

## Global DP2 current and ionospheric response at mid- and low-latitudes during magnetic storm main phase

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Using data from the global magnetometer networks, developments of the DP2 current system and convection electric field at mid-latitude have been examined for the main phase of the geomagnetic storm on May 5, 2005. We found that the magnetic D-component decreased and increased at mid-latitudes in the morning sector of 06-09 MLT and in the afternoon sector of 14-18 MLT, respectively. On the other hand, there was no fluctuation in the D-component at 13 MLT. These magnetic disturbances are explained with the ionospheric currents at mid-latitude that connected DP2 currents in the polar region with the eastward equatorial electrojet at the dip-equator. During the main phase, Ionosonde at Chiang Mai observed an increase in the virtual height of the ionosphere at 8 MHz. Furthermore, TEC increased at mid- and low-latitudes (26-45 degrees magnetic latitudes) by 10-15 TEC units from a quiet time level. These observational results strongly suggest that the convection electric field penetrates from the polar ionosphere to mid- and low- latitudes during the main phase of the geomagnetic storm.