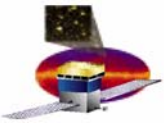


GLAST Large Area Telescope:

Project Status Overview

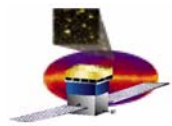
Lowell A. Klaisner
Stanford Linear Accelerator Center
Project Manager

Klaisner@slac.stanford.edu
650-926-2726

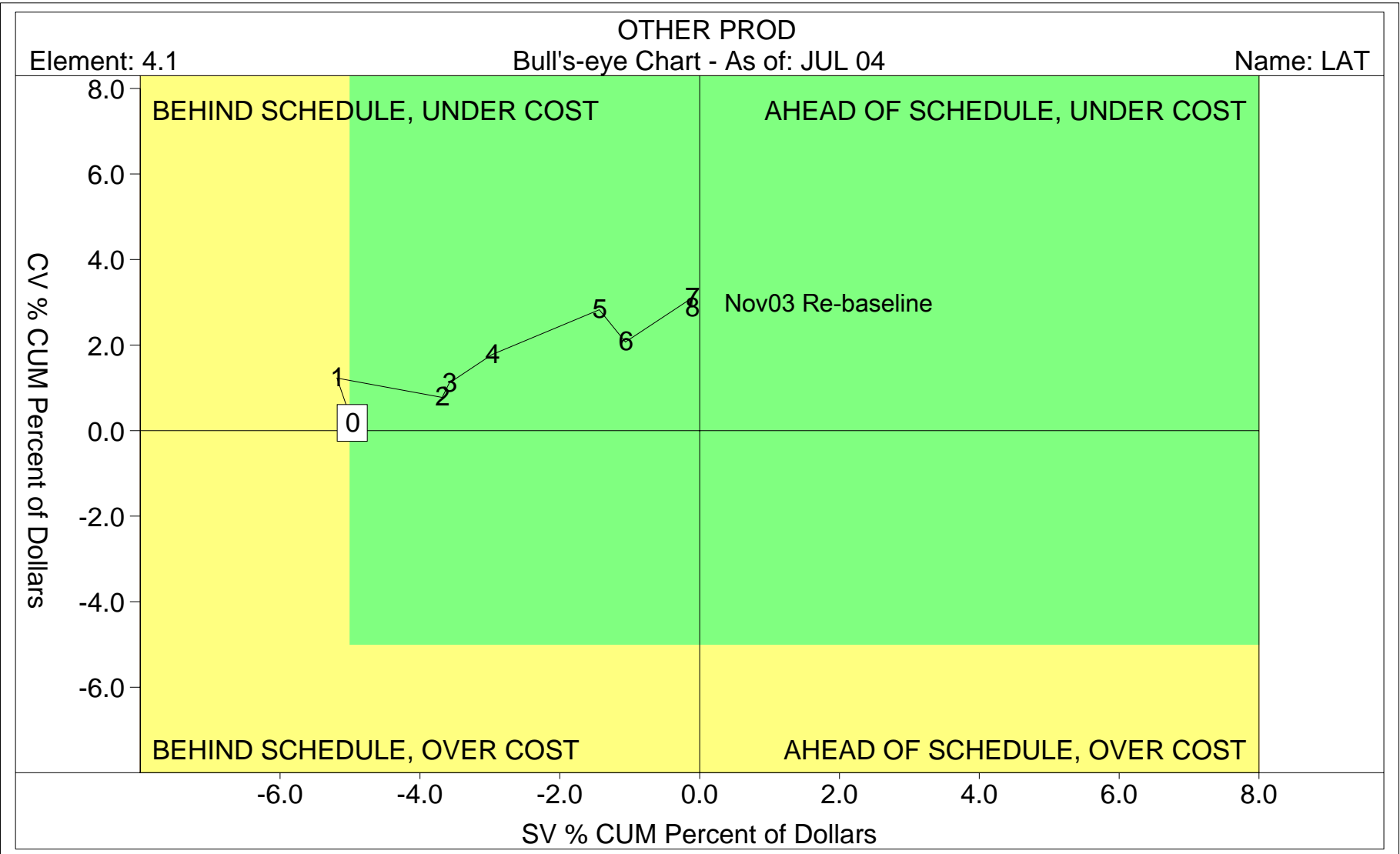


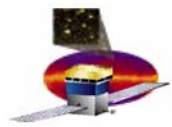
LAT Status Overview

- **Inching toward delivery of first flight hardware**
- **The critical path goes through the delivery of the last flight Tracker module to I&T**
- **The July report shows:**
 - **All components for flight tower A at I&T by October 22, 2004**
 - **The LAT has one week of float to the December 1, 2005 LAT ready for observatory integration date**
 - **There is \$8.0M contingency on \$26.3M cost to go (30%)**



Variance Analysis





Performance Analysis

	WBS	Description	BAC	BCWS	BCWP	ACWP	SV \$	CV \$	%BCWS	%BCWP	%ACWP	SPI	CPI	SPI	CPI	Cpi_Fcst	CpiSpi_Fcst
1	4.1	LAT	128,042	107,062	101,746	101,567	-5,316	179	83.62	79.46	79.32	↔	↓	0.950	1.002	127,816	129,187
2	4.1.1	Instr Mgmt	15,868	12,738	12,738	13,161	0	-423	80.28	80.28	82.94	↔	↔	1.000	0.968	16,395	16,395
3	4.1.2	System Engr	6,601	5,283	5,283	4,819	0	464	80.02	80.02	73.00	↔	↑	1.000	1.096	6,022	6,022
4	4.1.4	Tracker	15,367	14,137	13,502	13,328	-635	174	92.00	87.86	86.73	↔	↓	0.955	1.013	15,169	15,256
5	4.1.5	Calorimeter	22,103	18,567	17,027	16,798	-1,539	229	84.00	77.04	76.00	↔	↓	0.917	1.014	21,806	22,258
6	4.1.6	ACD	15,008	14,037	13,491	13,956	-547	-465	93.53	89.89	92.99	↓	↓	0.961	0.967	15,526	15,589
7	4.1.7	Electronics	21,685	18,956	17,133	17,766	-1,823	-633	87.41	79.01	81.93	↑	↓	0.904	0.964	22,486	22,989
8	4.1.8	Mechanical	14,106	10,718	10,318	10,295	-400	23	75.98	73.15	72.98	↓	↓	0.963	1.002	14,074	14,221
9	4.1.9	I&T	7,616	4,849	4,496	4,364	-353	132	63.66	59.03	57.30	↔	↑	0.927	1.030	7,393	7,631
10	4.1.A	PSA	2,469	2,083	2,083	1,944	0	139	84.36	84.36	78.73	↔	↓	1.000	1.071	2,305	2,305
11	4.1.B	ISOC	328	289	289	281	0	8	88.16	88.16	85.79	↔	↑	1.000	1.028	319	319
12	4.1.C	EPO	2,448	1,839	1,819	1,498	-19	322	75.10	74.31	61.17	↑	↔	0.989	1.215	2,015	2,021
13	4.1.D	SAS	3,117	2,243	2,243	2,032	0	211	71.96	71.96	65.20	↔	↔	1.000	1.104	2,824	2,824
14	4.1.E	Balloon Flight	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

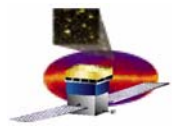
% BCWP: Percent Complete = BCWP/BAC

% ACWP: Percent Spent = ACWP/BAC

Cpi_Fcst: CPI (to date) EAC Forecast = BAC / CPI

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

CPI and SPI Change Thresholds			
	Worse than 0.85		Between 0.95 and 1.10
	Between 0.85 and 0.95		Better than 1.10

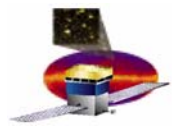


August CCB Actions

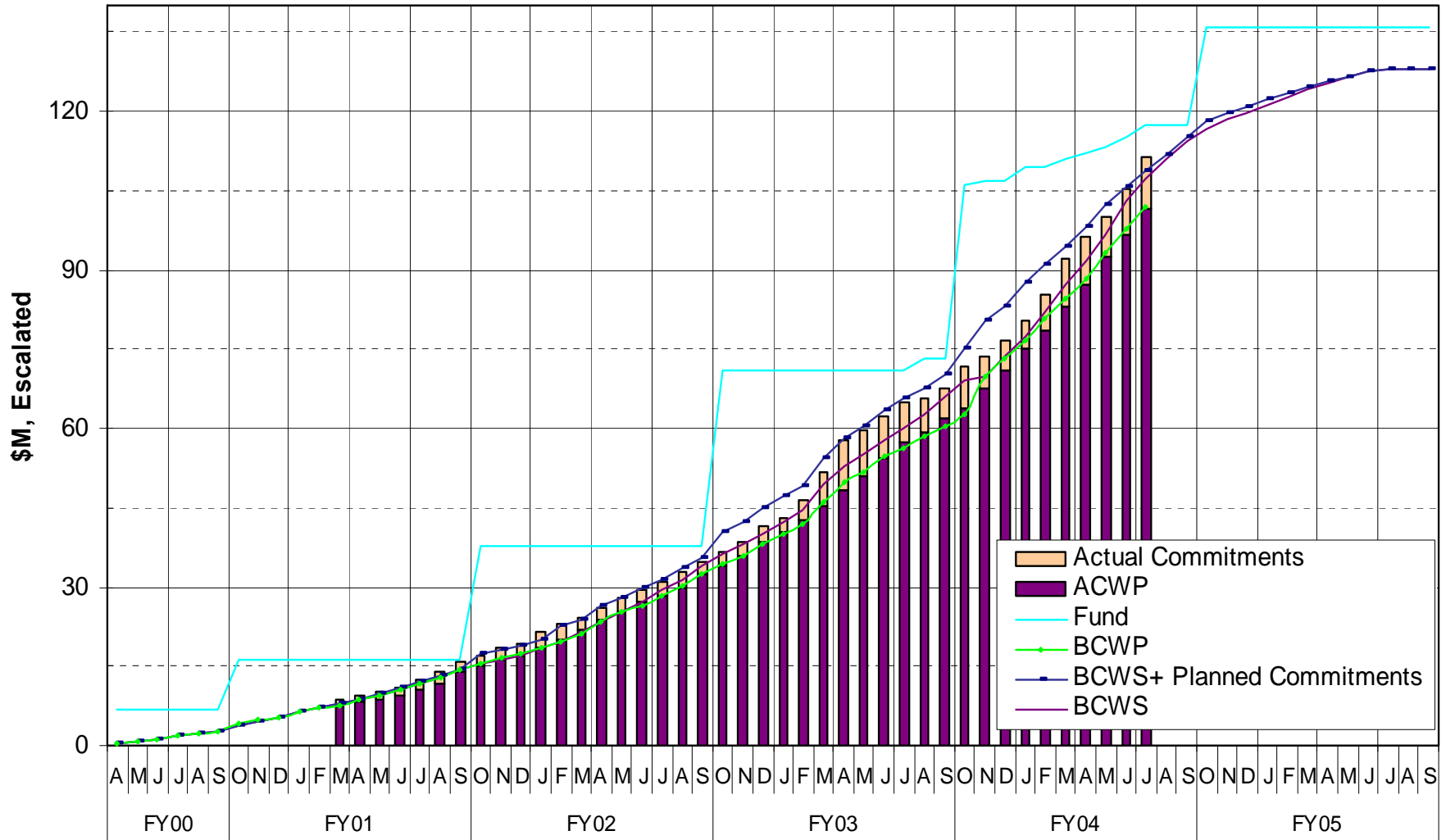
(K\$)	July 04	August 04 (projected)	Change
Budget at Completion	128,042	132,200	+4,158
Contingency	7,983	3,825	-4,158
Total Project Cost	136,025	136,025	0

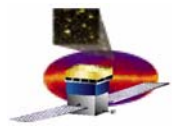
Current lien list

Subsystem	Item	FY04	FY05	Grand Total
4.1.2 System Engineering	Additional engineering, documentation		24	24
	Extend INFN support		222	222
	Reduce INFN support		-139	-139
4.1.2 Total			107	107
4.1.4 Tracker	Add'l Engineering/Design Support (amount TBD)	160		160
	Aluminum Cores	13		13
	Continued TKR Manpower Increase (amount TBD)		553	553
	Procurement Overruns	135		135
	Shipping Container	39		39
	Tracker MGSE	50		50
4.1.4 Total		397	553	950
4.1.6 Anticoncidence Detector	EGSE SW support		40	40
	End GARC life testing	-15		-15
	FY05 portion of grassroots estimate		226	226
	Micrometeoroid shield/thermal blanket		43	43
	Reduce efficiency verification test duration		-20	-20
	Reduce shipping time		-10	-10
	Schedule delay		150	150
	Streamline conformal coating of FREE boards	-4		-4
4.1.6 Total		-19	429	410
4.1.7 Data Acquisition	Additional EGSE (amount TBD)	500		500
	Continued FSW Manpower Increase (amount TBD)		685	685
	FSW Labor	113	178	291
4.1.7 Total		613	863	1,476
4.1.8 Mechanical Systems	Grid fab manpower reduction	-10		-10
	Lockheed Martin Phase II (FY05 portion)		108	108
	Lockheed Martin rate increase	23	1	24
	MLI design & fabrication	40	40	80
4.1.8 Total		53	149	202
4.1.9 Integration and Test	Integration start delay		117	117
	NRL environmental test support	75	425	500
	Additional BPUs		36	36
	Fly-away instrumentation (amount TBD)			
	I&T planner (amount TBD)			
	Pulse generator	8		8
4.1.9 Total		83	578	661
September 1, 2004 Total		1,127	2,679	3,806

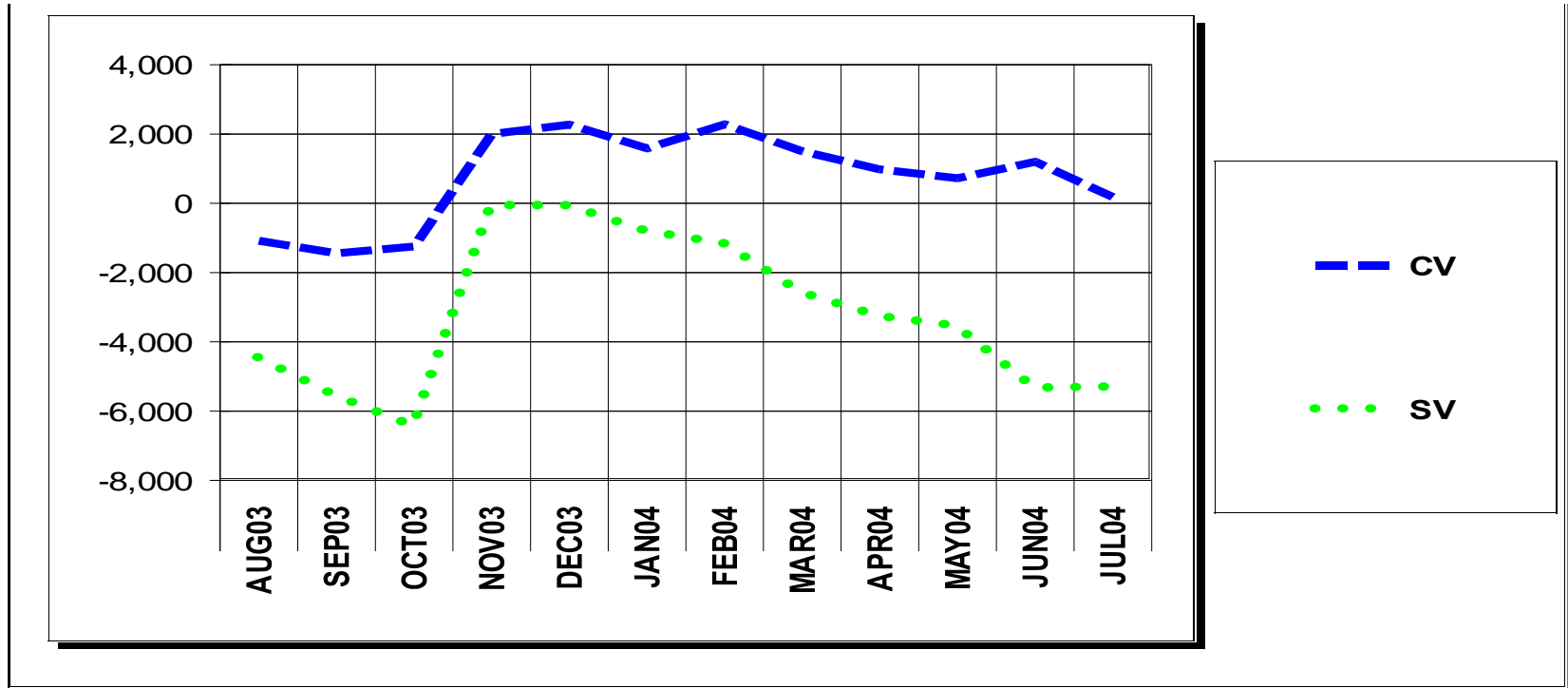


Budget, Cost, Funding, Performance

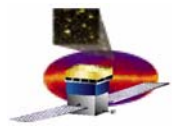




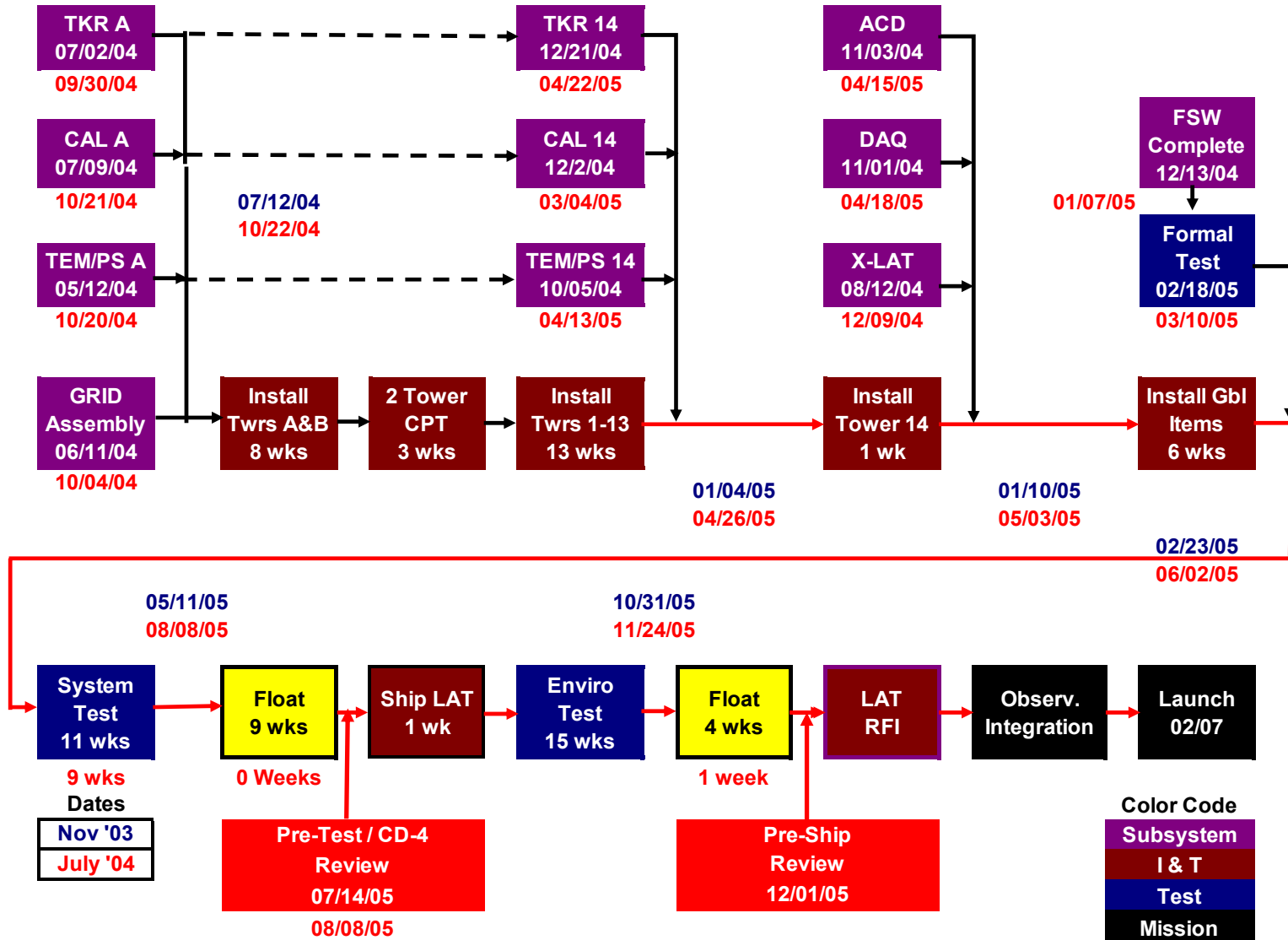
CV and SV Chart

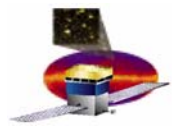


	AUG03	SEP03	OCT03	NOV03	DEC03	JAN04	FEB04	MAR04	APR04	MAY04	JUN04	JUL04
BCWS	62,818	66,122	69,093	69,801	73,433	77,394	81,916	87,277	91,518	96,621	103,131	107,062
BCWP	58,348	60,548	62,648	69,724	73,353	76,574	80,742	84,687	88,243	93,063	97,784	101,746
ACWP	59,429	61,990	63,894	67,721	71,081	74,989	78,460	83,184	87,264	92,340	96,584	101,567
CV	-1,081	-1,443	-1,246	2,003	2,271	1,585	2,281	1,503	979	723	1,199	179
SV	-4,469	-5,574	-6,445	-76	-80	-820	-1,175	-2,590	-3,274	-3,558	-5,348	-5,316



LAT Schedule

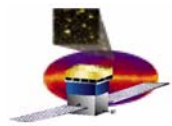




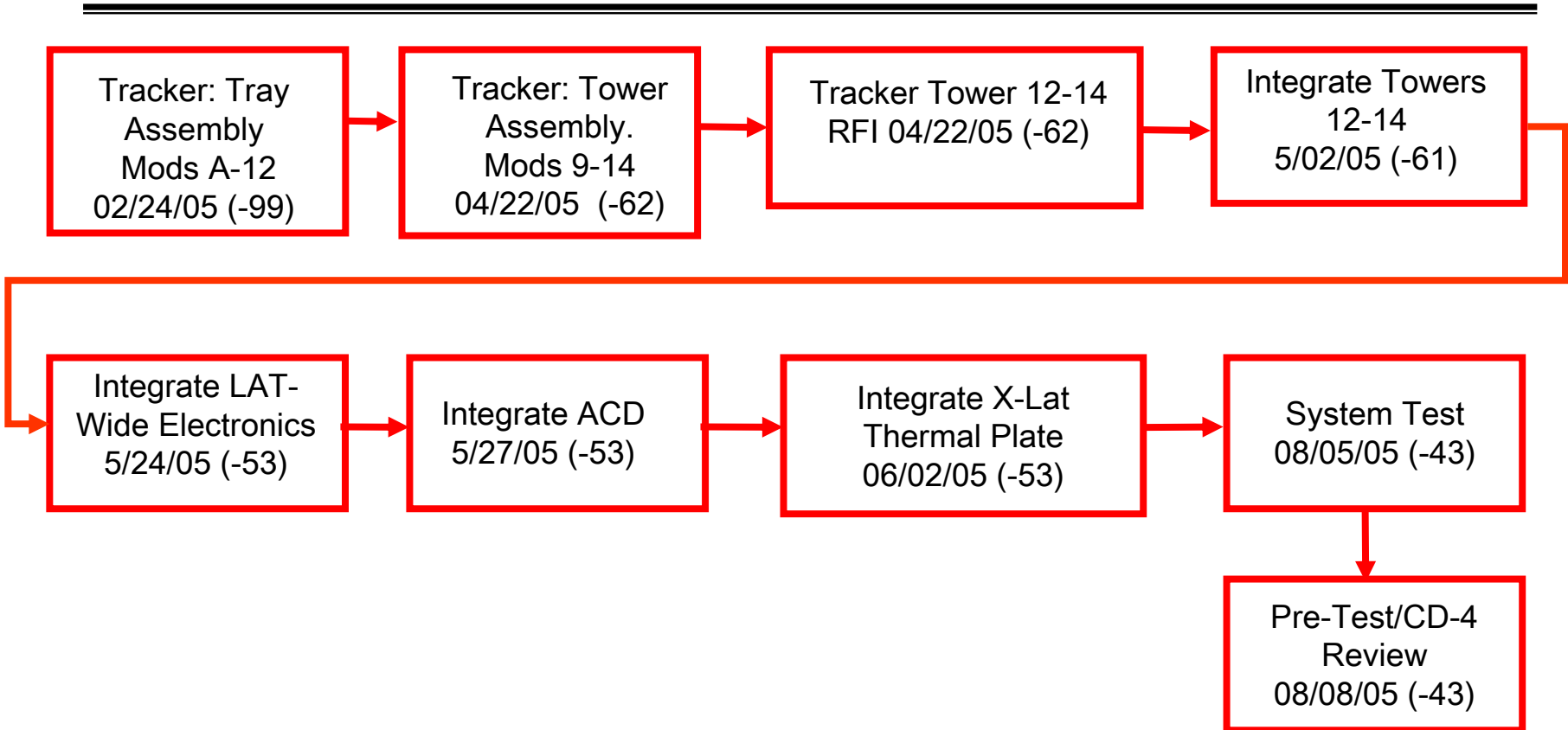
Module deliveries w/ float to Observatory I&T

M/E July 2004	Forecast Dates and Float (working days) to "Preship Review"									
	Mech/ACD		TKR		CAL		TEM/TEM PS		I&T	
Grid	4-Oct-04	32								
Module A			30-Sep-04	34	21-Oct-04	19	20-Oct-04	20	19-Nov-04	19
Module B			29-Oct-04	28	5-Nov-04	28	27-Oct-04	35	21-Dec-04	19
Module 1			29-Nov-04	34	10-Nov-04	37	10-Jan-05	10	19-Jan-05	10
Module 2			21-Dec-04	23	19-Nov-04	34	18-Jan-05	10	26-Jan-05	10
Module 3			23-Dec-04	26	30-Nov-04	33	25-Jan-05	10	2-Feb-05	10
Module 4			20-Jan-05	18	3-Dec-04	34	1-Feb-05	10	9-Feb-05	10
Module 5			27-Jan-05	18	3-Dec-04	38	8-Feb-05	10	16-Feb-05	10
Module 6			3-Feb-05	18	14-Dec-04	48	15-Feb-05	10	24-Feb-05	10
Module 7			10-Feb-05	18	14-Dec-04	53	23-Feb-05	10	3-Mar-05	10
Module 8			22-Feb-05	16	10-Jan-05	45	2-Mar-05	10	10-Mar-05	10
Module 9			3-Mar-05	14	10-Jan-05	50	9-Mar-05	10	17-Mar-05	10
Module 10			10-Mar-05	14	31-Jan-05	41	16-Mar-05	10	24-Mar-05	10
Module 11			17-Mar-05	14	31-Jan-05	46	23-Mar-05	10	31-Mar-05	10
Module 12			8-Apr-05	3	18-Feb-05	37	30-Mar-05	10	18-Apr-05	3
Module 13			15-Apr-05	3	18-Feb-05	42	6-Apr-05	10	25-Apr-05	3
Module 14			22-Apr-05	3	4-Mar-05	33	13-Apr-05	10	2-May-05	3
ACD	15-Apr-05	29								
X-LAT	9-Dec-04	115								
SIU							18-Apr-05	12		
PDU							16-Feb-05	54		
Harness							6-Jan-05	82		
GASU							3-Mar-05	44		
EPU							12-Apr-05	16		
FSW							01/07/05*	82		
Inst Global Items									2-Jun-05	3
System Test									8-Aug-05	3
Ship LAT to NRL									14-Aug-05	4
EMI/EMC Test									10-Sep-05	6
Sine Vibe									23-Sep-05	6
Acoustic Test									5-Oct-05	6
TVAC									22-Nov-05	6
Weight & CG									24-Nov-05	6
Preship Review									25-Nov-05	6

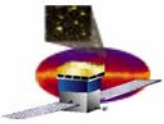
Yellow = Float between 15 and 1
 Red = Float < 1



Current Critical Path to CD-4

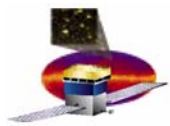


Completion Dates (Baseline Variance)



Current Critical Path to CD-4

- **1st critical path: Tracker Flight Tray Assembly (INFN)**
 - 17 days float to “Ready for CD-4 Review”
 - 3 days float to LAT pre-ship review
- **2nd critical path: Electronics TKR/CAL TEM Fabrication**
 - 7 days behind 1st critical path
- **3rd critical path: Electronics SIB Bid Package**
 - 2 days behind 2nd critical path
- **Critical path to I&T Module A: Calorimeter AFEE Burn In**



Level 1 & 2 Milestones

Activity ID	Activity Description	Baseline Finish	Bsln Var	Early Finish	Timeline											
					FY01	FY02	FY03	FY04	FY05	FY06						
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	09/15/04*	-13	10/04/04							▼					
1M1P000040	CD-4 Approval	03/15/06*	0	03/15/06*												▼
DOE/NASA Federal Project Managers (Level 2)																
1M1BF00000	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	08/24/04*	-28	10/04/04							▼					
1M1000700	Pre Environmental Testing Review	07/14/05*	-17	08/08/05											▼	
1M1000120	PSR-(Instrument Pre-Ship Review)	12/01/05*	0	12/01/05*												▼
Run Date: 08/31/04 09:25					GLAST LAT PROJECT					LT-T1: Level 1 && 2 Milestones					Sheet 1	
Data Date: 08/01/04					Level 1&&2 Milestones					FL-T1: Level 1 && 2 Milestones						
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CPR Level 3

Cost Performance Report - Work Breakdown Structure													
Contractor:						Contract Type/No:			Project Name/No:		Report Period:		
Location:						LAT			6/30/2004		7/31/2004		
CAPW[3] Item (1)	Current Period					Cumulative to Date					At Completion		
	Budgeted Cost		Actual Cost	Variance		Budgeted Cost		Actual Cost	Variance		Budgeted	Latest Revised Estimate	Variance
	Work Scheduled	Work Performed	Work Performed	Schedule	Cost	Work Scheduled	Work Performed	Work Performed	Schedule	Cost			
(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	
4.1.1 INSTRUMENT MANAGEMENT	359	359	374	0	-15	12,738	12,738	13,161	0	-423	15,868	15,868	0
4.1.2 SYSTEM ENGINEERING	149	149	-191	0	340	5,283	5,283	4,819	0	464	6,601	6,601	0
4.1.4 TRACKER	364	388	431	24	-42	14,137	13,502	13,328	-635	174	15,367	15,367	0
4.1.5 CALORIMETER	701	515	737	-186	-223	18,567	17,027	16,798	-1,539	229	22,103	22,103	0
4.1.6 ANTICOINCIDENCE DETECTOR	247	125	733	-122	-608	14,037	13,491	13,956	-546	-465	15,008	15,008	0
4.1.7 ELECTRONICS	906	1,360	1,888	454	-528	18,956	17,133	17,766	-1,823	-633	21,685	21,685	0
4.1.8 MECHANICAL SYSTEMS	636	527	587	-110	-60	10,718	10,318	10,295	-400	23	14,106	14,106	0
4.1.9 INTEGRATION & TEST	296	264	187	-32	77	4,849	4,496	4,364	-353	132	7,616	7,616	0
4.1.A PERFORMANCE AND SAFETY ASSURANCE	117	117	128	0	-10	2,083	2,083	1,944	0	139	2,469	2,469	0
4.1.B LAT INSTRUMENT SCIENCE OPERATIONS CENTER	3	3	-14	0	18	289	289	281	0	8	328	328	0
4.1.C EDUCATION AND PUBLIC OUTREACH	71	73	54	2	19	1,839	1,819	1,498	-19	322	2,448	2,448	0
4.1.D SCIENCE ANALYSIS SOFTWARE	81	81	69	0	12	2,243	2,243	2,032	0	211	3,117	3,117	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	3,931	3,962	4,983	31	-1,020	107,062	101,746	101,567	-5,316	179	128,042	128,042	0
Contingency											7,983	7,983	0
Total	3,931	3,962	4,983	31	-1,020	107,062	101,746	101,567	-5,316	179	136,025	136,025	0