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Micro-facies analyses of late Holocene sediments from the Ein Gedi site (Dead Sea)

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Late Holocene Dead Sea sediments of the Ein Gedi profile at the western Dead Sea shore provide high-resolution information about small-scale climatic variations in the Levant. Earlier investigations by Migowski et al. (2004, 2006) demonstrated the high potential of the Ein Gedi site for reconstructing the paleoenvironment of this climate-sensitive region, but also the need for high-resolution analyses. In the study presented here, a multi-proxy approach of micro-facies analyses from thin sections, μXRF element scanning and further magnetic susceptibility measurements allowed detailed analyses of a 2.75m long section from the DSEn composite profile spanning the time from approximately 2 to 4 ka BP. The analysed DSEn sequence of the Dead Sea margin is characterised by a continuous succession of evaporitic varves, composed of alternating detrital and aragonite and/or gypsum layers with intercalated earthquake-induced mixed layers (Marco et al., 1996). In the lower part of the investigated interval a sand deposit is associated to lake-level decline around 3.3 ka BP (Bookman (Ken-Tor) et al., 2004) in the Late Bronze Age.
The aim of this study is to establish a detailed high-resolution time series of extreme events and decadal-scale variations in the eastern Mediterranean climate system. Using this data set will further enable determining the influence of the North Atlantic Oscillation and solar irradiation changes on that region. Another objective will be to synchronise the DSEn interval with the new ICDP Dead Sea Deep Drilling Project (DSDDP) cores from the northern deep basin in order to compare sedimentation processes at the Dead Sea shore with those from the deep basin.

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