



Surface electric field variations induced by intense geomagnetic storms of the solar cycle 23, a case study for the European geomagnetic observatory network

Crisan Demetrescu, Venera Dobrica, Cristiana Stefan, and Razvan Greculeasa
Institute of Geodynamics, Romanian Academy, Bucharest, Romania (crisan@geodin.ro)

We present a study of the surface electric field induced by 17 intense ($Dst < -150$ nT) geomagnetic storms, based on the analysis of the geomagnetic records from the European network of observatories. A comparative view of the results shows the following: (1) the more pronounced geoelectric component is directed East-West; (2) the amplitude difference is of the order of tens of mV/km in case of SUA – an observatory at 45° N, and of thousands of mV/km in case of NUR – an observatory at 60° N; (3) the sudden storm commencements are more pronounced at SUA latitude than at the NUR latitude and produce a significant variation of the electric field at SUA when compared with later storm variations. The amplitude differences reverse in case of NUR, where the effects of auroral currents dominate.