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Ps 6 events in the Earth magnetosphere tail: simultaneous satellite and Earth based observations

Agapitov A.V.

Taras Shevchenko Kyiv National University, Kyiv, Ukraine (agapit@univ.kiev.ua / tel. +380442664457)

Ps 6 events in the Earth magnetosphere tail display themselves as localized in time wave pockets, with filling frequency in range of 5 - 20 minutes. Their generation is often considered to be part of recovery phase of substorm. Our study of Ps 6 event evolution dynamic demonstrates that Ps 6 follow the expansive phase and causally linked to it. So, observations of the Ps 6 event in the morning or evening sectors coincided with onset in the midnight sector.

Wavelet-spectra of magnetometric and plasma Interball-1 satellite measurements (1995-2000) demonstrates presence of magnetosonic component: oscillations of plasma pressure and magnetic field pressure are in phase opposition. Wave frequency is less then frequency of ULF wave events in the inner magnetosphere («field line resonance»).

These wave events also may be found in the Earth based magnetometer systems measurements. CANOPUS and INTERMAGNET magnetometers systems data was used. Due to multipoint observations it is possible to obtain spatial and temporary Ps 6 event structure and its dynamic parameters.

Transversal to magnetic field size of wave pocket is about 3-5 $R_E$near the magnetic equator plane. Ps 6 event is the active tube along to Earth magnetic field line. It moves earthward, transverse to magnetic field with speed about 2-6 km/s. On the Earth it moves along the magnetic parallel line. Moving velocity decreases during earthward travel.

An analysis of the onset and Ps 6 registration delay demonstrates that there is the direct association between Ps 6 initiation and onset. Theoretical model of the process

is discussed.

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