

Electrons acceleration along magnetic field line recorded at high magnetic latitudes by the NUADU instrument during magnetic storm on January 17, 2005

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The NUADU (NeUtral Atom Detector Unit) instrument aboard TC-2, recorded 40° solid angle images of particles of different energies spiraling around the geomagnetic field lines at high northern latitudes. The ambient magnetic field was measured by the magnetometer experiment (FGM). The spiraling particles concentrate toward the geomagnetic field lines and form ring like structures around the field line on both upper and down fluxes. The evolution of the flux pattern in temporal association with changes in the ambient magnetic field suggests a multi magnetic bottle model along the geomagnetic field line. The movement of mirror points of the multi magnetic bottle with the magnetic pulse propagation may be associated with electron acceleration along the Earth's magnetic field lines.