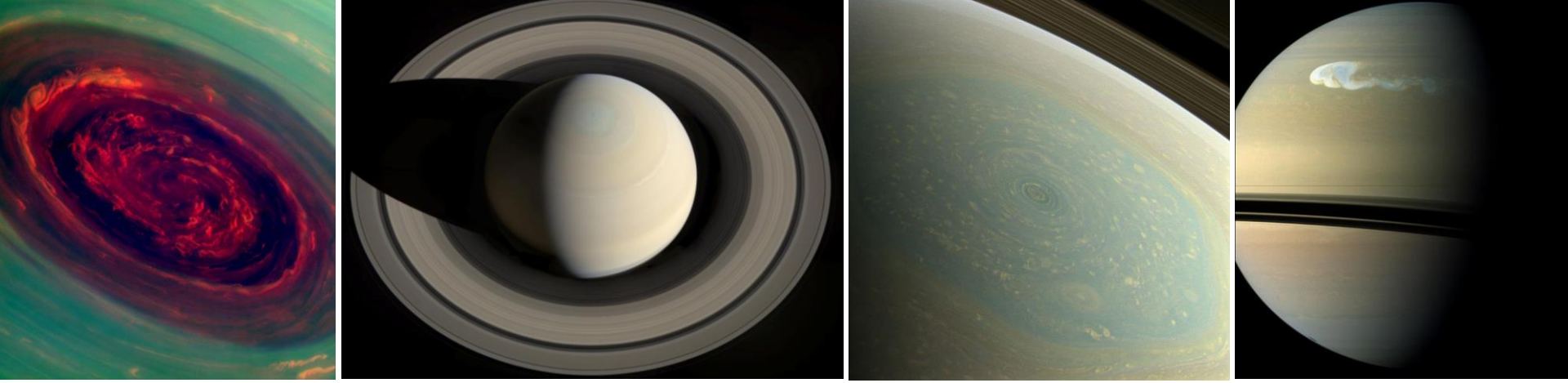


Science Planning & Sequence Team
CASSINI

SATURN TARGET WORKING TEAM

Rev 27 Segment Legacy Package

Segment Boundary: August 13, 2006 – August 19, 2006
2006-225T22:12 – 2006-231T22:06 (SCET)

Integration Began 09/23/2002
Segment Delivered to S22 Sequence 03/09/2006
Lead Integrators were Jerod Gross & Barbara Larsen

Legacy Package Assembled by Kyle Cloutier

Table of Contents

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

Segment Overview and Final Products

Segment Summary

- Saturn 27 is the last segment in S22. It immediately follows solar conjunction. An RSS solar conjunction experiment was added to characterize the solar corona and asses electron content and possible Faraday rotation.

- SOST ORS observations of Mimas, Dione, Rhea, and Helene. RADAR performed scatterometry/radiometry observations of Dione and Rhea. On DOY 229 Cassini had a close flyby of Helene (48759 km). ISS, CIRS, UVIS observed Helene's color, polarization, shape, and geology

- Saturn observations in this segment included VIMS feature tracks, cylindrical maps, and Saturn Methane Florescence maps, CIRS feature tracks and limb sounding stratospheric thermal structure observations, ISS WAC Photopolarimetry mosaics at 160 and 140 deg phase, and UVIS EUV/FUV imaging.

- Surrounding periapse, Saturn 27 included a zero phase ring observation to study the opposition brightening of the rings. This particular observation focused on the Cassini Division, the A ring and the F ring.

- A distant flyby of Titan occurred on DOY 230 (non-targeted).

Final Sequenced SPASS (1 of 2)

Request	Riders	Start (SCET)	Start (Epoch)	Duration	End	Primary	Secondary	Comments
SATURN rev 27 Segment		2006-225T22:12:00		005T23:54:00	2006-231T22:06:00			
SP_027SA_WAYPTTURN225_PRIME	R	2006-225T22:12:00		000T00:25:00	2006-225T22:37:00	ISS_NAC to 320.0/15.0	POS_Z to Sun	Split
SP_027SA_WAYPTTURN625_PRIME		2006-225T22:37:00		000T00:13:00	2006-225T22:50:00	ISS_NAC to Saturn	POS_Z to Sun	
NEW WAYPOINT		**2006-225T22:50:00**		**002T00:01:00**	**2006-227T22:51:00**	**ISS_NAC to Saturn**	**POS_Z to Sun**	
CIRS_027SA_FIRMAP015_PRIME	C, M, R	2006-225T22:50:00		000T13:30:00	2006-226T12:20:00	CIRS_FP1 to Saturn	POS_Z to Sun	2nd axis for MAPS DISTTORUS.
Piggy Back IRU Calibration ...		2006-226T12:05:00		000T00:15:00	2006-226T12:20:00			
NAV_027SK_OPNAV261_PRIME	M, R	2006-226T12:20:00		000T00:59:00	2006-226T13:19:00	ISS_NAC to Satellites	NEG_X to Sun	Starts at waypoint, ends at Earth point
NAV_027EA_DLTURN261_PRIME	M, R	2006-226T13:19:00		000T00:01:00	2006-226T13:20:00	XBAND to Earth	NEG_Y to NEP	
SP_027EA_G34BWGNON226_PRIME	C, M, R	2006-226T13:20:00		000T09:00:00	2006-226T22:20:00	XBAND to Earth	Rolling	Rolling is delayed by 1.5 hours for GYROCAL
Piggy Back IRU Calibration ...		2006-226T14:45:00		000T00:15:00	2006-226T15:00:00			
SP_027SA_WAYPTTURN226_PRIME	M	2006-226T22:20:00		000T00:30:00	2006-226T22:50:00	ISS_NAC to Saturn	POS_Z to Sun	
ISS_027SA_1X2WPH160001_PRIME	M	2006-226T22:50:00		000T00:30:00	2006-226T23:20:00	ISS_NAC to Saturn	POS_Z to Sun	2nd axis for MAPS DISTTORUS
ISS_027SA_1X2WPH160002_PRIME	M	2006-226T23:50:00		000T00:30:00	2006-227T00:20:00	ISS_NAC to Saturn	POS_Z to Sun	2nd axis for MAPS DISTTORUS
ISS_027SA_1X2WPH160003_PRIME	M	2006-227T00:50:00		000T00:30:00	2006-227T01:20:00	ISS_NAC to Saturn	POS_Z to Sun	2nd axis for MAPS DISTTORUS
UVIS_027SA_EUVFUV003_PRIME	M	2006-227T01:51:00		000T11:00:00	2006-227T12:51:00	UVIS_FUV to Saturn	POS_Z to Sun	2nd axis for MAPS DISTTORUS
SP_027EA_DLTURN227_PRIME	M	2006-227T12:51:00		000T00:30:00	2006-227T13:21:00	XBAND to Earth (0.0,0.0,-10.0 deg. offset)	NEG_Y to NEP	
SP_027EA_G70METSEQ227_PRIME	C, E, M	2006-227T13:21:00		000T09:00:00	2006-227T22:21:00	XBAND to Earth (0.0,0.0,-10.0 deg. offset)	NEG_Y to NEP	This downlink is stationary due to an AACS PEM activity over this pass.
SP_027SA_WAYPTTURN227_PRIME	M	2006-227T22:21:00		000T00:30:00	2006-227T22:51:00	ISS_NAC to Saturn	POS_X to NSP	
NEW WAYPOINT		**2006-227T22:51:00**		**002T00:00:00**	**2006-229T22:51:00**	**ISS_NAC to Saturn**	**POS_X to NSP**	
VIMS_027SA_CH4FLUOR001_PRIME	M	2006-227T22:51:00		000T03:09:00	2006-228T02:00:00	ISS_NAC to Saturn	POS_Z to NSP	
VIMS_027SA_FTRACK001_PRIME	M	2006-228T02:00:00		000T06:00:00	2006-228T08:00:00	ISS_NAC to Saturn	POS_Z to NSP	
VIMS_027SA_CYLMAP001_PRIME	R	2006-228T08:00:00		000T03:05:00	2006-228T11:05:00	ISS_NAC to Saturn	POS_Z to NSP	
RADAR_027DI_SCATTRADL001_PRIME		2006-228T11:05:00		000T01:30:00	2006-228T12:35:00	NEG_Z to Dione	POS_X to NSP	
VIMS_027MI_MIMAS001_PRIME	C, I, U	2006-228T12:35:00		000T00:45:00	2006-228T13:20:00	ISS_NAC to Mimas	POS_Z to NSP	
ISS_027DI_REGGEODA001_PRIME	C, U, V	2006-228T13:20:00		000T01:10:00	2006-228T14:30:00	CIRS_FP1 to Dione	POS_X to NSP	
CIRS_027SA_FTRACK008_PRIME	I, U, V	2006-228T14:30:00		000T06:00:00	2006-228T20:30:00	CIRS_FPB to Saturn	POS_X to NSP	
ISS_027SA_NEAR0PHA001_PRIME	U, V	2006-228T20:30:00		000T00:45:00	2006-228T21:15:00	ISS_NAC to Saturn	POS_X to NSP	

Final Sequenced SPASS (2 of 2)

Request	Riders	Start (SCET)	Start (Epoch)	Duration	End	Primary	Secondary	Comments
Periapse R = 4.2 Rs, lat = ...		2006-228T20:51:51		000T00:00:01	2006-228T20:51:52			
VIMS_027RI_0PHASE001_PRIME	C, I, U	2006-228T21:15:00		000T00:40:00	2006-228T21:55:00	POS_Y to Sun	POS_X to NSP	
CIRS_027SA_LIMBMAP003_PRIME	C, I, M, U	2006-228T21:55:00		000T05:30:00	2006-229T03:25:00	CIRS_FPB to Saturn	POS_X to NSP	
ISS_027HE_GEOLOG001_PRIME	C, M, R, U	2006-229T03:25:00		000T01:50:00	2006-229T05:15:00	CIRS_FP3 to Helene	NEG_X to Sun	
27HE (nt) HELENE outbound 4...		2006-229T03:26:58		000T00:00:01	2006-229T03:26:59			
RADAR_027RH_SCATTRADL001_PRIME	M	2006-229T05:15:00		000T01:35:00	2006-229T06:50:00	NEG_Z to Rhea	POS_X to NSP	
ISS_027RH_REGMAPB001_PRIME	C, M, U, V	2006-229T06:50:00		000T01:45:00	2006-229T08:35:00	ISS_NAC to Rhea	POS_X to NSP	
CIRS_027RC_ONSATULM001_PRIME	C, M	2006-229T08:35:00		000T02:00:00	2006-229T10:35:00	CIRS_FP1 to Rings	NEG_Z to NSP	
ISS_027RH_REGGEODC001_PRIME	C, M, R, U, V	2006-229T10:35:00		000T02:16:00	2006-229T12:51:00	ISS_NAC to Rhea	NEG_Z to NSP	
SP_027EA_DLTURN229_PRIME	M, R	2006-229T12:51:00		000T00:30:00	2006-229T13:21:00	XBAND to Earth (0.0,0.0,-10.0 deg. offset)	NEG_Y to NEP	
SP_027EA_G34BWGSEQ229_PRIME	C, E, M, R	2006-229T13:21:00		000T09:00:00	2006-229T22:21:00	XBAND to Earth	4_Hr_Delayed_Rolling	
SP_027SA_WAYPTTURN229_PRIME		2006-229T22:21:00		000T00:30:00	2006-229T22:51:00	ISS_NAC to Saturn	NEG_Z to NSP	
NEW WAYPOINT		**2006-229T22:51:00**		**000T23:45:00**	**2006-230T22:36:00**	**ISS_NAC to Saturn**	**NEG_Z to NSP**	
VIMS_027SA_THRCYLMAP001_PRIME		2006-229T22:51:00		000T05:09:00	2006-230T04:00:00	ISS_NAC to Saturn	NEG_Z to NSP	
VIMS_027SA_FTRACK003_PRIME		2006-230T04:00:00		000T06:00:00	2006-230T10:00:00	ISS_NAC to Saturn	NEG_Z to NSP	
VIMS_027SA_CH4FLUOR002_PRIME	R	2006-230T10:00:00		000T02:36:00	2006-230T12:36:00	ISS_NAC to Saturn	NEG_Z to NSP	
SP_027EA_DLTURN230_PRIME	R	2006-230T12:36:00		000T00:30:00	2006-230T13:06:00	XBAND to Earth	POS_X to NEP	
SP_027EA_G70METSEQ230_PRIME	C, R	2006-230T13:06:00		000T09:00:00	2006-230T22:06:00	XBAND to Earth	5_Hr_Rolling	
27TI (nt) TITAN outbound 33...		2006-230T17:49:02		000T00:00:01	2006-230T17:49:03			
SP_027SA_WAYPTTURN230_PRIME		2006-230T22:06:00		000T00:30:00	2006-230T22:36:00	ISS_NAC to Saturn	NEG_X to Sun	
NEW WAYPOINT		**2006-230T22:36:00**		**000T23:30:00**	**2006-231T22:06:00**	**ISS_NAC to Saturn**	**NEG_X to Sun**	
ISS_027SA_1X2WP140B001_PRIME		2006-230T22:41:00		000T00:30:00	2006-230T23:11:00	ISS_NAC to Saturn	NEG_X to Sun	
ISS_027SA_1X2WP140B002_PRIME		2006-230T23:41:00		000T00:30:00	2006-231T00:11:00	ISS_NAC to Saturn	NEG_X to Sun	
ISS_027SA_1X2WP140B003_PRIME		2006-231T00:41:00		000T00:30:00	2006-231T01:11:00	ISS_NAC to Saturn	NEG_X to Sun	
UVIS_027SA_EUVFUV002_PRIME	M, R	2006-231T01:36:00		000T11:00:00	2006-231T12:36:00	UVIS_FUV to Saturn	NEG_X to Sun	
SP_027EA_DLTURN231_PRIME	M, R	2006-231T12:36:00		000T00:30:00	2006-231T13:06:00	XBAND to Earth	POS_X to NEP	
SP_027EA_G70METSEQ231_PRIME	C, E, M, R	2006-231T13:06:00		000T09:00:00	2006-231T22:06:00	XBAND to Earth	POS_X to NEP	

Final Sequenced SMT and Data Volume

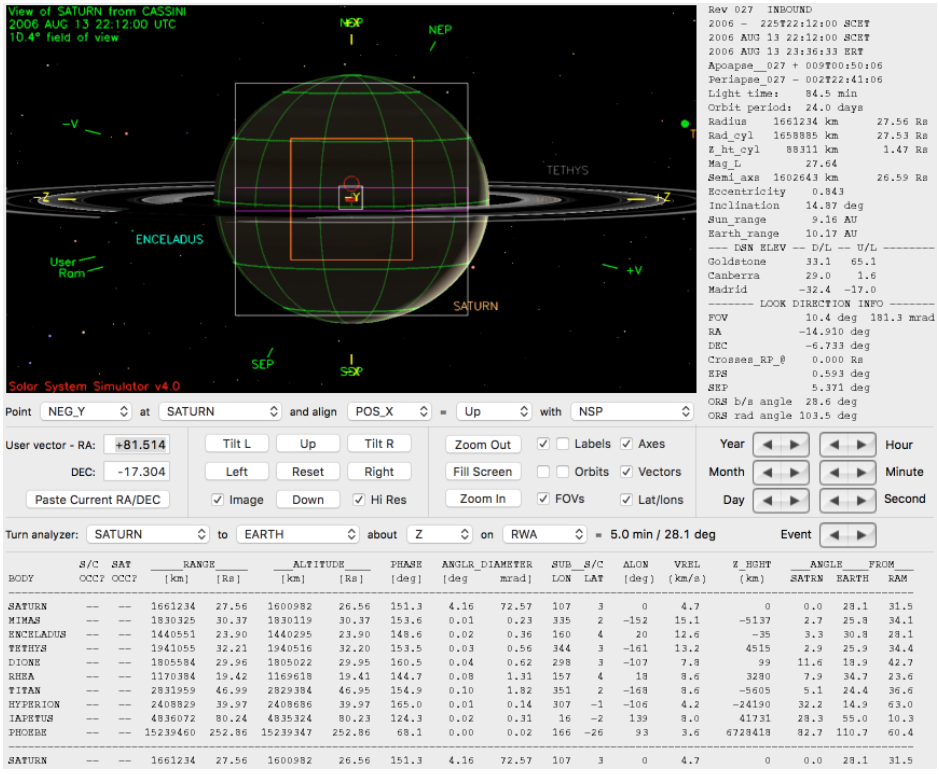
DATA VOLUME SUMMARY --- TRANSFER FRAME OVERHEAD INCLUDED (80 BITS PER 8800-BIT FRAME)

			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_027EA_G34BWGNON226_PRIME	226 13:20	226 22:20	0	915	51	967	3546	2579	9	532	53	1560	660	-900	365	3% 901
SP_027EA_G70METSEQ227_PRIME	227 13:21	227 22:21	901	1481	51	2433	3546	1113	0	526	53	3012	3375	363	365	3% 0
SP_027EA_G34BWGSEQ229_PRIME	229 13:21	229 22:21	0	3156	140	3296	3546	250	0	189	53	3538	664	-2874	2	0% 2874
SP_027EA_G70METSEQ230_PRIME	230 13:06	230 22:06	2874	619	50	3543	3546	2	0	224	53	3821	3392	-428	1495	22% 429
SP_027EA_G70METSEQ231_PRIME	231 13:06	231 22:06	429	848	51	1328	3546	2218	0	515	53	1897	3392	1496	1495	44% 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	225 22:12	226 13:20	299.8	16.4	194.4	3.5	0.0	107.7	98.1	0.0	176.9	0.0	0.0	0.0	0.0	896.8
OBSERVATION_OPN	225 22:12	226 13:20	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
OBSERVATION_SI	225 22:12	226 13:20	0.0	0.0	10.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10.0
SP_027EA_G34BWGNON226_PRIME	226 13:20	226 22:20	129.6	9.8	86.0	20.9	0.0	64.0	58.3	0.0	155.8	2.5	0.0	0.0	0.0	526.9
DAILY TOTAL SCIENCE	225 22:12	226 22:20	429.4	26.2	290.4	24.4	0.0	171.7	156.4	0.0	332.8	2.5	0.0	0.0		
OBSERVATION_NOR	226 22:20	227 13:21	216.2	31.8	0.0	63.3	309.2	106.8	97.3	0.0	444.0	199.3	0.0	0.0	0.0	1467.9
SP_027EA_G70METSEQ227_PRIME	227 13:21	227 22:21	129.6	21.9	86.0	3.2	0.0	64.0	58.3	0.0	155.8	2.5	0.0	0.0	0.0	521.4
DAILY TOTAL SCIENCE	226 22:20	227 22:21	345.8	53.6	86.0	66.5	309.2	170.8	155.6	0.0	599.9	201.7	0.0	0.0		
OBSERVATION_NOR	227 22:21	229 13:21	191.9	147.9	311.0	8.3	558.9	120.6	150.9	312.3	423.3	236.3	662.4	0.0	6.5	3130.3
OBSERVATION_SI	227 22:21	229 13:21	0.0	0.0	3.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.5
SP_027EA_G34BWGSEQ229_PRIME	229 13:21	229 22:21	32.4	7.4	43.6	1.6	0.0	19.4	38.0	0.0	42.4	2.5	0.0	0.0	0.0	187.4
DAILY TOTAL SCIENCE	227 22:21	229 22:21	224.3	155.3	358.1	9.9	558.9	140.0	189.0	312.3	465.8	238.8	662.4	0.0		
OBSERVATION_NOR	229 22:21	230 13:06	53.1	12.1	0.0	2.7	0.0	31.9	49.1	0.0	69.6	0.0	395.0	0.0	0.0	613.4
SP_027EA_G70METSEQ230_PRIME	230 13:06	230 22:06	32.4	7.4	86.4	1.6	0.0	19.4	30.0	0.0	42.4	2.5	0.0	0.0	0.0	222.1
DAILY TOTAL SCIENCE	229 22:21	230 22:06	85.5	19.5	86.4	4.3	0.0	51.3	79.1	0.0	112.0	2.5	395.0	0.0		
OBSERVATION_NOR	230 22:06	231 13:06	92.0	8.1	0.0	3.3	309.2	49.8	61.1	0.0	117.5	199.3	0.0	0.0	0.0	840.3
SP_027EA_G70METSEQ231_PRIME	231 13:06	231 22:06	129.6	4.9	86.0	3.2	0.0	64.0	58.5	0.0	162.0	2.5	0.0	0.0	0.0	510.8
DAILY TOTAL SCIENCE	230 22:06	231 22:06	221.6	13.0	86.0	6.6	309.2	113.8	119.7	0.0	279.5	201.7	0.0	0.0		

Segment Geometry (1 of 2)



Rev 027 INBOUND
2006 - 225T22:12:00 SCET
2006 AUG 13 22:12:00 SCET
2006 AUG 13 23:36:33 ERT
Apoapse_027 + 009T00:50:06
Periapse_027 - 002T22:41:06
Light time: 84.5 min
Orbit period: 24.0 days

Radius	1661234 km	27.56 Rs
Rad_cyl	1658885 km	27.53 Rs
Z_ht_cyl	88311 km	1.47 Rs
Mag_L	27.64	
Semi_axs	1602643 km	26.59 Rs
Eccentricity	0.843	
Inclination	14.87 deg	
Sun_range	9.16 AU	
Earth_range	10.17 AU	

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

Goldstone	33.1	65.1
Canberra	29.0	1.6
Madrid	-32.4	-17.0

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

FOV	10.4 deg	181.3 mrad
RA	-14.910 deg	
DEC	-6.733 deg	
Crosses_RP_@	0.000 Rs	
EPS	0.593 deg	
SEP	5.371 deg	
ORS b/s angle	28.6 deg	
ORS rad angle	103.5 deg	

Point NEG_Y at SATURN and align POS_X = Up with NSP

User vector - RA: +81.514 DEC: -17.304 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

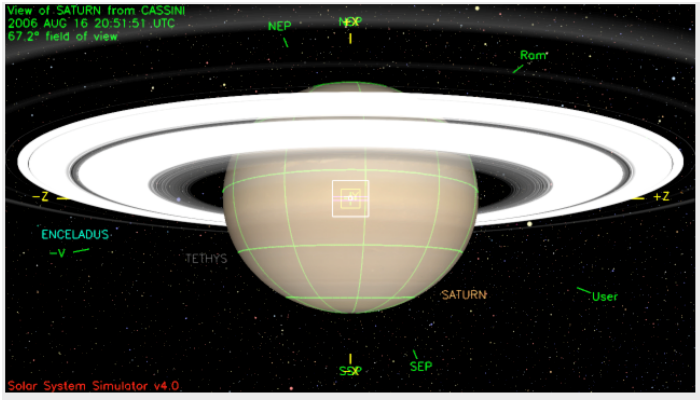
Year Month Day Hour Minute Second

Turn analyzer: SATURN to EARTH about Z on RWA = 5.0 min / 28.1 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	ALON [deg]	VREL [km/s]	Z_HGHT [km]	ANGLE_FROM SATRN	ANGLE_FROM EARTH	ANGLE_FROM RAM
SATURN	--	--	1661234	27.56	1600982	26.56	151.3	4.16	72.57	107	3	0	4.7	0	0.0	28.1	31.5
MIMAS	--	--	1830325	30.37	1830119	30.37	153.6	0.01	0.23	335	2	-152	15.1	-5137	2.7	25.8	34.1
ENCELADUS	--	--	1440551	23.90	1440295	23.90	148.6	0.02	0.36	160	4	20	12.6	-35	3.3	30.8	28.1
TETHYS	--	--	1941055	32.21	1940516	32.20	153.5	0.03	0.56	344	3	-161	13.2	4515	2.9	25.9	34.4
DIONE	--	--	1805584	29.96	1805022	29.95	160.5	0.04	0.62	298	3	-107	7.8	99	11.6	18.9	42.7
RHEA	--	--	1170384	19.42	1169618	19.41	144.7	0.08	1.31	157	4	18	8.6	3280	7.9	34.7	23.6
TITAN	--	--	2831959	46.99	2829384	46.95	154.9	0.10	1.82	351	2	-168	8.6	-5605	5.1	24.4	36.6
HYPERION	--	--	2408829	39.97	2408686	39.97	165.0	0.01	0.14	307	-1	-106	4.2	-24190	32.2	14.9	63.0
IAPETUS	--	--	4836072	80.24	4835324	80.23	124.3	0.02	0.31	16	-2	139	8.0	41731	28.3	55.0	10.3
PHOEBE	--	--	15239460	252.86	15239347	252.86	68.1	0.00	0.02	166	-26	93	3.6	6728418	82.7	110.7	60.4
SATURN	--	--	1661234	27.56	1600982	26.56	151.3	4.16	72.57	107	3	0	4.7	0	0.0	28.1	31.5

Segment Start: 2006-225T22:12

Periapse: 2006-228T20:51:51



Rev 027 INBOUND
2006 - 228T20:51:51 SCET
2006 AUG 16 20:51:51 SCET
2006 AUG 16 22:16:15 ERT
Apoapse_027 + 011T23:29:57
Periapse_027 - 00:01:15
Light time: 84.4 min
Orbit period: 24.1 days

Radius	252155 km	4.18 Rs
Rad_cyl	248212 km	4.12 Rs
Z_ht_cyl	-44417 km	-0.74 Rs
Mag_L	4.32	
Semi_axs	1610611 km	26.72 Rs
Eccentricity	0.843	
Inclination	14.87 deg	
Sun_range	9.15 AU	
Earth_range	10.15 AU	

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

Goldstone	47.2	71.4
Canberra	19.1	-12.0
Madrid	-28.6	-6.1

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

FOV	67.2 deg	1173.1 mrad
RA	133.463 deg	
DEC	10.537 deg	
Crosses_RP_@	0.000 Rs	
EPS	0.864 deg	
SEP	7.833 deg	
ORS b/s angle	172.1 deg	
ORS rad angle	96.1 deg	

Point NEG_Y at SATURN and align POS_X = Up with NSP

User vector - RA: +81.514 DEC: -17.304 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

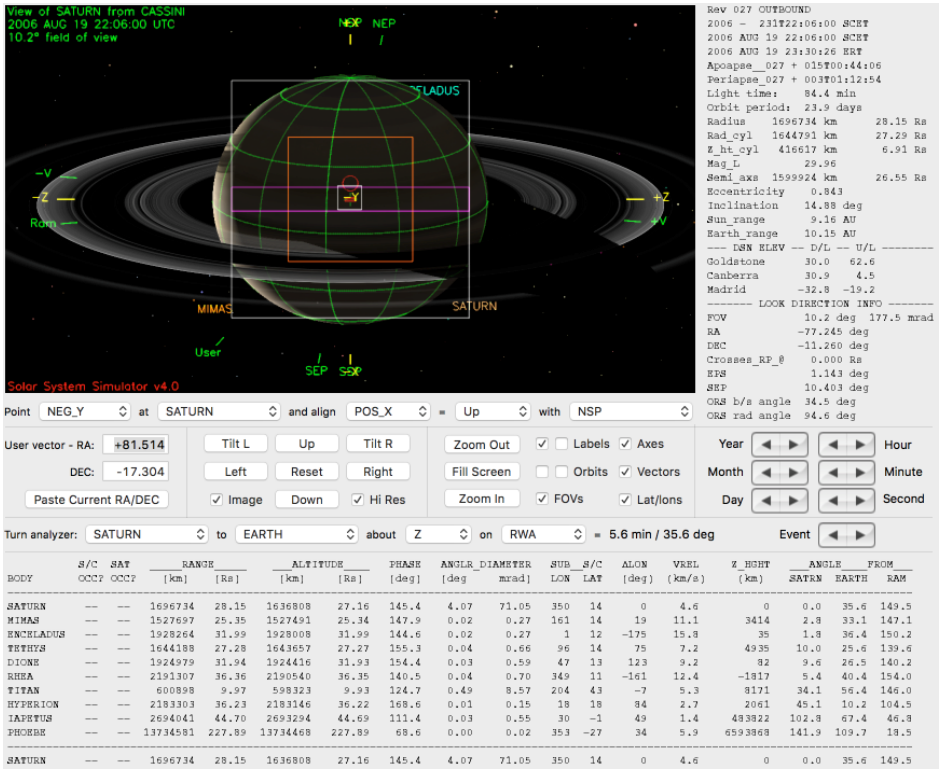
Year Month Day Hour Minute Second

Turn analyzer: SATURN to EARTH about Z on RWA = 15.8 min / 171.9 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	ALON [deg]	VREL [km/s]	Z_HGHT [km]	ANGLE_FROM SATRN	ANGLE_FROM EARTH	ANGLE_FROM RAM
SATURN	--	--	252155	4.18	192069	3.19	7.9	27.66	482.70	185	-10	0	16.7	0	0.0	171.9	89.6
MIMAS	--	--	185713	3.08	185516	3.08	52.7	0.13	2.23	277	-12	-47	13.0	-3597	48.3	126.6	49.2
ENCELADUS	--	--	416210	6.91	415955	6.90	27.5	0.07	1.23	37	-6	116	24.6	-8	31.1	153.4	115.4
TETHYS	--	--	522140	8.66	521600	8.65	17.3	0.12	2.07	16	-5	147	26.7	-5429	18.7	163.5	107.0
DIONE	--	--	159058	2.64	158495	2.63	124.5	0.41	7.09	25	-16	15	7.7	111	132.1	55.8	104.5
RHEA	--	--	492376	8.17	491610	8.16	87.9	0.18	3.12	335	-5	-68	15.9	-1625	83.4	91.3	34.3
TITAN	--	--	1226334	20.35	1223759	20.31	84.4	0.24	4.20	343	-2	-89	17.5	3181	79.5	94.8	38.4
HYPERION	--	--	1189642	19.74	1189490	19.74	158.6	0.02	0.28	146	14	-15	11.7	-19307	159.0	20.6	69.6
IAPETUS	--	--	3467419	57.53	3466672	57.52	93.4	0.02	0.43	358	0	-86	16.7	266964	89.2	85.6	32.6
PHOEBE	--	--	15235148	252.79	15235036	252.79	62.5	0.00	0.02	23	-24	-117	16.0	6664803	60.8	116.1	31.5
SATURN	--	--	252155	4.18	192069	3.19	7.9	27.66	482.70	185	-10	0	16.7	0	0.0	171.9	89.6

	Saturn Range	Phase Angle	Sub-S/C Lat.
Segment Start	27.56 Rs	151.3 deg	3
Periapse	4.18 Rs	7.9 deg	-10
Segment End	28.15 Rs	145.4 deg	14

Segment Geometry (2 of 2)



Segment End: 2006-231T22:06

	Saturn Range	Phase Angle	Sub-S/C Lat.
Segment Start	27.56 Rs	151.3 deg	3
Periapse	4.18 Rs	7.9 deg	-10
Segment End	28.15 Rs	145.4 deg	14

Solar Geometry – ORS Boresight Concerns

No ORS Boresight Solar Constraints on Science Pointing Noted.

Daily Science Highlights (1 of 2)

- SATURN
  - Hemisphere Mapping in Far-IR and EUV, FUV ; Cylindrical mapping by VIMS (covering a large range of longitude at a specific, relatively small set of latitudes)
  - Saturn WAC Photopolarimetry 160 Phase
  - Saturn Methane Fluorescence Map
  - Saturn Feature Tracks – VIMS, CIRS
  - Limb sounding in the mid-IR for stratospheric thermal structure
- Zero Phase Ring Observation 2006-228T21:15

This is one of seven Zero Phase ring observations to study the opposition brightening of the rings and how that varies with ring radius and wavelenth. Results to date have ruled out one of two competing models for the phenomenon and revealed a thermal zero phase effect.The rev 27 observation will observe the Cassini Division, the entire A ring (which was missed on rev 10), and the F ring.

- ICY Satellites
  - RADAR scatterometry of Dione and Rhea
  - ORS observations of Mimas, Dione, Helene, Rhea
- MAPS Titan Distant Torus

Measure the properties of the Titan torus and Titan interaction at large distances from Titan.

Daily Science Highlights (2 of 2)

The entire suite of Magnetospheric and Plasma Science (MAPS) instruments, which include the Cassini Plasma Spectrometer (CAPS), Cosmic Dust Analyzer (CDA), Ion and Neutral Mass Spectrometer (INMS), Magnetometer Subsystem (MAG), Magnetospheric Imaging Instrument (MIMI) and Radio and Plasma Wave Science (RPWS), continued to simultaneously perform magnetospheric surveys, and to observe the variability of magnetospheric boundaries at a variety of radial distances. As we approached periapse, CDA was on a campaign to obtain Tethys orbit crossing and the E ring measurements.
Several MAPS instruments also participated in a campaign to study the interactions between icy satellites, rings, and the magnetosphere. MIMI also imaged the dynamics of the inner magnetosphere. MIMI imaged these dynamics by sampling energetic ions with the MIMI/INCA sensor.

On August 17th (DOY 229) the Imaging Science Subsystem (ISS), along with the Composite Infrared Spectrometer (CIRS) and the Ultraviolet Imaging Spectrograph (UVIS) observed Helene to attain color, polarization, shape, and geology measurements. This was the mission's closest Helene encounter to date, as Cassini flew by Helene at an altitude of 48759 kilometers at around 7.7 kilometers per second.

Segment Integration Planning

Timeline Gaps and Suggested Observations (1 of 2)

Rev 27 Peripase Strawman

Again, we worked with SOST to integrate some of their high-priority observations into the timeline

- A window from 228T11:30 - 14:55 for Mimas/Dione
- A window from 229T08:30 - 12:51 for Rhea
- Another high-priority Rhea request was given up in favor of allowing Saturn observing near 0° phase
- There were several other places in the timeline where there were no competing Saturn requests, so some additional CIRS Rhea and ISS Helene/Enceladus/Mimas coverage is also included

Comments/Issues

- No timing changes to any DSN passes are planned, although we will almost certainly need to upgrade some of the 34-m stations to 70-m for data volume considerations
- CIRS FIRMAP at 225T23:20 moved earlier and shortened to fill available time
- UVIS EUVFUV at 226T01:51 moved earlier to avoid conflict with DSN
- VIMS CH4FLUOR at 227T22:51 reduced drastically to fit available time (maybe just add time to THRCYLMAP instead?)
- What should the observing strategy be near 0° phase (228T20:18) and periapse (228T20:54)? Strawman has CIRS FT and CIRS LIMBMAP prime, but there were other CIRS/ISS/UVIS requests around that time, also.
- VIMS_027SA_THRCYLMAL001_PRIME at 229T22:51 was drastically reduced to fit available time (maybe just add time to CH4FLUOR instead?)
- Are the outbound ISS Saturn Photom and UVIS EUVFUV requests doable in the allocated time slots? Both had to be moved later in time to avoid conflicting with DSN.
- Any CDA pointing requirements near the ring plane crossing?
- Does Rings TWT have any requirements for observing 0° phase on the rings?

- Segment = 2006-225T22:20 to 2006-231T22:06
- Geometry Info
  - Ring Plane Crossing = 2006-227T02:15
  - Saturn Ring Zero Phase = 2006-228T18:48
  - Saturn Zero Phase = 2006-228T20:18
  - Periapse = 2006-228T20:54
  - Ring Plane Crossing = 2006-229T00:21
- Peripase Info
  - Range = 4.18 Rs
  - Phase angle @ -1 day = 124°
  - Phase angle @ periapse = 7°
  - Phase angle @ +1 day = 117°

Timeline Gaps and Suggested Observations (2 of 2)

Request	Start	Dur	End	OriginalStart Time (if changed)
OpNav Window	225T22:20	1:00	225T23:20	-
CIRS_027SA_FIRMAP015_PRIME	225T23:20	13:30	226T12:50	226T10:00 (dur was 22:00)
SP Turn to Earth	226T12:50	0:30	226T13:20	-
Gold HEF	226T13:20	9:00	226T22:20	
SP Turn to waypoint	226T22:20	0:30	226T22:50	-
ISS_027SA_1X2WPH160003_PRIME thru 005-PRIME	226T22:50	3:01	227T01:51	226T22:46
UVIS_027SA_EUVFUV003_PRIME	227T01:51	11:00	227T12:51	227T04:55
SP Turn to Earth	227T12:51	0:30	227T13:21	-
Gold HEF	227T13:21	9:00	227T22:21	-
SP Turn to waypoint	227T22:21	0:30	227T22:51	-
VIMS_027SA_CH4FLUOR001_PRIME	227T22:51	1:39	228T00:30	227T06:00 (dur was 11:00)
VIMS_027SA_CYLMAP001_PRIME	228T00:30	11:00	228T11:30	228T05:00
ORS Mimas & Dione	228T11:30	3:25	228T14:55	-
CIRS_027SA_FTRACK008_PRIME	228T15:13	6:00	228T21:13	-
CIRS_027SA_LIMBMAP003_PRIME	228T21:13	6:00	229T03:13	228T20:53;57 (Peri+0T0:0:0
ISS Helene, Mimas, Enceladus	229T03:13	3:47	229T07:00	-
CIRS_027RH_FPEREGION001_PRIME	229T07:00	1:30	229T08:30	229T07:05
ORS Rhea	229T08:30	4:21	229T12:51	Dur was 5:24
SP Turn to Earth	229T12:51	0:30	229T13:21	-
Gold BWG	229T13:21	9:00	229T22:21	-
SP Turn to waypoint	229T22:21	0:30	229T22:51	-
VIMS_027SA_THRCYLMAL001_PRIME	229T22:51	2:45	230T01:36	229T13:00 (dur was 11:00)
VIMS_027SA_CH4FLUOR002_PRIME	230T01:36	11:00	230T12:36	230T01:15
SP Turn toEarth	230T12:36	0:30	230T13:06	-
Gold HEF	230T13:06	9:00	230T22:06	-
SP Turn to waypoint	230T:22:06	0:30	230T22:36	-
ISS Saturn Photometry	230T22:36	3:00	231T01:36	
UVIS_027SA_EUVFUV002_PRIME	231T01:36	11:00	231T12:36	230T08:30
SP Turn to Earth	231T12:36	0:30	231T13:06	-
Gold HEF	231T13:06	9:00	231T22:06	-

Initial SMT and Data Volume (1 of 2)

Beginning of Integration:

- We are oversubscribed by 2005 Mb between 227T22:21 and 229T13:21
  - Resolving this overage should result in a clean SMT run for the entire segment
  - This assumes we can resolve maintenance conflict with 70-m on DOY 229; otherwise more cuts will be necessary
- Team-by-team breakdown of Mb requested in the problem period is shown on next page (red box)
  - Total science data volume requested = 5442 Mb
  - Three biggest users: VIMS = 1756 Mb, ISS = 1028 Mb, RPWS = 816 Mb; V/I/R total = 3600 Mb (66% of total)

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_027EA_G34HEFNON226_PRIME	226 13:20	226 22:20	0	619	51	669	3527	2857	81%	17	632	53	1371	840	-531	-63%	531
SP_027EA_G70METSEQ227_PRIME	227 13:21	227 22:21	531	1434	51	2016	3561	1545	43%	0	644	53	2713	3255	542	17%	0
SP_027EA_G70METSEQ229_PRIME	229 13:21	229 22:21	0	5442	131	5574	3569	-2005	-56%	0	225	53	3847	3255	-592	-18%	2597
SP_027EA_G34HEFSEQ230_PRIME	230 13:06	230 22:06	2597	1114	50	3761	3569	-191	-5%	0	217	53	3839	840	-2999	-357%	3191
SP_027EA_G70METSEQ231_PRIME	231 13:06	231 22:06	3191	840	51	4081	3564	-518	-15%	0	509	53	4125	3255	-870	-27%	1388

Initial SMT and Data Volume (2 of 2)

Beginning of 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	225 22:20	226 13:20	167.3	8.1	194.4	3.5	0.0	54.7	63.2	0.0	127.4	0.0	0.0	0.0	0.0	618.6
OBSERVATION_OPN	225 22:20	226 13:20	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_027EA_G34HEFNON226_PRIME	226 13:20	226 22:20	259.2	4.9	86.4	3.2	0.0	64.0	58.3	0.0	155.8	0.0	0.0	0.0	0.0	631.9
OBSERVATION_NOR	226 22:20	227 13:21	432.5	23.6	0.0	5.4	309.2	106.8	97.3	0.0	260.0	199.3	0.0	0.0	0.0	1434.1
SP_027EA_G70METSEQ227_PRIME	227 13:21	227 22:21	259.2	17.0	86.4	3.2	0.0	64.0	58.3	0.0	155.8	0.0	0.0	0.0	0.0	644.0
OBSERVATION_NOR	**227 22:21**	**229 13:21**	**508.7**	**181.6**	**339.8**	**8.3**	**1028.9**	**119.7**	**172.2**	**338.4**	**816.2**	**171.9**	**1756.4**	**0.0**	**0.0**	**5442.1**
SP_027EA_G70METSEQ229_PRIME	229 13:21	229 22:21	32.4	4.9	86.4	1.6	0.0	19.4	38.0	0.0	42.4	0.0	0.0	0.0	0.0	225.2
OBSERVATION_NOR	229 22:21	230 13:06	53.1	8.0	0.0	2.7	0.0	31.9	49.1	0.0	69.6	0.0	900.0	0.0	0.0	1114.3
SP_027EA_G34HEFSEQ230_PRIME	230 13:06	230 22:06	32.4	4.9	86.4	1.6	0.0	19.4	30.0	0.0	42.4	0.0	0.0	0.0	0.0	217.1
OBSERVATION_NOR	230 22:06	231 13:06	92.0	8.1	0.0	3.3	309.2	49.8	61.1	0.0	117.5	199.3	0.0	0.0	0.0	840.2
SP_027EA_G70METSEQ231_PRIME	231 13:06	231 22:06	129.6	4.8	86.4	3.2	0.0	64.0	58.5	0.0	162.0	0.0	0.0	0.0	0.0	508.7

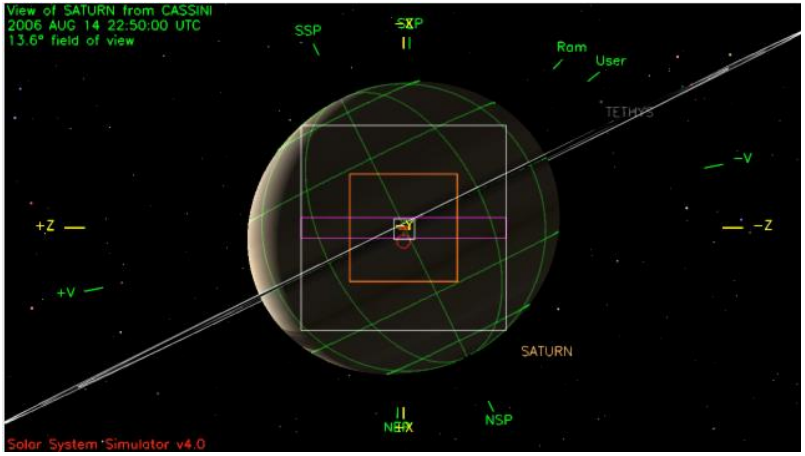
Waypoint Selection

- Below is the current attitude strategy
- Any comments or complaints?

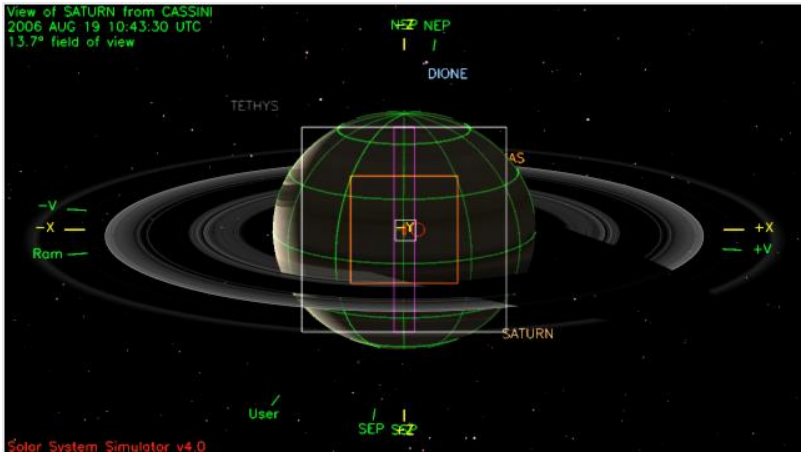
Request	Riders	Start (SCET	Start (Epoch)	Dur	End (SCET)	Observation Attitude Primary	Secondary	Comments
Start Saturn 27 Segment		2006-225T22:20			2006-231T22:06			
SP_027SA_WAYPTTURN225_PRIME		2006-225T22:20:00		00T00:30:00	2006-225T22:50:00	ISS_NAC to Saturn	POS_Z to Sun	2nd axis for MAPS DISTTORUS
NEW WAYPOINT		**2006-225T22:50**			**2006-227T22:51**	**ISS_NAC to Saturn**	**POS_Z to Sun**	**FR Safe; 2nd axis for MAPS DISTTORUS**
CIRS_027SA_FIRMAP015_PRIME		2006-225T22:50:00		00T13:30:00	2006-226T12:20:00	ISS_NAC to Saturn	POS_Z to Sun	2nd axis for MAPS DISTTORUS
NAV_027SA_OPNAV261_PRIME		2006-226T12:20:00		00T01:00:00	2006-226T13:20:00	ISS_NAC to RA/Dec	POS_Z to Sun	2nd axis for MAPS DISTTORUS; includes turn to XBAND to Earth, -Y to NEP
SP_027EA_G34HEFSEQ226_PRIME	DSCAL	2006-226T13:20:00		00T09:00:00	2006-226T22:20:00	XBAND to Earth	rolling	for MAPS DISTTORUS
SP_027SA_WAYPTTURN226_PRIME		2006-226T22:20:00		00T00:30:00	2006-226T22:50:00	ISS_NAC to Saturn	POS_Z to Sun	2nd axis for MAPS DISTTORUS
ISS_027SA_1X2WPH160001_PRIME		2006-226T22:50:00		00T00:30:00	2006-226T23:20:00	ISS_NAC to Saturn	POS_Z to Sun	2nd axis for MAPS DISTTORUS
ISS_027SA_1X2WPH160002_PRIME		2006-226T23:50:00		00T00:30:00	2006-227T00:20:00	ISS_NAC to Saturn	POS_Z to Sun	2nd axis for MAPS DISTTORUS
ISS_027SA_1X2WPH160003_PRIME		2006-227T00:50:00		00T00:30:00	2006-227T01:20:00	ISS_NAC to Saturn	POS_Z to Sun	2nd axis for MAPS DISTTORUS
UVIS_027SA_EUVFUV003_PRIME		2006-227T01:51:00		00T11:00:00	2006-227T12:51:00	UVIS_FUV to Saturn	POS_Z to Sun	2nd axis for MAPS DISTTORUS
SP_027EA_DLTURN227_PRIME		2006-227T12:51:00		00T00:30:00	2006-227T13:21:00	XBAND to Earth	NEG_Y to NEP	
SP_027EA_G34HEFSEQ227_PRIME	DSCAL	2006-227T13:21:00		00T09:00:00	2006-227T22:21:00	XBAND to Earth	rolling	for MAPS DISTTORUS
SP_027SA_WAYPTTURN227_PRIME		2006-227T22:21:00		00T00:30:00	2006-227T22:51:00	ISS_NAC to Saturn	POS_X to NSP	
NEW WAYPOINT		**2006-227T22:51**			**2006-229T22:51**	**ISS_NAC to Saturn**	**POS_X to NSP**	**FR Safe**
VIMS_027SA_CH4FLUOR001_PRIME		2006-227T22:51:00		00T03:09:00	2006-228T02:00:00	ISS_NAC to Saturn	POS_Z to NSP	
VIMS_027SA_FTRACK001_PRIME		2006-228T02:00:00		00T06:00:00	2006-228T08:00:00	ISS_NAC to Saturn	POS_Z to NSP	
VIMS_027SA_CYLMAP001_PRIME		2006-228T08:00:00		00T03:05:00	2006-228T11:05:00	ISS_NAC to Saturn	POS_Z to NSP	
RADAR_027DI_SCATTRADL001_PRIME		2006-228T11:05:00		00T01:30:00	2006-228T12:35:00	NEG_Z to Dione	PIC	
VIMS_027MI_MIMAS001_PRIME	C,I,U	2006-228T12:35:00		00T00:45:00	2006-228T13:20:00	ISS_NAC to Mimas		
ISS_027DI_REGGEODA001_PRIME	C,U,V	2006-228T13:20:00		00T01:10:00	2006-228T14:30:00	ISS_NAC to Dione		
CIRS_027SA_FTRACK008_PRIME	I,U,V	2006-228T14:30:00		00T06:00:00	2006-228T20:30:00	ISS_NAC to Saturn	POS_X to NSP	
ISS_027SA_NEAR0PHA001_PRIME	I,V	2006-228T20:30:00		00T00:45:00	2006-228T21:15:00	ISS_NAC to Saturn		
VIMS_027RI_0PHASE001_PRIME	C,I,U	2006-228T21:15:00		00T00:40:00	2006-228T21:55:00	ISS_NAC to Rings		
CIRS_027SA_LIMBMAP003_PRIME	I,U	2006-228T21:55:00		00T05:30:00	2006-229T03:25:00	ISS_NAC to Saturn	POS_X to NSP	
ISS_027HE_GEOLOG001_PRIME	C,U	2006-229T03:25:00		00T01:50:00	2006-229T05:15:00	ISS_NAC to Helene	POS_Z to NSP	
RADAR_027RH_SCATTRADL001_PRIME		2006-229T05:15:00		00T01:35:00	2006-229T06:50:00	NEG_Z to Rhea	PIC	
ISS_027RH_REGMAP8001_PRIME	C,U,V	2006-229T06:50:00		00T01:45:00	2006-229T08:35:00	ISS_NAC to Rhea		
CIRS_027RC_ONSATULM001_PRIME	SI	2006-229T08:35:00		00T02:00:00	2006-229T10:35:00	ISS_NAC to Rings	POS_Z to NSP	
ISS_027RH_REGGEODC001_PRIME	C,U,V	2006-229T10:35:00		00T02:16:00	2006-229T12:51:00	ISS_NAC to Rhea		
SP_027EA_DLTURN229_PRIME		2006-229T12:51:00		00T00:30:00	2006-229T13:21:00	XBAND to Earth	POS_X to NSP	
SP_027EA_G34BWGSEQ229_PRIME	DSCAL	2006-229T13:21:00		00T09:00:00	2006-229T22:21:00	XBAND to Earth	rolling	
SP_027SA_WAYPTTURN229_PRIME		2006-229T22:21:00		00T00:30:00	2006-229T22:51:00	ISS_NAC to Saturn	NEG_Z to NSP	
NEW WAYPOINT		**2006-229T22:51**			**2006-230T22:36**	**ISS_NAC to Saturn**	**NEG_Z to NSP**	**FR Safe**
VIMS_027SA_THRCYLMAP001_PRIME		2006-229T22:51:00		00T05:09:00	2006-230T04:00:00	ISS_NAC to Saturn	NEG_Z to NSP	
VIMS_027SA_FTRACK003_PRIME		2006-230T04:00:00		00T06:00:00	2006-230T10:00:00	ISS_NAC to Saturn	NEG_Z to NSP	
VIMS_027SA_CH4FLUOR002_PRIME		2006-230T10:00:00		00T02:36:00	2006-230T12:36:00	ISS_NAC to Saturn	NEG_Z to NSP	
SP_027EA_DLTURN230_PRIME		2006-230T12:36:00		00T00:30:00	2006-230T13:06:00	XBAND to Earth	POS_X to NEP	
SP_027EA_G34HEFSEQ230_PRIME	DSCAL	2006-230T13:06:00		00T09:00:00	2006-230T22:06:00	XBAND to Earth	rolling	
SP_027SA_WAYPTTURN230_PRIME		2006-230T22:06:00		00T00:30:00	2006-230T22:36:00	ISS_NAC to Saturn	NEG_X to Sun	
NEW WAYPOINT		**2006-230T22:36**			**2006-231T22:06**	**ISS_NAC to Saturn**	**NEG_X to Sun**	**FR Safe**
ISS_027SA_1X2WP140B001_PRIME		2006-230T22:41:00		00T00:30:00	2006-230T23:11:00	ISS_NAC to Saturn	NEG_X to Sun	
ISS_027SA_1X2WP140B002_PRIME		2006-230T23:41:00		00T00:30:00	2006-231T00:11:00	ISS_NAC to Saturn	NEG_X to Sun	
ISS_027SA_1X2WP140B003_PRIME		2006-231T00:41:00		00T00:30:00	2006-231T01:11:00	ISS_NAC to Saturn	NEG_X to Sun	
UVIS_027SA_EUVFUV002_PRIME		2006-231T01:36:00		00T11:00:00	2006-231T12:36:00	UVIS_FUV to Saturn		
SP_027EA_DLTURN231_PRIME		2006-231T12:36:00		00T00:30:00	2006-231T13:06:00	XBAND to Earth	POS_X to NEP	
SP_027EA_G34HEFNON231_PRIME	DSCAL	2006-231T13:06:00		00T09:00:00	2006-231T22:06:00	XBAND to Earth	rolling	

Waypoints Chosen

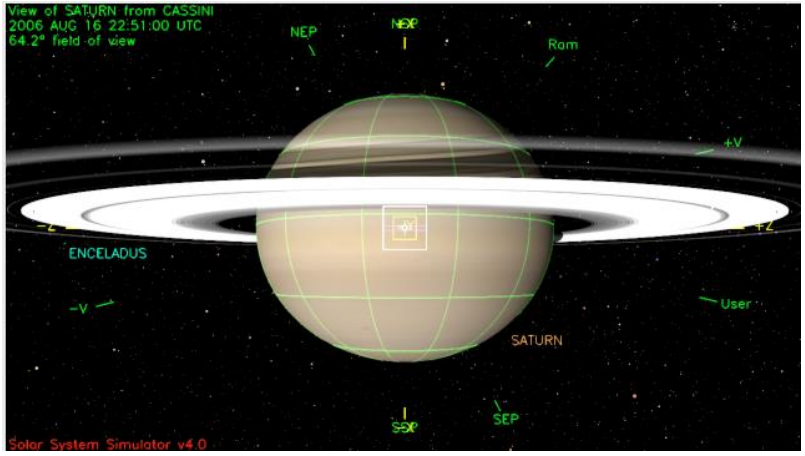
Waypoint 1 (2006-225T22:50 – 227T22:51):
NAC to Saturn, POS_Z to Sun



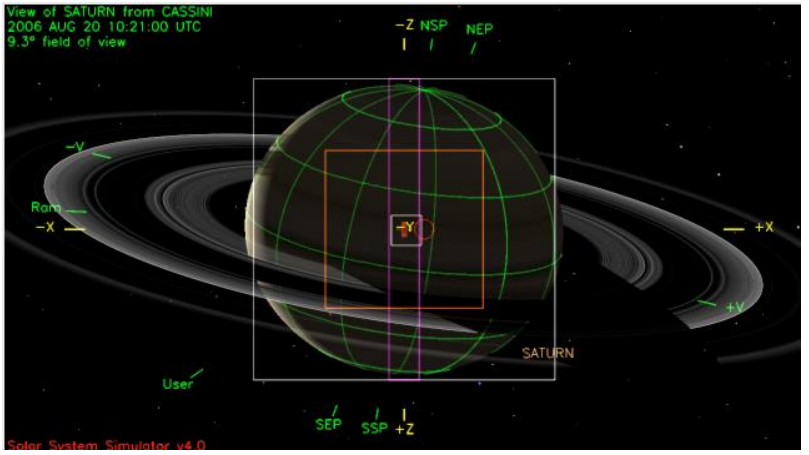
Waypoint 3 (2006-229T22:51 – 230T22:36):
NAC to Saturn, NEG_Z to NSP



Waypoint 2 (2006-227T22:51 – 229T22:51):
NAC to Saturn, POS_X to NSP



Waypoint 4 (2006-230T22:36 – 231T22:06):
NAC to Saturn, NEG_X to Sun



Notes & Liens (1 of 3)

- Timing
  - Segment boundary has changed
    - WAS 2006-225T22:20 to 2006-231T22:06
    - IS 2006-225T22:12 to 2006-231T22:06
  - End of segment is end of sequence
- Solar Conjunction
  - Saturn_027 immediately follows solar conjunction
  - RSS Solar Conjunction Experiment added. See page 5 for details.
- Pointing
  - Waypoints have been re-validated
  - Downlink attitudes have been re-validated. Roll on DOY 026 will be delayed by 1 hour 15 minutes (non-standard delay) for Gyro Cal—see next page.
  - SP turns are safe. SP_027SA_WAYPTTURN625_PRIME's 13:00 duration needs to be split 12:30 turn allocation and 00:30 turn margin (rather than default 02:00 margin)
- Data Volume
  - 0% net margin on DOY 229; 6 Mb SSR margin on DOY 230
  - Substantial margin remaining on final pass

Notes & Liens (2 of 3)

- CIMS
  - All requests are currently approved
- OpModes
  - OpModes are in CIMS and have been reviewed by Laura Burke
  - See Page 5 for change made to support RSS Solar Conjunction
- DSN
  - Maintenance conflict with Madrid 70 M resolved by eliminating that station.
  - NAV has reviewed (02/22/2006) and agreed to Doppler gap.
- Gyro Calibration
  - OPNAV associated with S22 gyro cal was deleted.
  - DOY 226 is one of only two OPNAVs remaining and the only suitable.
  - Downlink roll must be delayed for one hour and 15 minutes until 2006-226T14:35:00.
  - MAPS instruments have agreed.

Notes & Liens (3 of 3)

RSS Solar Conjunction Experiment

- Science Objective:

  Characterize the solar corona at 2 frequency bands (X and Ka1), and assess the electron content and possible Faraday rotation, during the solar conjunction period.

- Added to DOYs 230 and 231 (in this segment)
- Non-conflicting activities (X, Ka) were incorporated in aftermarket
- ADDITIONAL S-band CHANGES were reviewed and then incorporated
  - Turn S-band ON at the beginning of each of these downlinks
  - Avoid possible interference with CDA (since they usually stop articulating at the beginning of downlink). CDA has concurred.
  - Scheduled 70-m antenna (DSS-14) can support S-band (no DSN Request change)
  - S-band opmode is OK with SCO