



Auroral footprints of tail reconnection at Jupiter and Saturn

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Tail reconnection at Jupiter's magnetosphere, has recently been shown to leave its signature in the aurora. The Hubble Space Telescope observed transient polar dawn spots on the Jovian aurora, with a characteristic recurrence period of 2-3 days. Because of their periodic occurrence cycle and observed location, it is suggested that the transient auroral features are related to the precipitated, heated plasma during reconnection processes taking place in the Jovian magnetotail. Particularly, it is proposed that the transient auroral spots are triggered by the planetward moving flow bursts released during the process. A comparison of their properties with those of the auroral spots strengthen the conclusion that they are signatures of tail reconnection.

Cassini recently revealed magnetotail reconnection events at Saturn similar to those observed at Jupiter. Based on the UVIS dataset we present transient features at Saturn's polar auroral region, which are possible signatures of tail reconnection. We study their size, power, duration and duty cycle and we suggest possible triggering mechanisms associated with magnetotail dynamics. We compare these auroral emissions with those at Jupiter and we discuss how energy is transferred to the ionosphere during tail reconnection.