

## Sources and Transport of Desert Dust to the Levant During the Last Glacial-Interglacial Cycle

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The Dead Sea is a terminal hypersaline lake receiving water and fine-grain sediments from a large drainage basin in the Levant that extends from the edge of the Sahara to the Mediterranean climate zones. The Dead Sea and its precursors; last glacial Lake Lisan and last interglacial Lake Samra, continuously accumulated desert dust that had settled in the watershed during the mid-late Pleistocene and Holocene periods (Haliva-Cohen et al., 2012). A sediment core retrieved from the lake's center and covering the last ~220 kays comprised of primary halite, aragonite and gypsums and allochthonous silts and clays. The fine particles are used for identifying sources and routes of transport of the dust during the last glacial-interglacial cycle.

We compared the high-stand Lake Lisan and low-stand Lake Samra sediments grain sizes and their chemical and Nd-Sr isotopic compositions. Grain size distributions  $>1 \mu\text{m}$  of Lake Lisan have modes of 8-10  $\mu\text{m}$ , whereas Lake Samra samples present smaller modes of 3-4  $\mu\text{m}$ . Similar grain size distribution was observed in the fine-grained sediments of the currently exposed late Quaternary deposits along the Dead Sea (Haliva-Cohen et al., 2012). The Fe and Al oxides concentrations divide the fine grained sediments in the core to three sub-groups probably reflecting degrees of weathering. Least weathered sediments are from glacial Lake Lisan, the moderately weathered sediments are from the last interglacial Lake Samra. The most weathered are those from post-glacial ~11ka. The isotopic compositions of the fine-grained particles present a narrow ranges of  $\epsilon\text{Nd}$ , between -6.7 to -5.7 and -5.7 to -4.5 for the Lisan and Samra, respectively. Sr isotopic ratios extend from 0.7081 to 0.7095. The samples lie on the "regional dust array" between Nile and Saharan derived fine dust (Revel et al., 2010, Palchan et al., 2013). The data suggests that during the last glacial the Dead Sea watershed (e.g. the central Levant) received more of the Saharan dust in association with Mediterranean winter rains and strong winds (Enzel et al., 2010). Where during the last interglacial it received recycled loess by floods with increased Nile type isotopic signature reached the lake.

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