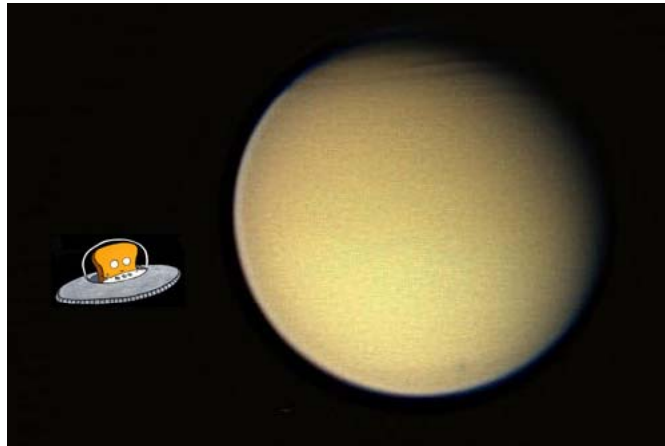


TOST: Integration 131TI (T68) Wrap-Up



August 7, 2009

Kim Steadman, Jo Pitesky, Nora Kelly



Segment Basics

Segment times:

BEG: 2010-139T07:15:00

END: 2010-142T07:00:00

This is a 3 day segment with a “caboose” day on the end.

Altitude: 1400 km

Time of C/A: 2010-140T03:24:20

Epoch: GMB_E131_Titan68



At least 2 weeks prior to the Kickoff Meeting make sure that all requests are in CIMS

Kickoff Meeting

Present

Master Timeline

Discuss

Timeline
Op Modes
Telem Modes
Deadbands for RCS

Homework

Custom Handoff Attitudes
Unique Op Mode Requirements (SCO)
Turn Assignments
CCRs
High Value Science

Detailed Meeting

Present

Master Timeline
SMT Report
Timeline Graphic
TOL
SPASS
DSN Reports
High Value Science

Discuss

Data Volume Cuts

Homework

CCRs
High Level Science Objectives

Wrap-up Meeting

Present

Wrap-up Package Checklist
High Level Science Objectives

Discuss

N/A

Homework

N/A



T68 High-level Science Objectives

- RSS - T68 is the fifth flyby of the Cassini mission that will be devoted to Titan gravity science. We have two related goals: measure the fluid and dynamic Love number of Titan and determine Titan's geoid. The determination of the fluid Love number is the only way to find out with confidence whether Titan has a liquid ocean. Of course, more flybys than T68 are needed. The determination of the geoid is crucial to understanding the internal structure of Titan through correlative analysis of the gravity and RADAR planetary radii data.
- CIRS – Furthest south profiles off XM, 80S temperature and composition
- ISS – ISS will ride along with CIRS to track clouds and will continue to monitor clouds and the evolution thereof for an extra day after the Titan encounter. (No illuminated prime observations.)
- MAG - T68 is a south polar, dusk flyby, with a minimum altitude of 1400 km. In nominal upstream conditions, Cassini would explore the south lobe of Titan's magnetic tail, close to the moon.
- MIMI - Energetic ion and electron energy input to atmosphere
- RPWS - Measure thermal plasmas in Titan's ionosphere and surrounding environment; search for lightning in Titan's atmosphere; investigate the interaction of Titan with Saturn's magnetosphere.
- CAPS -



Master Timeline for T68

131TI_T68		1400					
Start Time	End Time	Prime Activity	Obs. Detail	Op Mode	TLM Mode	Comments	
2010-139T07:15:00	2010-139T07:55:00	SP Turn to WP	NEG_Y to Titan, NEG-X to Sun	DFPW Normal	S_N_ER_3		
2010-139T07:55:00	C/A - 19:14:16	OD Uncertainty Dead Time		DFPW Normal	S_N_ER_3		
C/A - 19:14:16	-13:30	CIRS	Compressed M2	DFPW Normal	S_N_ER_3		
-13:30	-13:00	ISS	Compressed M2	DFPW Normal	S_N_ER_3		
-13:00	-10:00	CIRS	Template N	DFPW Normal RSS_K_RWAF @ -11:05	S_N_ER_3		
-10:00	-09:00	ISS	Template N	RSS_K_RWAF	S_N_ER_3		
-09:00	-08:20	SP Turn to Earth for downlink	XBAND to Earth, NEG_Y to Saturn	RSS_K_RWAF	S_N_ER_3	SP does turn to RSS attitude for downlink	
-08:20	0	RSS	Gravity with CAPS riding	RSS_K_RWAF	S_N_ER_3		
2010-140T03:24:16		CLOSEST APPROACH		XBAND to EARTH, NEG_Y to Saturn			
0	+08:35	RSS	Gravity with CAPS riding	RSS_K_RWAF	S_N_ER_3		
+08:35	+09:00	SP Turn to WP	NEG_Y to Titan, NEG-X to Sun	DFPW Normal	S_N_ER_3	SP does turn from RSS attitude to waypoint for downlink	
+09:00	+14:00	CIRS	Template C	DFPW Normal	S_N_ER_3		
+14:00	C/A + 17:40:44	CIRS	Template A	DFPW Normal	S_N_ER_3		
C/A + 17:40:44	2010-140T21:20:00	OD Uncertainty Dead Time		DFPW Normal	S_N_ER_3		
2010-140T21:20:00	2010-141T00:30:00	SP Turn to Earth for downlink		DFPW Normal	S_N_ER_3		
2010-140T22:00:00	2010-141T00:30:00	Madrid 70-M		DFPW Normal	RTE_N_SPB		
2010-141T00:30:00	2010-141T07:00:00	Goldstone 34M		DFPW Normal	RTE_N_SPB		
2010-141T07:00:00	2010-141T07:40:00	SP Turn to WP	NEG_Y to Titan, NEG-X to Sun	DFPW Normal	S_N_ER_3		
2010-141T07:40:00	2010-141T09:40:00	ISS		DFPW Normal	S_N_ER_3		
2010-141T09:40:00	2010-141T17:40:00	CIRS		DFPW Normal	S_N_ER_3	8 hour Titan Integration	
2010-141T17:40:00	2010-141T19:50:00	CAPS		DFPW Normal	S_N_ER_3	MAGBNDPTG003	
2010-141T19:50:00	2010-141T20:30:00	SP Turn to Earth for downlink	New Waypoint: XBAND to EARTH, POX_X to NEP	DFPW Normal	S_N_ER_3		
2010-141T20:30:00	2010-141T22:00:00	ISS		DFPW Normal	S_N_ER_3	Observation during Bias Window.	
2010-141T22:00:00	2010-142T00:30:00	Madrid 70-M		DFPW Normal	RTE_N_SPB		
2010-142T00:30:00	2010-142T07:00:00	Goldstone 34M HEF		DFPW Normal	RTE_N_SPB		

Had to insert a bias window prior to the downlink at the end of the caboose segment.



T68 Telemetry Mode Report

TELEMETRY MODE REPORT

EPOCH RELATIVE	UTC	DURATION	TELEMETRY MODE	REQUEST
GMB_E131_Titan68-000T08:20:00	2010-139T07:15:00.000	11:49:21	S_N_ER_3	SP_131NA_M34OBSNON140_NA
	2010-139T19:04:21.000	02:55:39	RTE_N_SPB_33180	SP_131EA_M34BWGNON139_PRIME
	2010-139T22:00:00.000	01:30:00	RTE_N_SPB_27650	SP_131EA_M34BWGNON139_PRIME
GMB_E131_Titan68-000T02:54:21	2010-139T23:30:00.000	00:45:00	RTE_N_SPB_22120	SP_131EA_M34BWGNON139_PRIME
	2010-140T00:15:00.000	00:15:00	RTE_N_SPB_14220	SP_131EA_M34BWGNON139_PRIME
	2010-140T00:30:00.000	01:00:00	RTE_N_SPB_33180	SP_131EA_G34BWGNON139_PRIME
	2010-140T01:30:00.000	02:15:00	RTE_N_SPB_35550	SP_131EA_G34BWGNON139_PRIME
	2010-140T03:45:00.000	02:30:00	RTE_N_SPB_33180	SP_131EA_G34BWGNON139_PRIME
	2010-140T06:15:00.000	01:00:00	RTE_N_SPB_27650	SP_131EA_G34BWGNON139_PRIME
GMB_E131_Titan68+000T04:50:39	2010-140T07:15:00.000	01:00:00	RTE_N_SPB_14220	SP_131EA_G34BWGNON139_PRIME
	2010-140T08:15:00.000	03:00:00	RTE_N_SPB_35550	SP_131EA_C34BWGNON140_PRIME
	2010-140T11:15:00.000	00:44:21	RTE_N_SPB_33180	SP_131EA_C34BWGNON140_PRIME
	2010-140T11:59:21.000	10:00:39	S_N_ER_3	SP_131NA_M70OBSNON140_NA
	2010-140T22:00:00.000	00:45:00	RTE_N_SPB_142200	SP_131EA_M70METNON140_PRIME
	2010-140T22:45:00.000	00:30:00	RTE_N_SPB_124425	SP_131EA_M70METNON140_PRIME
	2010-140T23:15:00.000	00:30:00	RTE_N_SPB_110600	SP_131EA_M70METNON140_PRIME
	2010-140T23:45:00.000	00:30:00	RTE_N_SPB_82950	SP_131EA_M70METNON140_PRIME
	2010-141T00:15:00.000	00:15:00	RTE_N_SPB_66360	SP_131EA_M70METNON140_PRIME
	2010-141T00:30:00.000	01:00:00	RTE_N_SPB_33180	SP_131EA_G34BWGNON140_PRIME
	2010-141T01:30:00.000	02:00:00	RTE_N_SPB_35550	SP_131EA_G34BWGNON140_PRIME
	2010-141T03:30:00.000	02:30:00	RTE_N_SPB_33180	SP_131EA_G34BWGNON140_PRIME
	2010-141T06:00:00.000	01:00:00	RTE_N_SPB_27650	SP_131EA_G34BWGNON140_PRIME
	2010-141T07:00:00.000	15:00:00	S_N_ER_3	SP_131NA_G70OBSNON141_NA
	2010-141T22:00:00.000	00:30:00	RTE_N_SPB_142200	SP_131EA_M70METNON141_PRIME
	2010-141T22:30:00.000	00:45:00	RTE_N_SPB_124425	SP_131EA_M70METNON141_PRIME
	2010-141T23:15:00.000	00:30:00	RTE_N_SPB_99540	SP_131EA_M70METNON141_PRIME
	2010-141T23:45:00.000	00:15:00	RTE_N_SPB_82950	SP_131EA_M70METNON141_PRIME
	2010-142T00:00:00.000	00:30:00	RTE_N_SPB_66360	SP_131EA_M70METNON141_PRIME
	2010-142T00:30:00.000	04:30:00	RTE_N_SPB_41475	SP_131EA_G34HEFNON141_PRIME
2010-142T05:00:00.000	01:00:00	RTE_N_SPB_35550	SP_131EA_G34HEFNON141_PRIME	
2010-142T06:00:00.000	00:45:00	RTE_N_SPB_27650	SP_131EA_G34HEFNON141_PRIME	
2010-142T06:45:00.000	00:15:00	RTE_N_SPB_33180	SP_131EA_G34HEFNON141_PRIME	



T68 SMT Report

DATA VOLUME SUMMARY --- TRANSFER FRAME OVERHEAD INCLUDED (80 BITS PER 8800-BIT FRAME)

DOWNLINK PASS NAME	Start doy hh:mm	End doy hh:mm	OBSERVATION_PERIOD							DOWNLINK_PASS							
			P4			P5	RECORDED	PLAYBACK									
			START (Mb)	SCI (Mb)	HK+E (Mb)	TOTAL (Mb)	CPACTY (Mb)	MRGN (Mb)	OPNAV (Mb)	SCI (Mb)	ENGR (Mb)	TOTAL (Mb)	CPACTY (Mb)	MARGN (Mb)	NET_MARGN (Mb)	(%)	CAROVR (Mb)
SP_131EA_M34BWGNON139_PRIME	139 19:04	140 00:30	0	928	50	978	3496	2518	0	174	32	1184	450	-734	41	1%	734
SP_131EA_G34BWGNON139_PRIME	140 00:30	140 08:15	734	0	0	734	3496	2762	0	1018	46	1797	687	-1111	41	1%	1111
SP_131EA_C34BWGNON140_PRIME	140 08:15	140 11:59	1111	0	0	1111	3496	2385	0	119	22	1251	383	-869	41	1%	869
SP_131EA_M70METNON140_PRIME	140 22:00	141 00:30	869	404	42	1315	3496	2181	0	62	15	1392	811	-581	41	1%	581
SP_131EA_G34BWGNON140_PRIME	141 00:30	141 07:00	581	0	0	581	3496	2915	0	194	38	814	623	-191	41	2%	190
SP_131EA_M70METNON141_PRIME	141 22:00	142 00:30	190	808	63	1062	3496	2434	0	89	15	1165	768	-398	41	3%	398
SP_131EA_G34HEFNON141_PRIME	142 00:30	142 07:00	398	0	0	398	3496	3098	0	259	38	695	737	41	41	6%	0



T68 SMT Report by Instrument

DATA VOLUME REPORT --- TRANSFER FRAME OVERHEAD NOT INCLUDED

Event	Start doy hh:mm	End doy hh:mm	CAPS (Mb)	CDA (Mb)	CIRS (Mb)	INMS (Mb)	ISS (Mb)	MAG (Mb)	MIMI (Mb)	RADAR (Mb)	RPWS (Mb)	UVIS (Mb)	VIMS (Mb)	PROBE (Mb)	ENGR (Mb)	TOTAL (Mb)
OBSERVATION_NOR	139 07:15	139 19:04	295.0	120.4	106.1	4.3	150.0	84.1	38.3	0.0	55.6	10.9	55.0	0.0	49.4	969.1
SP_131EA_M34BWGNON139_PRIME	139 19:04	140 00:30	78.2	10.2	0.0	2.0	0.0	38.6	17.6	0.0	25.6	0.0	0.0	0.0	0.0	172.1
SP_131EA_G34BWGNON139_PRIME	140 00:30	140 08:15	198.0	14.6	0.0	12.9	0.0	55.1	41.7	0.0	686.2	0.0	0.0	0.0	0.0	1008.5
SP_131EA_C34BWGNON140_PRIME	140 08:15	140 11:59	52.9	7.1	0.0	1.3	0.0	26.6	12.1	0.0	17.6	0.0	0.0	0.0	0.0	117.7
DAILY TOTAL SCIENCE	139 07:15	140 11:59	624.1	152.3	106.1	20.4	150.0	204.4	109.7	0.0	785.0	10.9	55.0	0.0	49.4	
OBSERVATION_NOR	140 11:59	140 22:00	36.0	18.9	91.3	3.6	50.0	71.2	32.4	0.0	47.2	14.5	35.0	0.0	41.8	442.0
SP_131EA_M70METNON140_PRIME	140 22:00	141 00:30	9.0	4.7	16.2	0.9	0.0	9.5	8.1	0.0	11.8	1.4	0.0	0.0	0.0	61.6
SP_131EA_G34BWGNON140_PRIME	141 00:30	141 07:00	29.5	12.3	70.2	2.3	0.0	23.1	21.1	0.0	30.7	3.6	0.0	0.0	0.0	192.7
DAILY TOTAL SCIENCE	140 11:59	141 07:00	74.6	35.9	177.7	6.8	50.0	103.8	61.6	0.0	89.7	19.4	35.0	0.0	41.8	
OBSERVATION_NOR	141 07:00	141 22:00	216.0	28.3	153.6	5.4	200.0	53.4	48.6	0.0	70.7	0.0	25.0	0.0	62.7	863.7
SP_131EA_M70METNON141_PRIME	141 22:00	142 00:30	36.0	4.7	16.2	0.9	0.0	8.9	8.1	0.0	11.8	1.4	0.0	0.0	0.0	88.0
SP_131EA_G34HEFNON141_PRIME	142 00:30	142 07:00	93.6	12.3	70.2	2.3	0.0	23.1	21.1	0.0	30.7	3.6	0.0	0.0	0.0	256.8
DAILY TOTAL SCIENCE	141 07:00	142 07:00	345.6	45.3	240.0	8.6	200.0	85.4	77.8	0.0	113.2	4.9	25.0	0.0	62.7	
TOTAL RECORDED (OPNAV data not included)			1044.3	233.5	523.8	35.9	400.0	393.6	249.0	0.0	987.9	35.2	115.0	0.0		

No SMT Warnings



T68 DSN Report

CASSINI DOWNLINK/DSN COVERAGE SUMMARY for 131TI_T68_090728.apf on 2009-Jul-28 10:49:46
(+ = pass overlaps with previous pass; * = conflicts with DSN maintenance; o = overlaps occultation)

DOWNLINK PASS					DSN PASS						
NAME	START_TO_END SCET	START_TO_END ERT	DUR hh:mm	DATA_RATES kbps	ID	START_TO_END SCET	START_TO_END ERT	DUR hh:mm	CALS min	LABEL	CNFG
M34BWGNON139	139T19:04-00:30	139T20:19-01:45	05:25	33,27,22,14	55	139T16:30-00:30	139T17:44-01:44	08:00	90 /15	TP	N750
+G34BWGNON139	140T00:30-08:15	140T01:45-09:30	07:45	33,35,33,27,14	25*	139T22:15-08:15	139T23:29-09:29	10:00	90 /15	TP	N748
+C34BWGNON140	140T08:15-11:59	140T09:30-13:14	03:44	35,33	34	140T05:05-14:10	140T06:19-15:24	09:05	90 /15	TP	N750
M70METNON140	140T22:00-00:30	140T23:15-01:45	02:30	142,124,110,82,66	63	140T22:00-00:30	140T23:14-01:44	02:30	60 /15	TP	N003
+G34BWGNON140	141T00:30-07:00	141T01:45-08:15	06:30	33,35,33,27	25	140T22:00-07:00	140T23:14-08:14	09:00	90 /15	TP	N748
M70METNON141	141T22:00-00:30	141T23:15-01:45	02:30	142,124,99,82,66	63	141T22:00-00:30	141T23:14-01:44	02:30	60 /15	TP	N003
+G34HEFNON141	142T00:30-07:00	142T01:45-08:15	06:30	41,35,27,33	15	141T22:00-07:00	141T23:14-08:14	09:00	60 /15	TP	N003

DSS 25 overlaps maintenance by 1 hour.

T68 SPASS

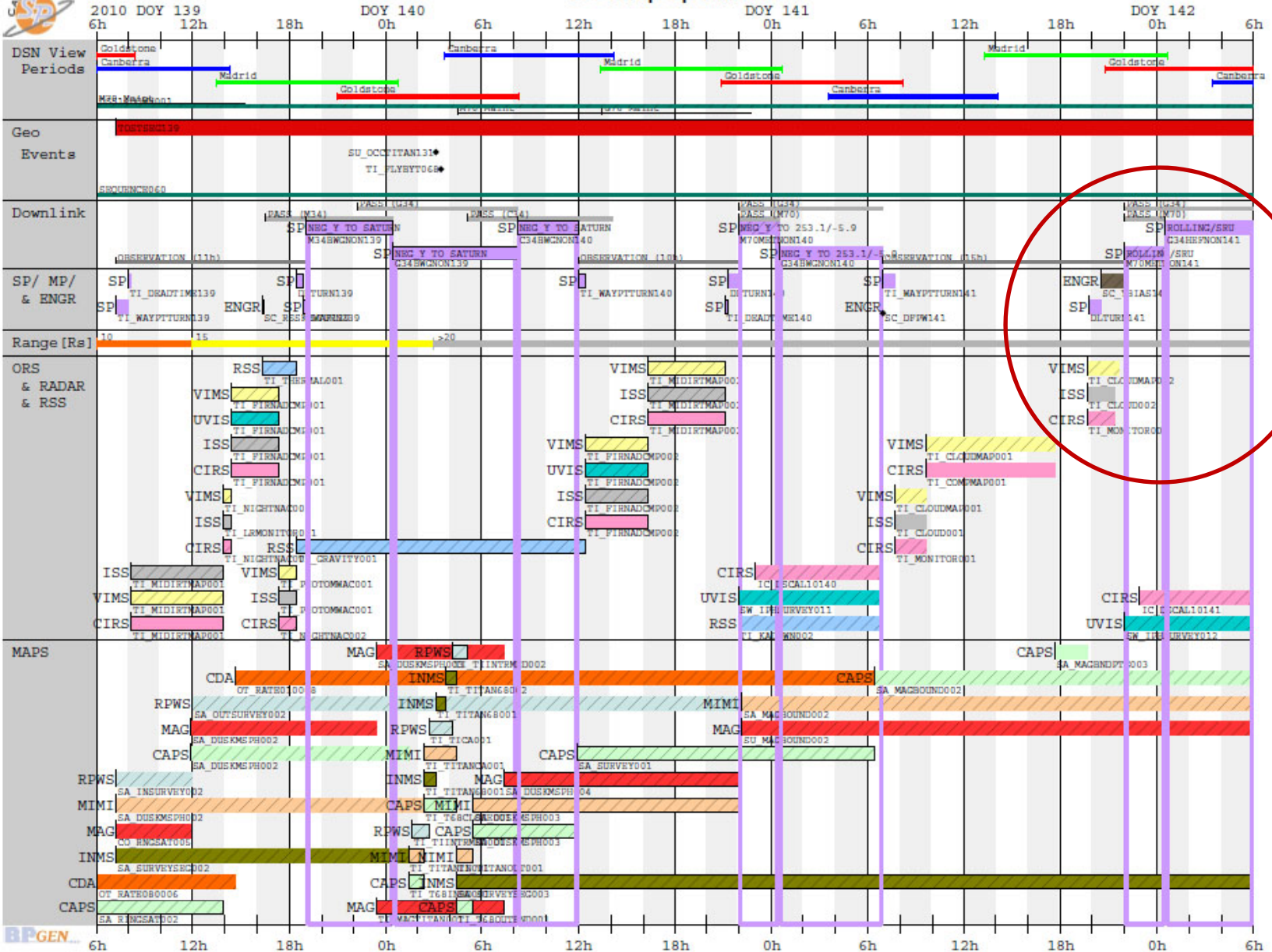


Request	Riders	Start (SCET)	Start (Epoch)	Duration	End (SCET)	Primary	Secondary	Comments
Sequence S60, length = 34 days		2010-137T13:31:00		039T07:39:00	2010-176T21:10:00			
Titan Flyby T68 Segment		2010-139T07:15:00		002T23:45:00	2010-142T07:00:00			
SP_131TI_WAYPTTURN139_PRIME	M	2010-139T07:15:00		000T00:40:00	2010-139T07:55:00	NEG_Y to Titan	NEG_X to Sun	
NEW WAYPOINT		2010-139T07:55:00		002T12:35:00	2010-141T20:30:00	NEG_Y to Titan	NEG_X to Sun	
SP_131TI_DEADTIME139_PRIME	M	2010-139T07:55:00		000T00:15:05	2010-139T08:10:05	NEG_Y to Titan	NEG_X to Sun	
CIRS_131TI_MIDIRTMAP001_PRIME	I, M, V	2010-139T08:10:05	GMB_E131_Titan68-000T19:14:16	000T05:44:16	2010-139T13:54:21	CIRS_FPB to Titan	NEG_X to 331.4/57.3	
ISS_131TI_LRMONITOR001_PRIME	C, I, M, V	2010-139T13:54:21	GMB_E131_Titan68-000T13:30:00	000T00:30:00	2010-139T14:24:21	ISS_NAC to Titan	NEG_X to Sun	
CIRS_131TI_FIRNADCOMP001_PRIME	I, M, R, U, V	2010-139T14:24:21	GMB_E131_Titan68-000T13:00:00	000T03:00:00	2010-139T17:24:21	CIRS_FP1 to Titan	PIC	
ISS_131TI_PHOTOMWAC001_PRIME	C, M, R, V	2010-139T17:24:21	GMB_E131_Titan68-000T10:00:00	000T01:00:00	2010-139T18:24:21	ISS_NAC to Titan	NEG_X to Sun	
SP_131EA_DLTURN139_PRIME	M, R	2010-139T18:24:21	GMB_E131_Titan68-000T09:00:00	000T00:28:00	2010-139T18:52:21	POS_X to 90.0/20.0	XBAND to Earth	
SP_131TI_DLTURN239_PRIME	M, R	2010-139T18:52:21	GMB_E131_Titan68-000T08:32:00	000T00:12:00	2010-139T19:04:21	XBAND to Earth	NEG_Y to Saturn	
SP_131EA_M34BWGNON139_PRIME	M, R	2010-139T19:04:21	GMB_E131_Titan68-000T08:20:00	000T05:25:39	2010-140T00:30:00	XBAND to Earth	NEG_Y to Saturn	
SP_131EA_G34BWGNON139_PRIME	M, R	2010-140T00:30:00	GMB_E131_Titan68-000T02:54:21	000T07:45:00	2010-140T08:15:00	XBAND to Earth	NEG_Y to Saturn	
131TI (t) T68 TITAN Outbo...		2010-140T03:24:20		000T00:00:01	2010-140T03:24:21			
SP_131EA_C34BWGNON140_PRIME	M, R	2010-140T08:15:00	GMB_E131_Titan68+000T04:50:39	000T03:44:21	2010-140T11:59:21	XBAND to Earth	NEG_Y to Saturn	
SP_131TI_WAYPTTURN140_PRIME	M, R	2010-140T11:59:21	GMB_E131_Titan68+000T08:35:00	000T00:25:00	2010-140T12:24:21	NEG_Y to Titan	NEG_X to Sun	
CIRS_131TI_FIRNADCOMP002_PRIME	I, M, U, V	2010-140T12:24:21	GMB_E131_Titan68+000T09:00:00	000T04:00:00	2010-140T16:24:21	CIRS_FP1 to Titan	PIC	
CIRS_131TI_MIDIRTMAP002_PRIME	I, M, V	2010-140T16:24:21	GMB_E131_Titan68+000T13:00:00	000T04:40:44	2010-140T21:05:05	CIRS_FPB to Titan	NEG_X to 331.4/57.3	
SP_131TI_DEADTIME140_PRIME	M	2010-140T21:05:05	GMB_E131_Titan68+000T17:40:44	000T00:14:55	2010-140T21:20:00	NEG_Y to Titan	NEG_X to Sun	
SP_131EA_DLTURN140_PRIME	M	2010-140T21:20:00		000T00:40:00	2010-140T22:00:00	XBAND to Earth	NEG_Y to 253.1/-5.9	
SP_131EA_M70METNON140_PRIME	C, M, R	2010-140T22:00:00		000T02:30:00	2010-141T00:30:00	XBAND to Earth	NEG_Y to 253.1/-5.9	
SP_131EA_G34BWGNON140_PRIME	C, M, R	2010-141T00:30:00		000T06:30:00	2010-141T07:00:00	XBAND to Earth	NEG_Y to 253.1/-5.9	
SP_131TI_WAYPTTURN141_PRIME	M	2010-141T07:00:00		000T00:40:00	2010-141T07:40:00	NEG_Y to Titan	NEG_X to Sun	
ISS_131TI_CLOUD001_PRIME	C, M, V	2010-141T07:40:00		000T02:00:00	2010-141T09:40:00	ISS_NAC to Titan	NEG_X to Sun	Secondary orientation: NEG_X to Sun preferred, but flexible
CIRS_131TI_COMPMAP001_PRIME	M, V	2010-141T09:40:00		000T08:00:00	2010-141T17:40:00	CIRS_FPB to Titan	NEG_Z to NSP	
CAPS_131SA_MAGBNDPTG003_PRIME	M	2010-141T17:40:00		000T02:00:00	2010-141T19:40:00	POS_Y to COROT (0.0)	NEG_X to NSP	
ISS_131TI_CLOUD002_PRIME	C, E, M, V	2010-141T19:40:00		000T01:40:00	2010-141T21:20:00	ISS_NAC to Titan	NEG_X to Sun	Secondary orientation: NEG_X to Sun preferred, but flexible
SP_131EA_DLTURN141_PRIME	C, M, V	2010-141T19:50:00		000T00:40:00	2010-141T20:30:00	XBAND to Earth	POS_X to NEP	
NEW WAYPOINT		2010-141T20:30:00		000T10:30:00	2010-142T07:00:00	XBAND to Earth	POS_X to NEP	
SP_131EA_M70METNON141_PRIME	C, M	2010-141T22:00:00		000T02:30:00	2010-142T00:30:00	XBAND to Earth	Rolling/SRU	
SP_131EA_G34HEFNON141_PRIME	C, M	2010-142T00:30:00		000T06:30:00	2010-142T07:00:00	XBAND to Earth	Rolling/SRU	

ISS moves their observation into the bias window.
CAPS extends their observation by 10 min to close the gap.



T68 Wrap-Up Timeline



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Request	AGPEN	Start Time	Epoch	Duration	End Time	Rate	Data Volume	SPASS Type	Primary Pointing	Secondary Pointing
CAPS_131SA_RINGSAT002_PRIME	CAPS_16000	2010-138T07:04:05	GMB_E131_Enceladus+000T01:00	001T06:50:55	2010-139T13:55:00	8000	888	SPASS Rider		
CAPS_131SA_DUSKMSPH002_PRIME	CAPS_16000	2010-139T11:55:00		000T13:29:21	2010-140T01:24:21	4000	194	SPASS Rider		
CAPS_131TI_T68INBD001_PRIME	CAPS_16000	2010-140T01:24:21	GMB_E131_Titan68-000T02:00:00	000T01:00:00	2010-140T02:24:21	4000	14	SPASS Rider		
CAPS_131TI_T68CLOSE001_PRIME	CAPS_16000	2010-140T02:24:21	GMB_E131_Titan68-000T01:00:00	000T02:00:00	2010-140T04:24:21	16000	115	SPASS Rider		
CAPS_131TI_T68OUTBND001_PRIME	CAPS_16000	2010-140T04:24:21	GMB_E131_Titan68+000T01:00:00	000T01:00:00	2010-140T05:24:21	4000	14	SPASS Rider		
CAPS_131SA_DUSKMSPH003_PRIME	CAPS_16000	2010-140T05:24:21	GMB_E131_Titan68+000T02:00:00	000T06:30:00	2010-140T11:54:21	4000	94	SPASS Rider		
CAPS_131SA_SURVEY001_PRIME	CAPS_16000	2010-140T11:54:21	GMB_E131_Titan68+000T08:30:00	000T18:31:39	2010-141T06:26:00	1000	67	Non-SPASS		
CAPS_131SA_MAGBOUND002_PRIME	CAPS_16000	2010-141T06:26:00		002T10:09:00	2010-143T16:35:00	4000	837	SPASS Rider		
CAPS_131SA_MAGBNDPTG003_PRIME	CAPS_16000	2010-141T17:40:00		000T02:00:00	2010-141T19:40:00	0	0	Prime	POS_Y to COROT (NEG_X to NSP
CDA_131OT_RATE080006_RIDER	CDA_524	2010-138T21:42:46		000T16:58:00	2010-139T14:40:46	4192	256	Non-SPASS		
CDA_131OT_RATE010008_RIDER	CDA_524	2010-139T14:40:46		006T17:23:14	2010-146T08:04:00	524	304	Non-SPASS		
CIRS_131TI_MIDIRTMAP001_PRIME	CIRS_4000	2010-139T08:10:05	GMB_E131_Titan68-000T19:14:16	000T05:44:16	2010-139T13:54:21	2000	41	Prime	CIRS_FP_B to Titan	NEG_X to 331.4/57.3
CIRS_131TI_NIGHTNAC001_ISS	CIRS_4000	2010-139T13:54:21	GMB_E131_Titan68-000T13:30:00	000T00:30:00	2010-139T14:24:21	4000	7	SPASS Rider		
CIRS_131TI_FIRNADCMP001_PRIME	CIRS_4000	2010-139T14:24:21	GMB_E131_Titan68-000T13:00:00	000T03:00:00	2010-139T17:24:21	4000	43	Prime	CIRS_FP1 to Titan	PIC
CIRS_131TI_NIGHTNAC002_ISS	CIRS_4000	2010-139T17:24:21	GMB_E131_Titan68-000T10:00:00	000T01:00:00	2010-139T18:24:21	4000	14	SPASS Rider		
CIRS_131TI_FIRNADCMP002_PRIME	CIRS_4000	2010-140T12:24:21	GMB_E131_Titan68+000T09:00:00	000T04:00:00	2010-140T16:24:21	4000	58	Prime	CIRS_FP1 to Titan	PIC
CIRS_131TI_MIDIRTMAP002_PRIME	CIRS_4000	2010-140T16:24:21	GMB_E131_Titan68+000T13:00:00	000T04:40:44	2010-140T21:05:05	2000	34	Prime	CIRS_FP_B to Titan	NEG_X to 331.4/57.3
CIRS_131IC_DSCAL10140_SP	CIRS_4000	2010-140T23:00:00		000T08:00:00	2010-141T07:00:00	3000	86	SPASS Rider		
CIRS_131TI_MONITOR001_ISS	CIRS_4000	2010-141T07:40:00		000T02:00:00	2010-141T09:40:00	2000	14	SPASS Rider		
CIRS_131TI_COMPMAP001_PRIME	CIRS_4000	2010-141T09:40:00		000T08:00:00	2010-141T17:40:00	4000	115	Prime	CIRS_FP_B to Titan	NEG_Z to NSP
CIRS_131TI_MONITOR002_ISS	CIRS_4000	2010-141T19:40:00		000T01:40:00	2010-141T21:20:00	4000	24	SPASS Rider		
CIRS_131IC_DSCAL10141_SP	CIRS_4000	2010-141T23:00:00		000T08:00:00	2010-142T07:00:00	3000	86	SPASS Rider		
ENGR_131SC_RSSKRWAF139_PPS	OpMode	2010-139T16:19:13	GMB_E131_Titan68-000T11:05:08	000T00:05:08	2010-139T16:24:21	0	0	Non-SPASS		
ENGR_131SC_DFPW141_PPS	OpMode	2010-141T06:59:38		000T00:00:12	2010-141T06:59:50	0	0	Non-SPASS		
ENGR_131SC_YBIAS141_AACS	MILESTONE	2010-141T20:30:00		000T01:30:00	2010-141T22:00:00	0	0	SPASS Rider		
INMS_131SA_SURVEYSEG002_INMS	INMS_1498	2010-139T07:15:00		000T19:09:21	2010-140T02:24:21	100	7	Non-SPASS		
INMS_131TI_TITAN68001_INMS	INMS_1498	2010-140T02:24:21	GMB_E131_Titan68-000T01:00:00	000T00:40:00	2010-140T03:04:21	1498	4	Non-SPASS		
INMS_131TI_TITAN68001_RIDER	INMS_1498	2010-140T03:04:21	GMB_E131_Titan68-000T00:20:00	000T00:40:00	2010-140T03:44:21	1498	4	Non-SPASS		
INMS_131TI_TITAN68002_INMS	INMS_1498	2010-140T03:44:21	GMB_E131_Titan68+000T00:20:00	000T00:40:00	2010-140T04:24:21	1498	4	Non-SPASS		
INMS_131SA_SURVEYSEG003_INMS	INMS_1498	2010-140T04:24:21	GMB_E131_Titan68+000T01:00:00	002T02:35:39	2010-142T07:00:00	100	18	Non-SPASS		
ISS_131TI_MIDIRTMAP001_CIRS	ISS_Phot_1_b	2010-139T08:10:21	GMB_E131_Titan68-000T19:14:00	000T05:44:16	2010-139T13:54:37	0	25	SPASS Rider		
ISS_131TI_LRMONITOR001_PRIME	ISS_Phot_1_b	2010-139T13:54:21	GMB_E131_Titan68-000T13:30:00	000T00:30:00	2010-139T14:24:21	0	50	Prime	ISS_NAC to Titan	NEG_X to Sun
ISS_131TI_FIRNADCMP001_CIRS	ISS_Phot_1_b	2010-139T14:24:21	GMB_E131_Titan68-000T13:00:00	000T03:00:00	2010-139T17:24:21	0	25	SPASS Rider		
ISS_131TI_PHOTOMWAC001_PRIME	ISS_Phot_1_b	2010-139T17:24:21	GMB_E131_Titan68-000T10:00:00	000T01:00:00	2010-139T18:24:21	0	50	Prime	ISS_NAC to Titan	NEG_X to Sun
ISS_131TI_FIRNADCMP002_CIRS	ISS_Phot_1_b	2010-140T12:24:21	GMB_E131_Titan68+000T09:00:00	000T04:00:00	2010-140T16:24:21	0	25	SPASS Rider		
ISS_131TI_MIDIRTMAP002_CIRS	ISS_Phot_1_b	2010-140T16:24:21	GMB_E131_Titan68+000T13:00:00	000T04:40:44	2010-140T21:05:05	0	25	SPASS Rider		
ISS_131TI_CLOUD001_PRIME	ISS_Phot_1_b	2010-141T07:40:00		000T02:00:00	2010-141T09:40:00	0	100	Prime	ISS_NAC to Titan	NEG_X to Sun
ISS_131TI_CLOUD002_PRIME	ISS_Phot_1_b	2010-141T19:40:00		000T01:40:00	2010-141T21:20:00	0	100	Prime	ISS_NAC to Titan	NEG_X to Sun

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Request	AGPEN	Start Time	Epoch	Duration	End Time	Rate	Data Volume	SPASS Type	Primary Pointing	Secondary Pointing
MAG_131CO_RNGSAT005_MAPS	MAG_1976	2010-139T07:15:00		000T04:40:00	2010-139T11:55:00	1976	33	Non-SPASS		
MAG_131SA_DUSKMSPH002_MAPS	MAG_1976	2010-139T11:55:00		000T11:29:21	2010-139T23:24:21	1976	82	Non-SPASS		
MAG_131SA_DUSKMSPH003_MAPS	MAG_1976	2010-139T23:24:21		000T08:00:00	2010-140T07:24:21	0	0	Non-SPASS		
MAG_131TI_MAGTITAN001_PRIME	MAG_1976	2010-139T23:24:21	GMB_E131_Titan68-000T04:00:00	000T08:00:00	2010-140T07:24:21	1976	57	Non-SPASS		
MAG_131SA_DUSKMSPH004_MAPS	MAG_1976	2010-140T07:24:21	GMB_E131_Titan68+000T04:00:00	000T14:45:39	2010-140T22:10:00	1976	105	Non-SPASS		
MAG_131SU_MAGBOUND002_MAPS	MAG_1976	2010-140T22:10:00		001T08:50:00	2010-142T07:00:00	988	117	Non-SPASS		
MIMI_131SA_DUSKMSPH002_RIDER	MIMI_8000	2010-139T07:15:00		000T20:09:21	2010-140T03:24:21	900	65	SPASS Rider		
MIMI_131TI_TITANIN001_RIDER	MIMI_8000	2010-140T01:24:21	GMB_E131_Titan68-000T02:00:00	000T01:00:00	2010-140T02:24:21	1200	4	SPASS Rider		
MIMI_131TI_TITANCA001_RIDER	MIMI_8000	2010-140T02:24:21	GMB_E131_Titan68-000T01:00:00	000T02:00:00	2010-140T04:24:21	2000	14	SPASS Rider		
MIMI_131TI_TITANOUT001_RIDER	MIMI_8000	2010-140T04:24:21	GMB_E131_Titan68+000T01:00:00	000T01:00:00	2010-140T05:24:21	1200	4	SPASS Rider		
MIMI_131SA_DUSKMSPH003_RIDER	MIMI_8000	2010-140T05:24:21	GMB_E131_Titan68+000T02:00:00	000T16:45:39	2010-140T22:10:00	900	54	SPASS Rider		
MIMI_131SA_MAGBOUND002_RIDER	MIMI_8000	2010-140T22:10:00		001T08:50:00	2010-142T07:00:00	900	106	SPASS Rider		
MP_127NA_DSS14DOWN001_NA	MILESTONE	2010-066T22:49:02		117T23:50:11	2010-184T22:39:13	0	0	Non-SPASS		
MP_131NA_SEQUENCE060_NA	MILESTONE	2010-137T13:31:00		039T07:39:00	2010-176T21:10:00	0	0	SPASS Note		
MP_131SU_OCCTITAN131_NA	MILESTONE	2010-140T03:09:35		000T00:00:01	2010-140T03:09:36	0	0	Non-SPASS		
MP_131TI_FLYBYT068_NA	MILESTONE	2010-140T03:24:20		000T00:00:01	2010-140T03:24:21	0	0	SPASS Note		
RPWS_131SA_INSURVEY002_PRIME	RPWS_30464	2010-139T07:15:00		000T04:42:00	2010-139T11:57:00	1300	22	Non-SPASS		
RPWS_131SA_OUTSURVEY002_PRIME	RPWS_30464	2010-139T11:57:00		002T19:03:00	2010-142T07:00:00	1310	316	Non-SPASS		
RPWS_131TI_TIINTRMED001_PRIME	RPWS_30464	2010-140T01:39:21	GMB_E131_Titan68-000T01:45:00	000T01:00:00	2010-140T02:39:21	15232	55	Non-SPASS		
RPWS_131TI_TICA001_PRIME	RPWS_182784	2010-140T02:39:21	GMB_E131_Titan68-000T00:45:00	000T01:30:00	2010-140T04:09:21	1E+05	540	Non-SPASS		
RPWS_131TI_TIINTRMED002_PRIME	RPWS_30464	2010-140T04:09:21	GMB_E131_Titan68+000T00:45:00	000T01:00:00	2010-140T05:09:21	15232	55	Non-SPASS		
RSS_131TI_THERMAL001_PRIME	RSS_Activity	2010-139T16:19:21	GMB_E131_Titan68-000T11:05:00	000T02:05:00	2010-139T18:24:21	0	0	SPASS Rider		
RSS_131TI_GRAVITY001_PRIME	RSS_Activity	2010-139T18:24:21	GMB_E131_Titan68-000T09:00:00	000T18:00:00	2010-140T12:24:21	0	0	SPASS Rider		
RSS_131TI_KADOWN002_RSS	RSS_Activity	2010-140T22:00:00		000T09:00:00	2010-141T07:00:00	0	0	SPASS Rider		
SP_131NA_M34OBSNON140_NA	OBSERVATION	2010-139T07:15:00		000T11:49:21	2010-139T19:04:21	0	0	Non-SPASS		
SP_131NA_TOSTSEG139_NA	MILESTONE	2010-139T07:15:00		002T23:45:00	2010-142T07:00:00	0	0	SPASS Note		
SP_131TI_WAYPTTURN139_PRIME	MILESTONE	2010-139T07:15:00		000T00:40:00	2010-139T07:55:00	0	0	New Waypo	NEG_Y to Titan	NEG_X to Sun
SP_131TI_DEADTIME139_PRIME	MILESTONE	2010-139T07:55:00		000T00:15:05	2010-139T08:10:05	0	0	Prime	NEG_Y to Titan	NEG_X to Sun
SP_131NA_M34BWGNON139_SP	DSN_PASS	2010-139T16:30:00		000T08:00:00	2010-140T00:30:00	0	0	Non-SPASS		
SP_131EA_DLTURN139_PRIME	MILESTONE	2010-139T18:24:21	GMB_E131_Titan68-000T09:00:00	000T00:28:00	2010-139T18:52:21	0	0	Prime	POS_X to 90.0/20.0	XBAND to Earth
SP_131TI_DLTURN239_PRIME	MILESTONE	2010-139T18:52:21	GMB_E131_Titan68-000T08:32:00	000T00:12:00	2010-139T19:04:21	0	0	Prime	XBAND to Earth	NEG_Y to Saturn
SP_131EA_M34BWGNON139_PRIME	DOWNLINK P	2010-139T19:04:21	GMB_E131_Titan68-000T08:20:00	000T05:25:39	2010-140T00:30:00	0	0	Prime	XBAND to Earth	NEG_Y to Saturn
SP_131NA_G34BWGNON139_SP	DSN_PASS	2010-139T22:15:00		000T10:00:00	2010-140T08:15:00	0	0	Non-SPASS		
SP_131EA_G34BWGNON139_PRIME	DOWNLINK P	2010-140T00:30:00	GMB_E131_Titan68-000T02:54:21	000T07:45:00	2010-140T08:15:00	0	0	Prime	XBAND to Earth	NEG_Y to Saturn

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Request	AGPEN	Start Time	Epoch	Duration	End Time	Rate	Data Volume	SPASS Type	Primary Pointing	Secondary Pointing
SP_131NA_C34BWGNON140_SP	DSN_PASS	2010-140T05:05:00		000T09:05:00	2010-140T14:10:00	0	0	Non-SPASS		
SP_131EA_C34BWGNON140_PRIME	DOWNLINK_P	2010-140T08:15:00	GMB_E131_Titan68+000T04:50:39	000T03:44:21	2010-140T11:59:21	0	0	Prime	XBAND to Earth	NEG_Y to Saturn
SP_131NA_M70OBSNON140_NA	OBSERVATION	2010-140T11:59:21		000T10:00:39	2010-140T22:00:00	0	0	Non-SPASS		
SP_131TI_WAYPTTURN140_PRIME	MILESTONE	2010-140T11:59:21	GMB_E131_Titan68+000T08:35:00	000T00:25:00	2010-140T12:24:21	0	0	Prime	NEG_Y to Titan	NEG_X to Sun
SP_131TI_DEADTIME140_PRIME	MILESTONE	2010-140T21:05:05	GMB_E131_Titan68+000T17:40:44	000T00:14:55	2010-140T21:20:00	0	0	Prime	NEG_Y to Titan	NEG_X to Sun
SP_131EA_DLTURN140_PRIME	MILESTONE	2010-140T21:20:00		000T00:40:00	2010-140T22:00:00	0	0	Prime	XBAND to Earth	NEG_Y to 253.1/-5.9
SP_131EA_M70METNON140_PRIME	DOWNLINK_P	2010-140T22:00:00		000T02:30:00	2010-141T00:30:00	0	0	Prime	XBAND to Earth	NEG_Y to 253.1/-5.9
SP_131NA_G34BWGNON140_SP	DSN_PASS	2010-140T22:00:00		000T09:00:00	2010-141T07:00:00	0	0	Non-SPASS		
SP_131NA_M70METNON140_SP	DSN_PASS	2010-140T22:00:00		000T02:30:00	2010-141T00:30:00	0	0	Non-SPASS		
SP_131EA_G34BWGNON140_PRIME	DOWNLINK_P	2010-141T00:30:00		000T06:30:00	2010-141T07:00:00	0	0	Prime	XBAND to Earth	NEG_Y to 253.1/-5.9
SP_131NA_G70OBSNON141_NA	OBSERVATION	2010-141T07:00:00		000T15:00:00	2010-141T22:00:00	0	0	Non-SPASS		
SP_131TI_WAYPTTURN141_PRIME	MILESTONE	2010-141T07:00:00		000T00:40:00	2010-141T07:40:00	0	0	Prime	NEG_Y to Titan	NEG_X to Sun
SP_131EA_DLTURN141_PRIME	MILESTONE	2010-141T19:50:00		000T00:40:00	2010-141T20:30:00	0	0	New Waypo	XBAND to Earth	POS_X to NEP
SP_131EA_M70METNON141_PRIME	DOWNLINK_P	2010-141T22:00:00		000T02:30:00	2010-142T00:30:00	0	0	Prime	XBAND to Earth	Rolling/SRU
SP_131NA_G34HEFNON141_SP	DSN_PASS	2010-141T22:00:00		000T09:00:00	2010-142T07:00:00	0	0	Non-SPASS		
SP_131NA_M70METNON141_SP	DSN_PASS	2010-141T22:00:00		000T02:30:00	2010-142T00:30:00	0	0	Non-SPASS		
SP_131EA_G34HEFNON141_PRIME	DOWNLINK_P	2010-142T00:30:00		000T06:30:00	2010-142T07:00:00	0	0	Prime	XBAND to Earth	Rolling/SRU
UVIS_131TI_FIRNADCMP001_CIRS	UVIS_5032	2010-139T14:24:21	GMB_E131_Titan68-000T13:00:00	000T03:00:00	2010-139T17:24:21	1006	11	SPASS Rider		
UVIS_131TI_FIRNADCMP002_CIRS	UVIS_5032	2010-140T12:24:21	GMB_E131_Titan68+000T09:00:00	000T04:00:00	2010-140T16:24:21	1006	14	SPASS Rider		
UVIS_131SW_IPHSURVEY011_RIDER	UVIS_5032	2010-140T22:00:00		000T09:00:00	2010-141T07:00:00	152.5	5	Non-SPASS		
UVIS_131SW_IPHSURVEY012_RIDER	UVIS_5032	2010-141T22:00:00		000T09:00:00	2010-142T07:00:00	152.5	5	Non-SPASS		
VIMS_131TI_MIDIRTMAP001_CIRS	VIMS_18432	2010-139T08:10:05	GMB_E131_Titan68-000T19:14:16	000T05:44:16	2010-139T13:54:21	484.1	10	SPASS Rider		
VIMS_131TI_NIGHTNAC001_ISS	VIMS_18432	2010-139T13:54:21	GMB_E131_Titan68-000T13:30:00	000T00:30:00	2010-139T14:24:21	5556	10	SPASS Rider		
VIMS_131TI_FIRNADCMP001_CIRS	VIMS_18432	2010-139T14:24:21	GMB_E131_Titan68-000T13:00:00	000T03:00:00	2010-139T17:24:21	1852	20	SPASS Rider		
VIMS_131TI_PHOTOMWAC001_ISS	VIMS_18432	2010-139T17:24:21	GMB_E131_Titan68-000T10:00:00	000T01:00:00	2010-139T18:24:21	4167	15	SPASS Rider		
VIMS_131TI_FIRNADCMP002_CIRS	VIMS_18432	2010-140T12:24:21	GMB_E131_Titan68+000T09:00:00	000T04:00:00	2010-140T16:24:21	1389	20	SPASS Rider		
VIMS_131TI_MIDIRTMAP002_CIRS	VIMS_18432	2010-140T16:24:21	GMB_E131_Titan68+000T13:00:00	000T04:04:44	2010-140T21:05:05	890.5	15	SPASS Rider		
VIMS_131TI_CLOUDMAP001_ISS	VIMS_18432	2010-141T07:40:00		000T02:00:00	2010-141T09:40:00	1389	10	SPASS Rider		
VIMS_131TI_CLOUDMAP001_CIRS	VIMS_18432	2010-141T09:40:00		000T08:00:00	2010-141T17:40:00	260.4	8	SPASS Rider		
VIMS_131TI_CLOUDMAP002_ISS	VIMS_18432	2010-141T19:40:00		000T02:00:00	2010-141T21:40:00	1042	8	SPASS Rider		



T68 Liens and Open Issues

- Need CAPS Science Objectives
- DSS 25 overlaps maintenance by 1 hour. This station requested by RSS.
- Need to adjust CAPS and ISS observations in the Caboose segment due to the new bias window.