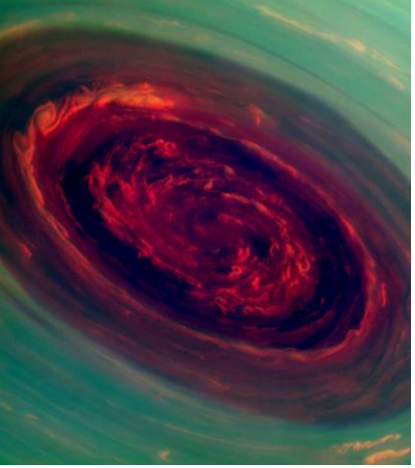

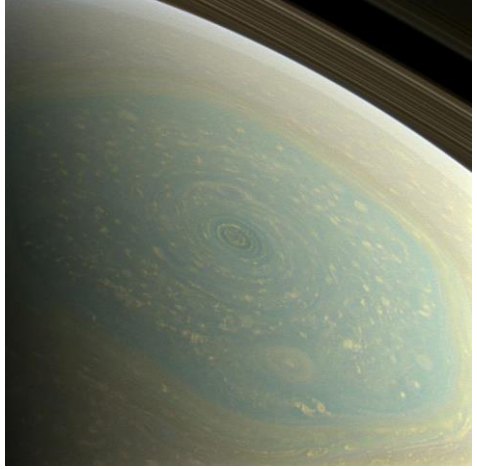
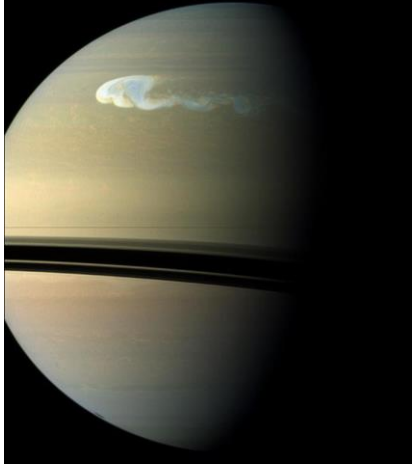

Science Planning & Sequence Team
CASSINI

SATURN TARGET WORKING TEAM

Rev 58 Segment Legacy Package

Segment Boundary: February 6, 2008 – February 12, 2008
2008-037T05:06:00 – 2008-043T12:06:00 (SCET)

Integration Began 08/04/2003
Segment Delivered to S37 Sequence 08/18/2004
Lead Integrator was Shawn Boll

Legacy Package Assembled by Shawn Boll

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Segment Overview and Final Products

Segment Summary

- This was an over 6 day long segment in the Prime Mission, roughly centered about periapse, during an inclined orbit. The spacecraft approached Saturn with a view of the northern hemisphere on the lit-side. At periapse, the view was of the southern hemisphere on the dark side of the planet. By the time the segment had ended, the spacecraft again faced the lit-side, with an unobstructed view of the northern hemisphere.

- Inbound, Saturn science included UVIS aurora and VIMS north polar movies. CIRS sub-millimeter ring measurements and a UVIS stellar-ring occultation were also conducted.

- Near periapse, Radio Science performed both ring and atmosphere occultation experiments, INMS measured the inner magnetosphere, the ORS instruments looked at Dione, and RADAR obtained polar maps of the southern hemisphere and performed ring observations at high inclination.

- Outbound, Saturn science included VIMS cylindrical mapping and polar movies and UVIS EUV/FUV slow scans across the visible hemisphere to form spectral images. Observations of the rings and Dione were also performed. ISS looked for spoke formation in the rings.

- Because of the atmospheric component, the RSS occultation required the use of a Live Movable Block. This allowed the flight team to update the pointing vector definitions and the timing just before execution onboard, using the most recent trajectory information.

Final Sequenced SPASS

	Request	Riders	Start (SCET)	Start (Epoch)	Duration	End (SCET)	Primary	Secondary	Comments
	Sequence S037, length = 26 ...		2008-022T13:35:00	E057_SEQUENCE_037+000T00:00:00	024T22:16:00	2008-047T11:51:00			
	SATURN rev 58 Segment		2008-037T05:06:00		006T07:00:00	2008-043T12:06:00			
	SP_058SA_WAYPTTURN037_PRIME		2008-037T05:06:00		000T00:30:00	2008-037T05:36:00	ISS_NAC to Saturn	NEG_Z to NSP	
Gap 1	**NEW WAYPOINT**		**2008-037T05:36:00**		**002T10:34:00**	**2008-039T16:10:00**	**ISS_NAC to Saturn**	**NEG_Z to NSP**	
	UVIS_058SA_NAURMOV001_PRIME	C, V	2008-037T05:36:00		000T13:00:00	2008-037T18:36:00	UVIS_EUV to Saturn	NEG_Z to NSP	
	CIRS_058RI_SUBMU35LP001_PRIME	C, M	2008-037T18:36:00		000T08:00:00	2008-038T02:36:00	CIRS_FP1 to Rings	NEG_Z to NSP	
	NAV_058SK_OPNAV381_PRIME	M, N	2008-038T02:36:00		000T00:59:00	2008-038T03:35:00	ISS_NAC to Satellites	NEG_Z to NSP	Starts at waypoint, ends at Earth point
	NAV_058EA_DLTURN381_PRIME	M	2008-038T03:35:00		000T00:01:00	2008-038T03:36:00	XBAND to Earth	POS_X to NEP	
	CDS will normalize AACS A8....		2008-038T03:36:00		000T09:00:00	2008-038T12:36:00			
	SP_058EA_G34HEFOTB038_PRIME	C, M, N	2008-038T03:36:00		000T09:00:00	2008-038T12:36:00	XBAND to Earth	POS_X to NEP	
	SP_058SA_WAYPTTURN038_PRIME	M	2008-038T12:36:00		000T00:30:00	2008-038T13:06:00	ISS_NAC to Saturn	NEG_Z to NSP	20 min. turn
	ISS_058OT_RETMDRESA008_PRIME	C, M	2008-038T13:06:00		000T02:24:00	2008-038T15:30:00	ISS_NAC to Retargetable	PIC	
Gap 2	VIMS_058SA_REGPOLMOV001_PRIME	C, M	2008-038T15:30:00		000T01:50:00	2008-038T17:20:00	ISS_NAC to Saturn	NEG_Z to North_Pole_Dir	
	UVIS_058ST_URBETLUP001_PRIME	C, M, R, U	2008-038T17:20:00		000T02:06:00	2008-038T19:26:00	UVIS_FUV to 244.633/-43.134	NEG_Z to NSP	
	VIMS_058SA_REGPOLMOV002_PRIME	M, R, U	2008-038T19:26:00		000T02:55:00	2008-038T22:21:00	ISS_NAC to Saturn	NEG_Z to NSP	
	SP_058EA_DLTURN038_PRIME	C, M, R	2008-038T22:21:00		000T00:30:00	2008-038T22:51:00	XBAND to Earth	POS_X to NEP	19 min. turn
	CDS will normalize AACS A8....		2008-038T22:51:00		000T06:00:00	2008-039T04:51:00			
	SP_058EA_M34BWGRSS038_PRIME	C, E, M, R	2008-038T22:51:00		000T06:00:00	2008-039T04:51:00	XBAND to Earth	POS_X to NEP	
	SP_058SA_WAYPTTURN039_PRIME	C, M	2008-039T04:51:00		000T00:30:00	2008-039T05:21:00	ISS_NAC to Saturn	NEG_Z to NSP	17 min. turn
	CIRS_058RI_SUBRADARU001_PRIME	C, M, R	2008-039T05:21:00		000T10:04:00	2008-039T15:25:00	CIRS_FP1 to Rings	POS_X to 125.0/-60.0	
	SP_058EA_WAYPTTURN439_PRIME	C, R	2008-039T15:25:00		000T00:30:00	2008-039T15:55:00	XBAND to Earth	NEG_X to Saturn	1st Part of 2-part turn
	SP_058EA_WAYPTTURN539_PRIME	R	2008-039T15:55:00		000T00:15:00	2008-039T16:10:00	XBAND to Earth	NEG_X to NEP	2nd part of 2-part turn
	NEW WAYPOINT		**2008-039T16:10:00**		**000T05:50:00**	**2008-039T22:00:00**	**XBAND to Earth**	**NEG_X to NEP**	
	SP_058NA_DEADTIME039_PRIME		**2008-039T16:10:00**		**000T00:14:57**	**2008-039T16:24:57**	**XBAND to Earth**	**NEG_X to NEP**	
	RSS_058RI_OCC002_PRIME	M	2008-039T16:24:57	LMB_E058_SATURN_RSS_OCC_1_EGR-000T01:57:59	000T01:05:00	2008-039T17:29:57	XBAND to Earth	NEG_X to NEP	
	RSS_058SA_OCC002_PRIME	M	2008-039T17:29:57	LMB_E058_SATURN_RSS_OCC_1_EGR-000T00:52:59	000T01:28:00	2008-039T18:57:57	XBAND to Earth	NEG_X to NEP	
	SP_058NA_DEADTIME439_PRIME	**R**	**2008-039T18:57:59**	**LMB_E058_SATURN_RSS_OCC_1_EGR+000T00:35:03**	**000T00:15:01**	**2008-039T19:13:00**	**XBAND to Earth**	**NEG_X to NEP**	
	VIMS_058DI_DIONE001_PRIME	C, I, R, U	2008-039T19:14:00		000T01:01:00	2008-039T20:15:00	ISS_NAC to Dione	NEG_X to North_Pole_Dir	TBD
	Periapse R = 3.3 Rs, lat = ...		2008-039T19:22:53		000T00:00:01	2008-039T19:22:54			
	INMS_058SA_INMAGCOMP001_PRIME	C, R	2008-039T20:15:00		000T01:30:00	2008-039T21:45:00	NEG_X to Dust_RAM	PIC	Attempt to accommodate MAG by pointing to orientation that keeps B-field in their FOV.
	SP_058SA_WAYPTTURN539_PRIME	R	2008-039T21:45:00		000T00:15:00	2008-039T22:00:00	ISS_NAC to Saturn	POS_Z to NSP	
Gap 3	**NEW WAYPOINT**		**2008-039T22:00:00**		**003T14:36:00**	**2008-043T12:36:00**	**ISS_NAC to Saturn**	**POS_Z to NSP**	
	RADAR_058SA_2POLAR001_PRIME	M	2008-039T22:00:00		000T08:00:00	2008-040T06:00:00	NEG_Z to Saturn	NEG_X to Sun	RADAR must control primary and secondary axes to obtain correct polarization.
	VIMS_058SA_CYLMAP001_PRIME	M, U	2008-040T06:00:00		000T07:00:00	2008-040T13:00:00	ISS_NAC to Saturn	POS_Z to NSP	
	UVIS_058ST_URGAMCNC005_PRIME	C, M	2008-040T13:00:00		000T03:00:00	2008-040T16:00:00	UVIS_FUV to 130.821/21.469 (0.0,-20.0,0.0 deg. offset)	NEG_X to NSP	
	CIRS_058RI_TEMPL16LP001_PRIME	C, M, R	2008-040T16:00:00		000T02:00:00	2008-040T18:00:00	CIRS_FP1 to Rings	POS_Z to NSP	
	CIRS_058DI_ORS001_PRIME	C, I, M, R, U, V	2008-040T18:00:00		000T01:06:00	2008-040T19:06:00	CIRS_FPB to Dione	POS_Z to NSP	Will accommodate other ORS instruments.
	SP_058EA_DLTURN040_PRIME	C, M, R	2008-040T19:06:00		000T00:30:00	2008-040T19:36:00	XBAND to Earth	NEG_X to NEP	18 min. turn
	CDS will normalize AACS A8....		2008-040T19:36:00		000T09:00:00	2008-041T04:36:00			
	SP_058EA_M70METRSS040_PRIME	C, M, R	2008-040T19:36:00		000T09:00:00	2008-041T04:36:00	XBAND to Earth	NEG_X to NEP	
	SP_058SA_WAYPTTURN041_PRIME	M	2008-041T04:36:00		000T00:30:00	2008-041T05:06:00	ISS_NAC to Saturn	POS_Z to NSP	18 min. turn
Gap 4	VIMS_058SA_REGPOLMOV003_PRIME	M, U	2008-041T05:06:00		000T11:00:00	2008-041T16:06:00	ISS_NAC to Saturn	POS_Z to North_Pole_Dir	
	VIMS_058RI_RPXMOVIE001_PRIME	C, I, M	2008-041T16:06:00		000T03:30:00	2008-041T19:36:00	VIMS_IR to Rings	POS_Z to NSP	Target R ~ 120,000 km, left ansa. ISS to ride along.
	UVIS_058SA_EUVFUV001_PRIME	C	2008-041T19:36:00		000T07:00:00	2008-042T02:36:00	UVIS_FUV to Saturn	POS_Z to NSP	
	SP_058EA_DLTURN042_PRIME	C	2008-042T02:36:00		000T00:30:00	2008-042T03:06:00	XBAND to Earth	NEG_X to NEP	
	SP_058EA_G34BWGNON042_PRIME	C	2008-042T03:06:00		000T09:00:00	2008-042T12:06:00	XBAND to Earth	NEG_X to NEP	
	SP_058SA_WAYPTTURN042_PRIME		2008-042T12:06:00		000T00:30:00	2008-042T12:36:00	ISS_NAC to Saturn	POS_Z to NSP	18 min. turn
Gap 5	VIMS_058SA_REGPOLMOV004_PRIME	C, M, U	2008-042T12:36:00		000T11:00:00	2008-042T23:36:00	ISS_NAC to Saturn	POS_Z to North_Pole_Dir	
	ISS_058RI_SPKFORM001_PRIME	C, M	2008-042T23:36:00		000T03:00:00	2008-043T02:36:00	ISS_NAC to Rings	PIC	
	SP_058EA_DLTURN043_PRIME	C, M	2008-043T02:36:00		000T00:20:00	2008-043T02:56:00	XBAND to Earth (0.0,0.0,-30.0 deg. offset)	POS_X to NEP	1st part of 2-part turn
	SP_058EA_DLTURN443_PRIME	C, M	2008-043T02:56:00		000T00:10:00	2008-043T03:06:00	XBAND to Earth	POS_X to NEP	2nd part of 2-part turn
	SP_058EA_G70METSEQ043_PRIME	C, M	2008-043T03:06:00		000T09:00:00	2008-043T12:06:00	XBAND to Earth	POS_X to NEP	

Final Sequenced SMT and Data Volume

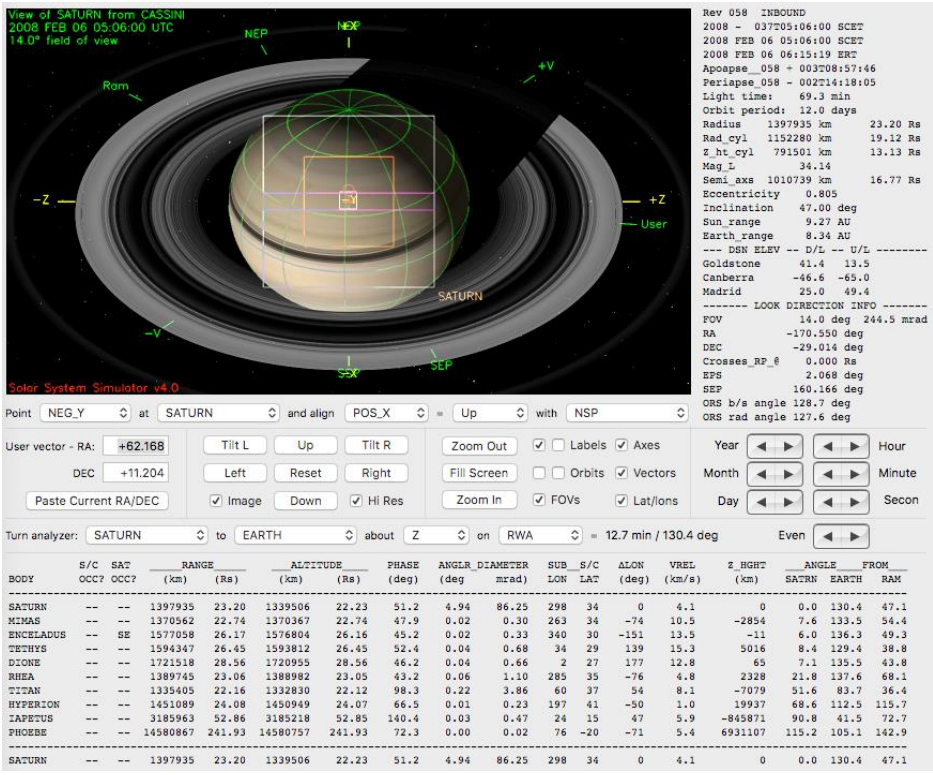
DATA VOLUME SUMMARY --- TRANSFER FRAME OVERHEAD INCLUDED (80 BITS PER 8800-BIT FRAME)

			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_058EA_G34HEFOTB038_PRIME	038 03:36	038 12:36	0	1140	95	1235	3491	2257	18	231	53	1536	1196	-340	157	1%	340
SP_058EA_M34BWGRSS038_PRIME	038 22:51	039 04:51	340	760	43	1143	3491	2348	0	173	35	1351	616	-736	157	1%	736
SP_058EA_M70METRSS040_PRIME	040 19:36	041 04:36	736	2268	164	3168	3491	323	0	1150	53	4372	4400	28	157	1%	0
SP_058EA_G34BWGNON042_PRIME	042 03:06	042 12:06	0	1958	95	2053	3491	1438	0	321	53	2427	954	-1473	129	1%	1473
SP_058EA_G70METSEQ043_PRIME	043 03:06	043 12:06	1473	1826	63	3362	3491	129	0	716	53	4131	4509	378	312	2%	0

DATA VOLUME REPORT --- TRANSFER FRAME OVERHEAD NOT INCLUDED

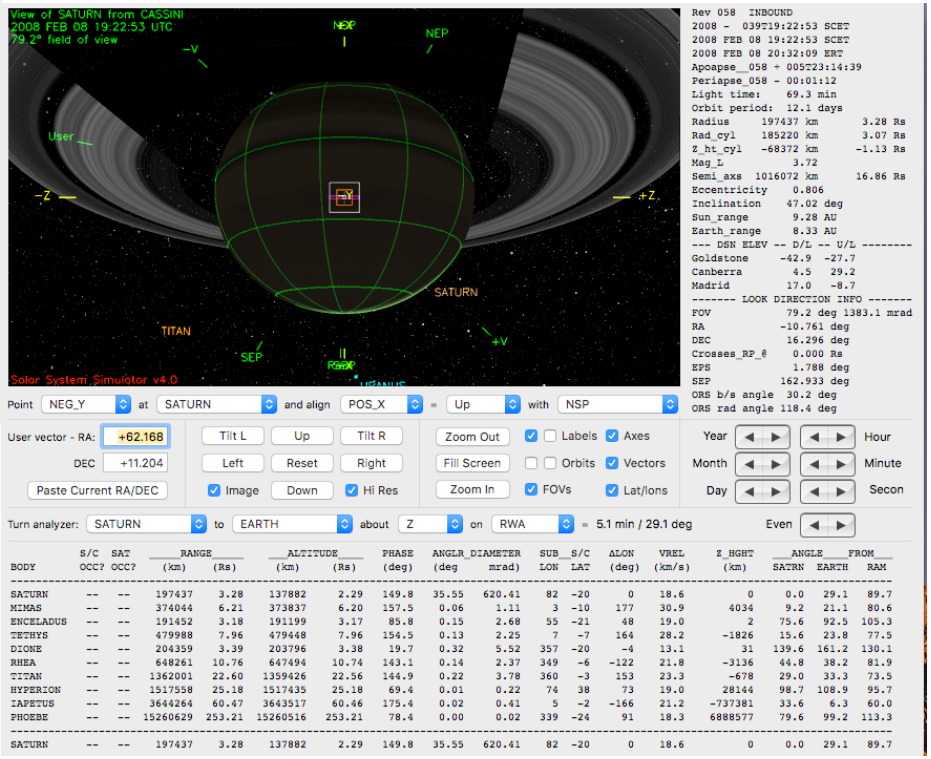
Event	Start doy hh:mm	End doy hh:mm	CAPS (Mb)	CDA (Mb)	CIRS (Mb)	INMS (Mb)	ISS (Mb)	MAG (Mb)	MIMI (Mb)	RADAR (Mb)	RPWS (Mb)	UVIS (Mb)	VIMS (Mb)	PROBE (Mb)	ENGR (Mb)	TOTAL (Mb)
OBSERVATION_NOR	037 05:06	038 03:36	81.0	12.1	302.4	4.1	0.0	48.6	81.3	0.0	106.1	235.5	240.0	0.0	18.4	1129.5
OBSERVATION_OPN	037 05:06	038 03:36	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
OBSERVATION_SI	037 05:06	038 03:36	0.0	0.0	18.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	18.5
SP_058EA_G34HEFOTB038_PRIME	038 03:36	038 12:36	32.4	4.9	86.4	1.6	0.0	19.4	38.9	0.0	42.4	2.5	0.0	0.0	0.0	228.5
DAILY TOTAL SCIENCE	037 05:06	038 12:36	113.4	17.0	407.3	5.7	0.0	68.0	120.2	0.0	148.6	238.0	240.0	0.0		
OBSERVATION_NOR	038 12:36	038 22:51	36.9	5.8	81.4	1.8	192.0	22.1	44.3	0.0	48.3	67.4	250.0	0.0	8.4	758.5
OBSERVATION_SI	038 12:36	038 22:51	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0	0.0	0.0	3.0
SP_058EA_M34BWGRSS038_PRIME	038 22:51	039 04:51	21.6	4.3	75.6	1.1	0.0	13.0	25.9	0.0	28.3	1.6	0.0	0.0	0.0	171.4
DAILY TOTAL SCIENCE	038 12:36	039 04:51	58.5	10.1	157.0	2.9	192.0	35.1	70.2	0.0	76.6	72.1	250.0	0.0		
OBSERVATION_NOR	039 04:51	040 19:36	139.5	67.1	287.4	14.8	190.0	135.3	155.1	87.6	660.4	128.7	355.0	0.0	31.7	2252.5
OBSERVATION_SI	039 04:51	040 19:36	0.0	0.0	27.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	27.0
SP_058EA_M70METRSS040_PRIME	040 19:36	041 04:36	233.1	17.0	86.4	1.6	0.0	19.4	38.9	0.0	740.7	2.5	0.0	0.0	0.0	1139.5
DAILY TOTAL SCIENCE	039 04:51	041 04:36	372.6	84.0	400.8	16.4	190.0	154.7	194.0	87.6	1401.0	131.1	355.0	0.0		
OBSERVATION_NOR	041 04:36	042 03:06	246.1	42.6	64.8	4.1	212.0	48.6	116.2	0.0	654.5	171.6	379.6	0.0	18.4	1958.5
SP_058EA_G34BWGNON042_PRIME	042 03:06	042 12:06	94.6	15.4	86.4	1.6	0.0	19.4	58.3	0.0	42.4	0.0	0.0	0.0	0.0	318.2
DAILY TOTAL SCIENCE	041 04:36	042 12:06	340.7	58.0	151.2	5.7	212.0	68.0	174.5	0.0	696.9	171.6	379.6	0.0		
OBSERVATION_NOR	042 12:06	043 03:06	251.2	25.6	208.8	4.1	562.5	72.1	97.9	0.0	292.6	44.8	250.0	0.0	12.3	1821.9
SP_058EA_G70METSEQ043_PRIME	043 03:06	043 12:06	191.8	15.4	86.4	3.2	0.0	64.0	54.2	0.0	291.6	2.5	0.0	0.0	0.0	709.1
DAILY TOTAL SCIENCE	042 12:06	043 12:06	443.0	41.0	295.2	7.4	562.5	136.1	152.1	0.0	584.2	47.3	250.0	0.0		

Segment Geometry (1 of 2)



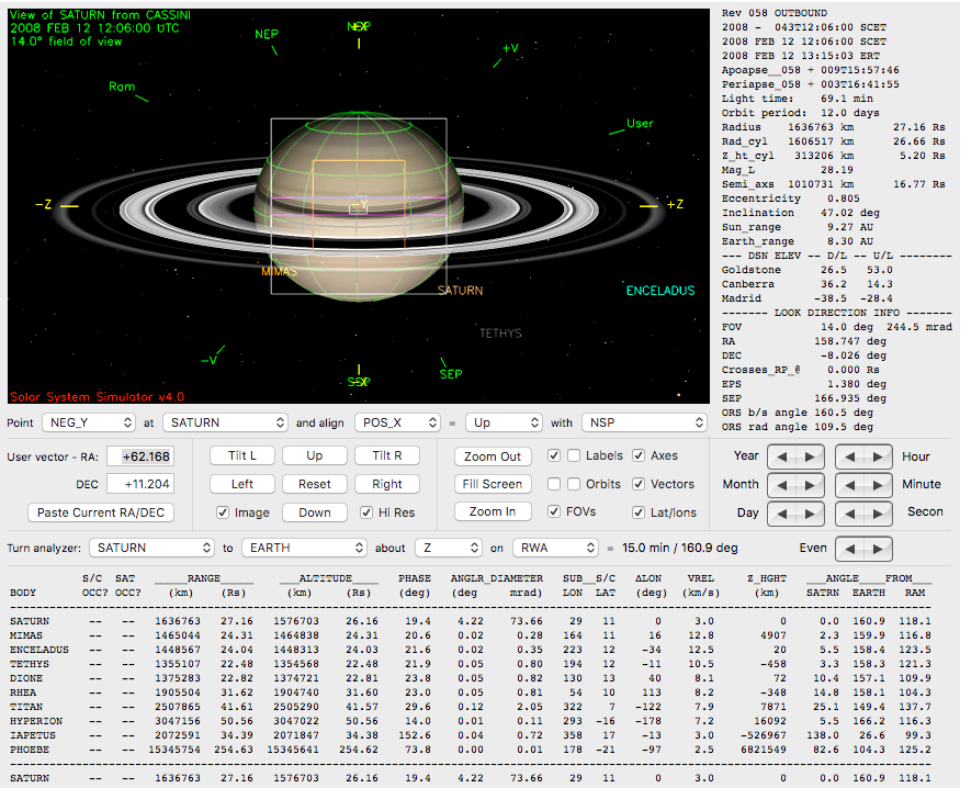
Seg Start (Left)

Periapse (below)



	Saturn Range	Phase Angle	Sub-S/C Lat.
Segment Start	23.20	51.2	34
Periapse	3.28	149.8	-20
Segment End	27.16	19.4	11

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	ΔLON (deg)	VREL (km/s)	Z_HGHT (km)	ANGLE FROM SATRN	ANGLE FROM EARTH	ANGLE FROM RAM
SATURN	--	--	1636763	27.16	1576703	26.16	19.4	4.22	73.66	29	11	0	3.0	0	0.0	160.9	118.1
MIMAS	--	--	1465044	24.31	1464838	24.31	20.6	0.02	0.28	164	11	16	12.8	4907	2.3	159.9	116.8
ENCELADUS	--	--	1448567	24.04	1448313	24.03	21.6	0.02	0.35	223	12	-34	12.5	20	5.5	158.4	123.5
TETHYS	--	--	1355107	22.48	1354568	22.48	21.9	0.05	0.80	194	12	-11	10.5	-458	3.3	158.3	121.3
DIONE	--	--	1375283	22.82	1374721	22.81	23.8	0.05	0.82	130	13	40	8.1	72	10.4	157.1	109.9
RHEA	--	--	1905504	31.62	1904740	31.60	23.0	0.05	0.81	54	10	113	8.2	-348	14.8	158.1	104.3
TITAN	--	--	2507865	41.61	2505290	41.57	29.6	0.12	2.05	322	7	-122	7.9	7871	25.1	149.4	137.7
HYPERION	--	--	3047156	50.56	3047022	50.56	14.0	0.01	0.11	293	-16	-178	7.2	16092	5.5	166.2	116.3
IAPETUS	--	--	2072591	34.39	2071847	34.38	152.6	0.04	0.72	358	17	-13	3.0	-526967	138.0	26.6	99.3
PHOEBE	--	--	15345754	254.63	15345641	254.62	73.8	0.00	0.01	178	-21	-97	2.5	6821549	82.6	104.3	125.2
SATURN	--	--	1636763	27.16	1576703	26.16	19.4	4.22	73.66	29	11	0	3.0	0	0.0	160.9	118.1

Seg End

Solar Geometry – ORS Boresight Concerns

There likely were ORS Boresight Solar Constraints on Science Pointing during periapse, but by performing an Earth-pointed RSS occultation, no CMT management was required.

Daily Science Highlights

Wednesday, Feb. 6 (DOY 037):
The Ultraviolet Imaging Spectrometer (UVIS) observed Saturn's northern aurora and the Composite Infrared Spectrometer (CIRS) performed radial scans of main rings to obtain submillimeter measurements.

Thursday, Feb. 7 (DOY 038):
The Visual and Infrared Mapping Spectrometer (VIMS) recorded polar movies and UVIS observed a stellar occultation of the rings.

Friday, Feb. 8 (DOY 039):
CIRS began with sub-millimeter ring measurements. Radio Science (RSS) then performed both ring and Saturn Earth-occultations as the spacecraft sped toward a periapsis distance of 3.3 Saturn radii. VIMS turned the spacecraft's attention to Dione, with the other optical remote sensing (ORS) teams riding along. Following periapsis passage, the Ion and Neutral Mass Spectrometer (INMS) wielded rare - for them - spacecraft pointing control to measure inner magnetospheric composition. Finally, the RADAR instrument began an effort to obtain a polar map of the southern hemisphere, while taking rings observations at high inclination.

Saturday, Feb 9 (DOY 040):
RADAR wrapped up its polar mapping and VIMS began cylindrical mapping of Saturn. UVIS observed another occultation of a star by the rings. CIRS took temperature measurements of the rings and led a joint ORS observation of Dione. Magnetospheric and Plasma Science (MAPS) teams continued imaging the dynamics of the inner magnetosphere.

Sunday, Feb. 10 (DOY 041):
VIMS conducted more polar observations and viewed the rings as the spacecraft crossed the ring plane. UVIS performed slow scans across Saturn's visible hemisphere to form spectral images.

Monday, Feb. 11 (DOY 042):
Science today involved VIMS taking the lead with the other ORS teams riding along in an effort to gain more Saturn polar coverage. Imaging Science (ISS) took a look at spoke formation in the rings, while MAPS teams continued their measurements of the dynamics of the inner magnetosphere.

Segment Integration Planning

Timeline Gaps and Suggested Observations

Rev 58 - TOL

Activity	Start	Duration	Pointing	Notes	TLM
Segment Start/SPTurn to Waypoint	2008-037T05:06:00	00:30:00			
New Waypoint	**2008-037T05:36:00**				
OPEN **Gap 1**	2008-037T05:36:00	21:00:00			
OPNAV and NAV DLTURN	2008-038T02:36:00	01:00:00			
Downlink	2008-038T03:36:00	09:00:00	XBAND to Earth;	Goldstone 34 HEF	
SP Turn to Waypoint	2008-038T12:36:00	00:30:00			
OPEN **Gap 2**	2008-038T13:06:00	06:15:00			
SP Turn to Downlink	2008-038T19:21:00	00:30:00	XBAND to Earth;		
Downlink	2008-038T19:51:00	09:00:00	XBAND to Earth;	Madrid 34 HEF	
SP Turn to Waypoint	2008-039T04:51:00	00:30:00			
CIRS Rings SUBRADAR	2008-039T05:21:00	10:04:00			
SP Turn to Waypoint	2008-039T15:25:00	00:30:00	XBAND to Earth;		
New Waypoint	**2008-039T15:55:00**		**XBAND to Earth;**		
SP Deadtime	2008-039T15:55:00	00:15:00			
RSS Occultation	2008-039T16:10:00	02:33:00		MAG ctrl sec. X-axis 45 deg of B-field	
SOST Dione (VIMS Prime?)	2008-039T18:43:00	01:00:00			
SP Deadtime	2008-039T19:43:00	00:15:00			
INMS	2008-039T19:58:00	01:30:00			
SP Waypoint Turn	2008-039T21:28:00	00:30:00			
New Waypoint	**2008-039T21:58:00**		**ISS_NAC to Saturn;**		
OPEN **Gap 3**	2008-039T21:58:00	21:08:00			
SP Turn to Downlink	2008-040T19:06:00	00:30:00	XBAND to Earth;		
Downlink	2008-040T19:36:00	09:00:00	XBAND to Earth;	Madrid 70 MET	
SP Turn to Waypoint	2008-041T04:36:00	00:30:00			
OPEN **Gap 4**	2008-041T05:06:00	21:00:00			
OPNAV and NAV DLTURN	2008-042T02:06:00	01:00:00			
Downlink	2008-042T03:06:00	09:00:00	XBAND to Earth;	Goldstone 34 BWG	
SP Turn to Waypoint	2008-042T12:06:00	00:30:00			
OPEN **Gap 5**					
SP Turn to Downlink	2008-043T02:36:00	00:30:00	XBAND to Earth;		
Downlink	2008-043T03:06:00	09:00:00	XBAND to Earth;	Goldstone 34 BWG	

Initial SMT and Data Volume

First Look During Integration:

DATA VOLUME SUMMARY

	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)	MARGIN (Mb)	(%)	OPNAV (Mb)	SCI (Mb)	ENGR (Mb)	TOTAL (Mb)	CPACTY (Mb)	MARGIN (Mb)	(%)	CAROVR (Mb)
SP_058EA_G34HEFOTB038_PRIME	038 03:36	038 12:36	0	890	78	968	3534	2566	73%	17	229	53	1267	1215	-52	-4%	52
SP_058EA_M34HEFNON038_PRIME	038 22:51	039 04:51	52	573	36	660	3568	2908	82%	0	171	35	867	718	-149	-21%	149
SP_058EA_M70METNON040_PRIME	040 19:36	041 04:36	149	2523	135	2807	3568	762	21%	0	230	53	3090	4117	1027	25%	0
SP_058EA_G34BWGNON042_PRIME	042 03:06	042 12:06	0	841	78	919	3534	2614	74%	17	216	53	1206	1001	-205	-21%	205
SP_058EA_G34BWGNON043_PRIME	043 03:06	043 12:06	205	1612	52	1870	3569	1699	48%	0	714	53	2637	1001	-1636	-163%	1636

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	037 05:06	038 03:36	81.0	12.1	302.4	4.1	0.0	48.6	81.3	0.0	106.1	235.5	0.0	0.0	0.0	871.1
OBSERVATION_OPN	037 05:06	038 03:36	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
OBSERVATION_SI	037 05:06	038 03:36	0.0	0.0	18.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	18.5
SP_058EA_G34HEFOTB038_PRIME	038 03:36	038 12:36	32.4	4.9	86.4	1.6	0.0	19.4	38.9	0.0	42.4	2.5	0.0	0.0	0.0	228.5
DAILY TOTAL SCIENCE	037 05:06	038 12:36	113.4	17.0	407.3	5.7	0.0	68.0	120.2	0.0	148.6	238.0	0.0	0.0		
OBSERVATION_NOR	038 12:36	038 22:51	36.9	5.8	0.0	1.8	192.0	22.1	44.3	0.0	48.3	71.4	150.0	0.0	0.0	572.7
SP_058EA_M34HEFNON038_PRIME	038 22:51	039 04:51	21.6	4.3	75.6	1.1	0.0	13.0	25.9	0.0	28.3	1.6	0.0	0.0	0.0	171.4
DAILY TOTAL SCIENCE	038 12:36	039 04:51	58.5	10.1	75.6	2.9	192.0	35.1	70.2	0.0	76.6	73.0	150.0	0.0		
OBSERVATION_NOR	039 04:51	040 19:36	139.5	28.4	247.2	14.8	222.0	136.0	155.1	197.9	741.5	88.8	525.0	0.0	0.0	2496.3
OBSERVATION_SI	039 04:51	040 19:36	0.0	0.0	27.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	27.0
SP_058EA_M70METNON040_PRIME	040 19:36	041 04:36	32.4	6.4	86.4	1.6	0.0	19.4	38.9	0.0	42.4	2.5	0.0	0.0	0.0	230.1
DAILY TOTAL SCIENCE	039 04:51	041 04:36	171.9	34.9	360.6	16.4	222.0	155.5	194.0	197.9	783.9	91.3	525.0	0.0		
OBSERVATION_NOR	041 04:36	042 03:06	81.0	16.4	0.0	4.1	0.0	48.6	87.7	0.0	106.1	117.7	379.6	0.0	0.0	841.2
OBSERVATION_OPN	041 04:36	042 03:06	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_058EA_G34BWGNON042_PRIME	042 03:06	042 12:06	32.4	4.9	86.4	1.6	0.0	19.4	29.2	0.0	42.4	0.0	0.0	0.0	0.0	216.3
DAILY TOTAL SCIENCE	041 04:36	042 12:06	113.4	21.2	86.4	5.7	0.0	68.0	116.9	0.0	148.6	117.7	379.6	0.0		
OBSERVATION_NOR	042 12:06	043 03:06	140.6	8.1	0.0	4.1	562.5	72.1	75.3	0.0	292.6	207.1	250.0	0.0	0.0	1612.4
SP_058EA_G34BWGNON043_PRIME	043 03:06	043 12:06	129.6	4.9	0.0	3.2	0.0	64.0	58.6	0.0	291.6	161.8	0.0	0.0	0.0	713.7
DAILY TOTAL SCIENCE	042 12:06	043 12:06	270.2	12.9	0.0	7.4	562.5	136.1	133.8	0.0	584.2	368.9	250.0	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)	727.4	96.1	929.9	38.1	976.5	462.8	635.1	197.9	1741.9	888.9	1304.6	0.0

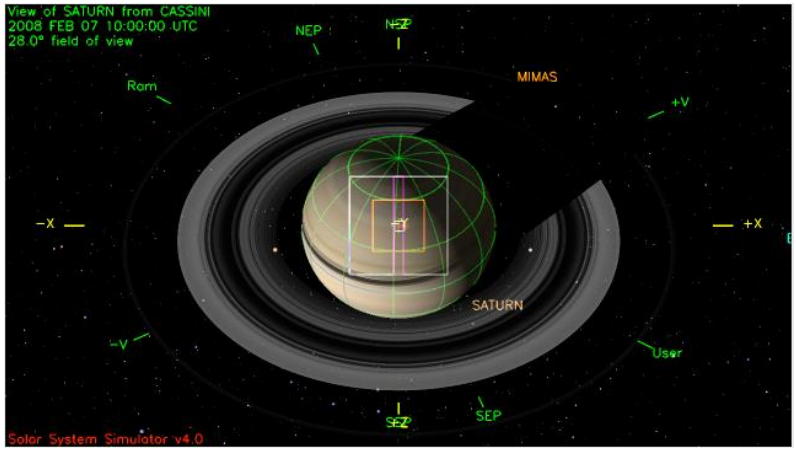
Waypoint Selection

- Secondary Axis for MAG during CIRS Rings on 039
  - Waypoint an observation are currently at NEG_Z to NSP; MAG compliant NEG_X to NSP is unacceptable for a waypoint, but may work for the observation.
- Waypoint / Secondary Axis Pointing During the Occ. Period
  - Suggested XBAND to Earth; NEG_X to 232.3/-55.7 was NOT good. Radiator heating from Saturn brings deltaT above 9 degrees.
  - Other suggestions?

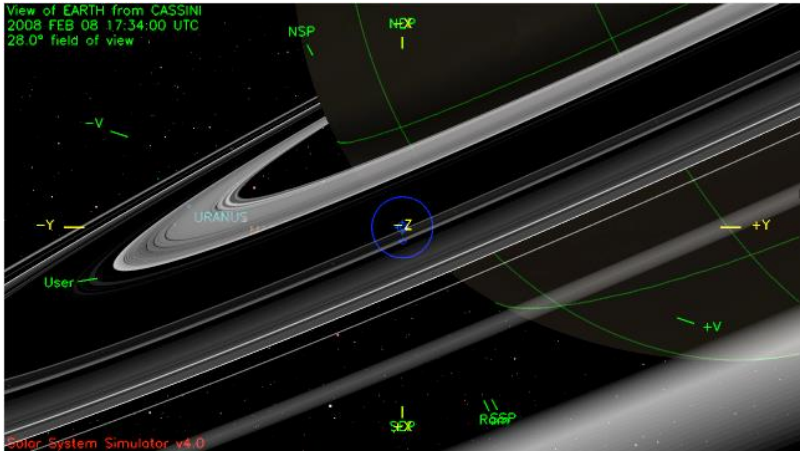
- Waypoint and Secondary MAG proposal
  - **Waypoint of NEG_Y to Saturn; POS_X to 125/-60 for the period including the CIRS Subradar observation on DOY 039.**
  - CIRS suggested to use waypoint for their pointing.
  - **Waypoint of XBAND to Earth; NEG_X to 90/-60 during occultation period.**
  - VIMS Dione suggested to use NEG_Y to Dione (20,0,-20 deg. offset); NEG_X to 90/-60.
  - INMS suggested to use NEG_X to Dust_RAM; NEG_Z to Earth.

Waypoints Chosen (1 of 2)

Waypoint 1 (2008-037T05:36:00 – 2008-039T16:10:00): ISS_NAC to Saturn; NEG_Z to NSP

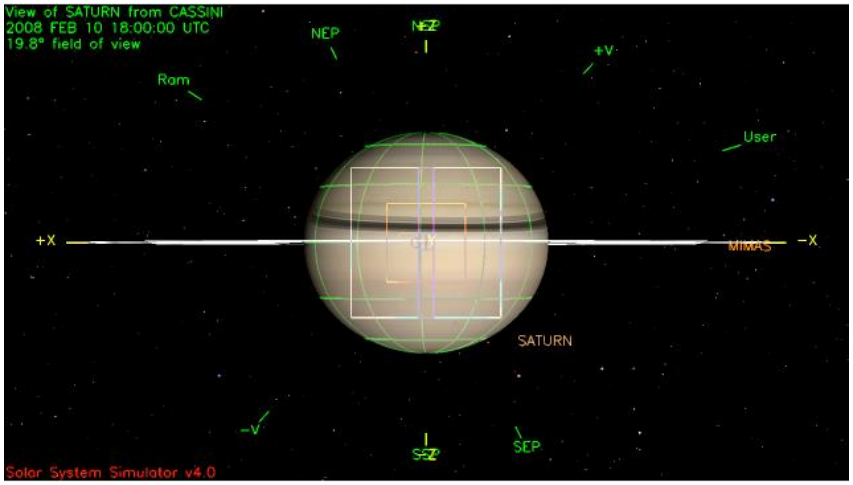


Waypoint 2 (2008-039T16:10:00 – 2008-039T22:00:00): XBAND to Earth; NEG_X to NEP



Waypoints Chosen (2 of 2)

Waypoint 2 (2008-039T22:00:00 - 2008-043T12:06:00): ISS_NAC to Saturn; POS_Z to NSP



Notes & Liens

- **Pointing Issues**
  - Waypoint during the movable block period was changed during the retrofit for SPVT Implementation. There were flight rule violations with the previous waypoint attitude.
- **Data Volume Issues**
  - There is 0% net margin on the first two days of the segment. The SSR is not overfilling. The TWT will address any possible data volume cuts if needed due to problems this may cause with the full sequence.
- **Telemetry Mode Issues**
  - RADAR only gets the last 30 minutes of their warm-up on DOY039 due to S&ER-3 still active during the first hour and a transition to S&ER-2 for 1.5 hrs. after that. This was accepted by RADAR during TWT meetings and produces two errors in SMT that can be disregarded.
- **CIMS Issues**
  - None
- **Power/OPMODE Issues**
  - None
- **Flight Rule/Mission Planning Guideline and Constraint Issues**
  - None
- **Other Issues**
  - The DSN Station request may be 5-10 minutes earlier than necessary.