Isotopic characterization of Záncara River: Rainfall and seasonal influence.

I. CHUECA[1], E. TORRES[1], L. SÁNCHEZ[1], P. GÓMEZ[1], A. GARRALÓN[1], M.J. TURRERO[1]

[1]CIEMAT, Dept. Medioambiente. Av. Complutense 40, 28040. Madrid. Spain (isabel.chueca@ciemat.es)

Abstract

The aim of this study is to characterize the Záncara River water inputs and its seasonal evolution. The Záncara River is a tributary of Lower Guadiana. The source of the river Záncara lies in the town of Abia de la Obispalía (Cuenca, Spain) and flows into the river Cigüela, near Alcázar de San Juan (Ciudad Real). Its average annual contribution is less than 12 hm^3/year. Its basin covers an area of 3041 km^2. Záncara river has some little tributaries contributing with a small amount of water [1].

For this study, two control sampling points were defined within a 5-km section of the river flowing south through the Cuenca province, in the vicinity of Villar de Cañas. In the area of study, the climate is typically mediterranean.

In order to evaluate the influence of seasonality in the Záncara river, rainfall and river water has been sampled during a four-year-time period in the selected section of the watercourse (January'13 to February'17). This work includes the chemical and isotopic data measured in 275 and 72 river water and rainfall samples, respectively.

Discussion of Results

Results reported are part of a wider multi-proxy approach based on hydrochemical characterization, stable isotopes and trace elements, such as Sr, Li, B, Ba.

The four-year dataset available has allowed to identify mixing processes among the main end-members (rainfall, shallow groundwater and groundwater) responsible for the chemical composition of the river water. .

No significant seasonal variations have been observed in the isotopic signature of the river water along the sampling period. The majority of the river water samples are plotted over the GMWL and the LMWL obtained for the selected area, exhibiting little variability.

[1] Torres E., Sánchez L., Gómez P., Garralón A., Turrero M. J., Peña J., Escribano A., Buil B, Durán J. M. Isotope geochemistry applied to the study of the river Záncara: identification of discharges. Comunicações Geológicas (2015) 102, 1, 15-27