



Negative space charge density over Alqueva reservoir (Portugal) retrieved from atmospheric electric field measurements

Lopes Francisco
EU

Measurements of the potential gradient (PG) of atmospheric electric field have been carried out in the Alqueva Lake during the ALEX 2014 summer campaign. The purpose of these experiments was to study the possible impact of the Alqueva reservoir in the local PG by comparing measurements both inland and close to the lake (Figure 1) during a period of 27 days of fair-weather. The study location (Amieira) is affected by the presence of the lake due to a negative space charge density (Figure 2) that develops over the surface water, as a result of a bubble bursting mechanism which releases OH⁻ into the air. This mechanism is enhanced by a local breeze that evolves during the afternoon as a consequence of a temperature gradient between land-lake, allowing the suppression of the local PG.