

## **Modern sedimentation patterns in Laguna de Medina, Southern Spain, derived from lake surface and soil samples**

Jasmijn van 't Hoff (1), Tabea Schröder (2), Klaus Reicherter (2), Peter Held (1), and Martin Melles (1)

(1) Institute for Geology and Mineralogy, University of Cologne, Germany (jvanthof@uni-koeln.de), (2) Institute of Neotectonics and Natural Hazards, RWTH Aachen, Germany

In September 2014 and March 2015, a 25.66 m long sediment core (Co1313) was retrieved from the centre of Laguna de Medina, a small endorheic salt lake in Cádiz, SW Spain. This record covers the last 9.000 years, thus providing an unique archive for Holocene climatic and environmental changes with extraordinary high temporal resolution. For a better understanding of the palaeoenvironmental proxies to be analysed on the sediment core, the modern processes of sediment formation in the lake and its catchment under known environmental conditions were investigated on a set of 46 lake sediment surface samples and 32 soil surface sediment samples from the lake and the close surroundings, respectively. These samples were analysed for bulk mineralogy (XRD), chemical composition (XRF), grain-size distribution (laser scanner), and carbonate, total organic carbon (TOC), nitrogen (TN) and sulphur (TS) contents (elemental analyser).

Based on the mineralogical, geochemical and granulometrical data, the lake can be divided into four zones. The northern shore is characterized by particularly high quartz contents and coarse grain sizes. This reflects input from ancient terraces of the Guadalete River that are exposed in that area. The southern shore is characterised by high calcite contents due to sediment supply from the Cretaceous 'Capas rojas', a series of Subbetic deep-water marl- and limestones. The southeastern and to a lesser extend the northwestern shores show particularly high dolomite contents, reflecting the Triassic dolomites outcropping in the southeastern catchment. The southeastern shore furthermore is also influenced by strong terrestrial input of the Triassic Keuper facies from the most important inlet, Arroyo Fuente Bermeja, as reflected by high contents of Ti, K, Al, Fe, Rb in the lake sediments. The last zone comprises only a small part of the western shore and is characterized by a relatively high gypsum amount. This does not reflect the geology in the catchment and thus needs a different explanation.