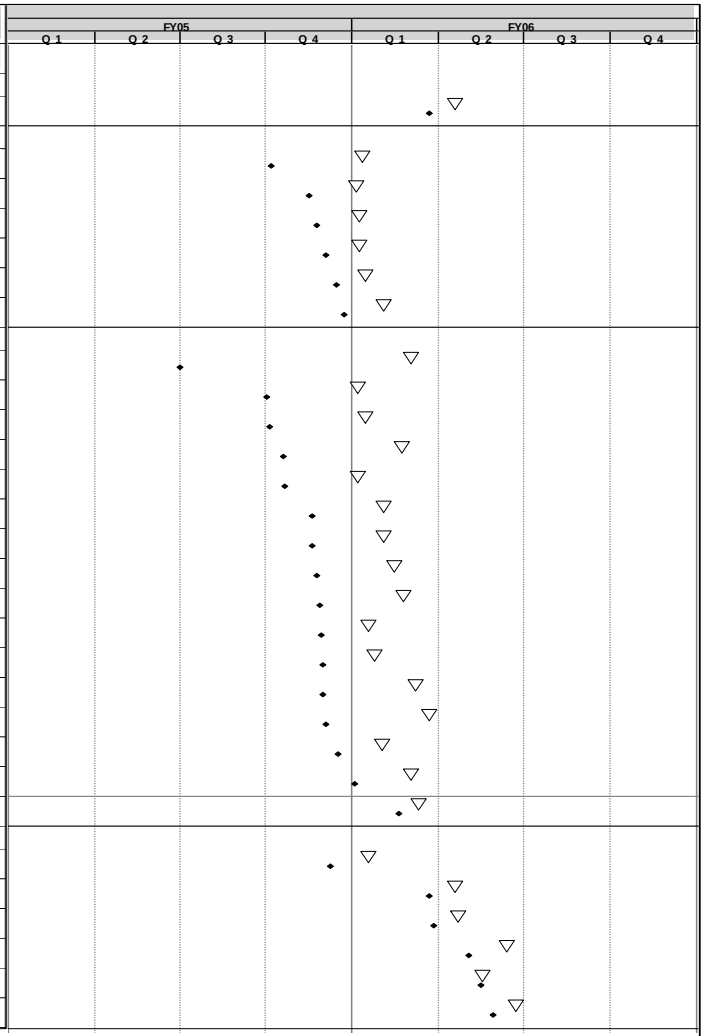
Activity ID	Activity Description	Target Finish Date	Variance	Scheduled Finish Date
DOE/NASA Joint Oversight Group (Level 1)				
1M1P000000	DOE Critical Decision (CD) 0 Approval	06/25/01A	0	06/25/01A
1M1P000010	CD-1 Approval	07/23/02A	0	07/23/02A
1M1P000020	CD-2 Approval	11/08/02A	0	11/08/02A
1M1P000030	CD-3 Approval	09/03/03A	0	09/03/03A
1M1P000060	Flight GRID Complete	11/08/04A	0	11/08/04A
1M1P000040	CD-4 Approval	03/15/06*	0	03/15/06*
DOE/NASA Federal Project Managers (Level 2)				
1M1BP00000	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)	05/16/03A	0	05/16/03A
1M1000740	Start LAT Integration	03/23/05	-5	03/30/05A
1M1000700	Pre Environmental Testing Review	12/20/05	-13	01/17/06
1M1000120	PSR-(Instrument Pre-Ship Review)	04/18/06	-25	05/23/06



Run Date 10/28/05 09:33	**GLAST LAT PROJECT**	1013 Sheet 1 of 1
© Primavera Systems, Inc.	**Project Milestones (Level 1 and 2)**	LT_MS1-2

Attachment 2
Future Level 3 Milestones
Page 1 of 2

Activity ID	Activity Description	Target Finish Date	Variance	Scheduled Finish Date
Instrument Project Office (Level 3)				
4.1.1 Instrument Management				
1M1001920	Pre-Environmental Test Review	12/20/05	-13	01/17/06
4.1.4 Tracker				
1M1000271	Flight Tracker Tower 8 RFI	07/06/05	-68	10/11/05
1M1000291	Flight Tracker Tower 12 RFI	08/15/05	-36	10/05/05
1M1000300	Flight Tracker Tower 13 RFI	08/24/05	-31	10/07/05
1M1000301	Flight Tracker Tower 14 RFI	09/02/05	-24	10/07/05
1M1000310	Flight Tracker Tower 15 RFI	09/13/05	-23	10/14/05
1M1000311	Flight Tracker Tower 16 RFI	09/22/05	-29	11/02/05
4.1.7 Electronics				
1M7941440	Final EGSE incl S/C Sim, FSW-Elec to I&T	04/01/05	-169	12/01/05
1M7942000	Flight PDU Box-Elec to I&T	07/01/05	-67	10/06/05
1M7941110	Flight Harness-Elec to I&T	07/05/05	-72	10/14/05
1M7941070	Flight GASU Box-Elec to I&T	07/19/05	-89	11/22/05
1M7R050	LCB Flight Units - Elec to Elec	07/20/05	-55	10/06/05
1M7941090	Flight Event Processor Units-Elec to I&T	08/19/05	-52	11/02/05
1M7R040	1st Flight EPU/SIU-Elec to I&T	08/19/05	-52	11/02/05
1M7R010	2nd Flight EPU/SIU-Elec to I&T	08/24/05	-57	11/14/05
1M7R020	3rd Flight EPU/SIU-Elec to I&T	08/26/05	-62	11/23/05
1M79530	Release FSW for FQT	08/29/05	-34	10/17/05
1M79540	FQT Scripts Complete	08/30/05	-38	10/24/05
1M7R030	4th Flight EPU/SIU-Elec to I&T	08/30/05	-67	12/06/05
1M7941080	5th Flight EPU/SIU-Elec to I&T	09/02/05	-108	12/20/05
1M79560	FQT Complete	09/15/05	-32	10/31/05
1M79610	FSW RFI to I&T	10/03/05	-41	12/01/05
1M79620	Delta Test Readiness Review	11/18/05	-13	12/09/05
4.1.9 I&T				
1M99040	Start 16 Tower Comprehensive Performance Test	09/07/05	-28	10/17/05
1M1000130	LAT Ready to Ship to NRL for Env Test	12/20/05	-13	01/17/06
1M19010	Ship LAT to NRL for Env Test	12/26/05	-23	01/20/06
1M19020	LAT EMI/EMC Test	02/01/06	-40	03/13/06
1M19030	LAT Sine Vibe	02/14/06	-1	02/15/06
1M19040	LAT Acoustic Test	02/26/06	-24	03/22/06



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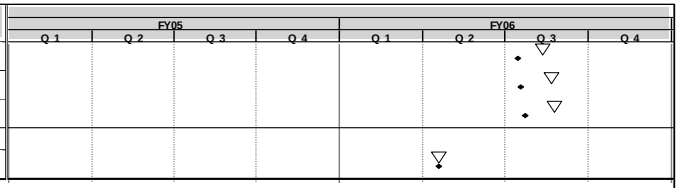
GLAST LAT PROJECT
Project Milestones (Level 3)
Planned Milestones

1013
LTX2 - MS3 (planned)
FLX1- MS (L3)

Sheet 1 of 2

Attachment 2
Future Level 3 Milestones
Page 2 of 2

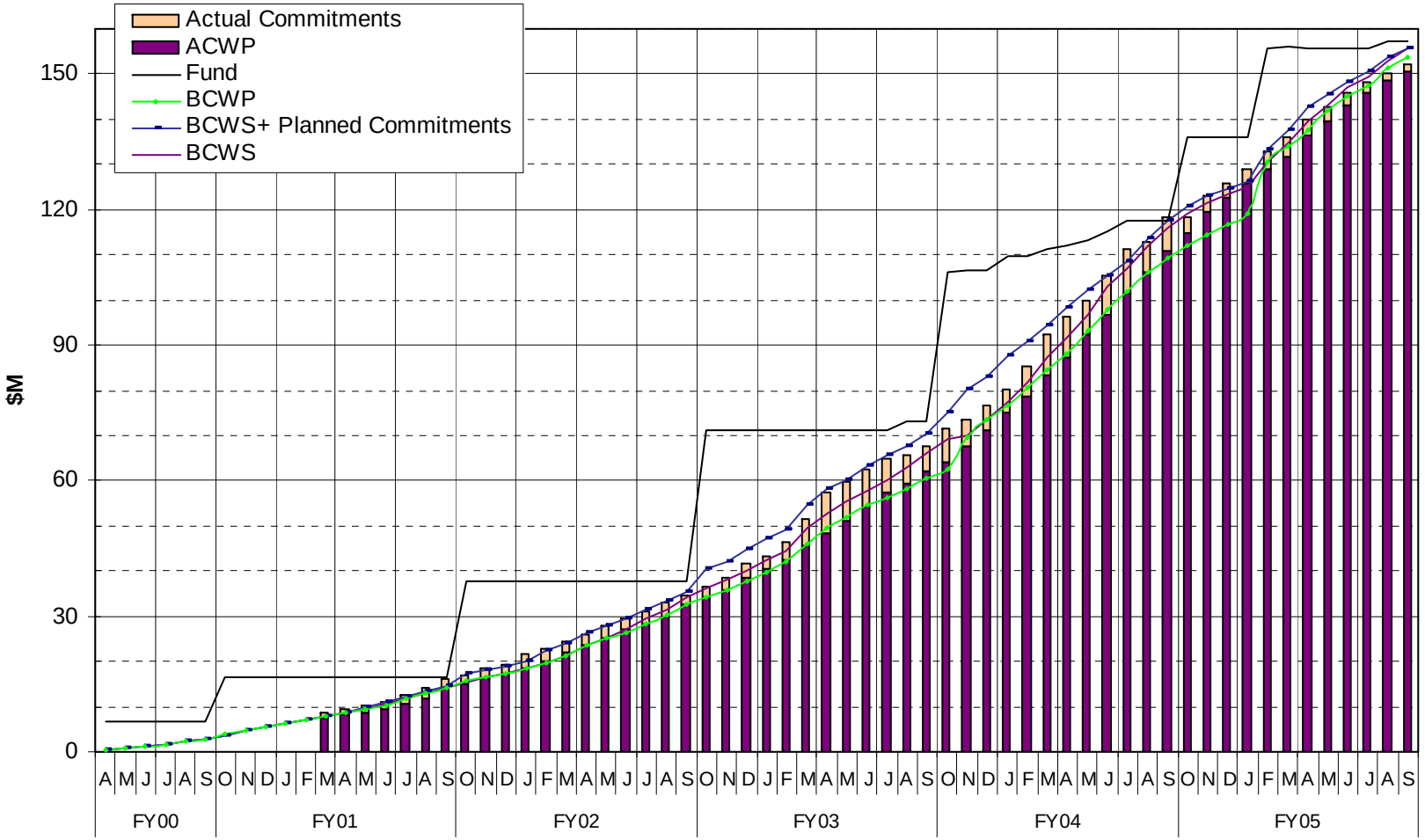
Activity ID	Activity Description	Target Finish Date	Variance	Scheduled Finish Date
1M19050	LAT TVAC	04/15/06	-26	05/11/06
1M19060	LAT Weight & CG	04/17/06	-35	05/22/06
1M19070	Ship LAT to Spectrum Astro	04/23/06	-31	05/24/06
4.1.B ISOC				
1M1000112	Mission Operations Review	01/17/06*	0	01/17/06*



Run Date 10/28/05 09:29 © Primavera Systems, Inc.	GLAST LAT PROJECT Project Milestones (Level 3) Planned Milestones	1013 LTX2 - MS3 (planned) RLX1- MS (L3) Sheet 2 of 2

Attachment 3

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



Attachment 4
LAT Costs, through September 2005, by WBS

Monthly Contractor Financial Management Report								Report for Month Ending: 9/30/2005	
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		4/3/2000 Estimated Final Cost	Billing	Unfilled Orders Outstanding
	During Month		Cum. to Date		Detail	Balance of Contract	Contractor Estimate	Contract Value	
	Actual	Planned	Actual	Planned					
4.1.1 INSTRUMENT MANAGEMENT	128	508	17,364	17,812		448	17,812	17,812	30
4.1.2 SYSTEM ENGINEERING	353	416	7,972	8,070		98	8,070	8,070	0
4.1.4 TRACKER	173	188	21,035	22,048		1,012	22,048	22,048	261
4.1.5 CALORIMETER	0	-869	21,554	21,554		0	21,554	21,554	2
4.1.6 ANTICOINCIDENCE DETECTOR	0	100	17,933	18,329		396	18,329	18,329	138
4.1.7 ELECTRONICS	503	417	28,428	29,703		1,275	29,703	29,703	563
4.1.8 MECHANICAL SYSTEMS	615	755	17,119	17,406		287	17,406	17,406	76
4.1.9 INTEGRATION & TEST	317	749	8,545	9,451		907	9,451	9,451	155
4.1.A PERFORMANCE AND SAFETY ASSURANCE	150	136	4,031	3,897		-134	3,897	3,897	0
4.1.B LAT INSTRUMENT SCIENCE OPERATIONS	2	2	317	334		18	334	334	0
4.1.C EDUCATION AND PUBLIC OUTREACH	42	70	2,305	2,684		378	2,684	2,684	202
4.1.D SCIENCE ANALYSIS SOFTWARE	41	75	2,805	2,936		131	2,936	2,936	117
4.1.E SUBORBITAL FLIGHT TEST	0	0	1,325	1,325		0	1,325	1,325	0
Gen. and Admin.	0	0	0	0		0	0	0	0
Total	2,324	2,547	150,733	155,550		4,817	155,550	155,550	1,543

Attachment 5
LAT Costs, through September 2005, by Organization and Cost Code
(Note: GSFC actual costs not supplied this period)

Monthly Contractor Financial Management Report							Report for Month Ending: 9/30/2005	
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		4/3/2000 Billing: Estimated Final Cost	Unfilled Orders Outstanding
	During Month		Cum. to Date		Detail	Balance of Contract	Contractor Estimate	Contract Value
	Actual	Planned	Actual	Planned				
DG *** GSFC	0	137	19,615	20,216		601	20,216	20,216	198
DH *** HEPL	81	236	8,166	8,674		508	8,674	8,674	0
DL *** SLAC	1,858	2,361	90,954	93,998		3,044	93,998	93,998	1,051
DN *** NRL	329	-266	27,007	27,258		250	27,258	27,258	30
DO *** Financial Plan Transfer/Sub Ou	0	0	59	59		0	59	59	0
DS *** SSU	42	69	2,281	2,654		372	2,654	2,654	202
DT *** Texas A&M	0	0	15	15		0	15	15	0
DU *** UCSC	11	1	2,384	2,396		13	2,396	2,396	0
DW *** UW	3	9	251	279		29	279	279	61
Gen. and Admin.	0	0	0	0		0	0	0	
Total	2,324	2,547	150,733	155,550		4,817	155,550	155,550	1,543

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 Contract	Contractor Estimate	Contract Value	
	Actual	Planned	Actual	Planned					
RL LABOR	956	776	71,603	72,190		587	72,190	72,190	
RT TRAVEL	61	-325	1,817	2,110		294	2,110	2,110	
RM MATERIAL & SERVICES	1,307	2,039	74,928	78,643		3,715	78,643	78,643	
RX MPS & LAB TAX	0	58	2,386	2,607		221	2,607	2,607	
Gen. and Admin.	0	0	0	0		0	0	0	
Total	2,324	2,547	150,733	155,550		4,817	155,550	155,550	

Attachment 6
LAT Performance, through September 2005, by WBS

Cost Performance Report - Work Breakdown Structure													
Contractor: Location:				Contract Type/No:				Project Name/No: GLAST LAT Project		Report Period: 8/31/2005 9/30/2005			
Quantity 1	Negotiated Cost 0		Est. Cost Authorized Unpriced Work 0	Tgt. Profit/ Fee % 0	 0	Tgt. Price 0	Est Price 0	Share Ratio		Contract Ceiling 0	Estimated Contract Ceiling 0		
CAPW[3]	Current Period					Cumulative to Date					At Completion		
	Budgeted Cost		Actual Cost	Variance		Budgeted Cost		Actual Cost	Variance			Latest	
Item	Work Scheduled	Work Performed	Work Performed	Schedule	Cost	Work Scheduled	Work Performed	Work Performed	Schedule	Cost	Budgeted	Revised Estimate	Variance
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
4.1.1 INSTRUMENT MANAGEMENT	508	508	128	0	380	17,812	17,812	17,364	0	448	17,812	17,812	0
4.1.2 SYSTEM ENGINEERING	416	416	353	0	63	8,070	8,070	7,972	0	98	8,070	8,070	0
4.1.4 TRACKER	188	368	173	180	195	22,048	21,891	21,035	-157	855	22,048	22,048	0
4.1.5 CALORIMETER	-869	-767	0	102	-767	21,554	21,554	21,554	0	0	21,554	21,554	0
4.1.6 ANTICOINCIDENCE DETECTOR	100	102	0	2	102	18,329	18,329	17,933	0	396	18,329	18,329	0
4.1.7 ELECTRONICS	417	382	503	-35	-121	29,703	28,818	28,428	-885	390	29,703	29,703	0
4.1.8 MECHANICAL SYSTEMS	755	694	615	-61	80	17,406	17,049	17,119	-356	-70	17,406	17,406	0
4.1.9 INTEGRATION & TEST	749	317	317	-432	0	9,451	8,915	8,545	-537	370	9,451	9,451	0
4.1.A PERFORMANCE AND SAFETY AS	136	136	150	0	-15	3,897	3,897	4,031	0	-134	3,897	3,897	0
4.1.B LAT INSTRUMENT OPERATIONS (	2	2	2	0	0	334	334	317	0	18	334	334	0
4.1.C EDUCATION AND PUBLIC OUTRE	70	70	42	0	28	2,684	2,684	2,305	0	378	2,684	2,684	0
4.1.D SCIENCE ANALYSIS SOFTWARE	75	75	41	0	34	2,936	2,936	2,805	0	131	2,936	2,936	0
4.1.E SUBORBITAL FLIGHT TEST	0	0	0	0	0	1,325	1,325	1,325	0	0	1,325	1,325	0
Gen. and Admin.	0	0	0	0	0	0	0	0	0	0	0	0	0
Undist. Budget											0	0	0
Sub Total	2,547	2,304	2,324	-243	-20	155,550	153,615	150,733	-1,935	2,882	155,550	155,550	0
Contingency											1,757	1,757	0
Total	2,547	2,304	2,324	-243	-20	155,550	153,615	150,733	-1,935	2,882	157,307	157,307	0

Attachment 7
LAT Performance, through September 2005, by Organization
(Note: GSFC actual costs not supplied this period)

Cost Performance Report - Work Breakdown Structure													
Contractor: Location:					Contract Type/No:			Project Name/No: GLAST LAT Project		Report Period: 8/31/2005 9/30/2005			
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	0		
OBS[1]	Current Period					Cumulative to Date					At Completion		
	Budgeted Cost		Actual Cost	Variance		Budgeted Cost		Actual Cost	Variance			Latest	
Item	Work Scheduled	Work Performed	Work Performed	Schedule	Cost	Work Scheduled	Work Performed	Work Performed	Schedule	Cost	Budgeted	Revised Estimate	Variance
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
DG *** GSFC	137	138	0	2	138	20,216	20,216	19,615	0	601	20,216	20,216	0
DH *** HEPL	236	236	81	0	155	8,674	8,674	8,166	0	508	8,674	8,674	0
DL *** SLAC	2,361	1,946	1,858	-415	88	93,998	92,068	90,954	-1,931	1,114	93,998	93,998	0
DN *** NRL	-266	-96	329	170	-425	27,258	27,253	27,007	-4	246	27,258	27,258	0
DO *** Financial Plan	0	0	0	0	0	59	59	59	0	0	59	59	0
DS *** SSU	69	69	42	0	27	2,654	2,654	2,281	0	372	2,654	2,654	0
DT *** Texas A&M	0	0	0	0	0	15	15	15	0	0	15	15	0
DU *** UCSC	1	1	11	0	-10	2,396	2,396	2,384	0	13	2,396	2,396	0
DW *** UW	9	9	3	0	6	279	279	251	0	29	279	279	0
Gen. and Admin.	0	0	0	0	0	0	0	0	0	0	0	0	0
Undist. Budget											0	0	0
Sub Total	2,547	2,304	2,324	-243	-20	155,550	153,615	150,733	-1,935	2,882	155,550	155,550	0
Contingency											0	0	0
Total	2,547	2,304	2,324	-243	-20	155,550	153,615	150,733	-1,935	2,882	155,550	155,550	0

Attachment 8
LAT Performance Analysis, September 2005

	WBS	BAC	BCWS	BCWP	ACWP	SV $	CV $	% BCWS	% BCWP	% ACWP	SPI Trend	CPI Trend	SPI	CPI	CPI Fcst	CpiSpi Fcst
1	4.1	155,550	155,550	153,615	150,733	-1,935	2,882	100.00	98.76	96.90	↓	↔	0.988	1.019	152,632	152,656
2	4.1.1	17,812	17,812	17,812	17,364	0	448	100.00	100.00	97.48	↔	↑	1.000	1.026	17,364	17,364
3	4.1.2	8,070	8,070	8,070	7,972	0	98	100.00	100.00	98.78	↔	↑	1.000	1.012	7,972	7,972
4	4.1.4	22,048	22,048	21,891	21,035	-157	855	100.00	99.29	95.41	↑	↑	0.993	1.041	21,186	21,187
5	4.1.5	21,554	21,554	21,554	21,554	0	0	100.00	100.00	100.00	↑	↓	1.000	1.000	21,554	21,554
6	4.1.6	18,329	18,329	18,329	17,933	0	396	100.00	100.00	97.84	↑	↑	1.000	1.022	17,933	17,933
7	4.1.7	29,703	29,703	28,818	28,428	-885	390	100.00	97.02	95.71	↔	↓	0.970	1.014	29,301	29,328
8	4.1.8	17,406	17,406	17,049	17,119	-356	-70	100.00	97.95	98.35	↓	↑	0.980	0.996	17,477	17,484
9	4.1.9	9,451	9,451	8,915	8,545	-537	370	100.00	94.32	90.41	↓	↔	0.943	1.043	9,059	9,090
10	4.1.A	3,897	3,897	3,897	4,031	0	-134	100.00	100.00	103.43	↔	↔	1.000	0.967	4,031	4,031
11	4.1.B	334	334	334	317	0	18	100.00	100.00	94.71	↔	↔	1.000	1.056	317	317
12	4.1.C	2,684	2,684	2,684	2,305	0	378	100.00	100.00	85.90	↔	↔	1.000	1.164	2,305	2,305
13	4.1.D	2,936	2,936	2,936	2,805	0	131	100.00	100.00	95.52	↔	↑	1.000	1.047	2,805	2,805
14	4.1.E	1,325	1,325	1,325	1,325	0	0	100.00	100.00	99.98	↔	↔	1.000	1.000	1,325	1,325

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)

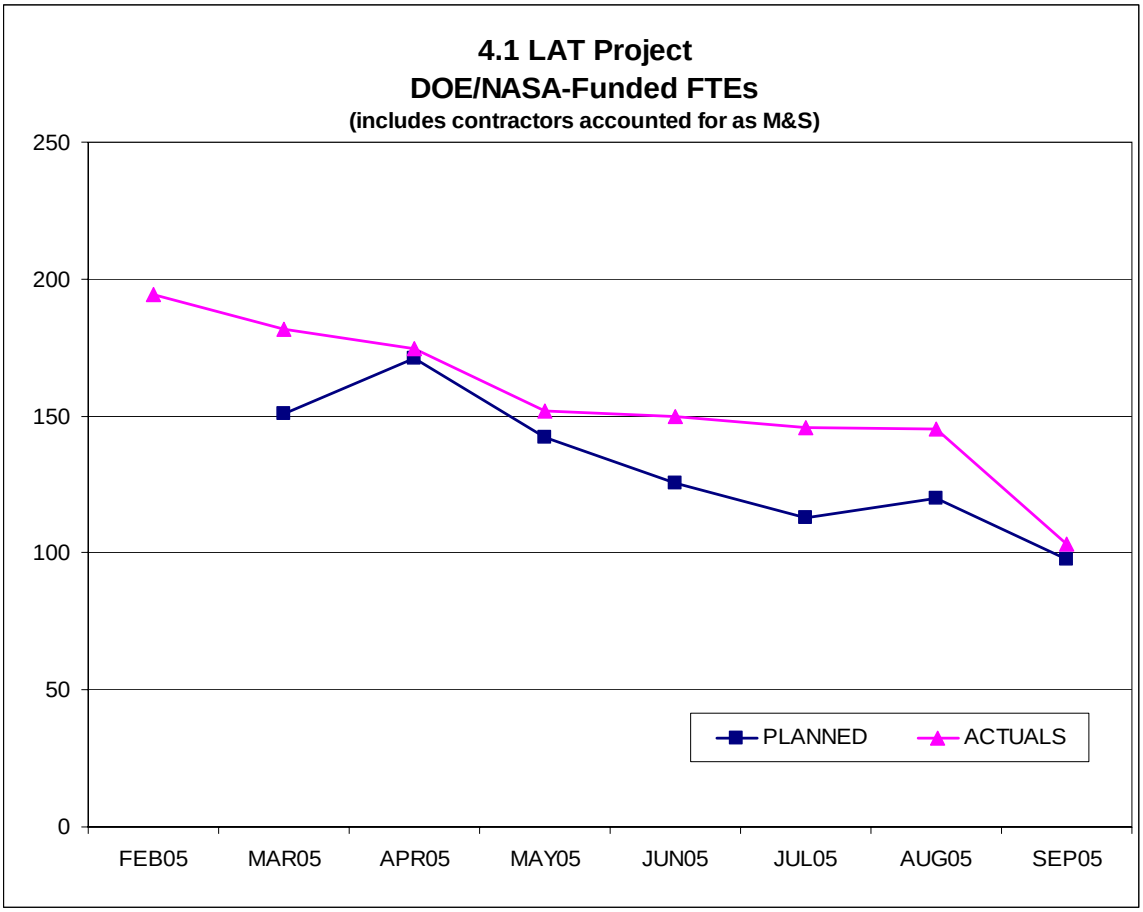
SV $: Schedule Variance = BCWP - BCWS
CV $: Cost Variance = BCWP - ACWP
SPI: Schedule Performance Index = BCWP/BCWS
CPI: Cost Performance Index = BCWP/ACWP

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

Worse than .85
Between .85 and .95
Between .95 and 1.10
Better than 1.10
SPI and CPI Change Thresholds

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

Attachment 9



FTEs BY SUBSYSTEM		FEB05	MAR05	APR05	MAY05	JUN05	JUL05	AUG05	SEP05
4.1.1 INSTRUMENT MANAGEMENT	PLANNED		19.2	19.2	19.2	18.7	19.4	11.2	14.0
	ACTUALS	19.7	23.4	19.2	18.4	16.8	23.2	17.9	15.1
4.1.2 SYSTEM ENGINEERING	PLANNED		10.2	10.3	10.3	10.3	10.3	15.1	14.3
	ACTUALS	10.5	10.1	9.8	8.8	9.6	9.7	17.5	15.7
4.1.4 TRACKER	PLANNED		16.8	16.6	12.7	10.7	9.9	9.2	10.2
	ACTUALS	17.0	15.4	15.9	13.9	15.1	15.9	12.6	12.6
4.1.5 CALORIMETER	PLANNED		18.7	19.6	13.4	9.9	7.6	8.1	0.0
	ACTUALS	23.8	19.8	21.6	11.5	15.1	5.2	0.0	0.0
4.1.6 ANTICOINCIDENCE DETECTOR	PLANNED		16.4	39.0	26.4	22.1	11.6	13.0	3.6
	ACTUALS	36.2	33.1	29.8	37.1	28.2	27.3	35.7	0.0
4.1.7 ELECTRONICS	PLANNED		28.8	22.9	22.8	18.3	15.4	26.8	21.1
	ACTUALS	36.7	35.2	32.5	27.8	24.5	27.5	25.6	23.4
4.1.8 MECHANICAL SYSTEMS	PLANNED		6.0	6.4	1.7	4.1	7.2	5.9	4.3
	ACTUALS	3.7	3.2	3.9	3.6	4.2	3.4	2.5	2.2
4.1.9 INTEGRATION & TEST	PLANNED		15.3	17.2	16.2	16.3	16.4	16.5	15.9
	ACTUALS	20.5	23.0	19.1	13.9	12.4	14.5	14.8	17.2
4.1.A PERFORMANCE AND SAFETY ASSURANCE	PLANNED		12.5	12.3	9.9	5.9	4.9	4.9	4.9
	ACTUALS	12.6	12.4	12.1	11.5	11.3	11.1	9.1	8.5
4.1.B LAT INSTRUMENT SCIENCE OPERATIONS CENTER	PLANNED		0.2	0.2	0.2	0.2	0.2	0.2	0.1
	ACTUALS	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
4.1.C EDUCATION AND PUBLIC OUTREACH	PLANNED		1.5	2.0	4.3	4.1	4.5	3.9	4.3
	ACTUALS	10.1	3.3	7.1	2.3	7.9	2.9	4.4	4.6
4.1.D SCIENCE ANALYSIS SOFTWARE	PLANNED		5.3	5.3	5.1	4.9	5.3	5.2	5.2
	ACTUALS	3.8	2.6	3.7	3.1	4.4	5.1	5.0	3.9
Grand Totals:	PLANNED		150.8	171.0	142.3	125.5	112.7	120.0	97.9
	ACTUALS	194.5	181.6	174.8	152.0	149.6	145.8	145.2	103.4