Geophysical Research Abstracts,
Vol. 10, EGU2008-A-02990, 2008
SRef-ID: 1607-7962/gra/EGU2008-A-02990
EGU General Assembly 2008

The Response of Auroral Electrojet to the Orientation of By during 2004 November 19 Storm

A.M. Du, Wen-yao Xu

Institute of Geology and Geophysics, Chinese Academy of Sciences, Beijing, China

amdu@mail.iggcas.ac.cn

In this work, the global distributions of geomagnetic field disturbances for the main phase of 9 November 2004 storm were calculated based on six meridian chains of magnetometer data. The ionospheric currents were calculated using KRM (Kamide-Richmond-Matsushita) method. We find that the auroral electrojet (AEJ) could be classified as two steps for IMF By$>$0 or By$<$0. When By changes from positive to negative, the dayside AEJ reversed at the region with 60$^{\circ}\sim$70°N, the center of westward AEJ moved from 18 MLT to 22 MLT. In addition, the variation of By induced the asymmetric of field aligned current (FAC). For By$>$0 the FAC in dusk were stronger than FAC in dawn, while for By$<$0 the FAC in dawn were stronger than FAC in dusk. Here, we introduced a model of substorm current wedge to explain the phenomenon.

Acknowledgement: This work is supported by NSFC(40774086, 40536029) and MOST 973 Plan (2006CB806305).