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“advancing the science of palaeolimnology”
extending c. 60 km N-S and 20 km E-W. Mean annual precipitation is 800 m (mainly June to September) associated with the onset of the NAM. The core covers the last c. 70 kyr BP (6 radiocarbon dates, 1 U-series date on diatom silica and an Ar-Ar date on tephra). The multi-proxy record is based on Itrax XRF core scanning, bulk organic geochemistry and isotopic composition of calcite, along with a preliminary assessment of diatom assemblages.

Five periods of relatively wet conditions are identified: 68 – 64 kyr BP, 55 – 52 kyr BP, 38 – 34 kyr BP, 16.6 – 13.6 kyr BP and 11 – 7.5 kyr BP. Whilst there is some correspondence with insolation forcing, a strong imprint of North Atlantic variability is observed during MIS-3. The Laurentide Ice Sheet was a significant driver between the LGM and early Holocene through its effect on mid-latitude westerly circulation.

**S10-03 Varved sediments of Lake You (Ounianga Kebir, Chad) reveal progressive drying of the Sahara during the last 6100 years**

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The sedimentological and geochemical properties of a 7.47 m long laminated sequence from hypersaline Lake Yoa in northern Chad has been investigated, representing a unique continuous 6100 year long continental record of climate and environmental change in the eastern Central Sahara. These data were used to reconstruct the Mid to Late-Holocene history of this currently hyper-arid region in order to address the question of whether the Mid-Holocene environmental transition from a humid to a dry Sahara was progressive or abrupt. This study involved a suite of analyses, including petrographic and scanning electron microscope examination of thin sections, X-ray diffraction, X-radiography, granulometry, loss-on-ignition and magnetic susceptibility. The potential of micro-X-Ray fluorescence core scanning was tested at very high resolution (100 μm). Detailed microscopic investigation revealed the sedimentary processes responsible for the formation of the fine laminations, identified the season during which they were formed, and confirmed their annual nature. Geochemistry and mineralogy revealed that, due to decreasing monsoon rainfall combined with continuous and strong evaporation, the hydrologically open and fresh Mid-Holocene lake Yoa slowly evolved into the present-day hypersaline brine. During the oldest part of the investigated period, Lake Yoa probably contained a permanently stratified lower water column that was nevertheless disrupted by relatively frequent events of deep mixing. Subsequently, deepwater anoxia became progressively more stable because of the gradual increase of salinity-driven density stratification. In parallel, the sediment grain size proxies record a progressive increase of aeolian input in the course of the last 6100 years. Altogether, all geochemical and sedimentological indicators point to a progressive drying of the eastern Central Sahara.

**S10-04 Holocene transitions between meromictic and holomictic mixing regimes in a mid-altitude tropical lake in western Mexico**

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La Alberca de Tacamboro (19°12’40”N 101°27’30”W, 1,460 m asl) is a deep lake (30 m) with a small area (0.08 km²) at the ecotone between tropical (tropical deciduous forests) and temperate...