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Geoeffective space weather events signatures in cosmic rays during the ascending phase of the solar cycle 24

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CBK PAN
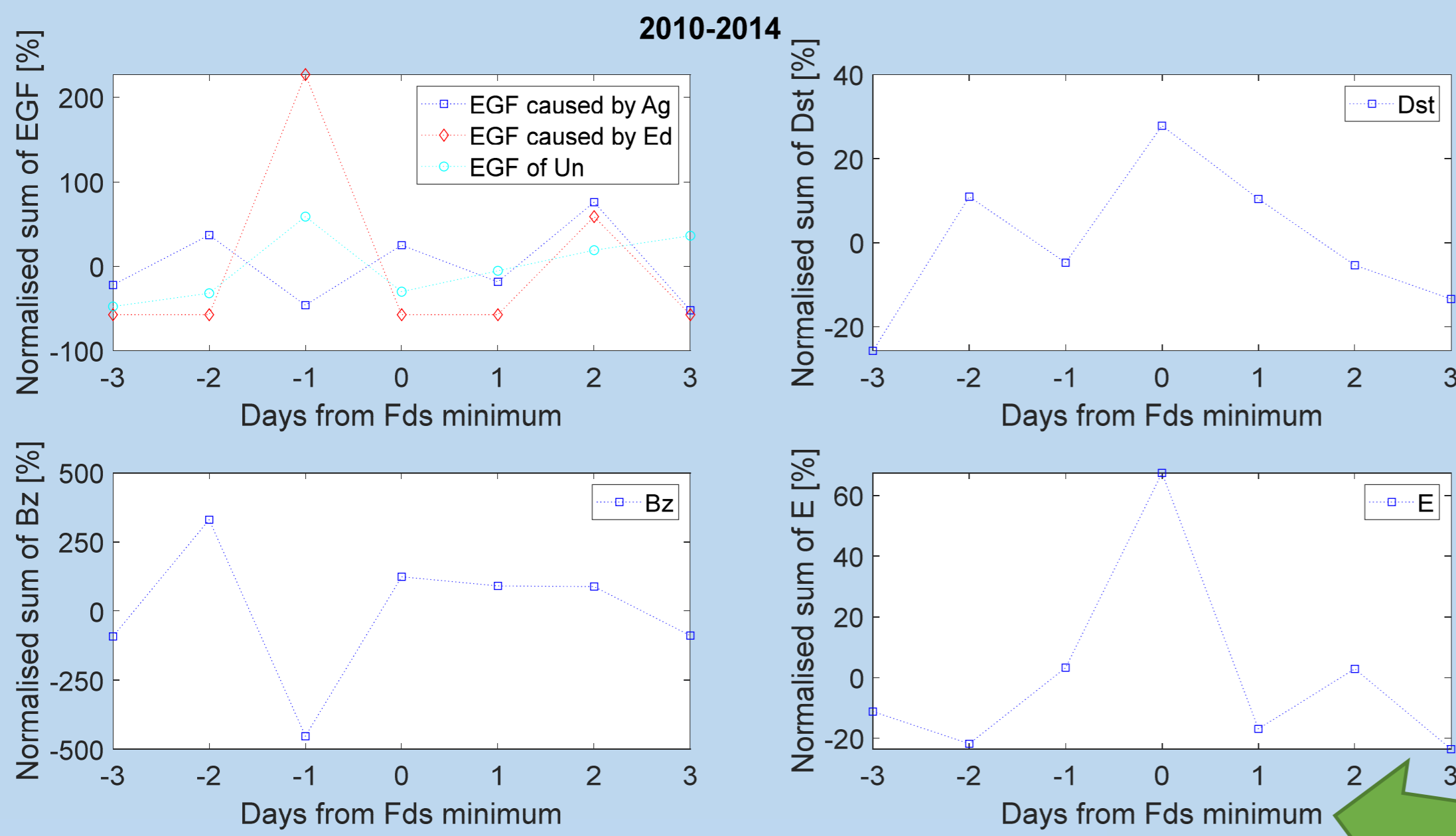
Linear regression of the annual percentage rate of EGFs from three groups which might be of solar origin in 01.2010–07.2014 (circles, left axis) and yearly changes of SSN (squares, right axis).
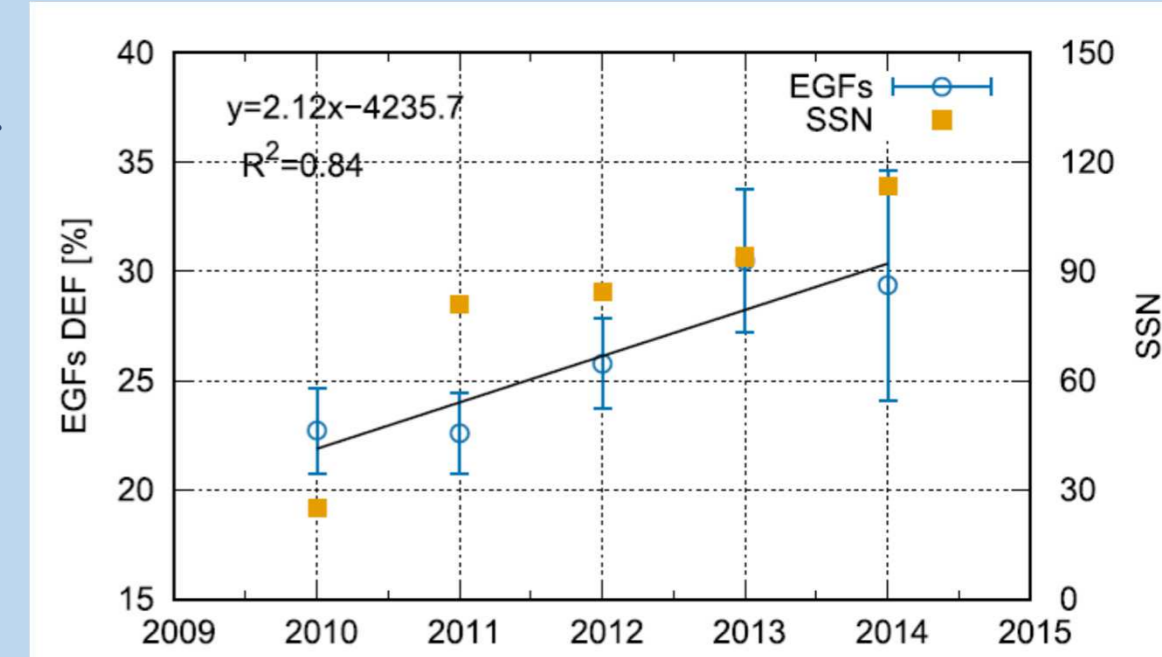
The superposed averaged values of (a) electrical grids failures number (caused by the aging, electronic devices breakdowns and having unknown reasons), (b) Dst-index changes, (c) Bz component of the HMF and (d) geoelectric field E, with a key time connected to the minimum time of Forbush decreases. The value of 0 on the Y axis denotes normalized average value around Fds
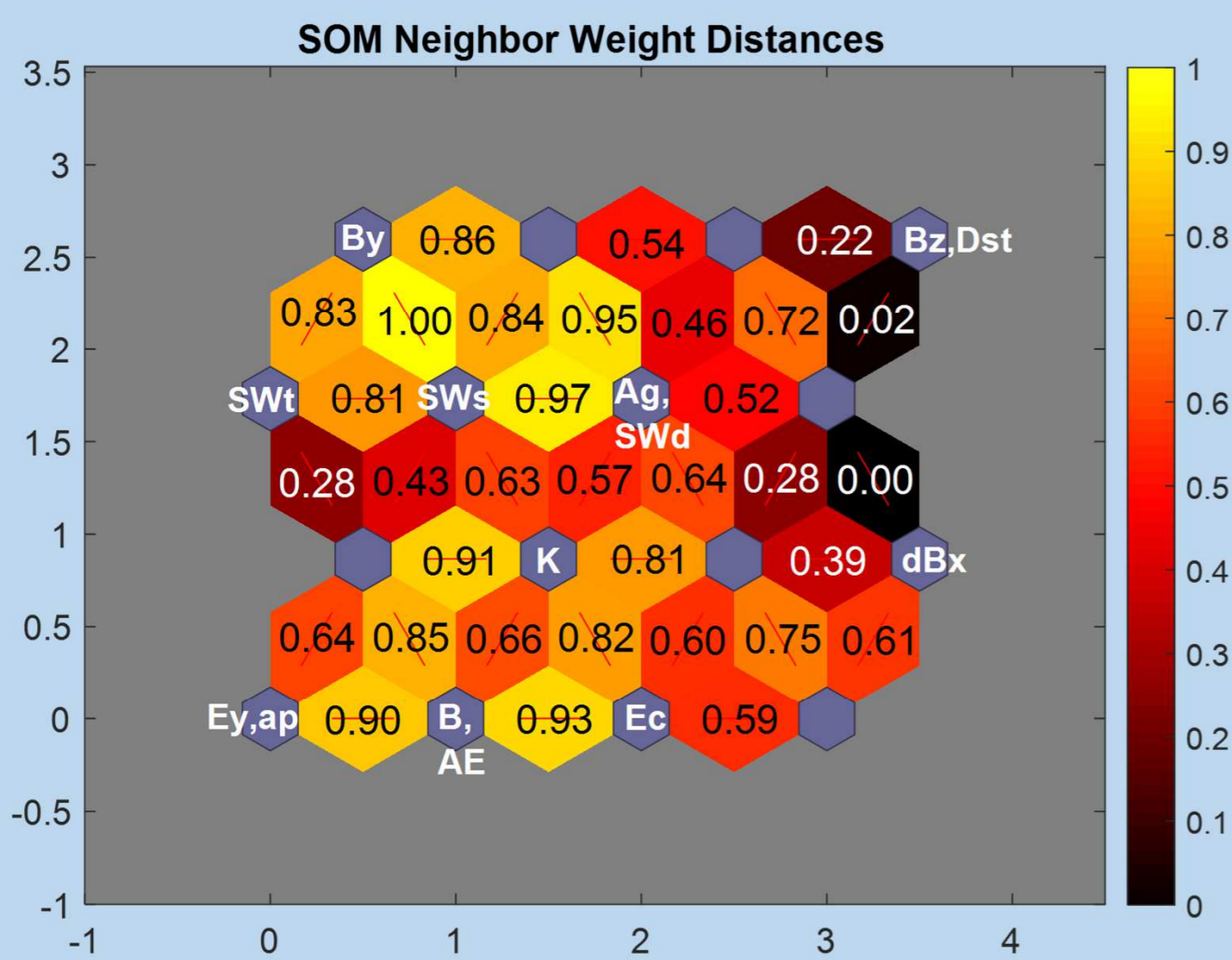
SOM neighbor weight distances with weight values of connections between neighboring neurons for data without delay for the intense geomagnetic storm, 15.07.2012. The blue hexagons represent neurons, and the red lines show which particular neurons are connected. Colors from black to yellow display the weight values of the connection between neighboring neurons (above- with failures connected with the aging, below-failures having unknown reasons)
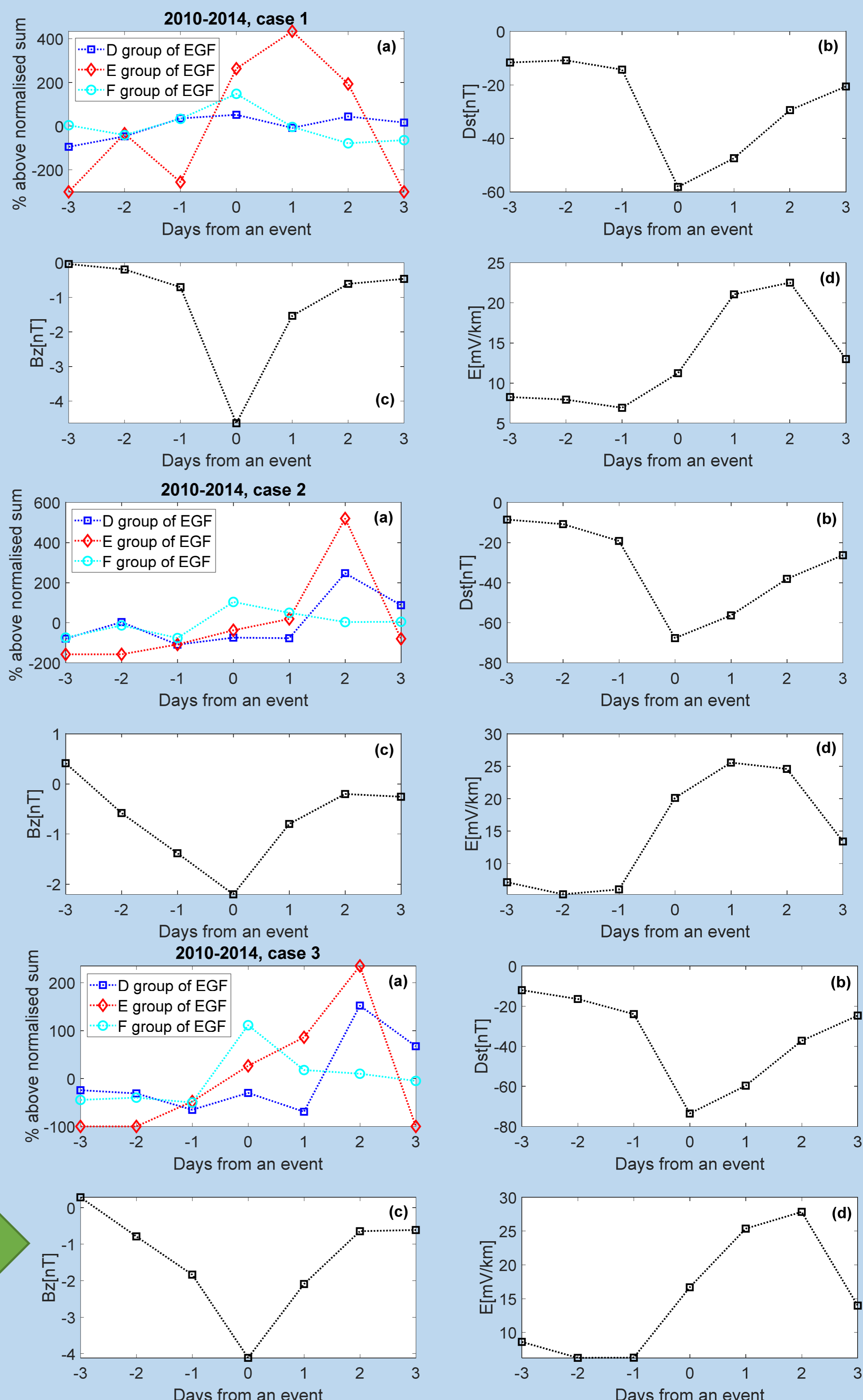
% above normalised sum of daily electrical grid failures (a), averaged over the number of events (b) Dst-index[nT], (c) Bz[nT] component of HMF and (d) computed geoelectric field E[mV/km], for years 2010-2014:

during the geomagnetic storms with: Bz < -10 nT (case 1), Dst < -100 nT (case 2), Dst < -100 nT and Bz < -10 nT (case 3)

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