



Transverse ion heating rates in Alfvénic region on $\sim 18\,000$ km altitude

Dmitry Chugunin (1,2), Mikhail Mogilevsky (1), Alexander Chernyshov (1,2)

(1) Space Research Institute of RAS, Space Plasma Dep., Moscow, Russian Federation (dimokch@iki.rssi.ru), (2) West Department of Pushkov IZMIRAN RAS, Kaliningrad, Russia

Transverse acceleration of hydrogen and oxygen ions on the polar boundary of the auroral region during geomagnetic disturbances is investigated. In present work data of electrons and ions with energies from 1 eV till 20 KeV measured on Interball-2 (Auroral probe) satellite on ~ 18000 km altitude have been used. Auroral probe orbit was chosen to stay in auroral region for an hour. In the apogee satellite crossed magnetic field lines with low velocity and this allowed to observe the development of physical processes over time. Using this feature of the orbit, the authors investigated the heating rate of ions in Alfvénic region, when auroral oval moved northward. Measurements of UVI instrument installed on Polar satellite were used to calculate polar boundary velocity across magnetic field. It was found that in this region intense transverse ion heating occurs with the rate up to 100 eV/s and more for H⁺ ions and it is much more intense than ion cyclotron acceleration. Also it was found that intense heating occur in the boundary, which fast shift to the pole.

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