



## SATURN TARGET WORKING TEAM

**Rev 32 Segment Legacy Package**

**Segment Boundary: November 10, 2006 – November 12, 2006  
2006-314T09:58:00 – 2006-316T17:13:00 (SCET)**

**Integration Began 01/06/2003  
Segment Delivered to S25 Sequence 03/31/2003  
Lead Integrator was Scott Edgington**

**Legacy Package Assembled by Shawn Boll**

• <b>Segment Overview and Final Products</b>	<b>3 - 9</b>
– Summary	4
– Final Sequenced SPASS (Science Planning Attitude Strategy Spreadsheet)	5
– Final Sequenced SMT (SSR Management Tool) Reports	6
– Segment Geometry	7 - 8
• Overview	7
• Solar Geometry ORS Boresight Concerns	8
– Daily Science Highlights	9
• <b>Segment Integration Planning</b>	<b>10 - 15</b>
– Timeline Gaps & Suggested Observations	11
– Initial SMT (SSR Management Tool) Reports	12
– Waypoint Selection	13 - 14
• Options Considered (N.A.*)	13
• Waypoints Chosen	14
– Sequence handoff Notes & Liens on sequence development/execution	15

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

# Segment Overview and Final Products

- This was a short two day long segment outbound from Periapse during a highly inclined orbit.
- The view of Saturn was of the mostly dark northern hemisphere and north pole.
- Saturn science included VIMS thermal cylindrical mapping, UVIS EUV/FUV scans, and ISS WAC photopolarimetry. ISS also performed a diffuse ring search.
- A single waypoint was sufficient for this period, aligning the UVIS FOV with the lit crescent.

# Final Sequenced SPASS

Saturn 32 Legacy

Request	Riders	Start (SCET)	Start (Epoch)	Duration	End (SCET)	Primary	Secondary	Comments
Sequence S025, length = 33 ...		2006-295T18:26:00	E031_SEQUENCE_025+000T00:00:00	032T22:04:00	2006-328T16:30:00			
SATURN rev 32 Segment		2006-314T09:58:00		002T07:15:00	2006-316T17:13:00			
SP_032SA_WAYPTTURN314_PRIME		2006-314T09:58:00		000T00:30:00	2006-314T10:28:00	ISS_NAC to Saturn	NEG_X to Sun	
NEW WAYPOINT		2006-314T10:28:00		002T07:15:00	2006-316T17:43:00	ISS_NAC to Saturn	NEG_X to Sun	
VIMS_032SA_THRCYLMAP002_PRIME	C, I, U	2006-314T10:28:00		000T10:35:00	2006-314T21:03:00	ISS_NAC to Saturn	NEG_Z to North Pole Dir	
UVIS_032SA_EUVFUV003_PRIME	C, I	2006-314T21:03:00		000T10:40:00	2006-315T07:43:00	ISS_NAC to Saturn	NEG_Z to NSP	
SP_032EA_DLTURN315_PRIME		2006-315T07:43:00		000T00:30:00	2006-315T08:13:00	XBAND to Earth	POS_X to NSP	
SP_032EA_G34HEFNON315_PRIME	C	2006-315T08:13:00		000T09:00:00	2006-315T17:13:00	XBAND to Earth	POS_X to NSP	
SP_032SA_WAYPTTURN315_PRIME		2006-315T17:13:00		000T00:30:00	2006-315T17:43:00	ISS_NAC to Saturn	NEG_X to Sun	
ISS_032SA_1X2WP160B001_PRIME	V	2006-315T17:43:00		000T07:00:00	2006-316T00:43:00	ISS_NAC to Saturn	NEG_X to Sun	
ISS_032RI_SHADBOUND001_PRIME		2006-316T00:43:00		000T07:00:00	2006-316T07:43:00	ISS_NAC to Rings	NEG_X to 13.4/20.5	Secondary requested by CDA
SP_032EA_DLTURN316_PRIME		2006-316T07:43:00		000T00:30:00	2006-316T08:13:00	XBAND to Earth	POS_X to NSP	
SP_032EA_G70METNON316_PRIME	C	2006-316T08:13:00		000T09:00:00	2006-316T17:13:00	XBAND to Earth	Rolling	

# Final Sequenced SMT and Data Volume

Saturn 32 Legacy

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

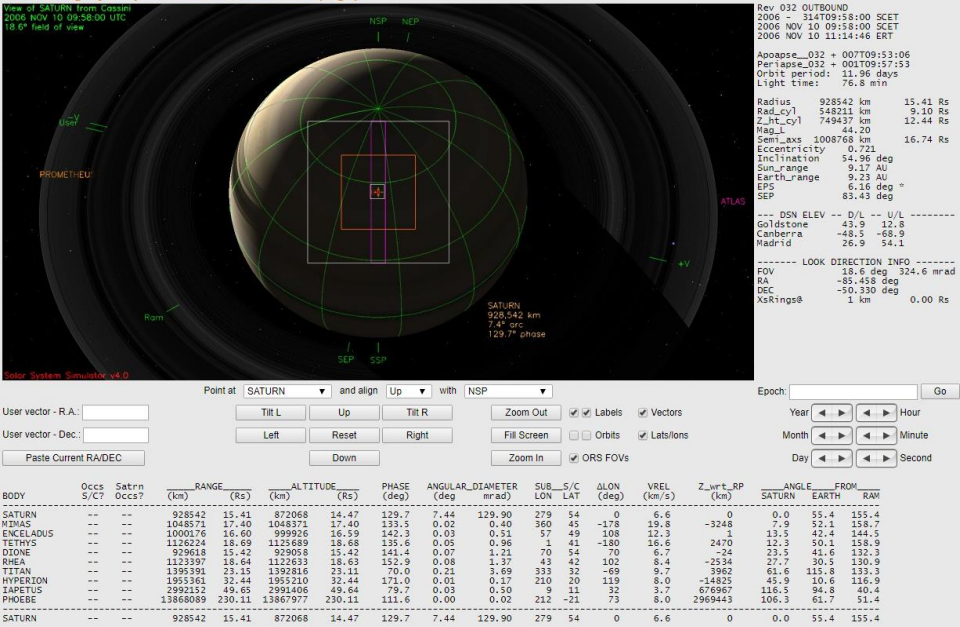
DOWNLINK PASS NAME	Start doy hh:mm	End doy hh:mm	OBSERVATION_PERIOD							DOWNLINK_PASS							
			P4				P5	RECORDED	PLAYBACK								
			START (Mb)	SCI (Mb)	HK+E (Mb)	TOTAL CPACTY (Mb)	MRGN (Mb)	OPNAV (Mb)	SCI (Mb)	ENGR (Mb)	TOTAL (Mb)	CPACTY (Mb)	MARGN (Mb)	NET_MARGN (Mb)	(%)	CAROV (Mb)	
SP_032EA_G34HEFNON315_PRIME	315 08:13	315 17:13	90	1825	76	1990	3514	1524	0	222	53	2265	929	-1337	625	7%	1337
SP_032EA_G70METNON316_PRIME	316 08:13	316 17:13	1337	1501	51	2889	3514	625	0	222	53	3164	3896	731	1047	11%	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	314 09:58	315 08:13	80.1	22.4	306.0	4.0	429.8	48.1	72.1	0.0	104.9	231.0	510.0	0.0	0.0	1808.4
SP_032EA_G34HEFNON315_PRIME	315 08:13	315 17:13	32.4	8.3	86.4	1.6	0.0	19.4	29.2	0.0	42.4	0.0	0.0	0.0	0.0	219.7
DAILY TOTAL SCIENCE	314 09:58	315 17:13	112.5	30.7	392.4	5.6	429.8	67.5	101.2	0.0	147.4	231.0	510.0	0.0		
OBSERVATION_NOR	315 17:13	316 08:13	84.7	13.8	0.0	4.7	987.8	32.4	48.6	0.0	70.7	0.0	245.0	0.0	0.0	1487.7
SP_032EA_G70METNON316_PRIME	316 08:13	316 17:13	32.4	8.3	86.4	1.6	0.0	19.4	29.2	0.0	42.4	0.0	0.0	0.0	0.0	219.7
DAILY TOTAL SCIENCE	315 17:13	316 17:13	117.1	22.0	86.4	6.3	987.8	51.8	77.8	0.0	113.2	0.0	245.0	0.0		

# Segment Geometry

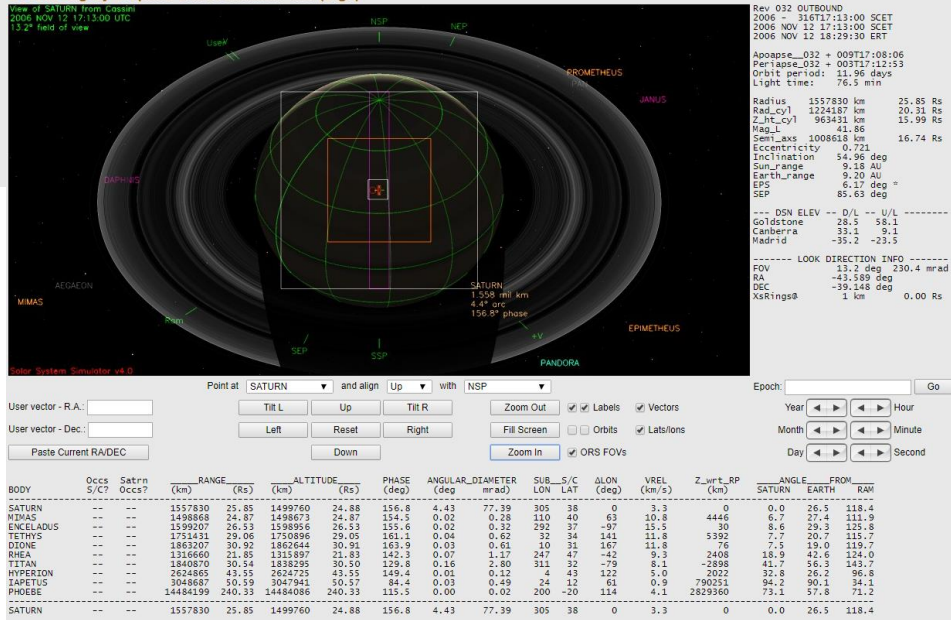
Cassini Legacy Graphics and Information Tool (Digit)



← Seg Start (Left)

↓ Seg End (below)

Cassini Legacy Graphics and Information Tool (Digit)



**No ORS Boresight Solar Constraints on Science Pointing.**



## **DOY 314-316 (Nov. 10 - Nov. 12)**

Following the flybys, Cassini turned its attention to the rings and Saturn. ORS instruments performed several maps and movies of Saturn and the Rings.

# Segment Integration Planning

# Timeline Gaps and Suggested Observations

Saturn 32 Legacy

## Rev 32 - Proposed TOL

Activity	Start	Duration	Pointing	Notes
Segment Start/Turn to Waypoint	2006-314T09:58:00	00:30:00		
VIMS Thermal Cylindrical Map	314T10:28:00	11:00:00 ?	NAC to Saturn; +/-Z to POLE_DIR	VIMS & UVIS need to cut 45 min.
UVIS EUV/FUV	314T21:28:00	11:00:00 ?	UVIS FUV to Saturn; +/-Z to POLE_DIR	VIMS & UVIS need to cut 45 min.
Turn to Downlink	314T07:43:00	00:30:00		
Downlink	315T08:13:00	09:00:00		70 m available
Turn to Waypoint	315T17:13:00	00:30:00		
ISS Saturn Movie & Ring Shadow	315T17:43:00	?	NAC to Saturn; -X to Sun	
Turn to Downlink	316T07:43:00	00:30:00		
Downlink	316T08:13:00	09:00:00		70 m available

# Initial SMT and Data Volume

## First Look During Integration:

### DATA VOLUME SUMMARY

DOWNLINK PASS NAME	OBSERVATION_PERIOD		DOWNLINK_PASS															
	Start doy hh:mm	End doy hh:mm	P4							P5	RECORDED	PLAYBACK						
			START (Mb)	SCI (Mb)	HK+E (Mb)	TOTAL (Mb)	CPACTY (Mb)	MARGIN (%)	OPNAV (Mb)	SCI (Mb)	ENGR (Mb)	TOTAL (Mb)	CPACTY (Mb)	MARGIN (%)	CAROVR (Mb)			
SP_032EA_G34HEFNON315_PRIME	315 08:13	315 17:13	0	1257	75	1332	3569	2237	63%	0	255	53	1640	1010	-630	-62%	630	
SP_032EA_G34HEFNON316_PRIME	316 08:13	316 17:13	630	1504	51	2185	3569	1384	39%	0	216	53	2454	1015	-1439	-142%	1439	

### 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	314 09:58	315 08:13	80.1	14.0	0.0	4.0	81.0	48.1	72.1	0.0	104.9	193.2	660.0	0.0	0.0	1257.4
SP_032EA_G34HEFNON315_PRIME	315 08:13	315 17:13	32.4	4.9	86.4	1.6	39.0	19.4	29.2	0.0	42.4	0.0	0.0	0.0	0.0	255.3
OBSERVATION_NOR	315 17:13	316 08:13	54.0	8.1	0.0	2.7	867.8	32.4	48.6	0.0	70.7	0.0	420.0	0.0	0.0	1504.4
SP_032EA_G34HEFNON316_PRIME	316 08:13	316 17:13	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

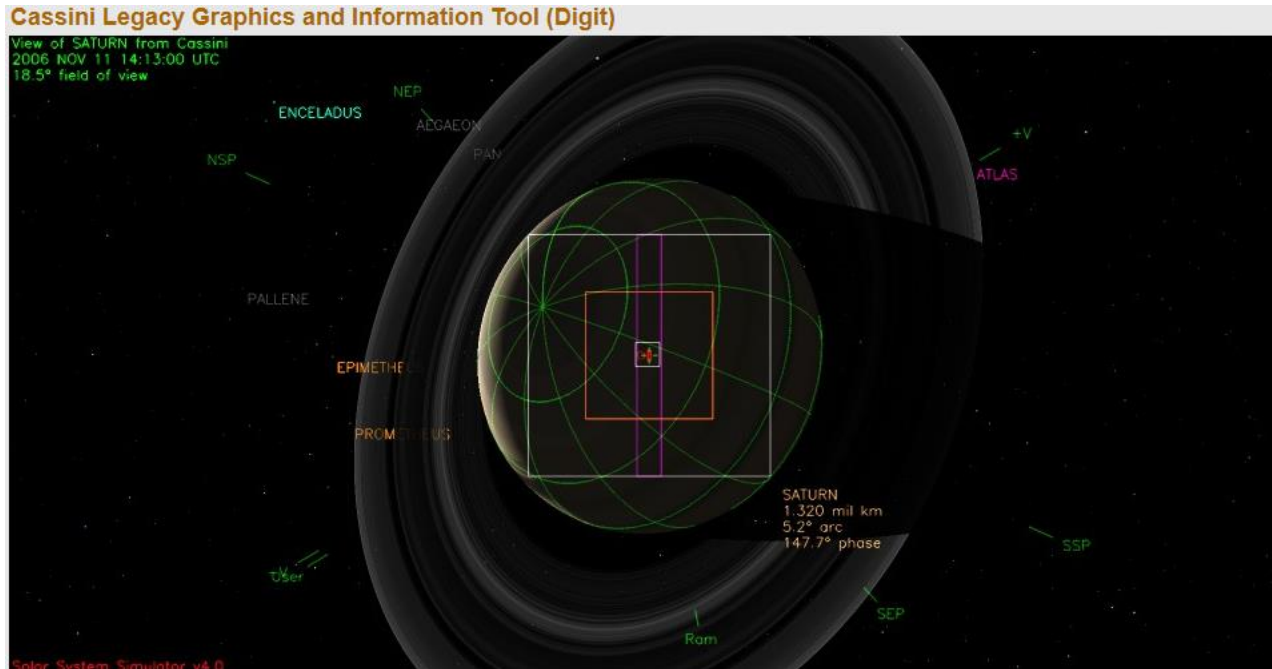
# Waypoint Selection

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Saturn 32 Legacy

**No Waypoint Selection Info Available.**

Waypoint 1 (Whole Segment): ISS\_NAC to Saturn; NEG\_X to Sun



## Saturn Rev 32 Open Issues

- **Pointing Issues**
  - None
- **Data Volume Issues**
  - None
- **Telemetry Mode Issues**
  - None
- **CIMS Issues**
  - None
- **Power/OPMODE Issues**
  - None
- **Flight Rule/Mission Planning Guideline and Constraint Issues**
  - None
- **Other Issues**
  - None