



In situ observations of the effect of a solar wind compression on Saturn's magnetotail

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We explore the dynamic response of Saturn's magnetotail to an episode of solar wind compression that took place while Cassini was sampling Saturn's nightside equatorial magnetosphere in 2006. Following an initial increase in solar wind dynamic pressure the magnetosphere was compressed, but over several subsequent days the flaring of the tail increased as open flux built up in the tail lobes. After several days of flux accumulation the magnetotail collapsed and the current sheet was displaced southward from its previously hinged position. Magnetic reconnection took place on the nightside and Cassini observed a passing plasmoid. Concurrently, Saturn's kilometric radio emissions were enhanced and the spectrum displayed a continuous extension to lower frequency, corresponding to radio sources detected at higher altitudes. We suggest that all of the above features are a natural and typical consequence of the impact of a solar wind compression on Saturn's magnetosphere.