

Observation of electron density profile in polar cusp region by using the Impedance probe

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Akebono satellite observation in the polar cusp region reveals significant outflow of ions from the polar ionosphere. The mechanism of this outflow becomes an important problem from the stand point of evolution of planetary atmosphere gases. Electron density profile was obtained by using the Impedance probe (NEI) onboard SS-520-2 on Dec. 4, 2000, at Svalbard rocket range, Norway. Flight operation of the rocket was successful and density profile was obtained throughout the range from the antenna extension at 197 km altitude to the telemetry lock off. The peak electron density was recorded about 1.4×10^5 (1/cc) at 370 km in the ascent and 1.3×10^5 (1/cc) was obtained at 390 km in the descent passage of the rocket. Most of the measured density was located within a range of 10^4 (1/cc) order.