

Supplementary Information for
"Goelectric Fields and Geomagnetically Induced Currents
During the April 23 – 24, 2023 Geomagnetic Storm"

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Supplementary information of the paper state two animations (Video S1 and Video S2) prepared to reveal spatio-temporal variability of goelectric field E of the north European region during the selected 23-24 April, 2023 geomagnetic storm. First animation is dedicated to the Event I (time interval: from 19:38 to 19:48 UT), the second animation corresponds to Event II (time interval from 3:52 to 4:02 UT). Animations contains figures fully prepared by authors by using own tool - GeoElectric Dynamic Mapping (GEDMap) code.

Supplementary Video S1: The animation showing the spatio-temporal evolution of the magnitude of the modeled goelectric field E ($E = \sqrt{E_X^2 + E_Y^2}$) (left panel) and its orientation (right panel) of few minutes around Event I of April 23, from 19:38 to 19:48 UT. Black dots on prepared maps indicate geographic location of the IMAGE magnetometer stations (see Table 1 in the paper) used for analysis. For comparison, the Mäntsälä station location has been also denoted and highlighted by a red dot. Bottom panel of animation presents time variation of GICs values measured in Mäntsälä for the same period.

Supplementary Video S2: The animation showing the spatio-temporal evolution of the magnitude of the modeled goelectric field E ($E = \sqrt{E_X^2 + E_Y^2}$) (left panel) and its orientation (right panel) of few minutes around Event II of April 24, from 3:52 to 4:02 UT. Black dots on prepared maps indicate geographic location of the IMAGE magnetometer stations (see Table 1 in the paper) used for analysis. For comparison, the Mäntsälä station location has been also denoted and highlighted by a red dot. Bottom panel of animation presents time variation of GICs values measured in Mäntsälä for the same period.