



Energy, Water and CO₂ turbulent fluxes measurements over a large reservoir in Portugal

Miguel Potes (1), Rui Salgado (1,2), Maria João Costa (1,2), Carlos Rodrigues (3), and Rafael Serrano (2)

(1) Centro de Geofísica de Évora, Universidade de Évora, Évora, Portugal (mpotes@uevora.pt), (2) Departamento de Física da Universidade de Évora, Évora, Portugal, (3) Instituto de Ciências Agrárias e Ambientais Mediterrânicas, Universidade de Évora, Portugal

Exchanges of energy, water, CO₂ and momentum were measured between water and air with the new IR-GASON eddy-covariance system installed in a floating platform in Alqueva reservoir, southeast of Portugal, with a surface area of 250 km² and a total capacity of 4150 hm³. This new system is composed with a 3D sonic anemometer and an open-path CO₂/ H₂O gas analyser. The measurements were performed during the ALqueva hydro-meteorological EXperiment, ALEX 2014, between June and September 2014. ALEX 2014 (<http://www.alex2014.cge.uevora.pt>) was an integrated field campaign with measurements of chemical, physical and biological parameters at different experimental sites in the reservoir and in its surrounding area. Together with the turbulent fluxes also radiative fluxes, both short and long wave, were measured in the platform in order to assess the radiative balance, and also water temperature profiles were continuously recorded. The estimation of the eddy-covariance evaporation is compared with results obtained from a vat installed in a small island nearby. Thus, with detailed information of the Lake-Atmosphere interactions, it is possible to determine the energy and mass balance of the reservoir.