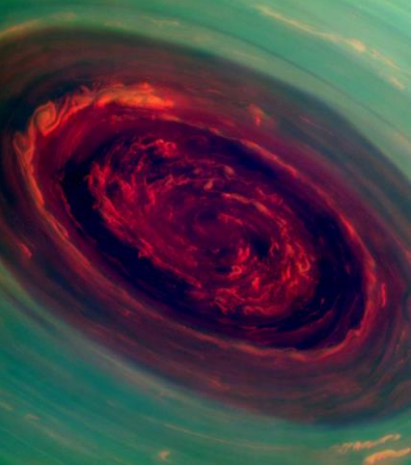

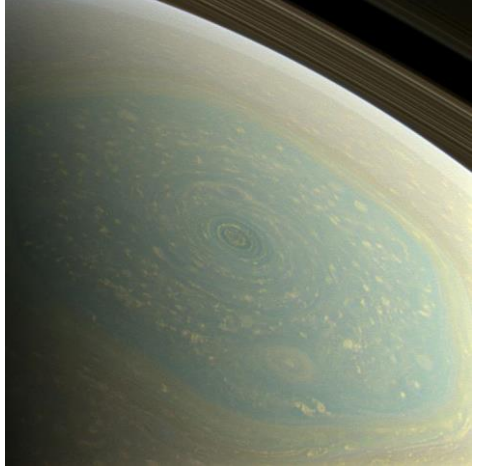
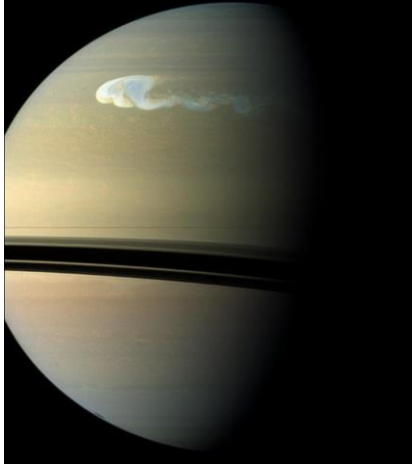

Science Planning & Sequence Team
CASSINI

SATURN TARGET WORKING TEAM

Rev 145-146 Segment Legacy Package

Segment Boundary: February 22, 2011 – March 7, 2011
2011-053T06:31:00 – 2011-066T13:02:00 (SCET)

Integration Began 05/17/2010
Segment Delivered to S66 Sequence 07/27/2010
Lead Integrator was Kathleen Kelleher

Legacy Package Assembled by Kathleen Kelleher

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*** N.A. = Slide present but content not available.**

Segment Overview and Final Products

Segment Summary

- Saturn 145-146 is the first half of a 25-day “CAKE” (Cassini Apoapse for Kronian Exploration) split by a sequence boundary in the first equatorial phase (EQ-1) of the Solstice Mission.
  - Saturn 145-146 is 13+ days long in S66, an outbound segment ~1.75 days after periapse and ending ~18 hours after apoapse.
  - The second part of this CAKE will continue in S67.
- The timeline was filled primarily with typical CAKE template activities, such as ISS/VIMS wind studies, UVIS EUV/FUVs, and CIRS-led composition and mapping. Other Saturn observations included ISS hi-res global imaging.
- Noteworthy out-of-discipline activities included ISS irregular rock imaging and MAG calibration rolling. An RSS boresight calibration was also performed.
- A single waypoint was chosen for the entire segment. In this case the RBOT (reaction wheel) friendly attitude was compatible with science.
- Significant data cuts and a station upgrade were necessary to fit the data volume into available resources.

Final Sequenced SPASS (1 of 2)

Saturn 145-146 Legacy

Gap 1

Gap 2

Gap 3

Gap 4

Request	Riders	Start (SCET)	Start (Epoch)	Duration	End (SCET)	Primary	Secondary	Comments
Sequence 566, length 3.492 days		2011-017T08:42:00		049T04:20:00	2011-066T13:02:00			
SATURN_145_146 Segment		2011-053T06:31:00		013T06:31:00	2011-066T13:02:00			
SP_145SA_WAYPTTURN053_PRIME		2011-053T06:31:00		000T00:40:00	2011-053T07:11:00	ISS_NAC to Saturn	NEG_Z to 37.6/83.7	Custom hand-off to ISS_NAC to Saturn, NEG_Z to 320.282/32.83
NEW WAYPOINT		**2011-053T07:11:00**		**002T12:36:00**	**2011-055T19:47:00**	**ISS_NAC to Saturn**	**NEG_Z to 37.6/83.7**	
ISS_145OT_SIAPHA026_PRIME	U	2011-053T07:11:00		000T03:00:00	2011-053T10:11:00	UVIS_FUV to Rocks (0.0,7.0,0.0 deg. offset)	NEG_Z to 37.6/83.7	Pick-up from ISS_NAC to Saturn, NEG_Z to 320.282/32.83; Handoff to waypoint
UVIS_145SA_EUVFUV002_PRIME		2011-053T10:11:00		000T10:25:00	2011-053T20:36:00	UVIS_FUV to Saturn	NEG_Z to 77.143/81.983	
SP_145EA_DLTURN053_PRIME		2011-053T20:36:00		000T00:40:00	2011-053T21:16:00	XBAND to Earth	POS_X to 40.6/83.5	
SP_145EA_M34BWGOTB053_PRIME	C, N	2011-053T21:16:00		000T09:00:00	2011-054T06:16:00	XBAND to Earth	POS_X to 40.6/83.5	update Secondary during integration
SP_145SA_WAYPTTURN054_PRIME		2011-054T06:16:00		000T00:40:00	2011-054T06:56:00	ISS_NAC to Saturn	NEG_Z to 37.6/83.7	
CIRS_145SA_MIRTMAP001_PRIME		2011-054T06:56:00		000T14:11:00	2011-054T21:07:00	CIRS_FP3 to Saturn	NEG_Z to NSP	
ISS_145SA_WIND5HR001_PRIME	V	2011-054T21:07:00		000T05:00:00	2011-055T02:07:00	ISS_NAC to Saturn	NEG_Z to 37.6/83.7	collaborative with VIMS
CIRS_145SA_COMPSIT001_PRIME	V	2011-055T02:07:00		000T06:00:00	2011-055T08:07:00	CIRS_FP1 to Saturn	NEG_Z to NSP	
ISS_145SA_WIND5HR002_PRIME	V	2011-055T08:07:00		000T05:00:00	2011-055T13:07:00	ISS_NAC to Saturn	NEG_Z to 37.6/83.7	collaborative with VIMS
CIRS_145SA_COMPSIT002_PRIME	V	2011-055T13:07:00		000T06:00:00	2011-055T19:07:00	CIRS_FP1 to Saturn	NEG_Z to NSP	
SP_145EA_DLTURN055_PRIME		2011-055T19:07:00		000T00:40:00	2011-055T19:47:00	XBAND to Earth	NEG_Y to 285.92/0.39	
NEW WAYPOINT		**2011-055T19:47:00**		**000T11:10:00**	**2011-056T06:57:00**	**XBAND to Earth**	**NEG_Y to 285.92/0.39**	
SP_145EA_YBIAS055_PRIME		2011-055T19:47:00		000T01:30:00	2011-055T21:17:00	XBAND to Earth	NEG_Y to 285.92/0.39	
SP_145EA_M70METSEQ055_PRIME	C	2011-055T21:17:00		000T09:00:00	2011-056T06:17:00	XBAND to Earth	Rolling	NEG_Y to 285.92/0.39; SA (0,0,-9.5), MIMI
SP_145SA_WAYPTTURN056_PRIME		2011-056T06:17:00		000T00:40:00	2011-056T06:57:00	ISS_NAC to Saturn	NEG_Z to 37.6/83.7	
NEW WAYPOINT		**2011-056T06:57:00**		**001T12:35:00**	**2011-057T19:32:00**	**ISS_NAC to Saturn**	**NEG_Z to 37.6/83.7**	
ISS_145TI_M90R3CLD056_PRIME	C, V	2011-056T06:57:00	E145_M90R3CLD056+000T00:00:00	000T01:30:00	2011-056T08:27:00	ISS_NAC to Titan	NEG_Z to 37.6/83.7	
ISS_145SA_WIND5HR003_PRIME	V	2011-056T08:27:00		000T05:00:00	2011-056T13:27:00	ISS_NAC to Saturn	NEG_Z to 37.6/83.7	collaborative with VIMS
CIRS_145SA_COMPSIT003_PRIME		2011-056T13:27:00		000T06:00:00	2011-056T19:27:00	CIRS_FP1 to Saturn	NEG_Z to NSP	
ISS_145SA_WIND5HR004_PRIME	V	2011-056T19:27:00		000T05:00:00	2011-057T00:27:00	ISS_NAC to Saturn	NEG_Z to 37.6/83.7	collaborative with VIMS
CIRS_145SA_COMPSIT004_PRIME	V	2011-057T00:27:00		000T02:00:00	2011-057T02:27:00	CIRS_FP1 to Saturn	NEG_Z to NSP	
ISS_145SA_WIND5HR005_PRIME	V	2011-057T02:27:00		000T05:00:00	2011-057T07:27:00	ISS_NAC to Saturn	NEG_Z to 37.6/83.7	collaborative with VIMS
CIRS_145SA_COMPSIT005_PRIME		2011-057T07:27:00		000T06:00:00	2011-057T13:27:00	CIRS_FP1 to Saturn	NEG_Z to NSP	
ISS_145SA_WIND5HR006_PRIME	V	2011-057T13:27:00		000T05:00:00	2011-057T18:27:00	ISS_NAC to Saturn	NEG_Z to 37.6/83.7	collaborative with VIMS
SP_145EA_DLTURN057_PRIME		2011-057T18:52:00		000T00:40:00	2011-057T19:32:00	XBAND to Earth	NEG_Y to 285.92/0.39	
NEW WAYPOINT		**2011-057T19:32:00**		**000T11:10:00**	**2011-058T06:42:00**	**XBAND to Earth**	**NEG_Y to 285.92/0.39**	
SP_145EA_YBIAS057_PRIME		2011-057T19:32:00		000T01:30:00	2011-057T21:02:00	XBAND to Earth	NEG_Y to 285.92/0.39	
SP_145EA_M34BWGSEQ057_PRIME	C	2011-057T21:02:00		000T09:00:00	2011-058T06:02:00	XBAND to Earth	Rolling/SRU	NEG_Y to 285.92/0.39; Saturn (0,0,-9.5), MIMI
SP_145SA_WAYPTTURN058_PRIME		2011-058T06:02:00		000T00:40:00	2011-058T06:42:00	ISS_NAC to Saturn	NEG_Z to 37.6/83.7	
NEW WAYPOINT		**2011-058T06:42:00**		**000T12:50:00**	**2011-058T19:32:00**	**ISS_NAC to Saturn**	**NEG_Z to 37.6/83.7**	
ISS_145TI_M90R3CLD058_PRIME	C, V	2011-058T06:42:00	E145_M90R3CLD058+000T00:00:00	000T01:30:00	2011-058T08:12:00	ISS_NAC to Titan	NEG_Z to	
UVIS_145SA_EUVFUV003_PRIME		2011-058T08:12:00		000T10:40:00	2011-058T18:52:00	UVIS_FUV to Saturn	NEG_Z to 37.6/83.7	
SP_145EA_DLTURN058_PRIME		2011-058T18:52:00		000T00:40:00	2011-058T19:32:00	XBAND to Earth	NEG_Y to 285.96/-2.32	
NEW WAYPOINT		**2011-058T19:32:00**		**000T11:10:00**	**2011-059T06:42:00**	**XBAND to Earth**	**NEG_Y to 285.96/-2.32**	
SP_145EA_YBIAS058_PRIME		2011-058T19:32:00		000T01:30:00	2011-058T21:02:00	XBAND to Earth	NEG_Y to 285.96/-2.32	
SP_145EA_M70METSEQ058_PRIME	C	2011-058T21:02:00		000T09:00:00	2011-059T06:02:00	XBAND to Earth	Rolling/SRU	NEG_Y to 285.96/-2.32; Saturn (0,0,-9.5), MIMI
SP_145SA_WAYPTTURN059_PRIME		2011-059T06:02:00		000T00:40:00	2011-059T06:42:00	ISS_NAC to Saturn	NEG_Z to 37.6/83.7	
NEW WAYPOINT		**2011-059T06:42:00**		**000T12:35:00**	**2011-059T19:17:00**	**ISS_NAC to Saturn**	**NEG_Z to 37.6/83.7**	
CIRS_145SA_COMPSIT006_PRIME	V	2011-059T06:42:00		000T11:00:00	2011-059T17:42:00	CIRS_FP1 to Saturn	NEG_Z to NSP	
SP_145EA_DLTURN059_PRIME		2011-059T18:37:00		000T00:40:00	2011-059T19:17:00	XBAND to Earth	NEG_Y to 285.96/-2.32	
NEW WAYPOINT		**2011-059T19:17:00**		**000T11:10:00**	**2011-060T06:27:00**	**XBAND to Earth**	**NEG_Y to 285.96/-2.32**	
SP_145EA_YBIAS059_PRIME	R	2011-059T19:17:00		000T01:30:00	2011-059T20:47:00	XBAND to Earth	NEG_Y to 285.96/-2.32	
SP_145EA_M34BWGSEQ059_PRIME	C, R	2011-059T20:47:00		000T01:30:00	2011-059T22:17:00	XBAND to Earth	NEG_Y to 285.96/-2.32	NEG_Y to Saturn (0,0,-9.5), MIMI. RA/DEC equiv: NEG_Y to 285.96/-2.32 Rolling SRU
RSS_145EA_BORESIGHT002_PRIME	C, R	2011-059T22:17:00		000T01:00:00	2011-059T23:17:00	XBAND to Earth	NEG_Y to 285.96/-2.32	
SP_145EA_M34BWGSEQ459_PRIME	C, R	2011-059T23:17:00		000T06:30:00	2011-060T05:47:00	XBAND to Earth	5_Hr_Rolling	NEG_Y to 285.96/-2.32; MIMI (0,0,-9.5)
SP_145SA_WAYPTTURN060_PRIME		2011-060T05:47:00		000T00:40:00	2011-060T06:27:00	ISS_NAC to Saturn	NEG_Z to 37.6/83.7	
NEW WAYPOINT		**2011-060T06:27:00**		**003T20:20:00**	**2011-064T02:47:00**	**ISS_NAC to Saturn**	**NEG_Z to 37.6/83.7**	
CIRS_145SA_MIRMAP001_PRIME	V	2011-060T06:27:00		000T21:10:00	2011-061T03:37:00	CIRS_FP3 to Saturn	NEG_Z to NSP	
SP_145EA_DLTURN061_PRIME		2011-061T03:37:00		000T00:40:00	2011-061T04:17:00	XBAND to Earth	NEG_Y to 285.96/-2.32	
SP_145EA_G34BWGOTP061_PRIME	C, E, N	2011-061T04:17:00		000T09:00:00	2011-061T13:17:00	XBAND to Earth	4_Hr_Rolling	NEG_Y to 285.96/-2.32; SA (0,0,-9.5) (4-hr. rolling), MIMI
SP_145SA_WAYPTTURN061_PRIME		2011-061T13:17:00		000T00:40:00	2011-061T13:57:00	ISS_NAC to Saturn	NEG_Z to 37.6/83.7	
UVIS_145SA_EUVFUV004_PRIME		2011-061T13:57:00		000T13:40:00	2011-062T03:37:00	UVIS_FUV to Saturn	NEG_Z to 37.6/83.7	
SP_145EA_DLTURN062_PRIME		2011-062T03:37:00		000T00:40:00	2011-062T04:17:00	XBAND to Earth	NEG_Y to 285.96/-2.32	
SP_145EA_G70METOTB062_PRIME	C, M, N	2011-062T04:17:00		000T09:00:00	2011-062T13:17:00	XBAND to Earth	NEG_Y to 285.96/-2.32	same as DTP pass, MIMI
SP_145SA_WAYPTTURN062_PRIME	M	2011-062T13:17:00		000T00:40:00	2011-062T13:57:00	ISS_NAC to Saturn	NEG_Z to 37.6/83.7	
ISS_145TI_M90R3CLD062_PRIME	C, M, V	2011-062T13:57:00	E145_M90R3CLD062+000T00:00:00	000T01:30:00	2011-062T15:27:00	ISS_NAC to Titan	NEG_Z to 37.6/83.7	
CIRS_145SA_COMPSIT007_PRIME	M, V	2011-062T15:27:00		000T22:00:00	2011-063T13:27:00	CIRS_FP1 to Saturn	NEG_Z to NSP	
UVIS_145SA_EUVFUV005_PRIME		2011-063T13:27:00		000T12:40:00	2011-064T02:07:00	UVIS_FUV to Saturn	NEG_Z to 37.6/83.7	
SP_145EA_DLTURN064_PRIME		2011-064T02:07:00		000T00:40:00	2011-064T02:47:00	XBAND to Earth	NEG_Y to 285.96/-2.32	

Final Sequenced SPASS (2 of 2)

Gap 5

NEW WAYPOINT		**2011-064T02:47:00**		**000T11:10:00**	**2011-064T13:57:00**	**XBAND to Earth**	**NEG_Y to 285.96/-2.32**	
SP_145EA_YBIAS064_PRIME		2011-064T02:47:00		000T01:30:00	2011-064T04:17:00	XBAND to Earth	NEG_Y to 285.96/-2.32	
SP_145EA_G34BWGSEQ064_PRIME	C,M	2011-064T04:17:00		000T09:00:00	2011-064T13:17:00	XBAND to Earth	NEG_Y to 285.96/-2.32	NEG_Y to Saturn (0,0,-9.5), MIMI
SP_145SA_WAYPTTURN064_PRIME	M	2011-064T13:17:00		000T00:40:00	2011-064T13:57:00	ISS_NAC to Saturn	NEG_Z to 37.6/83.7	
NEW WAYPOINT		**2011-064T13:57:00**		**001T12:35:00**	**2011-066T02:32:00**	**ISS_NAC to Saturn**	**NEG_Z to 37.6/83.7**	
ISS_145TI_M90R3CLD064_PRIME	C,M,V	2011-064T13:57:00	E145_M90R3CLD064+000T00:00:00	000T01:30:00	2011-064T15:27:00	ISS_NAC to Titan	NEG_Z to 37.6/83.7	
MAG_145SU_CALROLL001_PRIME	M	2011-064T15:27:00		000T07:00:00	2011-064T22:27:00	NEG_X to Earth (0.0,0.0,-30.0 deg. offset)	Rolling	
ISS_145SA_WIND5HR007_PRIME	M,V	2011-064T22:27:00		000T05:00:00	2011-065T03:27:00	ISS_NAC to Saturn	NEG_Z to 37.6/83.7	collaborative with VIMS
CIRS_145SA_COMPSIT008_PRIME		2011-065T03:27:00		000T06:00:00	2011-065T09:27:00	CIRS_FP1 to Saturn	NEG_Z to NSP	
ISS_145SA_WIND5HR008_PRIME	V	2011-065T09:27:00		000T05:00:00	2011-065T14:27:00	ISS_NAC to Saturn	NEG_Z to 37.6/83.7	collaborative with VIMS
Apoapse Per +27.9d, inc..		2011-065T12:39:20		000T00:00:01	2011-065T12:39:21			
ISS_146SA_HIRESGLOB001_PRIME	C,M	2011-065T14:27:00		000T11:00:00	2011-066T01:27:00	ISS_NAC to Saturn	NEG_Z to 37.6/83.7	Collaborative Rider(s): CIRS. collaborative (possibly) with CIRS
SP_146EA_DLTURN066_PRIME	M	2011-066T01:52:00		000T00:40:00	2011-066T02:32:00	XBAND to Earth	NEG_Y to 285.96/-2.32	
NEW WAYPOINT		**2011-066T02:32:00**		**000T10:30:00**	**2011-066T13:02:00**	**XBAND to Earth**	**NEG_Y to 285.96/-2.32**	
ENGR_146SC_KPTYBIAS066_PRIME	M	2011-066T02:32:00		000T01:30:00	2011-066T04:02:00	POS_Z to DELTA_H	NEG_X to Sun	
SP_146EA_G70METSEQ066_PRIME	C,M	2011-066T04:02:00		000T09:00:00	2011-066T13:02:00	XBAND to Earth	NEG_Y to 285.96/-2.32	NEG_Y to Saturn (0,0,-9.5), MIMI

Final Sequenced SMT and Data Volume (1 of 2)

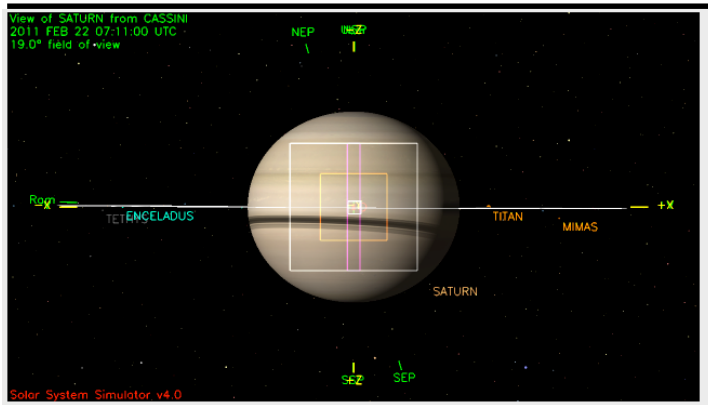
DATA VOLUME SUMMARY --- TRANSFER FRAME OVERHEAD INCLUDED (80 BITS PER 8800-BIT FRAME)

			OBSERVATION_PERIOD							DOWNLINK_PASS						
			P4						P5	RECORDED		PLAYBACK				
DOWNLINK PASS NAME	Start doy hh:mm	End doy hh:mm	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 (%)	CAROVR (Mb)
SP_145EA_M34BWGOTB053_PRIME	053 21:16	054 06:16	0	626	62	688	3301	2613	0	232	53	974	791	-183	70	0%	182
SP_145EA_M70METSEQ055_PRIME	055 21:17	056 06:17	182	2884	165	3231	3301	70	0	232	53	3516	3803	286	272	2%	0
SP_145EA_M34BWGSEQ057_PRIME	057 21:02	058 06:02	0	3108	164	3272	3301	29	0	232	53	3557	800	-2758	-14	0%	2758
SP_145EA_M70METSEQ058_PRIME	058 21:02	059 06:02	2758	495	63	3316	3301	-14	0	232	53	3587	3873	286	894	6%	0
SP_145EA_M34BWGSEQ059_PRIME	059 20:47	059 22:17	0	1035	62	1097	3301	2204	0	30	9	1136	105	-1031	607	6%	1031
SP_145EA_M34BWGSEQ459_PRIME	059 23:17	060 05:47	1031	27	4	1062	3301	2239	0	175	38	1276	616	-660	607	6%	660
SP_145EA_G34BWGOTP061_PRIME	061 04:17	061 13:17	660	1818	95	2573	3301	729	0	232	53	2858	710	-2148	607	6%	2148
SP_145EA_G70METOTB062_PRIME	062 04:17	062 13:17	2148	483	63	2694	3301	607	0	232	53	2979	4179	1199	1169	13%	0
SP_145EA_G34BWGSEQ064_PRIME	064 04:17	064 13:17	0	1390	165	1555	3301	1747	0	219	53	1826	875	-952	-29	0%	951
SP_146EA_G70METSEQ066_PRIME	066 04:02	066 13:02	951	2217	164	3332	3301	-29	0	232	53	3587	4179	592	592	14%	0

Final Sequenced SMT and Data Volume (2 of 2)

SP_145EA_M34BWGOTB053_PRIME	053 21:16	054 06:16	32.4	17.0	86.4	3.2	0.0	16.0	27.5	0.0	42.4	4.9	0.0	0.0	0.0	229.9
DAILY TOTAL SCIENCE	053 06:31	054 06:16	85.5	44.8	86.4	18.6	170.0	42.2	72.7	0.0	112.0	218.1	0.0	0.0	61.6	
OBSERVATION_NOR	054 06:16	055 21:17	169.0	73.6	377.0	14.0	607.5	69.4	119.4	0.0	184.0	43.5	1200.0	0.0	163.1	3020.5
SP_145EA_M70METSEQ055_PRIME	055 21:17	056 06:17	32.4	17.0	86.4	3.2	0.0	16.0	27.5	0.0	42.4	4.9	0.0	0.0	0.0	229.9
DAILY TOTAL SCIENCE	054 06:16	056 06:17	201.4	90.6	463.4	17.3	607.5	85.4	146.9	0.0	226.4	48.4	1200.0	0.0	163.1	
OBSERVATION_NOR	056 06:17	057 21:02	139.5	73.1	223.2	14.0	1250.0	68.9	118.6	0.0	182.7	65.2	945.0	0.0	162.0	3242.2
SP_145EA_M34BWGSEQ057_PRIME	057 21:02	058 06:02	32.4	17.0	86.4	3.2	0.0	16.0	27.5	0.0	42.4	4.9	0.0	0.0	0.0	229.9
DAILY TOTAL SCIENCE	056 06:17	058 06:02	171.9	90.1	309.6	17.2	1250.0	84.9	146.1	0.0	225.2	70.2	945.0	0.0	162.0	
OBSERVATION_NOR	058 06:02	058 21:02	54.0	28.3	21.6	5.4	35.0	26.7	45.9	0.0	70.7	193.2	10.0	0.0	62.7	553.5
SP_145EA_M70METSEQ058_PRIME	058 21:02	059 06:02	32.4	17.0	86.4	3.2	0.0	16.0	27.5	0.0	42.4	4.9	0.0	0.0	0.0	229.9
DAILY TOTAL SCIENCE	058 06:02	059 06:02	86.4	45.3	108.0	8.6	35.0	42.7	73.4	0.0	113.2	198.2	10.0	0.0	62.7	
OBSERVATION_NOR	059 06:02	059 20:47	53.1	27.8	158.4	5.3	0.0	26.2	45.1	0.0	69.6	39.9	600.0	0.0	61.6	1087.1
SP_145EA_M34BWGSEQ059_PRIME	059 20:47	059 22:17	5.4	2.8	5.4	0.5	0.0	2.7	4.6	0.0	7.1	0.8	0.0	0.0	0.0	29.3
DAILY TOTAL SCIENCE	059 06:02	059 22:17	58.5	30.7	163.8	5.9	0.0	28.9	49.7	0.0	76.6	40.7	600.0	0.0	61.6	
OBSERVATION_NOR	059 22:17	059 23:17	3.6	1.9	10.8	0.4	0.0	1.8	3.1	0.0	4.7	0.5	0.0	0.0	4.2	30.9
SP_145EA_M34BWGSEQ459_PRIME	059 23:17	060 05:47	23.4	12.3	70.2	2.3	0.0	11.6	19.9	0.0	30.7	3.6	0.0	0.0	0.0	173.9
DAILY TOTAL SCIENCE	059 22:17	060 05:47	27.0	14.1	81.0	2.7	0.0	13.3	23.0	0.0	35.4	4.1	0.0	0.0	4.2	
OBSERVATION_NOR	060 05:47	061 04:17	81.0	42.4	304.8	8.1	0.0	40.0	68.8	0.0	106.1	0.0	1150.0	0.0	94.0	1895.4
SP_145EA_G34BWGOTP061_PRIME	061 04:17	061 13:17	32.4	17.0	86.4	3.2	0.0	16.0	27.5	0.0	42.4	4.9	0.0	0.0	0.0	229.9
DAILY TOTAL SCIENCE	060 05:47	061 13:17	113.4	59.4	391.2	11.3	0.0	56.0	96.4	0.0	148.6	4.9	1150.0	0.0	94.0	
OBSERVATION_NOR	061 13:17	062 04:17	54.0	28.3	0.0	5.4	0.0	26.7	45.9	0.0	70.7	247.6	0.0	0.0	62.7	541.3
SP_145EA_G70METOTB062_PRIME	062 04:17	062 13:17	32.4	17.0	86.4	3.2	0.0	16.0	27.5	0.0	42.4	4.9	0.0	0.0	0.0	229.9
DAILY TOTAL SCIENCE	061 13:17	062 13:17	86.4	45.3	86.4	8.6	0.0	42.7	73.4	0.0	113.2	252.5	0.0	0.0	62.7	
OBSERVATION_NOR	062 13:17	064 04:17	140.4	73.6	180.0	14.0	35.0	69.4	119.3	0.0	126.4	309.2	310.0	0.0	163.0	1540.2
SP_145EA_G34BWGSEQ064_PRIME	064 04:17	064 13:17	32.4	17.0	86.4	3.2	0.0	16.0	27.5	0.0	29.2	4.9	0.0	0.0	0.0	216.7
DAILY TOTAL SCIENCE	062 13:17	064 13:17	172.8	90.5	266.4	17.3	35.0	85.4	146.9	0.0	155.5	314.1	310.0	0.0	163.0	
OBSERVATION_NOR	064 13:17	066 04:02	139.5	73.1	144.0	24.0	1032.5	106.3	118.6	0.0	125.5	43.5	390.0	0.0	162.0	2358.9
SP_146EA_G70METSEQ066_PRIME	066 04:02	066 13:02	32.4	17.0	86.4	3.2	0.0	16.0	27.5	0.0	42.4	4.9	0.0	0.0	0.0	229.9
DAILY TOTAL SCIENCE	064 13:17	066 13:02	171.9	90.1	230.4	27.3	1032.5	122.3	146.1	0.0	168.0	48.4	390.0	0.0	162.0	

Segment Geometry




```
Rev 145 OUTBOUND
2011 -  053T07:11:00 SCET
2011 FEB 22 07:11:00 SCET
2011 FEB 22 08:24:36 ERT
Apoapse__145 + 011T23:04:57
Periapse_145 + 001T17:27:01
Light time:     73.6 min
Orbit period:   27.9 days
Radius     1176624 km      19.52 Rs
Rad_cyl    1176618 km      19.52 Rs
Z_ht_cyl      3605 km       0.06 Rs
Mag_L          19.52
Semi_axs   1774222 km      29.44 Rs
Eccentricity    0.840
Inclination     0.38 deg
Sun_range       9.59 AU
Earth_range     8.85 AU
--- DSN ELEV -- D/L -- U/L --------
Goldstone      38.5   12.1
Canberra      -28.3  -48.4
Madrid          6.8   32.1
------- LOOK DIRECTION INFO -------
FOV            19.0 deg  331.7 mrad
RA           -133.621 deg
DEC             6.255 deg
Crosses_RP_0    0.000 Rs
EPS             4.056 deg
SEP           136.679 deg
ORS b/s angle 144.8 deg
ORS rad angle 123.9 deg
```

Point NEG_Y at SATURN and align NEG_Z = Up with USER VEC

User vector - RA: +37.600 DEC: +83.700 Paste Current RA/DEC

Tilt L Up Tilt R Left Reset Right Image Down Hi Res

Zoom Out Fill Screen Zoom In

Labels Axes Orbits Vectors FOVs Lat/lons

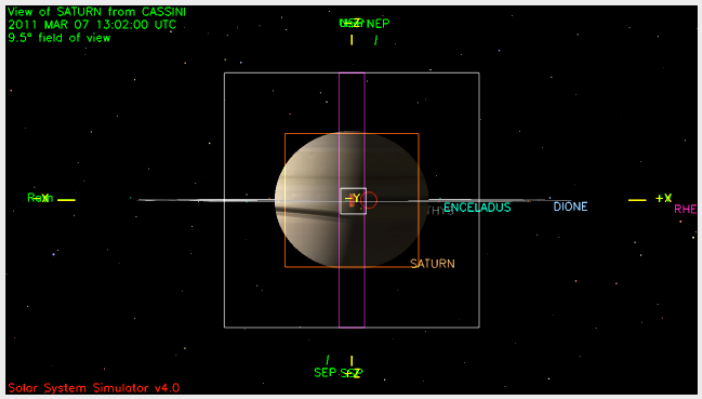
Year Month Day Hour Minute Second

Turn analyzer: SATURN to EARTH about Z on RWA = 14.0 min / 148.1 deg Event

BODY	S/C OCC?	SAT OCC?	RANGE (km)	RANGE (Rs)	ALTITUDE (km)	ALTITUDE (Rs)	PHASE (deg)	ANGLR_DIAMETER (deg	mrad)	SUB_S/C LON	SUB_S/C LAT	ALON (deg)	VREL (km/s)	Z_HGHT (km)	ANGLE_FROM SATRN	ANGLE_FROM EARTH	ANGLE_FROM RAM
SATURN	--	--	1176624	19.52	1116356	18.52	35.1	5.87	102.49	132	0	0	6.6	0	0.0	148.1	160.6
MIMAS	--	--	1029516	17.08	1029313	17.08	29.6	0.02	0.40	219	1	-34	15.7	-4502	5.7	153.5	166.2
ENCELADUS	--	--	969349	16.08	969093	16.08	41.3	0.03	0.53	151	0	27	7.4	27	6.4	142.0	154.2
TETHYS	--	--	1426317	23.67	1425778	23.66	41.8	0.04	0.76	29	-1	144	13.1	-3846	6.9	141.5	153.6
DIONE	--	--	1284788	21.32	1284226	21.31	51.6	0.05	0.88	65	0	98	6.9	-187	16.9	131.8	143.7
RHEA	--	--	1362763	22.61	1361999	22.60	14.4	0.06	1.13	304	-0	-99	14.7	2332	22.5	167.3	176.9
TITAN	--	--	2411195	40.01	2408620	39.97	31.5	0.12	2.14	357	0	-173	11.0	-2796	3.7	151.6	164.3
HYPERION	--	--	2048338	33.99	2048201	33.98	10.1	0.01	0.16	336	-43	-107	11.9	15057	39.5	166.4	159.9
IAPETUS	--	--	3464024	57.48	3463276	57.46	112.4	0.02	0.43	25	-2	79	3.9	-790719	81.4	71.6	79.7
PHOEBE	--	--	14220637	235.96	14220527	235.95	116.3	0.00	0.02	64	-25	-27	6.9	6685882	140.2	59.2	54.5
SATURN	--	--	1176624	19.52	1116356	18.52	35.1	5.87	102.49	132	0	0	6.6	0	0.0	148.1	160.6

← Seg Start (Left)

↓ Seg End (below)




```
Rev 146  INBOUND
2011 -  066T13:02:00 SCET
2011 MAR 07 13:02:00 SCET
2011 MAR 07 14:14:33 ERT
Apoapse__146 + 001T00:22:42
Periapse_146 - 012T22:43:05
Light time:     72.6 min
Orbit period:   27.9 days
Radius     3253932 km      53.99 Rs
Rad_cyl    3253865 km      53.99 Rs
Z_ht_cyl     20952 km       0.35 Rs
Mag_L          53.99
Semi_axs   1775265 km      29.46 Rs
Eccentricity    0.839
Inclination     0.38 deg
Sun_range       9.60 AU
Earth_range     8.72 AU
--- DSN ELEV -- D/L -- U/L --------
Goldstone      16.9   41.9
Canberra       49.1   22.9
Madrid        -53.3  -40.1
------- LOOK DIRECTION INFO -------
FOV             9.5 deg  165.8 mrad
RA            -82.802 deg
DEC             3.196 deg
Crosses_RP_0    0.000 Rs
EPS             2.893 deg
SEP           150.763 deg
ORS b/s angle  95.2 deg
ORS rad angle 170.0 deg
```

Point NEG_Y at SATURN and align NEG_Z = Up with USER VEC

User vector - RA: +37.600 DEC: +83.700 Paste Current RA/DEC

Tilt L Up Tilt R Left Reset Right Image Down Hi Res

Zoom Out Fill Screen Zoom In

Labels Axes Orbits Vectors FOVs Lat/lons

Year Month Day Hour Minute Second

Turn analyzer: SATURN to EARTH about Z on RWA = 10.3 min / 97.9 deg Event

BODY	S/C OCC?	SAT OCC?	RANGE (km)	RANGE (Rs)	ALTITUDE (km)	ALTITUDE (Rs)	PHASE (deg)	ANGLR_DIAMETER (deg	mrad)	SUB_S/C LON	SUB_S/C LAT	ALON (deg)	VREL (km/s)	Z_HGHT (km)	ANGLE_FROM SATRN	ANGLE_FROM EARTH	ANGLE_FROM RAM
SATURN	--	--	3253932	53.99	3193664	52.99	84.6	2.12	37.05	19	0	0	1.4	0	0.0	97.9	82.7
MIMAS	--	--	3070747	50.95	3070540	50.95	84.5	0.01	0.14	182	2	-2	13.1	-4974	0.2	98.1	82.8
ENCELADUS	--	--	3479858	57.74	3479601	57.74	83.4	0.01	0.15	347	0	-162	13.9	11	1.2	99.1	83.9
TETHYS	--	--	3544931	58.82	3544390	58.81	83.8	0.02	0.30	352	-1	-171	12.7	-3226	0.8	98.7	83.4
DIONE	--	--	3594288	59.64	3593725	59.63	81.9	0.02	0.31	336	0	-153	11.2	-6	2.7	100.6	85.4
RHEA	--	--	2779188	46.11	2778422	46.10	80.3	0.03	0.55	211	-0	-24	7.1	3097	4.4	102.2	87.0
TITAN	--	--	2925794	48.55	2923219	48.50	62.3	0.10	1.76	264	0	-64	4.7	4982	22.7	120.2	105.3
HYPERION	--	--	3512029	58.27	3511894	58.27	110.9	0.01	0.09	66	-10	86	5.0	197	26.6	71.7	56.1
IAPETUS	--	--	3723737	61.79	3722992	61.77	143.1	0.02	0.40	55	-13	67	3.4	97285	59.0	39.6	23.7
PHOEBE	--	--	12655829	209.99	12655716	209.99	131.7	0.00	0.02	179	-32	30	2.7	6347577	132.6	45.1	63.0
SATURN	--	--	3253932	53.99	3193664	52.99	84.6	2.12	37.05	19	0	0	1.4	0	0.0	97.9	82.7

	Saturn Range	Phase Angle	Sub-S/C Lat.
Segment Start	19.52 Rs	35.1	0
Periapse	N/A		
Apoapse	54.18 Rs	82.6	0
Segment End	53.99 Rs	84.6	0

Solar Geometry – ORS Boresight Concerns

No ORS Boresight Solar Constraints on Science Pointing Noted.

Daily Science Highlights

DOY 53: The Saturn 145_146 segment started with an ORS look at the small irregular moon Siarnaq. Afterwards, UVIS occupied most of the day with an EUV/FUV, which involvesd slow scans across Saturn's visible hemisphere to form spectral images. MAPS was occupied with a magnetospheric survey campaign.

DOY 54: The entire day was devoted to a CIRS Saturn Mid-IR Map, which helps determine Saturn's upper troposphere and tropopause temperature with spatial resolution of about two degrees of latitude and longitude. MAPS continued with a magnetospheric boundaries campaign.

DOY 55: For the rest of the day, ISS and VIMS spent time building their Saturn wind speed template by staring and shooting every 10 minutes to mosaic in longitude. CIRS measured oxygen compounds (H_2O, CO_2) in Saturn's stratosphere as a function of latitude, while VIMS rode along. MAPS continued with a magnetospheric boundaries campaign.

DOY 56: The day started with ORS teams taking another look at Titan as part of the cloud monitoring campaign. The rest of the day, ISS and VIMS spent time building their Saturn wind speed template by staring and shooting every 10 minutes to mosaic in longitude. CIRS measured oxygen compounds (H_2O, CO_2) in Saturn's stratosphere as a function of latitude, while VIMS rode along. MAPS continued with a magnetospheric boundaries campaign.

DOY 57: The entire day was spent with ISS and VIMS building their Saturn wind speed template by staring and shooting every 10 minutes to mosaic in longitude. CIRS measured oxygen compounds (H_2O, CO_2) in Saturn's stratosphere as a function of latitude, while VIMS rode along. MAPS continued with a magnetospheric boundaries campaign.

DOY 58: The day started with ORS teams taking another look at Titan as part of the cloud monitoring campaign. Afterwards, UVIS occupied most of the day with an EUV/FUV, which involved slow scans across Saturn's visible hemisphere to form spectral images. MAPS was occupied with a magnetospheric survey campaign.

DOY 59: CIRS measured oxygen compounds (H_2O, CO_2) in Saturn's stratosphere as a function of latitude. Later during the downlink, RSS performed a one-hour boresight calibration. MAPS continued with a magnetospheric boundaries campaign

DOY 60: The entire day was devoted to a CIRS Saturn Mid-IR Map, which helps determine Saturn's upper troposphere and tropopause temperature with spatial resolution of about two degrees of latitude and longitude. MAPS continued with a magnetospheric boundaries campaign.

DOY 61: UVIS occupied most of the day with an EUV/FUV, which involved slow scans across Saturn's visible hemisphere to form spectral images. MAPS was occupied with a magnetospheric survey campaign.

DOY 62: The day started with the ORS teams taking another look at Titan as part of the cloud monitoring campaign. CIRS looked again to measure oxygen compounds (H_2O, CO_2) in Saturn's stratosphere as a function of latitude in an observation that extends halfway through the following day. MAPS was occupied with a magnetospheric survey campaign.

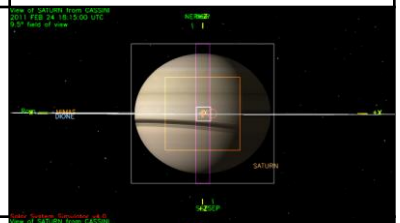
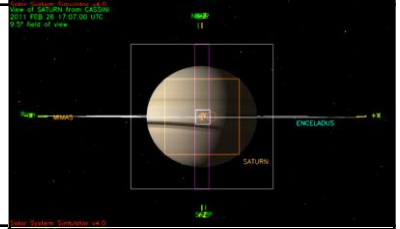
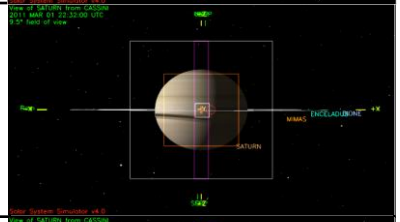
DOY 63: CIRS continued to measure oxygen compounds (H_2O, CO_2) in Saturn's stratosphere as a function of latitude. Afterwards, UVIS occupied most of the day with an EUV/FUV, which involved slow scans across Saturn's visible hemisphere to form spectral images. MAPS continued with a magnetospheric boundaries campaign.

DOY 64: The day started with the last Titan cloud monitoring observation for the ORS teams in this segment as part of the cloud monitoring campaign. After that, MAG performed a periodic calibration that entails a roll about an axis other than Z for determination of sensor offsets. ISS and VIMS then continued to build their Saturn wind speed template by staring and shooting every 10 minutes to mosaic in longitude. MAPS continued with a magnetospheric boundaries campaign.

DOY 65: CIRS measured oxygen compounds (H_2O, CO_2) in Saturn's stratosphere as a function of latitude, while VIMS rode along. ISS and VIMS then continued to build their Saturn wind speed template by staring and shooting every 10 minutes to mosaic in longitude. ISS then started their highest priority observation of this Saturn segment with a high resolution global map of Saturn with CIRS riding along. MAPS continued with a magnetospheric boundaries campaign.

Segment Integration Planning

Timeline Gaps and Suggested Observations

Gap	Start	End	Duration	Phase angle (range)	Rs range	Sub-S/C Lat.	Snapshot (mid-gap)
1	2011-055T17:26:00	2011-055T19:15:00	1h 49m	55.8 to 56.2	34.09 to 34.45	0	
2	2011-057T16:27:00	2011-057T18:52:00	1h 25m	41.95 to 42.14	63.8 to 64	0	
3	2011-059T17:42:00	2011-059T18:37:00	55m	47.74 to 47.83	69.9 to 70	0	
4	2011-060T17:27:00	2011-061T03:37:00	10h10m	49.8 to 50.56	48.8 to 73.3	0	
5	2011-066T01:27:00	2011-066T01:52:00	25m	54.13	83.7	0	

Initial SMT and Data Volume (1 of 2)

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

			OBSERVATION_PERIOD						DOWNLINK_PASS							
			P4						P5	RECORDED		PLAYBACK				
DOWNLINK PASS NAME	Start doy hh:mm	End doy hh:mm	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_145EA_M34BWGOTB053_PRIME	053 21:16	054 06:16	0	626	62	688	3317	2628	0	232	53	974	791	-183	86	1%	182
SP_145EA_M70METSEQ055_PRIME	055 21:17	056 06:17	182	2884	165	3231	3317	86	0	232	53	3516	3803	286	144	1%	0
SP_145EA_M34BWGSEQ057_PRIME	057 21:02	058 06:02	0	3295	164	3459	3317	-141	0	232	53	3602	800	-2803	-43	0%	2802
SP_145EA_M70METSEQ058_PRIME	058 21:02	059 06:02	2802	495	63	3361	3317	-43	0	232	53	3602	3873	271	588	4%	0
SP_145EA_M34BWGSEQ059_PRIME	059 20:47	059 22:17	0	1035	62	1097	3317	2220	0	30	9	1136	105	-1031	317	3%	1031
SP_145EA_M34BWGSEQ459_PRIME	059 23:17	060 05:47	1031	27	4	1062	3317	2255	0	175	38	1276	616	-660	317	3%	660
SP_145EA_G34BWGOTP061_PRIME	061 04:17	061 13:17	660	1818	95	2573	3317	744	0	232	53	2858	710	-2148	317	3%	2148
SP_145EA_G70METOTB062_PRIME	062 04:17	062 13:17	2148	483	63	2694	3317	623	0	232	53	2979	4179	1199	317	3%	0
SP_145EA_G34BWGSEQ064_PRIME	064 04:17	064 13:17	0	1911	165	2075	3317	1241	0	232	53	2360	875	-1486	-882	-16%	1485
SP_146EA_G70METSEQ066_PRIME	066 04:02	066 13:02	1485	2551	164	4200	3317	-882	0	226	53	3596	4179	583	583	14%	0

DOY 058 upgraded to a 70m station.

MAPS are all at or below nominal rates.

ORS instruments need to cut.

VIMS has made cuts totaling ~2 Gb.

MORE CUTS ARE NEEDED.

Initial SMT and Data Volume (2 of 2)

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	053 06:31	053 21:16	53.1	27.8	0.0	15.4	170.0	26.2	45.1	0.0	69.6	213.2	0.0	0.0	61.6	682.0
SP_145EA_M34BWGOTB053_PRIME	053 21:16	054 06:16	32.4	17.0	86.4	3.2	0.0	16.0	27.5	0.0	42.4	4.9	0.0	0.0	0.0	229.9
DAILY TOTAL SCIENCE	053 06:31	054 06:16	85.5	44.8	86.4	18.6	170.0	42.2	72.7	0.0	112.0	218.1	0.0	0.0	61.6	
OBSERVATION_NOR	054 06:16	055 21:17	169.0	73.6	377.0	14.0	607.5	69.4	119.4	0.0	184.0	43.5	1200.0	0.0	163.1	3020.5
SP_145EA_M70METSEQ055_PRIME	055 21:17	056 06:17	32.4	17.0	86.4	3.2	0.0	16.0	27.5	0.0	42.4	4.9	0.0	0.0	0.0	229.9
DAILY TOTAL SCIENCE	054 06:16	056 06:17	201.4	90.6	463.4	17.3	607.5	85.4	146.9	0.0	226.4	48.4	1200.0	0.0	163.1	
OBSERVATION_NOR	056 06:17	057 21:02	139.5	73.1	223.2	14.0	1250.0	68.9	118.6	0.0	182.7	65.2	1130.0	0.0	162.0	3427.2
SP_145EA_M34BWGSEQ057_PRIME	057 21:02	058 06:02	32.4	17.0	86.4	3.2	0.0	16.0	27.5	0.0	42.4	4.9	0.0	0.0	0.0	229.9
DAILY TOTAL SCIENCE	056 06:17	058 06:02	171.9	90.1	309.6	17.2	1250.0	84.9	146.1	0.0	225.2	70.2	1130.0	0.0	162.0	
OBSERVATION_NOR	058 06:02	058 21:02	54.0	28.3	21.6	5.4	35.0	26.7	45.9	0.0	70.7	193.2	10.0	0.0	62.7	553.5
SP_145EA_M70METSEQ058_PRIME	058 21:02	059 06:02	32.4	17.0	86.4	3.2	0.0	16.0	27.5	0.0	42.4	4.9	0.0	0.0	0.0	229.9
DAILY TOTAL SCIENCE	058 06:02	059 06:02	86.4	45.3	108.0	8.6	35.0	42.7	73.4	0.0	113.2	198.2	10.0	0.0	62.7	
OBSERVATION_NOR	059 06:02	059 20:47	53.1	27.8	158.4	5.3	0.0	26.2	45.1	0.0	69.6	39.9	600.0	0.0	61.6	1087.1
SP_145EA_M34BWGSEQ059_PRIME	059 20:47	059 22:17	5.4	2.8	5.4	0.5	0.0	2.7	4.6	0.0	7.1	0.8	0.0	0.0	0.0	29.3
DAILY TOTAL SCIENCE	059 06:02	059 22:17	58.5	30.7	163.8	5.9	0.0	28.9	49.7	0.0	76.6	40.7	600.0	0.0	61.6	
OBSERVATION_NOR	059 22:17	059 23:17	3.6	1.9	10.8	0.4	0.0	1.8	3.1	0.0	4.7	0.5	0.0	0.0	4.2	30.9
SP_145EA_M34BWGSEQ459_PRIME	059 23:17	060 05:47	23.4	12.3	70.2	2.3	0.0	11.6	19.9	0.0	30.7	3.6	0.0	0.0	0.0	173.9
DAILY TOTAL SCIENCE	059 22:17	060 05:47	27.0	14.1	81.0	2.7	0.0	13.3	23.0	0.0	35.4	4.1	0.0	0.0	4.2	
OBSERVATION_NOR	060 05:47	061 04:17	81.0	42.4	304.8	8.1	0.0	40.0	68.8	0.0	106.1	0.0	1150.0	0.0	94.0	1895.4
SP_145EA_G34BWGOTP061_PRIME	061 04:17	061 13:17	32.4	17.0	86.4	3.2	0.0	16.0	27.5	0.0	42.4	4.9	0.0	0.0	0.0	229.9
DAILY TOTAL SCIENCE	060 05:47	061 13:17	113.4	59.4	391.2	11.3	0.0	56.0	96.4	0.0	148.6	4.9	1150.0	0.0	94.0	
OBSERVATION_NOR	061 13:17	062 04:17	54.0	28.3	0.0	5.4	0.0	26.7	45.9	0.0	70.7	247.6	0.0	0.0	62.7	541.3
SP_145EA_G70METOTB062_PRIME	062 04:17	062 13:17	32.4	17.0	86.4	3.2	0.0	16.0	27.5	0.0	42.4	4.9	0.0	0.0	0.0	229.9
DAILY TOTAL SCIENCE	061 13:17	062 13:17	86.4	45.3	86.4	8.6	0.0	42.7	73.4	0.0	113.2	252.5	0.0	0.0	62.7	
OBSERVATION_NOR	062 13:17	064 04:17	140.4	73.6	338.4	14.0	35.0	69.4	119.3	0.0	183.9	309.2	610.0	0.0	163.0	2056.2
SP_145EA_G34BWGSEQ064_PRIME	064 04:17	064 13:17	32.4	17.0	86.4	3.2	0.0	16.0	27.5	0.0	42.4	4.9	0.0	0.0	0.0	229.9
DAILY TOTAL SCIENCE	062 13:17	064 13:17	172.8	90.5	424.8	17.3	35.0	85.4	146.9	0.0	226.4	314.1	610.0	0.0	163.0	
OBSERVATION_NOR	064 13:17	066 04:02	139.5	73.1	147.6	24.0	1182.5	106.3	118.6	0.0	182.7	43.5	510.0	0.0	162.0	2689.7
SP_146EA_G70METSEQ066_PRIME	066 04:02	066 13:02	32.4	17.0	86.4	3.2	0.0	16.0	21.4	0.0	42.4	4.9	0.0	0.0	0.0	223.8
DAILY TOTAL SCIENCE	064 13:17	066 13:02	171.9	90.1	234.0	27.3	1182.5	122.3	140.0	0.0	225.2	48.4	510.0	0.0	162.0	

	CAPS (Mb)	CDA (Mb)	CIRS (Mb)	INMS (Mb)	ISS (Mb)	MAG (Mb)	MIMI (Mb)	RADAR (Mb)	RPWS (Mb)	UVIS (Mb)	VIMS (Mb)	PROBE (Mb)
TOTAL RECORDED (OPNAV data not included)	**1175.2**	**600.8**	**2348.6**	**134.8**	**3280.0**	**603.8**	**968.5**	**0.0**	**1502.1**	**1199.6**	**5210.0**	0.0

Waypoint Selection

RBOT – Friendly (Primary is NEG_Y to Saturn Center)

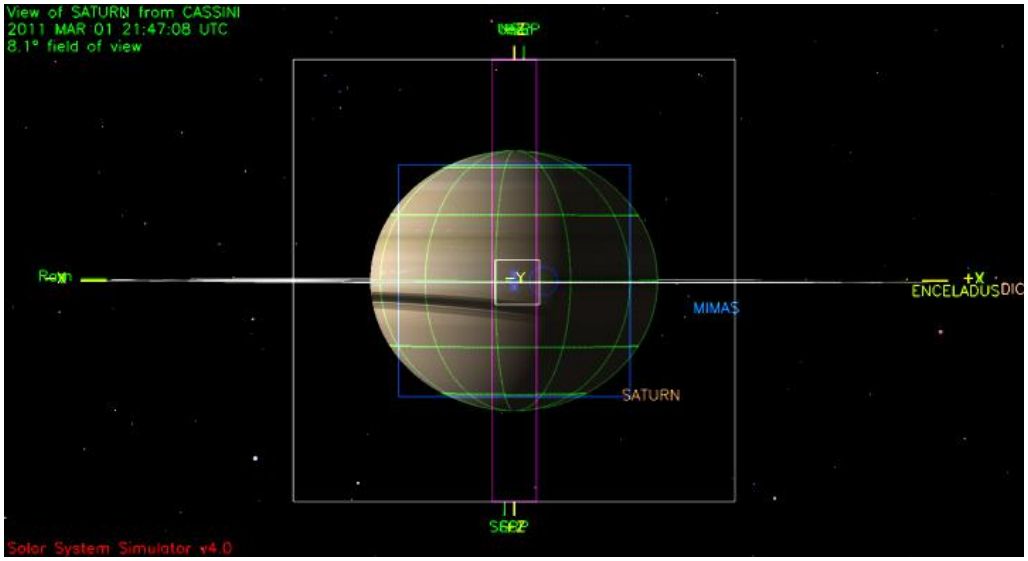
Saturn Rev 145-146 Valid Waypoints				
			Secondary	
			RBOT Friendly	
Observation Period	Start Time	End Time	NEG_X	NEG_Z
SP_145NA_OBSERV053_NA	2011-053T06:31:00	2011-053T21:16:00	37.6/ 83.7	37.6/ 83.7
SP_145NA_OBSERV054_NA	2011-054T06:16:00	2011-055T21:17:00	37.6/ 83.7	37.6/ 83.7
SP_145NA_OBSERV056_NA	2011-056T06:17:00	2011-057T21:02:00	37.5/ 83.7	37.5/ 83.7
SP_145NA_OBSERV058_NA	2011-058T06:02:00	2011-058T21:02:00	37.5/ 83.7	37.5/ 83.7
SP_145NA_OBSERV059_NA	2011-059T06:02:00	2011-059T20:47:00	37.5/ 83.7	37.5/ 83.7
SP_145NA_OBSERV060_NA	2011-060T05:47:00	2011-061T04:17:00	37.4/ 83.7	37.4/ 83.7
SP_145NA_OBSERV061_NA	2011-061T13:17:00	2011-062T04:17:00	37.4/ 83.7	37.4/ 83.7
SP_145NA_OBSERV062_NA	2011-062T13:17:00	2011-064T04:17:00	37.6/ 83.7	37.6/ 83.7
SP_145NA_OBSERV064_NA	2011-064T13:17:00	2011-066T04:02:00	37.6/ 83.7	37.6/ 83.7

Other Waypoints (Primary is NEG_Y to Saturn Center)

OBSERVATION PERIOD	START	END	POS_X_NSP	POS_X_NEP	NEG_X_NSP	NEG_X_NEP	POS_Z_NSP	POS_Z_NEP	NEG_Z_NSP	NEG_Z_NEP	NEG_X_SUN	NEG_Z_EARTH
SP_145NA_OBSERV053_NA	2011-053T06:31:00	2011-053T21:16:00	**BAD**	**BAD**	OK	OK	**BAD**	**BAD**	OK	OK	OK	OK
SP_145NA_OBSERV054_NA	2011-054T06:16:00	2011-055T21:17:00	**BAD**	**BAD**	OK	OK	**BAD**	**BAD**	OK	OK	OK	OK
SP_145NA_OBSERV056_NA	2011-056T06:17:00	2011-057T21:02:00	**BAD**	**BAD**	OK	OK	**BAD**	**BAD**	OK	OK	OK	OK
SP_145NA_OBSERV058_NA	2011-058T06:02:00	2011-058T21:02:00	**BAD**	**BAD**	OK	OK	**BAD**	**BAD**	OK	OK	OK	OK
SP_145NA_OBSERV059_NA	2011-059T06:02:00	2011-059T20:47:00	**BAD**	**BAD**	OK	OK	**BAD**	**BAD**	OK	OK	OK	OK
SP_145NA_OBSERV060_NA	2011-060T05:47:00	2011-061T04:17:00	**BAD**	**BAD**	OK	OK	**BAD**	**BAD**	OK	OK	OK	OK
SP_145NA_OBSERV061_NA	2011-061T13:17:00	2011-062T04:17:00	**BAD**	**BAD**	OK	OK	**BAD**	**BAD**	OK	OK	OK	OK
SP_145NA_OBSERV062_NA	2011-062T13:17:00	2011-064T04:17:00	**BAD**	**BAD**	OK	OK	**BAD**	**BAD**	OK	OK	OK	OK
SP_145NA_OBSERV064_NA	2011-064T13:17:00	2011-066T04:02:00	**BAD**	**BAD**	OK	OK	**BAD**	**BAD**	OK	OK	OK	OK

Waypoints Chosen

Waypoint 1 (Entire Segment): ISS_NAC to Saturn; NEG_Z to 37.6/83.7



Notes & Liens (1 of 2)

The following Y Bias Windows are placed before the downlink:

SP_145EA_YBIAS055_PRIME 2011-055T19:47:00
SP_145EA_YBIAS057_PRIME 2011-057T19:32:00
SP_145EA_YBIAS058_PRIME 2011-058T19:32:00
SP_145EA_YBIAS059_PRIME 2011-059T19:17:00
SP_145EA_YBIAS064_PRIME 2011-064T02:47:00
SP_145EA_YBIAS066_PRIME 2011-066T02:32:00

Any other Y Biases are placed over downlinks.

If the final placement of a Y-bias results in an SSR overflow that exceeds the guideline for negative margin and the overflow is contained to the Saturn TWT segment, we will write a waiver if it is felt that data under-utilization will cover it. If the overflow is too much for comfort, we will cut data based on an observation priority basis.

If the bias results in carryover into the next segment that causes a corresponding SSR overflow, we will either write a waiver, per impacted TWT/OSTs approval, or cut data in the same manner as above.

Notes & Liens (2 of 2)

- Pointing:
  - Collaborative Pointing have been identified in SPASS Agreements.

ISS_145SA_WIND5HR00X (all Winds observations in segment): collaborative with VIMS
ISS_146SA_HIRESGLOB001_PRIME collaborative (possibly) with CIRS

  - RBOT friendly secondaries used throughout the segment where they were safe.
  - Most observations using waypoint secondary; if they differ it is **intended and should not** be changed without TWT approval.
  - The following SPASS Gaps have been approved

Request	Request	Gap Start	Gap Duration	Gap End
ISS_145SA_WIND5HR006_PRIME	SP_145EA_DLTURN057_PRIME	2011-057T18:27:00	000T00:25:00	2011-057T18:52:00
CIRS_145SA_COMPSIT006_PRIME	SP_145EA_DLTURN059_PRIME	2011-059T17:42:00	000T00:55:00	2011-059T18:37:00
ISS_146SA_HIRESGLOB001_PRIME	SP_146EA_DLTURN066_PRIME	2011-066T01:27:00	000T00:25:00	2011-066T01:52:00

- Data Volume:
  - No Data Volume issues, no carryover. No dual playbacks.
- DSN:
  - None
- Opmodes:
  - No unique opmodes
- Special Activities:
  - None
  - Sequence Liens:
  - None