



## **Recent Cassini radio science observations of the ionosphere of Saturn**

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The Cassini spacecraft performed a series of radio occultation observations of the near-equatorial ionosphere of Saturn during orbits 7 to 14 in 2005 ( Nagy A.F., et al., *J. Geophys. Res.*, *111*, 2006). They provided 12 vertical profiles of electron density at latitudes between 10°N to 10°S, and solar zenith angles ranging from 84 to 96 deg. . . The results presented an ionosphere with a highly variable topside, and peak region densities depleted on the dawn side as compared to the dusk side. This was most probably caused by the effects of varying rates of water influx from the rings.

Since then, radio occultation observations have been conducted on orbits 28(5°S, 56°S), 44 (75°N, 5°N), 46 (5°S ), 47 (51°S ), 51 ( 41°S, 39°S ), 54 (18°S, 68°S ), and 56 (18°S, 70°S ). These occultations provided data on the structure of the ionosphere at mid- and high latitudes, away from the influence of the rings. As expected, the vertical extent of the ionosphere at higher latitudes is much greater, reaching 10,000 km above the 1 bar level. However, at similar latitudes , solar illumination conditions, rather than dawn- and dusk situation appears to be dominant.