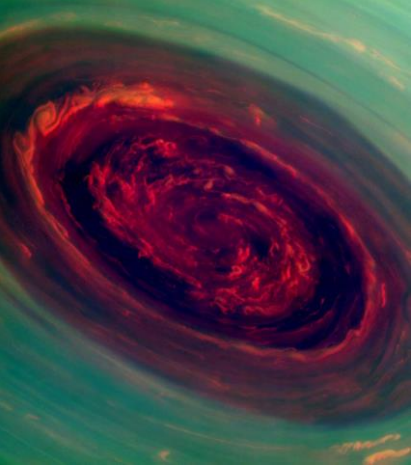
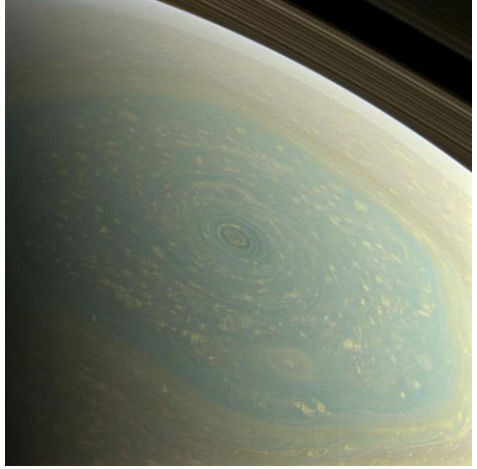
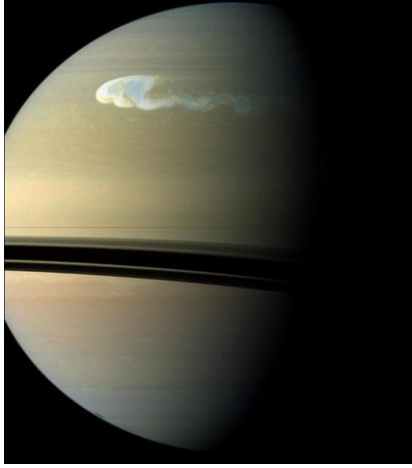


Science Planning & Sequence Team
CASSINI

SATURN TARGET WORKING TEAM

Rev 94_95 Segment Legacy Package

Segment Boundary: November 28, 2008 – December 4, 2008
2008-333T00:10:00 – 2008-339T17:26:00 (SCET)

Integration Began 08/27/2007
Segment Delivered to S46 Sequence 05/05/2008
Lead Integrator was Shawn Boll

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 6.5 day segment in an inclined phase of the Equinox Mission. It began just before Rev 95 apoapse and extended through periapse.
- Out at apoapse, Saturn science included CIRS Far-IR mapping and UVIS EUV/FUV measurements. Other activities were limited to satellite orbit determination, optical navigation, and CAPS prime magnetosphere survey.
- Periapse was focused on VIMS and RADAR atmosphere dynamics observations of both poles of Saturn: North pole on the inbound and south pole the outbound.
- Other science included CDA dust measurements at ring plane crossing and a look at Enceladus by the ORS instruments.
- Data volume negotiations, already difficult, were complicated by the 70 meter station at Canberra being down for extended maintenance for the whole segment.
- The sun position did not pose a problem for ORS imaging, but did complicate turn planning as two-part turns were necessary to keep the sun from shining on the CIRS and VIMS radiators.

Final Sequenced SPASS

Request	Riders	Start (SCET)	Start (Epoch)	Duration	End (SCET)	Primary	Secondary	Comments
Sequence S46, length = 44 days		2008-331T17:55:00		043T21:21:00	2009-009T15:16:00			
SATURN_94_95 Segment		2008-333T00:10:00		006T17:16:00	2008-339T17:26:00			
SP_094SA_WAYPTTURN333_PRIME		2008-333T00:10:00		000T00:40:00	2008-333T00:50:00	ISS_NAC to Saturn	NEG_X to Sun	
NEW WAYPOINT		**2008-333T00:50:00**		**000T17:46:00**	**2008-333T18:36:00**	**ISS_NAC to Saturn**	**NEG_X to Sun**	
ISS_094TI_MR3CLD333_PRIME	C	2008-333T00:50:00	E094_MR3CLD333+000T00:00:00	000T01:15:00	2008-333T02:05:00	ISS_NAC to Titan	NEG_X to Sun	
ISS_094OT_SATELLORB014_PRIME		2008-333T02:05:00		000T00:30:00	2008-333T02:35:00	ISS_NAC to Rocks	NEG_X to Sun	
UVIS_094SA_EUVFUV001_PRIME	C	2008-333T02:35:00		000T05:41:00	2008-333T08:16:00	UVIS_FUV to Saturn (-1.148,0.0,2.977 deg. offset)	POS_Z to NSP	
SP_094EA_DLTURN333_PRIME		2008-333T08:16:00		000T00:40:00	2008-333T08:56:00	XBAND to Earth	NEG_X to 269.8/54.5	
SP_094EA_G34BWGOTB333_PRIME	C, E, N	2008-333T08:56:00		000T09:00:00	2008-333T17:56:00	XBAND to Earth	6_Hr_Rolling	NEG_X to 269.8/54.5
Apoapse Per = 8.0 d, inc =...		2008-333T09:29:06		000T00:00:01	2008-333T09:29:07			
SP_095SA_WAYPTTURN433_PRIME		2008-333T17:56:00		000T00:25:00	2008-333T18:21:00	ISS_NAC to Saturn (0.0,-40.0,0.0 deg. offset)	NEG_Z to Sun	Part 1 of 2-Part Turn
SP_095SA_WAYPTTURN533_PRIME		2008-333T18:21:00		000T00:15:00	2008-333T18:36:00	ISS_NAC to Saturn	NEG_Z to Sun	Part 2 of 2-Part Turn
NEW WAYPOINT		**2008-333T18:36:00**		**000T23:45:00**	**2008-334T18:21:00**	**ISS_NAC to Saturn**	**NEG_Z to Sun**	
CIRS_095SA_FIRMAP001_PRIME		2008-333T18:36:00		000T12:55:00	2008-334T07:31:00	CIRS_FP1 to Saturn	POS_X to NSP	
ISS_095OT_SATELLORB001_PRIME		2008-334T07:31:00		000T00:30:00	2008-334T08:01:00	ISS_NAC to Rocks	NEG_Z to Sun	
SP_095EA_DLTURN334_PRIME		2008-334T08:01:00		000T00:20:00	2008-334T08:21:00	XBAND to Earth (0.0,0.0,-80.0 deg. offset)	POS_X to NEP	Part 1 of 2-Part Turn
SP_095EA_DLTURN434_PRIME		2008-334T08:21:00		000T00:20:00	2008-334T08:41:00	XBAND to Earth	POS_X to NEP	Part 2 of 2-Part Turn
SP_095EA_G34BWGNON334_PRIME	C	2008-334T08:41:00		000T09:00:00	2008-334T17:41:00	XBAND to Earth	6_Hr_Rolling	POS_X to NEP; 6 hr roll, 3 hr dscal
SP_095SA_WAYPTTURN334_PRIME		2008-334T17:41:00		000T00:40:00	2008-334T18:21:00	ISS_NAC to Saturn	NEG_X to Sun	
NEW WAYPOINT		**2008-334T18:21:00**		**004T23:45:00**	**2008-339T18:06:00**	**ISS_NAC to Saturn**	**NEG_X to Sun**	
CAPS_095SA_SURVEYPTG001_PRIME		2008-334T18:21:00		000T02:00:00	2008-334T20:21:00	POS_Z to Saturn	NEG_X to Sun	
UVIS_095SA_NPOLEAUR001_PRIME	I, V	2008-334T20:21:00		000T11:40:00	2008-335T08:01:00	ISS_NAC to Saturn	NEG_X to Sun	
SP_095EA_DLTURN335_PRIME		2008-335T08:01:00		000T00:40:00	2008-335T08:41:00	XBAND to Earth	POS_X to NSP	
SP_095EA_G70METNON335_PRIME	C, E	2008-335T08:41:00		000T09:00:00	2008-335T17:41:00	XBAND to Earth	Rolling/Bias	POS_X to NSP
NAV_095SK_OPNAV351_PRIME		2008-335T17:41:00		000T01:29:00	2008-335T19:10:00	ISS_NAC to Satellites	NEG_X to Sun	Start at earth point, end at waypoint
NAV_095SK_WAYPTTURN351_PRIME		2008-335T19:10:00		000T00:01:00	2008-335T19:11:00	ISS_NAC to Saturn	NEG_X to Sun	
VIMS_095SA_NPOLEDYN001_PRIME	I, R, U	2008-335T19:11:00		000T13:05:00	2008-336T08:16:00	ISS_NAC to Saturn	NEG_X to Sun	
RADAR_095SA_NORTHPOL001_PRIME		2008-336T08:16:00		000T06:00:00	2008-336T14:16:00	NEG_Z to Saturn	POS_X to NSP	
SP_095EA_DLTURN336_PRIME		2008-336T14:16:00		000T00:40:00	2008-336T14:56:00	XBAND to Earth	POS_X to 270.0/55.0	Secondary for MIMI
SP_095EA_C34BWGOTP336_PRIME	C, E, M, N	2008-336T14:56:00		000T09:00:00	2008-336T23:56:00	XBAND to Earth	4_Hr_Rolling	
SP_095SA_WAYPTTURN336_PRIME	M	2008-336T23:56:00		000T00:40:00	2008-337T00:36:00	ISS_NAC to Saturn	NEG_X to Sun	
CAPS_095SA_AURXNGPTG001_PRIME	M	2008-337T00:36:00		000T03:24:00	2008-337T04:00:00	POS_X to B_Field (0.0,0.0,10.0 deg. offset)	NEG_Y to Saturn	
ISS_095EN_GEOLOG001_PRIME	C, M, U, V	2008-337T04:00:00		000T02:30:00	2008-337T06:30:00	ISS_NAC to Enceladus	NEG_X to Sun	NAC to Enceladus
CDA_095DR_RPX0140002_PRIME	M, V	2008-337T06:30:00		000T03:00:00	2008-337T09:30:00	NEG_X to Sun	NEG_Z to NSP	
Periapse R = 5.213 Rs, lat ...		2008-337T09:06:50		000T00:00:01	2008-337T09:06:51			
ISS_095SA_AURMOV001_PRIME	M, U	2008-337T09:30:00		000T04:46:00	2008-337T14:16:00	ISS_WAC to Saturn	NEG_X to Sun	
SP_095EA_DLTURN337_PRIME	M	2008-337T14:16:00		000T00:40:00	2008-337T14:56:00	XBAND to Earth	NEG_X to NEP	
SP_095EA_C70METOTB337_PRIME	C, E, M, N	2008-337T14:56:00		000T09:00:00	2008-337T23:56:00	XBAND to Earth	NEG_X to NEP	OTMBU bias; no split roll
SP_095SA_WAYPTTURN337_PRIME	R	2008-337T23:56:00		000T00:40:00	2008-338T00:36:00	ISS_NAC to Saturn	NEG_X to Sun	
VIMS_095SA_SPOLEDYN001_PRIME	I, R, U	2008-338T00:36:00		000T02:20:00	2008-338T02:56:00	ISS_NAC to Saturn (0.0,-10.0,0.0 deg. offset)	NEG_X to Sun	
RADAR_095SA_SOUTHPOL001_PRIME		2008-338T02:56:00		000T04:50:00	2008-338T07:46:00	NEG_Z to Saturn	NEG_X to NSP	
SP_095EA_DLTURN338_PRIME		2008-338T07:46:00		000T00:40:00	2008-338T08:26:00	XBAND to Earth	NEG_X to NEP	
SP_095EA_G70METNON338_PRIME	C	2008-338T08:26:00		000T08:20:00	2008-338T16:46:00	XBAND to Earth	5_Hr_Rolling	NEG_X to NEP
SP_095SA_WAYPTTURN338_PRIME		2008-338T17:26:00		000T00:40:00	2008-338T18:06:00	ISS_NAC to Saturn	NEG_X to Sun	
VIMS_095SA_SPOLEDYN002_PRIME	C, I, U	2008-338T18:06:00		000T08:40:00	2008-339T02:46:00	ISS_NAC to Saturn	NEG_X to Sun	
ISS_095TI_MR1CLDF338_PRIME	C	2008-339T02:46:00	E095_MR1CLDF338+000T00:00:00	000T01:15:00	2008-339T04:01:00	ISS_NAC to Titan (0.0,20.054,0.0 deg. offset)	NEG_X to Sun	
MAG_095SU_CALROLL001_PRIME		2008-339T04:01:00		000T06:45:00	2008-339T10:46:00	NEG_X to Sun (0.0,0.0,-30.0 deg. offset)	Rolling	
SP_095EA_DLTURN339_PRIME		2008-339T10:46:00		000T00:40:00	2008-339T11:26:00	XBAND to Earth	NEG_X to NEP	
SP_095EA_G70METNON339_PRIME	C, E	2008-339T11:26:00		000T03:00:00	2008-339T14:26:00	XBAND to Earth	NEG_X to NEP	
SP_095EA_G34BWGNON339_PRIME	C, E	2008-339T14:26:00		000T03:00:00	2008-339T17:26:00	XBAND to Earth	NEG_X to NEP	no rolling, CIRS pre-TOST

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_094EA_G34BWGOTB333_PRIME	333 08:56	333 17:56	678	413	37	1128	3501	2373	0	242	53	1423	703	-721	88	1%	720
SP_095EA_G34BWGNON334_PRIME	334 08:41	334 17:41	720	468	62	1250	3501	2251	0	237	53	1540	704	-837	88	1%	836
SP_095EA_G70METNON335_PRIME	335 08:41	335 17:41	836	902	63	1802	3501	1699	0	1796	53	3651	3765	113	88	0%	0
SP_095EA_C34BWGOTP336_PRIME	336 14:56	336 23:56	0	1409	91	1500	3501	2001	21	376	53	1950	593	-1358	-24	0%	1357
SP_095EA_C70METOTB337_PRIME	337 14:56	337 23:56	1357	2106	63	3526	3501	-24	0	1001	53	4555	3259	-1296	1638	11%	1295
SP_095EA_G70METNON338_PRIME	338 08:26	338 16:46	1295	377	36	1709	3501	1792	0	228	49	1986	3514	1527	1638	11%	0
SP_095EA_G70METNON339_PRIME	339 11:26	339 14:26	0	982	79	1061	3501	2440	0	83	18	1161	1280	118	110	1%	0
SP_095EA_G34BWGNON339_PRIME	339 14:26	339 17:26	0	0	0	0	3501	3501	0	94	18	111	238	127	-7	0%	0

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	333 00:10	333 08:56	31.6	16.5	99.8	3.2	67.0	18.9	28.4	0.0	41.3	103.0	0.0	0.0	7.2	416.9
SP_094EA_G34BWGOTB333_PRIME	333 08:56	333 17:56	32.4	17.0	86.4	3.2	0.0	19.4	29.2	0.0	42.4	9.6	0.0	0.0	0.0	239.6
DAILY TOTAL SCIENCE	333 00:10	333 17:56	64.0	33.5	186.2	6.4	67.0	38.4	57.6	0.0	83.8	112.5	0.0	0.0		
OBSERVATION_NOR	333 17:56	334 08:41	53.1	27.8	186.0	15.4	32.0	31.9	47.8	0.0	69.6	0.0	0.0	0.0	12.1	475.6
SP_095EA_G34BWGNON334_PRIME	334 08:41	334 17:41	32.4	17.0	86.4	3.2	0.0	19.4	29.2	0.0	42.4	4.9	0.0	0.0	0.0	235.0
DAILY TOTAL SCIENCE	333 17:56	334 17:41	85.5	44.8	272.4	18.6	32.0	51.3	77.0	0.0	112.0	4.9	0.0	0.0		
OBSERVATION_NOR	334 17:41	335 08:41	75.6	28.3	0.0	5.4	196.0	32.4	64.5	0.0	70.7	211.3	210.0	0.0	12.3	906.5
SP_095EA_G70METNON335_PRIME	335 08:41	335 17:41	32.4	17.0	86.4	3.2	0.0	19.4	38.9	0.0	1577.8	4.9	0.0	0.0	0.0	1780.1
DAILY TOTAL SCIENCE	334 17:41	335 17:41	108.0	45.3	86.4	8.6	196.0	51.8	103.3	0.0	1648.6	216.3	210.0	0.0		
OBSERVATION_NOR	335 17:41	336 14:56	76.5	22.9	0.0	7.7	252.0	45.9	91.8	113.1	99.4	237.0	450.0	0.0	17.4	1413.7
OBSERVATION_OPN	335 17:41	336 14:56	0.0	0.0	0.0	0.0	21.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	21.0
SP_095EA_C34BWGOTP336_PRIME	336 14:56	336 23:56	133.2	9.7	43.2	3.2	0.0	30.7	31.6	0.0	115.6	4.9	0.0	0.0	0.0	372.1
DAILY TOTAL SCIENCE	335 17:41	336 23:56	209.7	32.7	43.2	10.9	252.0	76.6	123.4	113.1	215.0	241.9	450.0	0.0		

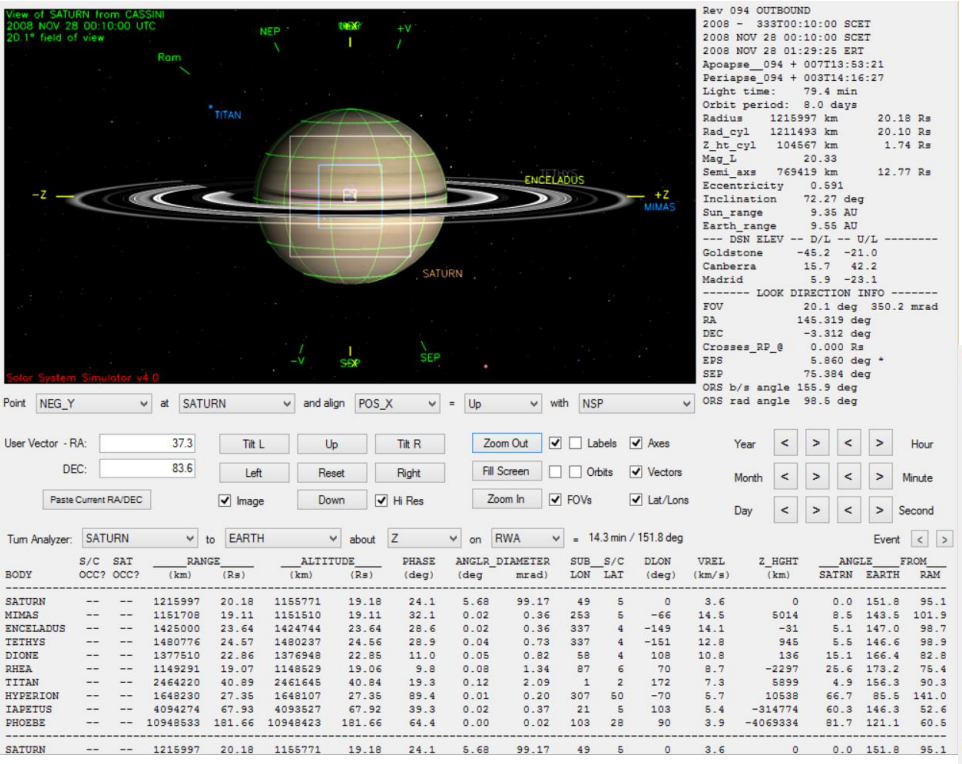
* NOTE: Negative SSR (P4) Margins did not result in data loss due to compression/under-utilization.

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	336 23:56	337 14:56	648.0	86.0	36.0	15.5	296.0	106.7	64.8	0.0	623.6	131.6	78.2	0.0	12.3	2098.7
SP_095EA_C70METOTB337_PRIME	337 14:56	337 23:56	222.0	9.7	86.4	3.2	0.0	47.8	38.9	0.0	578.4	4.9	0.0	0.0	0.0	991.5
DAILY TOTAL SCIENCE	336 23:56	337 23:56	870.0	95.7	122.4	18.7	296.0	154.5	103.7	0.0	1202.0	136.6	78.2	0.0		
OBSERVATION_NOR	337 23:56	338 08:26	30.6	9.2	0.0	3.1	56.0	18.4	36.7	88.1	39.8	42.3	50.0	0.0	6.9	381.0
SP_095EA_G70METNON338_PRIME	338 08:26	338 16:46	30.0	15.7	79.2	3.0	0.0	18.0	36.0	0.0	39.0	4.6	0.0	0.0	0.0	225.5
DAILY TOTAL SCIENCE	337 23:56	338 16:46	60.6	24.9	79.2	6.1	56.0	36.4	72.7	88.1	78.8	46.8	50.0	0.0		
OBSERVATION_NOR	338 16:46	339 11:26	67.2	35.2	150.0	6.7	147.0	73.8	68.3	0.0	87.7	157.4	180.0	0.0	15.3	988.5
SP_095EA_G70METNON339_PRIME	339 11:26	339 14:26	10.8	5.7	32.4	1.1	0.0	6.5	9.7	0.0	14.1	1.6	0.0	0.0	0.0	81.9
SP_095EA_G34BWGNON339_PRIME	339 14:26	339 17:26	10.8	5.7	43.2	1.1	0.0	6.5	9.7	0.0	14.1	1.6	0.0	0.0	0.0	92.7
DAILY TOTAL SCIENCE	338 16:46	339 17:26	88.8	46.5	225.6	8.9	147.0	86.7	87.7	0.0	116.0	160.7	180.0	0.0		

Segment Geometry (1 of 2)

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Rev 094 OUTBOUND
2008 -  333T00:10:00 SCET
2008 NOV 28 00:10:00 SCET
2008 NOV 28 01:29:25 ERT
Apoapse__094 + 007T13:53:21
Periapse_094 + 003T14:16:27
Light time:    79.4 min
Orbit period:  8.0 days
Radius     1215997 km      20.18 Rs
Rad_cyl    1211493 km      20.10 Rs
Z_ht_cyl    104567 km       1.74 Rs
Mag_L         20.33
Semi_axs    769419 km      12.77 Rs
Eccentricity    0.591
Inclination    72.27 deg
Sun_range       9.35 AU
Earth_range     9.55 AU
--- DSN ELEV -- D/L -- U/L --------
Goldstone     -45.2  -21.0
Canberra       15.7   42.2
Madrid          5.8  -23.1
------- LOOK DIRECTION INFO -------
FOV            20.1 deg  350.2 mrad
RA            145.319 deg
DEC            -3.312 deg
Crosses_RP_@    0.000 Rs
EPS             5.860 deg *
SEP            75.384 deg
ORS b/s angle 155.9 deg
ORS rad angle  98.5 deg
```

Point NEG_Y at SATURN and align POS_X = Up with NSP

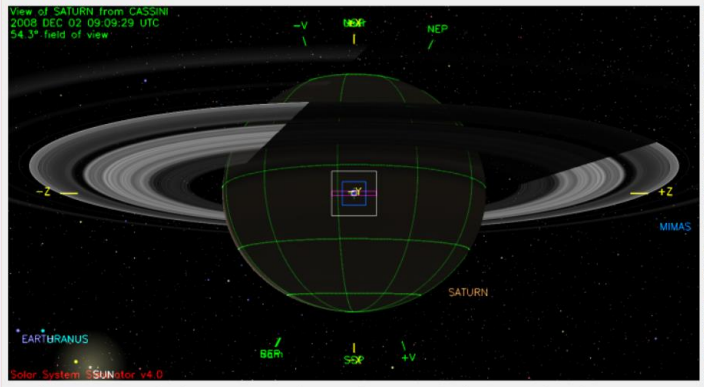
User Vector - RA: 37.3 DEC: 83.6 | Tilt L | Up | Tilt R | Left | Reset | Right | Paste Current RA/DEC | Image | Down | Hi Res | Zoom Out | Fill Screen | Zoom In | Labels | Axes | Orbits | Vectors | FOVs | Lat/Lons | Year | Month | Day | Hour | Minute | Second

Turn Analyzer: SATURN to EARTH about Z on RWA = 14.3 min / 151.8 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	DLON (deg)	VREL (km/s)	Z_HGHT (km)	ANGLE FROM SATRN	ANGLE FROM EARTH	ANGLE FROM RAM
SATURN	--	--	1215997	20.18	1155771	19.18	24.1	5.68	99.17	49	5	0	3.6	0	0.0	151.8	95.1
MIMAS	--	--	1151708	19.11	1151610	19.11	32.1	0.02	0.36	253	5	-66	14.5	5014	8.5	143.5	101.9
ENCELADUS	--	--	1425000	23.64	1424744	23.64	28.6	0.02	0.36	337	4	-149	14.1	-31	5.1	147.0	98.7
TETHYS	--	--	1480776	24.57	1480237	24.56	28.9	0.04	0.73	337	4	-151	12.8	945	5.5	146.6	98.9
DIONE	--	--	1377510	22.86	1376948	22.85	11.0	0.05	0.82	58	4	108	10.8	136	15.1	166.4	82.8
RHEA	--	--	1149291	19.07	1148529	19.06	9.8	0.08	1.34	87	6	70	8.7	-2297	25.6	173.2	75.4
TITAN	--	--	2464220	40.89	2461645	40.84	19.3	0.12	2.09	1	2	172	7.3	5899	4.9	156.3	90.3
HYPERION	--	--	1648230	27.35	1648107	27.35	89.4	0.01	0.20	307	50	-70	5.7	10538	66.7	85.5	141.0
IAPETUS	--	--	4094274	67.93	4093527	67.92	39.3	0.02	0.37	21	5	103	5.4	-314774	60.3	146.3	52.6
PHOEBE	--	--	10948533	181.66	10948423	181.66	64.4	0.00	0.02	103	28	90	3.9	-4069334	81.7	121.1	60.5
SATURN	--	--	1215997	20.18	1155771	19.18	24.1	5.68	99.17	49	5	0	3.6	0	0.0	151.8	95.1

← Seg Start (Left)

↓ Periapse (below)




```
Rev 095  INBOUND
2008 -  337T09:09:29 SCET
2008 DEC 02 09:09:29 SCET
2008 DEC 02 10:28:23 ERT
Apoapse__095 + 003T23:37:54
Periapse_095 + 00:00:00
Light time:    78.9 min
Orbit period:  8.0 days
Radius     314351 km       5.22 Rs
Rad_cyl    309286 km       5.13 Rs
Z_ht_cyl   -56211 km      -0.93 Rs
Mag_L          5.39
Semi_axs   770389 km      12.78 Rs
Eccentricity    0.592
Inclination    72.26 deg
Sun_range       9.36 AU
Earth_range     9.49 AU
--- DSN ELEV -- D/L -- U/L --------
Goldstone      26.8   -5.2
Canberra      -52.0  -57.2
Madrid         31.8   53.2
------- LOOK DIRECTION INFO -------
FOV            54.3 deg  947.1 mrad
RA            -32.382 deg
DEC             8.461 deg
Crosses_RP_@    0.000 Rs
EPS             5.946 deg *
SEP            79.594 deg
ORS b/s angle  25.1 deg
ORS rad angle 103.5 deg
```

Point NEG_Y at SATURN and align POS_X = Up with NSP

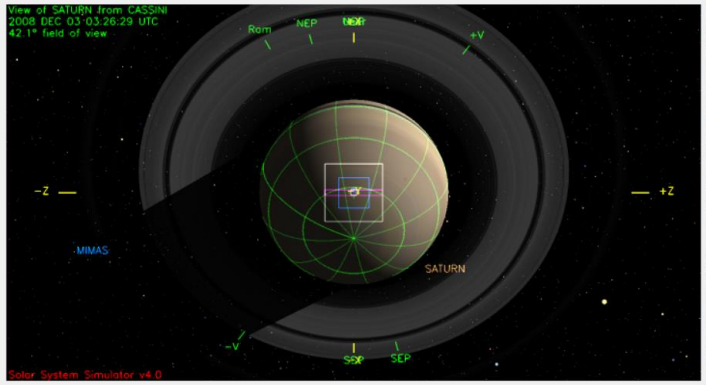
User Vector - RA: 37.3 DEC: 83.6 | Tilt L | Up | Tilt R | Left | Reset | Right | Paste Current RA/DEC | Image | Down | Hi Res | Zoom Out | Fill Screen | Zoom In | Labels | Axes | Orbits | Vectors | FOVs | Lat/Lons | Year | Month | Day | Hour | Minute | Second

Turn Analyzer: SATURN to EARTH about Z on RWA = 5.0 min / 28.3 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	DLON (deg)	VREL (km/s)	Z_HGHT (km)	ANGLE FROM SATRN	ANGLE FROM EARTH	ANGLE FROM RAM
SATURN	--	--	314351	5.22	254270	4.22	154.9	22.11	385.83	174	-10	0	13.9	0	0.0	28.3	90.0
MIMAS	--	--	415972	6.90	415770	6.90	133.5	0.06	1.00	318	-7	-111	19.9	-2448	24.2	51.0	98.9
ENCELADUS	--	-E	189466	3.14	189215	3.14	106.7	0.16	2.71	270	-17	-36	15.1	10	49.3	77.4	119.8
TETHYS	--	--	408671	6.78	408136	6.77	111.8	0.15	2.64	311	-8	-84	15.9	4608	45.8	72.9	110.3
DIONE	--	--	419919	6.97	419356	6.96	138.5	0.15	2.69	46	-8	74	17.7	-121	60.0	35.7	69.4
RHEA	--	--	644597	10.70	643831	10.68	104.2	0.14	2.38	334	-5	-97	15.2	-1787	54.3	80.7	110.5
TITAN	--	--	1318989	21.89	1316414	21.84	93.7	0.22	3.90	348	-2	-101	14.4	-5856	65.3	91.4	112.2
HYPERION	--	--	1322854	21.95	1322730	21.95	77.3	0.01	0.25	258	37	47	14.2	27271	121.8	97.3	76.4
IAPETUS	--	--	3652670	60.61	3651922	60.59	79.1	0.02	0.41	1	-2	-94	13.2	-595912	82.5	106.4	106.7
PHOEBE	--	--	10846023	179.96	10845911	179.96	67.9	0.00	0.02	215	25	-84	14.8	-3862120	97.4	117.6	97.2
SATURN	--	--	314351	5.22	254270	4.22	154.9	22.11	385.83	174	-10	0	13.9	0	0.0	28.3	90.0

	Saturn Range	Phase Angle	Sub-S/C Lat.
Segment Start	20.18	24.1	5
Apoapse	20.32	25	10
Periapse	5.22	154.9	-10
Segment End	17.76	30.3	-14

Segment Geometry (2 of 2)




```
Rev 095 OUTBOUND
2008 -  338T03:26:29 SCET
2008 DEC 03 03:26:29 SCET
2008 DEC 03 04:45:16 ERT
Apoapse__095 + 004T17:54:54
Periapse_095 + 18:17:00
Light time:    78.8 min
Orbit period:  8.0 days
Radius      578327 km       9.60 Rs
Rad_cyl     285076 km       4.73 Rs
Z_ht_cyl   -503184 km      -8.35 Rs
Mag_L          39.49
Semi_axs    769110 km      12.76 Rs
Eccentricity    0.591
Inclination    72.26 deg
Sun_range       9.36 AU
Earth_range     9.47 AU
--- DSN ELEV -- D/L -- U/L --------
Goldstone     -38.1  -49.0
Canberra      -27.4    4.5
Madrid         44.0   16.6
------- LOOK DIRECTION INFO -------
FOV            42.1 deg  734.2 mrad
RA             99.204 deg
DEC            57.565 deg
Crosses_RP_@    0.000 Rs
EPS             5.960 deg *
SEP            80.304 deg
ORS b/s angle 108.4 deg
ORS rad angle  65.2 deg  *
```

Point NEG_Y at SATURN and align POS_X = Up with NSP

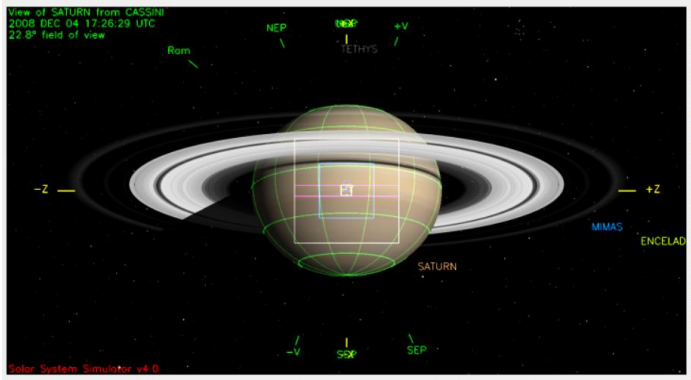
User Vector - RA: 37.3 DEC: 83.6 — Tilt L, Up, Tilt R, Left, Reset, Right, Paste Current RA/DEC, Image, Down, Hi Res, Zoom Out, Fill Screen, Zoom In, Labels, Orbits, FOVs, Axes, Vectors, Lat/Lons, Year, Month, Day, Hour, Minute, Second

Tum Analyzer: SATURN to EARTH about Z on RWA = 10.7 min / 103.5 deg — Event

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	DLON (deg)	VREL (km/s)	Z_HGHT (km)	ANGLE FROM SATRN	ANGLE FROM EARTH	ANGLE FROM RAM
SATURN	--	--	578327	9.60	522494	8.67	71.6	11.96	208.80	289	-60	0	9.0	0	0.0	103.5	126.2
MIMAS	--	-E	619639	10.28	619445	10.28	54.9	0.04	0.67	54	-54	101	9.6	-5037	17.5	120.5	118.7
ENCELADUS	--	--	633460	10.51	633210	10.51	90.9	0.05	0.81	316	-53	-94	21.1	-22	22.0	83.7	135.8
TETHYS	--	--	637851	10.58	637321	10.57	96.9	0.10	1.69	315	-52	-87	19.4	-5609	27.5	77.7	134.4
DIONE	--	SE	756055	12.54	755493	12.54	42.5	0.09	1.49	27	-42	116	9.3	86	29.2	132.6	117.9
RHEA	--	--	564789	9.37	564025	9.36	110.8	0.16	2.72	346	-63	-15	10.6	-3305	54.9	67.7	84.1
TITAN	--	--	1077589	17.88	1075014	17.84	89.1	0.27	4.78	8	-27	24	5.7	-7089	88.7	94.2	37.7
HYPERION	--	--	1845300	30.62	1845157	30.62	56.0	0.01	0.18	310	12	177	11.9	26467	43.8	118.0	152.7
IAPETUS	--	--	3369187	55.90	3368440	55.89	73.5	0.03	0.44	11	-7	45	6.1	-638824	111.4	111.7	24.7
PHOEBE	--	--	10596966	175.83	10596853	175.83	63.8	0.00	0.02	209	24	59	11.0	-3824344	120.3	121.7	35.8
SATURN	--	--	578327	9.60	522494	8.67	71.6	11.96	208.80	289	-60	0	9.0	0	0.0	103.5	126.2

← Peri Outbound (Left)

↓ Seg End (below)




```
Rev 095 OUTBOUND
2008 -  339T17:26:29 SCET
2008 DEC 04 17:26:29 SCET
2008 DEC 04 18:45:00 ERT
Apoapse__095 + 006T07:54:54
Periapse_095 + 002T08:17:00
Light time:    78.5 min
Orbit period:  8.0 days
Radius     1070177 km      17.76 Rs
Rad_cyl    1037231 km      17.21 Rs
Z_ht_cyl   -263499 km      -4.37 Rs
Mag_L          18.90
Semi_axs    769405 km      12.77 Rs
Eccentricity    0.591
Inclination    72.28 deg
Sun_range       9.35 AU
Earth_range     9.44 AU
--- DSN ELEV -- D/L -- U/L --------
Goldstone      22.8   51.4
Canberra       41.3   14.6
Madrid        -44.3  -30.8
------- LOOK DIRECTION INFO -------
FOV            22.8 deg  397.8 mrad
RA            136.895 deg
DEC            15.060 deg
Crosses_RP_@    0.000 Rs
EPS             5.986 deg *
SEP            81.825 deg
ORS b/s angle 149.7 deg
ORS rad angle  81.4 deg  *
```

Point NEG_Y at SATURN and align POS_X = Up with NSP

User Vector - RA: 37.3 DEC: 83.6 — Tilt L, Up, Tilt R, Left, Reset, Right, Paste Current RA/DEC, Image, Down, Hi Res, Zoom Out, Fill Screen, Zoom In, Labels, Orbits, FOVs, Axes, Vectors, Lat/Lons, Year, Month, Day, Hour, Minute, Second

Tum Analyzer: SATURN to EARTH about Z on RWA = 13.7 min / 143.7 deg — Event

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	DLON (deg)	VREL (km/s)	Z_HGHT (km)	ANGLE FROM SATRN	ANGLE FROM EARTH	ANGLE FROM RAM
SATURN	--	--	1070177	17.76	1010254	16.76	30.3	6.46	112.69	103	-14	0	4.6	0	0.0	143.7	110.3
MIMAS	--	--	1168664	19.39	1168464	19.39	38.0	0.02	0.35	306	-14	-118	17.8	2438	8.2	136.1	117.1
ENCELADUS	--	--	1206217	20.01	1205963	20.01	39.4	0.02	0.43	314	-13	-121	16.3	-38	9.9	134.7	118.6
TETHYS	--	--	787023	13.06	786484	13.05	31.9	0.08	1.37	179	-20	1	11.0	-3011	5.1	142.1	106.8
DIONE	--	--	965066	16.01	964505	16.00	50.7	0.07	1.17	264	-16	-63	12.9	-128	20.6	123.4	123.4
RHEA	--	--	1353853	22.46	1353088	22.45	50.5	0.06	1.13	316	-11	-112	12.3	2119	21.3	123.7	127.2
TITAN	--	--	435248	7.22	432673	7.18	78.8	0.68	11.83	56	-36	16	5.5	-7491	95.5	103.7	14.8
HYPERION	--	--	2476219	41.09	2476069	41.08	28.0	0.01	0.13	41	-6	179	7.7	20588	7.7	146.3	114.4
IAPETUS	--	--	3311792	54.95	3311044	54.94	67.5	0.03	0.45	23	-0	67	3.8	-720758	97.4	118.0	46.2
PHOEBE	--	--	10882664	180.57	10882554	180.57	58.5	0.00	0.02	250	26	90	5.9	-3744280	89.2	127.1	61.5
SATURN	--	--	1070177	17.76	1010254	16.76	30.3	6.46	112.69	103	-14	0	4.6	0	0.0	143.7	110.3

Solar Geometry – ORS Boresight Concerns

No ORS Boresight Solar Constraints on Science Pointing.

Daily Science Highlights

DOY 333: The Saturn Rev_94_95 segment kicked off with a Titan monitoring campaign observation followed by ISS imaging of small satellites. The bulk of the day was dedicated to a UVIS EUV/FUV observation that was composed of several slow scans across Saturn's visible hemisphere to form spectral images.

DOY 334: Following apoapse, this day was almost fully dedicated to a CIRS Far-IR map of Saturn's northern hemisphere. Following the downlink, but prior to the end of the day, CAPS got rare pointing control of the spacecraft for surveying.

DOY 335: UVIS led a joint ORS auroral imaging campaign on this day. In this case they were targeting to Saturn's north auroral zone. The day wrapped up with the only optical navigation images of the segment.

DOY 336: VIMS, with other ORS riders, joined with RADAR to image Saturn's north polar region. The ORS teams were looking at atmospheric dynamics and the idea here was to cover the same territory with RADAR.

DOY 337: As the spacecraft approached periapse, CAPS took over prime pointing during the AS MAPS campaign to observe Saturn's auroral magnetosphere (e.g. the acceleration region) and SKR source region. ISS and the other ORS teams took a quick look at Enceladus, before CDA took over to observe the vertical ring plane crossing. This was an extremely high priority observation for CDA. ISS finished the day's prime observations with a WAC movie of Saturn's aurora.

DOY 338: The entire of the day was given to VIMS, with other ORS riders, as they again joined with RADAR to image Saturn's polar region. This time they were looking at the south pole. The ORS teams were looking at atmospheric dynamics again covering the same territory with RADAR.

DOY 339: The day began with more VIMS measurements of Saturn's atmospheric dynamics in the south polar region, followed by the ISS-led Titan cloud monitoring campaign. The day, and Saturn segment concluded with a MAG calibration roll. These calibrations were needed every 15-20 days in areas where field conditions were suitable.

Segment Integration Planning

Timeline Gaps and Suggested Observations (1 of 2)

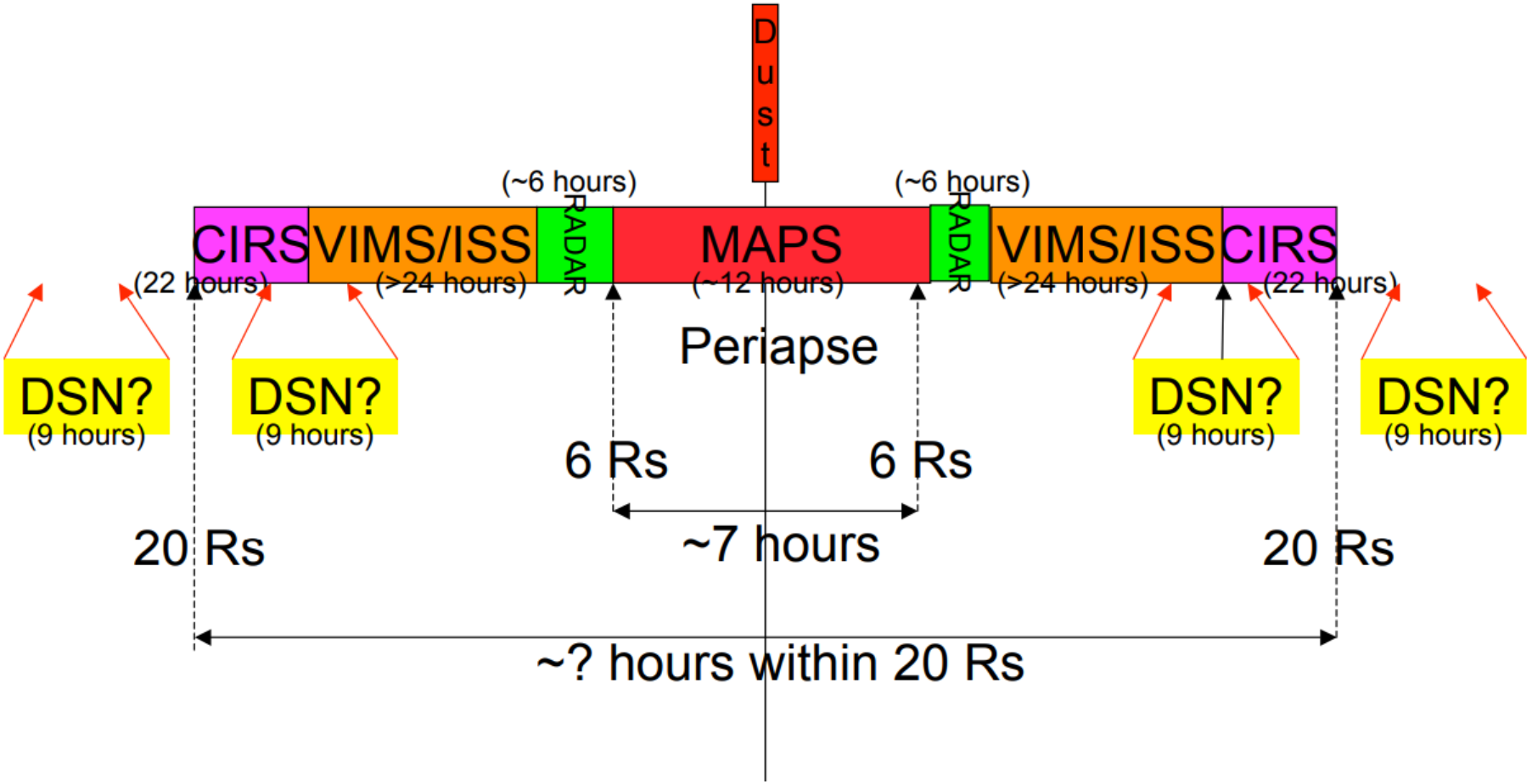
Request	Riders	Start (SCET)	Start (Epoch)	Duration	End (SCET)	Primary	Secondary	Comments
Sequence S46, length = 44 days		2008-331T17:55:00		043T21:21:00	2009-009T15:16:00			
SATURN_94_95 Segment		2008-332T17:55:00		006T23:31:00	2008-339T17:26:00			
SP_094SA_WAYPTTURN332_PRIME		2008-332T17:55:00		000T00:30:00	2008-332T18:25:00			
NEW WAYPOINT		2008-332T18:25:00						
CIRS_094SA_???????_PRIME		2008-332T18:25:00		000T14:01:00	2008-333T08:26:00			
SP_094EA_DLTURN333_PRIME		2008-333T08:26:00		000T00:30:00	2008-333T08:56:00	XBAND to Earth	POS_X to NEP	
SP_094EA_G34BWGNON333_PRIME		***2008-333T08:56:00***		***000T09:00:00***	***2008-333T17:56:00***	***XBAND to Earth***	***POS_X to NEP***	
Apoapse Per = 8.0 d, inc =...		2008-333T09:31:18		000T00:00:01	2008-333T09:31:19			
SP_094SA_WAYPTTURN333_PRIME		2008-333T17:56:00		000T00:30:00	2008-333T18:26:00			
CIRS_095SA_FIRMAP001_PRIME		***2008-333T18:26:00***		***000T15:45:00***	***2008-334T08:11:00***	**CIRS_FP1 to Saturn**	**NEG_X to NSP**	
SP_095EA_DLTURN334_PRIME		2008-334T08:11:00		000T00:30:00	2008-334T08:41:00	XBAND to Earth	POS_X to NEP	
SP_095EA_G34BWGNON334_PRIME		**2008-334T08:41:00**		**000T09:00:00**	**2008-334T17:41:00**	**XBAND to Earth**	**POS_X to NEP**	
SP_095SA_WAYPTTURN334_PRIME		2008-334T17:41:00		000T00:30:00	2008-334T18:11:00			
VIMS_095SA_?????????_PRIME		2008-334T18:11:00		000T14:00:00	2008-335T08:11:00			
SP_095EA_DLTURN335_PRIME		2008-335T08:11:00		000T00:30:00	2008-335T08:41:00	XBAND to Earth	POS_X to NEP	
SP_095EA_G34BWGNON335_PRIME		**2008-335T08:41:00**		**000T09:00:00**	**2008-335T17:41:00**	**XBAND to Earth**	**POS_X to NEP**	
SP_095SA_WAYPTTURN335_PRIME		2008-335T17:41:00		000T00:30:00	2008-335T18:11:00			
VIMS_095SA_?????????_PRIME		2008-335T18:11:00		000T14:15:00	2008-336T08:26:00			
RADAR_095SA_????????_PRIME		2008-336T08:26:00		000T06:00:00	2008-336T14:26:00			
SP_095EA_DLTURN336_PRIME		2008-336T14:26:00		000T00:30:00	2008-336T14:56:00	XBAND to Earth	POS_X to NEP	
SP_095EA_C34BWGNON336_PRIME		**2008-336T14:56:00**		**000T09:00:00**	**2008-336T23:56:00**	**XBAND to Earth**	**POS_X to NEP**	
SP_095SA_WAYPTTURN336_PRIME		2008-336T23:56:00		000T00:30:00	2008-337T00:26:00			
RADAR_095SA_????????_PRIME		2008-337T00:26:00		000T02:00:00	2008-337T02:26:00			
CAPS_095SA_??????????_PRIME	M	2008-337T02:26:00		000T12:00:00	2008-337T14:26:00			
Periapse R = 5.2 Rs, lat = ...		2008-337T09:08:44		000T00:00:01	2008-337T09:08:45			
SP_095EA_DLTURN337_PRIME		2008-337T14:26:00		000T00:30:00	2008-337T14:56:00	XBAND to Earth	POS_X to NEP	
SP_095EA_C34BWGNON337_PRIME		**2008-337T14:56:00**		**000T09:00:00**	**2008-337T23:56:00**	**XBAND to Earth**	**POS_X to NEP**	
SP_095SA_WAYPTTURN337_PRIME		2008-337T23:56:00		000T00:30:00	2008-338T00:26:00			
RADAR_095SA_????????_PRIME		2008-338T00:26:00		000T06:00:00	2008-338T06:26:00			
VIMS_095SA_?????????_PRIME		2008-338T06:26:00		000T01:30:00	2008-338T07:56:00			
SP_095EA_DLTURN338_PRIME		2008-338T07:56:00		000T00:30:00	2008-338T08:26:00	XBAND to Earth	POS_X to NEP	
SP_095EA_G70METNON338_PRIME		**2008-338T08:26:00**		**000T09:00:00**	**2008-338T17:26:00**	**XBAND to Earth**	**POS_X to NEP**	
SP_095SA_WAYPTTURN338_PRIME		2008-338T17:26:00		000T00:30:00	2008-338T17:56:00			
VIMS_095SA_?????????_PRIME		2008-338T17:56:00		000T06:04:00	2008-339T00:00:00			
MAG_095SU_CALROLL001_PRIME		**2008-339T00:00:00**		**000T06:00:00**	**2008-339T06:00:00**	**NEG_X to Sun (0.0,0.0,-30.0 deg. offset)**	**Rolling**	
CIRS_095SA_???????_PRIME		2008-339T06:00:00		000T01:56:00	2008-339T07:56:00			
SP_095EA_DLTURN339_PRIME		2008-339T07:56:00		000T00:30:00	2008-339T08:26:00	XBAND to Earth	POS_X to NEP	
SP_095EA_G34BWGNON339_PRIME		**2008-339T08:26:00**		**000T09:00:00**	**2008-339T17:26:00**	**XBAND to Earth**	**POS_X to NEP**	

****NOTE: Bold Items already in CIMS**

*****NOTE: Italicized Times are proposed changes***

Timeline Gaps and Suggested Observations (2 of 2)

Inclined Orbit Observation Template



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 (Mb)	CAROVR (%)	CAROVR (Mb)
SP_094EA_G34BWGOTB333_PRIME	333 08:56	333 17:56	0	403	37	440	3509	3069	0	423	53	916	703	-214	-3949	-50%	213
SP_095EA_G34BWGNON334_PRIME	334 08:41	334 17:41	213	429	62	705	3509	2804	0	237	53	995	704	-291	-3949	-56%	291
SP_095EA_G34BWGNON335_PRIME	335 08:41	335 17:41	291	1152	63	1506	3509	2003	0	247	53	1806	699	-1108	-3949	-62%	1108
SP_095EA_C34BWGOTP336_PRIME	336 14:56	336 23:56	1108	1487	90	2684	3509	825	21	679	53	3438	593	-2845	-3949	-70%	2844
SP_095EA_C34BWGOTB337_PRIME	337 14:56	337 23:56	2844	4552	63	7459	3509	-3949	0	2340	53	5903	735	-5168	-1989	-39%	5168
SP_095EA_G70METNON338_PRIME	338 08:26	338 17:26	5168	296	36	5499	3509	-1989	0	247	53	3809	3778	-31	0	0%	30
SP_095EA_G34BWGNON339_PRIME	339 11:26	339 17:26	30	911	76	1018	3509	2491	0	180	35	1233	473	-760	0	0%	760

**70 meter station at Canberra was down for extended maintenance for the whole segment.

Initial SMT and Data Volume (2 of 2)

Beginning of Integration:

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	333 00:10	333 08:56	31.6	16.5	81.8	3.2	32.0	18.9	28.4	0.0	41.3	103.0	42.4	0.0	7.2	406.3
SP_094EA_G34BWGOTB333_PRIME	333 08:56	333 17:56	32.4	17.0	86.4	3.2	0.0	19.4	29.2	0.0	42.4	189.5	0.0	0.0	0.0	419.6
DAILY TOTAL SCIENCE	333 00:10	333 17:56	64.0	33.5	168.2	6.4	32.0	38.4	57.6	0.0	83.8	292.5	42.4	0.0		
OBSERVATION_NOR	333 17:56	334 08:41	53.1	27.8	0.0	15.4	32.0	31.9	47.8	0.0	69.6	146.1	1.8	0.0	12.1	437.5
SP_095EA_G34BWGNON334_PRIME	334 08:41	334 17:41	32.4	17.0	86.4	3.2	0.0	19.4	29.2	0.0	42.4	4.9	0.0	0.0	0.0	235.0
DAILY TOTAL SCIENCE	333 17:56	334 17:41	85.5	44.8	86.4	18.6	32.0	51.3	77.0	0.0	112.0	151.1	1.8	0.0		
OBSERVATION_NOR	334 17:41	335 08:41	75.6	28.3	0.0	5.4	0.0	32.4	64.5	0.0	70.7	211.3	653.2	0.0	12.3	1153.7
SP_095EA_G34BWGNON335_PRIME	335 08:41	335 17:41	32.4	17.0	86.4	3.2	0.0	19.4	38.9	0.0	42.4	4.9	0.0	0.0	0.0	244.7
DAILY TOTAL SCIENCE	334 17:41	335 17:41	108.0	45.3	86.4	8.6	0.0	51.8	103.3	0.0	113.2	216.3	653.2	0.0		
OBSERVATION_NOR	335 17:41	336 14:56	76.5	40.1	0.0	7.7	252.0	45.9	91.8	0.0	99.4	410.3	450.0	0.0	17.4	1491.1
OBSERVATION_OPN	335 17:41	336 14:56	0.0	0.0	0.0	0.0	21.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	21.0
SP_095EA_C34BWGOTP336_PRIME	336 14:56	336 23:56	154.8	17.0	86.4	3.2	0.0	30.7	43.8	0.0	290.7	46.0	0.0	0.0	0.0	672.6
DAILY TOTAL SCIENCE	335 17:41	336 23:56	231.3	57.1	86.4	10.9	252.0	76.6	135.6	0.0	390.2	456.3	450.0	0.0		
OBSERVATION_NOR	336 23:56	337 14:56	864.0	89.2	36.0	15.5	336.0	106.7	97.2	0.0	2060.9	869.9	35.0	0.0	12.3	4522.6
SP_095EA_C34BWGOTB337_PRIME	337 14:56	337 23:56	342.0	17.0	86.4	3.2	0.0	47.8	51.3	0.0	1662.6	108.8	0.0	0.0	0.0	2319.1
DAILY TOTAL SCIENCE	336 23:56	337 23:56	1206.0	106.2	122.4	18.7	336.0	154.5	148.5	0.0	3723.5	978.7	35.0	0.0		
OBSERVATION_NOR	337 23:56	338 08:26	30.6	16.0	0.0	3.1	56.0	18.4	36.7	0.0	39.8	42.3	50.0	0.0	6.9	299.8
SP_095EA_G70METNON338_PRIME	338 08:26	338 17:26	32.4	17.0	86.4	3.2	0.0	19.4	38.9	0.0	42.1	4.9	0.0	0.0	0.0	244.4
DAILY TOTAL SCIENCE	337 23:56	338 17:26	63.0	33.0	86.4	6.3	56.0	37.8	75.6	0.0	81.9	47.2	50.0	0.0		
OBSERVATION_NOR	338 17:26	339 11:26	64.8	34.0	124.8	6.5	112.0	72.3	65.4	0.0	84.6	158.6	180.0	0.0	14.7	917.7
SP_095EA_G34BWGNON339_PRIME	339 11:26	339 17:26	21.6	11.3	75.6	2.2	0.0	13.0	22.7	0.0	28.3	3.3	0.0	0.0	0.0	177.9
DAILY TOTAL SCIENCE	338 17:26	339 17:26	86.4	45.3	200.4	8.6	112.0	85.3	88.1	0.0	112.9	161.9	180.0	0.0		

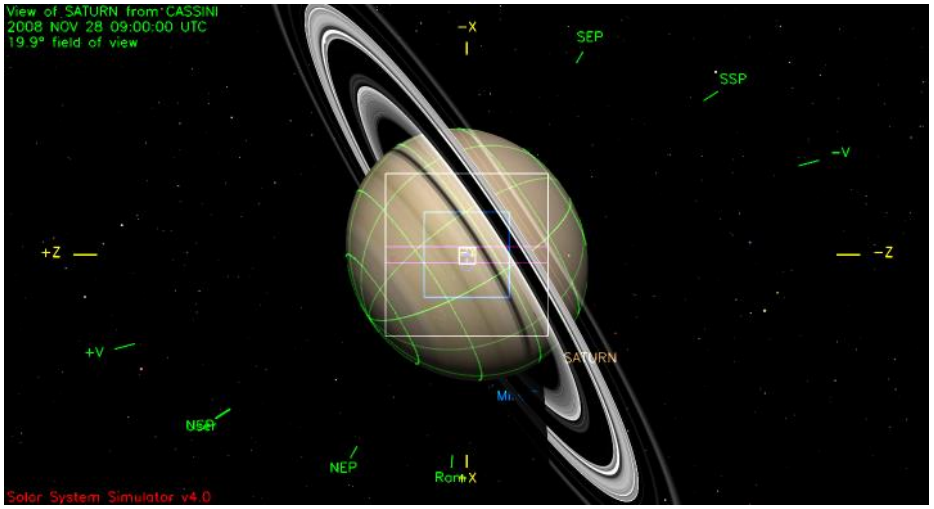
	CAPS (Mb)	CDA (Mb)	CIRS (Mb)	INMS (Mb)	ISS (Mb)	MAG (Mb)	MIMI (Mb)	RADAR (Mb)	RPWS (Mb)	UVIS (Mb)	VIMS (Mb)	PROBE (Mb)
TOTAL RECORDED (OPNAV data not included)	1844.2	365.1	836.6	78.2	820.0	495.7	685.6	0.0	4617.4	2304.0	1412.4	0.0

Waypoint Selection

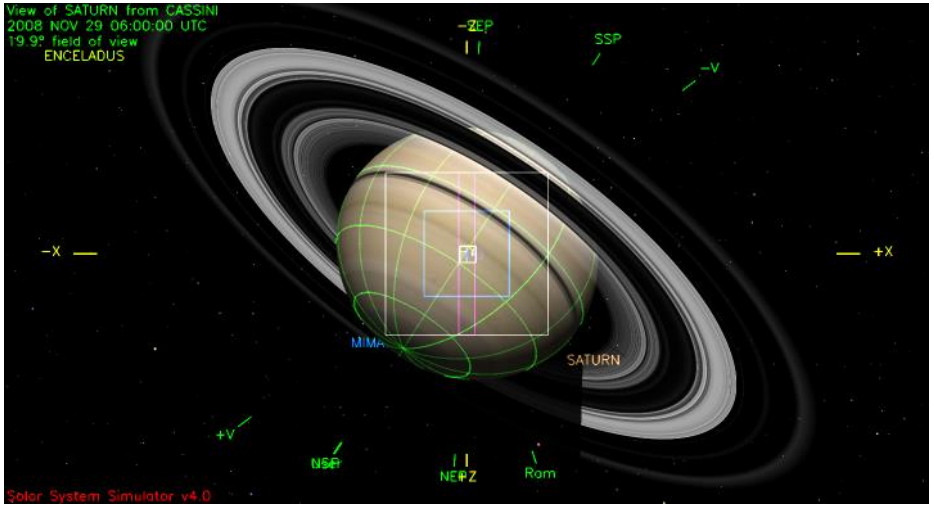
- Standard Waypoints:
  - **ISS_NAC to Saturn; NEG_Z to Sun**
    - **Good for the whole segment.**
  - **ISS_NAC to Saturn; NEG_X to Sun**
    - **Good for the whole segment.**
  - ISS_NAC to Saturn; POS_X to NSP
    - Good until 336T18:30 & 337T07:30 – 22:30
  - ISS_NAC to Saturn; NEG_X to NSP
    - Good 336T18:30 – 07:30 & after 337T22:30
  - ISS_NAC to Saturn; POS_X to NEP
    - Good until 336T18:00 & 337T05:40 – 22:10
  - ISS_NAC to Saturn; NEG_X to NEP
    - Good 336T18:00 – 337T05:40 & after 337T22:10
  - ISS_NAC to Saturn; POS_Z to NSP
    - Good until 335T21:00 & after 337T14:30
  - ISS_NAC to Saturn; NEG_Z to NSP
    - Good 335T20:40 – 337T14:20
  - ISS_NAC to Saturn;POS_Z to NEP
    - Good until 334T09:00 & after 337T10:50
  - ISS_NAC to Saturn; NEG_Z to NEP
    - Good 334T08:50 – 337T10:50

Waypoints Chosen (1 of 2)

Waypoint 1 (2008-333T00:50:00 – 2008-333T18:36:00): ISS_NAC to Saturn; NEG_X to Sun

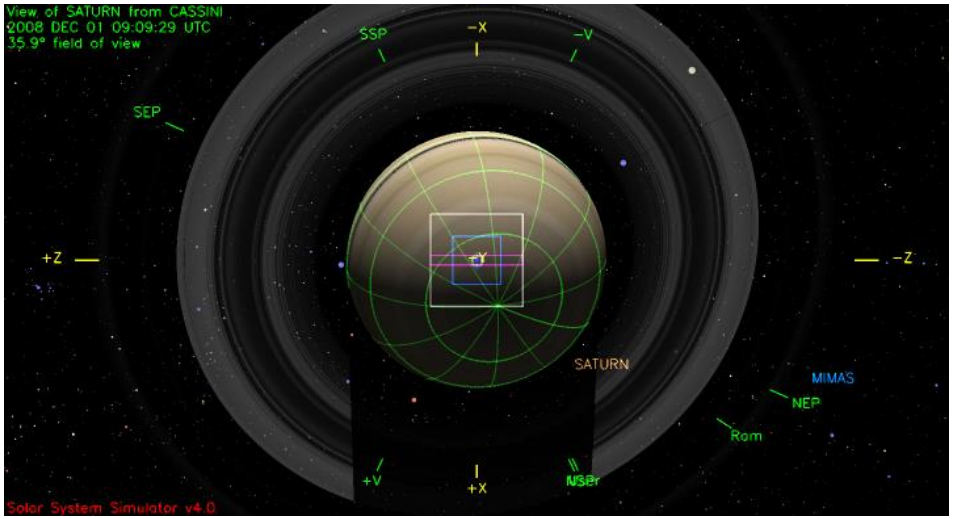


Waypoint 2 (2008-333T18:36:00 – 2008-334T18:21:00): ISS_NAC to Saturn, NEG_Z to Sun

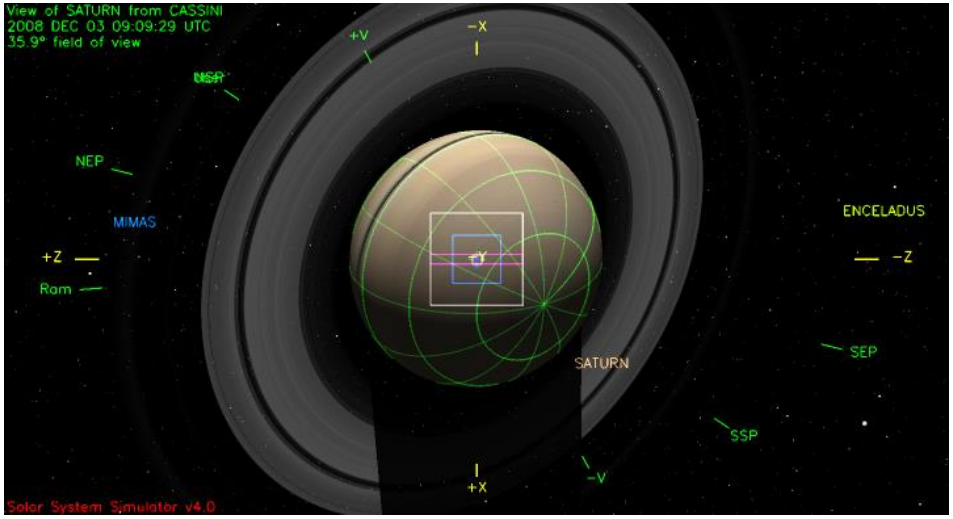


Waypoints Chosen (2 of 2)

Waypoint 3 (2008-334T18:21:00 – 2008-339T18:06:00): ISS_NAC to Saturn; NEG_X to Sun



Inbound to Periapse



Outbound from Periapse

Notes & Liens

Notes:

- Pointing Issues:
  - Two part turns on DOYs 333 & 334 to avoid POS_X to Sun.
- Data Volume Issues:
  - Negative SSR margin (-16) on DOY 337.
- Opmode Issues:
  - 3 hrs of warm-up provided for both RADAR activities.
- Special Activities:
  - None

Sequence Liens:

- RPWS RCS Whistler request over the DOY 337 OTB downlink.