



Saturn's ionosphere: electron density altitude profiles and D ring interaction from the Cassini Grand Finale

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We present new results regarding the electron density altitude profiles of Saturn's ionosphere at equatorial latitudes ($-15^\circ \leq \varphi \leq 15^\circ$) from the 23 proximal passes of the Cassini's Grand Finale. The data are collected by the Langmuir probe part of the Radio and Plasma Wave Science investigation. A high degree of variability in the density profiles is observed, moreover organizing them by consecutive altitude ranges revealed clear differences between the northern and the southern hemispheres. The electron density profiles are more stable in the northern hemisphere than the southern one and a D ring electrodynamic interaction is evidenced in the southern ionosphere causing its large variability. Moreover, An altitude density profile model based on measurements indicates indicating the presence of at least three different ionospheric layers in the northern hemisphere, with different characteristics depending on the altitude range. Similar characteristics were observed during the Finale Plunge of Cassini with a presence of a main ionospheric peak around 1500 km.