A Numerical Calculation of the Coupled ULF Oscillations in the Magnetosphere-Ionosphere System

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We calculated the coupled ULF oscillation in the Magnetosphere-Ionosphere system by the Finite Element Method. Assuming that the ground magnetic perturbation associated with the pulsation is produced by the standing Alfven oscillation, and that the ratio of Hall/Pedersen is smaller than unit, the Hall conductivity in the ionospheric boundarycondition is neglected. However, the Hall current is necessary to the ground magnetic perturbation. Thus the amplitude of this current is calculated from the ionospheric electric field and the Hall conductivity.