



On the rotational modulation of Saturn's magnetosphere

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Most of magnetospheric phenomena in Saturn's environment appear as deeply modulated by the planetary spin, while Saturn's internal magnetic field was measured as purely axisymmetric. Consistent surveys of this behavior is provided by two instruments aboard Cassini spacecraft, in orbit around Saturn since 2004 : the magnetometer (MAG), which provides accurate in situ measurement of the magnetic field along each orbital closest approach, and the radio instrument (RPWS) which provides indirect but continuous coverage of SKR radio emission. In this work, we analyse all data obtained so far and give an update of the observed dual periodicities and their secular variations, in particular after the time of Saturn equinox. Then, by using the fiducial reference frames deduced from those apparent rotations and associated with northern and southern hemisphere of the planet respectively, we display the resulting shape of the actually measured magnetic field. Finally, some arguments in favor or against the possibility of real variations of Saturn's internal magnetic field are discussed.