



The high latitude thermospheric response to the Oct/Nov 2003 geomagnetic storms

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In late October and early November of 2003 one of the largest series of geomagnetic disturbances ever recorded produced dramatic auroral displays which were visible at Central European latitudes. These storms were associated with several X class solar flares produced by sunspot 486. The majority of the energy introduced to the terrestrial atmosphere during these events was deposited in the thermosphere at high latitudes. The resultant effect on the energetics and dynamics of the high latitude upper thermosphere is demonstrated with neutral wind and temperatures results from a Fabry-Perot Interferometer (FPI) at the KEOPS site, Esrange near Kiruna, Northern Sweden (67.8 N, 20.4 E). Data from the FPI for the weeks immediately before and after the extended storm period are used to add context to the dramatic changes in the state of the thermosphere and the resultant dissipation of the energy. Model results from the CTIP coupled GCM are used to demonstrate the difficulty in reproducing this thermospheric response with the current representation of the thermosphere within GCMs.