

Equatorial magnetic field oscillations observed over the Cassini mission

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We present a complete analysis of the equatorial structure of the planetary period oscillation magnetic field, as measured by Cassini over the complete mission. In contrast to previous related work, we now fully account for the action of the two independent modulations associated with the auroral current systems in the northern (N) and southern (S) hemispheres. Up-to-date phase models are employed to organise the data, accounting for slow drifts in oscillation periods. While limited somewhat by the seasonal and spatial coverage afforded by Cassini's trajectory about Saturn, we nevertheless obtain 'maps' of the equatorial oscillations for both N and S systems independently. In addition, using predetermined values for the seasonally shifting amplitude ratio between the N and S systems, we produce a similar map of the equatorial magnetic field using all available data, making the assumption that the spatial structure of the oscillating field is common to both N and S systems. Field-aligned current densities are then computed and compared to previous work.