



The Agadir-Tissint Feija (Anti-Atlas, Morocco): a newly identified paleoenvironmental archive for the late Quaternary (ca. 75 - 10 kyr) in Northwest Africa

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Northwest Africa is a transitional climatic zone influenced by Atlantic, Western Mediterranean and Saharan air masses, and only few sedimentary records inform us about its past environmental conditions. Hence, concerning the pre-Holocene period, the absence of continuous archive hampers long-term palaeoenvironmental reconstructions and our understanding of the interactions between the different climate forcings in this area. Southern Morocco hosts several 1-15 km wide lowlands called "Feijas" located between the southward front of the Anti-Atlas and the escarpment of the Jbel Bani north of the Sahara. These Feijas originated from differential erosion of clay-dominated Cambrian and Lower Ordovician rocks in comparison with harder sandstone- and limestone-dominated Precambrian and Upper Ordovician rocks. Field investigations and new datings revealed that during late Quaternary times "Feijas" constituted important depocentres.

Building upon facies and sequence analyses, clay mineralogy and precise datings (OSL and U/Th), we have reconstructed the basin-scale evolution of the sedimentary dynamics in the "Agadir-Tissint Feija" through time. The sedimentary succession comprises 16 to 27 m of sediment, deposited between ca. 75 kyr and ca. 10 kyr. The 11-12 m thick lower unit consists of a lacustrine-dominated succession that proves the existence of a paleolake now referred to as "paleolake Tissint" that originated from the pulsed buildup of a tufa dam. The 5-15 m thick upper unit is a fluvial-dominated succession of flood plain deposits. The lower unit is subdivided into two successive asymmetric sequences separated by marsh deposits, evidencing two relatively long-lasting humid periods. Each lacustrine sequence displays recurrent intercalations of tufa, carbonate mud and clastic mud intervals that indicate short-term and high-amplitude fluctuations of the paleolake level, superimposed on the two long-lasting humid periods.

Origins and timing of paleolake fluctuations are of particular interest as they might help identifying climate mechanisms that lead to wet-dry alternations in northwestern Africa. This contribution highlights the relevance of Feijas as valuable archives of Quaternary paleoenvironments in arid Northwest Africa.