

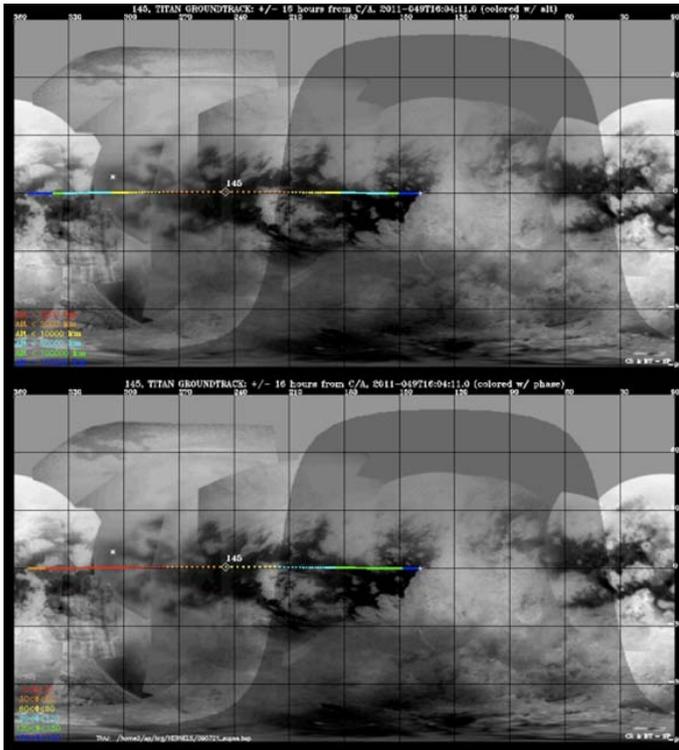
Cassini Solstice Mission Quick-Look Flyby Facts

Titan T74 Encounter (Orbit 145)

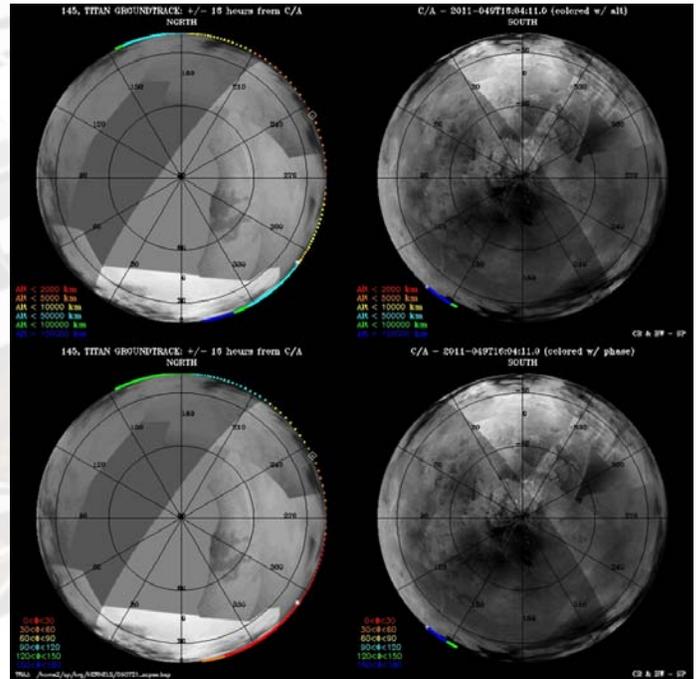


The T74 flyby occurs with local time coverage moving from the dayside to the dusk side.

Cassini Groundtrack: Global Plot



Cassini Groundtrack: Polar Plot



Quick Facts

Closest Approach at 2011-049T16:04:11
Feb. 18, 2011

Altitude: 3,651 km (~2,269 miles)

Speed: 5.8 km/sec (~13,000 mph)

Closest Approach latitude: 0.7° N

Flyby Setup Maneuver Schedule

Apoapsis maneuver on Sunday,
January 31 UTC 031T22:44:00

Titan approach maneuver on Monday,
February 15 UTC 046T11:46:00

- Closest Approach occurs ~ 2 days before Periapse
- Fourth Titan encounter in the Solstice Mission

Science Highlights

Closest Approach/Unique Observations

- **CAPS**: CAPS will observe Titan's plasma interaction over 24 hours as it goes from south to north of Saturn's solar-wind-warped magnetodisk from one solstice to the next. This flyby is near the dusk side of the planet, an area poorly sampled by CAPS during the prime and extended mission.

- **RSS**: This is a collaborative observation with CAPS as the prime. RSS has two related goals: measure the fluid and dynamic Love number of Titan and determine Titan's geoid. The determination of the fluid Love number is the only way to find out with confidence whether Titan has a liquid ocean. The determination of the geoid is crucial to understanding the internal structure of Titan through correlative analysis of the gravity and **RADAR** planetary radii data.

Titan T74 Encounter

Time Ordered Listing

<u>Event</u>	<u>Time (PDT-SCET)</u>	<u>Event</u>	<u>Time (PDT-SCET)</u>
Turn Cameras to Titan	Wed Feb 17 02:52 PM	Deadtime	Fri Feb 19 04:57 AM
Deadtime	Wed Feb 17 03:32 PM	Downlink	Fri Feb 19 05:52 AM
CIRS	Wed Feb 17 03:47 PM		
CAPS	Wed Feb 17 10:25 PM		
Closest Approach	Thu Feb 18 10:25 AM		
CIRS	Thu Feb 18 10:25 PM		

Science Highlights

Inbound/Outbound Wings

CIRS: CIRS is performing hemisphere temperature mapping in the stratosphere to monitor seasonal change, especially of the north polar winter vortex.

ISS: Determine seasonal changes in the methane-hydrocarbon hydrological cycle: of lakes, clouds, aerosols, and their seasonal transport; Determine seasonal changes in the high-latitude atmosphere, specifically the temperature structure and formation and breakup of the winter polar vortex; Determine the surface temperature distribution and cloud distribution; Determine surface and tropospheric winds

UVIS: UVIS will obtain an image cube of Titan's atmosphere at extreme ultraviolet (EUV) and far ultraviolet (FUV) wavelengths by sweeping its slit across the disk. These cubes provide spectral and spatial information on nitrogen emissions, hydrogen emission and absorption, absorption by simple hydrocarbons, and the scattering properties of haze aerosols. This is one of many such cubes gathered over the course of the mission to provide latitude and seasonal coverage of Titan's middle atmosphere and stratosphere.

MAG: T-74 is a post-dusk, upstream, high altitude (3,639-kilometer, or 2,261-mile) 'blind' flyby that will be useful to characterize the background field in which Titan sits.

RPWS: Measure thermal plasmas in Titan's ionosphere and surrounding environment; search for lightning in Titan's atmosphere; investigate the interaction of Titan with Saturn's magnetosphere.