

The effect of aerosols on the local fair weather atmospheric electric field in Évora, Portugal

Session (Poster): Fair-Weather Electrical Properties of the Atmosphere

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ABSTRACT: A short series (2005-2011) of the vertical component of the atmospheric electric field (AEF) recorded at the surface in the Observatory of the Geophysics Centre of Evora, has been analyzed. Évora (38.56N, 7.90W) is located in the Iberian Peninsula, which is surrounded by the Atlantic Ocean, Mediterranean Sea, and also close to the Saharan region. Aerosol properties are also monitored at the study site. The aim of this study is to quantify the influence of aerosols on the local fair – weather AEF. In these circumstances, both the vertical component of the AEF and the aerosol mass concentration were hourly averaged, thus enabling seasonal and annual variations to be analyzed. Both series have been compared and analyzed in two different cases: days with background aerosol concentrations and days with aerosol events. The influence of aerosol events on the AEF is discussed.

To complete the study we further address the influence of different aerosol sizes on local AEF variations.

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