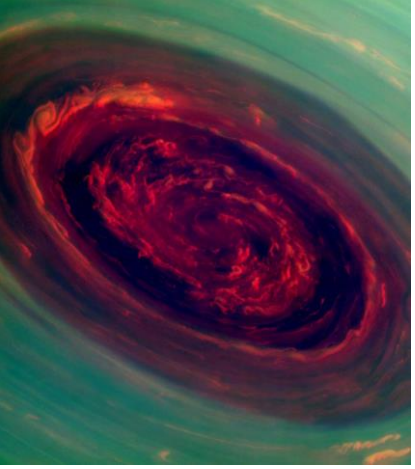
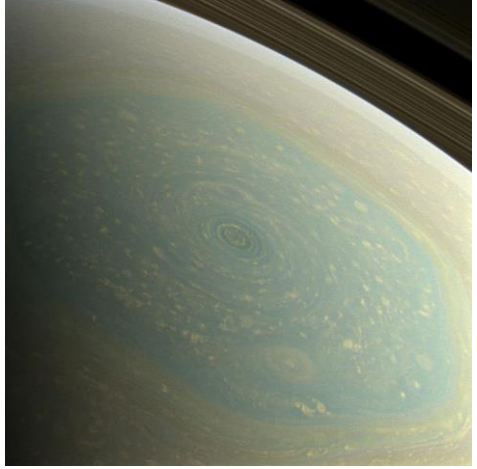
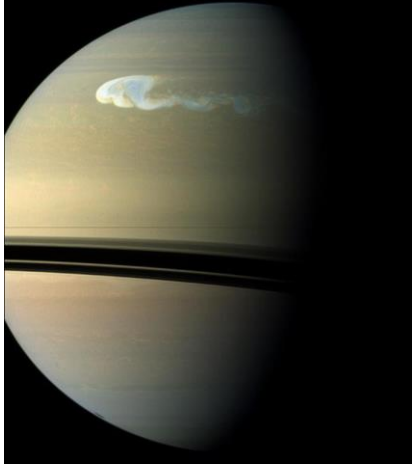


Science Planning & Sequence Team
CASSINI

SATURN TARGET WORKING TEAM

Rev 54 Segment Legacy Package

Segment Boundary: December 14, 2007 – December 20, 2007
2007-348T16:00:00 – 2007-354T08:16:00 (SCET)

Integration Began 06/16/2003
Segment Delivered to S36 Sequence no later than 08/20/2007
Lead Integrators were Unknown & Barbara Larsen

Legacy Package Assembled by Shawn Boll

Table of Contents

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

Segment Overview and Final Products

Segment Summary

- This was a ~5.5 day periapse segment in the Prime Mission, during an inclined orbital phase. The views of Saturn were of a mostly lit face, focused on the northern hemisphere inbound. At periapse (3.03 Rs), the spacecraft had moved to the dark side of the planet, with views of the southern hemisphere. By the time the segment ended the views of Saturn were at a low phase.
- The segment began about 5 days before periapse and ended about a day after.
- Saturn science included CIRS mid-IR mapping and limb studies, ISS WAC Photopolarimetry, VIMS cylindrical mapping, and UVIS EUV/FUV. At periapse, the key science performed was RSS Earth occultations of the atmosphere and rings.
- Several icy satellite observations were also conducted during this segment of Dione and Rhea by the ORS instuments. Images for optical navigation were also taken.
- The segment sequence handoff package could not be located at the time that this legacy package was created.

Final Sequenced SPASS

Saturn 54 Legacy

Request	Riders	Start (SCET)	Start (Epoch)	Duration	End (SCET)	Primary	Secondary	Comments
Sequence S036, length = 39 ...		2007-348T16:00:00	E054_SEQUENCE_036+000T00:00:00	038T21:35:00	2008-022T13:35:00			
SATURN rev 54 Segment		2007-348T16:00:00		005T16:16:00	2007-354T08:16:00			
SP_054EA_S36IVP348_PRIME		2007-348T16:00:00	E054_SEQUENCE_036+000T00:00:00	000T00:06:00	2007-348T16:06:00	XBAND to Earth	NEG_Y to NSP	
SP_054SA_WAYPTTURN348_PRIME		2007-348T16:06:00		000T00:30:00	2007-348T16:36:00	ISS_NAC to Saturn	NEG_Z to NSP	SP Turn to Waypoint
NEW WAYPOINT		**2007-348T16:36:00**		**004T09:25:00**	**2007-353T02:01:00**	**ISS_NAC to Saturn**	**NEG_Z to NSP**	
CIRS_054SA_MIRMAP038_PRIME	M, V	2007-348T16:36:00		000T13:54:00	2007-349T06:30:00	CIRS_FPB to Saturn	NEG_Z to NSP	
SP_054EA_DLTURN349_PRIME	M	2007-349T06:30:00		000T00:30:00	2007-349T07:00:00	XBAND to Earth	NEG_X to NEP	SP Turn to Earth
SP_054EA_G34HEFNON349_PRIME	C, M	2007-349T07:00:00		000T09:00:00	2007-349T16:00:00	XBAND to Earth	NEG_X to NEP	
NAV_054SK_OPNAV491_PRIME	M	2007-349T16:00:00		000T00:59:00	2007-349T16:59:00	ISS_NAC to Satellites	NEG_Z to NSP	Starts at Earth point, ends at waypoint
NAV_054SA_WAYPTTURN491_PRIME		2007-349T16:59:00		000T00:01:00	2007-349T17:00:00	ISS_NAC to Saturn	NEG_Z to NSP	
CIRS_054SA_MIRMAPB038_PRIME	V	2007-349T17:00:00		000T13:31:00	2007-350T06:31:00	CIRS_FPB to Saturn	NEG_Z to NSP	
SP_054EA_DLTURN350_PRIME		2007-350T06:31:00		000T00:30:00	2007-350T07:01:00	XBAND to Earth	NEG_X to NEP	SP Turn to Earth
SP_054EA_G34HEFNON350_PRIME	C, R	2007-350T07:01:00		000T09:00:00	2007-350T16:01:00	XBAND to Earth	NEG_X to NEP	
NAV_054SK_OPNAV501_PRIME		2007-350T16:01:00		000T00:59:00	2007-350T17:00:00	ISS_NAC to Satellites	NEG_Z to NSP	Starts at Earth point, ends at waypoint
NAV_054SA_WAYPTTURN501_PRIME		2007-350T17:00:00		000T00:01:00	2007-350T17:01:00	ISS_NAC to Saturn	NEG_Z to NSP	
ISS_054SA_1X2WPH60001_PRIME	V	2007-350T17:01:00		000T06:30:00	2007-350T23:31:00	ISS_NAC to Saturn	NEG_X to Sun	
UVIS_054SA_EUVFUV001_PRIME	I	2007-350T23:31:00		000T07:00:00	2007-351T06:31:00	UVIS_FUV to Saturn	NEG_Z to NSP	
SP_054EA_DLTURN351_PRIME		2007-351T06:31:00		000T00:30:00	2007-351T07:01:00	XBAND to Earth	NEG_X to NEP	SP Turn to Earth
SP_054EA_G34BWGNON351_PRIME	C, M	2007-351T07:01:00		000T08:40:00	2007-351T15:41:00	XBAND to Earth	NEG_X to NEP	
SP_054SA_WAYPTTURN351_PRIME	C, M	2007-351T15:41:00		000T00:30:00	2007-351T16:11:00	ISS_NAC to Saturn	NEG_Z to NSP	SP Turn to Waypoint
UVIS_054DI_ICYOCC099_PRIME	C, M	2007-351T16:11:00		000T01:00:00	2007-351T17:11:00	UVIS_FUV to Dione	NEG_Z to NSP	
VIMS_054SA_CYLMAP002_PRIME	I, M	2007-351T17:11:00		000T04:35:00	2007-351T21:46:00	ISS_NAC to Saturn	NEG_Z to North_Pole_Dir	
ISS_054RH_REGGEOD001_PRIME	C, M, U	2007-351T21:46:00		000T01:00:00	2007-351T22:46:00	ISS_NAC to Rhea	NEG_Z to NSP	
SP_054EA_DLTURN451_PRIME	M	2007-351T22:46:00		000T00:30:00	2007-351T23:16:00	XBAND to Earth	NEG_X to NEP	SP Turn to Earth
SP_054EA_M70METOTP351_PRIME	C, M, N	2007-351T23:16:00		000T09:00:00	2007-352T08:16:00	XBAND to Earth	NEG_X to NEP	
SP_054SA_WAYPTTURN352_PRIME	M	2007-352T08:16:00		000T00:30:00	2007-352T08:46:00	ISS_NAC to Saturn	NEG_Z to NSP	SP Turn to Waypoint
VIMS_054SA_CYLMAP001_PRIME	I, M, U	2007-352T08:46:00		000T11:00:00	2007-352T19:46:00	ISS_NAC to Saturn	NEG_Z to North_Pole_Dir	
CIRS_054SA_LIMBINT004_PRIME	C, M, R, U, V	2007-352T19:46:00		000T04:45:00	2007-353T00:31:00	CIRS_FPB to Saturn	NEG_Z to NSP	left limb for CAPS
CIRS_054RH_ORSRHEA001_PRIME	I, M, R, U, V	2007-353T00:31:00		000T00:55:00	2007-353T01:26:00	ISS_NAC to Rhea (0.0,40.0,0.0 deg. offset)	NEG_Z to NSP	CIRS PDT design to accommodate other ORS instruments.
SP_054EA_WAYPTTURN353_PRIME	M, R	2007-353T01:26:00		000T00:21:00	2007-353T01:47:00	XBAND to Earth	NEG_X to Sun	SP Turn to Waypoint
SP_054EA_WAYPTTURN453_PRIME	M, R	2007-353T01:47:00		000T00:14:00	2007-353T02:01:00	XBAND to Earth	NEG_X to NEP	SP Turn to Waypoint
NEW WAYPOINT		**2007-353T02:01:00**		**000T14:15:00**	**2007-353T16:16:00**	**XBAND to Earth**	**NEG_X to NEP**	
SP_054EA_DEADTIME353_PRIME	**M, R**	**2007-353T02:01:00**		**000T00:13:40**	**2007-353T02:14:40**	**XBAND to Earth**	**NEG_X to NEP**	
RSS_054RI_OCC002_PRIME	M, R	2007-353T02:14:40	LMB_E054_Saturn_RSS_Occ_Egr-000T02:24:51	000T01:03:30	2007-353T03:18:10	XBAND to Earth	NEG_X to NEP	
RSS_054SA_OCC002_PRIME	M	2007-353T03:18:10	LMB_E054_Saturn_RSS_Occ_Egr-000T01:21:21	000T00:51:04	2007-353T04:09:14	XBAND to Earth	NEG_X to NEP	
RSS_054SA_OCC003_PRIME	M	2007-353T04:09:14	LMB_E054_Saturn_RSS_Occ_Egr-000T00:30:17	000T00:59:00	2007-353T05:08:14	XBAND to Earth	NEG_X to NEP	
Periapse R = 3.0 Rs, lat = ...		2007-353T05:04:29		000T00:00:01	2007-353T05:04:30			
SP_054EA_DEADTIME453_PRIME	**M**	**2007-353T05:08:14**	**LMB_E054_Saturn_RSS_Occ_Egr+000T00:28:43**	**000T00:16:46**	**2007-353T05:25:00**	**XBAND to Earth**	**NEG_X to NEP**	
CIRS_054SA_OCCLIMB004_PRIME	C, M, U, V	2007-353T05:25:00		000T01:11:00	2007-353T06:36:00	CIRS_FP4 to Saturn	POS_Z to NSP	left limb for CAPS
SP_054EA_DLTURN353_PRIME	M, N	2007-353T06:36:00		000T00:17:00	2007-353T06:53:00	XBAND to Earth	POS_Y to 70.0/60.0	SP Turn to Earth
SP_054EA_G70METOTB353_PRIME	C, E, M, N	2007-353T06:53:00		000T08:59:00	2007-353T15:52:00	XBAND to Earth	POS_Y to 70.0/60.0	real-time RPWS Whistler
SP_054SA_WAYPTTURN353_PRIME	M	2007-353T15:52:00		000T00:24:00	2007-353T16:16:00	ISS_NAC to Saturn	POS_Z to NSP	SP Turn to Waypoint
NEW WAYPOINT		**2007-353T16:16:00**		**000T16:30:00**	**2007-354T08:46:00**	**ISS_NAC to Saturn**	**POS_Z to NSP**	
CIRS_054SA_NADIROCC007_PRIME	M, U, V	2007-353T16:16:00		000T03:00:00	2007-353T19:16:00	CIRS_FPB to Saturn	POS_Z to NSP	
CIRS_054DI_ORSDIONE001_PRIME	I, M, U, V	2007-353T19:16:00		000T01:00:00	2007-353T20:16:00	ISS_NAC to Dione	POS_Z to NSP	CIRS PDT design to accommodate other ORS instruments.
CIRS_054RI_SUBML08LP001_PRIME	C, M, U, V	2007-353T20:16:00		000T05:30:00	2007-354T01:46:00	CIRS_FP1 to Rings	POS_Z to NSP	
SP_054EA_DLTURN354_PRIME	M	2007-354T01:46:00		000T00:30:00	2007-354T02:16:00	XBAND to Earth	NEG_X to NEP	SP Turn to Earth
SP_054EA_M70METNON354_PRIME	C, M	2007-354T02:16:00		000T02:00:00	2007-354T04:16:00	XBAND to Earth	NEG_X to NEP	
SP_054EA_M34BWGNON354_PRIME	C, M	2007-354T04:16:00		000T04:00:00	2007-354T08:16:00	XBAND to Earth	NEG_X to NEP	

Final Sequenced SMT and Data Volume (1 of 2)

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

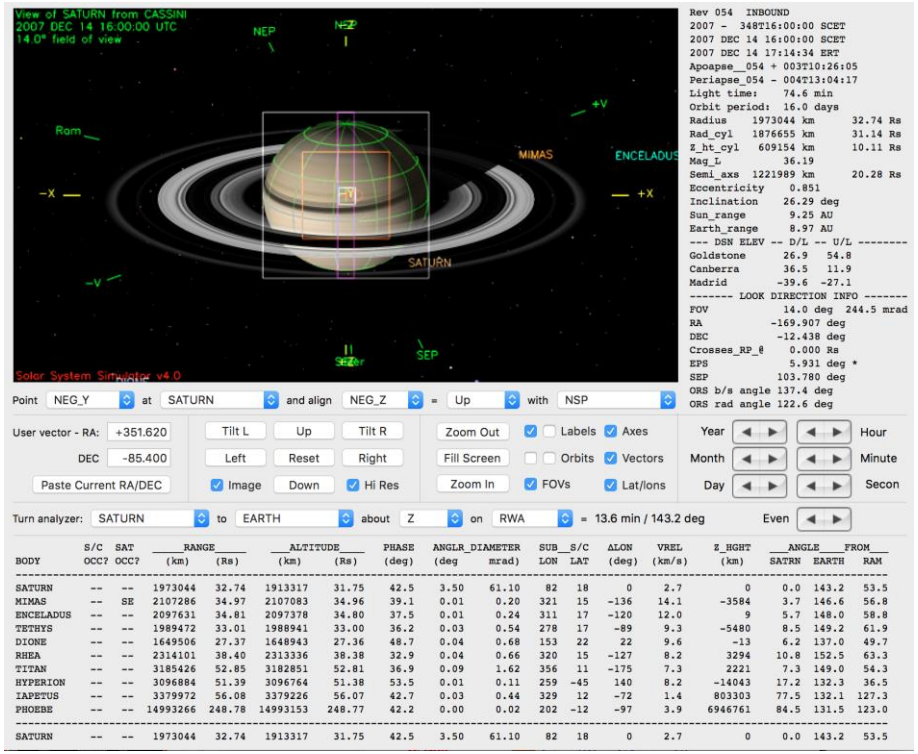
			OBSERVATION_PERIOD							DOWNLINK_PASS							
			P4						P5	RECORDED		PLAYBACK					
DOWNLINK PASS NAME	Start doy hh:mm	End doy hh:mm	START (Mb)	SCI (Mb)	HK+E (Mb)	TOTAL (Mb)	CPACTY (Mb)	MRGN (Mb)	OPNAV (Mb)	SCI (Mb)	ENGR (Mb)	TOTAL (Mb)	CPACTY (Mb)	MARGN (Mb)	NET_MARGN (Mb)	(%)	CAROVR (Mb)
SP_054EA_G34HEFNON349_PRIME	349 07:00	349 16:00	0	785	63	848	3491	2643	0	221	53	1122	1043	-80	1765	11%	79
SP_054EA_G34HEFNON350_PRIME	350 07:01	350 16:01	79	799	63	942	3491	2549	18	221	53	1234	1046	-188	1765	11%	188
SP_054EA_G34BWGNON351_PRIME	351 07:01	351 15:41	188	1217	63	1468	3491	2024	18	233	51	1770	850	-920	1765	11%	920
SP_054EA_M70METOTP351_PRIME	351 23:16	352 08:16	920	514	32	1466	3491	2026	0	252	53	1771	3521	1749	1765	9%	0
SP_054EA_G70METOTB353_PRIME	353 06:53	353 15:52	0	2497	96	2592	3491	899	0	1447	53	4092	3919	-173	16	0%	173
SP_054EA_M70METNON354_PRIME	354 02:16	354 04:16	173	920	44	1137	3491	2355	0	49	12	1198	983	-215	16	0%	215
SP_054EA_M34BWGNON354_PRIME	354 04:16	354 08:16	215	0	0	215	3491	3277	0	115	24	353	377	23	16	0%	0

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	348 16:00	349 07:00	54.0	8.1	200.2	13.5	0.0	32.4	48.6	0.0	70.7	0.0	350.0	0.0	12.3	789.7
SP_054EA_G34HEFNON349_PRIME	349 07:00	349 16:00	32.4	4.9	86.4	1.6	0.0	19.4	29.2	0.0	42.4	2.5	0.0	0.0	0.0	218.8
DAILY TOTAL SCIENCE	348 16:00	349 16:00	86.4	12.9	286.6	15.1	0.0	51.8	77.8	0.0	113.2	2.5	350.0	0.0		
OBSERVATION_NOR	349 16:00	350 07:01	84.8	8.1	194.6	2.7	0.0	32.4	48.7	0.0	70.8	0.0	350.0	0.0	12.3	804.4
OBSERVATION_OPN	349 16:00	350 07:01	0.0	0.0	0.0	0.0	17.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	17.4
SP_054EA_G34HEFNON350_PRIME	350 07:01	350 16:01	32.4	4.9	86.4	1.6	0.0	19.4	29.2	0.0	42.4	2.5	0.0	0.0	0.0	218.8
DAILY TOTAL SCIENCE	349 16:00	350 16:01	117.2	13.0	281.0	4.3	0.0	51.9	77.8	0.0	113.3	2.5	350.0	0.0		
OBSERVATION_NOR	350 16:01	351 07:01	54.0	8.1	0.0	2.7	612.2	32.4	48.6	0.0	70.7	126.8	250.0	0.0	12.3	1217.8
OBSERVATION_OPN	350 16:01	351 07:01	0.0	0.0	0.0	0.0	17.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	17.4
SP_054EA_G34BWGNON351_PRIME	351 07:01	351 15:41	31.2	4.7	85.5	1.6	0.0	18.7	46.1	0.0	40.9	2.4	0.0	0.0	0.0	231.0
DAILY TOTAL SCIENCE	350 16:01	351 15:41	85.2	12.8	85.5	4.3	612.2	51.1	94.7	0.0	111.6	129.2	250.0	0.0		
OBSERVATION_NOR	351 15:41	351 23:16	27.3	5.4	29.7	1.4	58.0	16.4	49.1	0.0	35.8	36.6	250.0	0.0	6.2	515.9
SP_054EA_M70METOTP351_PRIME	351 23:16	352 08:16	32.4	6.5	86.4	1.6	0.0	19.4	58.3	0.0	42.4	2.5	0.0	0.0	0.0	249.5
DAILY TOTAL SCIENCE	351 15:41	352 08:16	59.7	11.9	116.1	3.0	58.0	35.8	107.5	0.0	78.2	39.1	250.0	0.0		
OBSERVATION_NOR	352 08:16	353 06:53	408.2	78.3	98.6	11.9	179.5	113.1	148.7	0.0	776.2	78.0	580.5	0.0	18.5	2491.4
OBSERVATION_SI	352 08:16	353 06:53	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0
SP_054EA_G70METOTB353_PRIME	353 06:53	353 15:52	258.7	6.3	86.4	1.6	0.0	63.9	62.1	0.0	952.2	2.4	0.0	0.0	0.0	1433.7
DAILY TOTAL SCIENCE	352 08:16	353 15:52	666.9	84.6	186.0	13.5	179.5	177.0	210.8	0.0	1728.3	80.4	580.5	0.0		
OBSERVATION_NOR	353 15:52	354 02:16	122.7	7.2	136.8	1.9	54.5	39.2	67.4	0.0	134.3	49.0	287.4	0.0	8.5	908.8
OBSERVATION_SI	353 15:52	354 02:16	0.0	0.0	11.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	11.5
SP_054EA_M70METNON354_PRIME	354 02:16	354 04:16	7.2	1.2	13.5	0.4	0.0	4.3	13.0	0.0	9.4	0.0	0.0	0.0	0.0	49.0
SP_054EA_M34BWGNON354_PRIME	354 04:16	354 08:16	14.4	2.2	43.2	0.7	0.0	8.6	25.9	0.0	18.9	0.0	0.0	0.0	0.0	113.9
DAILY TOTAL SCIENCE	353 15:52	354 08:16	144.3	10.5	205.0	3.0	54.5	52.2	106.3	0.0	162.6	49.0	287.4	0.0		

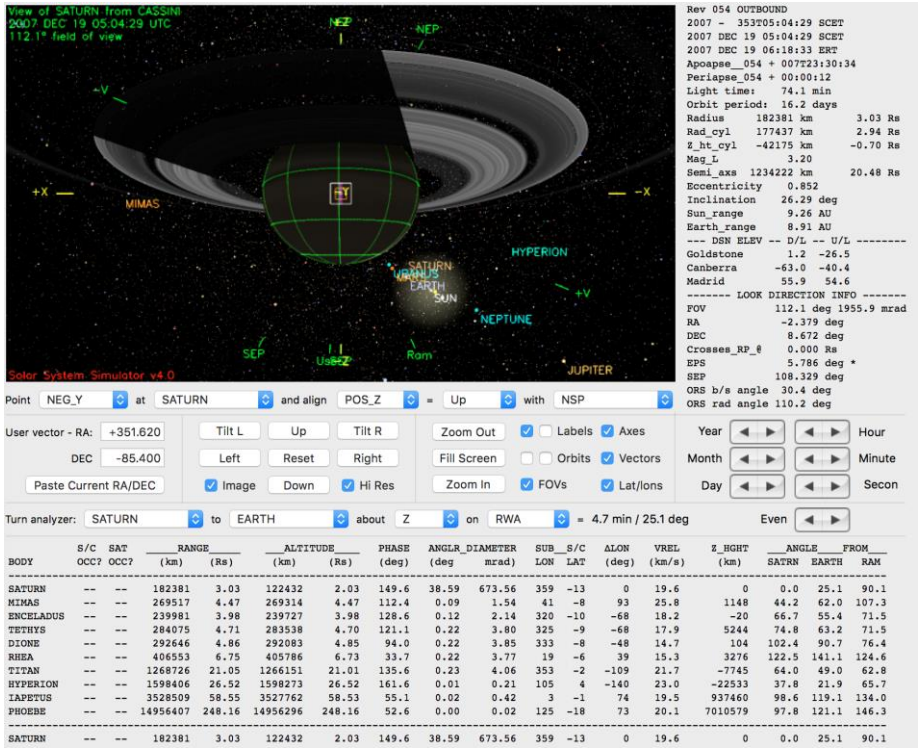
Segment Geometry (1 of 2)



BODY	S/C OCC?	SAT OCC?	RANGE (km)	RANGE (Rs)	ALTITUDE (km)	ALTITUDE (Rs)	PHASE (deg)	ANGLR DIAMETER (deg)	ANGLR DIAMETER 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	--	--	1973044	32.74	1913317	31.75	42.5	3.50	61.10	82	18	0	2.7	0	0.0	143.2	53.5
MIMAS	--	SE	2107286	34.97	2107083	34.96	39.1	0.01	0.20	321	15	-136	14.1	-3584	3.7	146.6	56.8
ENCELADUS	--	--	2097631	34.81	2097378	34.80	37.5	0.01	0.24	311	17	-120	12.0	9	5.7	148.0	58.8
TETHYS	--	--	1989472	33.01	1988941	33.00	36.2	0.03	0.54	278	17	-89	9.3	-5480	8.5	149.2	61.9
DIONE	--	--	1649506	27.37	1648943	27.36	48.7	0.04	0.68	153	22	22	9.6	-13	6.2	137.0	49.7
RHEA	--	--	2314101	38.40	2313336	38.38	32.9	0.04	0.66	320	15	-127	8.2	3294	10.8	152.5	63.3
TITAN	--	--	3185426	52.85	3182851	52.81	36.9	0.09	1.62	356	11	-175	7.3	2221	7.3	149.0	54.3
HYPERION	--	--	3096884	51.39	3096764	51.38	53.5	0.01	0.11	259	-45	140	8.2	-14043	17.2	132.3	36.5
IAPETUS	--	--	3379972	56.08	3379226	56.07	42.7	0.03	0.44	329	12	-72	1.4	803303	77.5	132.1	127.3
PHOEBE	--	--	14993266	248.78	14993153	248.77	42.2	0.00	0.02	202	-12	-97	3.9	6946761	84.5	131.5	123.0
SATURN	--	--	1973044	32.74	1913317	31.75	42.5	3.50	61.10	82	18	0	2.7	0	0.0	143.2	53.5

← Seg Start (Left)

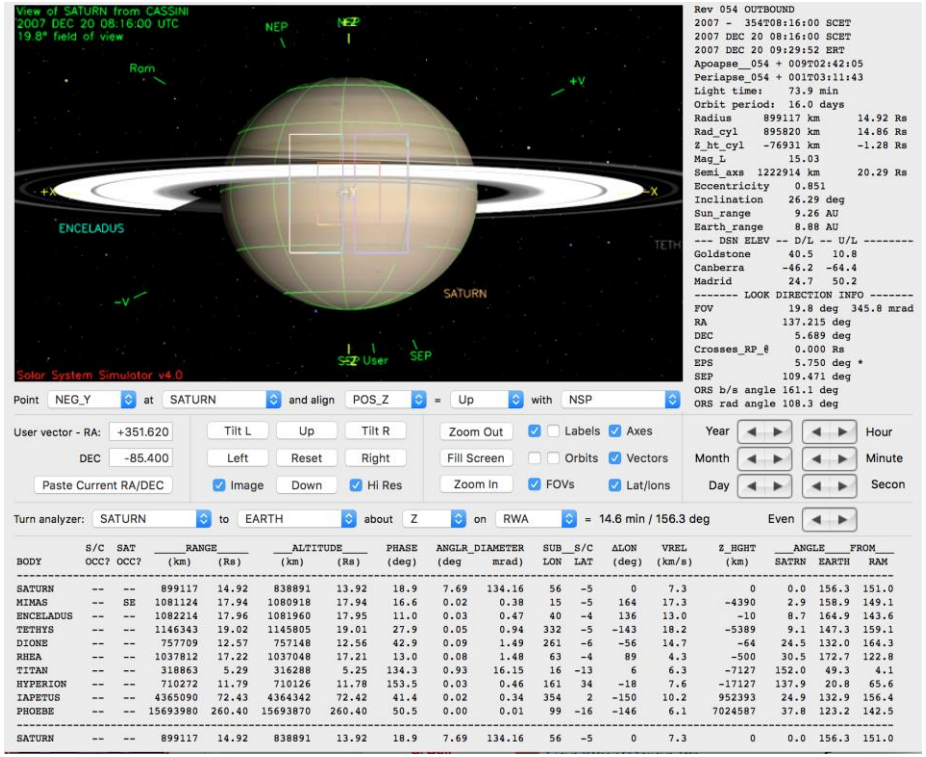
↓ Periapse (below)



BODY	S/C OCC?	SAT OCC?	RANGE (km)	RANGE (Rs)	ALTITUDE (km)	ALTITUDE (Rs)	PHASE (deg)	ANGLR DIAMETER (deg	ANGLR DIAMETER 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	--	--	182381	3.03	122432	2.03	149.6	38.59	673.56	359	-13	0	19.6	0	0.0	25.1	90.1
MIMAS	--	--	269517	4.47	269314	4.47	112.4	0.09	1.54	41	-8	93	25.8	1148	44.2	62.0	107.3
ENCELADUS	--	--	239981	3.98	239727	3.98	128.6	0.12	2.14	320	-10	-68	18.2	-20	66.7	55.4	71.5
TETHYS	--	--	284075	4.71	283538	4.70	121.1	0.22	3.80	325	-9	-68	17.9	5244	74.8	63.2	71.5
DIONE	--	--	292646	4.86	292083	4.85	94.0	0.22	3.85	333	-8	-48	14.7	104	102.4	90.7	76.4
RHEA	--	--	406553	6.75	405786	6.73	33.7	0.22	3.77	19	-6	39	15.3	3276	122.5	141.1	124.6
TITAN	--	--	1268726	21.05	1266151	21.01	135.6	0.23	4.06	353	-2	-109	21.7	-7745	64.0	49.0	62.8
HYPERION	--	--	1598406	26.52	1598273	26.52	161.6	0.01	0.21	105	4	-140	23.0	-22533	37.8	21.9	65.7
IAPETUS	--	--	3528509	58.55	3527762	58.53	55.1	0.02	0.42	3	-1	74	19.5	937460	98.6	119.1	134.0
PHOEBE	--	--	14956407	248.16	14956296	248.16	52.6	0.00	0.02	125	-18	73	20.1	7010579	97.8	121.1	146.3
SATURN	--	--	182381	3.03	122432	2.03	149.6	38.59	673.56	359	-13	0	19.6	0	0.0	25.1	90.1

	Saturn Range	Phase Angle	Sub-S/C Lat.
Segment Start	32.74	42.5	18
Periapse	3.03	149.6	-13
Segment End	14.92	18.9	-5

Segment Geometry (2 of 2)



BODY	S/C OCC?	SAT OCC?	RANGE (km)	RANGE (Rs)	ALTITUDE (km)	ALTITUDE (Rs)	PHASE (deg)	ANGLR_DIAMETER (deg	ANGLR_DIAMETER 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	--	--	899117	14.92	838891	13.92	18.9	7.69	134.16	56	-5	0	7.3	0	0.0	156.3	151.0
MIMAS	--	SE	1081124	17.94	1080918	17.94	16.6	0.02	0.38	15	-5	164	17.3	-4390	2.9	158.9	149.1
ENCELADUS	--	--	1082214	17.96	1081960	17.95	11.0	0.03	0.47	40	-4	136	13.0	-10	8.7	164.9	143.6
TETHYS	--	--	1146343	19.02	1145805	19.01	27.9	0.05	0.94	332	-5	-143	18.2	-5389	9.1	147.3	159.1
DIONE	--	--	757709	12.57	757148	12.56	42.9	0.09	1.49	261	-6	-56	14.7	-64	24.5	132.0	164.3
RHEA	--	--	1037812	17.22	1037048	17.21	13.0	0.08	1.48	63	-4	89	4.3	-500	30.5	172.7	122.8
TITAN	--	--	318863	5.29	316288	5.25	134.3	0.93	16.15	16	-13	6	6.3	-7127	152.0	49.3	4.1
HYPERION	--	--	710272	11.79	710126	11.78	153.5	0.03	0.46	161	34	-18	7.6	-17127	137.9	20.8	65.6
IAPETUS	--	--	4365090	72.43	4364342	72.42	41.4	0.02	0.34	354	2	-150	10.2	952393	24.9	132.9	156.4
PHOEBE	--	--	15693980	260.40	15693870	260.40	50.5	0.00	0.01	99	-16	-146	6.1	7024587	37.8	123.2	142.5
SATURN	--	--	899117	14.92	838891	13.92	18.9	7.69	134.16	56	-5	0	7.3	0	0.0	156.3	151.0

Seg End

Solar Geometry – ORS Boresight Concerns

No ORS Boresight Solar Constraints on Science Pointing.

Weekly Science Highlights

Week 1: DOY 348-352 (Fri, Dec 14-Tues, Dec 18)

The S36 sequence began late Friday (DOY 348) with CIRS starting the sequence off with a mid-infrared observation for the determination of the troposphere and tropopause temperature with spatial resolution of about two degrees of latitude and longitude.

DOY 350 - ISS used the wide-angle camera to do photopolarimetry of Saturn at 60 degree phase. UVIS scanned across the north polar region of Saturn to produce an auroral movie.

DOY 351 - UVIS targeted Dione in order to measure the albedo. VIMS made several measurements for Saturn cylindrical mapping. ISS took images using the NAC for Rhea regional geodesy.

DOY 352 - CIRS measured stratospheric thermal structure by means of limb sounding in the mid-IR.

Week 2: DOY 353-359 (Wed, Dec 19-Tues, Dec 25)

DOY 353 - This week started off with the ORS instruments observing Rhea. RSS then used Ka, X, and S bands to observe the late inclined ring occultation through ingress and atmospheric egress of the occultation. CIRS took measurements to determine the helium composition as well as the stratospheric thermal structure at the RSS occultation points. CIRS also performed a radial scan of the main rings to obtain submillimeter measurements of the rings at a variety of geometries. The ORS instruments made various observations with Dione as the target.

Segment Integration Planning

Timeline Gaps and Suggested Observations

Rev 54 Starwman v.1

Activity	Start Time	Duration	End Time
Start of segment	2007-348T16:00:00		
SP Waypoint Turn	2007-348T16:00:00	000T00:30:00	
CIRS	2007-348T16:30:00	000T14:00:00	
SP D/L Turn	2007-349T06:30:00	000T00:30:00	
D/L	2007-349T07:00:00	000T09:00:00	
SP Waypoint Turn	2007-349T16:00:00	000T00:30:00	
CIRS	2007-349T16:30:00	000T14:01:00	
SP D/L Turn	2007-350T06:31:00	000T00:30:00	
D/L	2007-350T07:01:00	000T09:00:00	
SP Waypoint Turn	2007-350T16:01:00	000T00:30:00	
ISS	2007-350T16:31:00	???	
UVIS	???	???	
RADAR	2007-351T03:31:00	000T03:00:00	
SP D/L Turn	2007-351T06:31:00	000T00:30:00	
D/L	2007-351T07:01:00	000T09:00:00	
SP Waypoint Turn	2007-351T16:01:00	000T00:30:00	
ISS Retarg	2007-351T16:31:00		
UVIS Dione Icy Occ	2007-351T16:30:00	000T00:22:00	
???			
SP D/L Turn	2007-351T22:46:00	000T00:30:00	
D/L & OTB	2007-351T23:16:00	000T09:00:00	
SP Waypoint Turn	2007-352T08:16:00	000T00:30:00	
???	2007-352T08:46:00		
Deadtime	2007-353T01:46:00	000T00:15:00	
RSS Ring Occ	2007-353T02:01:26	000T01:23:30	2007-353T03:24:56
RSS Sat Occ	2007-353T03:24:56	000T00:24:32	2007-353T03:49:28
RSS Sat Occ	2007-353T04:11:00	000T00:59:06	2007-353T05:10:06
Deadtime	2007-353T05:11:00	000T00:15:00	
???	2007-353T05:25:00		
SP D/L Turn	2007-353T06:16:00	000T00:30:00	
D/L & OTB	2007-353T06:46:00	000T09:00:00	
SP Waypoint Turn	2007-353T15:46:00	000T00:30:00	
???	2007-353T16:16:00		
SP D/L Turn	2007-353T22:46:00	000T00:30:00	
D/L	2007-353T23:16:00	000T09:00:00	

Initial SMT and Data Volume (1 of 2)

First Presentation in Integration:

DATA VOLUME SUMMARY

			OBSERVATION_PERIOD								DOWNLINK_PASS						
			P4							P5	RECORDED		PLAYBACK				
	Start	End	START	SCI	HK+E	TOTAL	CPACTY	MARGIN		OPNAV	SCI	ENGR	TOTAL	CPACTY	MARGIN		CAROVR
DOWNLINK PASS NAME	doy hh:mm	doy hh:mm	(Mb)	(Mb)	(Mb)	(Mb)	(Mb)	(Mb)	(%)	(Mb)	(Mb)	(Mb)	(Mb)	(Mb)	(Mb)	(%)	(Mb)
SP_054EA_G34HEFNON349_PRIME	349 07:00	349 16:00	0	1017	52	1069	3572	2503	70%	0	219	53	1341	1055	-286	-27%	286
SP_054EA_G34HEFNON350_PRIME	350 07:01	350 16:01	286	1011	52	1349	3534	2184	62%	17	219	53	1639	1055	-584	-55%	584
SP_054EA_G34BWGNON351_PRIME	351 07:01	351 15:41	584	1176	52	1811	3534	1722	49%	17	232	51	2112	854	-1258	-147%	1258
SP_054EA_M70METOTP351_PRIME	351 23:16	352 08:16	1258	486	26	1770	3569	1798	50%	0	250	53	2073	3032	959	32%	0
SP_054EA_G70METOTB353_PRIME	353 06:46	353 15:46	0	2775	78	2853	3568	715	20%	0	796	53	3702	3792	90	2%	0
SP_054EA_M70METNON354_PRIME	354 02:16	354 08:16	0	795	36	831	3557	2726	77%	0	182	35	1048	2479	1431	58%	0

Initial SMT and Data Volume (2 of 2)

First Presentation in Integration:

DATA VOLUME REPORT

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	348 16:00	349 07:00	54.0	8.1	200.2	2.7	0.0	32.4	48.6	0.0	70.7	0.0	600.0	0.0	0.0	1016.7
SP_054EA_G34HEFNON349_PRIME	349 07:00	349 16:00	32.4	4.9	86.4	1.6	0.0	19.4	29.2	0.0	42.4	2.5	0.0	0.0	0.0	218.8
DAILY TOTAL SCIENCE	348 16:00	349 16:00	86.4	12.9	286.6	4.3	0.0	51.8	77.8	0.0	113.2	2.5	600.0	0.0		
OBSERVATION_NOR	349 16:00	350 07:01	54.1	8.1	194.6	2.7	0.0	32.4	48.7	0.0	70.8	0.0	600.0	0.0	0.0	1011.4
OBSERVATION_OPN	349 16:00	350 07:01	0.0	0.0	0.0	0.0	17.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	17.4
SP_054EA_G34HEFNON350_PRIME	350 07:01	350 16:01	32.4	4.9	86.4	1.6	0.0	19.4	29.2	0.0	42.4	2.5	0.0	0.0	0.0	218.8
DAILY TOTAL SCIENCE	349 16:00	350 16:01	86.5	13.0	281.0	4.3	0.0	51.9	77.8	0.0	113.3	2.5	600.0	0.0		
OBSERVATION_NOR	350 16:01	351 07:01	54.0	8.1	0.0	2.7	412.2	32.4	48.6	0.0	70.7	126.8	420.0	0.0	0.0	1175.6
OBSERVATION_OPN	350 16:01	351 07:01	0.0	0.0	0.0	0.0	17.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	17.4
SP_054EA_G34BWGNON351_PRIME	351 07:01	351 15:41	31.2	4.7	86.4	1.6	0.0	18.7	46.1	0.0	40.9	2.4	0.0	0.0	0.0	231.9
DAILY TOTAL SCIENCE	350 16:01	351 15:41	85.2	12.8	86.4	4.3	412.2	51.1	94.7	0.0	111.6	129.2	420.0	0.0		
OBSERVATION_NOR	351 15:41	351 23:16	27.3	5.4	0.0	1.4	8.0	16.4	49.1	0.0	35.8	42.4	300.0	0.0	0.0	485.7
SP_054EA_M70METOTP351_PRIME	351 23:16	352 08:16	32.4	6.5	86.4	1.6	0.0	19.4	58.3	0.0	42.4	2.5	0.0	0.0	0.0	249.5
DAILY TOTAL SCIENCE	351 15:41	352 08:16	59.7	11.9	86.4	3.0	8.0	35.8	107.5	0.0	78.2	44.8	300.0	0.0		
OBSERVATION_NOR	352 08:16	353 06:46	404.8	16.6	98.6	11.9	0.0	112.3	147.8	0.0	936.2	0.0	1047.0	0.0	0.0	2775.3
SP_054EA_G70METOTB353_PRIME	353 06:46	353 15:46	259.2	6.4	86.4	1.6	0.0	64.0	62.3	0.0	313.4	2.5	0.0	0.0	0.0	795.7
DAILY TOTAL SCIENCE	352 08:16	353 15:46	664.0	23.0	185.0	13.5	0.0	176.3	210.1	0.0	1249.6	2.5	1047.0	0.0		
OBSERVATION_NOR	353 15:46	354 02:16	125.6	7.2	136.8	1.9	0.0	39.9	68.0	0.0	137.3	0.0	266.4	0.0	0.0	783.1
OBSERVATION_SI	353 15:46	354 02:16	0.0	0.0	11.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	11.5
SP_054EA_M70METNON354_PRIME	354 02:16	354 08:16	21.6	3.4	75.6	1.1	0.0	13.0	38.9	0.0	28.3	0.0	0.0	0.0	0.0	181.8
DAILY TOTAL SCIENCE	353 15:46	354 08:16	147.2	10.6	223.9	3.0	0.0	52.9	106.9	0.0	165.6	0.0	266.4	0.0		

	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)	1129.0	84.1	1149.3	32.3	420.2	419.8	674.8	0.0	1831.5	181.4	3233.4	0.0

Waypoint Selection

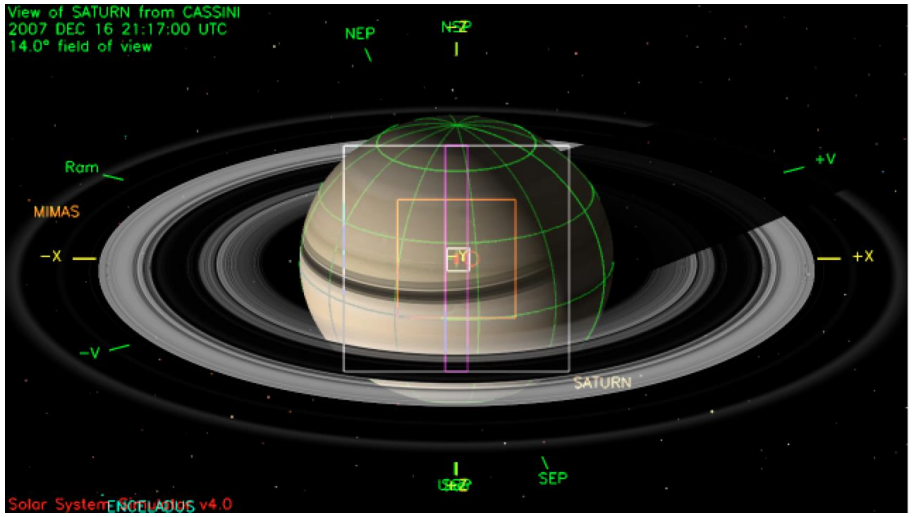
- Waypoint info
  - NEG_Y to Saturn, POS_X to NSP safe for first 4 days and last day
  - NEG_Y to Saturn, NEG_X to Sun is safe for first 4 days and last day.
    - does weird flippy thing at periapse
  - NEG_Y to Saturn, NEG_Z to NSP safe for first 4 days
  - NEG_Y to Saturn, POS_Z to NSP safe for last 2 days.

Rev 54

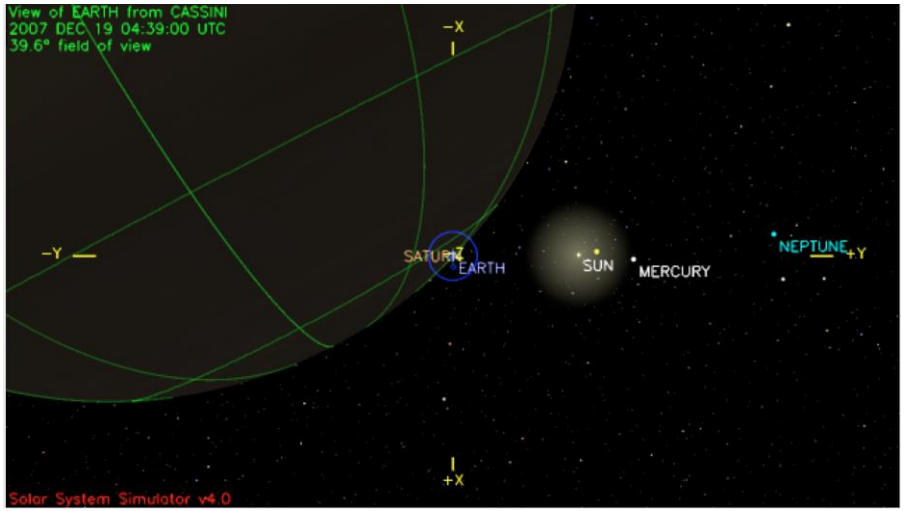
Time	Rs	Phase (deg)
2007-349T00:00:00	31.73	44
2007-350T00:00:00	27.91	49.2
2007-351T00:00:00	22.74	56.4
2007-352T00:00:00	15.61	69.4
2007-353T00:00:00	4.86	126.9
2007-354T00:00:00	11.66	26.8

Waypoints Chosen

Waypoint 1 (2007-348T16:36:00 – 2007-353T02:01:00): ISS_NAC to Saturn; NEG_Z to NSP

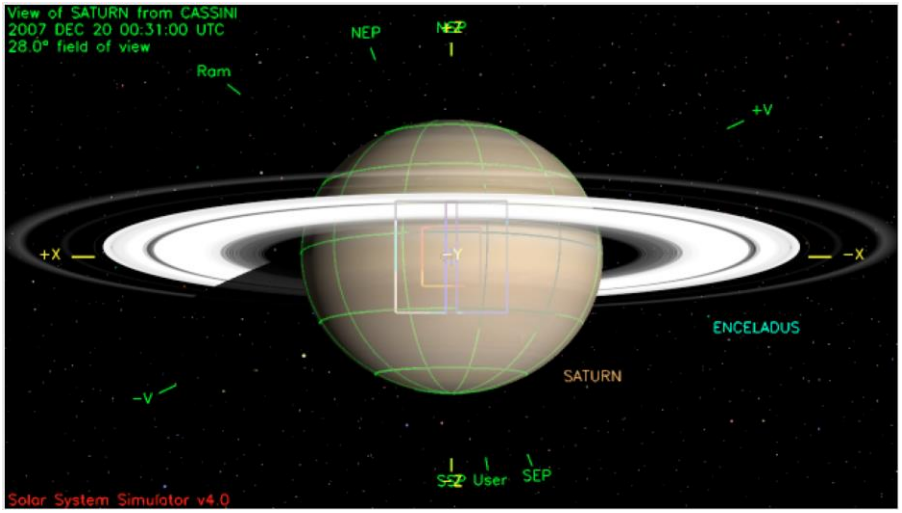


Waypoint 2 (2007-353T02:01:00 – 2007-353T16:16:00): XBAND to Earth; NEG_X to NEP



Waypoints Chosen

Waypoint 3 (2007-353T16:16:00 - 2007-354T08:46:00): ISS_NAC to Saturn; POS_Z to NSP



Notes & Liens

None Found – Handoff Package could not be located.