

Abstract Submitted
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DyFK simulation of high plasma densities observed by Akebono during the June, 1989 geomagnetic storm WEN ZENG, The Department of Physics, the University of Texas at Arlington, N. KITAMURA, Geophysical Institute, Tohoku University, Japan, RAMON LOPEZ, The Department of Physics, the University of Texas at Arlington, USA, Y. NISHIMURA, Geophysical Institute, Tohoku University, Japan, A. SHINBORI, Solar-Terrestrial Environment Laboratory, Nagoya University, Japan, A. KUMAMOTO, Planetary Plasma and Atmospheric Research Center, Tohoku University, Japan, T. ONO, Geophysical Institute, Tohoku University, Japan — During the magnetic storm from 6 June to 10 June 1989, the plasma wave and sounder (PWS) experiments onboard Akebono spacecraft observed electron densities of 200-800 per c.c. around 10,000 km altitude, which are at least one order of magnitude higher than the electron densities during the geomagnetic quiet time. Using the UT Arlington Dynamic Fluid-Kinetic (DyFK) model, we simulated the energization and transport of O^+ and H^+ ions in the high-latitude region under geomagnetic storm conditions. The simulation results show that under strong soft electron precipitation and perpendicular wave heating, the ion densities and fluxes over the polar cap region are highly enhanced, which are in general consistent with the Akebono PWS observations.

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