

Analysis of magnetic field fluctuation in the Jovian middle/outer magnetosphere using the Galileo/MAG data

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Bursty auroral (X-ray, UV), radio, and energetic particle phenomena with quasi-periodicity (a few to tens of minutes) have been detected in the Jovian polar region by previous observations (e.g., MacDowall et al., 1993). These phenomena suggest the quasi-periodic particle acceleration process in the Jovian polar region, of which source field lines are considered to be connecting to either middle/outer or external region of the Jovian magnetosphere. On the other hand, Alfvénic fluctuations of magnetic field in the Jovian middle magnetosphere with characteristic periodicities (a few to tens of minutes) have been reported, and it was suggested that these fluctuations are associated with the periodic aurora, radio, and energetic particle bursts in the polar region (e.g., Wilson and Dougherty, 2000). We have been detecting the magnetic fluctuations using the Galileo/MAG data and examining their behavior by detailed analysis, e.g., spectral analysis.