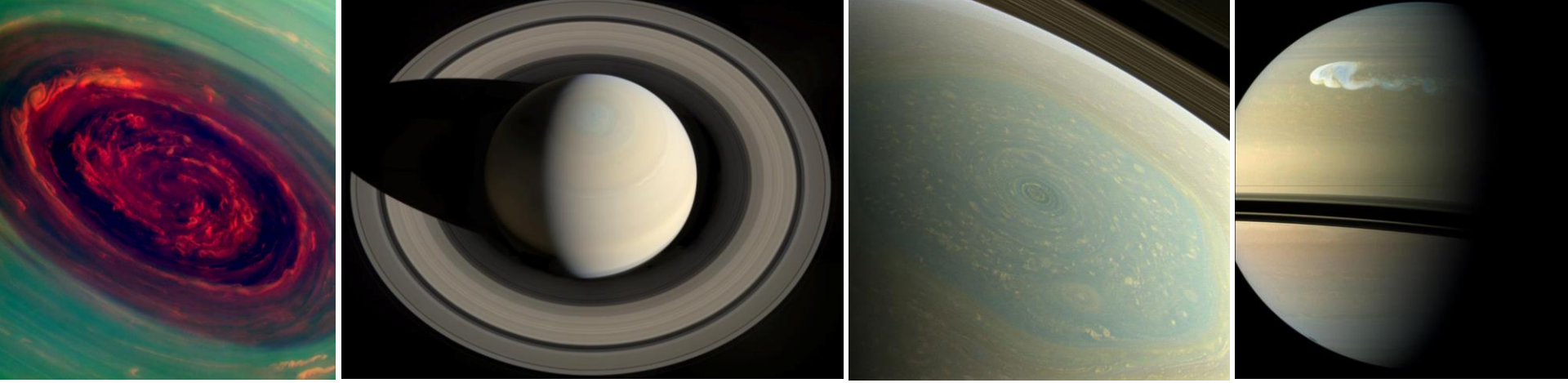

Science Planning & Sequence Team
CASSINI

SATURN TARGET WORKING TEAM

Rev 025 Segment Legacy Package

Segment Boundary: June 28, 2006 – July 1, 2006
179T01:07:00 to 182T17:22:00 (SCET)

Integration Began 09/23/2002
Segment Delivered to S21 Sequence 11/20/2002
Lead Integrator was Jerod Gross

Legacy Package Assembled by Keven Uchida

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

Segment Overview and Final Products

Segment Summary

- Approximately 3 day long periapse (5.44 R_s) segment. Spacecraft is in an equatorial orbit. The segment covers a wide range of Saturn phase angles/illumination (~15 to ~122 deg) .
- The first half of the segment (heading toward periapsis) was dedicated to satellite observations (Hyperion), the second half toward Saturn atmospheric studies, including a Beta Ori stellar occultation observation. The second half of segment also included Enceladus and Mimas observations.
- OTM 64 on DOY 179, setting up for the Titan 15 encounter on July 2, DOY 183.
- No CMT/Sun issues.

Final Sequenced SPASS

Request	Riders	Start (SCET)	Start (Epoch)	Duration	End	Primary	Secondary	Comments
SATURN rev 25 Segment		2006-179T01:07:00		003T16:15:00	2006-182T17:22:00			
SP_025HY_WAYPTTURN179_PRIME	M	2006-179T01:07:00		000T00:30:00	2006-179T01:37:00	ISS_NAC to Hyperion	POS_X to NSP	
NEW WAYPOINT		2006-179T01:37:00		000T14:30:00	2006-179T16:07:00	ISS_NAC to Hyperion	POS_X to NSP	
ISS_025HY_GEOLOG002_PRIME	C, M, U, V	2006-179T02:07:00		000T09:30:00	2006-179T11:37:00	ISS_NAC to Hyperion	POS_Z to NSP	
VIMS_025SA_FEATRACK001_PRIME		2006-179T11:37:00		000T03:00:00	2006-179T14:37:00	VIMS_IR to Saturn	POS_Z to NSP	
ISS_025HY_GEOLOG003_PRIME	C, U, V	2006-179T14:37:00		000T01:00:00	2006-179T15:37:00	ISS_NAC to Hyperion	POS_Z to NSP	
SP_025EA_DLTURN179_PRIME		2006-179T15:37:00		000T00:30:00	2006-179T16:07:00	XBAND to Earth	POS_X to NEP	
NEW WAYPOINT		2006-179T16:07:00		001T02:00:00	2006-180T18:07:00	XBAND to Earth	POS_X to NEP	
SP_025EA_G70METOTP179_PRIME	C, N	2006-179T16:07:00		000T09:00:00	2006-180T01:07:00	XBAND to Earth	POS_X to NEP	
Begin Custom		2006-180T01:07:00		000T00:01:00	2006-180T01:08:00			
CDA_025OT_ECCSCAN013_PRIME		2006-180T01:07:00		000T03:00:00	2006-180T04:07:00	NEG_Z to NSP	NEG_X to 301.5/1.0	Pick up at XBAND to Earth, POS_X to NEP; Hand off at NEG_Z to NSP, NEG_X to 301.5/1.0.
ISS_025HY_GEOLOG004_PRIME	C, U, V	2006-180T04:07:00		000T04:30:00	2006-180T08:37:00	ISS_NAC to Hyperion	NEG_Z to NSP	Pick up at NEG_Z to NSP, NEG_X to 301.5/1.0; Hand off at XBAND to Earth, POS_X to NEP.
End Custom		2006-180T08:37:00		000T00:01:00	2006-180T08:38:00			
SP_025EA_M34HEFOTB180_PRIME	C, N	2006-180T08:37:00		000T09:00:00	2006-180T17:37:00	XBAND to Earth	NEG_Y to Saturn	
SP_025SA_RWDTURN180_PRIME	N	2006-180T08:37:00		000T00:30:00	2006-180T09:07:00	XBAND to Earth	NEG_Y to Saturn	
SP_025SA_WAYPTTURN180_PRIME		2006-180T17:37:00		000T00:30:00	2006-180T18:07:00	ISS_NAC to Saturn	POS_X to NSP	
NEW WAYPOINT		2006-180T18:07:00		001T07:08:00	2006-182T01:15:00	ISS_NAC to Saturn	POS_X to NSP	
CDA_025OT_ECCSCAN014_PRIME		2006-180T18:07:00		000T04:01:00	2006-180T22:08:00	NEG_Z to NSP	NEG_X to 315.5/-0.6	
VIMS_025SA_FEATRACK002_PRIME	R	2006-180T22:08:00		000T04:00:00	2006-181T02:08:00	VIMS_IR to Saturn	POS_Z to NSP	
RADAR_025TI_PHASE3CAL001_PRIME	M	2006-181T02:08:00		000T01:52:00	2006-181T04:00:00	NEG_Z to Titan	POS_X to NTP	RADAR must control primary and secondary axes to obtain correct polarization.
UVIS_025ST_BETORI003_PRIME	I, M	2006-181T04:00:00		000T01:25:00	2006-181T05:25:00	UVIS_FUV to 78.635/-8.202 (0.082,0.0,0.0 deg. offset)	POS_X to NSP	
ISS_025OT_RETHIEQPL004_PRIME	M	2006-181T05:25:00		000T01:25:00	2006-181T06:50:00	ISS_NAC to Retargetable	POS_X to NSP	
CIRS_025EN_FP1FP3SCN001_PRIME	I, M, U, V	2006-181T06:50:00		000T01:10:00	2006-181T08:00:00	CIRS_FP1 to Enceladus	POS_X to NSP	
CIRS_025SA_FTRACK007_PRIME	I, M, V	2006-181T08:00:00		000T06:00:00	2006-181T14:00:00	CIRS_FPB to Saturn	POS_X to NSP	
Periapse R = 5.4 Rs, lat = ...		2006-181T13:05:10		000T00:00:01	2006-181T13:05:11			
ISS_025OT_RETHIEQPL010_PRIME	M	2006-181T14:00:00		000T01:30:00	2006-181T15:30:00	ISS_NAC to Retargetable	POS_X to NSP	
INMS_025SA_INMAGSCN001_PRIME	M	2006-181T15:30:00		000T01:30:00	2006-181T17:00:00	NEG_X to Dust_RAM	ISS_NAC to Saturn	
CIRS_025MI_FP1FP3SCN001_PRIME	M, U, V	2006-181T17:00:00		000T01:15:00	2006-181T18:15:00	CIRS_FP1 to Mimas	POS_X to NSP	
SP_025EA_DLTURN181_PRIME	M	2006-181T18:15:00		000T00:30:00	2006-181T18:45:00	XBAND to Earth	POS_X to NSP	
SP_025EA_G70ARRNON181_PRIME	M	2006-181T18:45:00		000T06:00:00	2006-182T00:45:00	XBAND to Earth	Rolling/SRU	
SP_025SA_WAYPTTURN182_PRIME		2006-182T00:45:00		000T00:30:00	2006-182T01:15:00	ISS_NAC to Saturn	NEG_Z to NSP	
NEW WAYPOINT		2006-182T01:15:00		000T16:37:00	2006-182T17:52:00	ISS_NAC to Saturn	NEG_Z to NSP	
VIMS_025SA_FEATRACK003_PRIME		2006-182T01:15:00		000T02:00:00	2006-182T03:15:00	VIMS_IR to Saturn	NEG_Z to NSP	
CDA_025OT_ECCSCAN015_PRIME	R	2006-182T03:15:00		000T04:00:00	2006-182T07:15:00	NEG_Z to NSP	NEG_X to 317.5/-0.8	
NAV_025SK_OPNAV821_PRIME	N, R	2006-182T07:15:00		000T01:06:00	2006-182T08:21:00	ISS_NAC to Satellites	NEG_Z to NSP	Ends at Earth point
NAV_025EA_DLTURN821_PRIME	R	2006-182T08:21:00		000T00:01:00	2006-182T08:22:00	XBAND to Earth	POS_X to NEP	
SP_025EA_M34HEFOPN182_PRIME	C, R	2006-182T08:22:00		000T09:00:00	2006-182T17:22:00	XBAND to Earth	Rolling/SRU	

Final Sequenced SMT and Data Volume

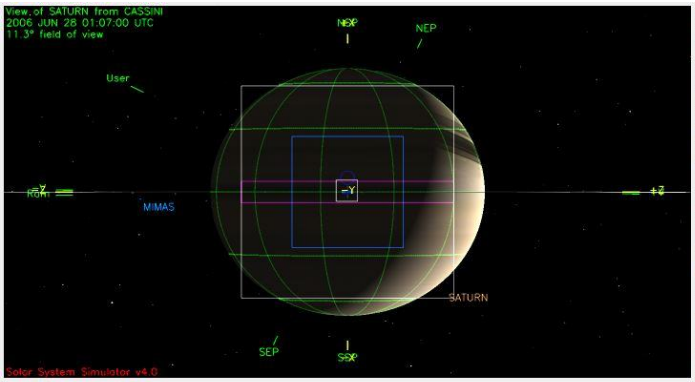
DATA VOLUME SUMMARY --- TRANSFER FRAME OVERHEAD INCLUDED (80 BITS PER 8800-BIT FRAME)

			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 (%)	CAROVR (Mb)
SP_025EA_G70METOTP179_PRIME	179 16:07	180 01:07	0	2714	51	2765	3516	750	0	227	53	3045	3137	92	388	2%	0
SP_025EA_M34HEFOTB180_PRIME	180 08:37	180 17:37	0	565	26	591	3516	2925	0	235	53	878	809	-68	296	2%	69
SP_025EA_G70ARRNON181_PRIME	181 18:45	182 00:45	69	2009	90	2168	3516	1348	0	247	35	2450	2576	126	296	2%	0
SP_025EA_M34HEFOPN182_PRIME	182 08:22	182 17:22	0	345	26	371	3516	3144	9	228	53	661	805	144	171	1%	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	179 01:07	179 16:07	683.7	20.1	151.2	69.7	768.5	53.4	97.2	0.0	447.2	180.7	217.7	0.0	0.0	2689.4
SP_025EA_G70METOTP179_PRIME	179 16:07	180 01:07	32.4	9.3	86.4	3.2	0.0	19.4	29.2	0.0	42.4	2.5	0.0	0.0	0.0	224.8
DAILY TOTAL SCIENCE	179 01:07	180 01:07	716.1	29.4	237.6	73.0	768.5	72.8	126.4	0.0	489.6	183.2	217.7	0.0		
OBSERVATION_NOR	180 01:07	180 08:37	27.0	88.3	64.8	2.7	247.5	16.2	24.3	0.0	35.4	20.4	33.3	0.0	0.0	559.8
SP_025EA_M34HEFOTB180_PRIME	180 08:37	180 17:37	32.4	16.8	86.4	3.2	0.0	19.4	29.2	0.0	42.4	2.5	0.0	0.0	0.0	232.4
DAILY TOTAL SCIENCE	180 01:07	180 17:37	59.4	105.1	151.2	5.9	247.5	35.6	53.5	0.0	77.8	22.8	33.3	0.0		
OBSERVATION_NOR	180 17:37	181 18:45	90.5	314.7	121.2	16.6	392.7	54.3	132.7	14.1	464.6	119.1	270.0	0.0	4.0	1994.5
SP_025EA_G70ARRNON181_PRIME	181 18:45	182 00:45	21.6	11.2	0.0	2.2	0.0	13.0	35.4	0.0	159.7	1.6	0.0	0.0	0.0	244.7
DAILY TOTAL SCIENCE	180 17:37	182 00:45	112.1	326.0	121.2	18.8	392.7	67.2	168.1	14.1	624.4	120.7	270.0	0.0		
OBSERVATION_NOR	182 00:45	182 08:22	27.4	99.3	0.0	2.7	0.0	16.5	24.7	0.0	116.6	0.0	55.0	0.0	0.0	342.2
OBSERVATION_OPN	182 00:45	182 08:22	0.0	0.0	0.0	0.0	8.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	8.7
SP_025EA_M34HEFOPN182_PRIME	182 08:22	182 17:22	32.4	10.5	86.4	3.2	0.0	19.4	29.2	0.0	42.4	2.5	0.0	0.0	0.0	226.1
DAILY TOTAL SCIENCE	182 00:45	182 17:22	59.8	109.8	86.4	6.0	0.0	35.9	53.8	0.0	159.0	2.5	55.0	0.0		

Segment Geometry




```
Rev 025  INBOUND
2006 -  179T01:07:00 SCET
2006 JUN 28 01:07:00 SCET
2006 JUN 28 02:29:57 ERT
Apoapse__025 + 017T01:59:40
Periapse_025 - 002T11:58:10
Light time:    82.9 min
Orbit period:  39.2 days
Radius     1525163 km      25.31 Rs
Rad_cyl    1525161 km      25.31 Rs
Z_ht_cyl      2709 km       0.04 Rs
Mag_L          25.31
Semi_axs   2223690 km      36.90 Rs
Eccentricity     0.852
Inclination      0.40 deg
Sun_range        9.14 AU
Earth_range      9.97 AU
--- DSN ELEV -- D/L -- U/L --------
Goldstone      31.5   63.9
Canberra       29.0    3.4
Madrid        -31.0  -17.8
------- LOOK DIRECTION INFO -------
FOV            11.3 deg  197.5 mrad
RA             14.773 deg
DEC            -5.925 deg
Crosses_RP_@    0.000 Rs
EPS             3.534 deg
SEP            33.676 deg
ORS b/s angle  58.4 deg
ORS rad angle 106.8 deg
```

Point NEG_Y at SATURN and align POS_X = Up with NSP

User Vector - RA: 70.786 DEC: 16.686 | 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

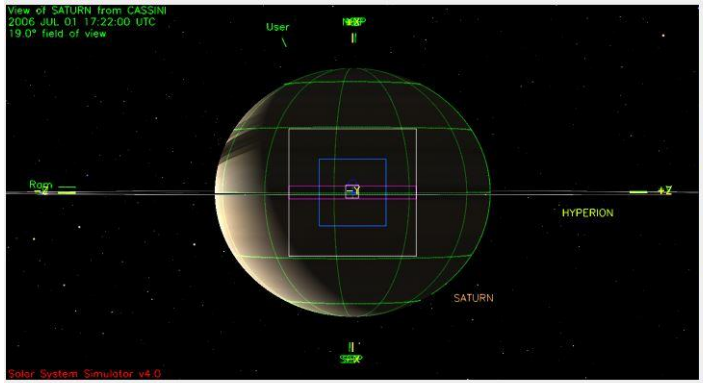
Turn Analyzer: SATURN to EARTH about Z on RWA = 7.6 min / 61.9 deg Event

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	DLON (deg)	VREL (km/s)	Z_HGHT (km)	ANGLE_FROM_ SATRN	ANGLE_FROM_ EARTH	ANGLE_FROM_ RAM
SATURN	--	--	1525163	25.31	1464895	24.31	121.5	4.53	79.05	229	0	0	5.7	0	0.0	61.9	21.1
MIMAS	--	--	1683288	27.93	1683084	27.93	118.3	0.01	0.25	32	-1	147	19.8	-3707	3.4	65.1	17.7
ENCELADUS	--	--	1676638	27.82	1676385	27.82	115.3	0.02	0.31	51	0	126	18.4	-13	6.5	68.0	14.5
TETHYS	--	--	1814825	30.11	1814284	30.10	119.7	0.03	0.40	10	1	168	15.9	5420	1.9	63.7	19.2
DIONE	--	--	1217693	20.20	1217131	20.20	130.1	0.05	0.93	220	0	-31	5.5	19	9.2	53.4	30.2
RHEA	--	--	2051290	34.04	2050522	34.02	122.2	0.04	0.75	1	-0	-177	12.4	-2165	0.7	61.2	21.8
TITAN	--	--	2678788	44.45	2676213	44.41	129.1	0.11	1.92	346	-0	-161	9.0	-3055	8.1	54.3	29.2
HYPERION	--	--	390045	6.47	389908	6.47	56.2	0.05	0.84	21	44	15	6.0	7301	68.4	126.7	47.3
IAPETUS	--	--	2298719	38.14	2297972	38.13	23.6	0.04	0.65	16	-2	20	6.0	490522	145.2	152.9	128.2
PHOEBE	--	--	15195099	252.13	15194986	252.12	43.7	0.00	0.02	29	-20	97	4.5	7075693	78.2	139.3	60.1
SATURN	--	--	1525163	25.31	1464895	24.31	121.5	4.53	79.05	229	0	0	5.7	0	0.0	61.9	21.1

	Saturn Range	Phase Angle	Sub-S/C Lat.
Segment Start	25.31	121.5	0
Periapse	5.44	19.4	0
Segment End	15.02	122.8	0

Seg Start (Left): 179T01:07:00

Seg End (below): 182T17:22:00




```
Rev 025 OUTBOUND
2006 -  182T17:22:00 SCET
2006 JUL 01 17:22:00 SCET
2006 JUL 01 18:45:12 ERT
Apoapse__025 + 020T18:14:40
Periapse_025 + 001T04:16:50
Light time:    83.2 min
Orbit period:  39.2 days
Radius     905008 km      15.02 Rs
Rad_cyl    904994 km      15.02 Rs
Z_ht_cyl     5006 km       0.08 Rs
Mag_L          15.02
Semi_axs   2226934 km      36.95 Rs
Eccentricity     0.853
Inclination      0.40 deg
Sun_range        9.14 AU
Earth_range     10.00 AU
--- DSN ELEV -- D/L -- U/L --------
Goldstone      43.8   10.1
Canberra      -53.2  -72.5
Madrid         31.6   60.9
------- LOOK DIRECTION INFO -------
FOV            19.0 deg  332.5 mrad
RA            -97.292 deg
DEC             4.484 deg
Crosses_RP_@    0.000 Rs
EPS             3.237 deg
SEP            30.521 deg
ORS b/s angle  57.1 deg
ORS rad angle 106.7 deg
```

Point NEG_Y at SATURN and align POS_X = Up with NSP

User Vector - RA: 70.786 DEC: 16.686 | 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

Turn Analyzer: SATURN to EARTH about Z on RWA = 7.0 min / 54.4 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	--	--	905008	15.02	844740	14.02	122.8	7.64	133.29	83	0	0	8.2	0	0.0	54.4	169.4
MIMAS	--	--	858992	14.25	858794	14.25	134.0	0.03	0.48	101	1	70	7.0	-5009	11.8	43.5	157.5
ENCELADUS	--	--	1069967	17.75	1069713	17.75	132.1	0.03	0.48	46	0	129	13.7	41	10.0	45.3	159.4
TETHYS	--	--	875632	14.53	875100	14.52	140.2	0.07	1.23	87	-1	75	5.3	5595	19.0	37.5	150.4
DIONE	--	--	999232	16.58	998670	16.57	143.2	0.06	1.13	65	0	93	7.0	82	22.2	34.6	147.2
RHEA	--	--	1341291	22.26	1340525	22.24	137.1	0.07	1.14	30	0	137	11.6	-3123	15.4	40.4	154.0
TITAN	--	--	324722	5.39	322147	5.35	60.5	0.91	15.86	357	-0	1	6.0	7147	176.4	122.3	7.1
HYPERION	--	--	2225078	36.92	2224958	36.92	117.5	0.01	0.15	112	-48	-170	13.0	-20779	5.7	59.6	175.1
IAPETUS	--	--	4034061	66.94	4033314	66.92	64.8	0.02	0.37	351	-3	-108	11.1	241228	59.7	111.9	130.9
PHOEBE	--	--	14215558	235.87	14215445	235.87	39.4	0.00	0.02	209	-21	-13	8.9	7094976	147.4	143.4	37.8
SATURN	--	--	905008	15.02	844740	14.02	122.8	7.64	133.29	83	0	0	8.2	0	0.0	54.4	169.4

Solar Geometry – ORS Boresight Concerns

No ORS Boresight Solar Constraints/Issues on Science Pointing

Wednesday, June 28 (DOY 179):
Science acquisition began with an Imaging Science Subsystem (ISS) observation of Hyperion followed by a Visual and Infrared Mapping Spectrometer (VIMS) Saturn "feature track" observation. Feature track observations target a particular feature in Saturn's atmosphere. After VIMS completed this observation, spacecraft control was returned to ISS to continue the Hyperion observations.

Orbit Trim Maneuver (OTM) #64 was performed on this day. This was the approach maneuver setting up for the Titan 15 encounter on July 2, DOY 183.

Thursday, June 29 (180):
Thursday, June 29, found Cassini three days away from the Titan 15 (T15) encounter. The Cosmic Dust Analyzer (CDA), one of the six Magnetospheric and Plasma Science (MAPS) instruments, began the day by scanning for E ring particles. After this, the Imaging Science Subsystem (ISS) continued its observations of Hyperion. The day concluded with more CDA scans of the E Ring, and a Visual and Infrared Mapping Spectrometer (VIMS) Saturn "Feature Track" observation.

Friday, June 30 (DOY 181):
Now two days away from the Titan 15 flyby, Radar took the opportunity to perform a distant Titan radiometry study, where the instrument was placed in a passive or "listen-only" mode, gathering energy from Titan. This observation also served as a calibration opportunity or a precursor to the actual Titan science to come. After Radar completed its observation, VIMS observed a star emerging from behind Saturn. This type of occultation affords an opportunity to study Saturn's atmosphere as light from the star passes through the various atmospheric layers near the limb of Saturn. The day ended with an ISS observation of newly discovered moons of Saturn, and a Composite Infrared Spectrometer (CIRS) observation of Enceladus and Saturn. For approximately 12 minutes, from 18:27 to 18:39 Spacecraft Event Time, Cassini was in the zone of possible Dione dust hazards, hence the closing of the ME cover the day before.

Segment Integration Planning

Timeline Gaps and Suggested Observations

- There was early agreement to dedicate first half of segment to satellites, and second half to Saturn atmosphere studies

  High-priority satellite requests were worked into the strawman.

  – The first 1.5 days of the segment were dedicated to Hyperion requests. The highest priority Atmospheres requests were later in the segment, and this is a good Hyperion opportunity

  – Two one-hour windows (one for Enceladus, one for Mimas) were also integrated into the Atmospheres day, as well.
- OTM 64 on DOY 179

Initial SMT and Data Volume (1/2)

Beginning of 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)	MARGIN (%)	OPNAV (Mb)	SCI (Mb)	ENGR (Mb)	TOTAL (Mb)	CPACTY (Mb)	MARGIN (Mb)	MARGIN (%)	CAROVR (Mb)	
SP_025EA_G34HEFOTP179_PRIME	179 16:07	180 01:07	0	1406	51	1456	3534	2078	59%	17	136	53	1662	741	-921	-124%	921	
SP_025EA_M34HEFOTB180_PRIME	180 08:37	180 17:37	921	704	25	1650	3569	1919	54%	0	230	53	1933	809	-1123	-139%	1123	
SP_025EA_G70HEFNON181_PRIME	181 18:45	182 00:45	1123	2685	85	3893	3562	-331	-9%	0	299	35	3896	2234	-1662	-74%	1993	
SP_025EA_M70HEFOPN182_PRIME	182 08:22	182 17:22	1993	585	26	2604	3534	930	26%	17	230	53	2904	3153	249	8%	0	

- Currently ~340 Mb oversubscribed between 179T01:07 and 181T18:45
- Data volume totals are shown on the next page
  - Total volume requested during the period in question = 5178 Mb
  - 3 biggest users: ISS=1293 Mb, VIMS = 1131 Mb, RPWS = 913 Mb; I/R/V total = 3337 Mb (65% of requested Mb)

Initial SMT and Data Volume (2/2)

Beginning of Integration:

DATA VOLUME REPORT

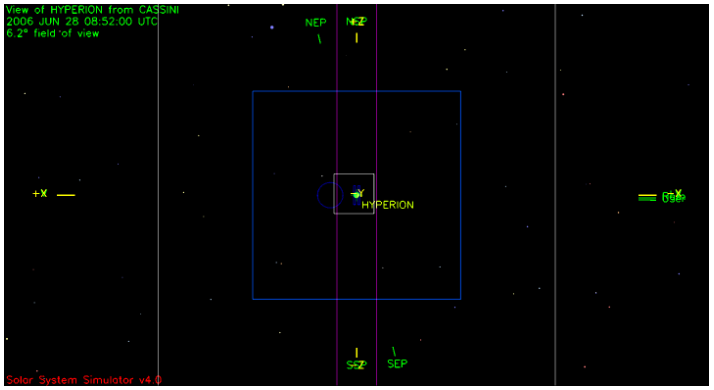
Event	Start doy hh:mm	End doy hh:mm	CAPS (Mb)	CDA (Mb)	CIRS (Mb)	INMS (Mb)	ISS (Mb)	MAG (Mb)	MIMI (Mb)	RADAR (Mb)	RPWS (Mb)	UVIS (Mb)	VIMS (Mb)	PROBE (Mb)	ENGR (Mb)	TOTAL (Mb)
OBSERVATION_NOR	179 01:07	179 16:07	219.2	11.1	151.2	5.3	503.3	32.4	48.6	0.0	70.7	61.1	302.7	0.0	0.0	1405.7
OBSERVATION_OPN	179 01:07	179 16:07	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_025EA_G34HEFOTP179_PRIME	179 16:07	180 01:07	32.4	9.3	0.0	3.2	0.0	19.4	29.2	0.0	42.4	0.0	0.0	0.0	0.0	135.9
OBSERVATION_NOR	180 01:07	180 08:37	27.0	14.1	93.6	2.7	339.7	16.2	24.3	0.0	35.4	117.7	33.3	0.0	0.0	704.1
SP_025EA_M34HEFOTB180_PRIME	180 08:37	180 17:37	32.4	16.8	86.4	3.2	0.0	19.4	29.2	0.0	42.4	0.0	0.0	0.0	0.0	229.9
OBSERVATION_NOR	180 17:37	181 18:45	90.5	185.0	121.2	16.6	432.7	54.3	132.7	9.4	722.0	125.6	795.0	0.0	0.0	2685.1
SUBSEGMENT TOTAL	**179 01:07**	**181 18:45**	**401.5**	**236.3**	**452.4**	**31.0**	**1293.1**	**141.7**	**264.0**	**9.4**	**912.9**	**304.4**	**1131.0**			**5178.0**
SP_025EA_G70HEFNON181_PRIME	181 18:45	182 00:45	21.6	47.5	0.0	2.2	0.0	13.0	35.4	0.0	179.5	0.0	0.0	0.0	0.0	299.1
OBSERVATION_NOR	182 00:45	182 08:22	27.4	25.2	0.0	2.7	0.0	16.5	24.7	0.0	128.7	0.0	360.0	0.0	0.0	585.2
OBSERVATION_OPN	182 00:45	182 08:22	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_025EA_M70HEFOPN182_PRIME	182 08:22	182 17:22	32.4	16.8	86.4	3.2	0.0	19.4	29.2	0.0	42.4	0.0	0.0	0.0	0.0	229.9

Waypoint Selection

No Waypoint Selection Info Available

Waypoints Chosen (1/2)

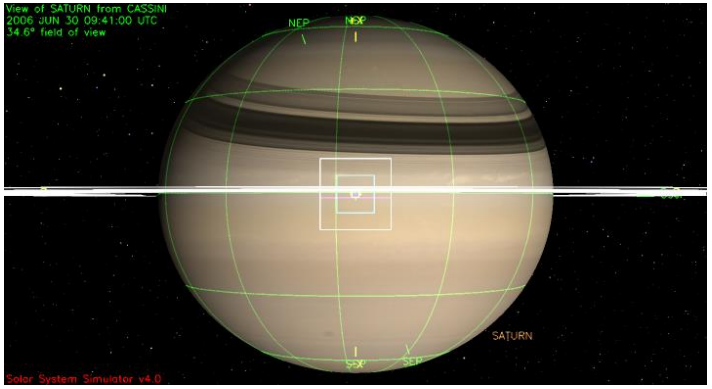
Waypoint 1 (2006-179T01:37:00 to 179T16:07:00): NEG_Y to Hyperion, POS_X to NSP



Waypoint 2 (2006-179T16:07:00 to 180T18:07:00): XBAND_Earth, POS_X to NEP

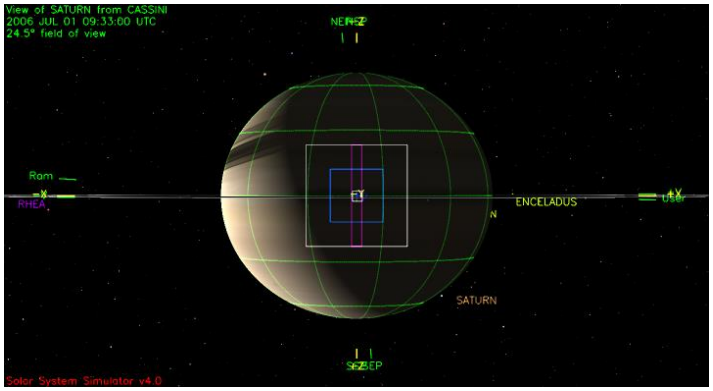
Note: All observations within this timeframe were in a "Custom Period"

Waypoint 3 (2006-180T18:07:00 to 182T01:15:00): NEG_Y to Saturn, POS_X to NSP



Waypoints Chosen (2/2)

Waypoint 4 (2006-182T01:15:00 to 182T17:52:00): NEG_Y to Saturn, Neg_Z to NSP



Saturn Rev 25 Periapse Notes & Open Issues (as of 11/20/02)

- **Pointing**
  - The first two days were given to SOST for high-priority Hyperion observations, interrupted once for a VIMS Saturn F.T.
  - All waypoints have been verified as being Flight Rule-safe.
    - The waypoint for the first two observation periods is ISS_NAC to Hyperion, +X to NSP, even though the science observations will be using Z to NSP. +X to NSP is the waypoint b/c a 180° flip would be required in the middle of the observation period if Z were used. The affected science teams agreed to accommodate the extra turn times required.
  - All downlink attitudes have been verified as being Flight-Rule safe.
  - All SP turns have been allocated enough time and all but one are Flight Rule-safe.
    - The turn to Earth at 180T08:07 temporarily results in +X to Sun angle as low as 87 deg; CIRS will have to evaluate the temperature gradient
- **Data Volume**
  - No issues. We carry data over for the first three days, then empty the SSRs with 19% margin at the end of the fourth and final pass.
- **CIMS**
  - All of the expected requests for this delivery are approved in CIMS.
- **OpModes**
  - All OpMode transitions are in the CIMS delivery. No issues at this time.
- **Flight Rule / Mission Planning Guideline & Constraint Issues**
  - None known at this time.
- **DSN**
  - Nav has approved of the DSN plan. No DSN conflicts. To allow observations at periapse, the strawman DSN plan was changed, and OTM-64 and OTM-64 back-up were moved one day earlier. To provide the required Nav tracking data, a 6-hour DSN pass with early uplink was added after periapse.

Liens

No Liens Noted