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Sahara or sahel? - holocene palaeoenvironmental records of Ténéré, Tchigai and Djado (Central Sahara): new implications from palaeoecological data

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Palaeoecological studies of Late Pleistocene and Holocene deposits in the Central Sahara allow for the first time the reconstruction of the palaeoenvironmental development of the vast Ténéré sand plain and the Tchigai and Djado escarpments, NE-Niger. The environmental changes are deduced from geomorphology, sedimentology and biological remains as well as from palaeolimnological and prehistoric evidence. Comparing the lacustrine sediments, three stages of water bodies with different conditions may be distinguished. Topographical factors, geomorphological evidence and biological remains (e.g. *Lates niloticus*) suggest that from 10 ka BP onwards a widespread lake country existed with perennial deep-water lakes changing in size, water level and water balance. In an abrupt change around 5.5 ka BP in the northern, and 4.5 ka BP in the southern part of the region studied, desiccation of the by now shallow permanent freshwater lakes began, coexisting with seasonal ponds of saline/alkaline waters, and finally the development of a swamp environment. Neolithic artifacts scattered on top of the lake sediments show that the lakes had lost much of their Late Pleistocene/Early Holocene size by the time of Neolithic settlement. Screening all palaeoecological evidence, annual precipitation is estimated to have been at least 400 mm during the Late Pleistocene to Early

Holocene transition period, resulting from an interaction of monsoonal precipitation with Atlantic / Mediterranean west-wind depressions moving considerably further south than today. During the early Holocene and more so during the Mid-Holocene the interaction became less, with a change to heavy rainfalls, indicating a stronger seasonality of the climate and reduced annual precipitation, with the establishment of a SW to NE gradient.