



Possible dominance of auroral ionospheric currents in some extreme mid-latitude magnetic storms: Preliminary results of searching through selected historical geomagnetic observations

Fridrich Valach (1), Pavel Hejda (2), Josef Bochníček (2), and Miloš Revallo (3)

(1) Earth Science Institute SAS, Geomagnetic Observatory, Hurbanovo, Slovakia (fridrich@geomag.sk), (2) Institute of Geophysics, Academy of Sciences of the Czech Republic, Prague, Czech Republic, (3) Earth Science Institute, Slovak Academy of Sciences, Bratislava, Slovakia

Recently, several geomagnetic storms were identified which probably do not conform with the conventional understanding of the dominant role of the ring current for the development of extreme magnetic disturbances. Some events of the most severe disturbances that were observed at mid-latitudes rather seem to be connected with the auroral currents that accompany substorms. Carrington's event, which occurred in September 1859, is considered a typical representative of this category of events by some researchers. A research has launched, in which events with features that are like to those of this famous event are sought. Our study is aimed to contribute to this search for the 'Carrington-like' events. A record of the remarkable event of March 1918 is studied here. Our study is supplemented by records of some compelling magnetic disturbances that were observed in the 19th century. As this research is in its early stage, future work is also outlined.