Geophysical Research Abstracts, Vol. 9, 02186, 2007
SRef-ID: 1607-7962/gra/EGU2007-A-02186

Effects of the neutral atmosphere on the Earth's magnetic field after a storm.

E.E. Woodfield (1), **A. Aruliah** (2), R. Holme (1) and G. Millward (2,3)

1) Dept. Earth and Ocean Sciences, University of Liverpool, UK, (2) Atmospheric Physics Laboratory, University College London, UK, (3) Laboratory for Atmospheric and Space Physics, University of Colorado, Boulder, USA

The neutral wind dynamo driven currents in the E-region of the ionosphere are one of many sources contributing to the Earth's overall magnetic field. Characterisation of the various sources is a vital step in understanding the Earth's whole magnetic environment from the core to the magnetosphere. We have used the Coupled Thermosphere Ionosphere Plasmasphere model (CTIP) to assess the impact of neutral particle inertia after a geomagnetic storm on the magnetic field. We have conducted one model run which starts with a period of 12 hours of intense geomagnetic activity and one completely quiet run as a control experiment. The resulting three dimensional current structure has been converted to a magnetic field at the Earth's surface using a Biot-Savart integration. Our results indicate a small (a few nanoTesla), but long-lived (of the order of a few days) elevation in the radial magnetic field originating from the neutral wind dynamo currents.