

ELECTRONICAL RADIATION BELTS DYNAMIC DETERMINE BY THE HYDROMAGNETIC WAVE

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Some features of the collective processes of interaction of energetic electrons with the whistler waves in the radiation belts are examined. For the analysis of comparatively slow processes, for example, determine by modulation of cyclotron instability by the hydromagnetic wave (geomagnetic pulsations Pc 3-4 or acoustic gravity waves) it is natural to use the improved time-spatial model of the process both along and across the magnetic field tube. The regime of this multi-scale interaction depends on the power of the natural sources of energetic particles, conditions of the waves propagation and Q factor of the magnetospheric resonator. Respectively within the framework of the improved theoretical models according to the satellite and ground-based data it is possible to diagnose local and global physical conditions in the magnetosphere.

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