



Geochemical baselines in the protected area of El Hito Lake (central Spain)

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El Hito Lake (Castilla La Mancha, South-Central Spain) is an ephemeral saline water mass, with an area of 350 ha, located in the Cuenca province, between the localities of El Hito and Montalbo. The lake is developed on eroded gypsiferous and lutitic rocks of lower Miocene age that formed the bulk of an alluvial-lacustrine infill of this continental Neogene basin ("Depresión Intermedia" Basin). El Hito Lake has special geological and hydrogeological conditions, and it is considered an important hotspot of biodiversity and as such is covered by protection status. In order to check the environmental condition of the lake, the aim of this research was to establish the geochemical baseline levels of fifty-six elements. Soil and sediment samples were taken at a regular network, total digested (Aqua regia + HF) and analyzed by ICP-OES/ICP-MS to obtain the total element concentrations; results were statistically analyzed for the determination of the baseline ranges. In general terms, concentrations of the analyzed elements correspond to those of a non-anthropogenic environment, in which concentrations derive from the natural weathering of the local lithological materials. By compartments, sediments act as a sink for B, Mo and U while soils for Se, suggesting the existence of selective weathering processes for their original minerals. The presence of evaporitic levels produces a natural enrichment in the concentrations of Ca, Hg, Mg, Nb, Sr and Ta, while the rest of elements are impoverished with respect to the geochemical regional levels. The results reported in this research may be useful for the local monitoring and environmental management in these peculiar types of environments.