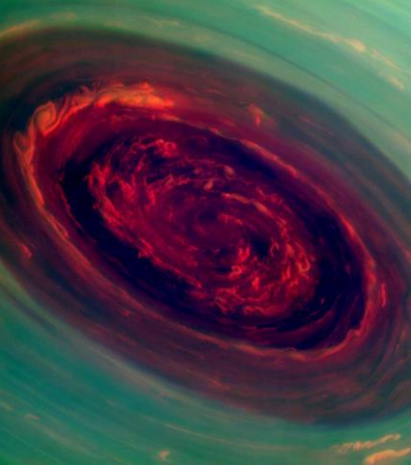

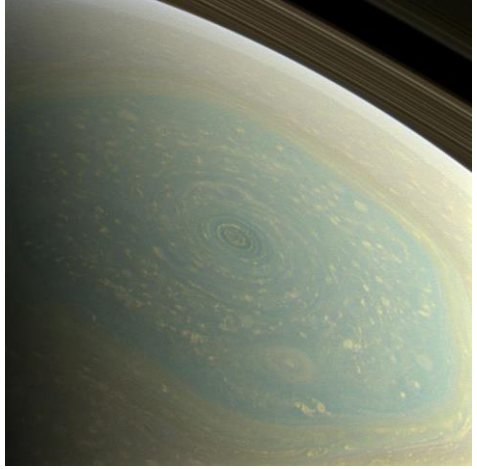
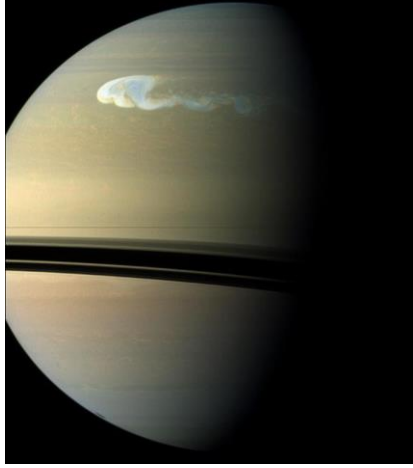

Science Planning & Sequence Team
CASSINI

SATURN TARGET WORKING TEAM

Rev 171 Segment Legacy Package

Segment Boundary: August 25 – Sept. 4, 2012
2012-238T02:19:00 – 2012-248T18:03:00 (SCET)

Integration Began 12/12/2011
Segment Delivered to S75 Sequence 03/02/2012
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 171 was 10.5+ days long in S75, an inbound segment that started at apoapse at the beginning of the sequence and ended ~1.5 days after periapse.
- The timeline was filled primarily with typical CAKE template activities, such as wind studies, UVIS EUV/FUVs, and CIRS-led composition and mapping during the apoapse portion. An Opnav was also performed.
- Closer to periapse, RSS did an occultation of Saturn's atmosphere, to measure vertical profiles of electron density in the ionosphere, and of density, pressure, and temperature in the neutral atmosphere. UVIS followed with an egress solar occultation by Saturn.
- In addition, ISS performed an observation of Enceladus' plume, UVIS performed stellar occultation observations of Saturn and the rings. VIMS added to their Saturn regional mapping.
- A single waypoint was chosen for the entire segment until after periapse. 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 the available DSN resources. In this case, data collection was limited by downlink capability rather than the amount recorded by the SSRs.

Final Sequenced SPASS (1 of 2)

Gap 1

Gap 2

Gap 3

Request	Riders	Start (SCET)	Start (Epoch)	Duration	End (SCET)	Primary	Secondary	Comments
Sequence S75, length = 69 days		2012-238T02:19:00		069T12:11:00	2012-307T14:30:00			
SATURN_171 Segment		2012-238T02:19:00		010T15:44:00	2012-248T18:03:00			
SP_171EA_S75IVP238_PRIME		2012-238T02:19:00		000T00:06:00	2012-238T02:25:00	XBAND to Earth	NEG_X to 294.0/15.0	S75 IVP Gap
SP_171SA_WAYPTTURN238_PRIME		2012-238T02:25:00		000T00:34:00	2012-238T02:59:00	ISS_NAC to Saturn	NEG_Z to 132.1/58.6	
NEW WAYPOINT		**2012-238T02:59:00**		**001T05:05:00**	**2012-239T08:04:00**	**ISS_NAC to Saturn**	**NEG_Z to 132.1/58.6**	
UVIS_171SA_EUVFUV001_PRIME		2012-238T02:59:00		000T16:00:00	2012-238T18:59:00	UVIS_FUV to Saturn	NEG_Z to 132.1/58.6	
CIRS_171SA_COMPSIT002_PRIME	M, U, V	2012-238T18:59:00		000T11:00:00	2012-239T05:59:00	CIRS_FP1 to Saturn	NEG_Z to 132.1/58.6	
SP_171EA_DLTURN239_PRIME	M	2012-239T07:24:00		000T00:40:00	2012-239T08:04:00	XBAND to Earth	NEG_Y to 291.6/20.3	
NEW WAYPOINT		**2012-239T08:04:00**		**000T11:10:00**	**2012-239T19:14:00**	**XBAND to Earth**	**NEG_Y to 291.6/20.3**	
SP_171EA_YGAP239_PRIME	M	2012-239T08:04:00		000T01:30:00	2012-239T09:34:00	XBAND to Earth	NEG_Y to 291.6/20.3	
SP_171EA_M34BWGNON239_PRIME	C, M, R	2012-239T09:34:00		000T09:00:00	2012-239T18:34:00	XBAND to Earth	Rolling/SRU	MIMI. NEG_Y to Saturn (0,0,-9.5). SID
SP_171SA_WAYPTTURN239_PRIME		2012-239T18:34:00		000T00:40:00	2012-239T19:14:00	ISS_NAC to Saturn	NEG_Z to 132.1/58.6	
NEW WAYPOINT		**2012-239T19:14:00**		**000T12:50:00**	**2012-240T08:04:00**	**ISS_NAC to Saturn**	**NEG_Z to 132.1/58.6**	
CIRS_171SA_COMPSIT003_PRIME	U, V	2012-239T19:14:00		000T11:00:00	2012-240T06:14:00	CIRS_FP1 to Saturn	NEG_Z to 132.1/58.6	
SP_171EA_DLTURN240_PRIME		2012-240T07:24:00		000T00:40:00	2012-240T08:04:00	XBAND to Earth	NEG_Y to 291.6/20.3	
NEW WAYPOINT		**2012-240T08:04:00**		**000T11:10:00**	**2012-240T19:14:00**	**XBAND to Earth**	**NEG_Y to 291.6/20.3**	
SP_171EA_YGAP240_PRIME		2012-240T08:04:00		000T01:30:00	2012-240T09:34:00	XBAND to Earth	NEG_Y to 291.6/20.3	
SP_171EA_M34BWGNON240_PRIME	C, E	2012-240T09:34:00		000T09:00:00	2012-240T18:34:00	XBAND to Earth	Rolling/SRU	MIMI. NEG_Y to Saturn (0,0,-9.5). SID
SP_171SA_WAYPTTURN240_PRIME		2012-240T18:34:00		000T00:40:00	2012-240T19:14:00	ISS_NAC to Saturn	NEG_Z to 132.1/58.6	
NEW WAYPOINT		**2012-240T19:14:00**		**000T13:35:00**	**2012-241T08:49:00**	**ISS_NAC to Saturn**	**NEG_Z to 132.1/58.6**	
ISS_171SA_WIND2HR001_PRIME	V	2012-240T19:14:00		000T02:00:00	2012-240T21:14:00	ISS_NAC to Saturn	NEG_Z to 132.1/58.6	No Preference to secondary pointing. collaborative with CIRS
CIRS_171SA_COMPSIT004_PRIME	U	2012-240T21:14:00		000T09:00:00	2012-241T06:14:00	CIRS_FP1 to Saturn	NEG_Z to 132.1/58.6	
ISS_171SA_WIND2HR002_PRIME	V	2012-241T06:14:00		000T02:00:00	2012-241T08:14:00	ISS_NAC to Saturn	NEG_Z to 132.1/58.6	No Preference to secondary pointing. collaborative with CIRS
SP_171EA_DLTURN241_PRIME		2012-241T08:14:00		000T00:35:00	2012-241T08:49:00	XBAND to Earth	NEG_Y to 291.6/20.3	
NEW WAYPOINT		**2012-241T08:49:00**		**000T10:10:00**	**2012-241T18:59:00**	**XBAND to Earth**	**NEG_Y to 291.6/20.3**	
SP_171EA_YGAP241_PRIME		2012-241T08:49:00		000T00:30:00	2012-241T09:19:00	XBAND to Earth	NEG_Y to 291.6/20.3	
SP_171EA_M34BWGNON241_PRIME	C, R	2012-241T13:19:00		000T05:00:00	2012-241T18:19:00	XBAND to Earth	Rolling/SRU	MIMI. NEG_Y to Saturn (0,0,-9.5). SID
SP_171SA_WAYPTTURN241_PRIME		2012-241T18:19:00		000T00:40:00	2012-241T18:59:00	ISS_NAC to Saturn	NEG_Z to 132.1/58.6	
NEW WAYPOINT		**2012-241T18:59:00**		**000T20:20:00**	**2012-242T15:19:00**	**ISS_NAC to Saturn**	**NEG_Z to 132.1/58.6**	
ISS_171TI_M120R2HZ241_PRIME	C, V	2012-241T18:59:00	E171_M120R2HZ241+000T00:00	000T01:30:00	2012-241T20:29:00	ISS_NAC to Titan	NEG_Z to 132.1/58.6	No Preference to secondary pointing
UVIS_171SA_EUVFUV002_PRIME		2012-241T21:59:00		000T16:00:00	2012-242T13:59:00	UVIS_FUV to Saturn	NEG_Z to 132.1/58.6	
SP_171EA_DLTURN242_PRIME		2012-242T14:39:00		000T00:40:00	2012-242T15:19:00	XBAND to Earth	NEG_Y to 291.8/20.7	
NEW WAYPOINT		**2012-242T15:19:00**		**000T11:10:00**	**2012-243T02:29:00**	**XBAND to Earth**	**NEG_Y to 291.8/20.7**	
SP_171EA_YGAP242_PRIME		2012-242T15:19:00		000T01:30:00	2012-242T16:49:00	XBAND to Earth	NEG_Y to 291.8/20.7	
SP_171EA_G70METNON242_PRIME	C	2012-242T16:49:00		000T09:00:00	2012-243T01:49:00	XBAND to Earth	Rolling/SRU	MIMI. NEG_Y to Saturn (0,0,-9.5). SID
SP_171SA_WAYPTTURN243_PRIME		2012-243T01:49:00		000T00:40:00	2012-243T02:29:00	ISS_NAC to Saturn	NEG_Z to 132.1/58.6	
NEW WAYPOINT		**2012-243T02:29:00**		**000T13:40:00**	**2012-243T16:09:00**	**ISS_NAC to Saturn**	**NEG_Z to 132.1/58.6**	
ISS_171SA_WIND2HR003_PRIME	V	2012-243T02:29:00		000T02:00:00	2012-243T04:29:00	ISS_NAC to Saturn	NEG_Z to 132.1/58.6	No Preference to secondary pointing. collaborative with CIRS
CIRS_171SA_COMPSIT005_PRIME	U	2012-243T04:29:00		000T09:00:00	2012-243T13:29:00	CIRS_FP1 to Saturn	NEG_Z to 132.1/58.6	
ISS_171SA_WIND2HR004_PRIME	V	2012-243T13:29:00		000T02:00:00	2012-243T15:29:00	ISS_NAC to Saturn	NEG_Z to 132.1/58.6	No Preference to secondary pointing. collaborative with CIRS
SP_171EA_DLTURN243_PRIME		2012-243T15:29:00		000T00:40:00	2012-243T16:09:00	XBAND to Earth	NEG_Y to 291.9/20.9	
NEW WAYPOINT		**2012-243T16:09:00**		**000T10:20:00**	**2012-244T02:29:00**	**XBAND to Earth**	**NEG_Y to 291.9/20.9**	
SP_171EA_YGAP243_PRIME		2012-243T16:09:00		000T00:40:00	2012-243T16:49:00	XBAND to Earth	NEG_Y to 291.9/20.9	
SP_171EA_G34HEFNON243_PRIME	C	2012-243T20:34:00		000T05:15:00	2012-244T01:49:00	XBAND to Earth	Rolling/SRU	MIMI. NEG_Y to Saturn (0,0,-9.5). SID
SP_171SA_WAYPTTURN244_PRIME		2012-244T01:49:00		000T00:40:00	2012-244T02:29:00	ISS_NAC to Saturn	NEG_Z to 132.1/58.6	
NEW WAYPOINT		**2012-244T02:29:00**		**000T12:49:00**	**2012-244T15:18:00**	**ISS_NAC to Saturn**	**NEG_Z to 132.1/58.6**	
ISS_171TI_M90R1CLD244_PRIME	V	2012-244T02:29:00	E171_M90R1CLD244+000T00:00	000T02:00:00	2012-244T04:29:00	ISS_NAC to Titan	NEG_Z to 132.1/58.6	No Preference to secondary pointing
NAV_171SK_OPNAV441_PRIME		2012-244T04:29:00		000T01:30:00	2012-244T05:59:00	ISS_NAC to Satellites	NEG_Z to 132.1/58.6	Starts at waypoint, ends at same waypoint
CIRS_171SA_COMPSIT006_PRIME	I, U, V	2012-244T05:59:00		000T08:39:00	2012-244T14:38:00	CIRS_FPB to Saturn	NEG_Z to 132.1/58.6	Collaborative Rider(s): ISS. South Pole Aurora sit and stare 75S near S limb; VIMS spans 45S-S limb; NAC 70-80S
SP_171EA_DLTURN244_PRIME		2012-244T14:38:00		000T00:40:00	2012-244T15:18:00	XBAND to Earth	NEG_Y to 292.0/21.3	
NEW WAYPOINT		**2012-244T15:18:00**		**000T11:10:00**	**2012-245T02:28:00**	**XBAND to Earth**	**NEG_Y to 292.0/21.3**	
ENGR_171SC_KPTYBIAS244_PRIME		2012-244T15:18:00		000T01:30:00	2012-244T16:48:00	POS_Z to DELTA_H (0.0,0.0,14.002 deg. offset)	NEG_X to Sun	
SP_171EA_G34HEFNON244_PRIME	C	2012-244T16:48:00		000T09:00:00	2012-245T01:48:00	XBAND to Earth	Rolling/SRU	MIMI. NEG_Y to Saturn (0,0,-9.5). SID
SP_171SA_WAYPTTURN245_PRIME		2012-245T01:48:00		000T00:40:00	2012-245T02:28:00	ISS_NAC to Saturn	NEG_Z to 132.1/58.6	
NEW WAYPOINT		**2012-245T02:28:00**		**000T18:50:00**	**2012-245T21:18:00**	**ISS_NAC to Saturn**	**NEG_Z to 132.1/58.6**	
CIRS_171SA_FIRMAP001_PRIME		2012-245T02:28:00		000T11:00:00	2012-245T13:28:00	CIRS_FP1 to Saturn	POS_X to NSP	
UVIS_171SA_EUVFUV003_PRIME		2012-245T13:28:00		000T07:00:00	2012-245T20:28:00	UVIS_FUV to Saturn	NEG_Z to 132.1/58.6	
SP_171EA_DLTURN245_PRIME		2012-245T20:38:00		000T00:40:00	2012-245T21:18:00	XBAND to Earth	NEG_Y to 292.1/22.2	
NEW WAYPOINT		**2012-245T21:18:00**		**000T11:10:00**	**2012-246T08:28:00**	**XBAND to Earth**	**NEG_Y to 292.1/22.2**	
ENGR_171SC_KPTYBIAS245_PRIME		2012-245T21:18:00		000T01:30:00	2012-245T22:48:00	POS_Z to DELTA_H (0.0,0.0,5.999 deg. offset)	NEG_X to Sun	
SP_171EA_C70METNON245_PRIME	C, R	2012-245T22:48:00		000T09:00:00	2012-246T07:48:00	XBAND to Earth	NEG_Y to 292.1/22.2	MIMI. NEG_Y to Saturn (0,0,-9.5).
SP_171SA_WAYPTTURN246_PRIME		2012-246T07:48:00		000T00:40:00	2012-246T08:28:00	XBAND to Earth	NEG_X to 132.1/58.6	

Final Sequenced SPASS (2 of 2)

Gap 4

Gap 5

Gap 6

Gap 7

NEW WAYPOINT		**2012-246T08:28:00**		**000T11:11:00**	**2012-246T19:39:00**	**XBAND to Earth**	**NEG_X to 132.1/58.6**	
SP_171EA_DEADTIME246_PRIME		**2012-246T14:16:00**		**000T00:20:01**	**2012-246T14:36:01**	**XBAND to Earth**	**NEG_X to 132.1/58.6**	
RSS_171SA_OCCIN001_PIE		2012-246T14:36:01	LMB_E171_Saturn_RSS_Occ_Ing-000T02:00:23	000T04:03:00	2012-246T18:39:01	XBAND to Earth	NEG_X to 132.1/58.6	
SP_171EA_DEADTIME446_PRIME		**2012-246T18:39:01**	**LMB_E171_Saturn_RSS_Occ_Ing-000T02:02:37**	**000T00:19:58**	**2012-246T18:58:59**	**XBAND to Earth**	**NEG_X to 132.1/58.6**	
SP_171SA_WAYPTTURN446_PRIME		2012-246T18:59:00		000T00:27:00	2012-246T19:26:00	UVIS_SOL_OFF to Sun (0.0,0.0,25.0 deg. offset)	NEG_Z to 132.1/58.6	
SP_171SA_WAYPTTURN546_PRIME		2012-246T19:26:00		000T00:13:00	2012-246T19:39:00	UVIS_SOL_OFF to Sun	NEG_Z to 132.1/58.6	
NEW WAYPOINT		**2012-246T19:39:00**		**000T04:21:00**	**2012-247T00:00:00**	**UVIS_SOL_OFF to Sun**	**NEG_Z to 132.1/58.6**	
UVIS_171SU_USUNOCC001_PIE	V	2012-246T20:12:00		000T02:00:00	2012-246T22:12:00	UVIS_SOL_OFF to Sun	NEG_Z to 132.1/58.6	No Preference to secondary pointing
SP_171SA_WAYPTTURN646_PRIME		2012-246T23:38:00		000T00:22:00	2012-247T00:00:00	ISS_NAC to Saturn	NEG_X to 132.1/58.6	
NEW WAYPOINT		**2012-247T00:00:00**		**001T04:25:00**	**2012-248T04:25:00**	**ISS_NAC to Saturn**	**NEG_X to 132.1/58.6**	
ISS_171EN_PLMHPMR001_PIE	M, U, V	2012-247T00:00:00		000T02:00:00	2012-247T02:00:00	ISS_NAC to Enceladus	NEG_X to 90.0/68.0	SOST PIE
UVIS_171ST_BETCMA001_PIE		2012-247T06:48:00		000T01:02:00	2012-247T07:50:00	UVIS_FUV to 95.675/-17.956	NEG_X to 132.1/58.6	According to Brad, "at 07:50 Beta CMa is just about 8800 km above the surface". 07:50 is the proposed time where UVIS would start the turn to Zeta Pup. (so this is a handoff to Zeta Pup ring occ)
Periapse R = 5.758 Rs, lat ...		2012-247T07:39:22		000T00:00:01	2012-247T07:39:23			
UVIS_171ST_URZETPUP001_PIE		2012-247T07:50:00		000T05:30:00	2012-247T13:20:00	UVIS_HSP to 120.896/-40.0	NEG_X to 132.1/58.6	
VIMS_171SA_REGMAP001_PRIME	C	2012-247T13:20:00		000T14:33:00	2012-248T03:53:00	ISS_NAC to Saturn (0.0,0.0,-0.86 deg. offset)	NEG_X to 132.1/58.6	
SP_171EA_DLTURN248_PRIME		2012-248T03:53:00		000T00:32:00	2012-248T04:25:00	XBAND to Earth (0.0,0.0,34.0 deg. offset)	POS_X to NSP	
NEW WAYPOINT		**2012-248T04:25:00**		**000T00:08:00**	**2012-248T04:33:00**	**XBAND to Earth (0.0,0.0,34.0 deg offset)**	**POS_X to NSP**	
SP_171EA_DLTURN448_PRIME		2012-248T04:25:00		000T00:08:00	2012-248T04:33:00	XBAND to Earth	POS_X to NSP	
NEW WAYPOINT		**2012-248T04:33:00**		**000T14:07:00**	**2012-248T18:40:00**	**XBAND to Earth**	**POS_X to NSP**	
ENGR_171SC_KPTYBIAS248_PRIME		2012-248T04:33:00		000T01:30:00	2012-248T06:03:00	NEG_Z to DELTA_H (0.0,0.0,27.999 deg. offset)	NEG_X to Sun	
SP_171EA_M70METNON248_PRIME	C	2012-248T10:08:00		000T05:00:00	2012-248T15:08:00	XBAND to Earth	Rolling	CAPS. POS_X to NEP or NSP.

Final Sequenced SMT and Data Volume (1 of 2)

Saturn 171 Legacy

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

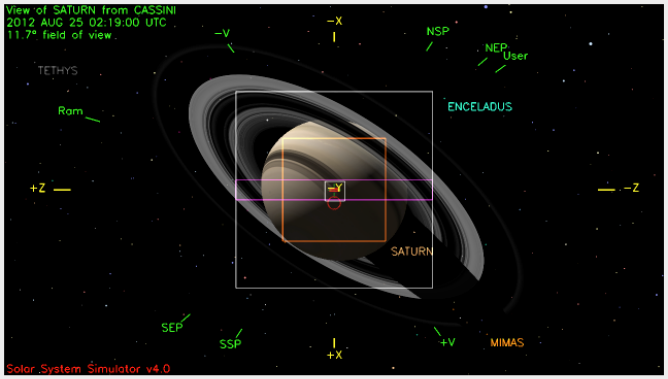
			OBSERVATION_PERIOD							DOWNLINK_PASS							
			P4						P5	RECORDED		PLAYBACK					
DOWNLINK PASS NAME	Start doy hh:mm	End doy hh:mm	START (Mb)	SCI (Mb)	HK+E (Mb)	TOTAL (Mb)	CPACTY (Mb)	MRGN (Mb)	OPNAV (Mb)	SCI (Mb)	ENGR (Mb)	TOTAL (Mb)	CPACTY (Mb)	MARGN (Mb)	NET_MARGN (Mb)	(%)	CAROVR (Mb)
SP_171EA_M34BWGNON239_PRIME	239 09:34	239 18:34	0	1210	132	1343	3322	1980	0	181	53	1577	503	-1075	396	4%	1074
SP_171EA_M34BWGNON240_PRIME	240 09:34	240 18:34	1074	638	63	1776	3322	1546	0	181	53	2010	497	-1514	396	4%	1514
SP_171EA_M34BWGNON241_PRIME	241 13:19	241 18:19	1514	653	79	2247	3322	1076	0	107	29	2383	282	-2101	396	4%	2101
SP_171EA_G70METNON242_PRIME	242 16:49	243 01:49	2101	731	95	2927	3322	396	0	181	53	3161	2983	-178	1549	16%	178
SP_171EA_G34HEFNON243_PRIME	243 20:34	244 01:49	178	651	79	908	3322	2414	0	90	31	1029	383	-647	1146	14%	646
SP_171EA_G34HEFNON244_PRIME	244 16:48	245 01:48	646	436	63	1146	3322	2176	0	160	53	1358	656	-702	1146	11%	702
SP_171EA_C70METNON245_PRIME	245 22:48	246 07:48	702	447	89	1237	3322	2085	0	160	53	1450	2999	1548	1146	11%	0
SP_171EA_M70METNON248_PRIME	248 10:08	248 15:08	0	2263	213	2476	3322	846	0	128	29	2633	1605	-1028	-402	-4%	1028

Final Sequenced 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	238 02:19	239 09:34	78.7	29.5	194.4	15.6	50.0	27.8	67.5	0.0	101.2	304.8	330.0	0.0	130.6	1330.1
SP_171EA_M34BWGNON239_PRIME	239 09:34	239 18:34	22.7	8.5	86.4	3.2	0.0	8.0	19.4	0.0	29.2	2.4	0.0	0.0	0.0	179.8
DAILY TOTAL SCIENCE	238 02:19	239 18:34	101.4	38.0	280.8	18.8	50.0	35.8	86.9	0.0	130.4	307.2	330.0	0.0	130.6	
OBSERVATION_NOR	239 18:34	240 09:34	67.6	14.1	79.2	7.3	0.0	13.3	32.4	0.0	48.6	39.9	330.0	0.0	62.7	695.1
SP_171EA_M34BWGNON240_PRIME	240 09:34	240 18:34	22.7	8.5	86.4	3.2	0.0	8.0	19.4	0.0	29.2	2.4	0.0	0.0	0.0	179.8
DAILY TOTAL SCIENCE	239 18:34	240 18:34	90.3	22.6	165.6	10.6	0.0	21.3	51.8	0.0	77.8	42.3	330.0	0.0	62.7	
OBSERVATION_NOR	240 18:34	241 13:19	47.3	17.7	97.2	6.8	232.5	16.7	40.5	0.0	60.7	48.2	80.0	0.0	78.4	725.8
SP_171EA_M34BWGNON241_PRIME	241 13:19	241 18:19	12.6	4.7	54.0	1.8	0.0	4.4	10.8	0.0	16.2	1.3	0.0	0.0	0.0	105.9
DAILY TOTAL SCIENCE	240 18:34	241 18:19	59.9	22.4	151.2	8.6	232.5	21.1	51.3	0.0	76.9	49.5	80.0	0.0	78.4	
OBSERVATION_NOR	241 18:19	242 16:49	56.7	21.2	136.8	8.1	85.0	20.0	48.6	0.0	72.9	264.9	10.0	0.0	94.0	818.3
SP_171EA_G70METNON242_PRIME	242 16:49	243 01:49	22.7	8.5	86.4	3.2	0.0	8.0	19.4	0.0	29.2	2.4	0.0	0.0	0.0	179.8
DAILY TOTAL SCIENCE	241 18:19	243 01:49	79.4	29.7	223.2	11.3	85.0	28.0	68.0	0.0	102.1	267.3	10.0	0.0	94.0	
OBSERVATION_NOR	243 01:49	243 20:34	47.2	17.7	94.5	6.8	232.5	16.7	40.5	0.0	60.7	48.1	80.0	0.0	78.4	723.1
SP_171EA_G34HEFNON243_PRIME	243 20:34	244 01:49	13.2	5.0	35.1	1.9	0.0	4.7	11.3	0.0	17.0	1.4	0.0	0.0	0.0	89.6
DAILY TOTAL SCIENCE	243 01:49	244 01:49	60.5	22.6	129.6	8.6	232.5	21.3	51.8	0.0	77.8	49.5	80.0	0.0	78.4	
OBSERVATION_NOR	244 01:49	244 16:48	37.8	14.1	62.3	5.4	99.2	13.3	32.4	0.0	48.5	31.3	79.0	0.0	62.6	486.0
OBSERVATION_SI	244 01:49	244 16:48	0.0	0.0	0.0	0.0	8.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	8.7
SP_171EA_G34HEFNON244_PRIME	244 16:48	245 01:48	22.7	8.5	64.8	3.2	0.0	8.0	19.4	0.0	29.2	2.4	0.0	0.0	0.0	158.2
DAILY TOTAL SCIENCE	244 01:49	245 01:48	60.4	22.6	127.1	8.6	108.0	21.3	51.8	0.0	77.7	33.7	79.0	0.0	62.6	
OBSERVATION_NOR	245 01:48	245 22:48	52.9	19.8	158.4	7.6	0.0	18.7	45.4	0.0	68.0	71.9	0.0	0.0	87.8	530.4
SP_171EA_C70METNON245_PRIME	245 22:48	246 07:48	22.7	8.5	64.8	3.2	0.0	8.0	19.4	0.0	29.2	2.4	0.0	0.0	0.0	158.2
DAILY TOTAL SCIENCE	245 01:48	246 07:48	75.6	28.3	223.2	10.8	0.0	26.7	64.8	0.0	97.2	74.3	0.0	0.0	87.8	
OBSERVATION_NOR	246 07:48	248 10:08	181.2	141.6	123.4	28.2	230.0	89.5	154.0	0.0	372.9	365.8	556.0	0.0	210.4	2453.0
SP_171EA_M70METNON248_PRIME	248 10:08	248 15:08	18.0	9.4	54.0	1.8	0.0	8.9	15.3	0.0	16.2	2.7	0.0	0.0	0.0	126.4
DAILY TOTAL SCIENCE	246 07:48	248 15:08	199.2	151.0	177.4	30.0	230.0	98.4	169.3	0.0	389.1	368.5	556.0	0.0	210.4	
OBSERVATION_NOR	248 15:08	249 22:48	854.9	59.7	77.7	21.5	210.5	56.3	96.9	0.0	145.0	154.9	64.0	0.0	132.3	1873.7
SP_171EA_C34BWGNON249_PRIME	249 22:48	250 00:48	7.2	3.8	10.8	0.7	0.0	3.6	6.1	0.0	9.4	1.1	0.0	0.0	0.0	42.7
DAILY TOTAL SCIENCE	248 15:08	250 00:48	862.1	63.5	88.5	22.2	210.5	59.9	103.0	0.0	154.5	156.0	64.0	0.0	132.3	

Segment Geometry (1 of 2)



Rev 171 INBOUND
2012 - 238T02:19:00 SCET
2012 AUG 25 02:19:00 SCET
2012 AUG 25 03:44:53 ERT
Apoapse__171 + 001T09:40:15
Periapse_171 - 009T05:20:18
Light time: 85.9 min
Orbit period: 21.3 days

Radius	2581601 km	42.84 Rs
Rad_cyl	2330443 km	38.67 Rs
Z_ht_cyl	-1110721 km	-18.43 Rs
Mag_L	52.57	
Semi_axs	1480029 km	24.56 Rs
Eccentricity	0.765	
Inclination	32.17 deg	
Sun_range	9.76 AU	
Earth_range	10.33 AU	

--- DSN ELEV -- D/L -- U/L --------

Goldstone	12.5	40.6
Canberra	53.8	21.9
Madrid	-57.3	-40.5

------- LOOK DIRECTION INFO -------

FOV	11.7 deg	204.8 mrad
RA	-75.298 deg	
DEC	28.455 deg	
Crosses_RP_0	0.000 Rs	
EPS	4.764 deg *	
SEP	53.290 deg	
ORS b/s angle	97.8 deg	
ORS rad angle	144.3 deg	

Point NEG_Y at SATURN and align POS_X = Down with USER VEC

User vector – RA: +132.200 DEC: +58.600 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

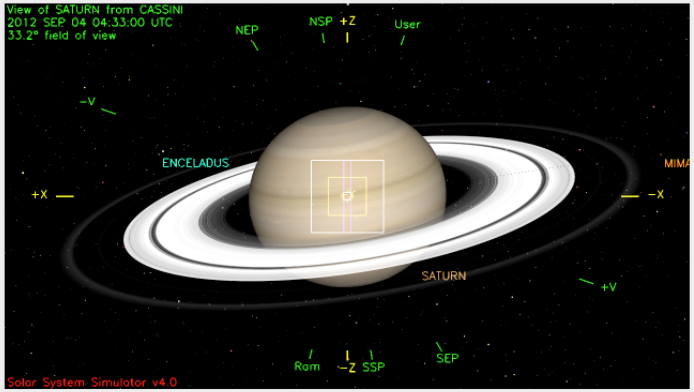
Year | Month | Day | Hour | Minute | Second

Turn analyzer: SATURN to EARTH about Z on RWA = 10.0 min / 94.7 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	--	--	2581601	42.84	2522386	41.85	82.1	2.68	46.69	169	-25	0	1.9	0	0.0	94.7	76.6
MIMAS	--	SE	2644153	43.87	2643956	43.87	78.4	0.01	0.16	296	-26	-111	14.6	-2182	3.7	98.4	79.9
ENCELADUS	--	--	2371567	39.35	2371312	39.35	82.3	0.01	0.22	188	-28	-7	10.9	17	2.6	94.7	78.0
TETHYS	--	--	2706039	44.90	2705506	44.89	87.0	0.02	0.40	61	-24	114	12.8	2712	5.8	89.6	70.9
DIONE	--	--	2915081	48.37	2914518	48.36	79.0	0.02	0.39	347	-22	-164	11.6	-230	3.7	97.6	77.7
RHEA	--	--	2415246	40.08	2414483	40.06	93.4	0.04	0.64	107	-28	63	8.6	2260	11.5	83.3	66.7
TITAN	--	--	2386571	39.60	2383996	39.56	109.3	0.12	2.16	80	-28	64	6.0	2624	27.6	67.2	53.2
HYPERION	--	--	1492618	24.77	1492488	24.76	93.4	0.01	0.22	129	-41	2	3.8	25355	24.2	85.1	82.6
IAPETUS	--	--	5653672	93.81	5652928	93.80	85.1	0.02	0.26	9	-17	161	5.2	-944712	26.2	90.3	59.6
PHOEBE	--	--	13847934	229.77	13847822	229.77	139.4	0.00	0.02	1	-33	28	3.0	6633544	112.6	44.9	84.2
SATURN	--	--	2581601	42.84	2522386	41.85	82.1	2.68	46.69	169	-25	0	1.9	0	0.0	94.7	76.6

Inbound (Left)

Outbound (below)



Rev 171 OUTBOUND
2012 - 248T04:33:00 SCET
2012 SEP 04 04:33:00 SCET
2012 SEP 04 05:59:54 ERT
Apoapse__171 + 011T11:54:15
Periapse_171 + 20:53:42
Light time: 86.9 min
Orbit period: 21.3 days

Radius	701937 km	11.65 Rs
Rad_cyl	674179 km	11.19 Rs
Z_ht_cyl	195445 km	3.24 Rs
Mag_L	12.63	
Semi_axs	1482480 km	24.60 Rs
Eccentricity	0.766	
Inclination	32.17 deg	
Sun_range	9.76 AU	
Earth_range	10.45 AU	

--- DSN ELEV -- D/L -- U/L --------

Goldstone	-22.0	12.9
Canberra	58.5	53.6
Madrid	-39.3	-57.7

------- LOOK DIRECTION INFO -------

FOV	33.2 deg	579.4 mrad
RA	-154.594 deg	
DEC	-9.935 deg	
Crosses_RP_0	0.000 Rs	
EPS	4.158 deg	
SEP	44.545 deg	
ORS b/s angle	176.1 deg	
ORS rad angle	93.9 deg	

Point NEG_Y at SATURN and align POS_X = Left with USER VEC

User vector – RA: +132.200 DEC: +58.600 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

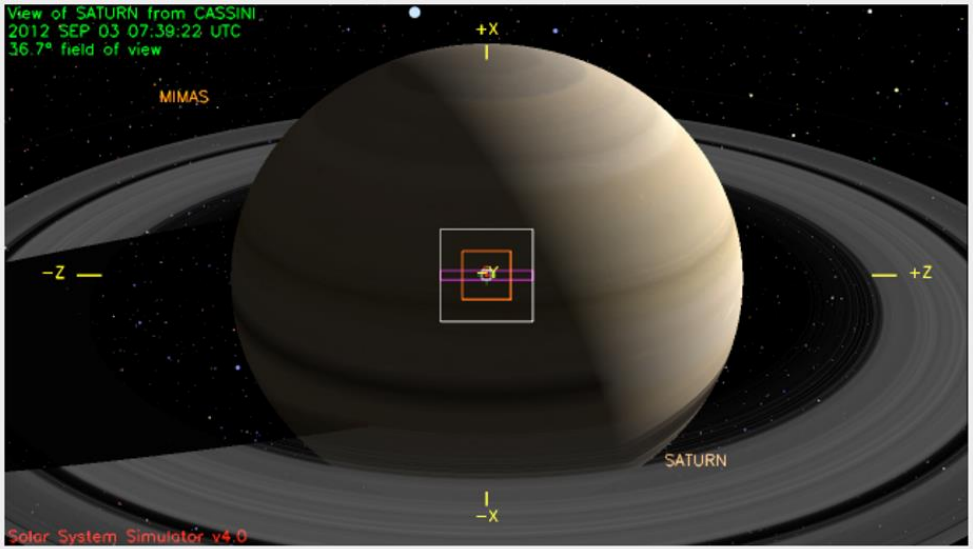
Turn analyzer: SATURN to EARTH about Z on RWA = 16.3 min / 178.1 deg Event

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	--	--	701937	11.65	642113	10.65	3.9	9.85	171.93	149	16	0	9.1	0	0.0	178.1	149.5
MIMAS	--	--	698005	11.58	697808	11.58	19.2	0.03	0.59	279	15	-81	21.1	4815	15.4	164.5	151.5
ENCELADUS	--	--	901159	14.95	900904	14.95	5.9	0.03	0.57	27	13	144	16.4	-25	9.5	170.9	148.1
TETHYS	--	--	749808	12.44	749276	12.43	27.0	0.08	1.44	293	15	-87	18.8	-5547	23.1	156.8	149.4
DIONE	--	--	976658	16.21	976095	16.20	21.7	0.07	1.15	327	12	-129	19.0	198	18.0	162.3	155.2
RHEA	--	--	932512	15.47	931747	15.46	37.9	0.09	1.65	316	12	-98	16.7	2643	34.1	146.0	146.2
TITAN	--	--	1712099	28.41	1709524	28.37	32.1	0.17	3.01	20	7	126	9.5	-7047	36.0	144.3	129.9
HYPERION	--	--	1936075	32.12	1935944	32.12	48.1	0.01	0.17	223	-43	108	8.1	-29754	52.0	128.0	114.2
IAPETUS	--	--	2996372	49.72	2995625	49.71	124.3	0.03	0.50	8	4	36	6.2	-544380	127.4	51.5	31.5
PHOEBE	--	--	14446592	239.71	14446481	239.70	139.6	0.00	0.02	46	-24	-44	9.1	6385255	136.5	44.2	66.9
SATURN	--	--	701937	11.65	642113	10.65	3.9	9.85	171.93	149	16	0	9.1	0	0.0	178.1	149.5

	Saturn Range	Phase Angle
Segment Start	42.84 R_{Sat}	82.1 degrees
Apoapse	N/A	N/A
Periapse	5.758 R_{Sat}	103.1 degrees
Segment End	11.65 R_{Sat}	3.9 degrees

Segment Geometry (2 of 2)

Rev 171 Periapse




```
Rev 171 OUTBOUND
2012 -  247T07:39:22 SCET
2012 SEP 03 07:39:22 SCET
2012 SEP 03 09:06:14 ERT
Apoapse__171 + 010T15:02:59
Periapse_171 + 00:01:42
Light time:    86.9 min
Orbit period:  21.3 days
Radius      347452 km       5.77 Rs
Rad_cyl     318000 km       5.28 Rs
Z_ht_cyl    139998 km       2.32 Rs
Mag_L          6.88
Semi_axs   1483878 km      24.62 Rs
Eccentricity    0.766
Inclination    32.17 deg
Sun_range       9.76 AU
Earth_range    10.44 AU
--- DSN ELEV -- D/L -- U/L --------
Goldstone     -55.5   -23.8
Canberra       26.6    57.4
Madrid         -5.4   -37.8
------- LOOK DIRECTION INFO -------
FOV            36.7 deg  639.7 mrad
RA             99.517 deg
DEC           -27.225 deg
Crosses_RP_@    0.000 Rs
EPS             4.213 deg
SEP            45.311 deg
ORS b/s angle  77.1 deg
ORS rad angle  66.9 deg  *
```

Point NEG_Y at SATURN and align POS_X = Up with NSP

User vector - RA: +78.694 DEC: -9.319 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

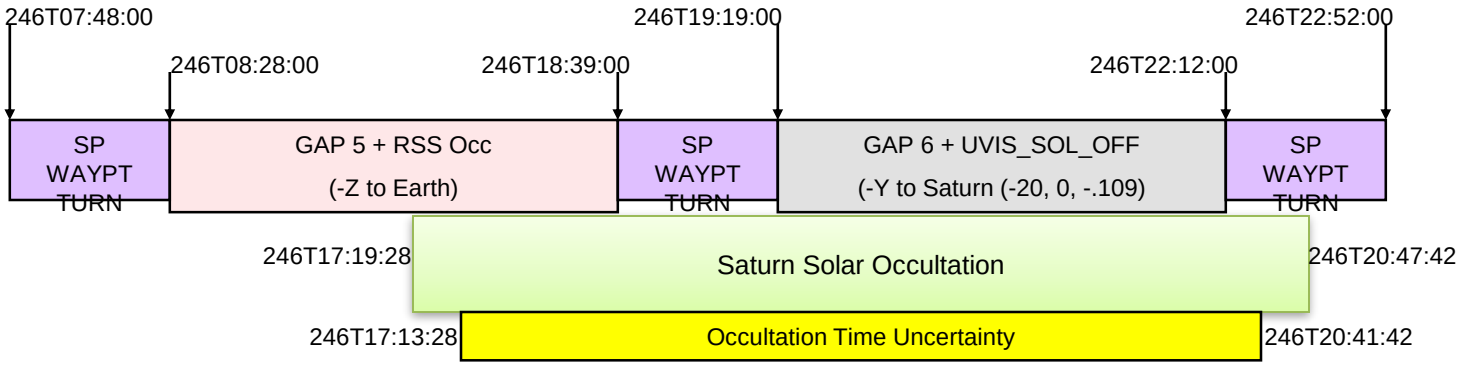
Turn analyzer: SATURN to EARTH about Z on RWA = 8.9 min / 79.9 deg Event

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	--	--	347452	5.77	288129	4.78	102.8	19.98	348.68	271	24	0	13.9	0	0.0	79.9	90.2
MIMAS	--	--	499384	8.29	499180	8.28	93.9	0.05	0.83	26	17	144	27.0	3516	14.8	89.4	88.8
ENCELADUS	--	--	434539	7.21	434286	7.21	132.8	0.07	1.18	314	19	-94	18.1	18	33.0	49.1	76.3
TETHYS	--	--	206462	3.43	205932	3.42	123.6	0.30	5.23	276	41	-29	6.7	5208	57.8	55.2	98.6
DIONE	--	--	624540	10.36	623977	10.35	134.1	0.10	1.81	334	13	-122	19.9	74	31.8	48.4	71.0
RHEA	--	--	801100	13.29	800333	13.28	132.3	0.11	1.92	347	10	-137	20.0	2824	29.4	50.6	68.8
TITAN	--	--	1004279	16.66	1001704	16.62	20.4	0.29	5.13	12	8	37	11.0	-5395	122.9	156.2	131.7
HYPERION	--	--	1289083	21.39	1288943	21.39	51.4	0.01	0.25	157	-40	13	10.2	-28524	145.1	124.6	124.6
IAPETUS	--	--	3396115	56.35	3395368	56.34	132.4	0.03	0.44	1	4	-68	12.3	-598668	99.6	43.4	84.1
PHOEBE	--	--	15167310	251.66	15167198	251.66	140.5	0.00	0.02	316	-23	-152	12.9	6408920	54.9	43.3	35.8
SATURN	--	--	347452	5.77	288129	4.78	102.8	19.98	348.68	271	24	0	13.9	0	0.0	79.9	90.2

Solar Geometry – ORS Boresight Concerns

Saturn Solar Occultation

- Timing uncertainty is ± 0.7792 minutes as determined using Brad Wallis' "ask_carnac.pro"



(pad of 6 min uncertainty suggested by Carnac)

No CMT Management required

Daily Science Highlights

DOY 238 (25 August 2012): Following a downlink with the Earth, Cassini turned its attention back to Saturn with UVIS mapping of Saturn's atmosphere in the ultraviolet to begin the Saturn_171 segment. The UVIS EUVFUV map was followed by a CIRS compositional mapping activity intended to measure trace gases and isotopes in Saturn's atmosphere.
DOY 239 (26 August 2012): Another downlink with Earth was followed by a second CIRS compositional mapping activity.
DOY 240 (27 August 2012): CIRS and ISS completed the first set of two coordinated campaigns to map out the winds and composition of the Saturnian atmosphere.
DOY 241 (28 August 2012): ORS science activities continued with their campaign to monitor Titan's atmosphere at brief yet frequent intervals. After another downlink, Titan was observed for the first of two ISS cloud monitoring campaign observations. The waning hours of the day were taken up by a second UVIS EUVFUV map.
DOY 242 (29 August 2012): This day's activity was largely constrained to a downlink and magnetospheric survey activities executed by the particles and fields (MAPS) instruments.
DOY 243 (30 August 2012): CIRS and ISS completed the second set of two coordinated campaigns to map out the winds and composition of the Saturnian atmosphere. The spacecraft subsequently turned its high-gain antenna back towards Earth to relay the data for the balance of the day.
DOY 244 (31 August 2012): ISS completed the second and final observation in the Titan monitoring campaign for this segment, followed by an Opnav, and then a CIRS compositional mapping sit-and-stare of the South Pole aurora. The rest of the day was spent on a turn to Earth and downlink.
DOY 245 (1 September 2012): This day began with a CIRS observation to map Saturn's atmosphere with its far infrared sensor, followed by a third shorter than average UVIS mapping of Saturn's atmosphere in the ultraviolet.
DOY 246 (2 September 2012): Following the downlink, RSS remained Earth pointed to complete it's Radio Science Occultation PIE. After a waypoint change, UVIS conducted it's own Solar Occ PIE.
DOY 247 (3 September 2012): After another waypoint change, we approached periapse with an ISS Enceladus Plume PIE followed up by a UVIS star PIEs of Saturn occulting Beta Cma and then a Zeta Pup ring occultation. After UVIS was done star chasing, VIMS executed another hi-resolution regional map of Saturn, focusing on northern mid-latitudes.
DOY 248 (4 September 2012): Following the conclusion of the VIMS map, the segment closed with the final downlink of the segment. The remainder of the day was largely constrained to a downlink and magnetospheric survey activities executed by the particles and fields (MAPS) instruments.

Segment Integration Planning

Timeline Gaps and Suggested Observations

Gap	Start	End	Duration	Phase angle (range)	Rs range	Suggested observations/activities
1	2012-239T05:59:00	2012-239T05:24:00	000T01:25:00	86.4°	41.61 – 41.53	CIRS
2	2012-240T06:14:00	2012-240T05:24:00	000T01:00:00	90.5°	39.83-39.75	CIRS
3	2012-242T13:59:00	2012-242T14:59:00	000T01:00:00	101.4°	33.58-33.44	UVIS
4	2012-246T08:28:00	2012-246T14:16:00	000T05:48:00	153.1-165.3°	12.45-10.39	Opmode restrictions starting 2012-246T12:31:00 for RSS PIE
5	2012-246T22:52:00	2012-247T00:00:00	000T01:08:00	163.8-157.8°	7.4-7.06	
6	2012-247T02:00:00	2012-247T06:48:00	000T04:48:00	145.9-110.1°	6.52-5.78	
7	2012-248T13:20:00	2012-248T03:53:00	000T14:33:00	60.1-5.2°	6.52-11.41	VIMS

Initial SMT and Data Volume (1 of 2)

Beginning of Integration:

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_171EA_M34BWGNON239_PRIME	239 09:34	239 18:34	0	1185	132	1317	3322	2005	0	182	53	1552	501	-1052	684	7%	1051
SP_171EA_M34HEFNON240_PRIME	240 09:34	240 18:34	1051	643	63	1757	3322	1565	0	182	53	1992	606	-1387	684	6%	1386
SP_171EA_M34BWGNON241_PRIME	241 09:19	241 18:19	1386	653	62	2101	3322	1221	0	182	53	2336	503	-1834	684	6%	1833
SP_171EA_G70METNON242_PRIME	242 16:49	243 01:49	1833	710	95	2638	3322	684	0	182	53	2873	2983	110	1875	18%	0
SP_171EA_G34BWGNON243_PRIME	243 16:49	244 01:49	0	655	63	719	3322	2603	0	182	53	953	521	-432	1765	24%	432
SP_171EA_G34HEFNON244_PRIME	244 16:48	245 01:48	432	620	63	1115	3322	2207	0	182	53	1349	656	-693	1765	26%	693
SP_171EA_C70METNON245_PRIME	245 22:48	246 07:48	693	776	89	1557	3322	1765	0	182	53	1792	2999	1206	2006	32%	0
SP_171EA_C70METNON248_PRIME	248 06:03	248 09:03	0	1885	208	2093	3322	1229	0	47	18	2157	766	-1391	800	25%	1391
SP_171EA_M70METNON248_PRIME	248 09:03	248 18:03	1391	0	0	1391	3322	1931	0	229	53	1673	2473	799	800	32%	0

- DOY 242 pass upgraded from DSS-15 (Goldstone HEF) to DSS-14 (Goldstone 70M)
- DOY 248 additional 3-hours on DSS-43 added prior to final downlink on DSS-63

- INMS and UVIS still need to go to minimal rates for CAKE period
  from 2012-238T02:19:00 to 2012-246T07:48:00

Downlink-limited! Not SSR-limited.

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	238 02:19	239 09:34	78.7	29.5	194.4	10.2	0.0	27.8	73.1	0.0	101.2	329.7	330.0	0.0	130.6	1305.3
SP_171EA_M34BWGNON239_PRIME	239 09:34	239 18:34	22.7	8.5	86.4	1.6	0.0	8.0	21.1	0.0	29.2	2.5	0.0	0.0	0.0	179.9
DAILY TOTAL SCIENCE	238 02:19	239 18:34	101.4	38.0	280.8	11.8	0.0	35.8	94.2	0.0	130.4	332.2	330.0	0.0	130.6	
OBSERVATION_NOR	239 18:34	240 09:34	67.6	14.1	79.2	4.7	4.4	13.3	35.1	0.0	48.6	39.9	330.0	0.0	62.7	699.6
SP_171EA_M34HEFNON240_PRIME	240 09:34	240 18:34	22.7	8.5	86.4	1.6	0.0	8.0	21.1	0.0	29.2	2.5	0.0	0.0	0.0	179.9
DAILY TOTAL SCIENCE	239 18:34	240 18:34	90.3	22.6	165.6	6.3	4.4	21.3	56.2	0.0	77.8	42.3	330.0	0.0	62.7	
OBSERVATION_NOR	240 18:34	241 09:19	37.2	13.9	93.6	2.7	236.9	13.1	34.5	0.0	47.8	47.1	120.0	0.0	61.6	708.4
SP_171EA_M34BWGNON241_PRIME	241 09:19	241 18:19	22.7	8.5	86.4	1.6	0.0	8.0	21.1	0.0	29.2	2.5	0.0	0.0	0.0	179.9
DAILY TOTAL SCIENCE	240 18:34	241 18:19	59.9	22.4	180.0	4.3	236.9	21.1	55.6	0.0	76.9	49.6	120.0	0.0	61.6	
OBSERVATION_NOR	241 18:19	242 16:49	56.7	21.2	136.8	4.0	39.4	20.0	52.6	0.0	72.9	289.8	10.0	0.0	94.0	797.6
SP_171EA_G70METNON242_PRIME	242 16:49	243 01:49	22.7	8.5	86.4	1.6	0.0	8.0	21.1	0.0	29.2	2.5	0.0	0.0	0.0	179.9
DAILY TOTAL SCIENCE	241 18:19	243 01:49	79.4	29.7	223.2	5.7	39.4	28.0	73.7	0.0	102.1	292.3	10.0	0.0	94.0	
OBSERVATION_NOR	243 01:49	243 16:49	37.8	14.1	93.6	2.7	236.9	13.3	35.1	0.0	48.6	47.1	120.0	0.0	62.7	712.0
SP_171EA_G34BWGNON243_PRIME	243 16:49	244 01:49	22.7	8.5	86.4	1.6	0.0	8.0	21.1	0.0	29.2	2.5	0.0	0.0	0.0	179.9
DAILY TOTAL SCIENCE	243 01:49	244 01:49	60.5	22.6	180.0	4.3	236.9	21.3	56.2	0.0	77.8	49.6	120.0	0.0	62.7	
OBSERVATION_NOR	244 01:49	244 16:48	37.8	14.1	153.4	2.7	125.7	13.3	35.1	0.0	48.5	0.0	139.7	0.0	62.6	633.0
OBSERVATION_SI	244 01:49	244 16:48	0.0	0.0	0.0	0.0	43.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	43.5
SP_171EA_G34HEFNON244_PRIME	244 16:48	245 01:48	22.7	8.5	86.4	1.6	0.0	8.0	21.1	0.0	29.2	2.5	0.0	0.0	0.0	179.9
DAILY TOTAL SCIENCE	244 01:49	245 01:48	60.4	22.6	239.8	4.3	169.3	21.3	56.1	0.0	77.7	2.5	139.7	0.0	62.6	
OBSERVATION_NOR	245 01:48	245 22:48	52.9	19.8	208.8	3.8	55.7	18.7	49.1	0.0	68.0	126.8	165.0	0.0	87.8	856.5
SP_171EA_C70METNON245_PRIME	245 22:48	246 07:48	22.7	8.5	86.4	1.6	0.0	8.0	21.1	0.0	29.2	2.5	0.0	0.0	0.0	179.9
DAILY TOTAL SCIENCE	245 01:48	246 07:48	75.6	28.3	295.2	5.4	55.7	26.7	70.2	0.0	97.2	129.3	165.0	0.0	87.8	
OBSERVATION_NOR	246 07:48	248 06:03	166.5	133.9	14.4	23.8	204.4	82.3	141.5	0.0	629.8	365.2	106.0	0.0	193.3	2061.1
SP_171EA_C70METNON248_PRIME	248 06:03	248 09:03	10.8	5.7	0.0	1.1	0.0	5.3	9.2	0.0	14.0	0.0	0.0	0.0	0.0	46.1
SP_171EA_M70METNON248_PRIME	248 09:03	248 18:03	32.4	17.0	86.4	3.2	0.0	16.0	27.5	0.0	42.3	2.5	0.0	0.0	0.0	227.3
DAILY TOTAL SCIENCE	246 07:48	248 18:03	209.7	156.5	100.8	28.1	204.4	103.6	178.2	0.0	686.1	367.7	106.0	0.0	193.3	

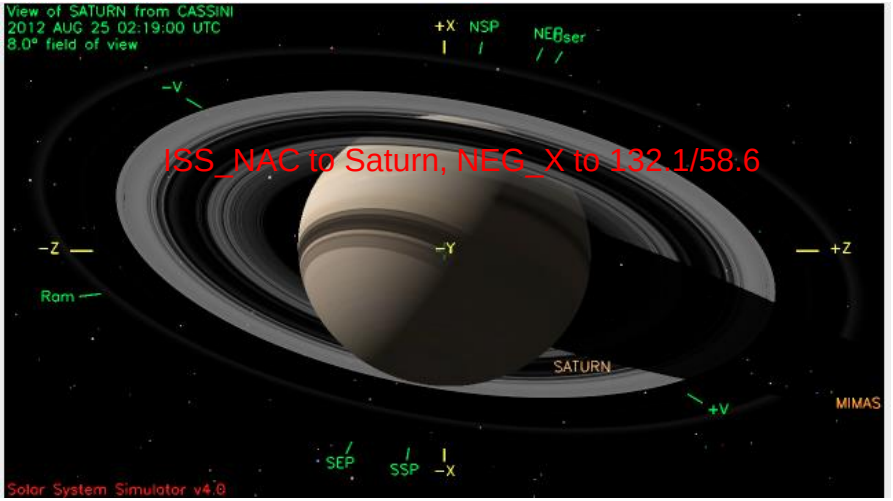
	CAPS (Mb)	CDA (Mb)	CIRS (Mb)	INMS (Mb)	ISS (Mb)	MAG (Mb)	MIMI (Mb)	RADAR (Mb)	RPWS (Mb)	UVIS (Mb)	VIMS (Mb)	PROBE (Mb)
TOTAL RECORDED (OPNAV data not included)	737.1	342.8	1665.4	70.2	947.0	279.2	640.4	0.0	1326.0	1265.3	1320.7	0.0

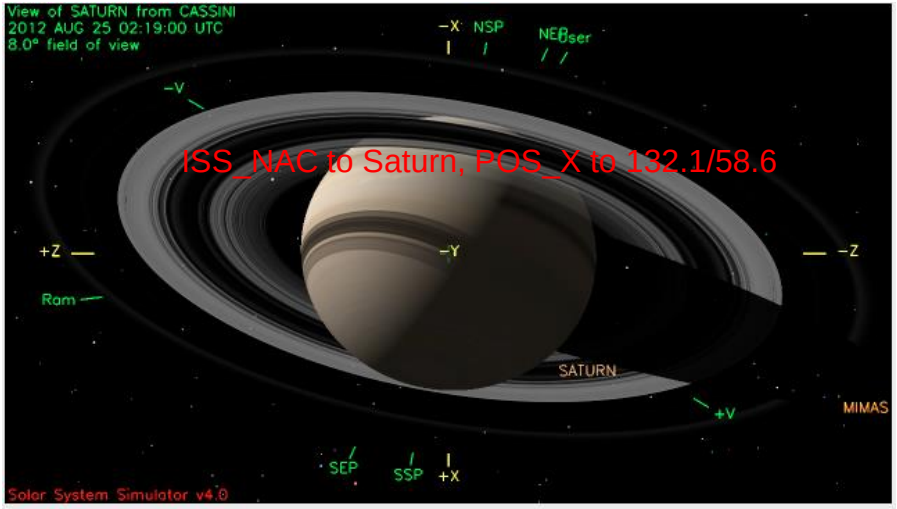
Waypoint Selection

RBOT - Friendly

OBSERVATION PERIOD	START	END	POS_X	NEG_X	POS_Z	NEG_Z
SP_171NA_OBSERV238_NA	2012-238T02:19:00	2012-239T08:04:00	132.1/ 58.6	132.1/ 58.6	------	132.1/ 58.6
SP_171NA_OBSERV239_NA	2012-239T19:14:00	2012-240T08:04:00	132.1/ 58.6	132.1/ 58.6	------	132.1/ 58.6
SP_171NA_OBSERV240_NA	2012-240T19:14:00	2012-241T08:49:00	132.1/ 58.6	132.1/ 58.6	------	132.1/ 58.6
SP_171NA_OBSERV241_NA	2012-241T18:59:00	2012-242T15:19:00	132.1/ 58.6	132.1/ 58.6	------	132.1/ 58.6
SP_171NA_OBSERV243_NA	2012-243T02:29:00	2012-243T15:19:00	132.1/ 58.6	132.1/ 58.6	------	132.1/ 58.6
SP_171NA_OBSERV244_NA	2012-244T02:29:00	2012-245T21:18:00	132.1/ 58.6	132.1/ 58.6	------	132.1/ 58.6
SP_171NA_OBSERV246_NA	2012-246T08:28:00	2012-246T19:19:00	132.1/ 58.6	132.1/ 58.6	------	------
SP_171NA_OBSERV444_NA	2012-246T19:19:00	2012-246T22:52:00	132.1/ 58.6	132.1/ 58.6	------	132.1/ 58.6
SP_171NA_OBSERV544_NA	2012-246T22:52:00	2012-248T04:33:00	132.1/ 58.6	132.1/ 58.6	------	132.1/ 58.6

Waypoints Chosen (1 of 2)

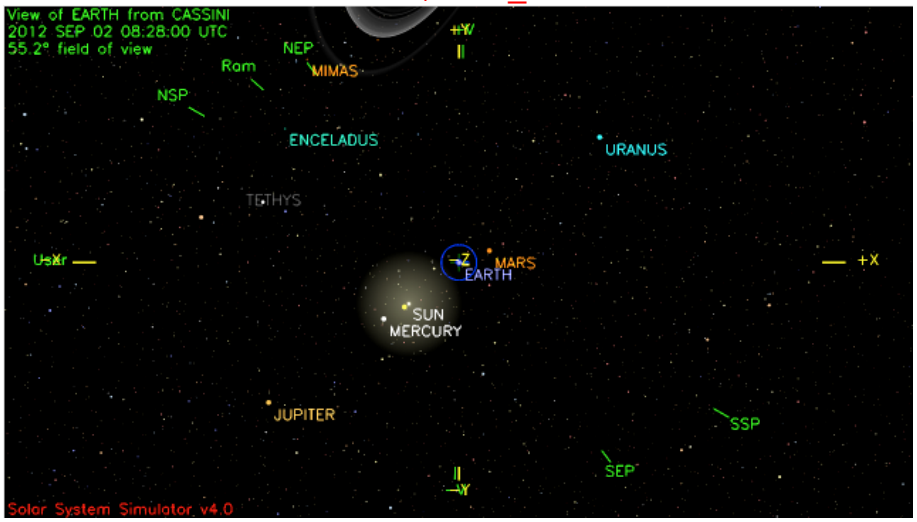




Waypoint Chosen →

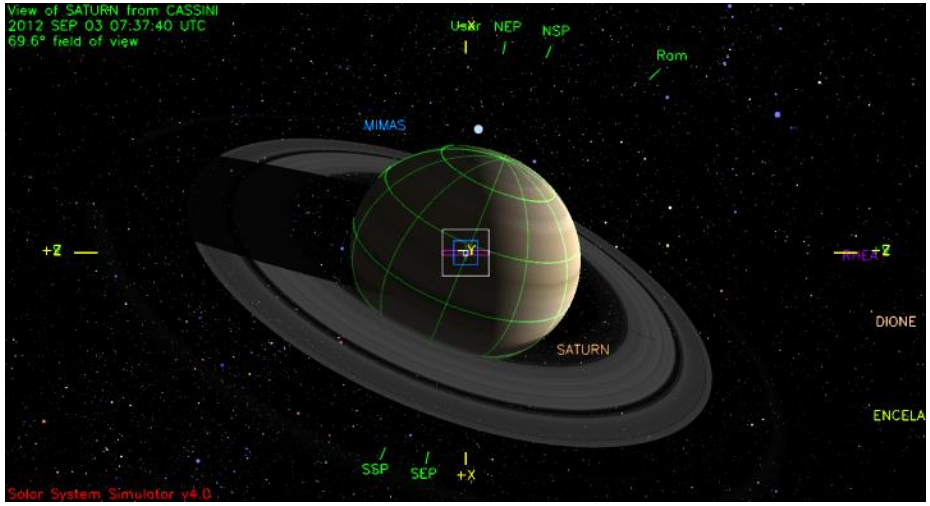
Waypoints Chosen: Periapse (2 of 2)

X-BAND to EARTH, NEG_X to 132.1/58.6



UVIS_SOL_OFF to SUN, NEG_X to 132.1/58.6 - Used just for the UVIS Solar Occ.

ISS_NAC to Saturn, NEG_X to 132.1/58.6



Y bias and RSS

Two biases are partially overlapping:

	Overlapping by:	
•SP_171EA_YGAP241	2012-241T08:49:00 – 09:19:00	1 hour
•SP_171EA_YGAP243	2012-243T16:09:00 – 16:49:00	50 minutes

If any of these YGAP windows are used for biases, Saturn TWT accepts any data loss

RSS activities:	**SCET**	**DSN stations requested**
ORT	2012-239T09:34 – 18:34	55
ORT	2012-241T09:19 – 18:19	55
GSE	2012-245T22:48 – 246T07:48	34
Saturn Thermal PIE (warmup)	2012-246T12:31 – 14:36	N/A
Saturn Occultation PIE*	2012-246T14:36 – 18:39	55, 63, 25, 14

*Dead times of 20 minutes on either end extend outside the boundaries of this observation.

NO CDA ARTICULATION DURING RSS OCC

Notes & Liens

- Level 3 requests:
  - RSS Occultation 2012-246T08:45 – 20:40
- Pointing:
  - Downlinks in this segment invoke minor CIRS heating and require SID suspend commands.
  - There are no other pointing issues of note.
- Data Volume:
  - None
- DSN:
  - There are *no* stations requested during maintenance, UNQ passes, split pass OTMs, split downlink passes (boresight cal/Ybias cal), ap_downlink report check warnings (with the exception of excessive use of 70M stations).
  - A second DSN pass for 3 hours on DSS-63 was added prior to the end of segment DOY 248 downlink at Goldstone to insure a clean SSR after periapse.
- Resource checker:
  - All SPASS gaps in the SPASS are intentional and have been verified. There are no resource checker items.
- Non-standard Opmodes:
  - RSS3RWAS 2012-246T08:28:00 – 2012-246T18:58:21
- Hydrazine:
  - N/A
- Special Activities:
  - none

Sequence Liens (should all be SPLAT items):

- There are ***no*** liens for the S75 sequence inherited from the Saturn_171 segment.