



## **Field and plasma characteristics of Saturn's magnetotail current sheet and its characteristic motion**

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### **Abstract**

We use Cassini magnetometer and electron spectrometer data to characterize the magnetic field around Saturn's magnetotail current sheet, with particular focus on the deep tail orbits of the spacecraft out to  $\sim 68 R_S$  in 2006.

We compare the magnetic pressure in the central plasma sheet with that in the lobes, estimate plasma pressures in the plasma sheet and study the radial, local time and longitudinal profiles of magnetic field strength and pressure.

We observe the effects of current sheet hinging during southern hemisphere summer, and contrast with conditions around equinox. We discuss regular periodic current sheet crossings in detail, and comment on asymmetries observed in current sheet flapping velocity. The results of several case studies indicate that current sheet position can change dramatically in response to external (solar wind) changes and such current sheet "collapse" is studied in detail.

Lastly, we discuss our results in the context of Jupiter.