



The induced magnetotail of Titan

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The absence of a significant intrinsic magnetic field at Titan and the presence of an atmosphere results in the formation of an induced magnetosphere and magnetotail similar to those around Mars, Venus and comets.

An analysis of Voyager and Cassini observations across Titan's induced magnetotail leads to the following preliminary conclusions:

- The induced magnetotail is characterized by well-defined lobes and polarity reversal layer where the magnetic field structure follows the draping pattern based on the background magnetic field and upstream flow velocity.
- The induced magnetotail is mainly dominated by local plasma. However, it is permeated by external plasma (at least electrons).
- Local plasma densities above 5 cc are also organized according to upstream conditions but it is still uncertain if an asymmetry related to the upstream convective electric field is present.
- Mechanisms accelerating Titan's plasma downtail seem to be those found to be operating at planets Mars and Venus.
- Titan's magnetotail dynamics is strongly controlled by the moon's variable environment, with likely reconfigurations of its structure (comet-like tail disruption events) involving fossil and more recent fields.