



The influence of circulation weather types on the atmospheric DC electric environment near the ground

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The DC voltage in the atmosphere, known as atmospheric electric field or potential gradient (PG), is almost certain to be influenced by the general synoptic weather conditions but no detailed analysis of this influence has been carried so far. We present results on the influence of circulation weather types (CWT) to the magnitude, the direction (positive or negative), the fluctuation magnitude and the short-term kV/m peaks of the atmospheric electric field, using 2011-2017 data from a station in NE Greece. Higher PG values are observed when a high pressure system is situated above Central Europe while lower PG values are associated with low pressure systems over the Balkans. The latter are also associated with very high positive and negative excursions of the PG, higher PG variability, lower radon values and rain events, while the former are also associated with lower absolute humidity. This work was made possible by participating in the COST Action CA15211 “Atmospheric Electricity Network: coupling with the Earth System, climate and biological systems”, supported by the European Union COST (European Cooperation in Science and Technology) Program.