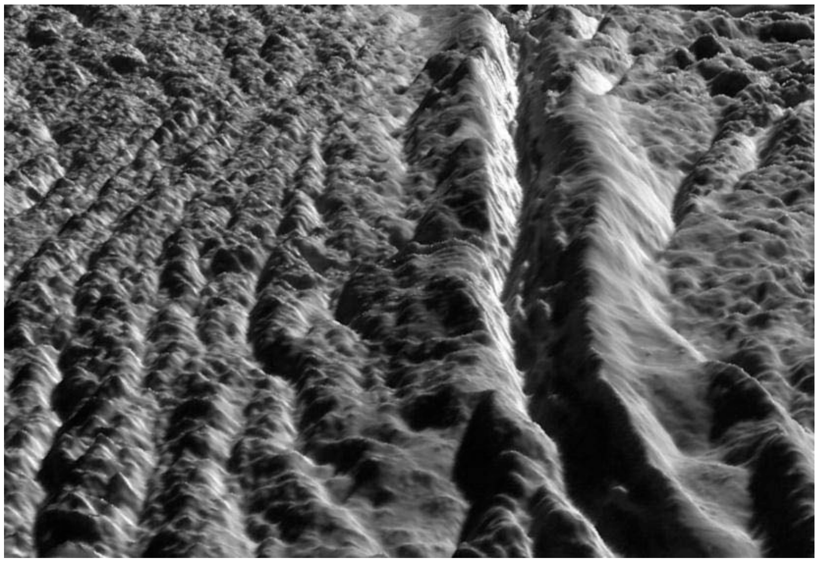
CASSINI



ENCELADUS
120EN+121EN
MISSION DESCRIPTION

November 2009

Jet Propulsion Laboratory
California Institute of Technology

Cover image: Perspective View of Damascus Sulcus, Enceladus

This perspective view of Damascus Sulcus was generated using high resolution images of Enceladus acquired in August 2008 at 12 to 30 meters (40 to 100 feet) resolution, together with a new topographic map of the region. Damascus Sulcus is one of several prominent linear structures, dubbed "tiger stripes," within the geologically active south polar region of Enceladus. Damascus Sulcus consists of two large parallel ridges separated by a deep V-shaped medial trough. The ridges are each 100 to 150 meters high (325 to 500 feet), while the entire width of Damascus Sulcus is 5 kilometers (3 miles). The medial trough between the ridges is 200 to 250 meters (650 to 820 feet) deep, and may have formed by daily shear (sliding) faulting triggered by tidal forces. These medial troughs may be the primary source of numerous jets making up the large active water vapor plume over the south pole of Enceladus. Several small ridges can be seen along the floor of the medial trough. These could be blocks of crust that have slid down the walls of the trough or fractured blocks pushed up from below. Flanking Damascus Sulcus are repeating sets of broken and disrupted parallel ridges a few tens of meters high. These are typical of the plains that lie between the tiger stripe structures and resemble crumpled or folded rock patterns seen on Earth. Relief has been exaggerated by a factor of ~10 to enhance clarity.

Credits: NASA/JPL/Space Science Institute/USRA/LPI

1.0 OVERVIEW

The Cassini spacecraft will visit Enceladus twice during the month of November 2009. On both flybys, Cassini will approach the moon, whose enigmatic south-polar water vapor and particle plume was discovered in 2005, on relatively slow, low-inclination trajectories with closest-approaches over the southern hemisphere.

On November 2, 2009, Cassini will make its deepest plume passage yet, flying 102.7 kilometers (63.8 miles) from the surface above 89 degrees S latitude. The spacecraft will be under control of the thrusters during the flyby, and information from the AACS team will be used to understand how much the plume affects the control authority of the spacecraft; a similar trajectory will be flown in Rev 130 and the results from Rev 120 will be used to determine whether thrusters or wheels will be used on Rev 130.

The plume passage will allow *in situ* measurements by fields-and-particles instruments such as the Ion and Neutral Mass Spectrometer and the Cosmic Dust Analyzer, to gain an understanding of plume and surface composition, and to investigate temporal variability in the plume by comparing with data from previous flybys.

The Rev 120 encounter will be set up with a maneuver on October 29. The Enceladus flyby occurs on orbit number 120, just three hours after periapse. This is the seventh targeted flyby of Enceladus; the flyby is sometimes referred to as "E7."

Just under three weeks later, on November 21, Cassini will again fly by Enceladus, this time with a very different geometry, approaching within 1,606 kilometers (997.9 miles) of the surface. The closest approach will occur over 82 degrees S latitude. The spacecraft will again be under the control of thrusters during the flyby, to allow for precise tracking of surface features during closest-approach; the CIRS instrument will make a map of thermal emission from the tiger stripe Baghdad Sulcus.

The Rev 121 encounter will be set up with a maneuver on November 17 and will occur 3 days prior to the Rev 121 periapse, on the inbound leg of the orbit number 121. This is the eighth targeted flyby of Enceladus; the flyby is sometimes referred to as "E8." Directly after the targeted Enceladus flyby, Cassini will fly less than 25,000 kilometers from Rhea, allowing for high-resolution (150-175 m/px) imaging and compositional mapping of regions including the fractured "wispy terrain."

ABOUT ENCELADUS

Enceladus has known to be geologically active since July 2005, when Cassini instruments discovered the presence of geysers at the south pole of this small icy moon. It had long been suspected that Enceladus might be active. The *Voyager 2* encounter with the satellite in 1982 established that its geometric albedo is startlingly high, at about 1.0, a number that is consistent with fresh snow or ice. Recent results from the Hubble Space Telescope yield a value of 1.4 for the geometric albedo. *Voyager 2* imaged sizable regions of crater-free areas thought to have been resurfaced within the last 1Gy (billion years), but other parts of the satellite were older (~3.9 Gy) and heavily cratered. Moreover, all regions of the satellite, whether young or old, exhibited uniformly high albedos, implying that the entire satellite is coated with a ubiquitous fresh material. Dynamic models have proposed that Enceladus is the source of the E ring, which is most dense at the satellite's orbit and extends out to the distance of Titan.

Cassini has executed six close passes by Enceladus. The first close *Cassini* flyby of Enceladus, which occurred on February 17, 2005 with a minimum approach distance of 1,175 kilometers, focused on the equatorial region of the sub-Saturn/trailing hemispheres. The Imaging Science Subsystem (ISS) revealed a world scarred by extensive tectonic activity with both extensional and compressional features. Magnetometer data showed a draping of Saturn's magnetic field lines around the moon, which suggested the presence of an atmosphere. However, a stellar occultation observed by the Ultraviolet Imaging Spectrometer (UVIS) showed no sign of an atmosphere. Infrared spectra from the Visual Infrared Mapping Spectrometer (VIMS) detected no surface components other than water ice. During the second flyby, on March 9, 2005, *Cassini* came within 500 kilometers of Enceladus and observations concentrated on the equatorial region of the anti-Saturn/trailing hemisphere. This encounter revealed the diverse regions on Enceladus in striking detail: large complex networks of ridges and troughs coexisted with ancient cratered plains. The magnetometer measured a signature in addition to the one seen in February, one that possibly indicated an induced or intrinsic magnetic field. Based on these results – which could imply a liquid sub-surface region – the Cassini Project moved the closest approach distance of the July 14 encounter from 1,000 kilometers down to 175 kilometers.

The July 2005 observations of the south polar region by the remote sensing instruments, the stellar occultation by UVIS, and the close flyby distance over the south pole allowing in-situ measurements by particles and fields instruments (CDA, INMS) all amounted to a suite of observations providing multi-instrument evidence of geologic activity on Enceladus. ISS imaged the "tiger stripes," tectonic features evidently bounded by a compressional feature encompassing the south polar region; CIRS detected regions of elevated temperatures (up to 140K) associated with the "tiger stripes" and the south pole in general; VIMS detected the presence of crystalline, freshly deposited water ice; UVIS identified water vapor above the limb; INMS detected water vapor at higher altitudes; and CDA measured a stream of water ice particles emanating from the south polar region of Enceladus. The startling picture that emerged from these observations is that heat and gases are escaping from the interior of the satellite preferentially along the south polar region's "tiger stripes".

The fourth close Enceladus flyby, on March 12, 2008, focused on plume measurements by fields-and-particles instruments. By flying deeper into the plume than on previous flybys, the Ion and Neutral Mass Spectrometer (INMS) was able to obtain more sensitive measurements of the composition of the plume. In addition, the Composite Infrared Mapping Spectrometer (CIRS) mapped the temperatures at the south pole while Enceladus was in eclipse – and found that the highest temperatures are found along the tiger stripes, where most of the jets are also seen by ISS.

The fifth close Enceladus flyby, on Aug. 11, 2008, provided the highest-resolution visible images of the south polar tiger stripes of the mission (~7 m/pix). The images suggest differences between currently active local regions and places that may have been formerly active. Interestingly, the flyby was designed for (and thus the spacecraft was oriented to optimize) remote sensing measurements, the INMS measured a very strong signal from the plume species.

The sixth close Enceladus flyby was on Oct. 9, 2008. At 25 kilometers altitude, it was the closest-ever flyby of Enceladus, and the heretofore deepest plume passage, flying through the plume at 340 kilometers from the surface, allowing for high signal-to-noise *in situ* measurements of the plume.

The seventh close Enceladus flyby, on Oct. 31, 2008, had an altitude of 197 kilometers and provided excellent opportunities for imaging and thermal mapping of the south polar tiger stripes.

The major question that has emerged is why geologic activity exists at all on this small world. Other active satellites – Io (R= 1,810 kilometers) and Triton (R=1,350 kilometers) - are far larger. Even with a bulk density of 1.6 gm/cm^2, heat produced in Enceladus's core from radioactive decay would have long since peaked and dissipated. One mechanism that works marginally is tidal heating from eccentricities excited by the orbital resonance between Enceladus and Dione. Even if a sufficient heat source can be found, the question still remains: why is the activity concentrated at the south pole? Is liquid water required below the surface, and if so, how much? These Cassini results have strong implications for models of planetary interiors and the role of tidal heating and dissipation.

1.1 ENCELADUS-120 AND ENCELADUS-121 SCIENCE HIGHLIGHTS

- On E8, **ISS** will perform a clear filter mosaic of terrain on the leading hemisphere, providing the best-resolution mosaic so far of that hemisphere. High resolution (15 m/px) of the tiger stripe region can be combined with earlier images of the same region at different geometries to create high-resolution topographic maps, and will be used to look for possible temporal variations in morphology of the tiger stripes.

- On E8, CIRS will focus on Baghad Sulcus, executing a carefully-planned scan along the fissure, producing the highest-ever-resolution (~1 km/pix) contiguous thermal map of this region.

- On both flybys, **VIMS** will perform compositional and thermal mapping of Enceladus' surface and plumes. Data will be used to understand water ice grain size and ice crystal structure, and to map out distribution of CO_2 and organics on the surface, and to search for other compounds.

- On the E7 flyby, **UVIS** will perform an experiment to measure the plume gas density by observing the plume in front of the disk of Saturn. In the past, UVIS has performed stellar occultations to measure plume gas density; in this experment the disk of Saturn will be used in place of the star, and UVIS will investigate whether plume gas occults Saturn signal.

- With E7 being the first equatorial flyby through the Enceladus plume, and at a lower velocity than earlier inclined flybys, **INMS** will achieve very high signal-to-noise measurements of the gases in the plume, and will look for structure in the gases associated with the jets seen by ISS, UVIS and CDA. Measurements should provide high enough signal-to-noise to allow INMS to discriminate between N_2 and CO; distinguishing between these two species has been difficult in the past.

- During the inbound leg of the 120EN flyby, **RADAR** will make scatterometry measurements to determine cm-scale roughness and radiometry measurements to understand the energy balance.

- On the E7 flyby, **MAPS** instruments (MIMI, CAPS, RPWS) will make measurements to investigate interactions between Enceladus and its plume gases and the magnetospheric environment. MIMI in particular will study the field-aligned particles to explore connections to the Enceladus footprint in Saturn's auroral region. CAPS will make measurements to map nanometer-sized charged particles and cold water group ions.

- **CDA** measurements during E7 will be used to explore the spatial alignment of the jets along Baghded and Alexandria sulci, and will investigate the size particle of the ice grains in the jets.

1.2 TIMELINES

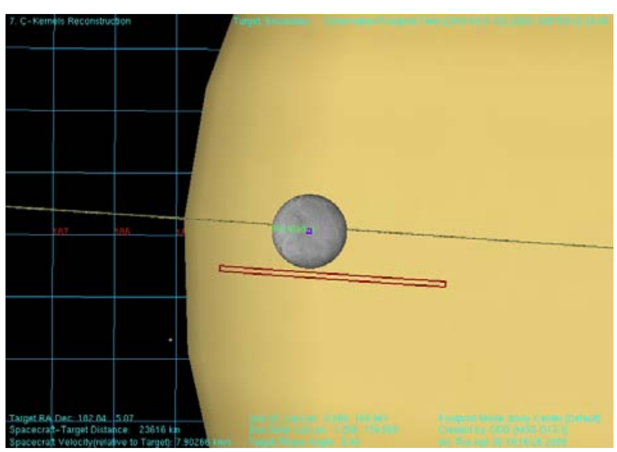
The Enceladus-120 (E7) timeline/attitude strategy is as follows:

Request	Riders	Start (SCET)	Start (Epoch)	Duration	End (SCET)	Primary	Secondary	Comments
E7 Flyby Segment		2009-305T12:35:00		002T00:00:00	2009-307T12:35:00			
SP_120RH_WAYPTTURN305_PRIME	M	2009-305T12:35:00		000T00:15:00	2009-305T12:50:00	ISS_NAC to Rhea	POS_X to NSP	safe WP
NEW WAYPOINT		**2009-305T12:50:00**		**000T02:07:00**	**2009-305T14:57:00**	**ISS_NAC to Rhea**	**POS_X to NSP**	
UVIS_120RH_ICYLON001_PRIME	C, M, R, V	2009-305T12:50:00		000T01:30:00	2009-305T14:20:00	ISS_NAC to Rhea	POS_X to NSP	
SP_120EN_WAYPTTURN305_PRIME	M, R	2009-305T14:20:00		000T00:37:00	2009-305T14:57:00	ISS_NAC to Enceladus	NEG_X to NSP	safe WP
NEW WAYPOINT		**2009-305T14:57:00**		**000T00:40:00**	**2009-305T15:37:00**	**ISS_NAC to Enceladus**	**NEG_X to NSP**	
ISS_120EN_PLMSCECL001_PRIME	C, M, U, V	2009-305T14:57:00		000T00:20:00	2009-305T15:17:00	ISS_NAC to Enceladus	NEG_X to NSP	
SP_120EA_WAYPTTURN305_PRIME	M, V	2009-305T15:17:00		000T00:20:00	2009-305T15:37:00	XBAND to Earth	NEG_Y to 49.06/57.77	safe WP in case RSS LUB doesn't get uplinked; also RSS secondary
NEW WAYPOINT		**2009-305T15:37:00**		**000T05:48:00**	**2009-305T21:25:00**	**XBAND to Earth**	**NEG_Y to 49.06/57.77**	
Begin Custom		**2009-305T15:37:00**		**000T00:00:01**	**2009-305T15:37:01**			
RSS_120SA_OCCIN001_PRIME	M	2009-305T15:37:00	LUB_E120_Enceladus-000T16:04:58	000T01:39:00	2009-305T17:16:00	XBAND to Earth	NEG_Y to 49.06/57.77	Pick up at XBAND to Earth, NEG_Y to 49.06/57.77; Hand off at ISS_NAC to Enceladus, NEG_X to NSP.
CIRS_120EN_FP13DKMAP001_PRIME	M, U, V	2009-305T17:16:00	LUB_E120_Enceladus-000T14:25:58	000T00:43:00	2009-305T17:59:00	CIRS_FP3 to Enceladus (0.0,0.0,-1.822 deg. offset)	NEG_X to NSP	Pick up at ISS_NAC to Enceladus, NEG_X to NSP; Hand off at ISS_NAC to Enceladus, NEG_X to NSP.
ISS_120EN_PLMSCECL002_PRIME	C, M, U, V	2009-305T17:59:00	LUB_E120_Enceladus-000T13:42:58	000T00:45:00	2009-305T18:44:00	ISS_NAC to Enceladus	NEG_X to NSP	Pick up at ISS_NAC to Enceladus, NEG_X to NSP; Hand off at ISS_NAC to Enceladus, NEG_X to NSP.
RSS_120SA_OCCOUT001_PRIME	M	2009-305T18:44:00	LUB_E120_Enceladus-000T12:57:58	000T02:02:00	2009-305T20:46:00	XBAND to Earth	NEG_Y to 49.06/57.77	Pick up at ISS_NAC to Enceladus, NEG_X to NSP; Hand off at XBAND to Earth, NEG_Y to 49.06/57.77.
End Custom		**2009-305T20:46:00**		**000T00:00:01**	**2009-305T20:46:01**			
SP_120EA_WAYPTTURN405_PRIME	M	2009-305T20:46:00		000T00:15:00	2009-305T21:01:00	XBAND to Earth	POS_X to 275.0/65.0	part 1 of 2 part turn to WP
SP_120EN_WAYPTTURN405_PRIME	M	2009-305T21:01:00		000T00:24:00	2009-305T21:25:00	ISS_NAC to Enceladus	NEG_X to NSP	part 2 of 2 part turn to WP
NEW WAYPOINT		**2009-305T21:25:00**		**001T05:15:00**	**2009-307T02:40:00**	**ISS_NAC to Enceladus**	**NEG_X to NSP**	
ISS_120EN_PLMHRHP001_PRIME	C, M, U, V	2009-305T21:25:00		000T00:49:00	2009-305T22:14:00	ISS_NAC to Enceladus	NEG_X to NSP	turn NAC to plume
ISS_120EN_PLMHRHP002_PRIME	C, M, U, V	2009-305T22:14:00		000T02:58:00	2009-306T01:12:00	ISS_NAC to Enceladus	NEG_X to NSP	
SP_120NA_DEADTIME306_PRIME	**M**	**2009-306T01:12:00**		**000T00:01:58**	**2009-306T01:13:58**	**ISS_NAC to Enceladus**	**NEG_X to NSP**	
Begin Custom		**2009-306T01:13:58**	**GMB_E120_Enceladus-000T06:28:00**	**000T00:00:01**	**2009-306T01:13:59**			
RADAR_120EN_SCATTRAD001_PRIME	M	2009-306T01:13:58	GMB_E120_Enceladus-000T06:28:00	000T05:28:00	2009-306T06:41:58	NEG_Z to Enceladus	PIC	Pick up at ISS_NAC to Enceladus, NEG_X to NSP; Hand off at NEG_Z to Enceladus, NEG_X to SC_RAM. RADAR must control primary and secondary axes to obtain correct polarization.
Periapse R = 3.201 Rs, lat ...		2009-306T04:38:58		000T00:00:01	2009-306T04:38:59			
ENGR_120SC_ORSRCS305_PRIME	M	2009-306T06:41:58	GMB_E120_Enceladus-000T01:00:00	000T00:01:00	2009-306T06:42:58	NEG_Z to Enceladus	NEG_X to SC_RAM	Pick up at NEG_Z to Enceladus, NEG_X to SC_RAM; Hand off at NEG_Z to Enceladus, NEG_X to SC_RAM. deadband set to (0.5,0.5,0.5)
INMS_120EN_ENCEL7001_PRIME	C, I, M, U	2009-306T06:42:58	GMB_E120_Enceladus-000T00:59:00	000T01:21:00	2009-306T08:03:58	NEG_X to SC_RAM	NEG_Y to North_Pole_Dir	Pick up at NEG_Z to Enceladus, NEG_X to SC_RAM; Hand off at CIRS_FP3 to 183.03/4.775, NEG_X to North_Pole_Dir. Agreed to pickup from NEG_Z to Enceladus, NEG_X to ENC_SC_RAM at C/A-00:59:00 Begin turn to CIRS/UVIS at C/A+00:15:00, reach CIRS orientati...
Begin Dual Playback Science		2009-306T07:26:58	GMB_E120_Enceladus-000T00:15:00	000T00:00:01	2009-306T07:26:59			
120EN (t) E7 ENCELADUS O...		2009-306T07:41:58		000T00:00:01	2009-306T07:41:59			
End Dual Playback Science		2009-306T07:56:58	GMB_E120_Enceladus+000T00:15:00	000T00:00:01	2009-306T07:56:59			
CIRS_120EN_FP3SPMAP001_PRIME	I, M, U, V	2009-306T08:03:58	GMB_E120_Enceladus+000T00:22:00	000T00:10:00	2009-306T08:13:58	CIRS_FP3 to 183.03/4.775	NEG_X to North_Pole_Dir	Pick up at CIRS_FP3 to 183.03/4.775, NEG_X to North_Pole_Dir; Hand off at CIRS_FP3 to 183.03/4.775, NEG_X to North_Pole_Dir.
UVIS_120EN_ICYMAP003_PRIME	C, M, V	2009-306T08:13:58	GMB_E120_Enceladus+000T00:32:00	000T01:28:00	2009-306T09:41:58	UVIS_FUV to Saturn	NEG_X to NSP	Pick up at CIRS_FP3 to 183.03/4.775, NEG_X to North_Pole_Dir; Hand off at NEG_Y to Enceladus, NEG_X to NSP. S&ER-3
ENGR_120SC_DFPWBIAS306_PPS	C, M, U, V	2009-306T09:41:58	GMB_E120_Enceladus+000T02:00:00	000T00:21:05	2009-306T10:03:03	NEG_Y to Enceladus	NEG_X to NSP	Pick up at NEG_Y to Enceladus, NEG_X to NSP; Hand off at NEG_Y to Enceladus, NEG_X to NSP.
CIRS_120EN_FP3DAYMAP001_PRIME	M, U, V	2009-306T10:03:58	GMB_E120_Enceladus+000T02:22:00	000T01:38:00	2009-306T11:41:58	CIRS_FP3 to Enceladus (2.972,0.0,-4.027 deg. offset)	NEG_X to NSP	Pick up at NEG_Y to Enceladus, NEG_X to NSP; Hand off at ISS_NAC to Enceladus, NEG_X to NSP.
End Custom		**2009-306T11:41:58**	**GMB_E120_Enceladus+000T04:00:00**	**000T00:00:01**	**2009-306T11:41:59**			
SP_120NA_DEADTIME406_PRIME	**M**	**2009-306T11:41:59**	**GMB_E120_Enceladus+000T04:00:01**	**000T00:02:00**	**2009-306T11:43:59**	**ISS_NAC to Enceladus**	**NEG_X to NSP**	
VIMS_120EN_ICYLON003_PRIME	C, M, U	2009-306T11:44:00		000T02:20:00	2009-306T14:04:00	ISS_NAC to Enceladus	NEG_X to NSP	
UVIS_120TE_ICYLON001_PRIME	C, I, M, V	2009-306T14:04:00		000T02:16:00	2009-306T16:20:00	ISS_NAC to Tethys	NEG_X to NSP	
SP_120EA_DLTURN306_PRIME	M	2009-306T16:20:00		000T00:40:00	2009-306T17:00:00	XBAND to Earth	NEG_Y to NEP	
SP_120EA_C70METNON306_PRIME	C, E, M, R	2009-306T17:00:00		000T09:00:00	2009-307T02:00:00	XBAND to Earth	NEG_Y to NEP	NEG_Y to NEP needed for safe DL and following WP turn
Pointer Reset in preparatio...		2009-307T02:00:00		000T00:00:01	2009-307T02:00:01			
SP_120EN_WAYPTTURN307_PRIME	M	2009-307T02:00:00		000T00:40:00	2009-307T02:40:00	ISS_NAC to Enceladus	POS_X to NSP	safe WP
NEW WAYPOINT		**2009-307T02:40:00**		**000T10:35:00**	**2009-307T13:15:00**	**ISS_NAC to Enceladus**	**POS_X to NSP**	
UVIS_120DI_ICYSTARE001_PRIME	M	2009-307T02:40:00		000T06:00:00	2009-307T08:40:00	UVIS_FUV to Dione	NEG_Z to 32.1/83.1	
NAV_120SK_OPNAV071_PRIME	M	2009-307T08:40:00		000T00:54:00	2009-307T09:34:00	ISS_NAC to Satellites	POS_X to NSP	
NAV_120EA_DLTURN071_PRIME	M	2009-307T09:34:00		000T00:01:00	2009-307T09:35:00	XBAND to Earth	POS_X to NSP	
SP_120EA_M70METNON307_PRIME	M	2009-307T09:35:00		000T03:00:00	2009-307T12:35:00	XBAND to Earth	Rolling	POS_X to NSP; CRPC; rolling required

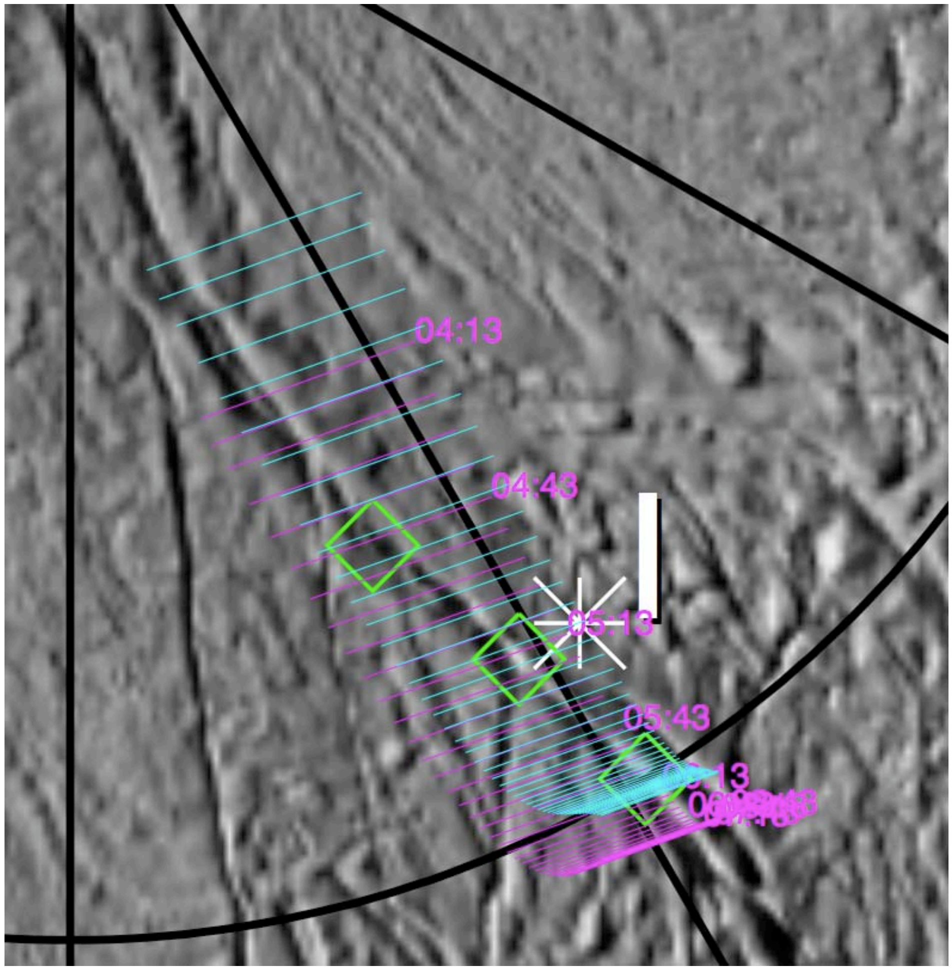
The Enceladus-121 (E8) timeline/attitude strategy is as follows:

Request	Riders	Start (SCET)	Start (Epoch)	Duration	End (SCET)	Primary	Secondary	Comments
E8 Flyby Segment		2009-324T11:37:00		001T13:45:00	2009-326T01:22:00			
SP_121DI_WAYPTTURN324_PRIME	M	2009-324T11:37:00		000T00:30:00	2009-324T12:07:00	NEG_Y to 5.0/25.0 (0.0,20.0,0.0 deg. offset)	POS_X to NSP	First part of a two-part turn
SP_121DI_WAYPTTURN424_PRIME	M	2009-324T12:07:00		000T00:15:00	2009-324T12:22:00	NEG_Y to Dione (0.0,20.0,0.0 deg. offset)	POS_X to NSP	Second part of a two-part turn
NEW WAYPOINT		**2009-324T12:22:00**		**000T01:53:00**	**2009-324T14:15:00**	**NEG_Y to Dione (0.0,20.0,0.0 deg. offset)**	**POS_X to NSP**	
UVIS_121DI_ICYLON001_PRIME	C, M, V	2009-324T12:22:00		000T01:24:00	2009-324T13:46:00	ISS_NAC to Dione (0.0,20.0,0.0 deg. offset)	POS_X to NSP	
SP_121EN_WAYPTTURN324_PRIME	M	2009-324T13:46:00		000T00:29:00	2009-324T14:15:00	NEG_Y to Enceladus (0.0,-10.0,0.0 deg. offset)	NEG_X to NEP	
NEW WAYPOINT		**2009-324T14:15:00**		**001T02:15:00**	**2009-325T16:30:00**	**NEG_Y to Enceladus (0.0,-10.0,0.0 deg. offset)**	**NEG_X to NEP**	
ISS_121EN_PLMHRHP001_PRIME	C, M, R, U, V	2009-324T14:15:00		000T05:09:00	2009-324T19:24:00	ISS_NAC to Enceladus (0.0,-69.813,0.0 deg. offset)	NEG_X to North_Pole_Dir	
RSS_121SA_OCCOUT001_PRIME	M	2009-324T19:24:00	LUB_E121_Enceladus-000T06:45:50	000T02:36:00	2009-324T22:00:00	XBAND to Earth	NEG_Y to 49.06/57.77	
SP_121NA_DEADTIME324_PRIME	**M**	**2009-324T22:00:00**		**000T00:05:50**	**2009-324T22:05:50**	**NEG_Y to Enceladus (0.0,-10.0,0.0 deg. offset)**	**NEG_X to NEP**	
VIMS_121EN_ENCEL001_PRIME	C, I, M, U	2009-324T22:05:50	GMB_E121_Enceladus-000T04:04:00	000T02:04:00	2009-325T00:09:50	NEG_Y to Enceladus	NEG_X to NEP	
Begin Custom		**2009-325T00:09:50**	**GMB_E121_Enceladus-000T02:00:00**	**000T01:23:01**	**2009-325T01:32:51**			
CIRS_121EN_FP1DRKMAP001_PRIME	M, U, V	2009-325T00:09:50	GMB_E121_Enceladus-000T02:00:00	000T01:23:00	2009-325T01:32:50	NEG_Y to Enceladus	NEG_X to NEP	Pick up at NEG_Y to Enceladus (0.0,-10.0,0.0 deg. offset), NEG_X to NEP; Hand off at ISS_NAC to Enceladus (0.071,-10.0,-0.906 deg. offset), POS_Z to 302.97/9.98.
ISS_121EN_PLMHR001_PRIME	C, M, U, V	2009-325T01:32:50	GMB_E121_Enceladus-000T00:37:00	000T00:30:00	2009-325T02:02:50	ISS_NAC to Enceladus	PIC	Pick up at ISS_NAC to Enceladus (0.071,-10.0,-0.906 deg. offset), POS_Z to 302.97/9.98; Hand off at ISS_NAC to Enceladus (0.688,0.0,3.953 deg. offset), POS_Z to 302.97/9.98.
ENGR_121SC_ORSRCS325_PRIME	C, M	2009-325T02:02:50	GMB_E121_Enceladus-000T00:07:00	000T00:01:00	2009-325T02:03:50			Pick up at ISS_NAC to Enceladus (0.69,0.0,3.95 deg. offset), POS_Z to 302.97/9.98; Hand off at ISS_NAC to Enceladus (0.69,0.0,3.95 deg. offset), POS_Z to 302.97/9.98. deadbands (0.5, 0.5, 0.5)
CIRS_121EN_FP3HIRES001_PRIME	I, M, U, V	2009-325T02:03:50	GMB_E121_Enceladus-000T00:06:00	000T02:36:00	2009-325T04:39:50	CIRS_FP3 to Enceladus	POS_Z to 302.97/9.98	Pick up at ISS_NAC to Enceladus (0.69,0.0,3.95 deg. offset), POS_Z to 302.97/9.98; Hand off at ISS_NAC to Enceladus, POS_Z to 302.97/9.98.
121EN (t) E8 ENCELADUS I...		2009-325T02:09:50		000T00:00:01	2009-325T02:09:51			
ENGR_121SC_DFPWBIAS325_PPS	C, I, M, U, V	2009-325T04:39:50	GMB_E121_Enceladus+000T02:30:00	000T00:21:05	2009-325T05:00:55			Pick up at ISS_NAC to Enceladus (0.69,0.0,3.95 deg. offset), POS_Z to 302.97/9.98; Hand off at ISS_NAC to Enceladus (0.69,0.0,3.95 deg. offset), POS_Z to 302.97/9.8. deadbands (2,2,2)
CIRS_121EN_FP3DAYMAP002_PRIME	I, M, R, U, V	2009-325T05:01:50	GMB_E121_Enceladus+000T02:52:00	000T01:38:00	2009-325T06:39:50	ISS_NAC to Enceladus	POS_Z to 302.97/9.98	Pick up at ISS_NAC to Enceladus (0.69,0.0,3.95 deg. offset), POS_Z to 302.97/9.98; Hand off at NEG_Y to Enceladus (0.0,-10.0,0.0 deg. offset), NEG_X to NEP.
Periapse R = 3.202 Rs, lat ...		2009-325T05:15:03		000T00:00:01	2009-325T05:15:04			
End Custom		**2009-325T06:39:50**	**GMB_E121_Enceladus+000T04:30:00**	**000T00:00:01**	**2009-325T06:39:51**			
UVIS_121EN_ICYSTARE002_PRIME	C, I, M, R, V	2009-325T06:39:50	GMB_E121_Enceladus+000T04:30:00	000T01:00:00	2009-325T07:39:50	UVIS_FUV to Enceladus	NEG_X to 19.8/82.5	
SP_121NA_DEADTIME325_PRIME	**M, R**	**2009-325T07:39:50**	**GMB_E121_Enceladus+000T05:30:00**	**000T00:05:10**	**2009-325T07:45:00**	**NEG_Y to Enceladus (0.0,-10.0,0.0 deg. offset)**	**NEG_X to NEP**	
SP_121EA_DLTURN325_PRIME	M, R	2009-325T07:45:00		000T00:40:00	2009-325T08:25:00	XBAND to Earth	POS_X to NSP	
SP_121EA_M70METNON325_PRIME	E, M, R	2009-325T08:25:00		000T02:10:00	2009-325T10:35:00	XBAND to Earth	POS_X to NSP	
SP_121EA_G70METNON325_PRIME	M, R	2009-325T10:35:00		000T05:10:00	2009-325T15:45:00	XBAND to Earth	POS_X to NSP	
SP_121RH_WAYPTTURN325_PRIME	M	2009-325T15:45:00		000T00:26:00	2009-325T16:11:00	ISS_NAC to 5.0/15.0 (0.0,3.0,0.0 deg. offset)	POS_X to NSP	First part of a two-part turn
SP_121RH_WAYPTTURN425_PRIME	M	2009-325T16:11:00		000T00:19:00	2009-325T16:30:00	ISS_NAC to Rhea (0.0,3.0,0.0 deg. offset)	POS_X to NSP	Second part of a two-part turn
NEW WAYPOINT		**2009-325T16:30:00**		**000T10:22:00**	**2009-326T02:52:00**	**ISS_NAC to Rhea (0.0,3.0,0.0 deg. offset)**	**POS_X to NSP**	
UVIS_121RH_ICYEXO001_PRIME	C, I, M, V	2009-325T16:30:00		000T00:56:00	2009-325T17:26:00	UVIS_FUV to 78.635/-8.202	POS_X to NSP	
CIRS_121RH_FP1EQSCAN001_PRIME	M, V	2009-325T17:26:00		000T00:10:00	2009-325T17:36:00	CIRS_FP1 to Rhea (0.0,3.0,0.0 deg. offset)	POS_X to NSP	
ISS_121RH_REGMAP001_PRIME	C, M, U, V	2009-325T17:36:00		000T00:30:00	2009-325T18:06:00	ISS_NAC to Rhea (0.0,3.0,0.0 deg. offset)	POS_X to NSP	short dwell times ok
VIMS_121RH_RHEA001_PRIME	C, I, M, U	2009-325T18:06:00		000T00:40:00	2009-325T18:46:00	NEG_Y to Rhea	POS_X to NSP	
ISS_121RH_EQUATCOL001_PRIME	C, M, U, V	2009-325T18:46:00		000T00:40:00	2009-325T19:26:00	ISS_NAC to Rhea (0.0,3.0,0.0 deg. offset)	POS_X to NSP	dwell >2 min.
SP_121EA_DLTURN425_PRIME	M	2009-325T19:26:00		000T00:35:00	2009-325T20:01:00	XBAND to Earth	POS_X to NSP	
SP_121EA_C70METNON325_PRIME	M	2009-325T20:01:00		000T05:21:00	2009-326T01:22:00	XBAND to Earth	Rolling/SRU	NEG_X to NEP; CRPC; rolling required

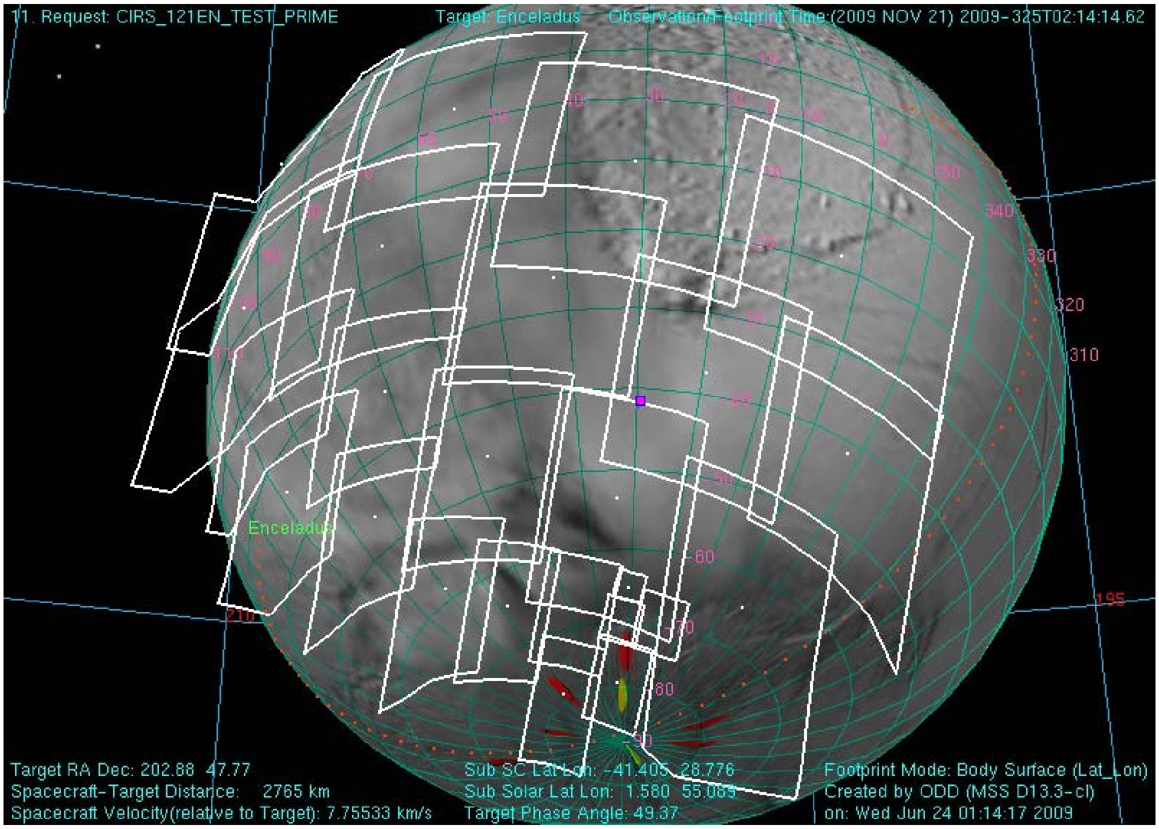
1.3 SAMPLE SNAPSHOTS



View of Enceladus in front of the disk of Saturn, shortly after the E7 closest approach. The UVIS slit is shown in red, and will focus on the disk of Saturn just below Enceladus' south pole.



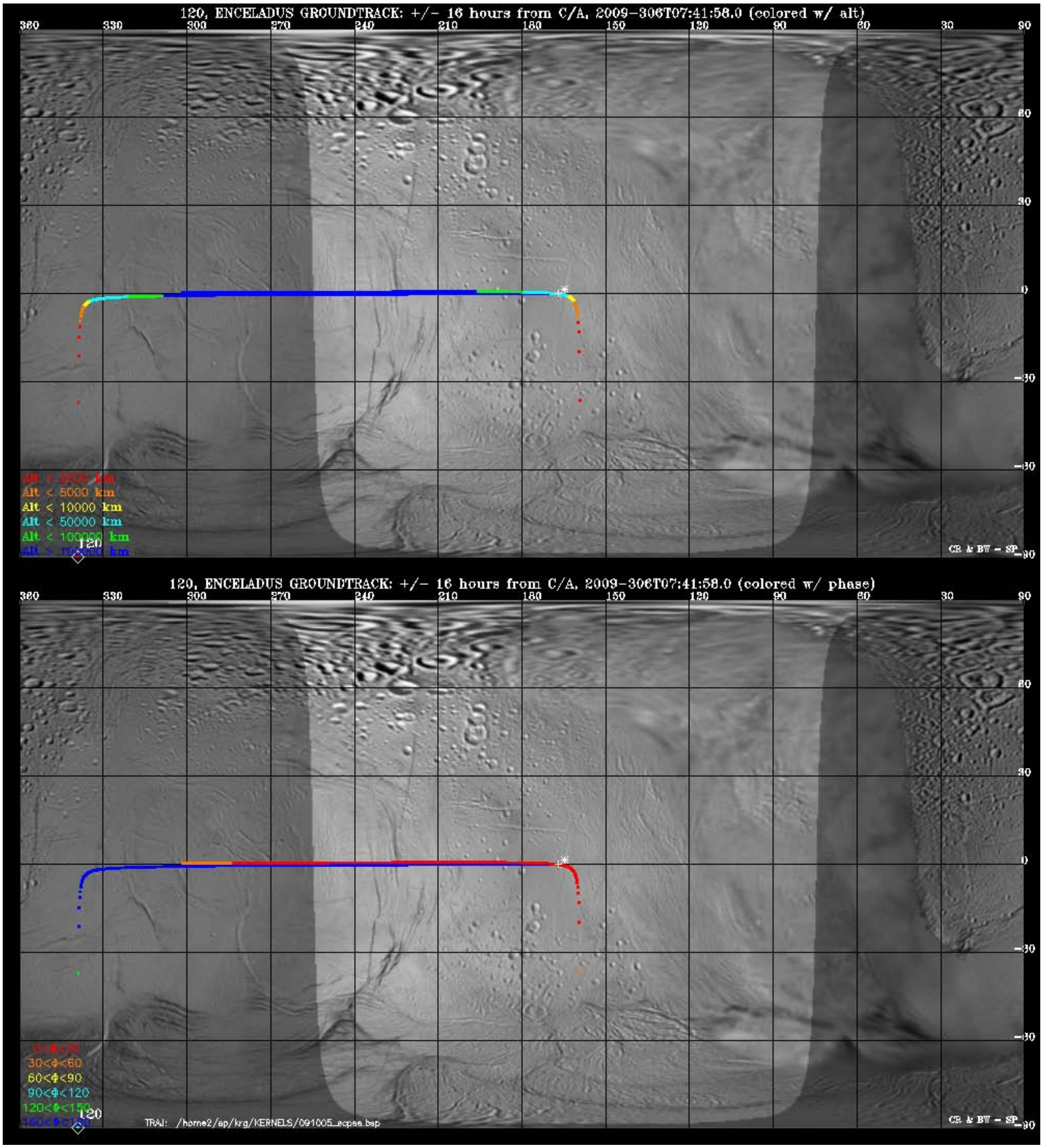
High-resolution scan of Baghdad Sulcus during the E8 closest-approach. In blue and pink are shown CIRS slits; ISS NACs are shown in green.

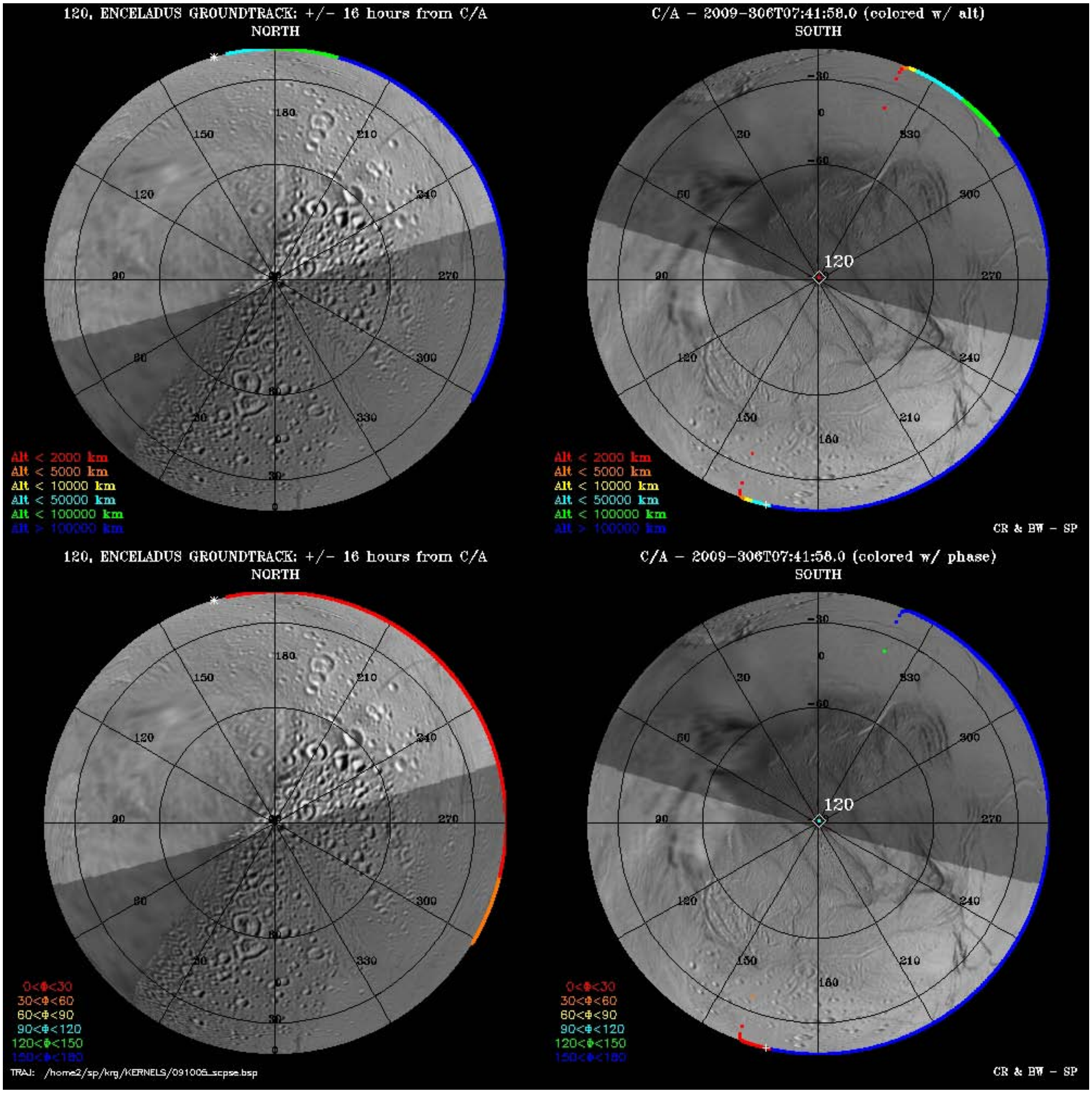


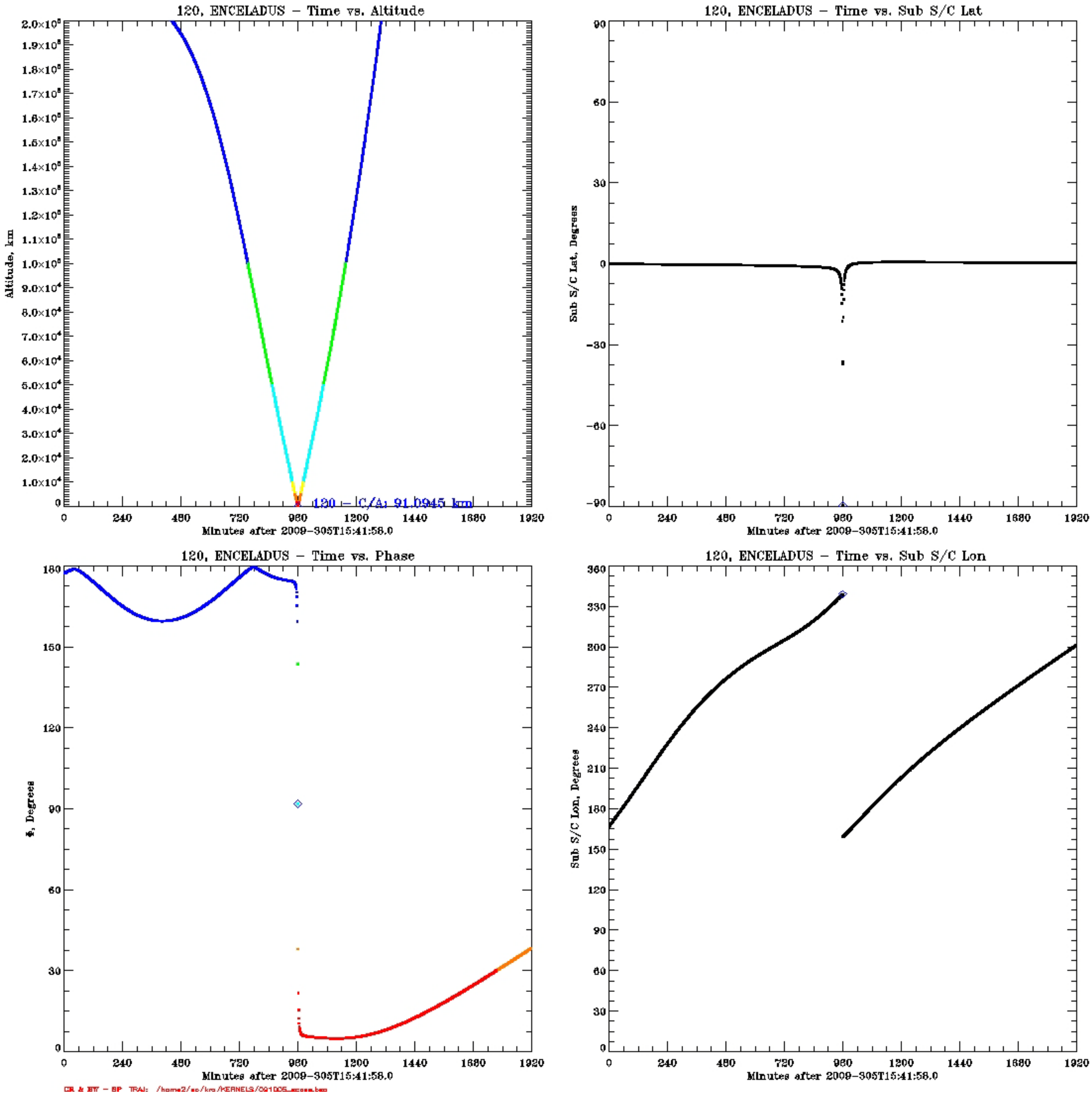
ISS NACs are shown in white, demonstrating the mosaic that will be made of Enceladus just after E8 closest-approach.

1.4 GEOMETRY PLOTS

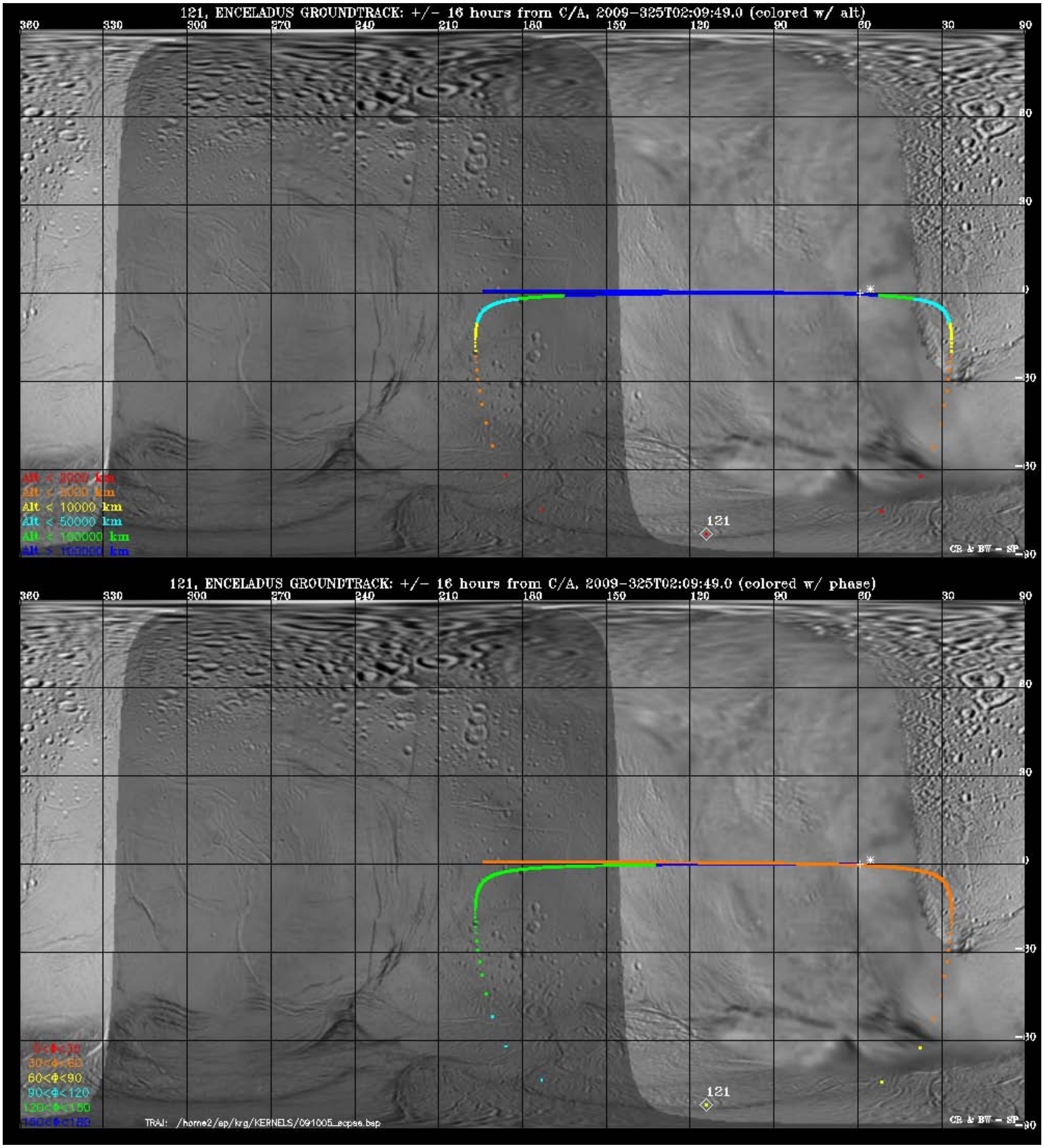
Enceladus Groundtracks and Body Information for 120EN

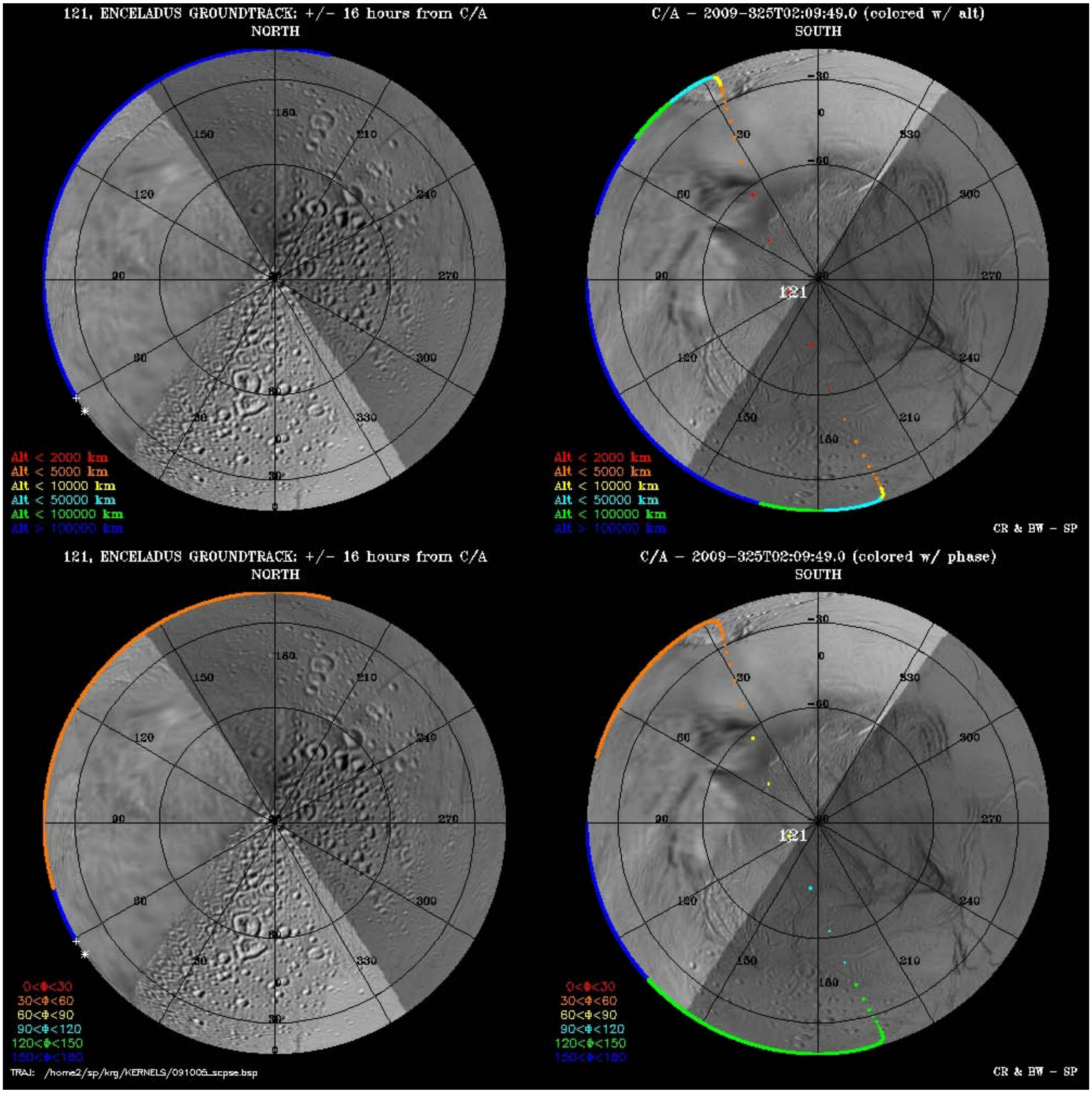


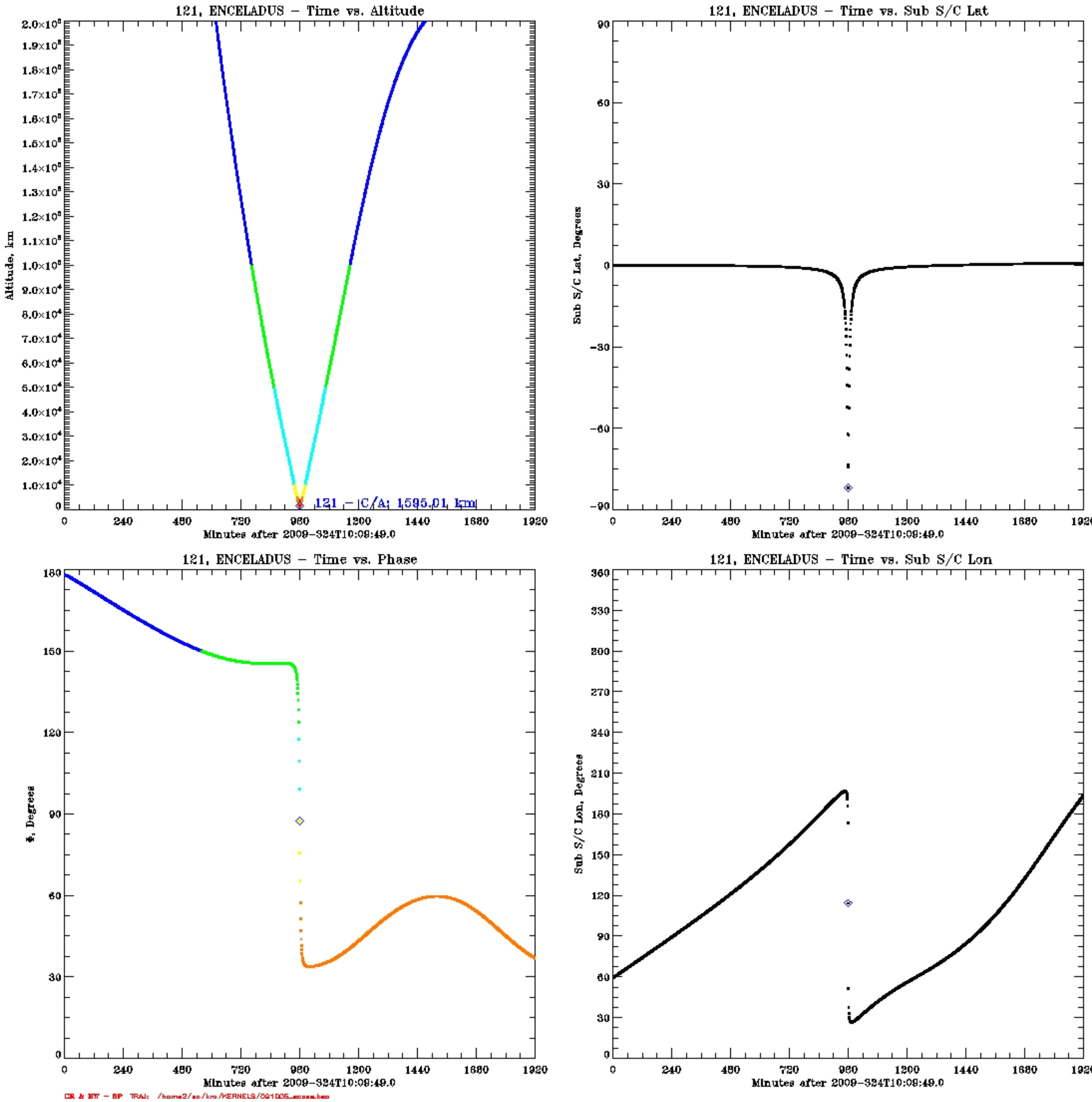

120, ENCELADUS GROUNDTRACK: +/- 16 hours from C/A
NORTH
C/A - 2009-306T07:41:58.0 (colored w/ alt)
SOUTH
Alt < 2000 km
Alt < 5000 km
Alt < 10000 km
Alt < 50000 km
Alt < 100000 km
Alt > 100000 km
CR & BW - SP
120, ENCELADUS GROUNDTRACK: +/- 16 hours from C/A
NORTH
C/A - 2009-306T07:41:58.0 (colored w/ phase)
SOUTH
0<Φ<30
30<Φ<60
60<Φ<90
90<Φ<120
120<Φ<150
150<Φ<180
TRAJ: /home2/sp/krg/KERNELS/091005_scpse.bsp
CR & BW - SP


120, ENCELADUS – Time vs. Altitude
Altitude, km
120 – C/A: 91.0945 km
Minutes after 2009-305T15:41:58.0
120, ENCELADUS – Time vs. Sub S/C Lat
Sub S/C Lat, Degrees
Minutes after 2009-305T15:41:58.0
120, ENCELADUS – Time vs. Phase
Φ, Degrees
Minutes after 2009-305T15:41:58.0
120, ENCELADUS – Time vs. Sub S/C Lon
Sub S/C Lon, Degrees
Minutes after 2009-305T15:41:58.0

Enceladus Groundtracks and Body Information for 121EN




121, ENCELADUS GROUNDTRACK: +/- 16 hours from C/A
NORTH
C/A - 2009-325T02:09:49.0 (colored w/ alt)
SOUTH
Alt < 2000 km
Alt < 5000 km
Alt < 10000 km
Alt < 50000 km
Alt < 100000 km
Alt > 100000 km
CR & BW - SP
121, ENCELADUS GROUNDTRACK: +/- 16 hours from C/A
NORTH
C/A - 2009-325T02:09:49.0 (colored w/ phase)
SOUTH
0<Φ<30
30<Φ<60
60<Φ<90
90<Φ<120
120<Φ<150
150<Φ<180
TRAJ: /home2/sp/krg/KERNELS/091006_scpse.bsp
CR & BW - SP


121, ENCELADUS – Time vs. Altitude
Altitude, km
121 – C/A: 1595.01 km
Minutes after 2009-324T10:09:49.0
121, ENCELADUS – Time vs. Sub S/C Lat
Sub S/C Lat, Degrees
Minutes after 2009-324T10:09:49.0
121, ENCELADUS – Time vs. Phase
Φ, Degrees
Minutes after 2009-324T10:09:49.0
121, ENCELADUS – Time vs. Sub S/C Lon
Sub S/C Lon, Degrees
Minutes after 2009-324T10:09:49.0

1.5 DATA PLAYBACK TABLES

The Enceladus-120 playback schedule is as follows:

Playback Schedule (SP_119NA_M34OBSNON279_NA through SP_121EA_G70OTBSEQ317_PRIME)				
Event or Observation	**Record Start Time (SCET)**	**Playback Start Time (Ground UTC)**	**Playback End Time (Ground UTC)**	**Playback Start Time (Pacific Time)**
CIRS_120RH_RHEAUVIS001_UVIS (9.9 Mbit)	2009-305T12:50	2009-306T18:33	2009-306T19:02	2009-306T10:33
UVIS_120RH_ICYLON001_PRIME (24.6 Mbit)	2009-305T12:50	2009-306T18:33	2009-306T19:02	2009-306T10:33
VIMS_120RH_RHEA001_UVIS (13.1 Mbit)	2009-305T12:50	2009-306T18:33	2009-306T19:02	2009-306T10:33
INMS_120SA_INNERMAG001_INMS (10.5 Mbit)	2009-305T14:00	2009-306T18:55	2009-306T19:39	2009-306T10:55
RPWS_120RI_RPXING002_PRIME (32.7 Mbit)	2009-305T14:35	2009-306T19:04	2009-306T19:36	2009-306T11:04
CIRS_120EN_PLMSCECL001_ISS (2.2 Mbit)	2009-305T14:57	2009-306T19:11	2009-306T19:32	2009-306T11:11
ISS_120EN_PLMSCECL001_PRIME (62.8 Mbit)	2009-305T14:57	2009-306T19:11	2009-306T19:32	2009-306T11:11
UVIS_120EN_ICYPLU001_ISS (2.3 Mbit)	2009-305T14:57	2009-306T19:11	2009-306T19:32	2009-306T11:11
VIMS_120EN_PLMSCECL001_ISS (5.8 Mbit)	2009-305T14:57	2009-306T19:11	2009-306T19:33	2009-306T11:11
RPWS_120SA_CHORUS001_CAPS (66.9 Mbit)	2009-305T15:35	2009-306T19:36	2009-306T23:30	2009-306T11:36
CDA_120OT_RATE320004_RIDER (91.9 Mbit)	2009-305T15:37	2009-306T19:37	2009-306T21:01	2009-306T11:37
INMS_120SA_SURVEY001_INMS (4.8 Mbit)	2009-305T16:00	2009-306T19:39	2009-306T23:06	2009-306T11:39
CIRS_120EN_FP13DKMAP001_PRIME (4.7 Mbit)	2009-305T17:16	2009-306T19:47	2009-306T19:57	2009-306T11:47
UVIS_120EN_ICYLON001_CIRS (11.7 Mbit)	2009-305T17:16	2009-306T19:47	2009-306T19:57	2009-306T11:47
VIMS_120EN_ICYLON001_CIRS (11.6 Mbit)	2009-305T17:16	2009-306T19:47	2009-306T19:57	2009-306T11:47
CIRS_120EN_ENPLUME001_ISS (5 Mbit)	2009-305T17:59	2009-306T19:57	2009-306T20:16	2009-306T11:57
ISS_120EN_PLMSCECL002_PRIME (55.8 Mbit)	2009-305T17:59	2009-306T19:57	2009-306T20:16	2009-306T11:57
UVIS_120EN_ICYPLU002_ISS (5.3 Mbit)	2009-305T17:59	2009-306T19:57	2009-306T20:16	2009-306T11:57
VIMS_120EN_ICYPLU002_ISS (12.4 Mbit)	2009-305T17:59	2009-306T19:57	2009-306T20:16	2009-306T11:57
CIRS_120EN_PLMHRHP001_ISS (5.4 Mbit)	2009-305T21:25	2009-306T20:31	2009-306T21:01	2009-306T12:31
ISS_120EN_PLMHRHP001_PRIME (111.6 Mbit)	2009-305T21:25	2009-306T20:31	2009-306T21:01	2009-306T12:31
UVIS_120EN_ICYPLU003_ISS (5.8 Mbit)	2009-305T21:25	2009-306T20:31	2009-306T21:01	2009-306T12:31
VIMS_120EN_PLMHRHP001_ISS (18.9 Mbit)	2009-305T21:25	2009-306T20:31	2009-306T21:01	2009-306T12:31
CDA_120OT_RATE320005_RIDER (0.4 Mbit)	2009-305T22:14	2009-306T21:01	2009-306T21:05	2009-306T13:01
CIRS_120EN_PLMHRHP002_ISS (19.6 Mbit)	2009-305T22:14	2009-306T21:01	2009-306T21:53	2009-306T13:01
ISS_120EN_PLMHRHP002_PRIME (141.7 Mbit)	2009-305T22:14	2009-306T21:01	2009-306T21:53	2009-306T13:01
RADAR_120OT_WARMUP4EN001_RIDER (5.2 Mbit)	2009-305T22:14	2009-306T21:01	2009-306T21:54	2009-306T13:01
UVIS_120EN_ICYPLU004_ISS (20.9 Mbit)	2009-305T22:14	2009-306T21:01	2009-306T21:53	2009-306T13:01
VIMS_120EN_PLMHRHP002_ISS (46.5 Mbit)	2009-305T22:14	2009-306T21:01	2009-306T21:53	2009-306T13:01
CDA_120OT_RATE320006_RIDER (32.7 Mbit)	2009-305T22:29	2009-306T21:05	2009-306T21:48	2009-306T13:05
MAG_120OT_INTFLD001_PRIME (25.6 Mbit)	2009-306T00:44	2009-306T21:46	2009-307T00:47	2009-306T13:46
CDA_120OT_RATE010100_RIDER (10.3 Mbit)	2009-306T00:50	2009-306T21:48	2009-306T23:23	2009-306T13:48
RADAR_120EN_SCATTRAD001_PRIME (459.6 Mbit)	2009-306T01:13	2009-306T21:54	2009-306T23:23	2009-306T13:54
INMS_120EN_ENCEL7001_INMS (5.4 Mbit)	2009-306T05:42	2009-306T23:06	2009-306T23:23	2009-306T15:06
CAPS_120EN_ENCOUNTER001_PRIME (108.4 Mbit)	2009-306T06:41	2009-306T23:23	2009-307T00:52	2009-306T15:23
INMS_120EN_ENCEL7001_PRIME (7.1 Mbit)	2009-306T06:42	2009-306T23:23	2009-307T00:33	2009-306T15:23
ISS_120EN_ENCEL7001_INMS (14 Mbit)	2009-306T06:42	2009-306T23:23	2009-307T00:33	2009-306T15:23
CDA_120OT_RATE080006_RIDER (142.9 Mbit)	2009-306T06:44	2009-306T23:23	2009-307T02:57	2009-306T15:23
MIMI_120EN_ENCOUNTER001_RIDER (5.5 Mbit)	2009-306T07:11	2009-306T23:30	2009-307T00:33	2009-306T15:30
RPWS_120EN_ENCA001_PRIME (73.6 Mbit)	2009-306T07:11	2009-306T23:30	2009-307T00:33	2009-306T15:30
CIRS_120EN_ENCEL7001_INMS (1.3 Mbit)	2009-306T07:36	2009-307T00:22	2009-307T00:26	2009-306T16:22
UVIS_120EN_ICYMAP001_INMS (5.9 Mbit)	2009-306T07:39	2009-307T00:23	2009-307T00:26	2009-306T16:23
RPWS_120EN_ENCA002_PRIME (49.8 Mbit)	2009-306T07:56	2009-306T23:37	2009-307T00:33	2009-306T15:37
CIRS_120EN_FP3SPMAP001_PRIME (1.8 Mbit)	2009-306T08:03	2009-306T23:42	2009-307T00:35	2009-306T15:42
INMS_120EN_ENCEL7002_INMS (8.6 Mbit)	2009-306T08:03	2009-306T23:42	2009-307T01:19	2009-306T15:42
ISS_120EN_FP3SPMAP001_CIRS (7 Mbit)	2009-306T08:03	2009-306T23:42	2009-307T00:35	2009-306T15:42
UVIS_120EN_ICYMAP002_CIRS (14.8 Mbit)	2009-306T08:03	2009-306T23:42	2009-307T00:35	2009-306T15:42
VIMS_120EN_SPFP3MAP001_CIRS (2.9 Mbit)	2009-306T08:03	2009-306T23:42	2009-307T00:35	2009-306T15:42
MIMI_120SA_RNGSAT002_RIDER (65.1 Mbit)	2009-306T08:11	2009-306T23:51	2009-307T11:48	2009-306T15:51
RPWS_120RI_RPXING001_PRIME (45.2 Mbit)	2009-306T08:11	2009-307T00:33	2009-307T01:17	2009-306T16:33
CIRS_120EN_ENUVIS001_UVIS (16.2 Mbit)	2009-306T08:13	2009-307T00:35	2009-307T01:19	2009-306T16:35
UVIS_120EN_ICYMAP003_PRIME (130.3 Mbit)	2009-306T08:13	2009-307T00:35	2009-307T01:19	2009-306T16:35
VIMS_120EN_ICYMAP001_UVIS (23.3 Mbit)	2009-306T08:13	2009-307T00:35	2009-307T01:19	2009-306T16:35
MAG_120EN_ENTAR001_RIDER (3.7 Mbit)	2009-306T08:34	2009-307T00:47	2009-307T01:19	2009-306T16:47
CAPS_120SA_SURVEY003_PRIME (94.4 Mbit)	2009-306T08:41	2009-306T23:51	2009-307T11:23	2009-306T15:51
RPWS_120SA_CHORUS002_CAPS (27.5 Mbit)	2009-306T09:35	2009-307T01:17	2009-307T02:48	2009-306T17:17
CIRS_120EN_FP1STARE001_ENGR (4 Mbit)	2009-306T09:41	2009-307T01:19	2009-307T01:28	2009-306T17:19
UVIS_120EN_ICYMAP004_ENGR (32.6 Mbit)	2009-306T09:41	2009-307T01:19	2009-307T01:28	2009-306T17:19

The Enceladus-121 playback schedule is as follows:

Playback Schedule (SP_121NA_C70OBSNON318_NA through SP_123EA_C70METSEQ356_PRIME)				
Event or Observation	**Record Start Time (SCET)**	**Playback Start Time (Ground UTC)**	**Playback End Time (Ground UTC)**	**Playback Start Time (Pacific Time)**
UVIS_121DI_ICYLON001_PRIME (11.5 Mbit)	2009-324T12:22	2009-325T10:00	2009-325T10:19	2009-325T02:00
VIMS_121EN_ENCELADUS016_ISS (21.8 Mbit)	2009-324T12:22	2009-325T10:00	2009-325T10:19	2009-325T02:00
RPWS_121RI_RPXING001_PRIME (65.4 Mbit)	2009-324T14:12	2009-325T10:22	2009-325T11:22	2009-325T02:22
CIRS_121EN_RIDER001_ISS (34.1 Mbit)	2009-324T14:15	2009-325T10:23	2009-325T12:48	2009-325T02:23
ISS_121EN_PLMHRHP001_PRIME (334.9 Mbit)	2009-324T14:15	2009-325T10:23	2009-325T12:48	2009-325T02:23
UVIS_121EN_ICYPLU001_ISS (36.3 Mbit)	2009-324T14:15	2009-325T10:23	2009-325T12:48	2009-325T02:23
VIMS_121EN_ENCELADUS013_CIRS (80 Mbit)	2009-324T14:15	2009-325T10:23	2009-325T12:48	2009-325T02:23
INMS_121SA_INNERMAG001_INMS (10.5 Mbit)	2009-324T15:00	2009-325T10:44	2009-325T11:43	2009-325T02:44
RPWS_121SA_INSURVEY004_PRIME (39.2 Mbit)	2009-324T16:12	2009-325T11:22	2009-325T14:08	2009-325T03:22
CDA_121OT_RATE320005_RIDER (362.4 Mbit)	2009-324T16:13	2009-325T11:22	2009-326T00:49	2009-325T03:22
INMS_121SA_SURVEY002_INMS (2.5 Mbit)	2009-324T17:00	2009-325T11:43	2009-325T13:47	2009-325T03:43
CIRS_121EN_RIDER001_VIMS (22.8 Mbit)	2009-324T22:05	2009-325T13:12	2009-325T13:47	2009-325T05:12
ISS_121EN_ENCEL001_VIMS (41.9 Mbit)	2009-324T22:05	2009-325T13:12	2009-325T13:47	2009-325T05:12
UVIS_121EN_ICYLON001_VIMS (16.9 Mbit)	2009-324T22:05	2009-325T13:12	2009-325T13:47	2009-325T05:12
VIMS_121EN_ENCEL001_PRIME (32 Mbit)	2009-324T22:05	2009-325T13:12	2009-325T13:47	2009-325T05:12
CIRS_121EN_FP1DRKMAP001_PRIME (15.3 Mbit)	2009-325T00:09	2009-325T13:47	2009-325T14:14	2009-325T05:47
UVIS_121EN_ICYLON002_CIRS (11.3 Mbit)	2009-325T00:09	2009-325T13:47	2009-325T14:14	2009-325T05:47
VIMS_121EN_ENCEL004_CIRS (23.3 Mbit)	2009-325T00:09	2009-325T13:47	2009-325T14:14	2009-325T05:47
INMS_121EN_ENCEL8001_INMS (7.9 Mbit)	2009-325T00:09	2009-325T13:47	2009-325T14:27	2009-325T05:47
MAG_121EN_ENTAR001_RIDER (7.6 Mbit)	2009-325T00:09	2009-325T13:47	2009-325T14:06	2009-325T05:47
CAPS_121EN_ENCOUNTER001_PRIME (108.4 Mbit)	2009-325T01:10	2009-325T14:03	2009-325T16:59	2009-325T06:03
MAG_121OT_INTFLD001_PRIME (25.6 Mbit)	2009-325T01:20	2009-325T14:06	2009-326T00:38	2009-325T06:06
RPWS_121EN_ENCA001_PRIME (294.4 Mbit)	2009-325T01:24	2009-325T14:08	2009-325T16:51	2009-325T06:08
CIRS_121EN_RIDER002_ISS (5.5 Mbit)	2009-325T01:32	2009-325T14:14	2009-325T15:55	2009-325T06:14
ISS_121EN_PLMHR001_PRIME (146.5 Mbit)	2009-325T01:32	2009-325T14:14	2009-325T15:55	2009-325T06:14
UVIS_121EN_ICYMAP001_ISS (44.4 Mbit)	2009-325T01:32	2009-325T14:14	2009-325T15:55	2009-325T06:14
VIMS_121EN_ENCELADUS008_ISS (8 Mbit)	2009-325T01:32	2009-325T14:14	2009-325T15:55	2009-325T06:14
MIMI_121EN_ENCOUNTER002_RIDER (3.7 Mbit)	2009-325T01:39	2009-325T14:27	2009-325T16:35	2009-325T06:27
INMS_121EN_ENCEL8001_RIDER (5.3 Mbit)	2009-325T01:39	2009-325T14:27	2009-325T16:35	2009-325T06:27
CIRS_121EN_RWA2RCS001_AACS (0.2 Mbit)	2009-325T02:02	2009-325T15:55	2009-325T15:56	2009-325T07:55
CIRS_121EN_FP3HIRES001_PRIME (28.7 Mbit)	2009-325T02:03	2009-325T15:56	2009-325T23:43	2009-325T07:56
ISS_121EN_FP3HIRES001_CIRS (120 Mbit)	2009-325T02:03	2009-325T15:56	2009-325T23:43	2009-325T07:56
UVIS_121EN_ICYMAP002_CIRS (154.1 Mbit)	2009-325T02:03	2009-325T15:56	2009-325T23:43	2009-325T07:56
VIMS_121EN_ENCEL005_CIRS (40.7 Mbit)	2009-325T02:03	2009-325T15:56	2009-325T23:43	2009-325T07:56
MIMI_121SA_RNGSAT002_RIDER (41.7 Mbit)	2009-325T02:39	2009-325T14:47	2009-326T00:49	2009-325T06:47
INMS_121EN_ENCEL8002_INMS (7.9 Mbit)	2009-325T02:39	2009-325T16:35	2009-325T23:29	2009-325T08:35
RPWS_121SA_INSURVEY005_PRIME (22.3 Mbit)	2009-325T02:54	2009-325T16:51	2009-326T00:34	2009-325T08:51
CAPS_121SA_RINGSAT002_PRIME (300.7 Mbit)	2009-325T03:10	2009-325T14:47	2009-325T23:11	2009-325T06:47
INMS_121SA_RINGPLN001_RIDER (1.4 Mbit)	2009-325T04:09	2009-325T23:29	2009-326T00:34	2009-325T15:29
CIRS_121EN_RCS2RWA001_AACS (4 Mbit)	2009-325T04:39	2009-325T23:43	2009-325T23:49	2009-325T15:43
ISS_121SC_DFPWBIAS325_ENGR (7 Mbit)	2009-325T04:39	2009-325T23:43	2009-325T23:49	2009-325T15:43
UVIS_121EN_ICYLON004_CIRS (6 Mbit)	2009-325T04:39	2009-325T23:43	2009-325T23:49	2009-325T15:43
VIMS_121EN_ENCEL003_AACS (5.8 Mbit)	2009-325T04:39	2009-325T23:43	2009-325T23:49	2009-325T15:43
CIRS_121EN_FP3DAYMAP002_PRIME (18 Mbit)	2009-325T05:01	2009-325T23:49	2009-326T00:13	2009-325T15:49
ISS_121EN_FP3DAYMAP002_CIRS (27.9 Mbit)	2009-325T05:01	2009-325T23:49	2009-326T00:13	2009-325T15:49
UVIS_121EN_ICYLON005_CIRS (13.4 Mbit)	2009-325T05:01	2009-325T23:49	2009-326T00:13	2009-325T15:49
VIMS_121EN_ENCELADUS007_CIRS (25.4 Mbit)	2009-325T05:01	2009-325T23:49	2009-326T00:13	2009-325T15:49
CIRS_121EN_RIDER001_UVIS (11 Mbit)	2009-325T06:39	2009-326T00:13	2009-326T00:31	2009-325T16:13
ISS_121EN_ICYSTARE002_UVIS (27.9 Mbit)	2009-325T06:39	2009-326T00:13	2009-326T00:31	2009-325T16:13
UVIS_121EN_ICYSTARE002_PRIME (21.3 Mbit)	2009-325T06:39	2009-326T00:13	2009-326T00:31	2009-325T16:13
VIMS_121EN_ENCELADUS010_UVIS (16 Mbit)	2009-325T06:39	2009-326T00:13	2009-326T00:31	2009-325T16:13
INMS_121SA_RINGPLN002_RIDER (2.8 Mbit)	2009-325T08:07	2009-325T14:47	2009-326T00:49	2009-325T06:47
RPWS_121RI_RPXING002_PRIME (65.4 Mbit)	2009-325T08:10	2009-325T14:47	2009-326T00:38	2009-325T06:47
MAG_121CO_RNGSAT004_MAPS (21 Mbit)	2009-325T09:10	2009-325T14:54	2009-326T00:48	2009-325T06:54
UVIS_121SW_IPHSURVEY009_RIDER (2.6 Mbit)	2009-325T09:45	2009-325T15:01	2009-326T00:44	2009-325T07:01
RPWS_121SA_INSURVEY006_PRIME (64.6 Mbit)	2009-325T10:10	2009-325T15:06	2009-326T02:45	2009-325T07:06
MAG_121RH_RHTAR001_RIDER (13.1 Mbit)	2009-325T15:35	2009-325T21:30	2009-326T00:49	2009-325T13:30
INMS_121SA_RINGPLN003_RIDER (3.2 Mbit)	2009-325T16:09	2009-325T21:32	2009-326T02:45	2009-325T13:32