



Glacial-interglacial environmental and climatic changes in the Near-East: a multi-proxy analysis of the lacustrine series of the Yamouneh basin (Lebanon). Preliminary results.

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The Near-East, between the mid-latitudes and the sub-tropical deserts, is climatically very sensitive. However, long and well-dated continental paleoclimatic records are scarce in this area (1-3) and appear sometimes difficult to reconcile. Recently, a long lacustrine sequence from a 10 m deep trench and 3 long cores (63-73 m) has been collected in the small tectonic basin of Yamouneh (Lebanon) in order to document environmental changes potentially induced by climate changes and tectonic events. This basin was occupied by a lake supplied by snowmelt water from Mount Lebanon, karstic sources and runoff. The construction in 1930 of a drainage channel eastward induced the lake drying. Here we present preliminary results for the upper part of the sequence (30 m) based on ^{14}C dates, major components and magnetic properties of the sediments, pollen, ostracod assemblages and stable isotopes. All proxies show variations of large amplitude. Carbonate content (10-100%) and tree-pollen content (5-70%; mainly Quercus) are positively correlated and suggest wet-warm conditions. The maximum values occur in the uppermost 1-2 m and at 17-19 m. These proxies are negatively correlated with low field magnetic susceptibility, mostly controlled by the concentration in detrital and authigenic iron minerals. Between 0-25 ka BP, the record is supported by 13 ^{14}C dates. From 25-11 ka BP, the dominance of steppe plant pollens, of detrital sedimentary components, high magnetic susceptibility and $\delta\text{O}18$ ostracods values suggest generally dry, evaporative conditions and high erosion

rate during the Last Glacial Maximum and the Late Glacial periods. Conversely, the early Holocene is dominated by authigenic carbonate enriched in algae (Phacotus), very low magnetic susceptibility, a marked increase in tree-pollen percentages and low $\delta^{18}O_{\text{stracods}}$ values. It is interpreted as a wet period. A trend toward drier climate is observed after 5.5 ka. Our interpretation agrees with the $\delta^{18}O$ values of the Soreq cave speleothems¹ (Israel). The lower part of the sequence is not yet supported by a radiometric chronology. However, based on the mean annual sedimentation rate of the ^{14}C -dated section and comparison with the $\delta^{18}O$ record of Peqiin cave speleothems² (Israel), chronological hypotheses can be proposed. It is suggested that the interval 17-19 m, which shows strong similarities with the wet Holocene period, represents the last interglacial period. . These preliminary results demonstrate the interest of the Yamouneh sequence for paleoclimate reconstruction and for comparison with the few long continental records available in the area (1-3) and East Mediterranean marine cores.

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