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Short-term paleo-environmental changes in the Dead Sea Region identified in varved Holocene records

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Israel is situated at the juncture of arid, semiarid and Mediterranean Climates. Geologically it lies along the major tectonic Syrian-African Rift Valley (Dead Sea Transform, DST), creating a vulnerable physical environment. Since recorded times the region has been a meeting place of multiple ethnic, racial, religious and linguistic groups.

The Dead Sea (31˚30'N, 35˚30'E, currently about 416 m below sea level (bsl), situated at the transition zone between the African-Arabian deserts and the Mediterranean climatic zone, is a terminal lake draining one of the largest hydrological systems in the Near East. The lake surface receives $<$100 mm/a and the lake level responds primarily to precipitation changes in its northern headwaters, which experience Mediterranean climate characterised by wet winters and dry summers (Neev & Emery, 1967). Thus, the Dead Sea can be viewed as a large rain gauge for the Near East region and in turn a sensitive recorder of the Near East climate variability (Neev & Emery, 1967; 1995; Stein, 2001).

Sediment cores were recovered in several drill-sites along the western shore of the Dead Sea. In 2005 additional profiles were sampled in gullies which were recently formed along the fast retreating shoreline of the lake.

Our high-resolution, multi-disciplinary, palaeolimnological study investigated the core DSF (*Ein Feshkha*) and an adjacent profile of mainly annual laminated sedi-

ments. Our presentation will focus on the sedimentological and geochemical results over the late Holocene. The core and profile comprise laminated fine-grained clastic sediments and authigenic aragonite and gypsum. Petrographic examination of laminae reveals that they are typically couplets of alternating very fine detritus and aragonite, or triplets of detritus, aragonite and gypsum. These successions represent annual deposition rhythmites, which reflect entering of new freshwater with bi-carbonate and sulfate to the lake during winter floods and through the Jordan River, and deposition of aragonite and gypsum during the dry season.

Magnetic susceptibility measurements show distinct changes in all cores and allow a correlation of the *Ein Feshkha* core across the Dead Sea with *Ein Gedi* cores (Migowski et al., 2004). The *Ein Feshkha* cores show variations in the geochemical (μ-XRF), sedimentological (magnetic susceptibility, thin-section microscopy) and biological (pollen analyses) composition. These variations in turn reflect changes in the water chemistry of the lake as well as in the detrital sediment input, including changes induced by earthquakes.

We document the presence of possible wet and dry phases or events in the *Ein Feshkha* Dead Sea record. The temporal and spatial continuity of *Ein Feshkha* sediments make them a possible archive for the reconstruction of paleo-climate and seismic activity. The location of the site *Ein Feshkha* on a major route of prehistoric human migration, trade and settlement makes it suitable for documenting the impact of climate on regional socioeconomic development during the Holocene.

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