THE ALQUEVA HYDRO-METEOROLOGICAL EXPERIMENT

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ABSTRACT

The ALqueva hydro-meteorological experiment, 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 Alqueva reservoir and in its surrounding region. With the main purpose of studing the lake-atmosphere interactions, the ALEX 2014 took place form June to September and comprised a three days Intensive Observation Period (IOP) from 22 to 24 July.

http://www.alex2014.cge.uevora.pt

The ALEX 2014 Field Campaign

a. Continuous observations

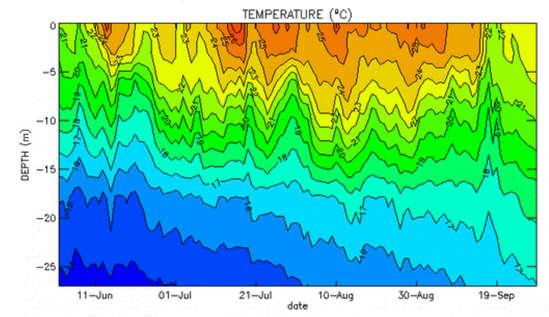
During 4 months a set of continuous measurements of several parameters were performed, namely:

- the energy fluxes (radiative and sensible and latent heat), CO2 and H2O over the reservoir

Built-in accelerometer in Waspmote board – Libelium to compute the vertical velocity of the arm

Floating plataform in Alqueva

- the thermal profiles of the water column



- near surface meteorological stations: temperature, humidity, wind, precipitation and pressure.

- Air quality,

- solar resource: global and direct

- Atmospheric Electric Field sensor

c. Intensive Observation Period

The ALEX 2014 comprised an Intensive Observation Period (IOP) on **22, 23 and 24 of July 2014**, during which:

- 18 meteorological balloons with meteorological radiosondes were launched.

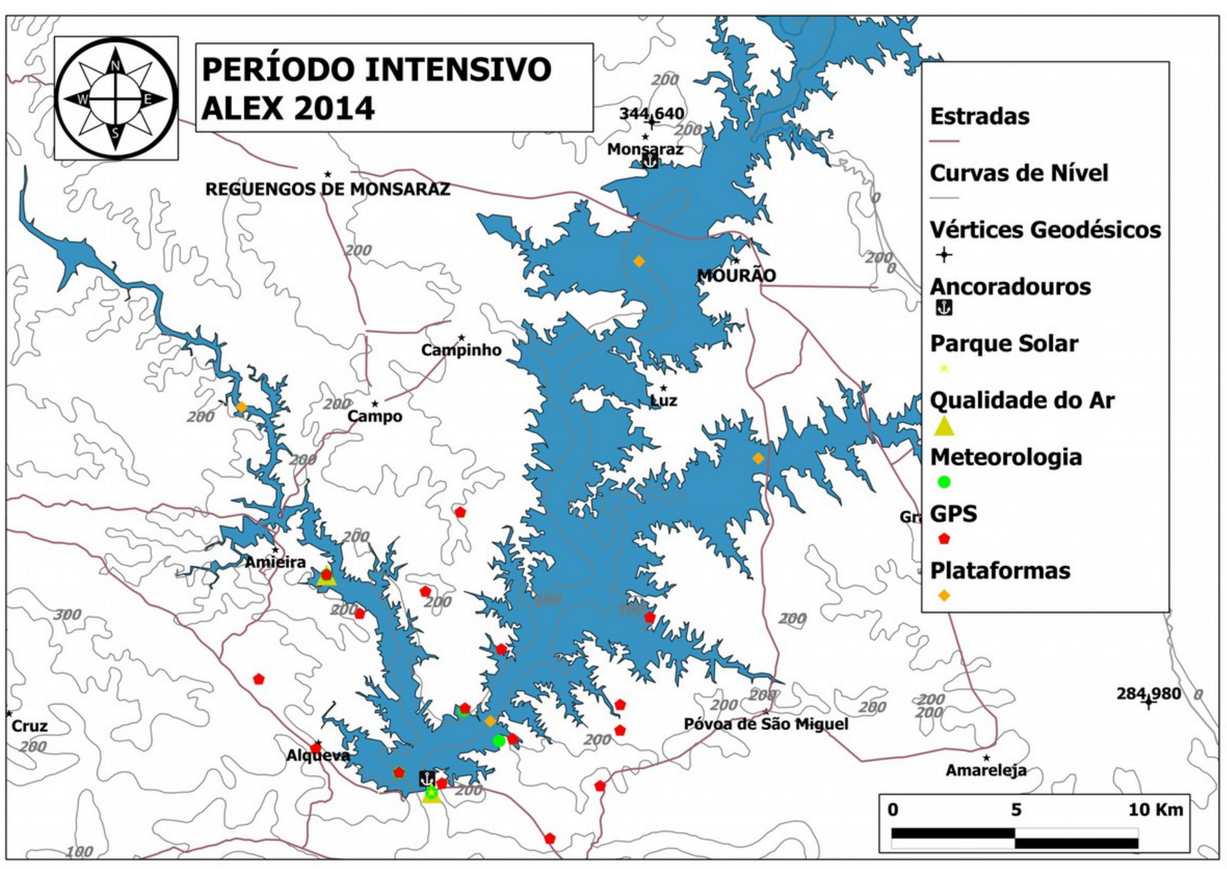
- Geigersondes (Harrison et al., 2012) were coupled to the meteorological radiosondes in order to obtain the atmospheric ionization profile

- the Boundary layer were characterized with a Ceilometer

- The Vertical distribution of O3 and NO2 were obtained by the Spectrometer for Atmospheric Tracers Measurements

- A GPS network (15 GNSS stations) were installed in order to map the water vapor

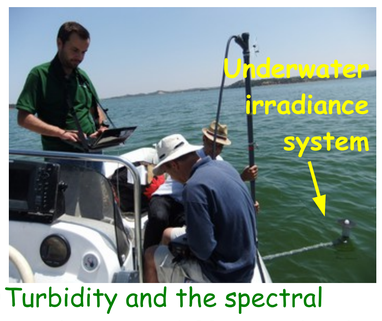
FIGURE 1 Map of the Experimental setup



b. Sampling

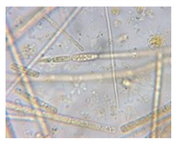
Several observations were made on a montly basis:

- water column profiles of dissolved oxygen (mg DO L-1 and %), pH, oxidation-reduction potential



- Turbidity and the spectral irradiance at different depths

- Microscopic and molecular characterization of cyanobacteria present in different locations of the Alqueva reservoir



- Biological Characterization close to lake margins

- Biological Characterization: Diatoms on artificial substrates in depth + planktonic diatoms in the water column

- measurements of the sky brightness with an Unihedron Sky Quality Meter

Supports