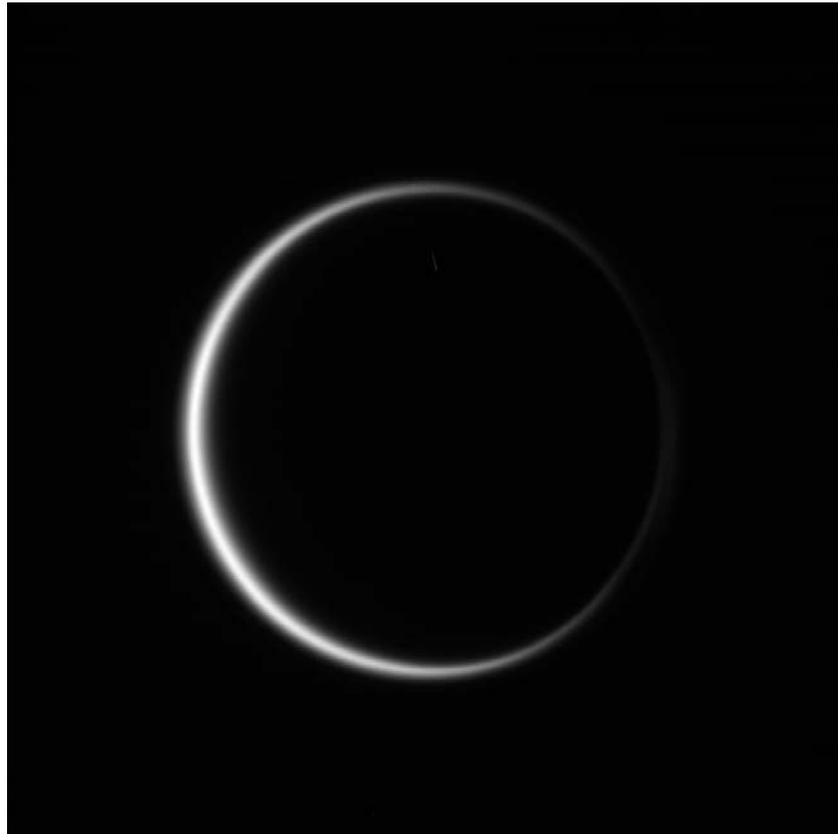


C A S S I N I



T I T A N - 1 3  
M I S S I O N D E S C R I P T I O N

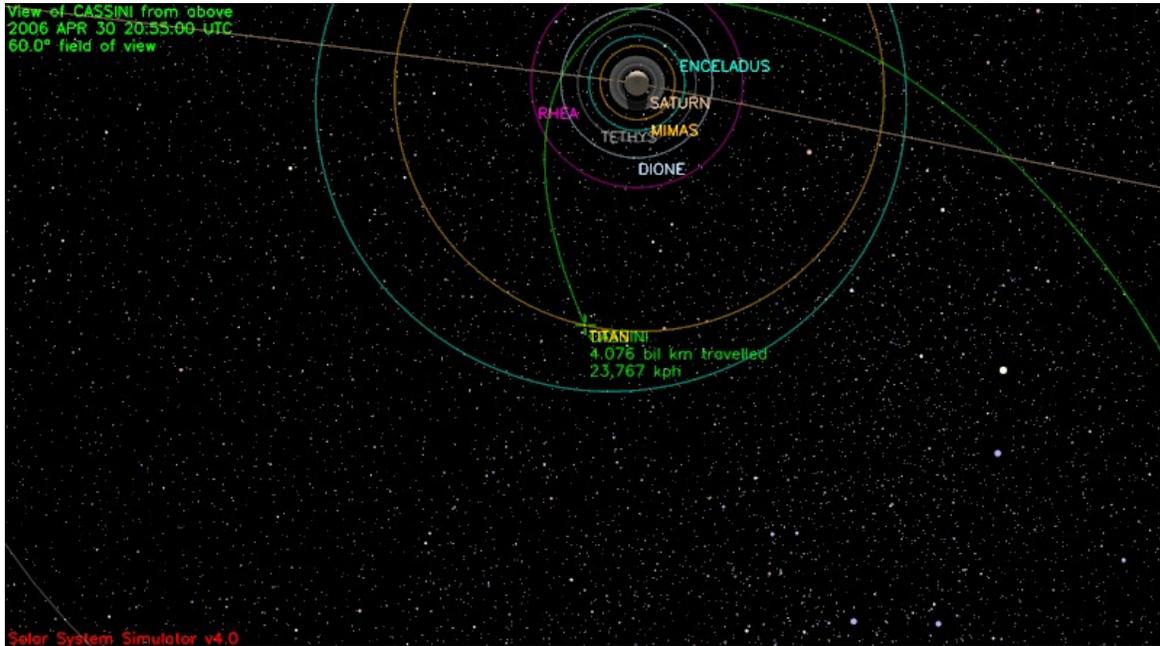
April 2006

**Jet Propulsion Laboratory**  
California Institute of Technology

## 1.0 OVERVIEW

Forty-two days after T12, Cassini returns to Titan for the fourteenth targeted flyby of Titan on Sunday, April 30<sup>th</sup>, 2006 at 2006-120T20:58:15 Ground UTC and 03:06PM PST.

Cassini's closest approach to Saturn's largest satellite is at an altitude of 1855 kilometers (1156 miles) above the surface at a speed of 6.0 kilometers per second (13,200 mph).



This encounter is set up with two maneuvers: an apoapsis maneuver scheduled for April 5<sup>th</sup>, and a Titan approach maneuver, scheduled for April 26<sup>th</sup>. Titan-13 is an outbound flyby, with Saturn periapsis occurring (about two days before closest-approach) on April 28<sup>th</sup>. The Navigation team expects to deliver the orbiter to within 30 km of the target altitude at a confidence of 99% (three sigma).

## 1.1 ABOUT TITAN

If Titan were in orbit around the Sun, it would likely stand out as the most important object 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 have shown that many of the processes that occur on Earth also apparently take place on Titan. Things such as 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  $-290^{\circ}\text{F}$  ( $-179^{\circ}\text{C}$ ), 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 it photographed light hills with dark river beds 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 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.

## 1.2 TITAN-13 SCIENCE ACTIVITIES

**Imaging Science Subsystem (ISS)** – will observe particle properties, vertical distributions (~6 km/px. 0.6 Mbit/frame with 2x2 summing). ISS will also examine wind/cloud motions; (3-12 km/px, 3 images/timestep in CB1 filter to increase SNR), and search for and monitor lightning/aurora. (High-resolution imaging, 50-200 m/px, special targets, emission angles < 45 prefer IR-polarizer (phase 45-110))

**Cassini Plasma Spectrometer (CAPS)** – will investigate large-scale and distant aspects of the Titan interaction with Saturn's Magnetosphere by observing during entire period around an encounter from 10 to 25 RS

**Composite Infrared Spectrometer (CIRS)** –will obtain information on trace constituents in Titan's stratosphere. Integrate on limb at two positions. POINTING: Obtain information on CO, HCN, CH<sub>4</sub>. Integrate on disk at air mass 1.5-2.0. POINTING: -y to Titan, x away from sun.

**Ultraviolet Imaging Spectrometer (UVIS)** – will observe star Beta Ori as it becomes occulted by Titan's atmosphere.

**Visible and Infrared Mapping Spectrometer (VIMS)** – will obtain new high resolution images that will help understand Titan's geology and the fate of CH<sub>4</sub>. VIMS will also search for and study the evolution of mid-latitude clouds, and search for lightning and hot spots.

**Magnetometer (MAG)** – will investigate large-scale and distant aspects of the Titan interaction by observing during entire period around an encounter from 10 to 25 RS. (23TI (T13))T13 is an equatorial wake flyby under plasma conditions near Saturnian local midnight with 1852 km altitude at CA. Thus it is very similar to T13 even according to local time.

**Magnetospheric Imaging Instrument (MIMI)** – will investigate micro-scale and near aspects of the Titan interaction by observing during about one hour period around an encounter. With -Y pointed toward Titan, when within 30 minutes of the targeted flyby, optimize secondary axis for co-rotation flow as close to the S/C -X, +/- Z plane as works with the other constraints on pointing. Also, measure Titan exosphere/magnetosphere interaction by imaging in ENA with INCA (when sun is not in INCA FOV).

**Ion and Neutral Mass Spectrometer (INMS)** – will obtain data regarding Titan's atmospheric and ionospheric composition and thermal structure. INMS will also observe the magnetospheric/ionospheric interaction.

**Radio and Plasma Wave Spectrometer (RPWS)** – will perform observations in the immediate vicinity of Titan, including thermal plasma density and temperature measurements with the Langmuir probe, search for lightning and other radio emissions, characterization of plasma wave spectrum, search for evidence of pickup ions. Langmuir probe within 90 degrees of spacecraft ram at closest approach, co-rotational ram outside of +/- 15 minutes.

**RADAR** – will perform low and high resolution SAR (Synthetic Aperture RADAR) imaging of Titan's surface. Additionally, RADAR will collect Altimetry, Radiometry, and Scatterometry Data. SAR swath cuts right across Xanadu, as well as some areas where there exists good ISS/VIMS hires coverage, enabling useful comparative studies

## TITAN-13 SEQUENCE OF EVENTS AND SAMPLE SNAPSHOTS

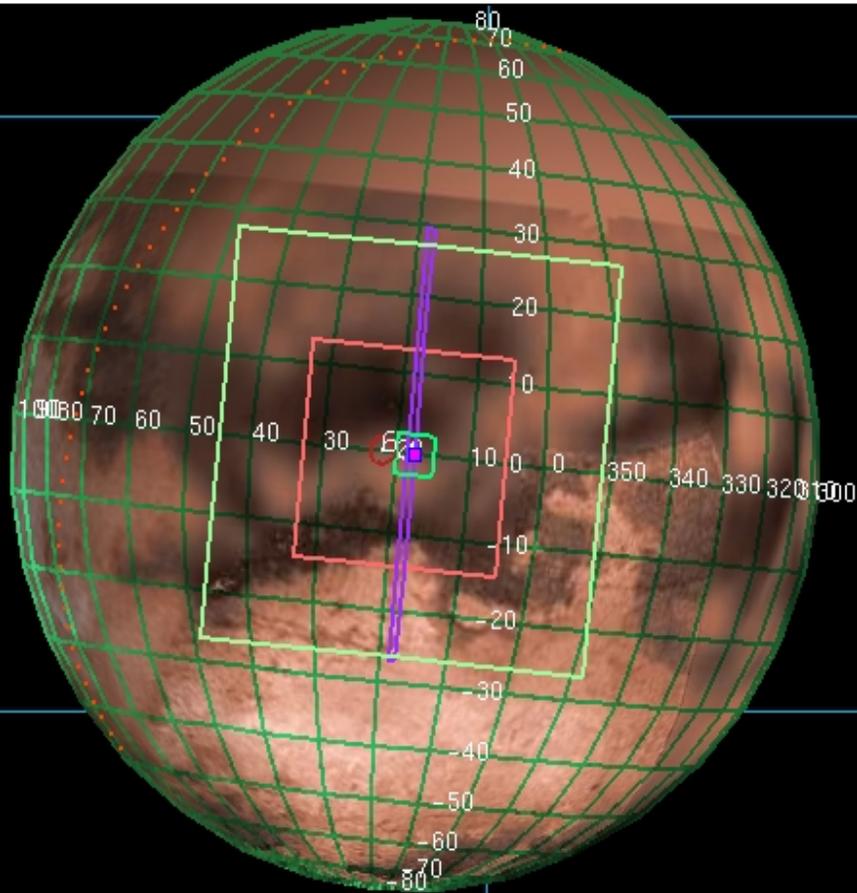
Three views of Titan from Cassini before, during, and after closest approach to Titan are shown below. The views are oriented such that the direction towards the top of the page is aligned with the Titan North Pole. Sample remote sensing instrument fields of view are drawn assuming that Cassini is pointed 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 these instruments fields of view in the figures is listed below.

### Key to 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 2 hours prior to Titan Closest Approach

T13 - 2hrs



Target RA Dec: 100.67 -2.86

Spacecraft-Target Distance: 40326 km

Spacecraft Velocity(relative to Target): 5.53078 km/s

Sub SC Lat Lon: -0.017 17.493

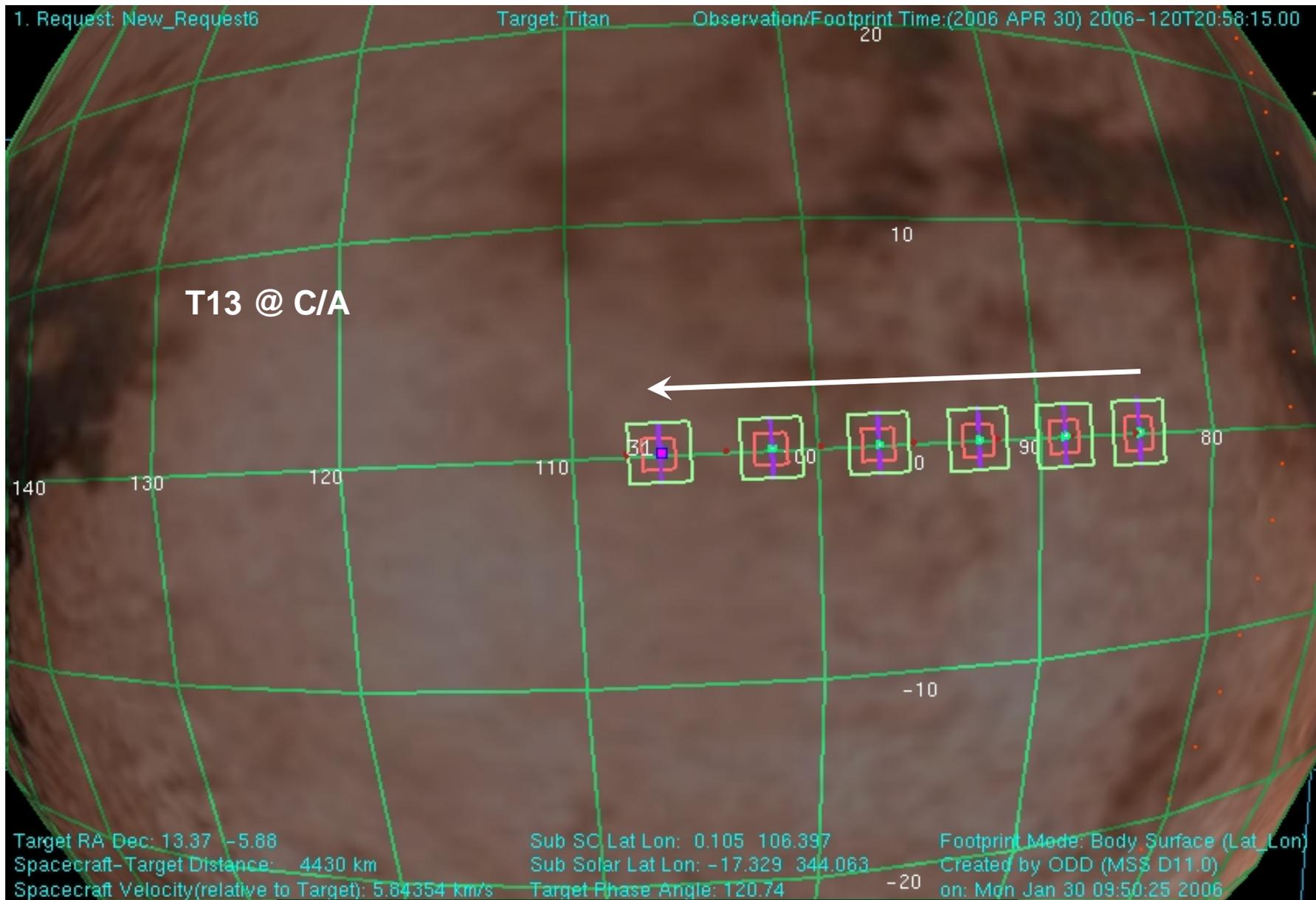
Sub Solar Lat Lon: -17.330 342.186

Target Phase Angle: 38.82

Footprint Mode: Body Surface (Lat\_Lon)

Created by ODD (MSS D11.0)

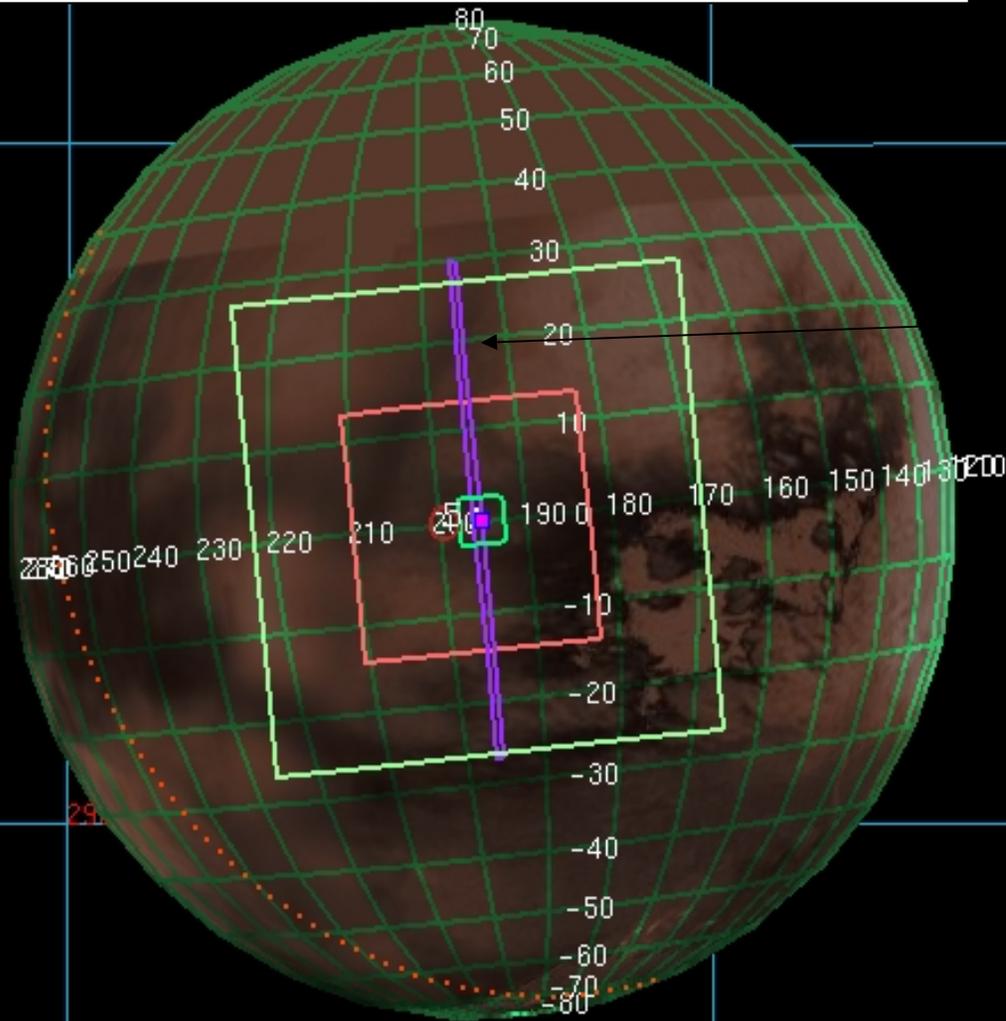
on: Mon Jan 30 09:47:55 2006



View of Titan from Cassini at Titan Closest Approach

View of Titan from Cassini 2 hours after Titan Closest Approach

T13 + 2hrs



Target RA Dec: 286.79 2.23  
Spacecraft-Target Distance: 40341 km  
Spacecraft Velocity(relative to Target): 5.53088 km/s

Sub SC Lat Lon: 0.028 195.107  
Sub Solar Lat Lon: -17.328 345.940  
Target Phase Angle: 146.48

Footprint Mode: Body Surface (Lat\_Lon)  
Created by ODD (MSS D11.0)  
on: Mon Jan 30 09:55:08 2006

Event Name: T13\_23TI, Targeted Titan, Outbound. 050505 SPK: Table Creation Date (YYMMDD) 050712

Event Name at Event Time Only	SCET Date (YYYY-DOYTHH:MM:SS.FF) UTC	SCET Date (MM/DD/YYYY HH:MM:SS) UTC	SCET Date (MM/DD/YYYY HH:MM:SS) ET	Hours wrt Event Epoch	Minutes wrt Event Epoch	S/C Range (km)	S/C Altitude wrt Tri-axial Ellipsoid (km)	S/C North Latitude (deg)	S/C West Longitude SMEQP M Date (deg)	S/C Inertial Velocity (km/s)	S/C Radial Inertial Velocity (km/s)	S/C Tangential Inertial Velocity (km/s)	Central Body Angular Diameter (mrad)	Phase = Sun-Central Body-S/C Angle (deg)	Sun-S/C Central Body Angle (deg)	S/C Local True Solar Time wrt Central Body (hh:mm)	Sub-solar Latitude wrt Central Body (deg)	Sub-solar West Longitude wrt Central Body SMEQPM Date (deg)
	2006-119T20:58:15.00	29-Apr-06	20:59:19	-24	-1440	508,142.5	505,567.5	0.0	-9.9	6.859	-6.858	0.037	10.1	33.0	147.0	10.05	-17.3	-38.5
	2006-120T00:58:15.00	30-Apr-06	00:59:19	-20	-1200	413,481.8	410,906.8	0.0	-6.0	6.324	-6.323	0.116	12.5	33.1	146.8	10.05	-17.3	-34.7
	2006-120T02:58:15.00	30-Apr-06	02:59:19	-18	-1080	368,699.9	366,124.9	0.0	-4.0	6.125	-6.123	0.133	14.0	33.3	146.7	10.04	-17.3	-32.8
	2006-120T04:58:15.00	30-Apr-06	04:59:19	-16	-960	325,217.0	322,642.0	0.0	-1.9	5.963	-5.961	0.142	15.8	33.4	146.6	10.03	-17.3	-31.0
	2006-120T06:58:15.00	30-Apr-06	06:59:19	-14	-840	282,787.1	280,212.1	0.0	0.1	5.832	-5.830	0.147	18.2	33.6	146.4	10.03	-17.3	-29.1
	2006-120T08:58:15.00	30-Apr-06	08:59:19	-12	-720	241,199.1	238,624.1	0.0	2.3	5.728	-5.726	0.154	21.4	33.8	146.2	10.02	-17.3	-27.2
	2006-120T10:58:15.00	30-Apr-06	10:59:19	-10	-600	200,271.3	197,696.3	0.0	4.4	5.649	-5.646	0.165	25.7	34.0	146.0	10.00	-17.3	-25.3
	2006-120T12:58:15.00	30-Apr-06	12:59:19	-8	-480	159,846.2	157,271.2	0.0	6.7	5.589	-5.586	0.187	32.2	34.4	145.6	09.59	-17.3	-23.4
	2006-120T14:58:15.00	30-Apr-06	14:59:19	-6	-360	119,787.1	117,212.1	0.0	9.2	5.549	-5.544	0.231	43.0	34.9	145.1	09.56	-17.3	-21.6
	2006-120T15:58:15.00	30-Apr-06	15:59:19	-5	-300	99,857.2	97,282.2	0.0	10.6	5.535	-5.529	0.270	51.6	35.3	144.7	09.54	-17.3	-20.6
	2006-120T16:58:15.00	30-Apr-06	16:59:19	-4	-240	79,976.1	77,401.1	0.0	12.3	5.527	-5.517	0.331	64.4	35.9	144.1	09.52	-17.3	-19.7
	2006-120T17:58:15.00	30-Apr-06	17:59:19	-3	-180	60,133.9	57,558.9	0.0	14.3	5.524	-5.507	0.435	85.7	36.9	143.1	09.47	-17.3	-18.8
	2006-120T18:58:15.00	30-Apr-06	18:59:19	-2	-120	40,330.7	37,755.7	0.0	17.5	5.531	-5.493	0.644	127.8	38.8	141.2	09.38	-17.3	-17.8
	2006-120T19:58:15.00	30-Apr-06	19:59:19	-1	-60	20,637.6	18,062.6	0.0	24.9	5.565	-5.422	1.255	250.2	44.6	135.4	09.13	-17.3	-16.9
	2006-120T20:28:15.00	30-Apr-06	20:29:19	-1	-30	11,060.1	8,485.1	0.0	37.1	5.632	-5.123	2.341	470.0	55.4	124.6	08.25	-17.3	-16.4
	2006-120T20:43:15.00	30-Apr-06	20:44:19	0	-15	6,744.8	4,169.8	0.0	55.5	5.723	-4.246	3.838	783.4	72.5	107.5	07.13	-17.3	-16.2
	2006-120T20:53:15.00	30-Apr-06	20:54:19	0	-5	4,744.0	2,169.0	0.1	84.6	5.820	-2.027	5.456	1147.5	100.1	79.9	05.17	-17.3	-16.0
<b>T13_23TI</b>	<b>2006-120T20:58:15.00</b>	<b>30-Apr-06</b>	<b>20:59:19</b>	<b>0</b>	<b>0</b>	<b>4,429.5</b>	<b>1,854.5</b>	<b>0.1</b>	<b>106.3</b>	<b>5.844</b>	<b>0.001</b>	<b>5.844</b>	<b>1240.7</b>	<b>120.7</b>	<b>59.3</b>	<b>03.50</b>	<b>-17.3</b>	<b>-15.9</b>
	2006-120T21:03:15.00	30-Apr-06	21:04:19	0	5	4,744.8	2,169.8	0.1	128.1	5.820	2.029	5.455	1147.3	140.5	39.5	02.24	-17.3	-15.9
	2006-120T21:13:15.00	30-Apr-06	21:14:19	0	15	6,746.5	4,171.5	0.1	157.1	5.723	4.247	3.837	783.2	161.4	18.6	00.28	-17.3	-15.7
	2006-120T21:28:15.00	30-Apr-06	21:29:19	1	30	11,062.3	8,487.3	0.1	175.5	5.632	5.123	2.340	469.9	159.6	20.4	23.16	-17.3	-15.5
	2006-120T21:58:15.00	30-Apr-06	21:59:19	1	60	20,640.9	18,065.9	0.0	-172.3	5.566	5.423	1.254	250.2	151.7	28.3	22.29	-17.3	-15.0
	2006-120T22:58:15.00	30-Apr-06	22:59:19	2	120	40,336.4	37,761.4	0.0	-164.9	5.531	5.494	0.640	127.8	146.5	33.5	22.03	-17.3	-14.1
	2006-120T23:58:15.00	30-Apr-06	23:59:19	3	180	60,139.9	57,564.9	0.0	-161.8	5.523	5.506	0.427	85.7	144.6	35.4	21.54	-17.3	-13.1
	2006-121T00:58:15.00	01-May-06	00:59:19	4	240	79,975.8	77,400.8	0.0	-159.7	5.523	5.514	0.317	64.4	143.7	36.3	21.50	-17.3	-12.2
	2006-121T01:58:15.00	01-May-06	01:59:19	5	300	99,838.5	97,263.5	0.0	-158.1	5.527	5.521	0.248	51.6	143.1	36.9	21.47	-17.3	-11.2
	2006-121T02:58:15.00	01-May-06	02:59:19	6	360	119,730.8	117,155.8	0.0	-156.8	5.534	5.530	0.199	43.0	142.7	37.3	21.45	-17.3	-10.3
	2006-121T04:58:15.00	01-May-06	04:59:19	8	480	159,822.4	157,047.4	0.0	-154.4	5.553	5.552	0.132	32.3	142.3	37.7	21.43	-17.3	-8.4
	2006-121T06:58:15.00	01-May-06	06:59:19	10	600	199,685.5	197,110.5	0.0	-152.3	5.578	5.578	0.082	25.8	142.1	37.9	21.42	-17.3	-6.6
	2006-121T08:58:15.00	01-May-06	08:59:19	12	720	239,949.6	237,374.6	0.0	-150.3	5.608	5.607	0.038	21.5	142.0	38.0	21.42	-17.3	-4.7
	2006-121T10:58:15.00	01-May-06	10:59:19	14	840	280,439.2	277,864.2	0.0	-148.4	5.640	5.640	0.002	18.4	142.0	38.0	21.42	-17.3	-2.8
	2006-121T12:58:15.00	01-May-06	12:59:19	16	960	321,173.6	318,598.6	0.0	-146.5	5.675	5.675	0.042	16.0	142.0	38.0	21.42	-17.3	-0.9
	2006-121T14:58:15.00	01-May-06	14:59:19	18	1080	362,168.2	359,593.2	0.0	-144.7	5.713	5.712	0.083	14.2	142.0	38.0	21.42	-17.3	1.0
	2006-121T16:58:15.00	01-May-06	16:59:19	20	1200	403,434.8	400,859.8	0.0	-142.9	5.752	5.751	0.126	12.8	142.1	37.9	21.43	-17.3	2.8
	2006-121T20:58:15.00	01-May-06	20:59:19	24	1440	486,816.4	484,241.4	0.0	-139.5	5.834	5.830	0.216	10.6	142.4	37.6	21.44	-17.3	6.6

Event or Observation	Observation Type (APGEN)	Observation Record Start Time (yyyy-dddThh:mm:ss) (SCET)	Record Start Time Reference Epoch (ddThh:m)	Start Playback (Ground UTC)		Start Playback (Pacific Time)	
				Best Estimate	~Latest Estimate	Best Estimate	~Latest Estimate
MAG_023CO_TINTERACT002_MAPS	MAG_1976	2006-120T04:44:00	-00T16:14	01-May Mon 01:35 PM	Mon 01:35 PM	01-May Mon 06:35 AM	Mon 06:35 AM
RPWS_023CO_TINTERACT002_CAPS	RPWS_30464	2006-120T04:44:00	-00T16:14	01-May Mon 01:35 PM	Mon 01:35 PM	01-May Mon 06:35 AM	Mon 06:35 AM
CIRS_023TI_FIRNADCMP003_PRIME	CIRS_4000	2006-120T05:34:15	-00T15:23	01-May Mon 01:40 PM	Mon 01:40 PM	01-May Mon 06:40 AM	Mon 06:40 AM
CIRS_023TI_FIRNADCMP003_SI	ISS_SUPPORT_IMAGING	2006-120T05:34:15	-00T15:23	01-May Mon 01:40 PM	Mon 01:40 PM	01-May Mon 06:40 AM	Mon 06:40 AM
ISS_023TI_FIRNADCMP003_CIRS	ISS_Phot_1_by_1	2006-120T05:34:15	-00T15:23	01-May Mon 01:40 PM	Mon 01:40 PM	01-May Mon 06:40 AM	Mon 06:40 AM
VIMS_023TI_COMPMAP002_CIRS	VIMS_18432	2006-120T05:34:15	-00T15:23	01-May Mon 01:40 PM	Mon 01:40 PM	01-May Mon 06:40 AM	Mon 06:40 AM
CDA_023RI_1600RINGM026_RIDER	CDA_524	2006-120T07:42:44	-00T13:15	01-May Mon 01:58 PM	Mon 02:01 PM	01-May Mon 06:58 AM	Mon 07:01 AM
CDA_023DR_1700DUST181_RIDER	CDA_524	2006-120T09:43:43	-00T11:14	01-May Mon 02:15 PM	Mon 02:22 PM	01-May Mon 07:15 AM	Mon 07:22 AM
CIRS_023TI_MIRLMBMAP004_PRIME	CIRS_4000	2006-120T11:58:15	-00T08:59	01-May Mon 02:34 PM	Mon 02:44 PM	01-May Mon 07:34 AM	Mon 07:44 AM
CIRS_023TI_MIRLMBMAP004_SI	ISS_SUPPORT_IMAGING	2006-120T11:58:15	-00T08:59	01-May Mon 02:34 PM	Mon 02:44 PM	01-May Mon 07:34 AM	Mon 07:44 AM
ISS_023TI_MIRLMBMAP004_CIRS	ISS_Phot_1_by_1	2006-120T11:58:15	-00T08:59	01-May Mon 02:34 PM	Mon 02:44 PM	01-May Mon 07:34 AM	Mon 07:44 AM
CDA_023RI_1800RINGM022_RIDER	CDA_524	2006-120T13:27:37	-00T07:30	01-May Mon 02:46 PM	Mon 02:57 PM	01-May Mon 07:46 AM	Mon 07:57 AM
CIRS_023TI_FIRNADMAP002_VIMS	CIRS_4000	2006-120T13:58:15	-00T06:59	01-May Mon 02:50 PM	Mon 03:03 PM	01-May Mon 07:50 AM	Mon 08:03 AM
ISS_023TI_MEDRES002_PRIME	ISS_Phot_1_by_1	2006-120T13:58:15	-00T06:59	01-May Mon 02:50 PM	Mon 03:03 PM	01-May Mon 07:50 AM	Mon 08:03 AM
CIRS_023TI_MIRLMBMAP006_PRIME	CIRS_4000	2006-120T14:58:15	-00T05:59	01-May Mon 03:24 PM	Mon 03:37 PM	01-May Mon 08:24 AM	Mon 08:37 AM
CIRS_023TI_MIRLMBMAP006_SI	ISS_SUPPORT_IMAGING	2006-120T14:58:15	-00T05:59	01-May Mon 03:24 PM	Mon 03:37 PM	01-May Mon 08:24 AM	Mon 08:37 AM
ISS_023TI_MIRLMBMAP006_CIRS	ISS_Phot_1_by_1	2006-120T14:58:15	-00T05:59	01-May Mon 03:24 PM	Mon 03:37 PM	01-May Mon 08:24 AM	Mon 08:37 AM
CDA_023DR_1900DUST128_RIDER	CDA_524	2006-120T15:28:37	-00T05:29	01-May Mon 03:27 PM	Mon 03:41 PM	01-May Mon 08:27 AM	Mon 08:41 AM
RADAR_023OT_WARM4TI13001_RIDER	RADAR_364800	2006-120T16:43:15	-00T04:14	01-May Mon 03:35 PM	Mon 03:49 PM	01-May Mon 08:35 AM	Mon 08:49 AM
CIRS_023TI_FIRNADMAP004_ISS	CIRS_4000	2006-120T16:58:15	-00T03:59	01-May Mon 03:36 PM	Mon 03:51 PM	01-May Mon 08:36 AM	Mon 08:51 AM
ISS_023TI_REGMAPNA001_PRIME	ISS_Phot_1_by_1	2006-120T16:58:15	-00T03:59	01-May Mon 03:36 PM	Mon 03:51 PM	01-May Mon 08:36 AM	Mon 08:51 AM
VIMS_023TI_COMPMAP003_ISS	VIMS_18432	2006-120T16:58:15	-00T03:59	01-May Mon 03:36 PM	Mon 03:51 PM	01-May Mon 08:36 AM	Mon 08:51 AM
CAPS_023TI_T13INBND001_PRIME	CAPS_16000	2006-120T18:58:15	-00T01:59	01-May Mon 04:21 PM	Mon 04:43 PM	01-May Mon 09:21 AM	Mon 09:43 AM
CIRS_023TI_FIRNADMAP005_ISS	CIRS_4000	2006-120T18:58:15	-00T01:59	01-May Mon 04:21 PM	Mon 04:43 PM	01-May Mon 09:21 AM	Mon 09:43 AM
ISS_023TI_HIGHRESNA001_VIMS	ISS_Phot_1_by_1	2006-120T18:58:15	-00T01:59	01-May Mon 04:21 PM	Mon 04:43 PM	01-May Mon 09:21 AM	Mon 09:43 AM
MAG_023TI_MAGTITAN001_PRIME	MAG_1976	2006-120T18:58:15	-00T01:59	01-May Mon 04:21 PM	Mon 04:43 PM	01-May Mon 09:21 AM	Mon 09:43 AM
VIMS_023TI_HIGHRESNA001_PRIME	VIMS_18432	2006-120T18:58:15	-00T01:59	01-May Mon 04:21 PM	Mon 04:43 PM	01-May Mon 09:21 AM	Mon 09:43 AM
RPWS_023TI_TIINTRMED001_PRIME	RPWS_30464	2006-120T19:13:31	-00T01:44	01-May Mon 04:24 PM	Mon 04:47 PM	01-May Mon 09:24 AM	Mon 09:47 AM
UVIS_023ST_BETORI004_PRIME	UVIS_32096	2006-120T19:42:15	-00T01:15	01-May Mon 04:30 PM	Mon 04:56 PM	01-May Mon 09:30 AM	Mon 09:56 AM
CAPS_023TI_T13CLOSE001_PRIME	CAPS_16000	2006-120T19:58:15	-00T00:59	01-May Mon 04:36 PM	Mon 05:02 PM	01-May Mon 09:36 AM	Mon 10:02 AM
INMS_023TI_T13CLOSE001_RADAR	INMS_1498	2006-120T19:58:15	-00T00:59	01-May Mon 04:36 PM	Mon 05:02 PM	01-May Mon 09:36 AM	Mon 10:02 AM
MIMI_023TI_T13CLOSE001_CAPS	MIMI_8000	2006-120T19:58:15	-00T00:59	01-May Mon 04:36 PM	Mon 05:02 PM	01-May Mon 09:36 AM	Mon 10:02 AM
RADAR_023TI_T13INLRES001_PRIME	RADAR_364800	2006-120T20:23:15	-00T00:34	01-May Mon 04:46 PM	Mon 05:38 PM	01-May Mon 09:46 AM	Mon 10:38 AM
RPWS_023TI_TICA001_PRIME	RPWS_182784	2006-120T20:28:15	-00T00:29	01-May Mon 04:49 PM	Mon 05:41 PM	01-May Mon 09:49 AM	Mon 10:41 AM
RADAR_023TI_T13HISAR001_PRIME	RADAR_364800	2006-120T20:51:15	-00T00:06	01-May Mon 05:09 PM	Mon 06:02 PM	01-May Mon 10:09 AM	Mon 11:02 AM
RADAR_023TI_T13OTLRES001_PRIME	RADAR_364800	2006-120T21:05:15	00T00:07	01-May Mon 06:10 PM	Mon 06:44 PM	01-May Mon 11:10 AM	Mon 11:44 AM
RADAR_023TI_T13OTALT001_PRIME	RADAR_364800	2006-120T21:13:15	00T00:15	01-May Mon 06:24 PM	Mon 06:58 PM	01-May Mon 11:24 AM	Mon 11:58 AM
RPWS_023TI_TIINTRMED002_PRIME	RPWS_30464	2006-120T21:23:31	00T00:25	01-May Mon 06:30 PM	Mon 07:04 PM	01-May Mon 11:30 AM	Mon 12:04 PM
RADAR_023TI_T13OTSCAT001_PRIME	RADAR_364800	2006-120T21:28:15	00T00:30	01-May Mon 06:33 PM	Mon 07:07 PM	01-May Mon 11:33 AM	Mon 12:07 PM
CAPS_023TI_T13OUTBND001_PRIME	CAPS_16000	2006-120T21:58:15	00T01:00	01-May Mon 06:47 PM	Mon 07:21 PM	01-May Mon 11:47 AM	Mon 12:21 PM
INMS_023TI_T13OUTBD001_RADAR	INMS_1498	2006-120T21:58:15	00T01:00	01-May Mon 06:47 PM	Mon 07:21 PM	01-May Mon 11:47 AM	Mon 12:21 PM
MIMI_023TI_T13EXTOUT001_CAPS	MIMI_8000	2006-120T21:58:15	00T01:00	01-May Mon 06:47 PM	Mon 07:21 PM	01-May Mon 11:47 AM	Mon 12:21 PM
RADAR_023TI_T13OUTRAD001_PRIME	RADAR_364800	2006-120T22:13:15	00T01:15	01-May Mon 06:52 PM	Mon 07:27 PM	01-May Mon 11:52 AM	Mon 12:27 PM
RPWS_023CO_TINTERACT003_CAPS	RPWS_30464	2006-120T22:33:31	00T01:35	01-May Mon 06:55 PM	Mon 07:30 PM	01-May Mon 11:55 AM	Mon 12:30 PM
CAPS_023TI_T13EXTOUT001_PRIME	CAPS_16000	2006-120T22:58:15	00T02:00	01-May Mon 06:58 PM	Mon 07:33 PM	01-May Mon 11:58 AM	Mon 12:33 PM
MAG_023CO_TINTERACT003_MAPS	MAG_1976	2006-120T22:58:15	00T02:00	01-May Mon 06:58 PM	Mon 07:33 PM	01-May Mon 11:58 AM	Mon 12:33 PM
ISS_023TI_EUVFUV002_UVIS	ISS_Phot_1_by_1	2006-121T02:18:15	00T05:20	01-May Mon 07:18 PM	Mon 07:54 PM	01-May Mon 12:18 PM	Mon 12:54 PM
UVIS_023TI_EUVFU002_PRIME	UVIS_5032	2006-121T02:18:15	00T05:20	01-May Mon 07:18 PM	Mon 07:54 PM	01-May Mon 12:18 PM	Mon 12:54 PM
MAG_023CO_TINTERACT004_MAPS	MAG_1976	2006-121T04:05:44	00T07:07	01-May Mon 07:30 PM	Mon 08:08 PM	01-May Mon 12:30 PM	Mon 01:08 PM
CIRS_023TI_FIRNADCMP002_PRIME	CIRS_4000	2006-121T07:28:15	00T10:30	01-May Mon 07:51 PM	Mon 08:32 PM	01-May Mon 12:51 PM	Mon 01:32 PM
CIRS_023TI_FIRNADCMP002_SI	ISS_SUPPORT_IMAGING	2006-121T07:28:15	00T10:30	01-May Mon 07:51 PM	Mon 08:32 PM	01-May Mon 12:51 PM	Mon 01:32 PM
ISS_023TI_FIRNADCMP002_CIRS	ISS_Phot_1_by_1	2006-121T07:28:15	00T10:30	01-May Mon 07:51 PM	Mon 08:32 PM	01-May Mon 12:51 PM	Mon 01:32 PM
INMS_023SA_SURVEY003_RIDER	INMS_1498	2006-121T08:58:15	00T12:00	01-May Mon 07:59 PM	Mon 08:41 PM	01-May Mon 12:59 PM	Mon 01:41 PM
CDA_023HY_2400HYORX023_RIDER	CDA_524	2006-121T09:22:48	00T12:24	01-May Mon 08:01 PM	Mon 08:44 PM	01-May Mon 01:01 PM	Mon 01:44 PM
RSS_023TI_KADOWN002_RSS	RSS_Activity	2006-121T10:09:00	00T13:10	01-May Mon 08:06 PM	Mon 08:49 PM	01-May Mon 01:06 PM	Mon 01:49 PM
CDA_023DR_2500DUST129_RIDER	CDA_524	2006-121T11:23:47	00T14:25	01-May Mon 08:12 PM	Mon 08:57 PM	01-May Mon 01:12 PM	Mon 01:57 PM
UVIS_023SW_IPHSURVEY030_RIDER	UVIS_5032	2006-121T12:14:00	00T15:15	01-May Mon 05:13 PM	Mon 09:00 PM	01-May Mon 10:13 AM	Mon 02:00 PM
CAPS_023SA_SURVEY002_RIDER	CAPS_16000	2006-121T12:14:52	00T15:16	01-May Mon 05:13 PM	Mon 05:13 PM	01-May Mon 10:13 AM	Mon 10:13 AM
MAG_023OT_MAGTAIL001_MAPS	MAG_1976	2006-121T12:14:56	00T15:16	01-May Mon 05:13 PM	Mon 05:13 PM	01-May Mon 10:13 AM	Mon 10:13 AM
INMS_023OT_MAGTAIL002_CAPS	INMS_1498	2006-121T12:15:00	00T15:16	01-May Mon 05:13 PM	Mon 05:13 PM	01-May Mon 10:13 AM	Mon 10:13 AM
RPWS_023OT_MAGTAIL001_CAPS	RPWS_30464	2006-121T12:15:00	00T15:16	01-May Mon 05:13 PM	Mon 05:13 PM	01-May Mon 10:13 AM	Mon 10:13 AM
CIRS_023IC_DSCAL1356_RIDER	CIRS_4000	2006-121T13:44:00	00T16:45	01-May Mon 05:19 PM	Mon 05:20 PM	01-May Mon 10:19 AM	Mon 10:20 AM