

The FLR Excitation Theory and its Comparison with duskside Pc5 Pulsation Event on January 11, 1997

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We study an excitation mechanism of the field line resonances (FLR) by the solar wind pressure changes that induces magnetic field component disturbance b_z (parallel to the Earth's magnetic field) at the magnetopause. The latitudinal FLR magnetic field amplitude and phase distributions are to be well related to this magnetic component b_z . The theoretically predicted FLR characteristics with the use of measured solar wind and IMF parameters are compared with the amplitude and phase properties of Pc 5 pulsations observed on 11 January 1997 both on board the Interball and Polar satellites in the dusk magnetosphere and on the ground. The comparison with the satellite observations demonstrates that the localization and polarization feature of the Pc 5 pulsation seems to be explainable by the FLR theory. However, comparison with ground based data reveals differences that are not compatible with this theory. Other mechanisms (e.g., cavity and surface wave modes, etc.) are invoked in order to understand the diversity of the ground based data