

Response of the inner magnetosphere to the localized impulse associated with the current disruption: Propagation of Pi2 pulsation

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Transient behavior of the coupled MHD oscillation generated by an impulsive magnetospheric current is considered. The current flows eastward and localized in space. The model employed consists of the magnetosphere with a dipole magnetic field and plasmasphere as well as the ionosphere with the Pedersen conductivity. Numerical calculation reveals that the field-line resonance is first established near the latitude of the plasmopause. The field-line resonance oscillation exhibits the fundamental mode structure along a field line in the plasmasphere. Besides, outside of the plasmasphere, there are waves bouncing between ionospheres. The plasmaspheric virtual resonance oscillation becomes obscure when the azimuthal wave number becomes larger than 3.

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