



Plasmaspheric plasma density changes shown by hydromagnetic waves

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Plasma in the plasmasphere plays an important role from point of view of the precipitation of high energy particles trapped in the radiation belts. The loss of these energetic particles is due to charge exchange. In this process pitch angle diffusion increasing with decreasing altitude, charge exchange between protons and neutral hydrogen atoms, or neutral oxygen atoms are participating. Plasma density in the plasmasphere can also be determined by hydromagnetic waves. Hydromagnetic waves in question are geomagnetic pulsations of field line resonance (FLR) type, which are generated by „up stream” waves originating in interaction between the solar wind and particles reflected from the bow shock. The period of FLR type pulsations depends on the length of the local geomagnetic field line and plasma density. Occurrence frequency spectrum of these pulsations – in our case referring to mid-latitude - enable establishment of the period changes and that of the plasma density in the plasmasphere by ground based observations. Thus, their role in processes occurring in the inner zone is discussed.