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# Vegetation and climate history in the Mediterranean Levant during the late Pleistocene

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## Résumé

We present in this study a new palynological record extracted from paleolake Hula in northern Israel which covers the time interval of ~20-10 ka, between the LGM and the early Holocene. The sedimentological outcrop is situated near an Epipaleolithic archaeological site named Jordan River Dureijat (JRD). The archaeological layers encompass the Epipaleolithic periods, Kebaran, Geometric Kebaran and Natufian which represents a rare consecutive record in the southern Levant. Many of the archaeological findings (fish bones, bone fishing hooks, limestone line weights and net sinkers) suggest that the site was used as a fishing camp. Fossil pollen is well preserved along the JRD sedimentological sequence. The palynological assemblages are composed of typical Mediterranean forest/maquis taxa such as evergreen oak, deciduous oak, pine and terebinth with small shrubs and herbs, predominantly Asteraceaceae, Chenopodiaceae and Apiaceae. The LGM is characterized by low occurrences of Mediterranean arboreal taxa and relatively high frequencies of sagebrush and chenopods. The latter two are common in saline and dry environments. Higher arboreal pollen occurrences are recorded in the upper part of the sequence which corresponds to the wettest and warmest time span. The pollen-based climate reconstruction allowed us to quantify the temperature and precipitation changes over the record time span. The January mean temperature increased by about 6°C since the last glacial and the annual amount of precipitation shows a clear increasing trend (about 25%) between the LGM and the early Holocene. The last Heinrich event (HE1) and the Younger Dryas are clearly identified in the pollen diagram and the climate quantification. The impact of climatic changes on the cultural shift to sedentary and agriculture during the Epipaleolithic in the Levant is under debate. By correlating the JRD past vegetation and climate with the nearby archaeological data we aim to evaluate the interrelationship between climatic and cultural changes.

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