

SATURN ROTATION MODULATED ENA AND SKR EMISSIONS: IMPLICATIONS FOR MAGNETIC FIELD ASYMMETRY

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Abstract

Energetic neutral atom (ENA) emission from Saturn's magnetosphere often shows a persistent modulation roughly at Saturn's spin period. This seems to result from (sometimes repeated) ion injections in the 8–12 R_S radial distance range, into a dense water-product cloud in the vicinity of the E-ring [Esposito et al., *Science* 307, 1251–1255, February 2005]. We present a case for which the ENA periodicity is closely correlated with SKR emission, suggesting a relationship between the two mechanisms, probably through the auroral processes at Saturn. The event presented lasts for nearly seven days, suggesting re-injection at a preferred planetographic longitude, which may have implications regarding the symmetry of Saturn's magnetic field.

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