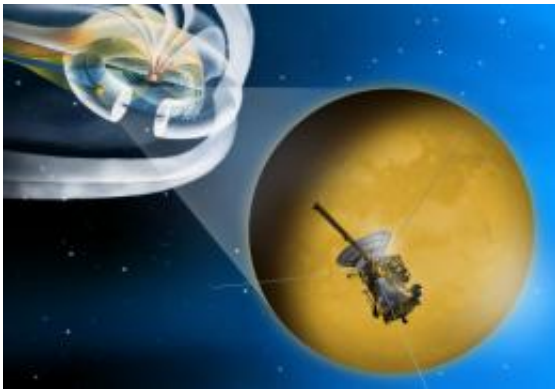


Cassini to sample magnetic environment around Titan

February 18 2011, By Jia-Rui C. Cook



Artist's concept of the Feb. 18, 2011, flyby of Saturn's moon Titan by NASA's Cassini spacecraft. Credit: NASA/JPL-Caltech

(PhysOrg.com) -- NASA's Cassini spacecraft is set to skim close to Saturn's moon Titan on Friday, Feb. 18, to learn about the interaction between Titan and Saturn's magnetosphere, the magnetic bubble around the planet.

The closest approach will take place at 8:04 a.m. PST (4:04 p.m. UTC) and bring Cassini within about 3,650 kilometers (2,270 miles) of Titan's surface.

As Titan makes a complete 360-degree orbit around Saturn, the relative influence of the sun's illumination and the hot ionized gas trapped in the [magnetic bubble](#) changes. These factors are important for understanding

the relationship between Titan and Saturn's magnetosphere. It is important to make measurements at a variety of locations in the Saturn magnetosphere, so this flyby will occur in a part of the magnetosphere that has been poorly sampled so far.

Previous flybys have shown the magnetic environment near Titan to be rather variable and unpredictable. For 12 hours before and after closest approach, the Cassini plasma spectrometer instrument will be pointing in a direction to capture ionized gas in the region.

At the same time, Cassini's radio science subsystem will be gathering sensitive gravity data from Titan to improve understanding of the structure of the interior. Collecting data like these will eventually enable scientists to determine whether Titan has an ocean under its crust.

Other instruments will also be collecting data, much of it pertaining to seasonal change. Titan is currently in northern spring, approaching northern summer, and scientists want to know what has changed with the north polar winter vortex [weather pattern](#). The composite infrared spectrometer, for instance, will be mapping temperatures in Titan's stratosphere. The imaging science subsystem will also be monitoring the lakes, clouds and transport of [aerosols](#) in the Titan atmosphere.

This latest flyby is dubbed "T74," though planning changes early in the orbital tour have made this the 75th targeted [flyby](#) of Titan.

The Cassini-Huygens mission is a cooperative project of NASA, the European Space Agency and the Italian Space Agency. NASA's Jet Propulsion Laboratory, Pasadena, Calif., a division of the California Institute of Technology in Pasadena, manages the mission for NASA's Science Mission Directorate, Washington, D.C. The Cassini orbiter was designed, developed and assembled at JPL.

Provided by JPL/NASA

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