

Space Studies of the Upper Atmospheres of the Earth and Planets including Reference Atmospheres (C)
Planetary Atmospheres (C31)

SEASONAL CHANGES IN TITAN'S CLOUD ACTIVITY

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Changes in cloud distributions and morphologies have accompanied Titan's change in season from southern summer at the time of Cassini's arrival in July 2004 to just past the southern autumnal equinox. Early on, large convective cloud systems were common over Titan's South Pole [e.g., 1-2]. However, observations by Cassini's Imaging Science Subsystem and Earth-based observers have shown that such storms have been less common since 2005 [e.g., 3]. Elongated streaks of clouds, several hundred km long, have been observed consistently at mid-southern latitudes ($\sim 40^\circ$ S), and became common at high northern latitudes ($> 55^\circ$ N) starting in 2007. Convective behavior has also been documented within these clouds [4]. Only recently have clouds been detected at mid-northern latitudes ($\sim 40^\circ$ N). We will present observations of Titan's atmospheric behavior, documenting changes observed over the past six years and their implications for Titan's atmospheric circulation.

References: [1] Schaller et al. (2006) *Icarus* 182, 224-229. [2] Porco et al. (2005) *Nature* 434, 159-168. [3] Schaller et al. (2006) *Icarus* 184, 517-523. [4] Griffith et al. (2007) *Science* 310, 474-477.