

Main theme	Sub - Theme	Code Number
Natural Resources	Climate change	28
<b>Study Name</b>	Climate change and hydrological balances in the Jordanian Badia	
<b>Author</b>	UNESCO chair for Desert Studies and Desertification Control Development Programme	
<b>Date of Study</b>		
<b>Objectives</b>	The purpose of this project is to investigate the possibilities provided by the sediments in the playa lakes in northeastern Jordan to understand when and how much climate has fluctuated in the region. Sedimentology, geochemistry, isotopes and hydrological mass balance models are used to this end.	
<b>Output and Recommendation</b>	Two qa's (playas) were chosen for this study: Qa' salma in the northeast of the Badia and Qa' Hababyya in the southwest. Both qa's were mapped for geomorphology, trenched to depths of between 2.5 – 3 m and studied for hydrological balances. Following results of this work as follows: The results of this study confirm that climate has fluctuated immensely in the region over the last 50,000years. These climatic fluctuations can be correlated with known climate changes which have affected the region, particularly in the Dead Sea basin, throughout the late Quaternary. Most dominant are the climatic excursions at 13 and 20 km, although the time constrains can be considered as rough estimates, based on the limited radiocarbon data available. Hydrological models of these playas suggest that pluvial periods in the past led to annual precipitation rates which were 3-4 times the present averages. These models confirm that significantly different climatic regimes have affected the area in the past.	
<b>Development Aspects</b>	<i>For Qa' Salma:</i> Thus it is seen that the chemical signatures in the sediments of the playa lake have the potential of indicating climatic events in the region. Future work in the playa should focus on using other dating techniques for the sediments such as thermo luminescence or Optically Simulated Luminescence to help constrain the timing of climatic events in the area. Fossil evidences are difficult to obtain this area but would greatly help in refining the climatic history here. <i>For Qa' Hababyya:</i> geomorphologically, the lake levels are prominent that gives two old shorelines their heights are 596 and 600 m about the sea level and the present lake level is about 594 m asl. The Qa' is mostly clayey silt interbedded by rock fragments, plant, and calcrete. Sedimentary Na, K and Mg being primarily associated with detrital minerals, directly reflect the intensity of weathering and erosion within the catchment.	
<b>Remarks</b>	<a href="https://doi.org/10.1111/sum.13154">https://doi.org/10.1111/sum.13154</a>	