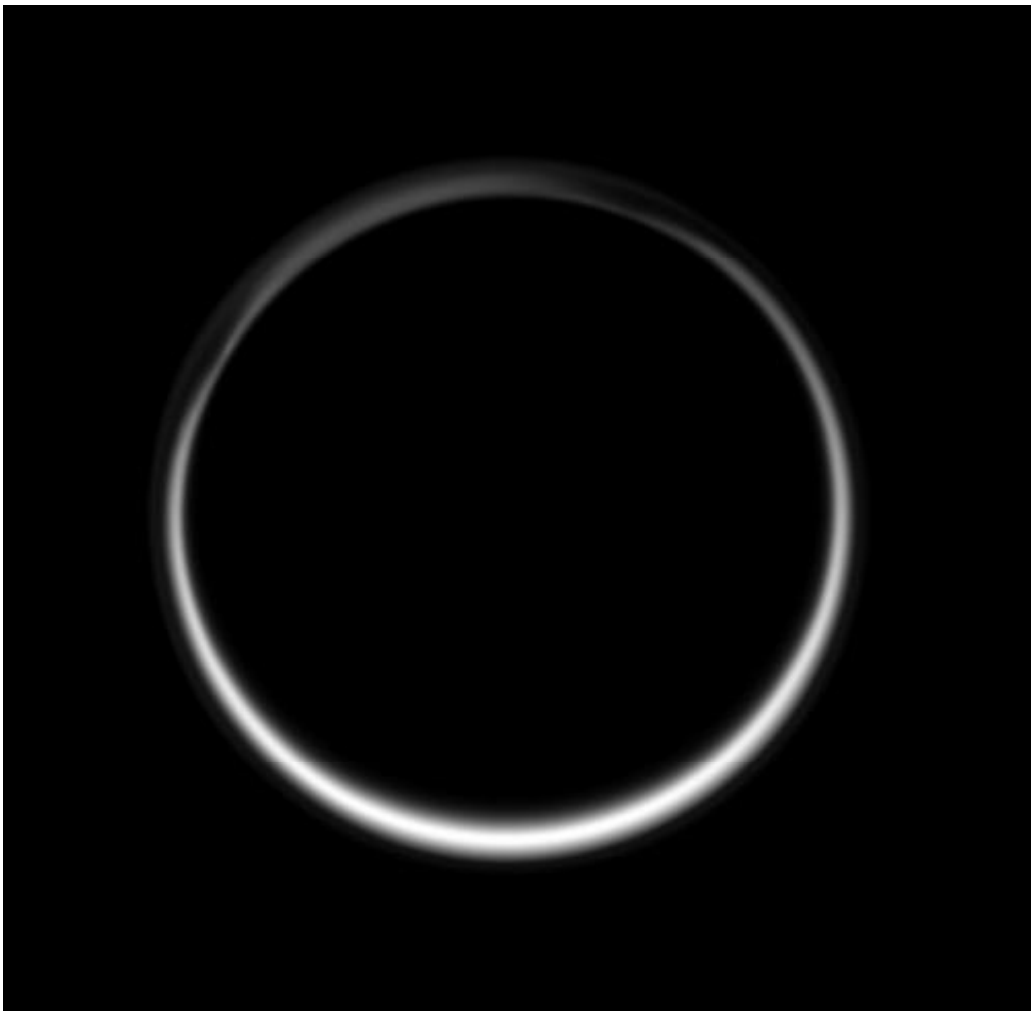
C A S S I N I



T I T A N **0 5 0 T I (T 3 6)** MISSION DESCRIPTION

Oct 2007

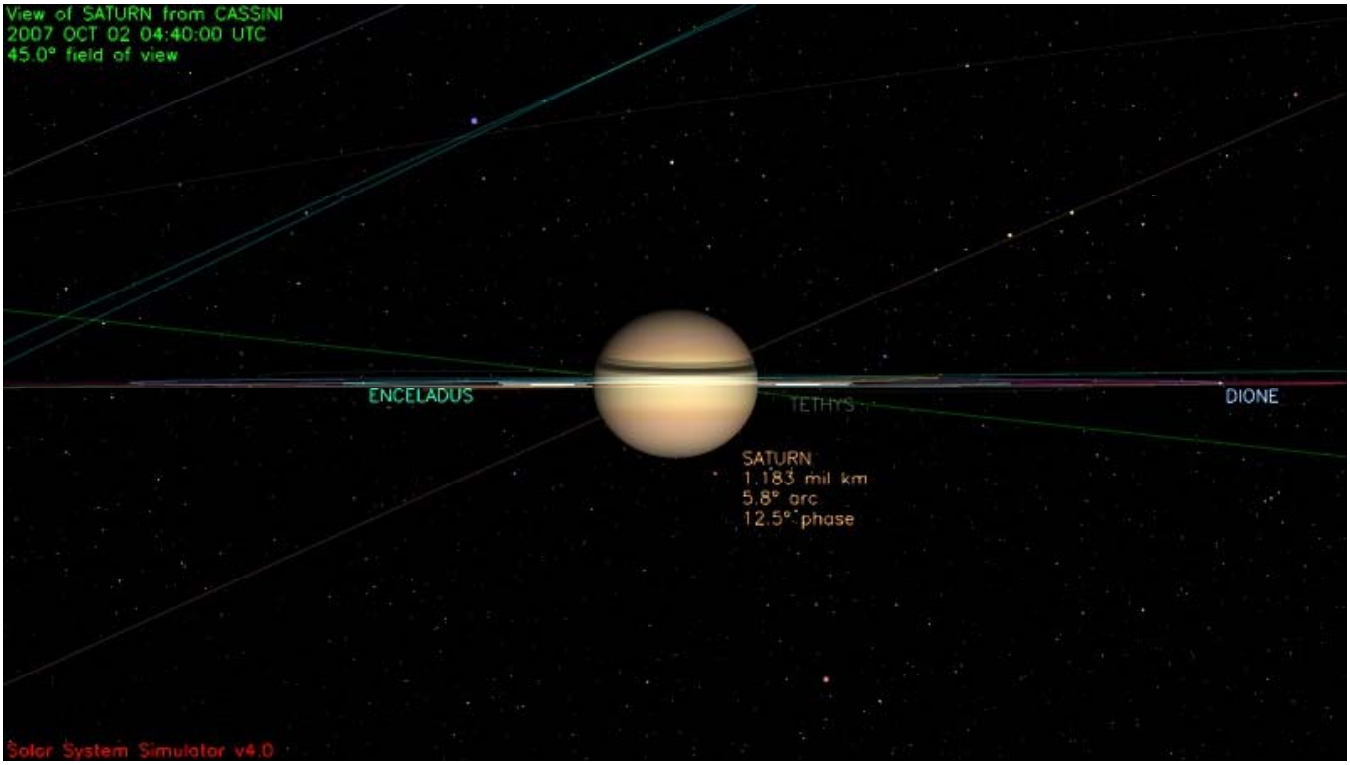
Jet Propulsion Laboratory
California Institute of Technology

Cover image: Ring of Twilight August 16, 2007. This celestial circle of light is produced by the glow of sunlight scattered through the periphery of Titan's atmosphere as the Sun is occulted by Titan. It is the sum of all the sunsets and sunrises taking place on Titan at once. The intriguing structure of Titan's north polar "hood" can be seen at upper left. A thin, detached, high-altitude global haze layer encircles the moon. North on Titan (5,150 kilometers, 3,200 miles across) is up and rotated 23 degrees to the left. The image was taken in visible blue light with the Cassini spacecraft wide-angle camera on June 29, 2007. The view was obtained at a distance of approximately 210,000 kilometers (131,000 miles) from Titan and at a Sun-Titan-spacecraft, or phase, angle of 167 degrees. Image scale is 12 kilometers (8 miles) per pixel. Credit: NASA/JPL/Space Science Institute

1.0 OVERVIEW

Thirty-two days after Cassini's Titan-35 flyby, the spacecraft revisits Titan for its thirty-seventh targeted encounter. The closest approach to Titan occurs on Tuesday, October 2, at 2007-275T04:42:43 spacecraft time at an altitude of 975 kilometers (~605 miles) above the surface and at a speed of 6.3 kilometers per second (14,000 mph). The latitude at closest approach is 60 degrees S and the encounter occurs on orbit number 50.

This encounter is set up with two maneuvers: an Iapetus encounter cleanup maneuver on September 17, and a Titan approach maneuver, scheduled for September 28. T36 is the second in a series of outbound encounters that will last until the end of the prime mission, and occurs less than two days after Saturn closest approach. This is the first in a series of seven Titan southern hemisphere encounters.


View of SATURN from CASSINI
2007 OCT 02 04:40:00 UTC
45.0° field of view
ENCELADUS
TETHYS
DIONE
SATURN
1.183 mil km
5.8° arc
12.5° phase
Solar System Simulator v4.0

ABOUT TITAN

If Titan were a planet, it would likely stand out as the most important planet in the solar system for humans to explore. Titan, the size of a terrestrial planet, has a dense atmosphere of nitrogen and methane and a surface covered with organic material. It is Titan that is arguably Earth's sister world and the Cassini-Huygens mission considers Titan among its highest priorities.

Although it is far colder and lacks liquid water, the chemical composition of Titan's atmosphere resembles that of early Earth. This, along with the organic chemistry that takes place in Titan's atmosphere, prompts scientists to believe that Titan could provide a laboratory for seeking insight into the origins of life on Earth. Data from the Huygens probe, which touched down on Titan's surface in January 2005, and the Cassini orbiter has shown that many of the processes that occur on Earth also apparently take place on Titan – wind, rain, volcanism, tectonic activity, as well as river channels, and drainage patterns all seem to contribute in shaping Titan's surface. However, at an inhospitable -290 degrees Fahrenheit (-179 degrees Celsius), the chemistry that drives these processes is fundamentally different from Earth's. For example it is methane that performs many of the same functions on Titan that water does on Earth.

The Huygens probe landed near a bright region now called Adiri, and photographed light hills with dark riverbeds that empty into a dark plain. It was believed that this dark plain could be a lake or at least a muddy material, but it is now known that Huygens landed in the dark region, and it is solid. Scientists believe it only rains occasionally on Titan, but the rains are extremely fierce when they come.

Only a small number of impact craters have been discovered. This suggests that Titan's surface is constantly being resurfaced by a fluid mixture of water and possibly ammonia, believed to be expelled from volcanoes and hot springs. Some surface features, such as lobate flows, appear to be volcanic structures. Volcanism is now believed to be a significant source of methane in Titan's atmosphere. However, there are no oceans of hydrocarbons as previously hypothesized. Dunes cover large areas of the surface.

The existence of oceans or lakes of liquid methane on Saturn's moon Titan was predicted more than 20 years ago. Radar and imaging data from Titan flybys have provided convincing evidence for large bodies of liquid. With Titan's colder temperatures and hydrocarbon-rich atmosphere, these lakes and seas most likely contain a combination of liquid methane and ethane (both hydrocarbons), not water.

The Cassini-Huygens mission, using wavelengths ranging from ultraviolet to radio, is methodically and consistently revealing Titan and answering long-held questions regarding Titan's interior, surface, atmosphere, and the complex interaction with Saturn's magnetosphere. While many pieces of the puzzle are yet to be found, with each Titan flyby comes a new data set that furthers our understanding of this world as we attempt to constrain scenarios for the formation and evolution of Titan and its atmosphere.

1.1 TITAN-36 SCIENCE HIGHLIGHTS

- RADAR is looking forward to an opportunity to examine Titan's southern regions. The T36 flyby will reach similar latitudes to the southernmost previous RADAR observations, on T7. RADAR observations include inbound and outbound radiometry of terrain at low and mid latitudes; inbound and outbound scatterometry of Titan, including views of the Huygens landing site, inbound and outbound altimetry, and a short segment of high-altitude, low resolution SAR around 30 deg South.
- **INMS** allows RADAR to control the spacecraft pointing during closest approach, but RADAR is actually "riding along" while INMS takes observations close to Titan in order to determine atmospheric and ionospheric composition and thermal structure. These observations are part of the MAPS Titan campaign.
- **UVIS** makes several slow scans across Titan's visible hemisphere to form spectral images. The objective is to obtain spectral images of Titan in the EUV and FUV to map the aurora and dayglow, to map hydrocarbon absorption, and to measure scattering and absorption by aerosols in the stratopshere. The UVIS slit will be scanned across Titan's disk to build up an image at many wavelengths.
- **VIMS** will capture global maps of Titan to study cloud evolution and seek other changes.
- **ISS** will monitor Titan via limited global-scale mosaics for surface and atmosphere changes. The imaging team will attempt to see surface color variations, and monitor limb hazes. Similar areas were covered at higher resolution during the T35 flyby. ISS had coverage of similar areas at higher resolution during the T35 flyby;. series of flybys that cover the same area repeatedly are useful for monitoring time dependent phenomena. These observations will allow us to see if, for instance, clouds are appearing or disappearing, if there are patterns in weather, or if the weather has any correlations with Titan surface features.
- **MAG** *did* receive successfully downlinked data from the T7 flyby, and will therefore be able to use data from the T36 flyby to look for temporal variations in the magnetic field in the wake/south polar region.

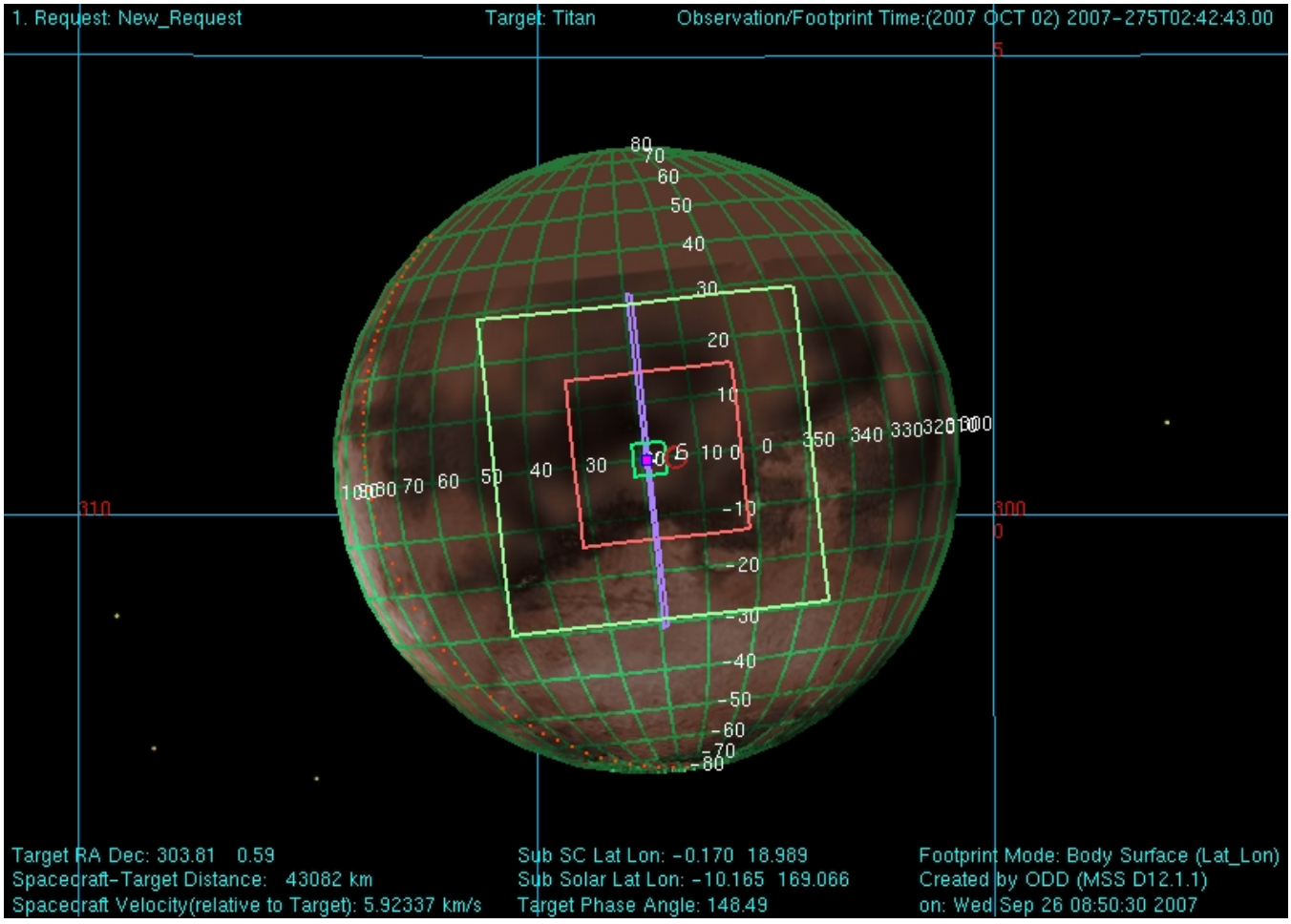
1.2 SAMPLE SNAPSHOTS

Three views of Titan from Cassini before, during, and after closest approach to Titan are shown below. The views are oriented such that the direction towards the top of the page is aligned with the Titan North Pole. The optical remote sensing instruments' fields of view are shown assuming they are pointed towards the center of Titan. The sizes of these fields of view vary as a function of the distance between Cassini and Titan. A key for use in identifying the remote sensing instruments fields of view in the figures is listed at the top of the next page.

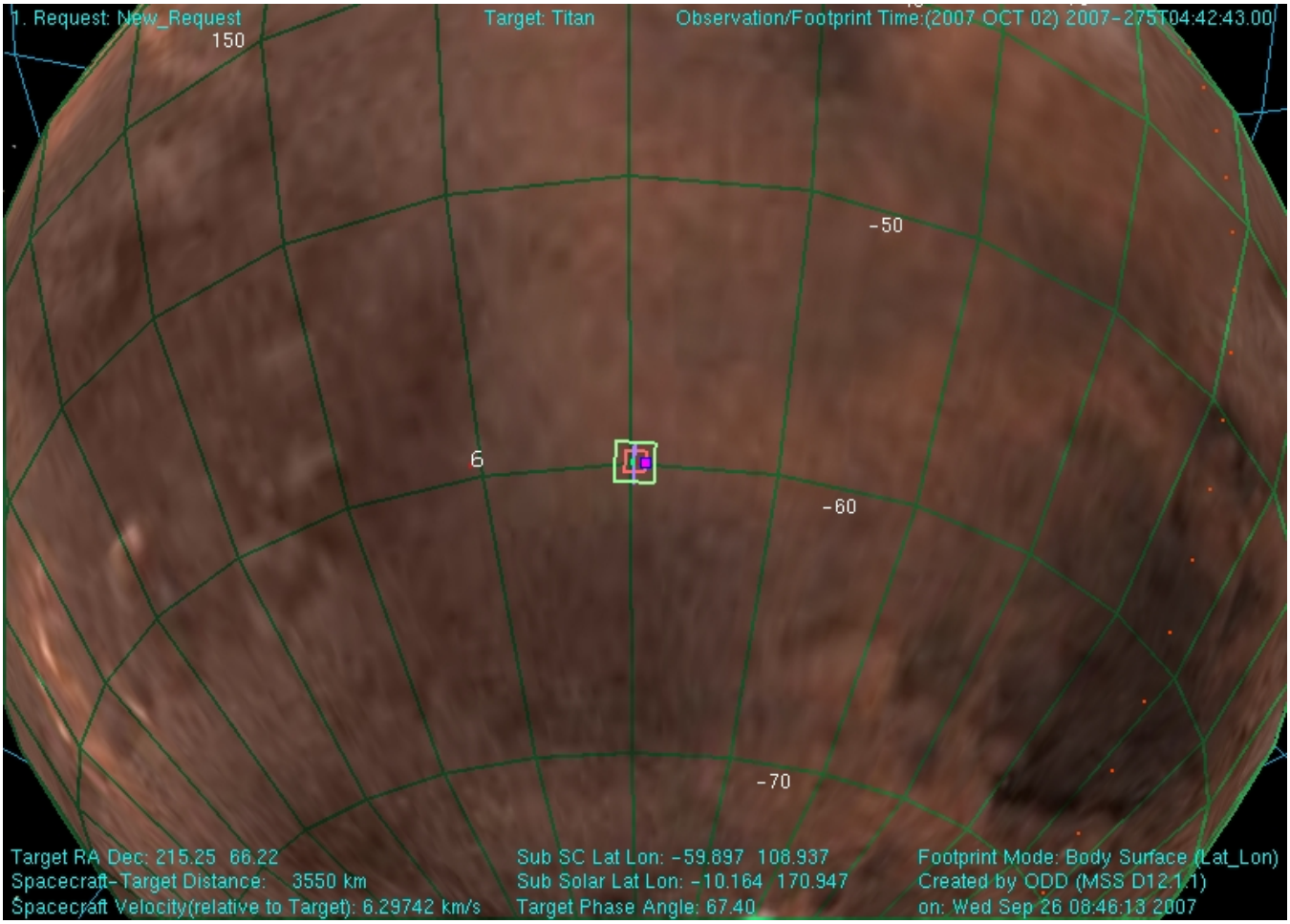
Key to ORS Instrument Fields of View in Figures

Instrument Field of View	Depiction in Figure
ISS WAC (imaging wide angle camera)	Largest square
VIMS (visual and infrared mapping spectrometer)	Next largest pink square
ISS NAC (imaging narrow angle camera)	Smallest green square
CIRS (composite infrared spectrometer) – Focal Plane 1	Small red circle near ISS_NAC FOV
UVIS (ultraviolet imaging spectrometer)	Vertical purple rectangle centered within largest square

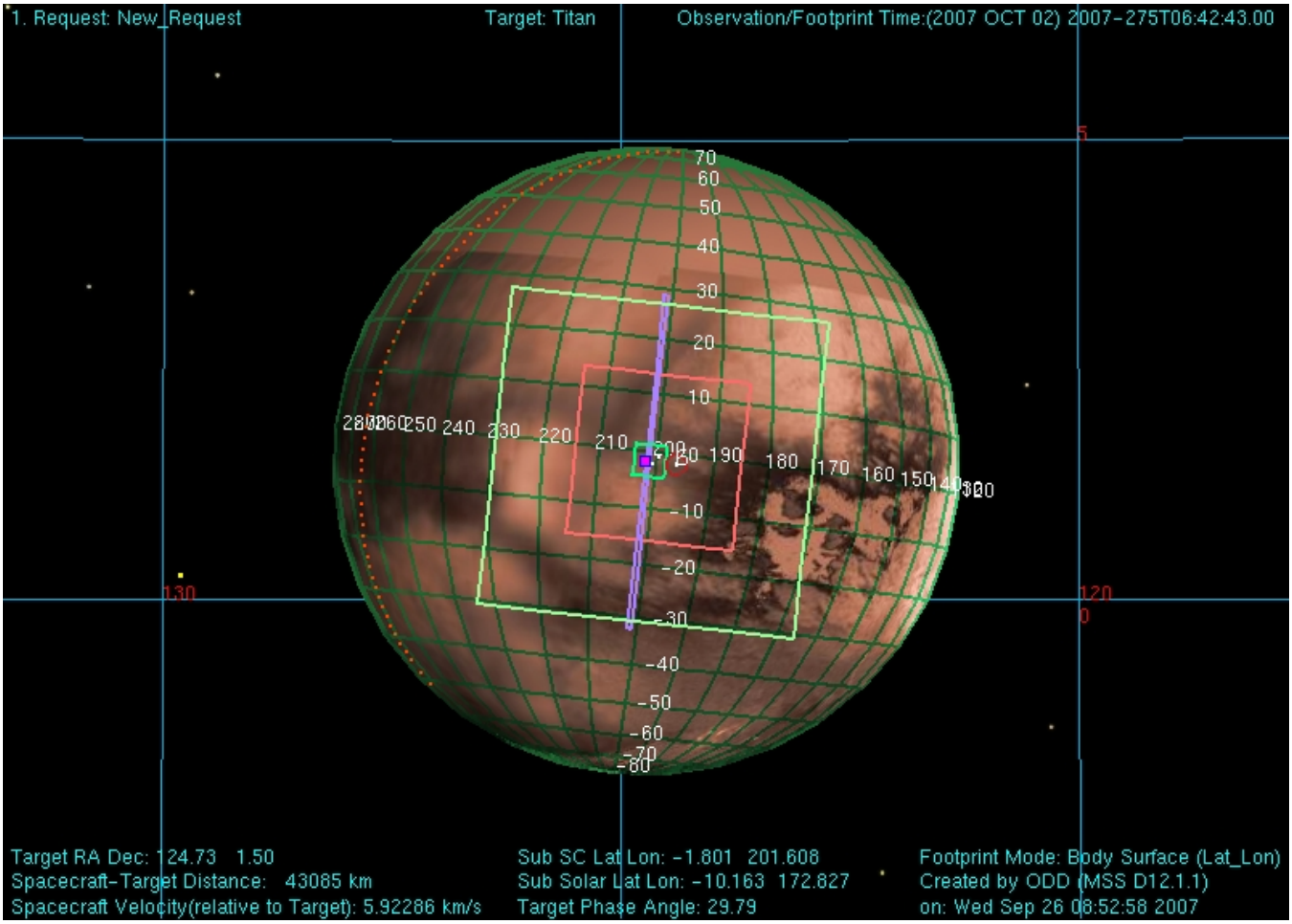
View of Titan from Cassini two hours before Titan-36 closest approach



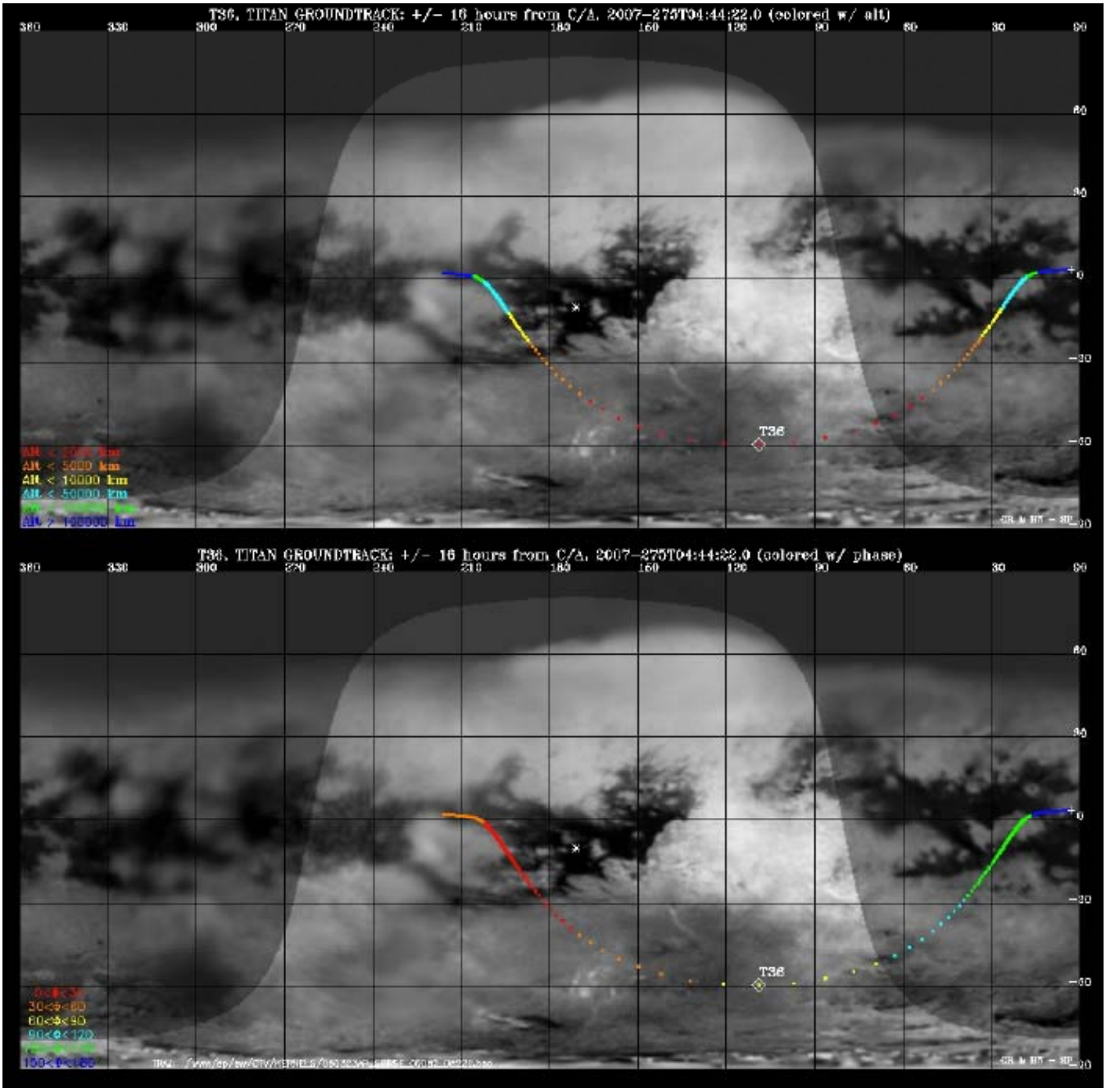
View of Titan from Cassini at Titan-36 closest approach



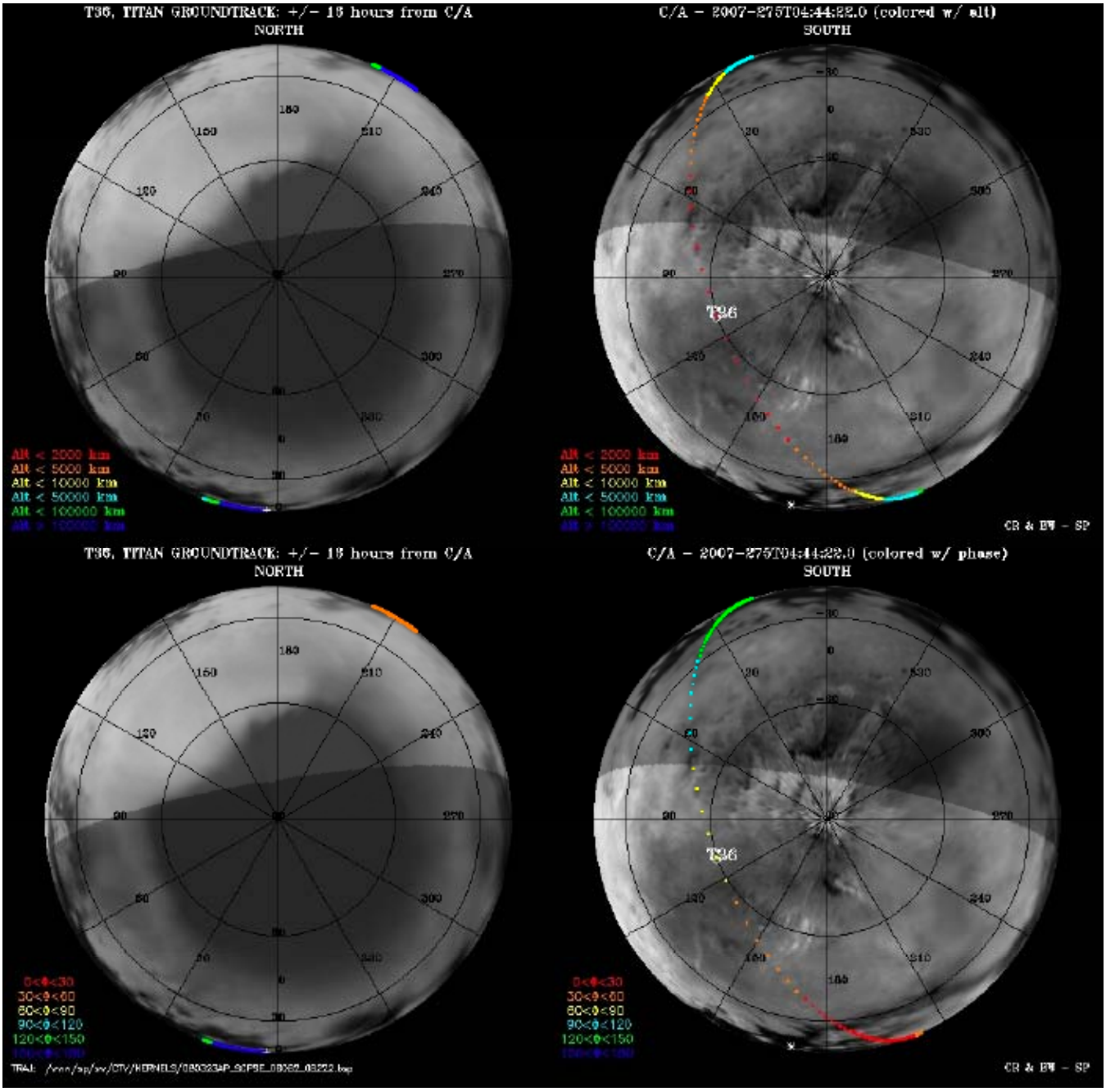
View of Titan from Cassini two hours after Titan-36 closest approach



Titan Groundtracks for T36: Global Plot



Titan Groundtracks for T36: Polar Plot



The T36 timeline is as follows:

Cassini Titan-36 Timeline - October 2007

Colors: yellow = maneuvers; blue = geometry; pink = T36-related; green = data playbacks

Orbiter UTC	Ground UTC	Pacific Time	Time wrt T35	Activity	Description
265T20:51:00	Sep 22 22:14	Sat Sep 22 02:14 PM	T36-09d08h	Start of Sequence S34	Start of Sequence which contains Titan-36
271T11:36:00	Sep 28 12:59	Fri Sep 28 04:59 AM	T36-03d17h	OTM #130 Prime	Titan-36 targeting maneuver.
272T04:06:00	Sep 29 05:29	Fri Sep 28 09:29 PM	T36-03d01h	OTM #130 Backup	
273T11:28:40	Sep 30 12:51	Sun Sep 30 04:51 AM	T36-01d17h	Saturn Periapse	Saturn periapse, R = 4.7 Rs, lat = 5 deg, phase = 138 deg
274T22:49:40	Oct 02 00:12	Mon Oct 01 04:12 PM	T36-05h53m	Descending Ring Plane Crossing	
274T12:51:00	Oct 01 14:14	Mon Oct 01 06:14 AM	T36-15h51m	Start of the TOST segment	
274T12:51:00	Oct 01 14:14	Mon Oct 01 06:14 AM	T36-15h51m	Turn cameras to Titan	
274T13:21:00	Oct 01 14:44	Mon Oct 01 06:44 AM	T36-15h21m	Deadtime	9 minutes 43 seconds long; used to accommodate changes in flyby time
274T13:30:43	Oct 01 14:53	Mon Oct 01 06:53 AM	T36-15h12m	Titan atmospheric Observations	Obtain information on CO, HCN, CH4. Integrate on disk at airmass 1.5--2.0.
274T18:42:43	Oct 01 20:05	Mon Oct 01 12:05 PM	T36-10h00m	Titan atmospheric observations	Photometry observations of particle properties, vertical distributions ~6 km/px.
274T19:42:43	Oct 01 21:05	Mon Oct 01 01:05 PM	T36-09h00m	Titan atmospheric Observations	EUVFUV imaging of Titan
274T23:31:43	Oct 02 00:54	Mon Oct 01 04:54 PM	T36-05h11m	New Waypoint	
274T23:53:43	Oct 02 01:16	Mon Oct 01 05:16 PM	T36-04h49m	RADAR Observations	Radiometry
275T02:42:43	Oct 02 04:05	Mon Oct 01 08:05 PM	T36-02h00m	RADAR Observations	Scatterometry
275T03:50:43	Oct 02 05:13	Mon Oct 01 09:13 PM	T36-00h52m	Transition to thruster control	
275T04:11:56	Oct 02 05:34	Mon Oct 01 09:34 PM	T36-00h31m	RADAR Observations	Altimetry
275T04:27:43	Oct 02 05:50	Mon Oct 01 09:50 PM	T36-00h15m	INMS/RADAR Observations	SAR observations
275T04:42:43	**Oct 02 06:05**	**Mon Oct 01 10:05 PM**	**T36+00h00m**	**Titan-36 Flyby Closest Approach Time**	**Altitude = 975 km (605 miles), speed = 6.3 km/s (14,000 mph); 67 deg phase at closest approach**
275T15:09:14	Oct 02 16:32	Tue Oct 02 08:32 AM	**T36+10h27m**	Ascending Ring Plane Crossing	
275T04:57:43	Oct 02 06:20	Mon Oct 01 10:20 PM	T36+00h15m	RADAR Observations	Altimetry
275T05:12:43	Oct 02 06:35	Mon Oct 01 10:35 PM	T36+00h30m	Transition off of thruster control	
275T05:36:01	Oct 02 06:59	Mon Oct 01 10:59 PM	T36+00h54m	RADAR Observations	Scatterometry
275T06:42:43	Oct 02 08:05	Tue Oct 02 12:05 AM	T36+02h00m	RADAR Observations	Radiometry
275T09:32:43	Oct 02 10:55	Tue Oct 02 02:55 AM	T36+04h50m	New Waypoint	
275T09:52:43	Oct 02 11:15	Tue Oct 02 03:15 AM	T36+05h10m	Titan surface observations	Regional Map
275T12:42:43	Oct 02 14:05	Tue Oct 02 06:05 AM	T36+08h00m	Titan surface observations	Global Map
275T13:22:43	Oct 02 14:45	Tue Oct 02 06:45 AM	T36+08h40m	Titan atmospheric Observations	Photometry observations
275T13:42:43	Oct 02 15:05	Tue Oct 02 07:05 AM	T36+09h00m	Titan atmospheric Observations	Obtain information on CO, HCN, CH4. Integrate on disk at airmass 1.5--2.0.
275T15:42:43	Oct 02 17:05	Tue Oct 02 09:05 AM	T36+11h00m	Titan surface and atmosphere observations	ISS NAC monitoring of surface and atmosphere
275T17:42:43	Oct 02 19:05	Tue Oct 02 11:05 AM	T36+13h00m	Titan surface observations	Regional Map
275T18:42:43	Oct 02 20:05	Tue Oct 02 12:05 PM	T36+14h00m	Titan atmospheric observations	Obtain information on the thermal structure of Titan's stratosphere.
276T03:28:43	Oct 03 04:51	Tue Oct 02 08:51 PM	T36+22h46m	Deadtime	22 minutes 17 seconds long; used to accommodate changes in flyby time
276T03:51:00	Oct 03 05:14	Tue Oct 02 09:14 PM	T36+23h09m	Turn to Earth-line	
276T04:19:00	Oct 03 05:42	Tue Oct 02 09:42 PM	T36+23h37m	Playback of T36 Data	Madrid 70 and 34M

The T36 playback timelines is as follows (following page):

T36 (50TI) Playback Timeline

Created Aug 14, 2007

Event or Observation	Observation Type (APGEN)	Observation Record Start Time (yyyy-dddThh:mm:ss) (SCET)	Record Start Time - Reference Epoch (hh:mm)	Start Playback (Ground UTC)		Start Playback (Pacific Time)	
				Best Estimate	Using Average Data Rates	Best Estimate	Using Average Data Rates
MIMI_050SA_SURVEY004_RIDER	MIMI_8000	2007-274T12:51:00	-00T15:52	03-Oct Wed 05:47 AM	Wed 05:47 AM	02-Oct Tue 10:47 PM	Tue 10:47 PM
RPWS_050SA_INSURVEY003_PRIME	RPWS_30464	2007-274T12:51:00	-00T15:52	03-Oct Wed 05:47 AM	Wed 05:47 AM	02-Oct Tue 10:47 PM	Tue 10:47 PM
CDA_050RI_1400RINGM034_RIDER	CDA_524	2007-274T13:09:38	-00T15:33	03-Oct Wed 05:48 AM	Wed 05:48 AM	02-Oct Tue 10:48 PM	Tue 10:48 PM
VIMS_050TI_MIDIRTMAP002_CIRS	VIMS_18432	2007-274T13:30:43	-00T15:12	03-Oct Wed 05:49 AM	Wed 05:49 AM	02-Oct Tue 10:49 PM	Tue 10:49 PM
ISS_050TI_FIRNADCMP001_CIRS	ISS_Phot_1_by_1	2007-274T13:30:43	-00T15:12	03-Oct Wed 05:49 AM	Wed 05:49 AM	02-Oct Tue 10:49 PM	Tue 10:49 PM
CIRS_050TI_FIRNADCMP001_SI	ISS_SUPPORT_IMAGIN(	2007-274T13:30:43	-00T15:12	03-Oct Wed 05:49 AM	Wed 05:49 AM	02-Oct Tue 10:49 PM	Tue 10:49 PM
CIRS_050TI_FIRNADCMP001_PRIME	CIRS_4000	2007-274T13:30:43	-00T15:12	03-Oct Wed 05:49 AM	Wed 05:49 AM	02-Oct Tue 10:49 PM	Tue 10:49 PM
CDA_050DR_1500DUST248_RIDER	CDA_524	2007-274T15:10:38	-00T13:32	03-Oct Wed 06:02 AM	Wed 06:04 AM	02-Oct Tue 11:02 PM	Tue 11:04 PM
RPWS_050SA_OUTSURVEY002_PRIME	RPWS_30464	2007-274T15:30:00	-00T13:13	03-Oct Wed 06:05 AM	Wed 06:06 AM	02-Oct Tue 11:05 PM	Tue 11:06 PM
VIMS_050TI_FIRNADCMP001_CIRS	VIMS_18432	2007-274T15:42:43	-00T13:00	03-Oct Wed 06:06 AM	Wed 06:08 AM	02-Oct Tue 11:06 PM	Tue 11:08 PM
INMS_050TI_T36INBD001_RIDER	INMS_1498	2007-274T16:46:50	-00T11:56	03-Oct Wed 06:13 AM	Wed 06:15 AM	02-Oct Tue 11:13 PM	Tue 11:15 PM
RADAR_050TI_T36WARMUP001_RIDER	RADAR_364800	2007-274T18:27:43	-00T10:15	03-Oct Wed 06:23 AM	Wed 06:27 AM	02-Oct Tue 11:23 PM	Tue 11:27 PM
CDA_050RI_1600RINGM036_RIDER	CDA_524	2007-274T18:35:06	-00T10:07	03-Oct Wed 06:24 AM	Wed 06:28 AM	02-Oct Tue 11:24 PM	Tue 11:28 PM
VIMS_050TI_FIRNADCMP003_ISS	VIMS_18432	2007-274T18:42:43	-00T10:00	03-Oct Wed 06:25 AM	Wed 06:29 AM	02-Oct Tue 11:25 PM	Tue 11:29 PM
ISS_050TI_PHOTOMWAC001_PRIME	ISS_Phot_1_by_1	2007-274T18:42:43	-00T10:00	03-Oct Wed 06:25 AM	Wed 06:29 AM	02-Oct Tue 11:25 PM	Tue 11:29 PM
CIRS_050TI_PHOTOMWAC001_ISS	CIRS_4000	2007-274T18:42:43	-00T10:00	03-Oct Wed 06:25 AM	Wed 06:29 AM	02-Oct Tue 11:25 PM	Tue 11:29 PM
VIMS_050TI_EUVFUVP001_UVIS	VIMS_18432	2007-274T19:42:43	-00T09:00	03-Oct Wed 06:38 AM	Wed 06:44 AM	02-Oct Tue 11:38 PM	Tue 11:44 PM
UVIS_050TI_EUVFUV001_PRIME	UVIS_5032	2007-274T19:42:43	-00T09:00	03-Oct Wed 06:38 AM	Wed 06:44 AM	02-Oct Tue 11:38 PM	Tue 11:44 PM
ISS_050TI_EUVFUV001_UVIS	ISS_Phot_1_by_1	2007-274T19:42:43	-00T09:00	03-Oct Wed 06:38 AM	Wed 06:44 AM	02-Oct Tue 11:38 PM	Tue 11:44 PM
CIRS_050TI_EUVFUV001_UVIS	CIRS_4000	2007-274T19:42:43	-00T09:00	03-Oct Wed 06:38 AM	Wed 06:44 AM	02-Oct Tue 11:38 PM	Tue 11:44 PM
CDA_050DR_1700DUST388_RIDER	CDA_524	2007-274T20:36:05	-00T08:06	03-Oct Wed 06:47 AM	Wed 06:54 AM	02-Oct Tue 11:47 PM	Tue 11:54 PM
RADAR_050TI_T36INRAD001_PRIME	RADAR_364800	2007-274T23:53:43	-00T04:49	03-Oct Wed 07:17 AM	Wed 07:26 AM	03-Oct Wed 12:17 AM	Wed 12:26 AM
MAG_050TI_MAGTITAN001_PRIME	MAG_1976	2007-275T00:42:43	-00T04:00	03-Oct Wed 07:21 AM	Wed 07:30 AM	03-Oct Wed 12:21 AM	Wed 12:30 AM
RPWS_050TI_TIINTRMED001_PRIME	RPWS_30464	2007-275T02:42:43	-00T02:00	03-Oct Wed 07:31 AM	Wed 07:41 AM	03-Oct Wed 12:31 AM	Wed 12:41 AM
RADAR_050TI_T36INSCAT001_PRIME	RADAR_364800	2007-275T02:42:43	-00T02:00	03-Oct Wed 07:31 AM	Wed 07:41 AM	03-Oct Wed 12:31 AM	Wed 12:41 AM
MIMI_050TI_T36INBND001_CAPS	MIMI_8000	2007-275T02:42:43	-00T02:00	03-Oct Wed 07:31 AM	Wed 07:41 AM	03-Oct Wed 12:31 AM	Wed 12:41 AM
CAPS_050TI_T36INBND001_PRIME	CAPS_16000	2007-275T02:42:43	-00T02:00	03-Oct Wed 07:31 AM	Wed 07:41 AM	03-Oct Wed 12:31 AM	Wed 12:41 AM
MIMI_050TI_T36CLOSE001_CAPS	MIMI_8000	2007-275T03:42:43	-00T01:00	03-Oct Wed 07:49 AM	Wed 07:59 AM	03-Oct Wed 12:49 AM	Wed 12:59 AM
INMS_050TI_T36RMPNT001_INMS	INMS_1498	2007-275T03:42:43	-00T01:00	03-Oct Wed 07:49 AM	Wed 07:59 AM	03-Oct Wed 12:49 AM	Wed 12:59 AM
CAPS_050TI_T36CLOSE001_PRIME	CAPS_16000	2007-275T03:57:43	-00T00:45	03-Oct Wed 07:52 AM	Wed 08:17 AM	03-Oct Wed 12:52 AM	Wed 01:17 AM
RADAR_050TI_T36INALT001_PRIME	RADAR_364800	2007-275T04:11:56	-00T00:31	03-Oct Wed 07:55 AM	Wed 08:34 AM	03-Oct Wed 12:55 AM	Wed 01:34 AM
RPWS_050TI_TICA001_PRIME	RPWS_182784	2007-275T04:12:43	-00T00:30	03-Oct Wed 07:56 AM	Wed 08:36 AM	03-Oct Wed 12:56 AM	Wed 01:36 AM
RADAR_050TI_T36INMSRA001_PRIME	RADAR_364800	2007-275T04:27:43	-00T00:15	03-Oct Wed 08:32 AM	Wed 09:33 AM	03-Oct Wed 01:32 AM	Wed 02:33 AM
INMS_050TI_T36RMPNT002_PRIME	INMS_1498	2007-275T04:27:43	-00T00:15	03-Oct Wed 08:32 AM	Wed 09:33 AM	03-Oct Wed 01:32 AM	Wed 02:33 AM
ENGR_050SC_AACSDUAL001_CDS	ENGR_1638	2007-275T04:27:43	-00T00:15	03-Oct Wed 08:32 AM	Wed 09:33 AM	03-Oct Wed 01:32 AM	Wed 02:33 AM
RADAR_050TI_T36OUTALT001_PRIME	RADAR_364800	2007-275T04:57:43	00T00:14	04-Oct Thu 01:08 PM	Thu 02:33 PM	04-Oct Thu 06:08 AM	Thu 07:33 AM
INMS_050TI_T36RMPNT002_INMS	INMS_1498	2007-275T04:57:43	00T00:14	04-Oct Thu 01:08 PM	Thu 02:33 PM	04-Oct Thu 06:08 AM	Thu 07:33 AM
RPWS_050TI_TIINTRMED002_PRIME	RPWS_30464	2007-275T05:12:43	00T00:29	04-Oct Thu 02:15 PM	Thu 03:31 PM	04-Oct Thu 07:15 AM	Thu 08:31 AM
CAPS_050TI_T36OUTBND001_PRIME	CAPS_16000	2007-275T05:27:43	00T00:44	04-Oct Thu 02:35 PM	Thu 03:53 PM	04-Oct Thu 07:35 AM	Thu 08:53 AM
RADAR_050TI_T36OUTSCT001_PRIME	RADAR_364800	2007-275T05:36:01	00T00:53	04-Oct Thu 02:42 PM	Thu 04:00 PM	04-Oct Thu 07:42 AM	Thu 09:00 AM

T36 (50TI) Playback Timeline

Created Aug 14, 2007

Event or Observation	Observation Type (APGEN)	Observation Record Start Time (yyyy-dddThh:mm:ss) (SCET)	Record Start Time - Reference Epoch (hh:mm)	Start Playback (Ground UTC)		Start Playback (Pacific Time)	
				Best Estimate	Using Average Data Rates	Best Estimate	Using Average Data Rates
MIMI_050TI_T36OUTBND001_CAPS	MIMI_8000	2007-275T05:42:43	00T00:59	04-Oct Thu 02:55 PM	Thu 04:14 PM	04-Oct Thu 07:55 AM	Thu 09:14 AM
INMS_050TI_T36OUTBD001_RIDER	INMS_1498	2007-275T05:42:43	00T00:59	04-Oct Thu 02:55 PM	Thu 04:14 PM	04-Oct Thu 07:55 AM	Thu 09:14 AM
RPWS_050SA_OUTSURVEY006_PRIME	RPWS_30464	2007-275T06:42:43	00T01:59	04-Oct Thu 04:51 PM	Fri 05:38 PM	04-Oct Thu 09:51 AM	Fri 10:38 AM
RADAR_050TI_T36OUTRAD001_PRIME	RADAR_364800	2007-275T06:42:43	00T01:59	04-Oct Thu 04:51 PM	Fri 05:38 PM	04-Oct Thu 09:51 AM	Fri 10:38 AM
MIMI_050CO_SURVEY003_RIDER	MIMI_8000	2007-275T06:42:43	00T01:59	04-Oct Thu 04:51 PM	Fri 05:38 PM	04-Oct Thu 09:51 AM	Fri 10:38 AM
CAPS_050SA_SURVEY003_RIDER	CAPS_16000	2007-275T06:42:43	00T01:59	04-Oct Thu 04:51 PM	Fri 05:38 PM	04-Oct Thu 09:51 AM	Fri 10:38 AM
MAG_050OT_SURVEY005_PRIME	MAG_1976	2007-275T08:42:43	00T03:59	05-Oct Fri 05:32 PM	Fri 05:48 PM	05-Oct Fri 10:32 AM	Fri 10:48 AM
VIMS_050TI_MEDRES001_PRIME	VIMS_18432	2007-275T09:52:43	00T05:09	05-Oct Fri 05:37 PM	Fri 05:53 PM	05-Oct Fri 10:37 AM	Fri 10:53 AM
ISS_050TI_MEDRES001_VIMS	ISS_Phot_1_by_1	2007-275T09:52:43	00T05:09	05-Oct Fri 05:37 PM	Fri 05:53 PM	05-Oct Fri 10:37 AM	Fri 10:53 AM
CIRS_050TI_MEDRES001_VIMS	CIRS_4000	2007-275T09:52:43	00T05:09	05-Oct Fri 05:37 PM	Fri 05:53 PM	05-Oct Fri 10:37 AM	Fri 10:53 AM
VIMS_050TI_PHOTOMWAC001_ISS	VIMS_18432	2007-275T12:42:43	00T07:59	05-Oct Fri 06:03 PM	Fri 07:46 PM	05-Oct Fri 11:03 AM	Fri 12:46 PM
ISS_050TI_GLOBMAP001_PRIME	ISS_Phot_1_by_1	2007-275T12:42:43	00T07:59	05-Oct Fri 06:03 PM	Fri 07:46 PM	05-Oct Fri 11:03 AM	Fri 12:46 PM
CIRS_050TI_GLOBMAP001_ISS	CIRS_4000	2007-275T12:42:43	00T07:59	05-Oct Fri 06:03 PM	Fri 07:46 PM	05-Oct Fri 11:03 AM	Fri 12:46 PM
ISS_050TI_PHOTOMWAC002_PRIME	ISS_Phot_1_by_1	2007-275T13:22:43	00T08:39	05-Oct Fri 07:40 PM	Fri 08:07 PM	05-Oct Fri 12:40 PM	Fri 01:07 PM
CIRS_050TI_PHOTOMWAC002_ISS	CIRS_4000	2007-275T13:22:43	00T08:39	05-Oct Fri 07:40 PM	Fri 08:07 PM	05-Oct Fri 12:40 PM	Fri 01:07 PM
VIMS_050TI_FIRNADCMP002_CIRS	VIMS_18432	2007-275T13:42:43	00T08:59	05-Oct Fri 07:53 PM	Fri 08:22 PM	05-Oct Fri 12:53 PM	Fri 01:22 PM
ISS_050TI_FIRNADCMP002_CIRS	ISS_Phot_1_by_1	2007-275T13:42:43	00T08:59	05-Oct Fri 07:53 PM	Fri 08:22 PM	05-Oct Fri 12:53 PM	Fri 01:22 PM
CIRS_050TI_FIRNADCMP002_SI	ISS_SUPPORT_IMAGIN(	2007-275T13:42:43	00T08:59	05-Oct Fri 07:53 PM	Fri 08:22 PM	05-Oct Fri 12:53 PM	Fri 01:22 PM
CIRS_050TI_FIRNADCMP002_PRIME	CIRS_4000	2007-275T13:42:43	00T08:59	05-Oct Fri 07:53 PM	Fri 08:22 PM	05-Oct Fri 12:53 PM	Fri 01:22 PM
VIMS_050TI_MONITORNA002_ISS	VIMS_18432	2007-275T15:42:43	00T10:59	05-Oct Fri 08:08 PM	Fri 08:38 PM	05-Oct Fri 01:08 PM	Fri 01:38 PM
ISS_050TI_MONITORNA001_PRIME	ISS_Phot_1_by_1	2007-275T15:42:43	00T10:59	05-Oct Fri 08:08 PM	Fri 08:38 PM	05-Oct Fri 01:08 PM	Fri 01:38 PM
CIRS_050TI_MONITORNA001_ISS	CIRS_4000	2007-275T15:42:43	00T10:59	05-Oct Fri 08:08 PM	Fri 08:38 PM	05-Oct Fri 01:08 PM	Fri 01:38 PM
INMS_050SA_SURVEY005_RIDER	INMS_1498	2007-275T16:42:43	00T11:59	05-Oct Fri 08:37 PM	Fri 09:14 PM	05-Oct Fri 01:37 PM	Fri 02:14 PM
VIMS_050TI_GLOBMAP002_PRIME	VIMS_18432	2007-275T17:42:43	00T12:59	05-Oct Fri 09:07 PM	Sat 02:06 PM	05-Oct Fri 02:07 PM	Sat 07:06 AM
ISS_050TI_GLOBMAP002_VIMS	ISS_Phot_1_by_1	2007-275T17:42:43	00T12:59	05-Oct Fri 09:07 PM	Sat 02:06 PM	05-Oct Fri 02:07 PM	Sat 07:06 AM
VIMS_050TI_MIDIRTMAP003_CIRS	VIMS_18432	2007-275T18:42:43	00T13:59	05-Oct Fri 09:18 PM	Sat 02:19 PM	05-Oct Fri 02:18 PM	Sat 07:19 AM
ISS_050TI_MIDIRTMAP002_CIRS	ISS_Phot_1_by_1	2007-275T18:42:43	00T13:59	05-Oct Fri 09:18 PM	Sat 02:19 PM	05-Oct Fri 02:18 PM	Sat 07:19 AM
CIRS_050TI_MIDIRTMAP002_SI	ISS_SUPPORT_IMAGIN(	2007-275T18:42:43	00T13:59	05-Oct Fri 09:18 PM	Sat 02:19 PM	05-Oct Fri 02:18 PM	Sat 07:19 AM
CIRS_050TI_MIDIRTMAP002_PRIME	CIRS_4000	2007-275T18:42:43	00T13:59	05-Oct Fri 09:18 PM	Sat 02:19 PM	05-Oct Fri 02:18 PM	Sat 07:19 AM
CDA_050HY_2400HYORX034_RIDER	CDA_524	2007-275T20:12:13	00T15:29	05-Oct Fri 09:26 PM	Sat 02:28 PM	05-Oct Fri 02:26 PM	Sat 07:28 AM
CDA_050DR_2500DUST389_RIDER	CDA_524	2007-275T22:13:17	00T17:30	05-Oct Fri 09:40 PM	Sat 02:41 PM	05-Oct Fri 02:40 PM	Sat 07:41 AM
UVIS_050SW_IPHSURVEY005_RIDER	UVIS_5032	2007-276T04:19:00	00T23:36	06-Oct Sat 02:19 PM	Thu 05:35 PM	06-Oct Sat 07:19 AM	Thu 10:35 AM
INMS_050SA_SURVEY006_RIDER	INMS_1498	2007-276T04:47:00	01T00:04	04-Oct Thu 05:42 PM	Thu 05:43 PM	04-Oct Thu 10:42 AM	Thu 10:43 AM
MIMI_050CO_SURVEY006_RIDER	MIMI_8000	2007-276T04:47:01	01T00:04	04-Oct Thu 05:42 PM	Thu 05:43 PM	04-Oct Thu 10:42 AM	Thu 10:43 AM
CIRS_050IC_DSCAL07276_RIDER	CIRS_4000	2007-276T05:49:00	01T01:06	04-Oct Thu 05:57 PM	Thu 05:59 PM	04-Oct Thu 10:57 AM	Thu 10:59 AM