



The link between the magnetic field periodicities at Saturn and its pulsing radio emission

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The likely basis of the link between the pulsing radio signals from Saturn (Saturn kilometric radiation, SKR) and the rotating magnetic field structure is described. Large scale magnetic deviations in the azimuthal direction have been detected in the southern hemisphere in the late morning sector during the high inclination orbits of the Cassini spacecraft in late 2006. These correspond to upward field aligned currents. It is shown the intensity of the currents is modulated by the rotating cam magnetic field, the periodic field structure seen deeper inside the magnetosphere. It is thus proposed that this is the link between the pulsing radio signal (a by-product of the field-aligned currents) and the rotating periodic magnetic signal. In other words the modulation of the radio signal is caused by the interaction in the southern hemisphere between a region of magnetic field swept back by the solar wind and the passage through the morning sector of the swept forward sector of the cam field.