Monthly Progress Report

(Month Ending April 2002)

GLAST Large Area Telescope (LAT)

LAT-MR-00761-01

June 27, 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 April, 2002.

Note that the LAT project undertaking a three-part planning revision, prior to baseline approval. This report reflects the implementation of the first step, several change control actions as described in Section 6. The second step is to extend the schedule by six months, reflecting a shift in the instrument delivery date. The final step is to define the fabrication and commissioning phases. The May monthly report will include all these changes, and will reflect the proposed baseline.

2.0 Recent Progress and Status

A SLAC internal review of the LAT project was conducted April 16-18, to review the status of the management, technical, cost and schedule issues.

Tracker: Errors in both ASIC chips were found and corrected. A number of drawings for the trays/tower were released. The Tracker web site is on line and up to date (http://www-glast.slac.stanford.edu/Tracker-Hardware). The flex cable design was completed.

Calorimeter: All VM2 testing was completed; it is now being disassembled and reports are being generated. Testing of the GCFE version 5 ASICs was completed. Some problems were encountered and work-around solutions are being developed. The EGSE system provided by the Integration & Test subsystem has been received, tested, and is in use. Good progress is being made on the CDE bonding studies.

ACD: Additional test tiles were delivered from Fermilab. An ASIC submission was made. The digital ASIC is fine, but there were some problems with the analog ASIC which have been worked out. The PMT housings are being received, and the installation method has been worked out.

Mechanical Systems: A substantially revised cost and schedule plan was completed. The thermal model was completed at Lockheed Martin and is generating good numbers.

Integration & Test: EGSE hardware packages were shipped to the Calorimeter and ACD subsystems; the EGSE team visited NRL and GSFC to install three EM1 Release 1 test stand systems. The L2, L3, and L4 flow down of requirements into the SVAC plan have been finalized. The ACD TEM software definition has been implemented. The MGSE Engineer has been hired and will start mid-May.

3.0 Schedule Status

The status of significant (Levels 1 and 2) milestones identified in the Project Management Plan (LAT-MD-00054-05, currently in review) for the LAT project is summarized in Attachment 1. Level 3 milestone status is included as Attachment 2. Variances to milestones are explained below:

- Level 1: No variances.
- Level 2: No variances.
- Level 3:
    - 1M1001440 Prelim Mech Dwgs for EM Grid: Noted as exception in May 2 CCB minutes (LAT-LR-00708-01). Delayed due to diversion of effort toward Delta PDR.
    - 1M1001240 Prelim Mech Dwgs for EM CAL: This milestone date has been moved as part of the six-month schedule extension (in progress).

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 unfavorable schedule variance in 4.1.4 Tracker is due to the delayed ASIC receipt causing delays in other areas of the schedule. These effects will be resolved in the course of the schedule extension exercise.

No status report was received for 4.1.6 ACD, resulting in unfavorable cost and schedule variances.

The favorable cost variance in 4.1.7 Electronics is caused by a combination of invoicing and hiring delays. Personnel were diverted to other high priority LAT tasks, contributing to the unfavorable schedule variance; a workaround plan is underway.

The favorable cost variance in 4.1.8 Mechanical Systems is due to a delay in subcontractor invoicing.

The unfavorable schedule variance in 4.1.9 Integration & Test results from a delay in hiring an MGSE engineer (subsequently hired in May), and delayed IFTC engineering model and calibration unit preparations. The unfavorable cost variance is due to a reporting error, which will be corrected in the course of May's reporting cycle.

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.

6.0 Change Control and Contingency Analysis

Twelve change requests were submitted during May, and are reflected in the baseline for this reporting period. The current contingency pool is $11.5M (relative to the estimate at completion). Note that these changes comprise the first part of a three-part change being implemented prior to baseline approval. The second step is to extend the schedule by six months, reflecting a shift in the instrument delivery date. The final step is to define the fabrication and commissioning phases.

Change Request No.	Description	Submitted By	Submittal Date	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

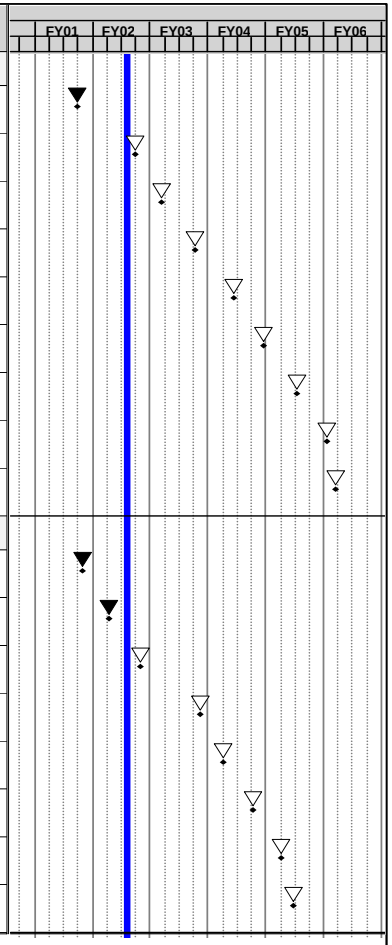
LAT-XR-00703-01	System Test Plan	T. Thurston	5/2/02	Approved $707K
LAT-XR-00711-01	Tracker Flight ASIC Procurement	T. Borden	5/8/02	Approved $10K
LAT-XR-00713-01	Calorimeter Electronic Parts, Qualification & Test	N. Johnson	5/8/02	Approved $921K
LAT-XR-00716-01	New Mechanical Systems Plan	M. Nordby	5/8/02	Approved $4,304K
LAT-XR-00743-01	New Calorimeter Base Program Error Correction	N. Johnson	5/22/02	Approved $48K

7.0 Staffing

Attachments 9-12 demonstrate the staffing plan, and reports of actual manpower received. Note that not all participating institutions are reporting actual manpower data yet.

Attachment 1
Milestones, Levels 1-2

Activity Description	Target Finish Date	Variance	Finish Date
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	04/15/05*	0	04/15/05*
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 2			
Launch Balloon Flight	08/01/01A	0	08/01/01A
Instrument Preliminary Design Review	01/07/02A	-1	01/08/02A
I-CDR (Critical Design Review)	08/05/02*	0	08/05/02*
1st Two Towers Ready for Calibration	08/15/03*	0	08/15/03*
Start LAT Integration	01/02/04*	0	01/02/04*
Pre Environmental Testing Review	07/09/04*	0	07/09/04*
PSR-(Instrument Pre-Ship Review)	01/07/05*	0	01/07/05*
LAT Ready for Integration (RFI) to Spacecraft	03/22/05*	0	03/22/05*



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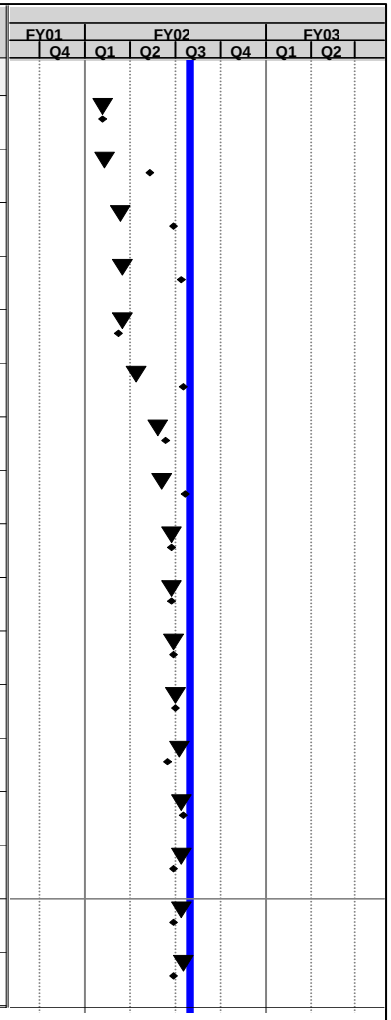
GLAST LAT PROJECT
Project Milestones (Level 1-2)

0603
z1 - MS (L1-2)/z1- MS (L1-2)

Sheet 1

Attachment 2 (Page 1 of 4)
Level 3 Milestones (One-Year View)

Activity Description	Target Finish Date	Variance	Finish Date	ND	AV
Instrument Project Office (Level 3					
VME Com Card (TEM Sim)-from Elec to CAL	11/05/01A	0	11/05/01A	5	7
(2) Mini MCM's from Tracker to Elec	02/07/02A	57	11/06/01A	7	4
TEM Reg Descrip-ELX to I&T/Online*	03/29/02A	70	12/10/01A	9	7
VM Versions of CAL AFFE-CAL to Elec	04/12/02*	76	12/14/01A	7	5
PDR Submittals Due	12/04/01A	-8	12/15/01A		
Prelim Mech Dwgs for EM TKR - TKR to I&T	04/15/02*	66	01/09/02A	9	4
TEM H/W driver, init ver-ELX to I&T/Online	03/12/02A	12	02/22/02A	9	7
ICD for EM finalized I&T/SVAC-SAS	04/19/02*	34	03/04/02A	D	9
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	04/01/02*	0	04/01/02A	9	7
(1) Prototype Electronics Module (Elec to ACD)	03/15/02A	-16	04/08/02A	6	7
AEM reg descrip-ELX to I&T/Online	04/15/02*	1	04/12/02A	9	7
EGSE Workstation / Software #1 (I&T to TKR)	03/29/02A	-10	04/12/02A	4	9
EGSE Workstation / Software #1 (I&T to ELX)	03/29/02A	-10	04/12/02A	7	9
EGSE Workstation / Software #1 (I&T to CAL)	03/29/02A	-11	04/15/02A	5	9



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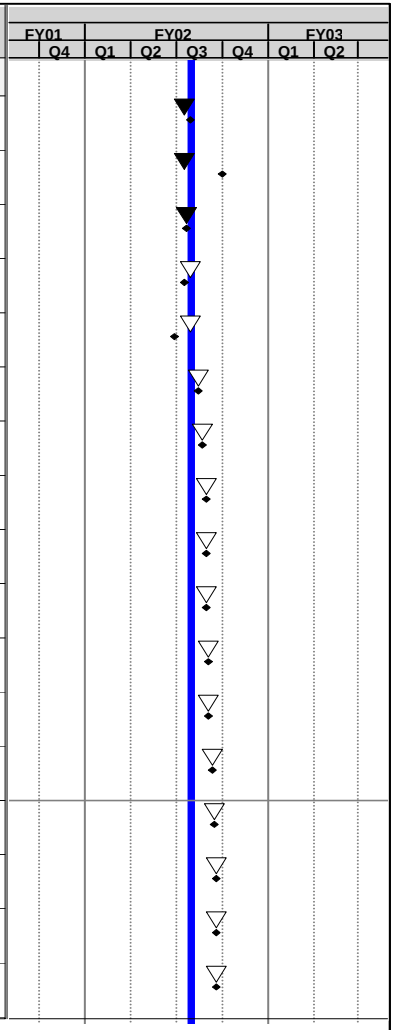
GLAST LAT PROJECT
Project Milestones (Level 3)
1 Year View (+/- 6mo)

0603
LT - MS (L3)
FL - MS (L3)

Attachment 2, Continued (Page 2 of 4)
Level 3 Milestones (One-Year View)

Activity Description	Target Finish Date	Variance	Finish Date	ND	AV
Instrument Project Office (Level 3					
EGSE Workstation / Software #1 (I&T to ACD)	04/30/02*	10	04/16/02A	6	9
EGSE Workstation / Software #2 (I&T to ACD)	07/01/02*	53	04/16/02A	6	9
EGSE EM1 H/W Release-Elec to I&T	04/22/02*	0	04/22/02A	9	7
Prelim Mech Dwgs for EM CAL - CAL to I&T	04/15/02*	-11	04/30/02*	9	5
Prelim Mech Dwgs for EM GRID - MECH to I&T	03/29/02A	-22	04/30/02	9	8
Calorimeter Calibration Prototype Coding SAS-I&T	05/15/02*	0	05/15/02*	9	D
Mechanical Systems M-CDR	05/22/02*	0	05/22/02*	2	8
As-Built dwgs for EM TKR-TKR to I&T	05/31/02*	0	05/31/02*	9	4
Def of Data format from ELX/FSW to I&T/Online	05/31/02*	0	05/31/02*	9	7
1st Major Release of Sim/Recon (SAS to I & T)	05/31/02*	0	05/31/02*	9	D
High Voltage Power Supply (Bd & Prts)-ACD toElec	06/03/02*	0	06/03/02*	7	6
Calorimeter CDR	06/05/02*	0	06/05/02*	2	5
Flight Software CDR	06/12/02*	0	06/12/02*	2	7
Mechanical dPDR	06/17/02*	0	06/17/02*		
Tracker CDR	06/18/02*	0	06/18/02*	2	4
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



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Project Milestones (Level 3)
1 Year View (+/- 6mo)

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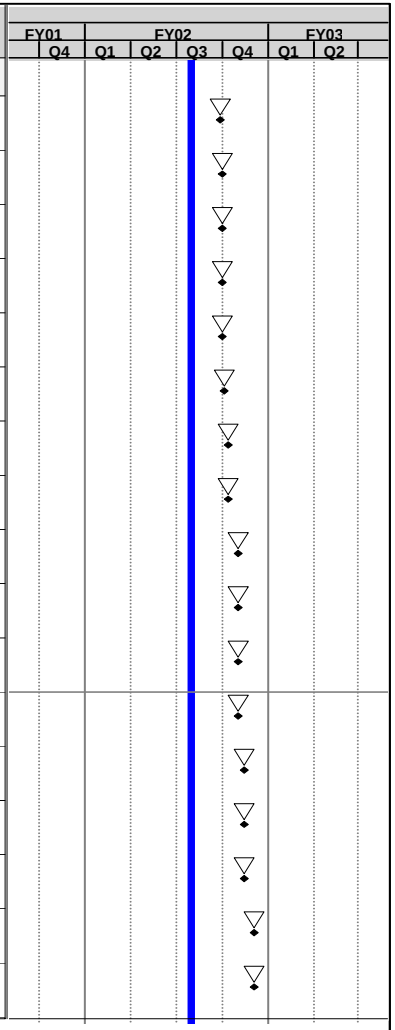
LT - MS (L3)
FL - MS (L3)

Attachment 2, Continued (Page 3 of 4)
Level 3 Milestones (One-Year View)

Activity Description	Target Finish Date	Variance	Finish Date	ND	AV
Instrument Project Office (Level 3					
Anticoincidence Detector CDR	06/26/02*	0	06/26/02*	2	6
GEM register description-ELX to I&T/Online	07/01/02*	0	07/01/02*	9	7
ACD Electronics Module - EM1 (Elec to ACD)	07/01/02*	0	07/01/02*	6	7
Test/Screening Board w/ASIC for EM1 -ACD to Elec	07/01/02*	0	07/01/02*	7	6
(9) MCM's from Tracker to Elec	07/02/02*	0	07/02/02*	7	4
LAT Verification Test Plan	07/05/02*	0	07/05/02*		
CDR Submittals Due	07/12/02*	0	07/12/02*	1	
As-Built EM CAL Dwgs-CAL to I&T	07/15/02*	0	07/15/02*	9	5
GEM data taking desc-ELX to I&T/Online	08/01/02*	0	08/01/02*	9	7
FSW system spec-ELX/FSW to I&T/Online	08/01/02*	0	08/01/02*	9	7
Delivery of EM (2X2) Grid to I&T/MSGE	08/01/02*	0	08/01/02*	9	8
CAL AFFE Engr Model-CAL to Elec	08/01/02*	0	08/01/02*	7	5
GEM H/W driver, init ver-ELX to I&T/Online	08/15/02*	0	08/15/02*	9	7
TEM H/W driver, final ver-ELX to I&T/Online	08/15/02*	0	08/15/02*	9	7
AEM H/W driver final ver-ELX to I&T/Online	08/15/02*	0	08/15/02*	9	7
ICD for CU I&T/SVAC to SAS	09/03/02*	0	09/03/02*	D	9
Science Analysis Software CDR	09/04/02*	0	09/04/02*	2	D



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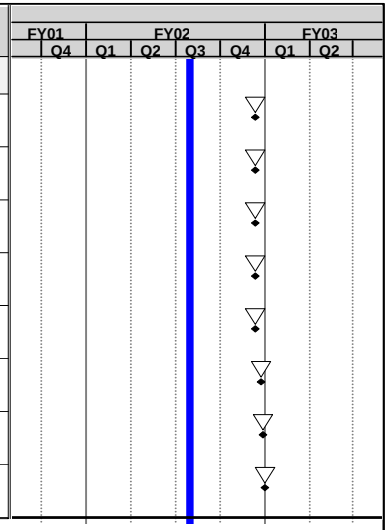
Project Milestones (Level 3)
1 Year View (+/- 6mo)

0603
LT - MS (L3)
FL - MS (L3)

Attachment 2, Continued (Page 4 of 4)
Level 3 Milestones (One-Year View)

Activity Description	Target Finish Date	Variance	Finish Date	ND	AV
Instrument Project Office (Level					
EM1 EGSE WS-S/W R2 I&T to ACD	09/13/02*	0	09/13/02*	6	9
EM1 EGSE WS-S/W R2 I&T to CAL	09/13/02*	0	09/13/02*	5	9
EM1 EGSE WS-S/W R2 I&T to ELX	09/13/02*	0	09/13/02*	7	9
EM1 EGSE WS-S/W R2 I&T to IOC	09/13/02*	0	09/13/02*	B	9
EM1 EGSE WS-S/W R2 I&T to TKR	09/13/02*	0	09/13/02*	4	9
Develop List of MC Runs for EM I&T to SAS	09/23/02*	0	09/23/02*	D	9
IPS description-ELX to I&T/Online	09/26/02*	0	09/26/02*	9	7
EM MC Runs from SAS to I&T/SVAC	10/01/02*	0	10/01/02*	9	D



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GLAST LAT PROJECT
Project Milestones (Level 3)
1 Year View (+/- 6mo)

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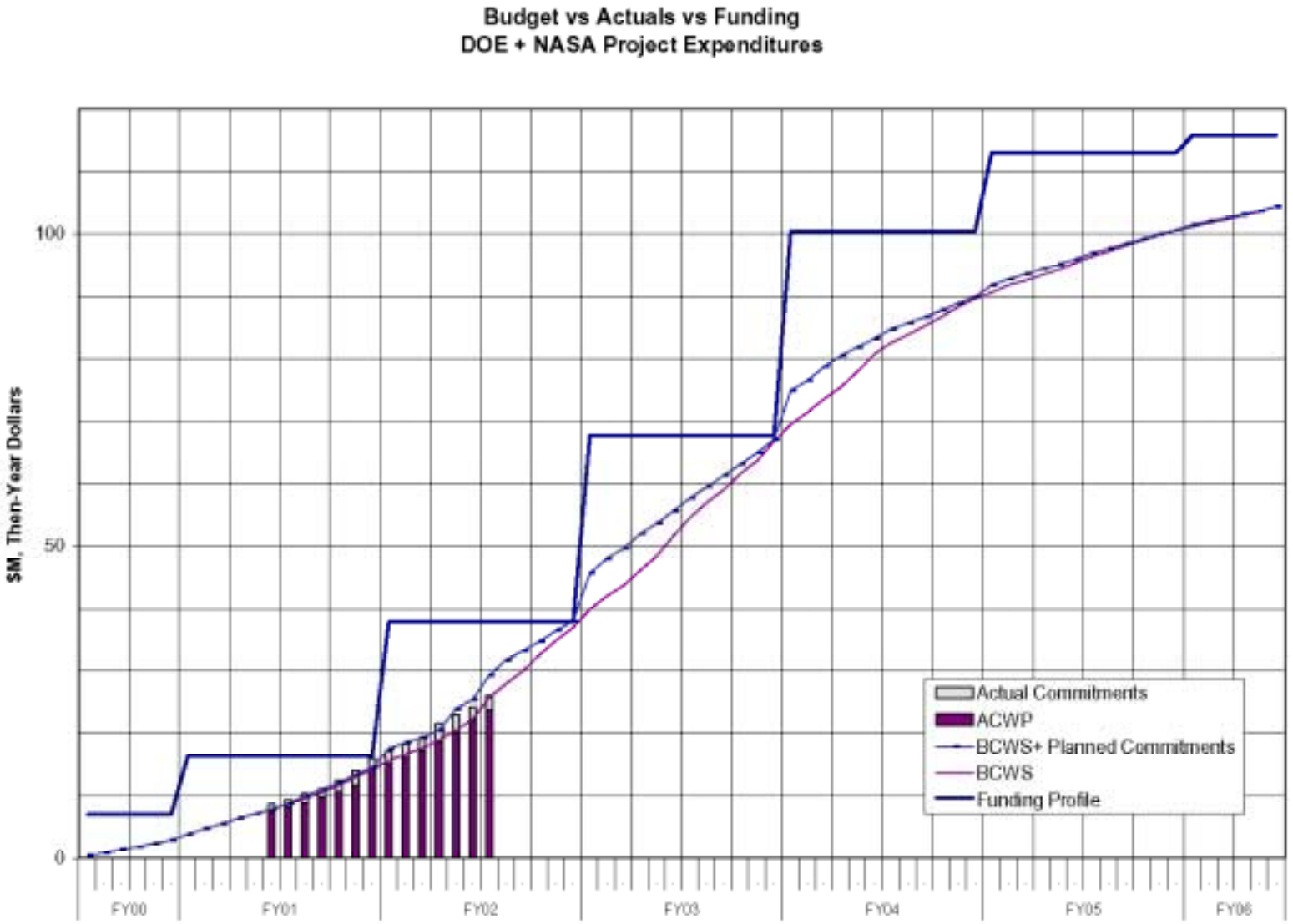
LT - MS (L3)
FL - MS (L3)

Sheet 4 of 4

Attachment 3



Attachment 4
LAT Costs, through April 2002, by WBS

Monthly Contractor Financial Management Report 30-Apr-02									Report for Month Ending: 4/30/02	
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
LAT2 GLAST LAT Project	Type:								Fund Limitation: 0	
Reporting Category	Cost Incurred/Hours Worked				Estimated Cost/Hours to Complete			4/3/00 Estimated Final Cost/Hours	Billing	Unfilled Orders Outstanding
	During Month		Cum. to Date		Detail		Balance of Budget	Project Estimate	Budget Value	
	Actual	Planned	Actual	Planned	MAY02	JUN02				
4.1.1 INSTRUMENT MANAGEMENT	109	285	3,979	3,925	285	259	7,928	12,450	12,450	
4.1.2 SYSTEM ENGINEERING	30	228	1,572	1,585	116	105	3,006	4,799	4,799	
4.1.4 TRACKER	143	463	4,419	4,623	89	227	5,265	10,000	10,000	
4.1.5 CALORIMETER	464	515	3,830	4,274	506	329	12,421	17,086	17,086	
4.1.6 ANTICOINCIDENCE DETECTOR	266	231	2,710	2,625	231	229	6,860	10,030	10,030	
4.1.7 ELECTRONICS	154	187	2,458	2,971	160	134	13,589	16,340	16,340	
4.1.8 MECHANICAL SYSTEMS	81	1,097	1,283	1,907	520	425	10,383	12,610	12,610	
4.1.9 INTEGRATION & TEST	146	172	439	491	147	146	6,409	7,141	7,141	
4.1.A PERFORMANCE AND SAFETY ASSURANCE	52	62	436	606	62	56	1,651	2,206	2,206	
4.1.B LAT INSTRUMENT OPERATIONS CENTER	19	28	230	277	28	36	3,417	3,711	3,711	
4.1.C EDUCATION AND PUBLIC OUTREACH	17	56	352	436	28	26	2,502	2,908	2,908	
4.1.D SCIENCE ANALYSIS SOFTWARE	47	56	572	592	52	54	3,022	3,700	3,700	
4.1.E SUBORBITAL FLIGHT TEST	62	0	1,377	1,321	0	0	-56	1,321	1,321	
Gen. and Admin.	0	0	0	0	0	0	0	0	0	
Total	1,591	3,380	23,655	25,633	2,224	2,026	76,397	104,302	104,302	

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

Monthly Contractor Financial Management Report 30-Apr-02								Report for Month Ending: 4/30/02	
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
LAT2 GLAST LAT Project	Type:							Fund Limitation: 0	
Reporting Category	Cost Incurred/Hours Worked				Estimated Cost/Hours to Complete			4/3/00 Estimated Final Cost/Hours	Billing Unfilled Orders Outstanding
	During Month		Cum. to Date		Detail		Balance of Budget	Project Estimate	Budget Value
	Actual	Planned	Actual	Planned	MAY02	JUN02			
DG *** GSFC	300	267	3,794	3,756	267	263	8,870	13,194	13,194
DH *** HEPL	92	118	2,423	2,437	94	98	6,886	9,501	9,501
DL *** SLAC	588	2,269	11,018	11,964	1,182	1,178	38,719	52,096	52,096
DN *** NRL	560	629	5,061	5,787	612	426	17,641	23,739	23,739
DS *** SSU	17	56	352	436	28	26	2,452	2,858	2,858
DT *** Texas A&M	0	0	0	16	0	0	16	16	16
DU *** UCSC	34	42	1,007	1,239	42	38	1,811	2,898	2,898
Total	1,591	3,380	23,655	25,633	2,225	2,029	76,393	104,302	104,302

RL LABOR	915	1,292	13,884	15,949	1,194	1,054	42,039	58,171	58,171
FTE	*134.0*	*197.1*	*1,447.0*	*2,302.6*	*184.0*	*185.0*	*6,362.2*	*8,178.2*	*8,178.2*
HOURS	*23,590*	*34,684*	*247,366*	*378,729*	*32,351*	*29,601*	*1,040,021*	*1,349,338*	*1,349,338*
RT TRAVEL	33	58	452	675	54	58	3,173	3,737	3,737
RM MATERIAL & SERVICES	451	1,956	8,647	8,450	902	848	28,307	38,704	38,704
RX MPS & LAB TAX	191	75	672	559	75	68	2,876	3,692	3,692
Total (not incl FTE/Hours)	1,591	3,380	23,655	25,633	2,225	2,028	76,395	104,304	104,304

Attachment 6
LAT Performance, through April 2002, by WBS

Cost Performance Report - Work Breakdown Structure													
Contractor: Location:					Contract Type/No:			Project Name/No: GLAST LAT Project		Report Period: 3/31/02	4/30/02		
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	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	285	277	109	-8	168	3,925	3,917	3,979	-8	-62	12,450	12,450	0
4.1.2 SYSTEM ENGINEERING	228	254	30	27	224	1,585	1,594	1,572	9	22	4,799	4,799	0
4.1.4 TRACKER	463	420	143	-43	277	4,623	4,304	4,419	-319	-114	10,000	10,000	0
4.1.5 CALORIMETER	515	356	464	-159	-108	4,274	4,098	3,830	-176	268	17,086	17,086	0
4.1.6 ANTICOINCIDENCE DETECTOR	231	118	266	-113	-148	2,625	2,452	2,710	-173	-258	10,030	10,030	0
4.1.7 ELECTRONICS	187	182	154	-5	28	2,971	2,737	2,458	-233	279	16,340	16,340	0
4.1.8 MECHANICAL SYSTEMS	1,097	1,046	81	-51	964	1,907	1,825	1,283	-82	542	12,610	12,610	0
4.1.9 INTEGRATION & TEST	172	37	146	-136	-109	491	361	439	-130	-78	7,141	7,141	0
4.1.A PERFORMANCE AND SAFETY ASSURA	62	62	52	0	10	606	606	436	0	170	2,206	2,206	0
4.1.B LAT INSTRUMENT OPERATIONS CENT	28	14	19	-13	-5	277	260	230	-17	30	3,711	3,711	0
4.1.C EDUCATION AND PUBLIC OUTREACH	56	55	17	-1	38	436	432	352	-4	80	2,908	2,908	0
4.1.D SCIENCE ANALYSIS SOFTWARE	56	27	47	-29	-20	592	559	572	-33	-13	3,700	3,700	0
4.1.E SUBORBITAL FLIGHT TEST	0	0	62	0	-62	1,321	1,321	1,377	0	-56	1,321	1,321	0
Gen. and Admin.	0	0	0	0	0	0	0	0	0	0	0	0	0
Undist. Budget											0	0	0
Sub Total	3,380	2,848	1,591	-532	1,257	25,633	24,467	23,655	-1,167	811	104,303	104,303	0
Management Resrv.											0	0	0
Total	3,380	2,848	1,591	-532	1,257	25,633	24,467	23,655	-1,167	811	104,303	104,303	0

Attachment 7
LAT Performance, through April 2002, by Organization

Cost Performance Report - Work Breakdown Structure													
Contractor: Location:				Contract Type/No:			Project Name/No: GLAST LAT Project		Report Period: 3/31/02	4/30/02			
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	0			
OBS	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	267	154	300	-113	-146	3,756	3,583	3,794	-173	-211	13,194	13,194	0
DH *** HEPL	118	78	92	-40	-14	2,437	2,379	2,423	-58	-45	9,502	9,502	0
DL *** SLAC	2,269	2,091	588	-178	1,502	11,964	11,396	11,018	-568	378	52,096	52,096	0
DN *** NRL	629	429	560	-200	-131	5,787	5,507	5,061	-279	446	23,739	23,739	0
DS *** SSU	56	55	17	-1	38	436	432	352	-4	80	2,858	2,858	0
DT *** Texas A&M	0	0	0	0	0	16	16	0	0	16	16	16	0
DU *** UCSC	42	42	34	0	8	1,239	1,154	1,007	-84	147	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	3,380	2,848	1,591	-532	1,257	25,633	24,467	23,655	-1,167	811	104,303	104,303	0
Management Resrv.											0	0	0
Total	3,380	2,848	1,591	-532	1,257	25,633	24,467	23,655	-1,167	811	104,303	104,303	0

Attachment 8
LAT Performance Analysis, April 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	104,303	25,633	24,467	23,655	-1,167	811	24.58	23.46	22.68	↑	↔	0.954	1.034	100,844	100,844	104,525
2	4.1	104,303	25,633	24,467	23,655	-1,167	811	24.58	23.46	22.68	↑	↔	0.954	1.034	100,844	100,844	104,525
3	4.1.1	12,450	3,925	3,917	3,979	-8	-62	31.52	31.46	31.96	↑	↑	0.998	0.984	12,647	12,647	12,665
4	4.1.2	4,799	1,585	1,594	1,572	9	22	33.03	33.22	32.75	↑	↑	1.006	1.014	4,731	4,731	4,714
5	4.1.4	10,000	4,623	4,304	4,419	-319	-114	46.24	43.04	44.19	↔	↑	0.931	0.974	10,265	10,265	10,699
6	4.1.5	17,086	4,274	4,098	3,830	-176	268	25.02	23.99	22.42	↑	↑	0.959	1.070	15,967	15,967	16,488
7	4.1.6	10,030	2,625	2,452	2,710	-173	-258	26.17	24.45	27.02	↓	↓	0.934	0.905	11,085	11,085	11,675
8	4.1.7	16,340	2,971	2,737	2,458	-233	279	18.18	16.75	15.04	↔	↔	0.921	1.114	14,672	14,672	15,714
9	4.1.8	12,610	1,907	1,825	1,283	-82	542	15.12	14.47	10.17	↑	↑	0.957	1.423	8,862	8,862	9,204
10	4.1.9	7,141	491	361	439	-130	-78	6.88	5.05	6.14	↓	↓	0.735	0.822	8,682	8,682	11,662
11	4.1.A	2,206	606	606	436	0	170	27.48	27.48	19.78	↔	↔	1.000	1.390	1,587	1,587	1,587
12	4.1.B	3,711	277	260	230	-17	30	7.46	7.01	6.19	↓	↓	0.940	1.132	3,279	3,279	3,475
13	4.1.C	2,908	436	432	352	-4	80	15.00	14.85	12.12	↓	↑	0.990	1.226	2,372	2,372	2,392
14	4.1.D	3,700	592	559	572	-33	-13	16.01	15.12	15.46	↓	↓	0.944	0.978	3,785	3,785	3,974
15	4.1.E	1,321	1,321	1,321	1,377	0	-56	100.00	100.00	104.27	↔	↓	1.000	0.959	1,377	1,377	1,377
16	[PMB]	104,303	25,633	24,467	23,655	-1,167	811	24.58	23.46	22.68	↑	↔	0.954	1.034	100,844	100,844	104,525

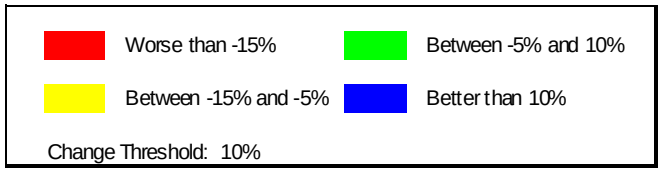
LEGEND

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)

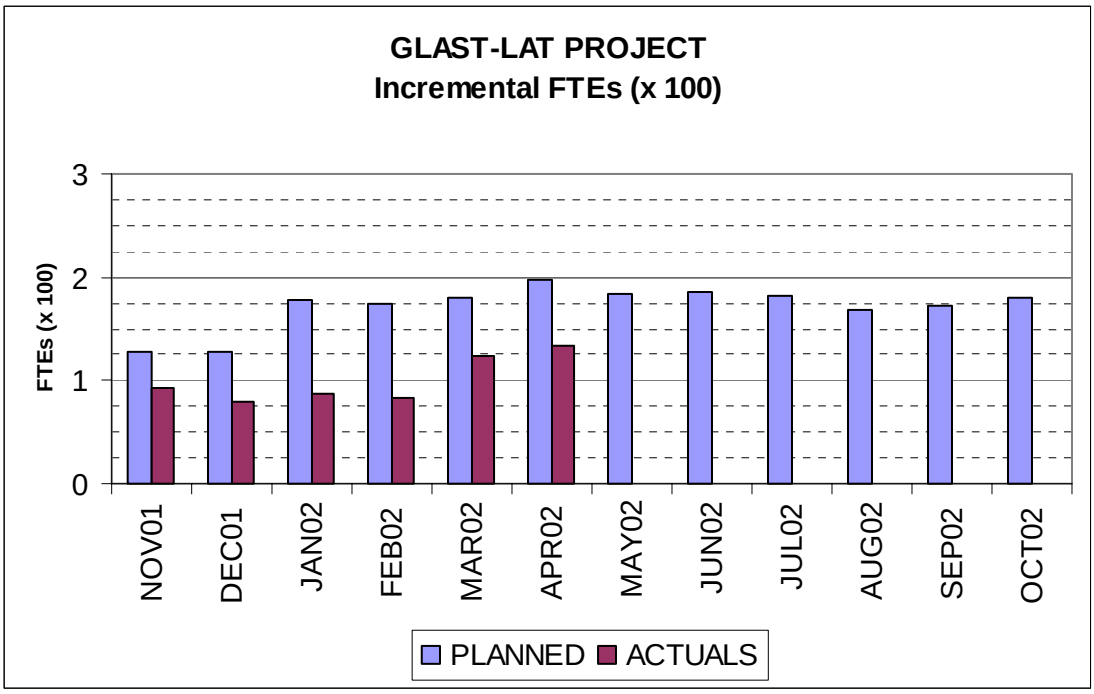
SV $: Schedule Variance = BCWP - BCWS
CV $: Cost Variance = BCWP - ACWP
SPI: Schedule Performance Index = BCWP/BCWS
CPI: Cost Performance Index = BCWP/ACWP

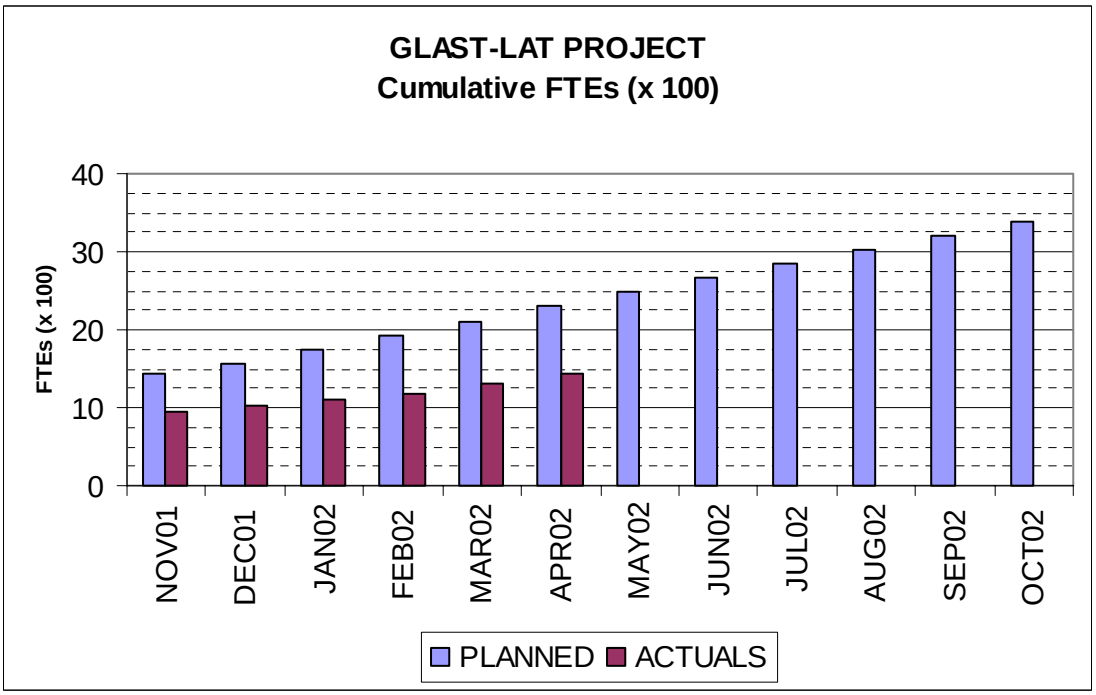
% BCWS: Percent Scheduled = BCWS/BAC
% BCWP: Percent Complete = BCWP/BAC
% ACWP: Percent Spent = ACWP/BAC

Cpi_Fcst: CPI (to date) EAC Forecast = BAC / CPI
3MoCpi_Fcst: 3 Month Moving Avg. EAC Forecast= ACWP + [ACWP(last 3 mo.) / BCWP(last 3 mo.)] * (BAC - BCWP)
CpiSpi_Fcst: Combination CPI and SPI EAC Forecast = ACWP + (BAC - BCWP) / (CPI *SPI)



Attachment 9
LAT Manpower





Attachment 10
LAT Manpower Data, through April 2002, by WBS

Program:	Description:	Approval:
LAT2	GLAST LAT Project	Program Manager
Run Date:	Status Date:	Functional Manager
6/13/02	4/30/02	Cost Account Manager

CAPW[3]		PRIOR	NOV01	DEC01	JAN02	FEB02	MAR02	APR02	**Cum-to Date**	MAY02	JUN02	JUL02	AUG02	SEP02	OCT02
4.1.1 INSTRUMENT MANAGEMENT															
FTE	PLANNED	89.5	10.6	10.6	10.6	10.6	10.2	10.6	**152.6**	10.6	10.6	11.0	11.0	11.0	11.2
	ACTUALS	72.4	16.3	8.0	9.9	10.2	16.6	8.4	**141.8**	0.0	0.0	0.0	0.0	0.0	0.0
4.1.2 SYSTEM ENGINEERING															
FTE	PLANNED	19.1	1.7	1.7	1.5	1.8	1.8	1.8	**29.4**	1.8	1.8	2.1	2.1	2.1	2.1
	ACTUALS	8.6	0.5	0.4	0.7	2.0	2.1	2.3	**16.6**	0.0	0.0	0.0	0.0	0.0	0.0
4.1.4 TRACKER															
FTE	PLANNED	272.8	24.9	25.4	25.8	25.0	23.1	23.4	**420.4**	24.5	25.3	27.2	24.9	22.5	22.6
	ACTUALS	243.0	26.1	24.4	23.2	22.3	20.7	20.4	**380.0**	0.0	0.0	0.0	0.0	0.0	0.0
4.1.5 CALORIMETER															
FTE	PLANNED	419.6	39.5	29.8	46.4	48.2	57.9	60.5	**701.8**	57.2	55.6	55.4	54.7	57.8	55.6
	ACTUALS	122.9	12.0	13.9	10.1	12.3	6.6	26.0	**203.8**	0.0	0.0	0.0	0.0	0.0	0.0
4.1.6 ANTICOINCIDENCE DETECTOR															
FTE	PLANNED	74.1	18.1	17.1	17.5	28.4	26.2	23.2	**204.6**	20.2	22.6	22.4	21.5	24.6	21.8
	ACTUALS	46.2	0.0	0.0	15.8	7.6	55.3	27.1	**152.1**	0.0	0.0	0.0	0.0	0.0	0.0
4.1.7 ELECTRONICS															
FTE	PLANNED	109.7	11.7	17.2	42.5	14.9	14.3	14.5	**224.7**	11.5	10.4	9.7	8.3	8.8	21.5
	ACTUALS	100.5	7.2	11.3	8.4	8.4	9.1	8.5	**153.3**	0.0	0.0	0.0	0.0	0.0	0.0
4.1.8 MECHANICAL SYSTEMS															
FTE	PLANNED	39.8	4.9	3.9	5.0	5.9	5.1	18.3	**82.8**	16.5	13.5	16.2	13.2	14.5	9.5
	ACTUALS	38.2	3.6	4.4	3.3	3.4	4.6	4.9	**62.4**	0.0	0.0	0.0	0.0	0.0	0.0
4.1.9 INSTRUMENT INTEGRATION AND TESTING															
FTE	PLANNED	2.1	2.4	2.6	4.1	11.1	10.2	15.3	**47.8**	15.0	15.2	12.8	11.4	8.4	9.4
	ACTUALS	0.8	2.1	2.6	2.8	2.1	5.3	20.8	**36.5**	0.0	0.0	0.0	0.0	0.0	0.0
4.1.A PERFORMANCE AND SAFETY ASSURANCE															
FTE	PLANNED	23.5	2.6	2.6	2.6	2.6	2.6	2.6	**39.0**	2.6	2.6	2.6	2.6	2.6	2.6
	ACTUALS	14.9	1.9	3.6	2.0	2.0	1.0	3.6	**29.1**	0.0	0.0	0.0	0.0	0.0	0.0
4.1.B LAT INSTRUMENT OPERATIONS CENTER															
FTE	PLANNED	12.1	0.8	1.1	0.9	1.4	1.4	1.4	**19.0**	1.4	1.4	0.9	0.3	0.3	2.1
	ACTUALS	5.2	9.0	1.2	1.4	1.6	1.5	1.0	**20.8**	0.0	0.0	0.0	0.0	0.0	0.0
4.1.C EDUCATION AND PUBLIC OUTREACH															
FTE	PLANNED	25.8	1.4	1.4	1.4	1.4	1.5	1.5	**34.4**	1.5	1.5	4.2	1.5	1.5	1.6
	ACTUALS	21.6	5.6	1.9	1.4	0.9	1.6	1.5	**34.6**	0.0	0.0	0.0	0.0	0.0	0.0
4.1.D SCIENCE ANALYSIS SOFTWARE															
FTE	PLANNED	118.2	8.7	14.4	20.2	23.0	26.2	24.0	**234.6**	21.0	24.4	17.9	17.7	18.1	20.3
	ACTUALS	95.1	7.9	8.5	9.1	10.4	0.1	9.6	**140.8**	0.0	0.0	0.0	0.0	0.0	0.0
4.1.E SUBORBITAL FLIGHT TEST															
FTE	PLANNED	111.5	0.0	0.0	0.0	0.0	0.0	0.0	**111.5**	0.0	0.0	0.0	0.0	0.0	0.0
	ACTUALS	75.5	0.0	0.0	-0.2	0.0	0.0	0.0	**75.3**	0.0	0.0	0.0	0.0	0.0	0.0
Grand Totals:															
	PLANNED	1317.7	127.2	127.7	178.3	174.1	180.5	197.1	**2302.6**	183.8	185.0	182.3	169.1	172.1	180.2
	ACTUALS	845.0	92.2	80.3	87.8	83.2	124.4	134.0	**1446.9**	0.0	0.0	0.0	0.0	0.0	0.0

Attachment 11
LAT Manpower Data, through April 2002, by Organization

Program: LAT2	Description: GLAST LAT Project	Approval: Program Manager
Run Date: 6/13/02	Status Date: 4/30/02	Functional Manager Cost Account Manager

OBS		PRIOR	NOV01	DEC01	JAN02	FEB02	MAR02	APR02	**Cum-to-Date**	MAY02	JUN02	JUL02	AUG02	SEP02	OCT02
DG *** GSFC															
FTE	PLANNED	133.4	20.7	19.3	20.6	31.7	29.5	26.5	**281.7**	23.4	25.8	24.6	23.8	26.9	24.9
	ACTUALS	73.3	0.0	0.0	14.8	8.6	53.3	29.1	**179.1**	0.0	0.0	0.0	0.0	0.0	0.0
DH *** HEPL															
FTE	PLANNED	134.8	4.9	6.4	6.5	5.9	6.5	8.0	**172.8**	6.0	6.4	6.2	4.8	5.8	9.6
	ACTUALS	98.5	22.6	7.4	8.3	7.4	7.2	5.3	**156.8**	0.0	0.0	0.0	0.0	0.0	0.0
DL *** SLAC															
FTE	PLANNED	322.1	32.3	41.4	45.0	53.2	52.4	68.0	**614.4**	62.8	63.2	58.0	53.0	53.3	57.3
	ACTUALS	280.2	27.7	28.9	30.7	30.8	34.3	48.9	**481.6**	0.0	0.0	0.0	0.0	0.0	0.0
DN *** NRL															
FTE	PLANNED	165.1	15.2	14.8	40.6	15.9	25.7	28.0	**305.3**	24.5	22.8	23.4	21.5	23.3	23.6
	ACTUALS	179.7	15.8	20.6	13.5	16.4	9.5	32.1	**287.4**	0.0	0.0	0.0	0.0	0.0	0.0
DS *** SSU															
FTE	PLANNED	25.8	1.4	1.4	1.4	1.4	1.5	1.5	**34.4**	1.5	1.5	4.2	1.5	1.5	1.6
	ACTUALS	21.6	5.6	1.9	1.4	0.9	1.6	1.5	**34.6**	0.0	0.0	0.0	0.0	0.0	0.0
DU *** UCSC															
FTE	PLANNED	106.0	5.6	5.8	5.9	5.0	5.0	4.7	**137.8**	4.7	4.7	4.7	4.7	4.7	4.8
	ACTUALS	114.7	7.8	8.1	7.1	6.4	5.8	4.6	**154.4**	0.0	0.0	0.0	0.0	0.0	0.0
DW *** UW															
FTE	PLANNED	19.7	1.0	1.0	0.9	1.6	0.8	0.9	**25.8**	0.9	0.9	0.9	0.9	0.9	0.9
	ACTUALS								**0.0**						
FF *** France															
FTE	PLANNED	290.6	29.3	19.4	33.7	36.2	36.9	37.1	**483.2**	37.8	37.5	36.3	36.8	35.5	36.0
	ACTUALS								**0.0**						
FI *** Italy															
FTE	PLANNED	83.2	14.7	16.1	16.6	15.9	15.0	15.2	**176.6**	14.9	14.9	16.7	14.9	13.0	14.1
	ACTUALS	47.2	10.9	11.6	10.3	10.9	10.9	10.9	**112.5**	0.0	0.0	0.0	0.0	0.0	0.0
FJ *** Japan															
FTE	PLANNED	37.0	2.3	2.3	2.7	2.7	2.7	2.7	**52.4**	2.7	2.7	2.7	2.7	2.7	2.7
	ACTUALS	29.8	1.9	1.8	1.8	1.8	1.8	1.8	**40.5**	0.0	0.0	0.0	0.0	0.0	0.0
FK *** Sweden															
FTE	PLANNED	0.0	0.0	0.0	4.4	4.6	4.6	4.6	**18.2**	4.6	4.6	4.6	4.6	4.6	4.6
	ACTUALS								**0.0**						
Grand Totals:															
	PLANNED	1317.6	127.2	127.7	178.3	174.1	180.5	197.1	**2302.6**	183.8	185.0	182.4	169.1	172.1	180.2
	ACTUALS	845.0	92.2	80.3	87.8	83.2	124.4	134.0	**1446.9**	0.0	0.0	0.0	0.0	0.0	0.0

4.1 GLAST LAT															
Contributed	PLANNED	507.7	53.8	50.3	71.3	76.7	78.1	77.4	**915.2**	73.2	72.3	74.7	70.7	68.8	66.4
	ACTUALS	81.5	12.8	13.3	11.9	12.6	12.6	27.5	**172.1**	0.0	0.0	0.0	0.0	0.0	0.0
Funded	PLANNED	809.9	73.4	77.4	107.1	97.5	102.4	119.7	**1387.4**	93.9	82.3	88.0	81.7	76.3	75.2
	ACTUALS	763.6	79.4	67.0	75.9	70.6	111.8	106.6	**1274.8**	0.0	0.0	0.0	0.0	0.0	0.0
Grand Totals:	PLANNED	1317.6	127.2	127.7	178.3	174.1	180.5	197.1	**2302.6**	167.0	154.6	162.7	152.4	145.1	141.6
	ACTUALS	845.0	92.2	80.3	87.8	83.2	124.4	134.0	**1446.9**	0.0	0.0	0.0	0.0	0.0	0.0