

Rotating magnetospheres: transport compared at Jupiter and Saturn

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The magnetospheres of Jupiter and Saturn are dominated by the effects of rotation and the associated outward stress exerted by heavy ions picked up near the inner moons. Fields and particle measurements in both systems show dramatic signatures of rotational periodicity. At Jupiter, the periodicity results principally from the effects of dipole tilt and the related displacements of the equatorial plasma sheet. At Saturn there is little dipole tilt yet field and plasma properties vary periodically. Efforts to understand how Saturn's rotational motion can be converted into what appears to be radial motion (a conversion from rotation to rocking or reciprocating motion that is imposed in mechanical systems by a *camshaft*) have recently focused on convective patterns with preferred sectors for transport (see Southwood et al, this session). It is possible that similar effects are present at Jupiter and can account for plasma properties that have been described in terms of what has been referred to as the magnetic anomaly model (Hill, Goertz and Dessler, 1983). This talk will use magnetometer data for the two systems to identify the possibly subtle signatures of the camshaft effect at Jupiter.