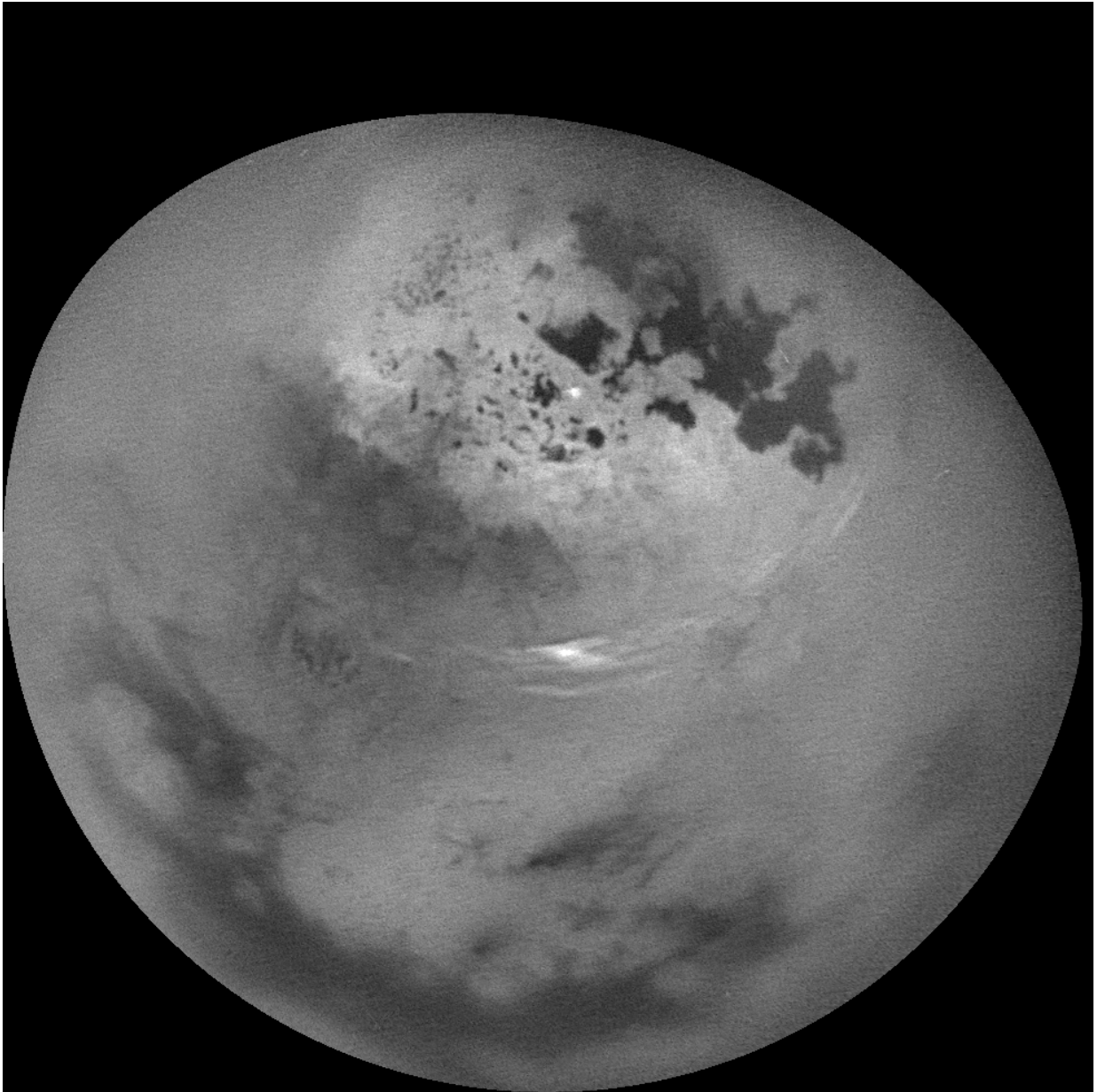


Watching summer clouds on Titan

November 7 2016



Credit: NASA

NASA's Cassini spacecraft watched clouds of methane moving across the far northern regions of Saturn's largest moon, Titan, on Oct. 29 and 30, 2016.

Several sets of [clouds](#) develop, move over the surface and fade during the course of this movie sequence, which spans 11 hours, with one frame taken every 20 minutes. Most prominent are long cloud streaks that lie between 49 and 55 degrees north latitude. While the general region of cloud activity is persistent over the course of the observation, individual streaks appear to develop then fade. These clouds are measured to move at a speed of about 14 to 22 miles per hour (7 to 10 meters) per second.

There are also some small clouds over the region of small lakes farther north, including a bright cloud between Neagh Lacus and Punga Mare, which fade over the course of the movie. This small grouping of clouds is moving at a speed of about 0.7 to 1.4 miles per hour (1 to 2 meters) per second.

Time-lapse movies like this allow scientists to observe the dynamics of clouds as they develop, move over the surface and fade. A time-lapse movie can also help to distinguish between noise in images (for example from cosmic rays hitting the detector) and faint clouds or fog.

In 2016, Cassini has intermittently observed clouds across the northern mid-latitudes of Titan, as well as within the north polar region—an area known to contain numerous methane/ethane lakes and seas see [PIA19657](#) and [PIA17655](#). However, most of this year's observations designed for cloud monitoring have been short snapshots taken days, or weeks, apart. This observation provides Cassini's best opportunity in 2016 to study short-term cloud dynamics.

Models of Titan's climate have predicted more [cloud activity](#) during early northern summer than what Cassini has observed so far, suggesting that the current understanding of the giant moon's changing seasons is incomplete.

The mission will continue monitoring Titan's weather around the 2017 summer solstice in Titan's northern hemisphere.

The movie was acquired using the Cassini narrow-angle camera using infrared filters to make the surface and tropospheric methane clouds visible.

Provided by NASA

Citation: Watching summer clouds on Titan (2016, November 7) retrieved 27 April 2024 from <https://phys.org/news/2016-11-summer-clouds-titan.html>

<p>This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.</p>
--