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Observation of a planetward ion beam in the plasma sheet boundary layer at Saturn following tail reconnection

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Abstract

We present an interval of data from 2006 when the Cassini spacecraft was located 32 R_S (1 R_S = 60268 km) downtail, at a local time of 22:00 hrs and a latitude of 13.8°.
The interval in question displayed a range of dynamic behaviour, including a southward turning of the tail magnetic field, indicative of a dipolarization, and an energetic, fast, planetward beam of ions.
Preliminary interpretation of this event suggests that it represents a reconnection-driven ion beam in Saturn's magnetotail plasma sheet boundary layer. This event is explored using several of the Cassini instruments to build up a picture of the reconfiguration of the tail in terms of local and global effects.

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