



A multiproxy approach to reconstruct the climate and environmental changes during Holocene in Urmia Lake (NW-Iran)

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Lake Urmia, in northwest Iran, is the largest saline lake in the Middle East with surface area of 5000Km². Despite its potential as an archive of paleo-climate and paleo-environmental information, to date there has been no molecular organic geochemical investigation or precise dating of these sediments, especially for the Holocene period. Several proxies in sediment cores from eastern and western parts of Urmia Lake have been used in this study to produce a more reliable picture of climate and environmental changes during the Holocene. We present data on both geochemical proxies and sediment lipid biomarkers on two cores from different parts of the Lake. The age model based on 60 calibrated radiocarbon dates shows variation of sedimentation rates between early and middle Holocene and a sudden increase in late Holocene. This is interpreted as a sudden event associated to mass movement. Results on bulk measurements (TOC, $\delta^{13}C$ and C/N) give evidence for a warmer and wetter climate between 0.5 and 3 kyr BP. Phytoplankton biomarkers were most abundant in this period, indicating high phytoplankton productivity. This period was followed by a relatively cooler and drier episode between 3.5 and 7Kyr BP., decrease in phytoplankton productivity indicating cooler climate and showing terrestrial signal. The coolest and drier conditions occurred between 7-10.3 Kyr BP. This is in agreement with compound-specific leaf wax hydrogen isotopes and TEX₈₆ proxy in GDGTs.