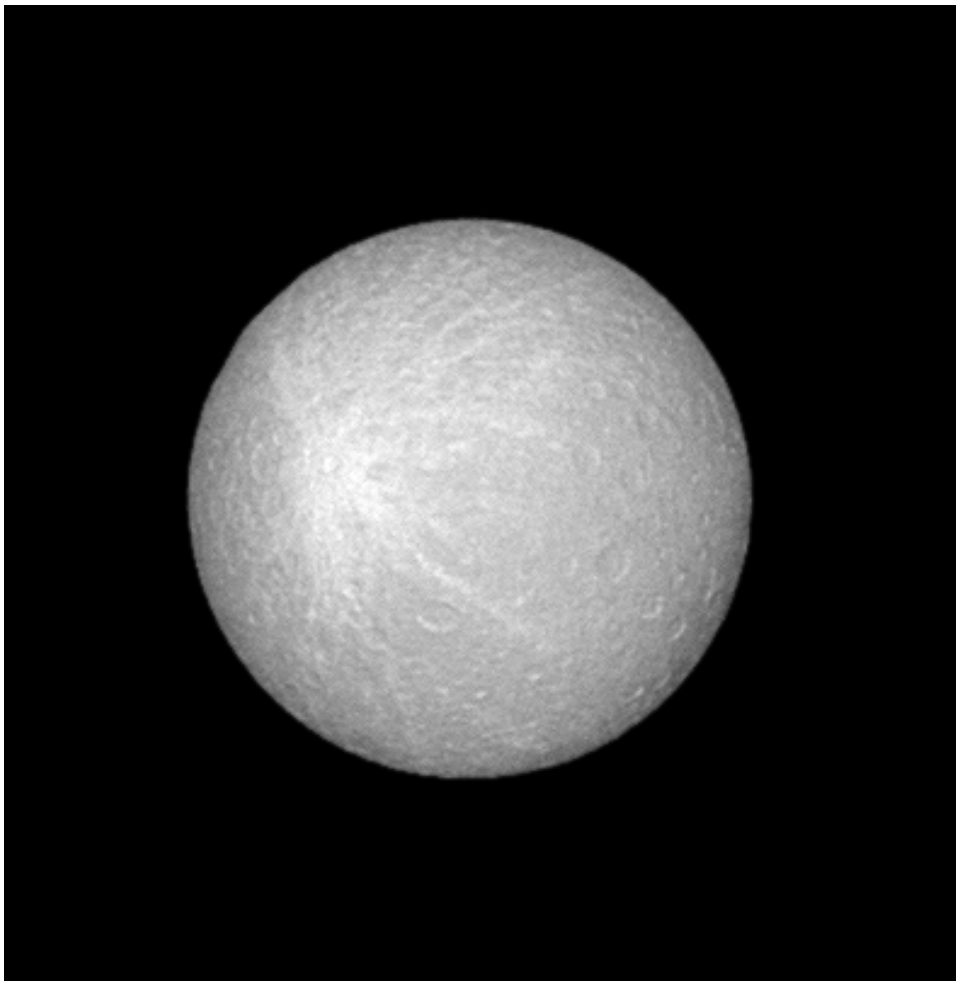
C A S S I N I



R h e a - 1

MISSION DESCRIPTION

November 2005

Jet Propulsion Laboratory
California Institute of Technology

1.0 OVERVIEW

November of 2005 includes the final flyby of an amazing string of close icy satellite encounters. As September included the closest-ever encounters with Tethys and Hyperion, October contained the single targeted encounter at Dione . November brings the only targeted encounter at Rhea. Rhea was discovered by Jean-Domnique Cassini (after whom our orbiter is named) in 1672. . In Greek mythology, Rhea is known as the mother of the gods. She is the mother of Demeter, Hades, Hera, Hestia, Poseidon and Zeus.

The closest approach to Rhea occurs on Saturday, November 26th, at 22:37 spacecraft time (4:49 PM Pacific Time) at an altitude of 500 km (310 miles) above the surface and at a speed of 7.3 kilometers per second (16,330 mph). Rhea has a diameter of 1528 km (949 miles), making it the largest icy satellite. Rhea is spherical in shape. The next-closest encounter with Rhea occurs in 2007 on orbit 49, at a distance of 5000 km.

This encounter is set up with two maneuvers: an apoapsis maneuver scheduled for November 13, and an approach maneuver, scheduled for November 23. The encounter itself occurs approximately 12 hours prior to periapsis to Saturn. The cleanup maneuver for the flyby occurs just a day after the encounter.

Occurring on orbit 18, Rhea will be the eighth close encounter with icy satellites, after Phoebe, Enceladus (orbit 3, non-targeted), Enceladus (orbit 4), Enceladus again (orbit 11), Tethys (orbit 15, non-targeted), Hyperion (also orbit 15) and Dione (orbt 16). (It could be argued that the study of Iapetus on orbit C was intense enough even at 120,000 km to merit inclusion in this list, making this encounter the ninth.)

1.1 ABOUT RHEA

Rhea is the largest of the medium-sized icy moons in orbit around Saturn. Rhea orbits Saturn at 8.74 Saturn radii, or 527,285 km. Like most of the other icy saturnian satellites, Rhea's surface is heavily cratered, suggesting that recent resurfacing has not occurred over most of the body, and that it is geologically old. However, another geologic feature has been observed on Rhea's surface – "wispy terrain." This terrain is not unlike that seen on Dione; Dione's wispy streaks are known to be a complex series of cracks and fractures due to past episodes of tectonic activity. Rhea's wispy terrain is likely also fractured ice due to tectonic activity.

Rhea's primary surface constituent is water ice, similar to the other icy satellites of Saturn. There is a distinct brightness difference between leading and trailing hemispheres, where the leading trailing is significantly brighter than the trailing hemisphere at visible wavelengths. With a density of 1.33 g/cm^3, Rhea may have experienced the effects of internal heat in its past but is likely composed primarily of water ice.

Rhea, being the largest of the icy moons orbiting within the denser region of Saturn's magnetosphere, may be expected to have enough mass to hold in a sputter-produced atmosphere. So far, such a tenuous atmosphere has not been observed at Rhea; this close flyby may provide the opportunity.

1.2 RHEA SCIENCE ACTIVITIES

The November 26, 2005 flyby of Rhea represents the closest encounter to Rhea during the Cassini mission. The focus of the flyby is Radio Science measurements of the mass of Rhea. The flyby geometry is oriented such that Rhea's wispy terrain on the trailing and anti-Saturnian hemispheres is easily observable by the remote-sensing instruments on Cassini. The primary science investigations will be centered around the following questions: What is the interior structure of Rhea? What is the compositional makeup of Rhea, other than water ice? Did resurfacing occur early in Rhea's history? What do the cracks and fractures tell us about the recent geologic history of Rhea? How does Rhea interact with Saturn's E-ring and magnetosphere?

CAPS will make measurements of the plasma environment around Rhea to understand its effects, if any, on the surrounding Saturn magnetosphere. This flyby will provide a downstream crossing of the wake region of Rhea, the first icy satellite wake crossing of the tour. The geometry is complementary for CAPS to the 2007 Rev 49 encounter with Rhea.

CIRS will perform scans of the disk of Rhea to measure daytime and nighttime temperatures. These measurements will constrain the bolometric albedo, the thermal inertial and volatile stability of the surface.

For ISS, this Rhea flyby provides an opportunity to capture the best images of the wispy terrain and to obtain high-resolution images of a relatively fresh, bright crater on the leading hemisphere. ISS will perform mosaics on the inbound leg (178,000 – 54,000 km) for regional mapping. At closest-approach, ISS will capture the highest-ever resolution images of Rhea as the moon passes through the field-of-view of the camera.

RADAR measurements of Rhea, both scatterometry and radiometry will be used to will constrain the bulk density and/or the relative ice cleanliness in the upper layer of regolith.

RPWS will look for evidence of a plasma source at Rhea. The RPWS data will be used to examine the plasma wave spectrum for evidence of magnetosphere-moon interactions. RPWS measurements will also be used to look for the signature of dust impacts.

RSS will make measurements of Rhea's mass during four blocks of time dedicated to this study, including the time right around closest-approach. The measurements will help to constrain Rhea's internal structure and gravity field.

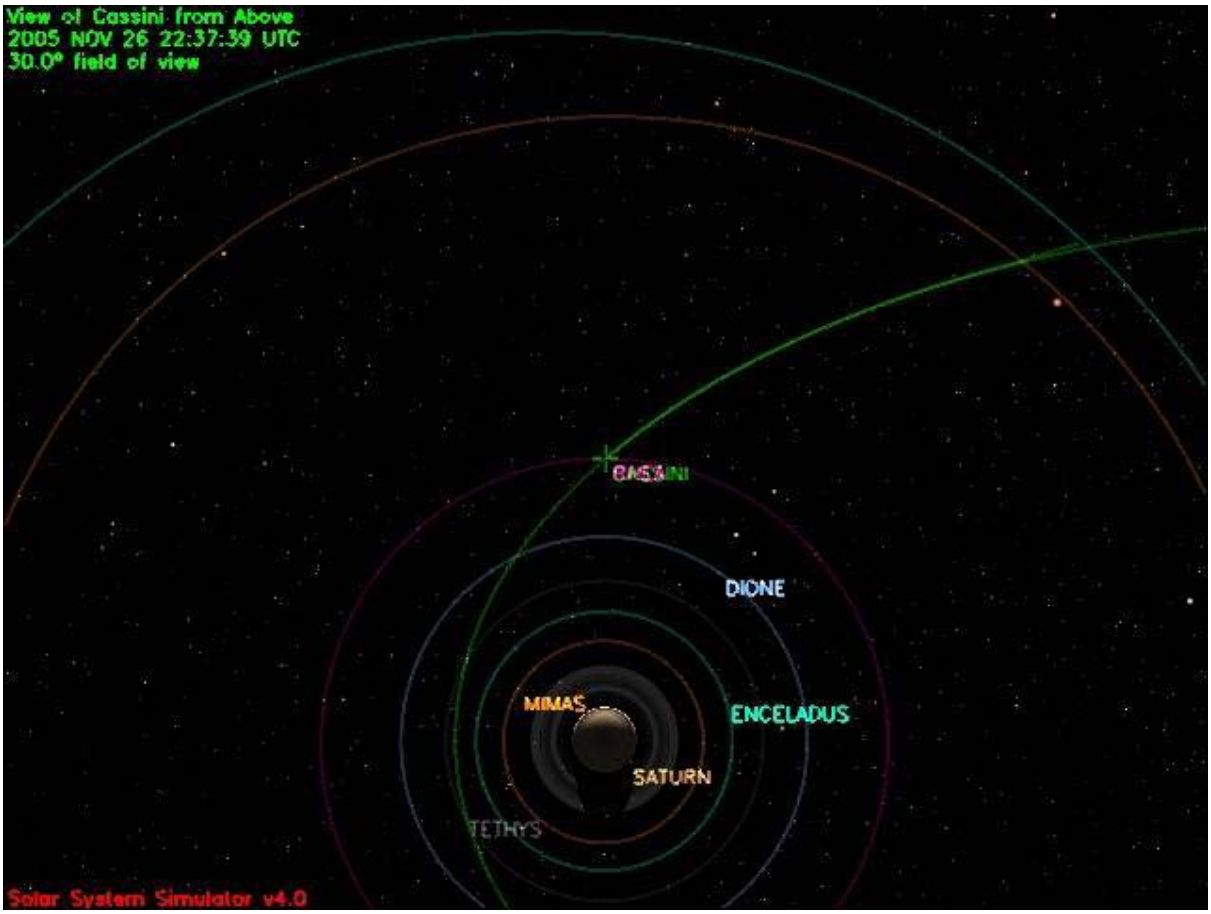
UVIS will observe Rhea to look for evidence of a tenuous, sputter-produced atmosphere. UVIS will also map the surface to look for brightness variations at far-UV wavelenegths, indicative of compositional variations and/or grain size variations.

Measurements by VIMS will investigate surface composition. VIMS will identify minerals and other non-water ice species in the surface of Rhea. VIMS measurements will also be used to understand grain size variations across the surface.

1.3 RHEA DATA PRODUCTS

A time ordered description of the Rhea activities, sample snapshots from the encounter, and data playback schedule are shown on the following pages.

One-way light time at the time of the encounters is 1 hour and 12 minutes.

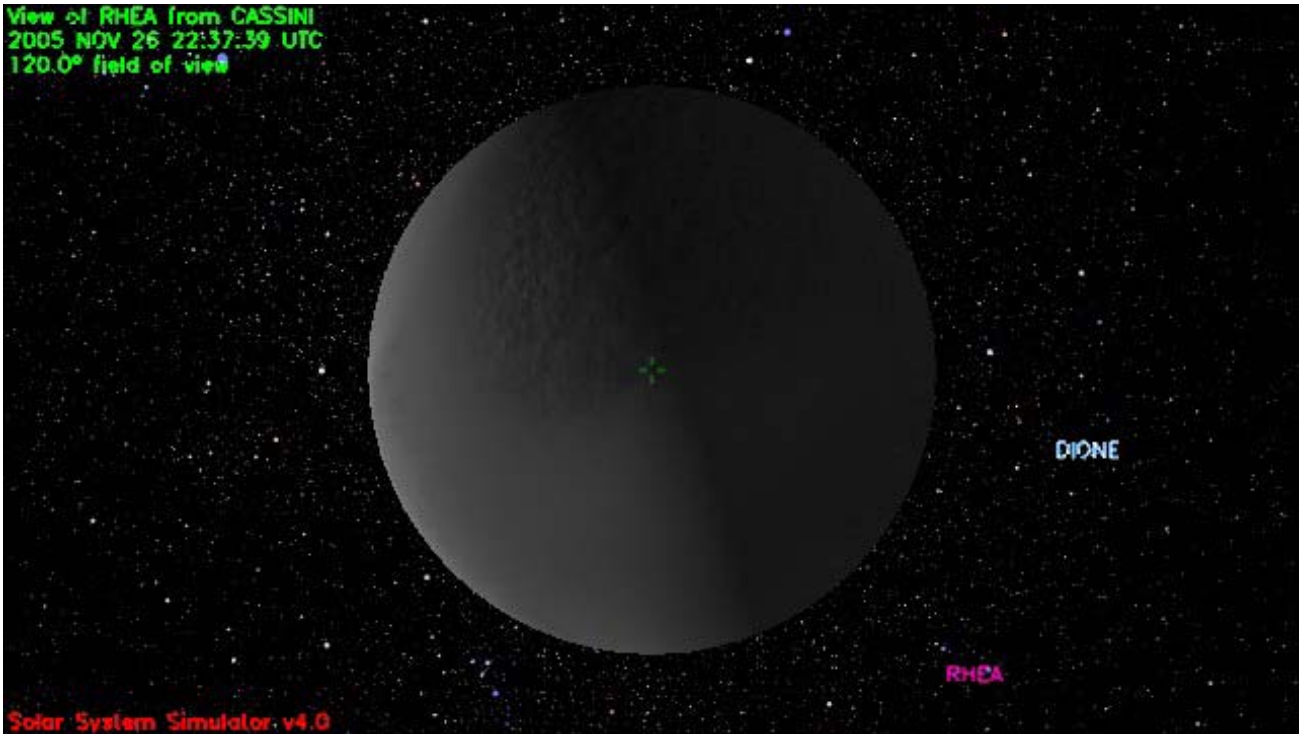


Flyby Geometry

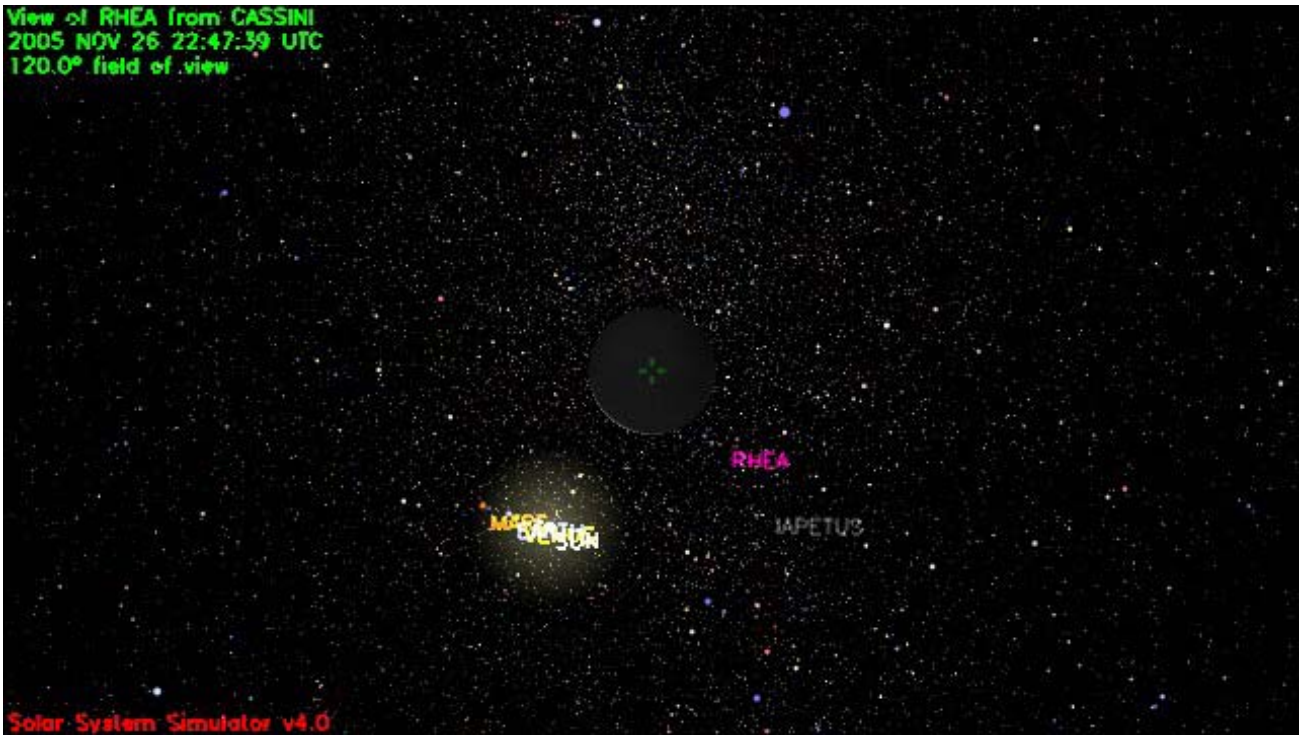
Cassini Rhea-1 Timeline - November 2005

Colors: yellow = maneuvers; blue = geometry; pink = RH-ORS-related; light green=non-satellite science; orange=RADAR; green = RSS + data playbacks

Orbiter UTC	Ground UTC	Pacific Time	Time wrt RH	Activity	Description
316T17:01:00	Nov 12 18:13	Sat Nov 12 11:13 AM	RH-14d06h	Start of Sequence S16	Start of Sequence which contains Rhea-1.
327T07:03:00	Nov 23 08:15	Wed Nov 23 01:15 AM	RH-03d16h	OTM #43 Prime	Rhea-1 approach targeting maneuver
328T07:03:00	Nov 24 08:15	Thu Nov 24 01:15 AM	RH-02d16h	OTM #43 Backup	
329T15:48:00	Nov 25 17:00	Fri Nov 25 10:00 AM	RH-01d07h	Start of the SOST Segment	
329T15:48:00	Nov 25 17:00	Fri Nov 25 10:00 AM	RH-01d07h	turn cameras to Saturn	
329T17:25:00	Nov 25 18:37	Fri Nov 25 11:37 AM	RH-01d05h	Saturn observation	CIRS compositional map
330T04:25:00	Nov 26 05:37	Fri Nov 25 10:37 PM	RH-18h12m	turn cameras to Rhea	
330T04:45:00	Nov 26 05:57	Fri Nov 25 10:57 PM	RH-17h52m	Deadtime	17.5 minutes long; used to accommodate changes in flyby time
330T05:02:00	Nov 26 06:14	Fri Nov 25 11:14 PM	RH-17h35m	Inbound Rhea ORS observations (distant)	Images, compositional and temperature maps between 540,540 km and 427,915 km
330T08:11:00	Nov 26 09:23	Sat Nov 26 02:23 AM	RH-14h26m	turn to Earth	
330T08:32:00	Nov 26 09:44	Sat Nov 26 02:44 AM	RH-14h05m	Radio Science Rhea Mass determination	2 hr downlink - Goldstone 34M
330T11:50:00	Nov 26 13:02	Sat Nov 26 06:02 AM	RH-10h47m	turn to Rhea	
330T12:11:00	Nov 26 13:23	Sat Nov 26 06:23 AM	RH-10h26m	ORS observations (low-resolution)	Compositional information and maps from 290,000 km
330T12:33:00	Nov 26 13:45	Sat Nov 26 06:45 AM	RH-10h04m	turn to Earth	
330T12:54:00	Nov 26 14:06	Sat Nov 26 07:06 AM	RH-09h43m	Radio Science Rhea Mass determination	2.75 hr downlink - Goldstone 34M
330T15:42:00	Nov 26 16:54	Sat Nov 26 09:54 AM	RH-06h55m	turn to Rhea	
330T16:03:00	Nov 26 17:15	Sat Nov 26 10:15 AM	RH-06h34m	medium- to high-resolution ORS observations	Compositional information and maps between 178,165 km and 54,000 km
330T20:33:00	Nov 26 21:45	Sat Nov 26 02:45 PM	RH-02h04m	turn to Earth	
330T20:58:00	Nov 26 22:10	Sat Nov 26 03:10 PM	RH-01h39m	Radio Science Rhea Mass determination	3 hr downlink - Canberra and Goldstone 34M; Rhea passes through ORS boresights near C/A for highest-resolution images
330T22:37:36	**Nov 26 23:49**	**Sat Nov 26 04:49 PM**	**RH+00h00m**	**Rhea-1 Flyby Closest Approach Time**	**Altitude = 500 km (310.7 miles), speed = 7.3 km/s (16,330 mph); low phase inbound, 86.3 deg phase at closest approach, high phase outbound**
331T00:31:00	Nov 27 01:43	Sat Nov 26 06:43 PM	RH+01h54m	turn to Rhea	
331T00:53:00	Nov 27 02:05	Sat Nov 26 07:05 PM	RH+02h16m	outbound (nightside) Rhea ORS	Compositional information and maps between 58,800 km and 104,175 km
331T02:33:00	Nov 27 03:45	Sat Nov 26 08:45 PM	RH+03h56m	turn high-gain antenna to Rhea; RADAR scatterometry and radiometry of Rhea	
331T05:33:00	Nov 27 06:45	Sat Nov 26 11:45 PM	RH+06h56m	turn to Earth	
331T05:41:00	Nov 27 06:53	Sat Nov 26 11:53 PM	RH+07h04m	Radio Science Rhea Mass determination	2 hr downlink - Madrid 70M
331T07:38:00	Nov 27 08:50	Sun Nov 27 01:50 AM	RH+09h01m	Deadtime	13.5 minutes long; used to accommodate changes in flyby time
331T08:12:00	Nov 27 09:24	Sun Nov 27 02:24 AM	RH+09h35m	turn to Enceladus	
331T08:37:00	Nov 27 09:49	Sun Nov 27 02:49 AM	RH+10h00m	ORS observations	13.5 hours of observations of Saturn and Enceladus
331T21:55:00	Nov 27 23:07	Sun Nov 27 04:07 PM	RH+23h18m	turn to Earth	
331T22:15:00	Nov 27 23:27	Sun Nov 27 04:27 PM	RH+23h38m	Playback of Rhea data; OTM #44 Prime	9 hr downlink - Madrid 70M



Closest Approach



Departure (closest approach + 10 min)

018RH (RH1) Playback Timeline **Created Sept. 29, 2005**

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				Best Estimate	Latest Possible	Best Estimate	Latest Possible
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CAPS_018SA_SURVEY001_RIDER	CAPS_16000	2005-329T15:48:00	-01T06:49	26-Nov Sat 09:49 AM	Sat 09:49 AM	26-Nov Sat 01:49 AM	Sat 01:49 AM
CDA_018TI_2000TIORX014_RIDER	CDA_524	2005-329T15:48:00	-01T06:49	26-Nov Sat 09:49 AM	Sat 09:49 AM	26-Nov Sat 01:49 AM	Sat 01:49 AM
INMS_018SA_SURVEY001_RIDER	**INMS_1498**	**2005-329T15:48:00**	**-01T06:49**	**26-Nov Sat 09:49 AM**	**Sat 09:49 AM**	**26-Nov Sat 01:49 AM**	**Sat 01:49 AM**
INMS_018SA_SURVEY002_RIDER	**INMS_1498**	**2005-329T15:48:00**	**-01T06:49**	**26-Nov Sat 09:49 AM**	**Sat 09:49 AM**	**26-Nov Sat 01:49 AM**	**Sat 01:49 AM**
MAG_018CO_MAGBOUND009_MAPS	MAG_1976	2005-329T15:48:00	-01T06:49	26-Nov Sat 09:49 AM	Sat 09:49 AM	26-Nov Sat 01:49 AM	Sat 01:49 AM
MAG_018OT_SURVEY001_PRIME	MAG_1976	2005-329T15:48:00	-01T06:49	26-Nov Sat 09:49 AM	Sat 09:49 AM	26-Nov Sat 01:49 AM	Sat 01:49 AM
MIMI_018CO_MAGBOUND009_RIDER	**MIMI_8000**	**2005-329T15:48:00**	**-01T06:49**	**26-Nov Sat 09:49 AM**	**Sat 09:49 AM**	**26-Nov Sat 01:49 AM**	**Sat 01:49 AM**
MIMI_018CO_SURVEY001_RIDER	**MIMI_8000**	**2005-329T15:48:00**	**-01T06:49**	**26-Nov Sat 09:49 AM**	**Sat 09:49 AM**	**26-Nov Sat 01:49 AM**	**Sat 01:49 AM**
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RPWS_018SA_OUTSURVEY001_PRIME	RPWS_30464	2005-329T15:48:00	-01T06:49	26-Nov Sat 09:49 AM	Sat 09:49 AM	26-Nov Sat 01:49 AM	Sat 01:49 AM
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RSS_018RH_KADOWN001_RSS	RSS_Activity	2005-329T15:48:00	-01T06:49	26-Nov Sat 09:49 AM	Sat 09:49 AM	26-Nov Sat 01:49 AM	Sat 01:49 AM
UVIS_018SW_IPHSURVEY013_RIDER	UVIS_5032	2005-329T15:48:00	-01T06:49	26-Nov Sat 09:49 AM	Sat 09:49 AM	26-Nov Sat 01:49 AM	Sat 01:49 AM
CDA_018DR_1900DUST101_RIDER	CDA_524	2005-329T17:00:45	-01T05:36	26-Nov Sat 10:00 AM	Sat 10:01 AM	26-Nov Sat 02:00 AM	Sat 02:01 AM
CIRS_018SA_FIRMAP011_PRIME	CIRS_4000	2005-329T17:25:00	-01T05:12	26-Nov Sat 10:04 AM	Sat 10:05 AM	26-Nov Sat 02:04 AM	Sat 02:05 AM
CIRS_018SA_FIRMAP011_SI	ISS_SUPPORT_IMAGIN(	2005-329T17:25:00	-01T05:12	26-Nov Sat 10:04 AM	Sat 10:05 AM	26-Nov Sat 02:04 AM	Sat 02:05 AM
CDA_018RI_1800RINGM013_RIDER	CDA_524	2005-329T20:25:13	-01T02:12	26-Nov Sat 10:49 AM	Sat 11:02 AM	26-Nov Sat 02:49 AM	Sat 03:02 AM
CDA_018DR_1700DUST100_RIDER	CDA_524	2005-329T22:26:13	-01T00:11	26-Nov Sat 11:20 AM	Sat 11:40 AM	26-Nov Sat 03:20 AM	Sat 03:40 AM
CDA_018RI_1600RINGM015_RIDER	CDA_524	2005-330T02:15:07	-00T20:22	26-Nov Sat 12:17 PM	Sat 12:53 PM	26-Nov Sat 04:17 AM	Sat 04:53 AM
CDA_018DR_1500DUST101_RIDER	CDA_524	2005-330T04:16:06	-00T18:21	26-Nov Sat 12:49 PM	Sat 02:41 PM	26-Nov Sat 04:49 AM	Sat 06:41 AM
CIRS_018RH_FP3MAP001_PRIME	CIRS_4000	2005-330T05:02:39	-00T17:34	26-Nov Sat 12:58 PM	Sat 02:51 PM	26-Nov Sat 04:58 AM	Sat 06:51 AM
UVIS_018RH_ICYLON001_CIRS	UVIS_5032	2005-330T05:02:39	-00T17:34	26-Nov Sat 12:58 PM	Sat 02:51 PM	26-Nov Sat 04:58 AM	Sat 06:51 AM
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CDA_018RI_1400RINGM013_RIDER	CDA_524	2005-330T07:42:44	-00T14:54	26-Nov Sat 02:57 PM	Sat 04:08 PM	26-Nov Sat 06:57 AM	Sat 08:08 AM
CDA_018RI_1400RINGO013_RIDER	CDA_524	2005-330T08:32:39	-00T14:04	26-Nov Sat 03:10 PM	Sat 04:28 PM	26-Nov Sat 07:10 AM	Sat 08:28 AM
RSS_018RH_GRAVITY004_PRIME	RSS_Activity	2005-330T08:32:39	-00T14:04	26-Nov Sat 03:10 PM	Sat 04:28 PM	26-Nov Sat 07:10 AM	Sat 08:28 AM
CDA_018DR_1300DUST102_RIDER	CDA_524	2005-330T09:42:39	-00T12:54	26-Nov Sat 03:23 PM	Sat 04:45 PM	26-Nov Sat 07:23 AM	Sat 08:45 AM
INMS_018RH_INBICY002_RIDER	**INMS_1498**	**2005-330T10:37:39**	**-00T11:59**	**26-Nov Sat 03:33 PM**	**Sat 10:26 PM**	**26-Nov Sat 07:33 AM**	**Sat 02:26 PM**
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CIRS_018RH_ISS002_RIDER	CIRS_4000	2005-330T12:11:39	-00T10:25	26-Nov Sat 03:52 PM	Sat 11:12 PM	26-Nov Sat 07:52 AM	Sat 03:12 PM
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UVIS_018RH_ICYLON003_ISS	UVIS_5032	2005-330T12:11:39	-00T10:25	26-Nov Sat 03:52 PM	Sat 11:12 PM	26-Nov Sat 07:52 AM	Sat 03:12 PM
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CDA_018RI_1200RINGM013_RIDER	CDA_524	2005-330T12:52:17	-00T09:45	26-Nov Sat 10:46 PM	Sun 01:20 AM	26-Nov Sat 02:46 PM	Sat 05:20 PM
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018RH (RH1) Playback Timeline **Created Sept. 29, 2005**

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CDA_018RI_1000RINGM013_RIDER	CDA_524	2005-330T18:17:30	-00T04:20	27-Nov Sun 07:57 AM	Sun 08:35 AM	26-Nov Sat 11:57 PM	Sun 12:35 AM
RSS_018RH_THERMAL002_RSS	RSS_Activity	2005-330T18:58:39	-00T03:38	27-Nov Sun 08:09 AM	Sun 11:32 PM	27-Nov Sun 12:09 AM	Sun 03:32 PM
CIRS_018RH_FP3MAP002_PRIME	CIRS_4000	2005-330T19:03:39	-00T03:33	27-Nov Sun 08:10 AM	Sun 11:35 PM	27-Nov Sun 12:10 AM	Sun 03:35 PM
UVIS_018RH_ICYMAP006_CIRS	UVIS_32096	2005-330T19:03:39	-00T03:33	27-Nov Sun 08:10 AM	Sun 11:35 PM	27-Nov Sun 12:10 AM	Sun 03:35 PM
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MAG_018RH_RHTAR001_RIDER	MAG_1976	2005-330T20:37:39	-00T01:59	27-Nov Sun 11:52 PM	Mon 12:53 AM	27-Nov Sun 03:52 PM	Sun 04:53 PM
CDA_018RI_0900RINGM013_RIDER	CDA_524	2005-330T20:40:03	-00T01:57	27-Nov Sun 11:52 PM	Mon 12:54 AM	27-Nov Sun 03:52 PM	Sun 04:54 PM
CDA_018RI_0900RINGO013_RIDER	CDA_524	2005-330T20:58:39	-00T01:38	27-Nov Sun 11:54 PM	Mon 12:56 AM	27-Nov Sun 03:54 PM	Sun 04:56 PM
RSS_018RH_GRAVITY002_PRIME	RSS_Activity	2005-330T20:58:39	-00T01:38	27-Nov Sun 11:54 PM	Mon 12:56 AM	27-Nov Sun 03:54 PM	Sun 04:56 PM
CDA_018DR_0900DUST105_RIDER	CDA_524	2005-330T21:31:03	-00T01:06	27-Nov Sun 11:57 PM	Mon 12:58 AM	27-Nov Sun 03:57 PM	Sun 04:58 PM
CAPS_018RH_ENCOUNTER001_RIDER	CAPS_16000	2005-330T22:07:39	-00T00:29	28-Nov Mon 12:00 AM	Mon 01:01 AM	27-Nov Sun 04:00 PM	Sun 05:01 PM
INMS_018RH_ICYSAT001_PRIME	**INMS_1498**	**2005-330T22:07:39**	**-00T00:29**	**28-Nov Mon 12:00 AM**	**Mon 01:01 AM**	**27-Nov Sun 04:00 PM**	**Sun 05:01 PM**
RPWS_018RH_RHCA001_PRIME	RPWS_60928	2005-330T22:07:39	-00T00:29	28-Nov Mon 12:00 AM	Mon 01:01 AM	27-Nov Sun 04:00 PM	Sun 05:01 PM
MIMI_018RH_ENCOUNTER001_INMS	**MIMI_8000**	**2005-330T22:21:10**	**-00T00:16**	**28-Nov Mon 12:11 AM**	**Mon 01:12 AM**	**27-Nov Sun 04:11 PM**	**Sun 05:12 PM**
CDA_018RH_0900RHORX013_RIDER	CDA_524	2005-330T22:22:39	-00T00:14	28-Nov Mon 12:12 AM	Mon 01:13 AM	27-Nov Sun 04:12 PM	Sun 05:13 PM
CIRS_018RH_GRAVITY002_RSS	CIRS_4000	2005-330T22:22:39	-00T00:14	28-Nov Mon 12:12 AM	Mon 01:13 AM	27-Nov Sun 04:12 PM	Sun 05:13 PM
ISS_018EA_RHEAORS330_SP	**ISS_Phot_1_by_1**	**2005-330T22:22:39**	**-00T00:14**	**28-Nov Mon 12:12 AM**	**Mon 01:13 AM**	**27-Nov Sun 04:12 PM**	**Sun 05:13 PM**
RPWS_018RH_RHCA002_PRIME	RPWS_60928	2005-330T22:22:39	-00T00:14	28-Nov Mon 12:12 AM	Mon 01:13 AM	27-Nov Sun 04:12 PM	Sun 05:13 PM
UVIS_018RH_GRAVITY015_RSS	UVIS_32096	2005-330T22:22:39	-00T00:14	28-Nov Mon 12:12 AM	Mon 01:13 AM	27-Nov Sun 04:12 PM	Sun 05:13 PM
VIMS_018RH_RHEA113_RSS	**VIMS_18432**	**2005-330T22:35:09**	**-00T00:02**	**28-Nov Mon 12:23 AM**	**Mon 01:24 AM**	**27-Nov Sun 04:23 PM**	**Sun 05:24 PM**
CDA_018RH_0900RHORY013_RIDER	CDA_524	2005-330T22:52:39	00T00:15	28-Nov Mon 12:40 AM	Mon 01:33 AM	27-Nov Sun 04:40 PM	Sun 05:33 PM
RPWS_018RH_RHCA003_PRIME	RPWS_60928	2005-330T22:52:39	00T00:15	28-Nov Mon 12:40 AM	Mon 01:33 AM	27-Nov Sun 04:40 PM	Sun 05:33 PM
UVIS_018SW_IPHSURVEY024_RIDER	UVIS_5032	2005-330T23:03:00	00T00:25	28-Nov Mon 12:48 AM	Mon 01:41 AM	27-Nov Sun 04:48 PM	Sun 05:41 PM
CAPS_018SA_SURVEY002_RIDER	CAPS_16000	2005-330T23:07:39	00T00:30	28-Nov Mon 12:52 AM	Mon 01:45 AM	27-Nov Sun 04:52 PM	Sun 05:45 PM
INMS_018RH_OUTBICY003_RIDER	**INMS_1498**	**2005-330T23:07:39**	**00T00:30**	**28-Nov Mon 12:52 AM**	**Mon 01:45 AM**	**27-Nov Sun 04:52 PM**	**Sun 05:45 PM**

018RH (RH1) Playback Timeline **Created Sept. 29, 2005**

Event or Observation	Observation Type (APGEN)	Observation Record Start Time (yyyy-dddThh:mm:ss) (SCET)	Start Time - Reference Epoch (ddThh:mm)	Start Playback (Ground UTC)		Start Playback (Pacific Time)	
				Best Estimate	Latest Possible	Best Estimate	Latest Possible
CDA_018DR_0800DUST106_RIDER	CDA_524	2005-330T23:15:25	00T00:37	28-Nov Mon 12:52 AM	Mon 01:46 AM	27-Nov Sun 04:52 PM	Sun 05:46 PM
MIMI_018CO_SURVEY002_MAPS	**MIMI_8000**	**2005-330T23:21:10**	**00T00:43**	**28-Nov Mon 12:53 AM**	**Mon 01:46 AM**	**27-Nov Sun 04:53 PM**	**Sun 05:46 PM**
RADAR_018OT_WARMUP4RH001_RIDE	**RADAR_364800**	**2005-331T00:33:39**	**00T01:56**	**28-Nov Mon 12:58 AM**	**Mon 01:52 AM**	**27-Nov Sun 04:58 PM**	**Sun 05:52 PM**
CDA_018RE_0800ERNGX013_PRIME	CDA_524	2005-331T00:34:46	00T01:57	28-Nov Mon 12:58 AM	Mon 01:52 AM	27-Nov Sun 04:58 PM	Sun 05:52 PM
MIMI_018DR_INCADUST001_PRIME	**MIMI_8000**	**2005-331T00:35:00**	**00T01:57**	**28-Nov Mon 12:58 AM**	**Mon 01:52 AM**	**27-Nov Sun 04:58 PM**	**Sun 05:52 PM**
MAG_018OT_SURVEY005_PRIME	MAG_1976	2005-331T00:37:39	00T02:00	28-Nov Mon 12:58 AM	Mon 01:53 AM	27-Nov Sun 04:58 PM	Sun 05:53 PM
CDA_018DR_0700DUST114_RIDER	CDA_524	2005-331T00:53:39	00T02:16	28-Nov Mon 01:00 AM	Mon 04:14 AM	27-Nov Sun 05:00 PM	Sun 08:14 PM
CIRS_018RH_FP3MAP003_PRIME	CIRS_4000	2005-331T00:53:39	00T02:16	28-Nov Mon 01:00 AM	Mon 04:14 AM	27-Nov Sun 05:00 PM	Sun 08:14 PM
UVIS_018RH_ICYMAP008_CIRS	UVIS_32096	2005-331T00:53:39	00T02:16	28-Nov Mon 01:00 AM	Mon 04:14 AM	27-Nov Sun 05:00 PM	Sun 08:14 PM
VIMS_018RH_RHEA110_CIRS	**VIMS_18432**	**2005-331T00:53:39**	**00T02:16**	**28-Nov Mon 01:00 AM**	**Mon 04:14 AM**	**27-Nov Sun 05:00 PM**	**Sun 08:14 PM**
CIRS_018RH_VIMSISS005_RIDER	CIRS_4000	2005-331T01:43:39	00T03:06	28-Nov Mon 01:16 AM	Mon 04:36 AM	27-Nov Sun 05:16 PM	Sun 08:36 PM
UVIS_018RH_ICYMAP009_VIMS	UVIS_32096	2005-331T01:43:39	00T03:06	28-Nov Mon 01:16 AM	Mon 04:36 AM	27-Nov Sun 05:16 PM	Sun 08:36 PM
VIMS_018RH_RHEA003_PRIME	**VIMS_18432**	**2005-331T01:43:39**	**00T03:06**	**28-Nov Mon 01:16 AM**	**Mon 04:36 AM**	**27-Nov Sun 05:16 PM**	**Sun 08:36 PM**
CDA_018RE_0700ERNGX013_PRIME	CDA_524	2005-331T02:33:39	00T03:56	28-Nov Mon 01:31 AM	Mon 06:18 AM	27-Nov Sun 05:31 PM	Sun 10:18 PM
RADAR_018RH_SCATTRAD001_PRIME	**RADAR_364800**	**2005-331T02:33:39**	**00T03:56**	**28-Nov Mon 01:31 AM**	**Mon 06:18 AM**	**27-Nov Sun 05:31 PM**	**Sun 10:18 PM**
1WAY_TO_2WAY_M70METOTP331	**P/B_PAUSE**	**5 min. Prevents Gap**	**n/a**	**28-Nov Mon 01:59 AM**	**Mon 01:59 AM**	**27-Nov Sun 05:59 PM**	**Sun 05:59 PM**
RSS_018RH_THERMAL003_RSS	RSS_Activity	2005-331T03:40:39	00T05:03	28-Nov Mon 04:23 AM	Mon 06:59 AM	27-Nov Sun 08:23 PM	Sun 10:59 PM
CDA_018DR_0600DUST115_RIDER	CDA_524	2005-331T03:41:20	00T05:03	28-Nov Mon 04:23 AM	Mon 06:59 AM	27-Nov Sun 08:23 PM	Sun 10:59 PM
CDA_018DI_0600DIORX014_PRIME	CDA_524	2005-331T04:27:58	00T05:50	28-Nov Mon 04:51 AM	Mon 07:28 AM	27-Nov Sun 08:51 PM	Sun 11:28 PM
CDA_018DR_0600DUST116_RIDER	CDA_524	2005-331T04:58:57	00T06:21	28-Nov Mon 06:32 AM	Mon 07:47 AM	27-Nov Sun 10:32 PM	Sun 11:47 PM
RPWS_018SA_SEDDF002_PRIME	RPWS_30464	2005-331T05:19:38	00T06:41	28-Nov Mon 06:45 AM	Mon 07:59 AM	27-Nov Sun 10:45 PM	Sun 11:59 PM
RSS_018RH_GRAVITY003_PRIME	RSS_Activity	2005-331T05:41:39	00T07:04	28-Nov Mon 01:53 AM	Mon 01:53 AM	27-Nov Sun 05:53 PM	Sun 05:53 PM
CDA_018RE_0500ERNGX013_PRIME	CDA_524	2005-331T06:30:14	00T07:52	28-Nov Mon 01:56 AM	Mon 01:56 AM	27-Nov Sun 05:56 PM	Sun 05:56 PM