



## **Vegetation and climate of the southern Levant during the last Interglacial**

Chunzhu Chen and Thomas Litt

Steinmann Institute for Geology, Mineralogy, and Paleontology, University of Bonn, Bonn, Germany  
(pollenchencz@gmail.com)

Sediments in the Dead Sea basin are outstanding archives for understanding the paleoenvironment of the southern Levant because of their locations at the boundary between the Mediterranean and Arabian-Sahara climate zones. During the past decades, extensive investigations have demonstrated high lake levels during the last Glacial but low lake levels during the present and last Interglacial. However, palynological results from Lake Kinneret and Birkat Ram suggested a dry last Glacial and wet Holocene (Schiebel, 2013; Chen and Miebach, unpublished).

Studies on Lake Samra (last interglacial precursor of the modern Dead Sea) became a focus after deep drilling cores were retrieved in 2011. Core 5017-1A encompasses the most complete Samra profile in the region, which exhibits thick halite layers indicating extremely low lake levels (Neugebauer et al., 2014). As interpreted based on lithological and hydrological results, the marine isotope stage (MIS) 5e was the most arid period (work in progress). In this case, pollen analysis would provide independent evidence of the regional climate changes.

Our preliminary result shows that late MIS 6 was characterized by an expansion of goosefoot (Chenopodiaceae)-dominated desert/semi-desert. During the MIS 6/5 transition, an abrupt increase of grasses and a corresponding decline of goosefoot suggest the occurrence of a more humid grass steppe, whereas the woodlands were still open. The MIS 5e has witnessed higher woodland density and moisture availability provided high values of Mediterranean woodland components (mainly olives and deciduous oaks). From MIS 5d to 5a, a drying trend was recorded from the contraction of the Mediterranean biome and the expansion of steppe/semi-steppe.

As a key time interval of our study, MIS 5e comprised a typical vegetation succession process that is also prevalent in other Mediterranean pollen records. Therefore, in biostratigraphical terms, high abundances of woody taxa marks the MIS 5e, although the timing and moisture pattern contradict those implied by non-pollen proxies. This study presents the first consecutive last Interglacial pollen record in the southern Levant and will contribute to researches of modern human dispersal. Further quantitative reconstructions will be carried out on the basis of the Holocene counterpart (Litt et al., 2012).

### Reference:

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