The Amik Lake in Southern Turkey over the last 4000 years, a new paleoseismological record of ruptures along the Northern Dead Sea Fault

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The study focuses on the sedimentary record of the Amik Lake occupying the central part of a pull-apart basin. The Basin is crossed by The Dead Sea Fault (DSF), a major neotectonic structure in the Middle East extending from the Red Sea in the south to the East Anatolian Fault Zone in the north. Around the Amik Basin, continuous human occupation is attested since 6000-7000 BC. Indeed the low-lying Amuq plain is covered by tell settlements first explored by Robert Braidwood in the 1930s. Our objective in this presentation is to look at major paleo-environmental changes recorded in the Amik Lake over the last 4000 years and in particular its potential paleoseimic sedimentary record. The lake has been drained and progressively dried up since the mid-50s so that it is not watered during the summer season and constitutes a unique opportunity to collect sediment records. Sediments were collected at 1 cm to 2 cm intervals in a trench and in cores up to a depth of 5 meters in the clay deposits. A diverse array of complementary methods is applied to study the records: magnetic susceptibility, grain size, organic matter and inorganic carbon (L.O.I), XRD mineralogy, XRF geochemistry, carbon geochemistry and clay mineralogy. The age of the record is constrained combining radionuclide and radiocarbon dating. The sedimentary record shows large earthquake related structural disturbances and smaller siliciclastic sedimentary events. The siliciclastic input would be related to enhanced detritical sedimentation related to earthquake shaking. The latter is further investigated looking at intensities and shake maps related to the last 19th century M>7 earthquakes in the area and landslide prone area in the lake catchment.