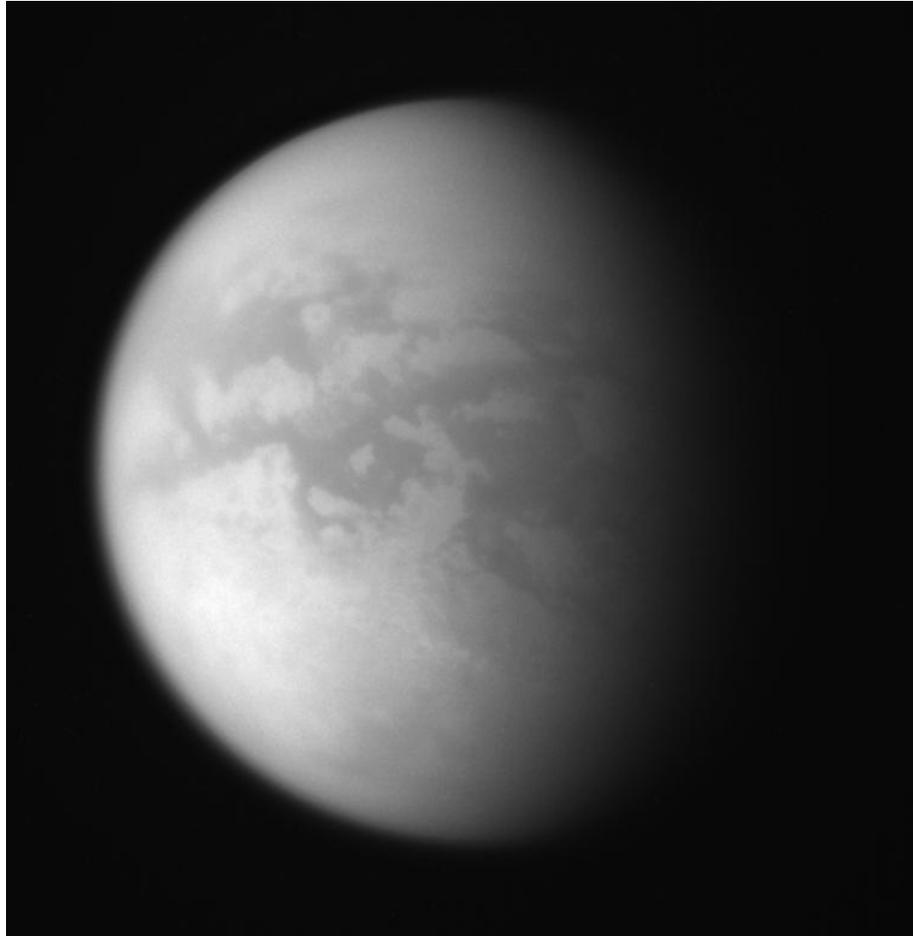


C A S S I N I



TITAN 028TI(T17)
MISSION DESCRIPTION

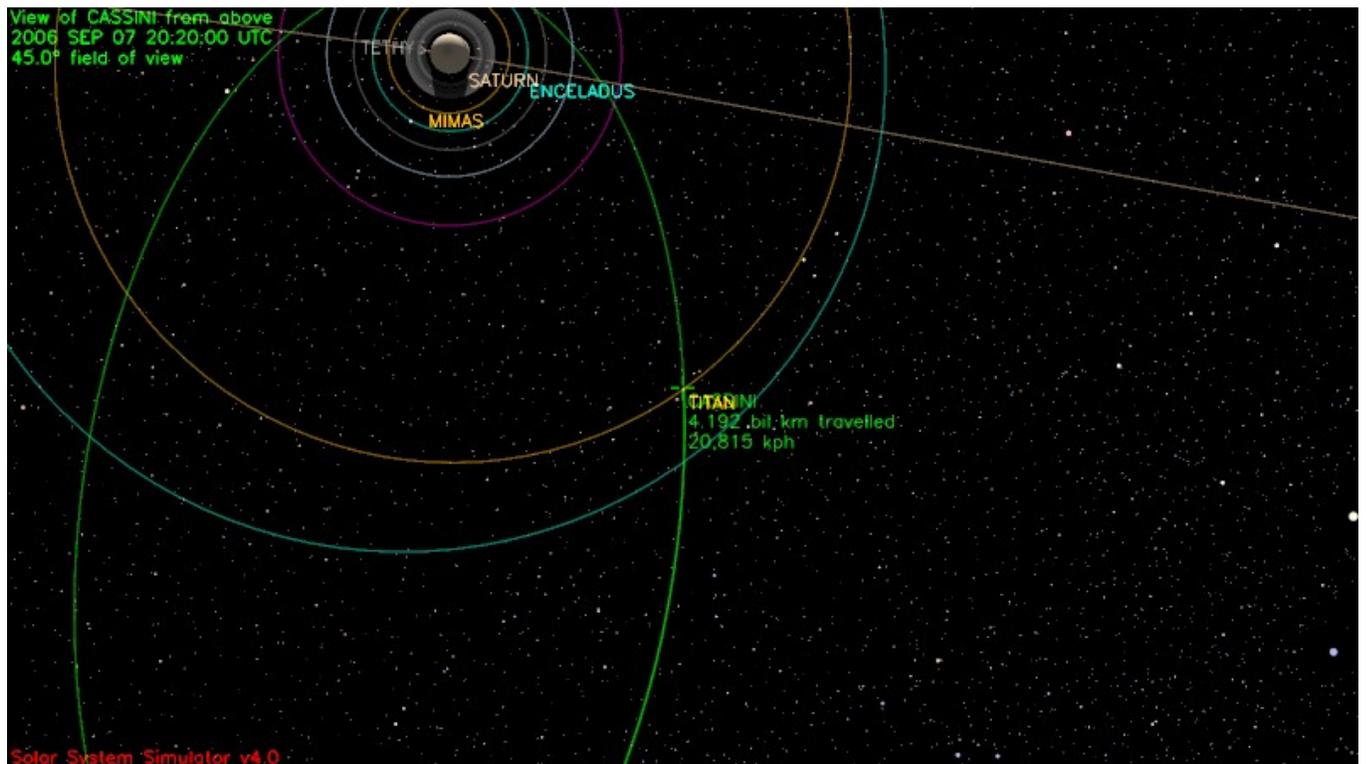
September 2006

Jet Propulsion Laboratory
California Institute of Technology

1.0 OVERVIEW

Nearly 47 days after Titan-16, Cassini returns to Titan for its eighteenth targeted encounter. The closest approach to Titan occurs on Saturday, September 7, at 20:16 spacecraft time (September 7 at 2:16 p.m. Pacific Time) at an altitude of 1000 kilometers (625 miles) above the surface and at a speed of 6.0 kilometers per second (13,422 mph). The latitude at closest approach is 23° N (near equator), and the encounter occurs on orbit number 28.

This encounter is set up with two maneuvers: an apoapsis maneuver on August 1, and an approach maneuver, scheduled for September 4. This inbound encounter occurs about 2 days before Saturn closest approach.



1.1 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's. 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°F (-179°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 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-17 SCIENCE HIGHLIGHTS

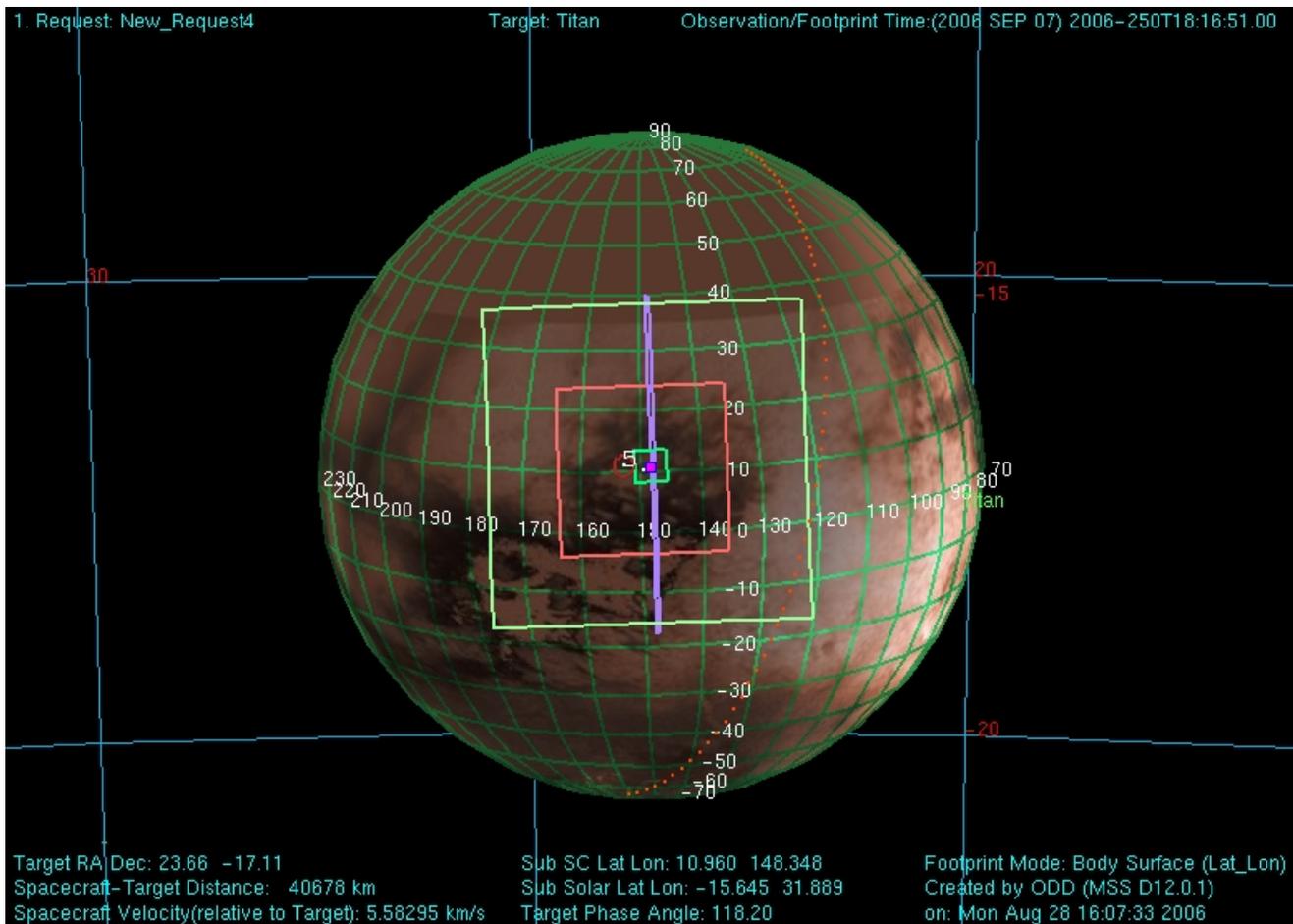
- VIMS stellar occultation will give a detailed profile of the thermosphere.
- The CIRS observations emphasize the far-infrared part of the spectrum to map Titan's composition. CIRS will perform limb sounding with excellent vertical resolution. CIRS will also map surface temperatures.
- The ISS outbound observations will image the surface of Titan and attempt to track atmospheric changes.
- INMS is riding along near C/A (secondary pointing is NEG_X to RAM). They will determine the atmospheric and ionospheric thermal structure as well as atmospheric density for the T17 latitude of 23-degrees North. This is an important for atmospheric modeling and will be used to plan for T20.
- MAPS - Analysis of plasma wake, ions escaping from Titan, and Titan's interaction with Saturn's magnetosphere down to a low altitude (1000 km).

1.3 SAMPLE SNAPSHOTS

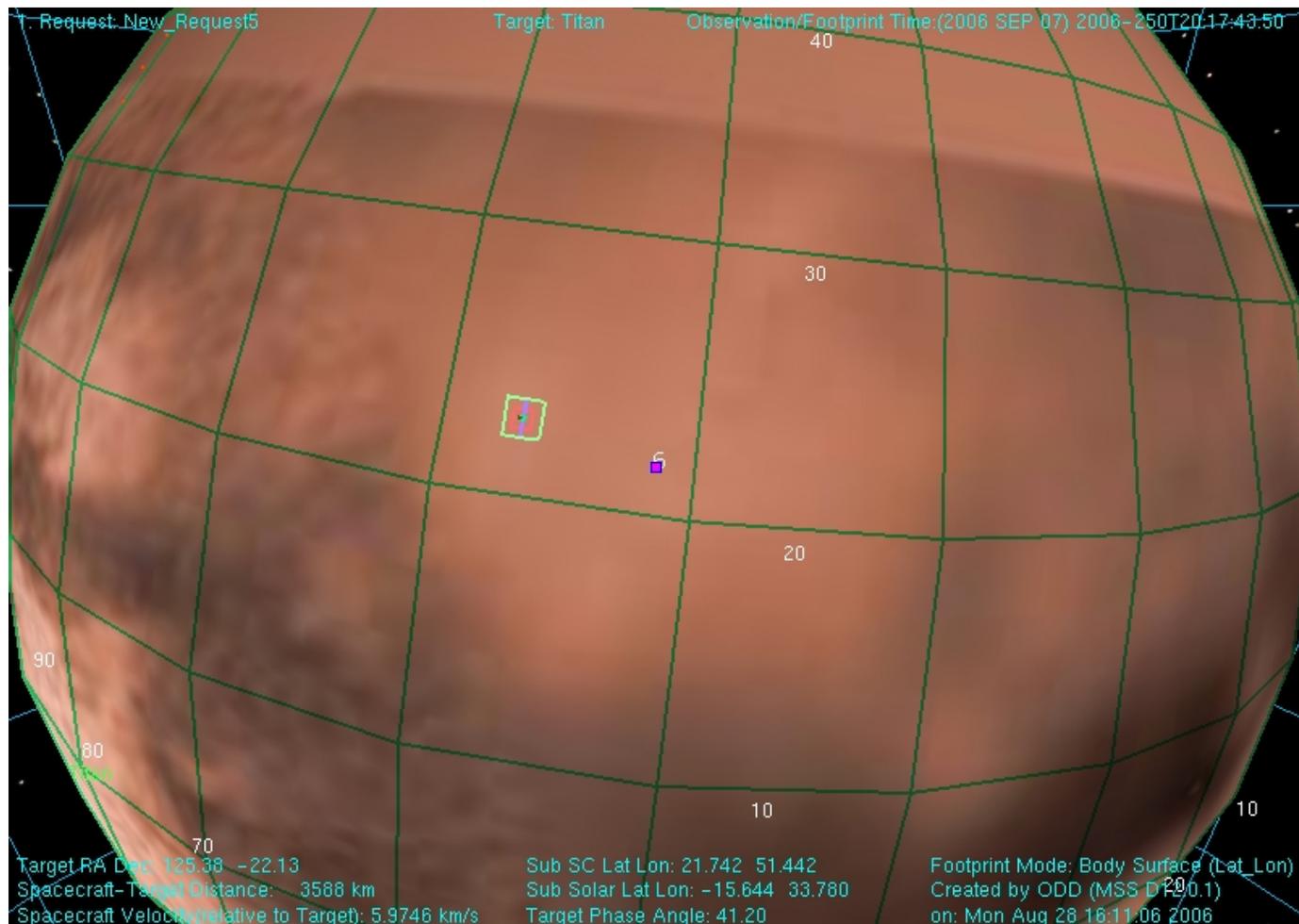
Three views of Titan from Cassini before, during, and after closest approach to Titan are shown below. The views are oriented such that the direction towards the top of the page is aligned with the Titan North Pole. The optical fields of view are shown in the first two plots and the remote sensing instrument fields of view are shown in the third 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

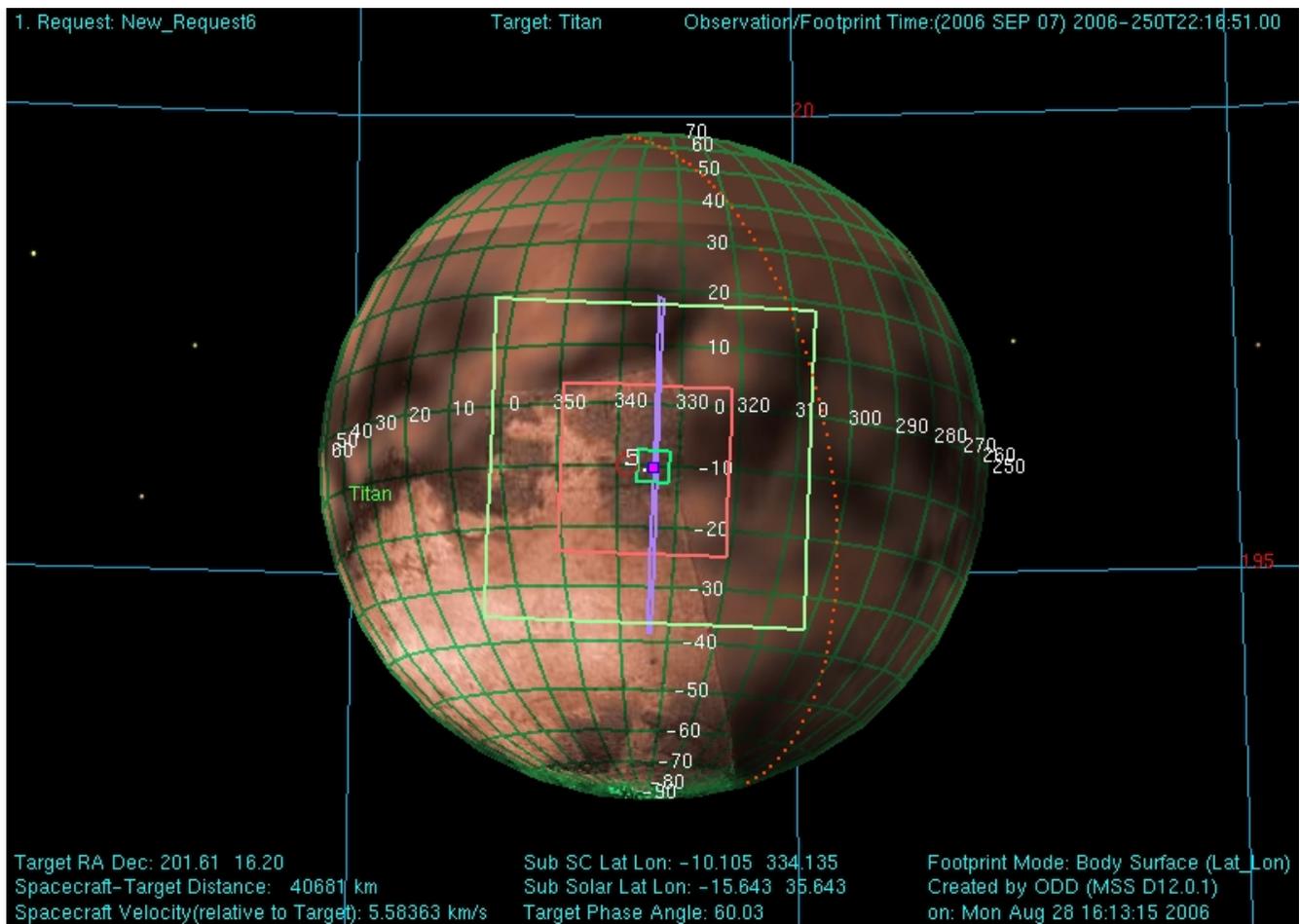
Instrument Field of View	Depiction in Figure
ISS WAC (imaging wide angle camera)	Largest square
VIMS (visual and infrared mapping spectrometer)	Next largest pink square
ISS NAC (imaging narrow angle camera)	Smallest green square
CIRS (composite infrared spectrometer) – Focal Plane 1	Small red circle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



View of Titan from Cassini 2 hours before Titan-17 closest approach



View of Titan from Cassini at Titan-17 Closest Approach



View of Titan from Cassini 2 hours after Titan-17 closest approach

Timeline and Geometry Table below

Colors: yellow = maneuvers; blue = geometry; pink = T17-related; green = data playbacks

Cassini Titan-17 Timeline - September 2006

Orbiter UTC	Ground UTC	Pacific Time	Time wrt T17	Activity	Description
231T22:06:00	Aug 19 23:29	Fri Aug 19 03:29 PM	T17-18d22h	Start of Sequence S23	Start of Sequence which contains Titan-17.
247T12:21:00	Sep 04 13:44	Sun Sep 04 05:44 AM	T17-03d08h	OTM #70 Prime	Titan-17 minus 3 day targeting maneuver
248T12:06:00	Sep 05 13:29	Mon Sep 05 05:29 AM	T17-02d08h	OTM #70 Backup	
249T21:06:00	Sep 06 22:29	Tue Sep 06 02:29 PM	T17-23h10m	Start of the TOST Segment	
249T21:36:00	Sep 06 22:59	Tue Sep 06 02:59 PM	T17-22h40m	Turn cameras to Titan	
249T21:36:00	Sep 06 22:59	Tue Sep 06 02:59 PM	T17-22h40m	Deadtime	20 minutes long; used to accommodate changes in flyby time
249T21:56:51	Sep 06 23:19	Tue Sep 06 03:19 PM	T17-22h20m	Titan atmospheric observations	Obtain information on the thermal structure of Titan's stratosphere
250T05:16:51	Sep 07 06:39	Tue Sep 06 10:39 PM	T17-15h00m	Titan limb observations	Search Titans Nightside for Atmospheric Lighting and Auras
250T12:46:51	Sep 07 14:09	Wed Sep 07 06:09 AM	T17-07h30m	Titan surface observations	Several slow scans across Titan's visible hemisphere to form spectral images
250T17:31:51	Sep 07 18:54	Wed Sep 07 10:54 AM	T17-02h45m	Transition to Thrusters	Thrusters are needed to compensate for Titan Atmosphere torque and target motion compensation
250T20:01:51	Sep 07 21:24	Wed Sep 07 01:24 PM	T17-00h15m	Titan Stellar Occultation	Observe Star as it passes behind Titan
250T20:08:51	Sep 07 21:31	Wed Sep 07 01:31 PM	T17-00h08m	Titan atmospheric Observations	Determine atmospheric and ionospheric thermal structure
250T20:16:51	Sep 07 21:39	Wed Sep 07 01:39 PM	T17+00h00m	Titan-17 Flyby Closest Approach Time	Altitude = 1000 km (625 miles), speed = 6.0 km/s (13,422 mph); high phase inbound, 45 deg phase at closest approach, low phase outbound
250T20:35:59	Sep 07 21:58	Wed Sep 07 01:58 PM	T17+00h19m	Transition to Reaction Wheels	Wheels are used for greater spacecraft stability.
250T20:57:08	Sep 07 22:20	Wed Sep 07 02:20 PM	T17+00h41m	Titan surface observations	Several slow scans across Titan's visible hemisphere to form spectral images
250T21:22:00	Sep 07 22:45	Wed Sep 07 02:45 PM	T17+01h06m	Descending Ring Plane Crossing	
251T06:16:51	Sep 08 07:39	Wed Sep 07 11:39 PM	T17+10h00m	Titan surface observations	Full disk observations for surface and atmospheric mapping
251T09:54:51	Sep 08 11:17	Thu Sep 08 03:17 AM	T17+13h38m	Deadtime	10 minutes long; used to accommodate changes in flyby time
251T10:06:00	Sep 08 11:29	Thu Sep 08 03:29 AM	T17+13h50m	Turn to Earth-Line	
251T10:36:00	Sep 08 11:59	Thu Sep 08 03:59 AM	T17+14h20m	Begin Playback of T17 Data	Goldstone 70M
251T21:06:00	Sep 08 22:29	Thu Sep 08 02:29 PM	T17+01d01h	End Playback of T17 Data	
252T17:42:00	Sep 09 19:05	Fri Sep 09 11:05 AM	T17+01d21h	Saturn Periapse	R = 3.0 Rs, lat = -12 deg, phase = 7 deg

OWLT (mins)	83.6
C/A Time	Wed Sep 07 01:39 PM

1.4 FLYBY GEOMETRY

Event Name at Event Time	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 wrt SMEOP 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-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 SMEOP Date (deg)
2006-249T20:12:47.50	06-Sep-06	20:13:52	-24	-1440	490,813.6	488,238.6	8.6	133.7	5.874	-5.865	0.321	10.5	123.5	56.5	03.49	-15.7	11.2	
2006-250T00:12:47.50	07-Sep-06	00:13:52	-20	-1200	406,906.6	404,331.6	8.8	136.9	5.794	-5.789	0.249	12.7	123.1	56.9	03.51	-15.7	14.9	
2006-250T02:12:47.50	07-Sep-06	02:13:52	-18	-1080	365,359.2	362,784.2	8.8	138.6	5.766	-5.752	0.220	14.1	122.9	57.1	03.52	-15.7	16.8	
2006-250T04:12:47.50	07-Sep-06	04:13:52	-16	-960	324,070.7	321,495.7	8.9	140.2	5.720	-5.717	0.195	15.9	122.6	57.3	03.53	-15.7	18.7	
2006-250T06:12:47.50	07-Sep-06	06:13:52	-14	-840	283,028.6	280,453.6	9.0	141.9	5.687	-5.684	0.175	18.2	122.4	57.6	03.54	-15.7	20.6	
2006-250T08:12:47.50	07-Sep-06	08:13:52	-12	-720	242,216.6	239,641.6	9.1	143.5	5.666	-5.663	0.162	21.3	122.2	57.8	03.55	-15.6	22.4	
2006-250T10:12:47.50	07-Sep-06	10:13:52	-10	-600	201,614.5	199,039.5	9.2	145.1	5.628	-5.626	0.157	25.5	122.0	58.0	03.56	-15.6	24.3	
2006-250T12:12:47.50	07-Sep-06	12:13:52	-8	-480	161,197.1	158,622.1	9.3	146.6	5.605	-5.602	0.165	31.9	121.7	58.3	03.58	-15.6	26.2	
2006-250T14:12:47.50	07-Sep-06	14:13:52	-6	-360	120,933.0	118,358.0	9.5	148.0	5.587	-5.583	0.194	42.6	121.2	58.8	04.00	-15.6	28.1	
2006-250T15:12:47.50	07-Sep-06	15:13:52	-5	-300	100,846.5	98,271.5	9.6	148.6	5.581	-5.576	0.223	51.1	120.9	59.1	04.01	-15.6	29.0	
2006-250T16:12:47.50	07-Sep-06	16:13:52	-4	-240	80,782.9	78,207.9	9.9	149.0	5.577	-5.571	0.270	63.8	120.5	59.5	04.03	-15.6	29.9	
2006-250T17:12:47.50	07-Sep-06	17:13:52	-3	-180	60,736.3	58,161.3	10.2	149.1	5.578	-5.567	0.353	84.8	119.7	60.3	04.07	-15.6	30.9	
2006-250T18:12:47.50	07-Sep-06	18:13:52	-2	-120	40,703.3	38,128.3	10.9	148.4	5.587	-5.562	0.521	126.6	118.3	61.7	04.13	-15.6	31.8	
2006-250T19:12:47.50	07-Sep-06	19:13:52	-1	-60	20,714.9	18,139.9	12.9	144.5	5.622	-5.529	1.019	249.3	114.0	66.0	04.33	-15.6	32.8	
2006-250T19:42:47.50	07-Sep-06	19:43:52	-1	-30	10,868.1	8,293.1	16.4	135.6	5.691	-5.349	1.942	478.4	105.9	74.1	05.10	-15.6	33.2	
2006-250T19:57:47.50	07-Sep-06	19:58:52	0	-15	6,257.6	3,682.6	21.3	119.5	5.797	-4.715	3.372	848.2	92.0	88.0	06.15	-15.6	33.5	
2006-250T20:07:47.50	07-Sep-06	20:08:52	0	-5	3,927.2	1,852.2	25.6	86.3	5.942	-2.538	5.372	1430.2	65.7	114.3	08.29	-15.6	33.6	
T17 28TI	2006-250T20:12:47.50	07-Sep-06	20:13:52	0	3,523.0	950.0	23.0	56.6	5.905	-0.003	5.985	1638.1	47.7	135.3	10.28	-15.6	33.7	
2006-250T20:17:47.50	07-Sep-06	20:18:52	0	5	3,925.6	1,350.6	15.3	29.1	5.942	2.533	5.375	1430.8	31.3	148.7	12.18	-15.6	33.8	
2006-250T20:27:47.50	07-Sep-06	20:28:52	0	15	6,254.7	3,679.7	3.0	0.5	5.797	4.714	3.373	848.5	37.9	142.1	14.13	-15.6	33.9	
2006-250T20:42:47.50	07-Sep-06	20:43:52	1	30	10,865.0	8,290.0	-4.0	-13.8	5.691	5.350	1.942	478.6	48.6	131.4	15.12	-15.6	34.2	
2006-250T21:12:47.50	07-Sep-06	21:13:52	1	60	20,712.7	18,137.7	-8.1	-22.2	5.622	5.529	1.018	249.3	56.0	124.0	15.47	-15.6	34.6	
2006-250T22:12:47.50	07-Sep-06	22:13:52	2	120	40,704.3	38,129.3	-10.2	-26.1	5.587	5.563	0.516	126.6	60.1	119.9	16.06	-15.6	35.6	
2006-250T23:12:47.50	07-Sep-06	23:13:52	3	180	60,742.1	58,167.1	-10.9	-26.7	5.578	5.568	0.342	84.8	61.6	118.4	16.13	-15.6	36.5	
2006-251T00:12:47.50	08-Sep-06	00:13:52	4	240	80,795.9	78,220.9	-11.2	-26.6	5.579	5.573	0.251	63.8	62.3	117.7	16.16	-15.6	37.5	
2006-251T01:12:47.50	08-Sep-06	01:13:52	5	300	100,870.8	98,295.8	-11.4	-26.1	5.583	5.580	0.193	51.1	62.7	117.3	16.18	-15.6	38.4	
2006-251T02:12:47.50	08-Sep-06	02:13:52	6	360	120,975.7	118,400.7	-11.5	-25.5	5.592	5.590	0.151	42.6	62.9	117.1	16.19	-15.6	39.3	
2006-251T04:12:47.50	08-Sep-06	04:13:52	8	480	161,315.8	158,740.8	-11.7	-24.0	5.618	5.618	0.088	31.9	63.2	116.8	16.20	-15.6	41.2	
2006-251T06:12:47.50	08-Sep-06	06:13:52	10	600	201,902.9	199,327.9	-11.7	-22.2	5.659	5.659	0.036	25.5	63.3	116.7	16.21	-15.6	43.1	
2006-251T08:12:47.50	08-Sep-06	08:13:52	12	720	242,836.5	240,261.5	-11.7	-20.4	5.714	5.714	0.015	21.2	63.3	116.6	16.21	-15.6	45.0	
2006-251T10:12:47.50	08-Sep-06	10:13:52	14	840	284,233.2	281,658.2	-11.7	-18.4	5.788	5.788	0.067	18.1	63.3	116.7	16.21	-15.6	46.8	
2006-251T12:12:47.50	08-Sep-06	12:13:52	16	960	326,231.2	323,656.2	-11.6	-16.4	5.883	5.882	0.123	15.8	63.2	116.8	16.20	-15.6	48.7	
2006-251T14:12:47.50	08-Sep-06	14:13:52	18	1080	368,996.0	366,421.0	-11.5	-14.4	6.004	6.002	0.186	14.0	63.1	116.9	16.19	-15.6	50.6	
2006-251T16:12:47.50	08-Sep-06	16:13:52	20	1200	412,727.2	410,152.2	-11.4	-12.3	6.157	6.152	0.256	12.5	62.9	117.1	16.19	-15.6	52.5	
2006-251T20:12:47.50	08-Sep-06	20:13:52	24	1440	504,115.1	501,540.1	-11.0	-8.1	6.595	6.572	0.423	10.2	62.5	117.4	16.17	-15.6	56.2	

028TI (T17) Playback Timeline

Created September 7, 2006

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 Estimate	Best Estimate	~Latest Estimate
CAPS_028SA_SURVEY005_RIDER	CAPS_16000	2006-249T21:06:00	-00T23:10	08-Sep Fri 12:04 PM	Fri 12:04 PM	08-Sep Fri 05:04 AM	Fri 05:04 AM
MAG_028OT_SURVEY001_PRIME	MAG_1976	2006-249T21:06:00	-00T23:10	08-Sep Fri 12:04 PM	Fri 12:04 PM	08-Sep Fri 05:04 AM	Fri 05:04 AM
RPWS_028SA_OUTSURVEY004_PRIME	RPWS_30464	2006-249T21:06:00	-00T23:10	08-Sep Fri 12:04 PM	Fri 12:04 PM	08-Sep Fri 05:04 AM	Fri 05:04 AM
MIMI_028OT_MAGTAIL007_RIDER	MIMI_8000	2006-249T21:06:51	-00T23:10	08-Sep Fri 12:04 PM	Fri 12:04 PM	08-Sep Fri 05:04 AM	Fri 05:04 AM
CDA_028DR_1307DUSTB149_RIDER	CDA_524	2006-249T21:10:47	-00T23:06	08-Sep Fri 12:05 PM	Fri 12:05 PM	08-Sep Fri 05:05 AM	Fri 05:05 AM
CIRS_028TI_MIDIRTMAP006_PRIME	CIRS_4000	2006-249T21:56:51	-00T22:20	08-Sep Fri 12:08 PM	Fri 12:09 PM	08-Sep Fri 05:08 AM	Fri 05:09 AM
CIRS_028TI_MIDIRTMAP006_SI	ISS_SUPPORT_IMAGIN	2006-249T21:56:51	-00T22:20	08-Sep Fri 12:08 PM	Fri 12:09 PM	08-Sep Fri 05:08 AM	Fri 05:09 AM
ISS_028TI_MIDIRTMAP006_CIRS	ISS_Phot_1_by_1	2006-249T21:56:51	-00T22:20	08-Sep Fri 12:08 PM	Fri 12:09 PM	08-Sep Fri 05:08 AM	Fri 05:09 AM
VIMS_028TI_MAPMONITR001_ISS	VIMS_18432	2006-249T21:56:51	-00T22:20	08-Sep Fri 12:08 PM	Fri 12:09 PM	08-Sep Fri 05:08 AM	Fri 05:09 AM
CAPS_028SA_SURVEY006_RIDER	CAPS_16000	2006-250T01:06:04	-00T19:10	08-Sep Fri 12:33 PM	Fri 12:37 PM	08-Sep Fri 05:33 AM	Fri 05:37 AM
MIMI_028CO_SURVEY001_RIDER	MIMI_8000	2006-250T04:00:00	-00T16:17	08-Sep Fri 12:53 PM	Fri 12:59 PM	08-Sep Fri 05:53 AM	Fri 05:59 AM
CIRS_028TI_FIRNADCMP006_ISS	CIRS_4000	2006-250T05:16:51	-00T15:00	08-Sep Fri 01:00 PM	Fri 01:07 PM	08-Sep Fri 06:00 AM	Fri 06:07 AM
ISS_028TI_NIGHTNAC001_PRIME	ISS_Phot_1_by_1	2006-250T05:16:51	-00T15:00	08-Sep Fri 01:00 PM	Fri 01:07 PM	08-Sep Fri 06:00 AM	Fri 06:07 AM
INMS_028SA_SURVEY001_RIDER	INMS_1498	2006-250T05:20:00	-00T14:57	08-Sep Fri 01:01 PM	Fri 01:07 PM	08-Sep Fri 06:01 AM	Fri 06:07 AM
RPWS_028SA_OUTSURVEY001_PRIME	RPWS_30464	2006-250T05:20:00	-00T14:57	08-Sep Fri 01:01 PM	Fri 01:07 PM	08-Sep Fri 06:01 AM	Fri 06:07 AM
CIRS_028TI_FIRNADCMP003_PRIME	CIRS_4000	2006-250T06:16:51	-00T14:00	08-Sep Fri 01:13 PM	Fri 01:20 PM	08-Sep Fri 06:13 AM	Fri 06:20 AM
CIRS_028TI_FIRNADCMP003_SI	ISS_SUPPORT_IMAGIN	2006-250T06:16:51	-00T14:00	08-Sep Fri 01:13 PM	Fri 01:20 PM	08-Sep Fri 06:13 AM	Fri 06:20 AM
ISS_028TI_FIRNADCMP003_CIRS	ISS_Phot_1_by_1	2006-250T06:16:51	-00T14:00	08-Sep Fri 01:13 PM	Fri 01:20 PM	08-Sep Fri 06:13 AM	Fri 06:20 AM
UVIS_028TI_FIRNADCMP003_CIRS	UVIS_5032	2006-250T06:16:51	-00T14:00	08-Sep Fri 01:13 PM	Fri 01:20 PM	08-Sep Fri 06:13 AM	Fri 06:20 AM
VIMS_028TI_MAP001_CIRS	VIMS_18432	2006-250T06:16:51	-00T14:00	08-Sep Fri 01:13 PM	Fri 01:20 PM	08-Sep Fri 06:13 AM	Fri 06:20 AM
INMS_028TI_T17INBD001_RADAR	INMS_1498	2006-250T08:28:05	-00T11:48	08-Sep Fri 01:29 PM	Fri 01:40 PM	08-Sep Fri 06:29 AM	Fri 06:40 AM
CIRS_028TI_FIRNADCMP005_ISS	CIRS_4000	2006-250T12:16:51	-00T08:00	08-Sep Fri 01:57 PM	Fri 02:09 PM	08-Sep Fri 06:57 AM	Fri 07:09 AM
ISS_028TI_PHOTOMWAC001_PRIME	ISS_Phot_1_by_1	2006-250T12:16:51	-00T08:00	08-Sep Fri 01:57 PM	Fri 02:09 PM	08-Sep Fri 06:57 AM	Fri 07:09 AM
VIMS_028TI_PHOTOMETR001_ISS	VIMS_18432	2006-250T12:16:51	-00T08:00	08-Sep Fri 01:57 PM	Fri 02:09 PM	08-Sep Fri 06:57 AM	Fri 07:09 AM
CIRS_028TI_FIRNADMAP002_UVIS	CIRS_4000	2006-250T12:46:51	-00T07:30	08-Sep Fri 02:08 PM	Fri 02:22 PM	08-Sep Fri 07:08 AM	Fri 07:22 AM
ISS_028TI_EUVFUV001_UVIS	ISS_Phot_1_by_1	2006-250T12:46:51	-00T07:30	08-Sep Fri 02:08 PM	Fri 02:22 PM	08-Sep Fri 07:08 AM	Fri 07:22 AM
UVIS_028TI_EUVFUV001_PRIME	UVIS_5032	2006-250T12:46:51	-00T07:30	08-Sep Fri 02:08 PM	Fri 02:22 PM	08-Sep Fri 07:08 AM	Fri 07:22 AM
VIMS_028TI_SCAN001_UVIS	VIMS_18432	2006-250T12:46:51	-00T07:30	08-Sep Fri 02:08 PM	Fri 02:22 PM	08-Sep Fri 07:08 AM	Fri 07:22 AM
MAG_028TI_MAGTITAN001_PRIME	MAG_1976	2006-250T16:44:21	-00T03:32	08-Sep Fri 02:39 PM	Fri 02:58 PM	08-Sep Fri 07:39 AM	Fri 07:58 AM
INMS_028TI_T17HIRATE001_RADAR	INMS_1498	2006-250T17:08:51	-00T03:08	08-Sep Fri 02:42 PM	Fri 03:02 PM	08-Sep Fri 07:42 AM	Fri 08:02 AM
CIRS_028TI_FIRLMBINT002_PRIME	CIRS_4000	2006-250T17:52:51	-00T02:24	08-Sep Fri 02:47 PM	Fri 03:07 PM	08-Sep Fri 07:47 AM	Fri 08:07 AM
CIRS_028TI_FIRLMBINT002_SI	ISS_SUPPORT_IMAGIN	2006-250T17:52:51	-00T02:24	08-Sep Fri 02:47 PM	Fri 03:07 PM	08-Sep Fri 07:47 AM	Fri 08:07 AM
ISS_028TI_FIRLMBINT002_CIRS	ISS_Phot_1_by_1	2006-250T17:52:51	-00T02:24	08-Sep Fri 02:47 PM	Fri 03:07 PM	08-Sep Fri 07:47 AM	Fri 08:07 AM
UVIS_028TI_FIRLMBINT002_CIRS	UVIS_5032	2006-250T17:52:51	-00T02:24	08-Sep Fri 02:47 PM	Fri 03:07 PM	08-Sep Fri 07:47 AM	Fri 08:07 AM
VIMS_028TI_MAP002_CIRS	VIMS_18432	2006-250T17:52:51	-00T02:24	08-Sep Fri 02:47 PM	Fri 03:07 PM	08-Sep Fri 07:47 AM	Fri 08:07 AM
CAPS_028TI_T17INBND001_PRIME	CAPS_16000	2006-250T18:12:04	-00T02:04	08-Sep Fri 02:51 PM	Fri 03:11 PM	08-Sep Fri 07:51 AM	Fri 08:11 AM
MIMI_028TI_T17INBND001_CAPS	MIMI_8000	2006-250T18:16:51	-00T02:00	08-Sep Fri 02:52 PM	Fri 03:12 PM	08-Sep Fri 07:52 AM	Fri 08:12 AM
RPWS_028TI_TIINTRMED001_PRIME	RPWS_30464	2006-250T18:16:51	-00T02:00	08-Sep Fri 02:52 PM	Fri 03:12 PM	08-Sep Fri 07:52 AM	Fri 08:12 AM
CIRS_028TI_FIRLMBIER002_PRIME	CIRS_4000	2006-250T18:52:51	-00T01:24	08-Sep Fri 03:00 PM	Fri 03:22 PM	08-Sep Fri 08:00 AM	Fri 08:22 AM
CIRS_028TI_FIRLMBIER002_SI	ISS_SUPPORT_IMAGIN	2006-250T18:52:51	-00T01:24	08-Sep Fri 03:00 PM	Fri 03:22 PM	08-Sep Fri 08:00 AM	Fri 08:22 AM

028TI (T17) Playback Timeline

Created September 7, 2006

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 Estimate	Best Estimate	~Latest Estimate
ISS_028TI_FIRLMBAR002_CIRS	ISS_Phot_1_by_1	2006-250T18:52:51	-00T01:24	08-Sep Fri 03:00 PM	Fri 03:22 PM	08-Sep Fri 08:00 AM	Fri 08:22 AM
RADAR_028OT_WARM4RAS001_RIDER	RADAR_364800	2006-250T18:52:51	-00T01:24	08-Sep Fri 03:00 PM	Fri 03:22 PM	08-Sep Fri 08:00 AM	Fri 08:22 AM
UVIS_028TI_FIRLMBAR002_CIRS	UVIS_5032	2006-250T18:52:51	-00T01:24	08-Sep Fri 03:00 PM	Fri 03:22 PM	08-Sep Fri 08:00 AM	Fri 08:22 AM
RPWS_028CO_HIRATE001_CAPS	RPWS_30464	2006-250T19:00:00	-00T01:17	08-Sep Fri 03:02 PM	Fri 03:24 PM	08-Sep Fri 08:02 AM	Fri 08:24 AM
CAPS_028TI_T17CLOSE001_PRIME	CAPS_16000	2006-250T19:16:51	-00T01:00	08-Sep Fri 03:15 PM	Fri 03:38 PM	08-Sep Fri 08:15 AM	Fri 08:38 AM
INMS_028TI_T17RMPNT001_INMS	INMS_1498	2006-250T19:16:51	-00T01:00	08-Sep Fri 03:15 PM	Fri 03:38 PM	08-Sep Fri 08:15 AM	Fri 08:38 AM
MIMI_028TI_T17CLOSE001_CAPS	MIMI_8000	2006-250T19:16:51	-00T01:00	08-Sep Fri 03:15 PM	Fri 03:38 PM	08-Sep Fri 08:15 AM	Fri 08:38 AM
CIRS_028TI_FIRLMBT002_PRIME	CIRS_4000	2006-250T19:31:51	-00T00:45	08-Sep Fri 03:23 PM	Fri 03:47 PM	08-Sep Fri 08:23 AM	Fri 08:47 AM
CIRS_028TI_FIRLMBT002_SI	ISS_SUPPORT_IMAGIN	2006-250T19:31:51	-00T00:45	08-Sep Fri 03:23 PM	Fri 03:47 PM	08-Sep Fri 08:23 AM	Fri 08:47 AM
ISS_028TI_FIRLMBT002_CIRS	ISS_Phot_1_by_1	2006-250T19:31:51	-00T00:45	08-Sep Fri 03:23 PM	Fri 03:47 PM	08-Sep Fri 08:23 AM	Fri 08:47 AM
RPWS_028TI_TICA001_PRIME	RPWS_182784	2006-250T19:46:51	-00T00:30	08-Sep Fri 03:29 PM	Fri 03:53 PM	08-Sep Fri 08:29 AM	Fri 08:53 AM
ENGR_028SC_AACSUAL001_CDS	ENGR_1638	2006-250T20:01:48	-00T00:15	08-Sep Fri 03:42 PM	Fri 04:08 PM	08-Sep Fri 08:42 AM	Fri 09:08 AM
VIMS_028TI_STAROCC001_PRIME	VIMS_18432	2006-250T20:01:51	-00T00:15	08-Sep Fri 03:42 PM	Fri 04:08 PM	08-Sep Fri 08:42 AM	Fri 09:08 AM
RPWS_028TI_TICA005_PRIME	RPWS_182784	2006-250T20:06:51	-00T00:10	08-Sep Fri 03:46 PM	Fri 04:13 PM	08-Sep Fri 08:46 AM	Fri 09:13 AM
INMS_028TI_T17RMPNT002_PRIME	INMS_1498	2006-250T20:08:51	-00T00:08	08-Sep Fri 03:49 PM	Fri 04:15 PM	08-Sep Fri 08:49 AM	Fri 09:15 AM
RPWS_028TI_TICA002_PRIME	RPWS_182784	2006-250T20:13:51	-00T00:03	08-Sep Fri 03:54 PM	Fri 04:21 PM	08-Sep Fri 08:54 AM	Fri 09:21 AM
RADAR_028TI_T17RASAR001_INMS	RADAR_364800	2006-250T20:14:51	-00T00:02	08-Sep Fri 03:55 PM	Fri 04:22 PM	08-Sep Fri 08:55 AM	Fri 09:22 AM
RPWS_028TI_TICA003_PRIME	RPWS_182784	2006-250T20:18:51	00T00:01	08-Sep Fri 04:10 PM	Fri 04:38 PM	08-Sep Fri 09:10 AM	Fri 09:38 AM
RPWS_028TI_TICA004_PRIME	RPWS_182784	2006-250T20:31:51	00T00:14	08-Sep Fri 04:28 PM	Fri 04:56 PM	08-Sep Fri 09:28 AM	Fri 09:56 AM
INMS_028TI_T17RMPNT002_INMS	INMS_1498	2006-250T20:35:56	00T00:18	08-Sep Fri 04:31 PM	Fri 05:00 PM	08-Sep Fri 09:31 AM	Fri 10:00 AM
ISS_028SC_DFPWBIAS250_ENGR	ISS_Phot_1_by_1	2006-250T20:35:56	00T00:18	08-Sep Fri 04:31 PM	Fri 05:00 PM	08-Sep Fri 09:31 AM	Fri 10:00 AM
RPWS_028TI_TIINTRMED002_PRIME	RPWS_30464	2006-250T20:43:51	00T00:26	08-Sep Fri 04:38 PM	Fri 05:07 PM	08-Sep Fri 09:38 AM	Fri 10:07 AM
UVIS_028TI_HIGHRESNA001_ISS	UVIS_5032	2006-250T20:56:51	00T00:39	08-Sep Fri 04:43 PM	Fri 05:36 PM	08-Sep Fri 09:43 AM	Fri 10:36 AM
ISS_028TI_HIGHRESNA001_VIMS	ISS_Phot_1_by_1	2006-250T20:57:08	00T00:40	08-Sep Fri 04:43 PM	Fri 05:36 PM	08-Sep Fri 09:43 AM	Fri 10:36 AM
VIMS_028TI_HIGHRESNA001_PRIME	VIMS_18432	2006-250T20:57:08	00T00:40	08-Sep Fri 04:43 PM	Fri 05:36 PM	08-Sep Fri 09:43 AM	Fri 10:36 AM
CIRS_028TI_FIRNADCMP002_ISS	CIRS_4000	2006-250T20:58:56	00T00:41	08-Sep Fri 04:44 PM	Fri 05:38 PM	08-Sep Fri 09:44 AM	Fri 10:38 AM
CAPS_028TI_T17OUTBND001_PRIME	CAPS_16000	2006-250T21:16:51	00T00:59	08-Sep Fri 04:59 PM	Fri 05:55 PM	08-Sep Fri 09:59 AM	Fri 10:55 AM
INMS_028TI_T17HIRATE002_RADAR	INMS_1498	2006-250T21:16:51	00T00:59	08-Sep Fri 04:59 PM	Fri 05:55 PM	08-Sep Fri 09:59 AM	Fri 10:55 AM
MIMI_028TI_T17OUTBND001_CAPS	MIMI_8000	2006-250T21:16:51	00T00:59	08-Sep Fri 04:59 PM	Fri 05:55 PM	08-Sep Fri 09:59 AM	Fri 10:55 AM
VIMS_028TI_PHOTMAP001_ISS	VIMS_18432	2006-250T21:14:46	00T01:57	08-Sep Fri 06:01 PM	Fri 06:41 PM	08-Sep Fri 11:01 AM	Fri 11:41 AM
CAPS_028SA_SURVEY002_RIDER	CAPS_16000	2006-250T22:16:51	00T01:59	08-Sep Fri 06:03 PM	Fri 06:43 PM	08-Sep Fri 11:03 AM	Fri 11:43 AM
CIRS_028TI_FIRNADCMP008_ISS	CIRS_4000	2006-250T22:16:51	00T01:59	08-Sep Fri 06:03 PM	Fri 06:43 PM	08-Sep Fri 11:03 AM	Fri 11:43 AM
ISS_028TI_REGMAPNA001_PRIME	ISS_Phot_1_by_1	2006-250T22:16:51	00T01:59	08-Sep Fri 06:03 PM	Fri 06:43 PM	08-Sep Fri 11:03 AM	Fri 11:43 AM
MIMI_028CO_SURVEY002_RIDER	MIMI_8000	2006-250T22:16:51	00T01:59	08-Sep Fri 06:03 PM	Fri 06:43 PM	08-Sep Fri 11:03 AM	Fri 11:43 AM
UVIS_028TI_REGMAPNA001_ISS	UVIS_5032	2006-250T22:16:51	00T01:59	08-Sep Fri 06:03 PM	Fri 06:43 PM	08-Sep Fri 11:03 AM	Fri 11:43 AM
INMS_028TI_T17OUTBD001_RADAR	INMS_1498	2006-250T23:24:51	00T03:07	08-Sep Fri 06:38 PM	Fri 07:22 PM	08-Sep Fri 11:38 AM	Fri 12:22 PM
MAG_028OT_SURVEY004_PRIME	MAG_1976	2006-250T23:49:21	00T03:32	08-Sep Fri 06:50 PM	Fri 07:35 PM	08-Sep Fri 11:50 AM	Fri 12:35 PM
CIRS_028TI_FIRNADCMP010_ISS	CIRS_4000	2006-251T00:16:51	00T03:59	08-Sep Fri 07:04 PM	Fri 07:50 PM	08-Sep Fri 12:04 PM	Fri 12:50 PM
ISS_028TI_GLOBMAPNA001_PRIME	ISS_Phot_1_by_1	2006-251T00:16:51	00T03:59	08-Sep Fri 07:04 PM	Fri 07:50 PM	08-Sep Fri 12:04 PM	Fri 12:50 PM
UVIS_028TI_GLOBMAPNA001_ISS	UVIS_5032	2006-251T00:16:51	00T03:59	08-Sep Fri 07:04 PM	Fri 07:50 PM	08-Sep Fri 12:04 PM	Fri 12:50 PM

028TI (T17) Playback Timeline

Created September 7, 2006

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 Estimate	Best Estimate	~Latest Estimate
CIRS_028TI_FIRNADCMP009_ISS	CIRS_4000	2006-251T03:16:51	00T06:59	08-Sep Fri 07:42 PM	Fri 08:34 PM	08-Sep Fri 12:42 PM	Fri 01:34 PM
ISS_028TI_MONITORNA001_PRIME	ISS_Phot_1_by_1	2006-251T03:16:51	00T06:59	08-Sep Fri 07:42 PM	Fri 08:34 PM	08-Sep Fri 12:42 PM	Fri 01:34 PM
UVIS_028TI_MONITORNA001_ISS	UVIS_5032	2006-251T03:16:51	00T06:59	08-Sep Fri 07:42 PM	Fri 08:34 PM	08-Sep Fri 12:42 PM	Fri 01:34 PM
CIRS_028TI_FIRNADCMP007_VIMS	CIRS_4000	2006-251T06:16:51	00T09:59	08-Sep Fri 08:33 PM	Fri 09:31 PM	08-Sep Fri 01:33 PM	Fri 02:31 PM
ISS_028TI_PHOTOMETR002_VIMS	ISS_Phot_1_by_1	2006-251T06:16:51	00T09:59	08-Sep Fri 08:33 PM	Fri 09:31 PM	08-Sep Fri 01:33 PM	Fri 02:31 PM
VIMS_028TI_PHOTOMETR002_PRIME	VIMS_18432	2006-251T06:16:51	00T09:59	08-Sep Fri 08:33 PM	Fri 09:31 PM	08-Sep Fri 01:33 PM	Fri 02:31 PM
INMS_028SA_SURVEY002_RIDER	INMS_1498	2006-251T08:16:51	00T11:59	08-Sep Fri 08:47 PM	Fri 09:47 PM	08-Sep Fri 01:47 PM	Fri 02:47 PM
MIMI_028CO_SURVEY009_RIDER	MIMI_8000	2006-251T10:36:00	00T14:19	08-Sep Fri 05:09 PM	Fri 10:02 PM	08-Sep Fri 10:09 AM	Fri 03:02 PM
UVIS_028SW_IPHSURVEY002_RIDER	UVIS_5032	2006-251T10:36:00	00T14:19	08-Sep Fri 05:09 PM	Fri 10:02 PM	08-Sep Fri 10:09 AM	Fri 03:02 PM
CIRS_028IC_DSCAL3419_RIDER	CIRS_4000	2006-251T13:36:00	00T17:19	08-Sep Fri 05:19 PM	Fri 05:19 PM	08-Sep Fri 10:19 AM	Fri 10:19 AM
RPWS_028SA_INSURVEY001_PRIME	RPWS_30464	2006-251T14:35:00	00T18:18	08-Sep Fri 05:23 PM	Fri 05:25 PM	08-Sep Fri 10:23 AM	Fri 10:25 AM
MAG_028OT_SURVEY002_PRIME	MAG_1976	2006-251T21:00:00	01T00:43	08-Sep Fri 10:25 PM	Fri 10:28 PM	08-Sep Fri 03:25 PM	Fri 03:28 PM
MIMI_028CO_SURVEY006_RIDER	MIMI_8000	2006-251T21:00:01	01T00:43	08-Sep Fri 10:25 PM	Fri 10:28 PM	08-Sep Fri 03:25 PM	Fri 03:28 PM