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Insights into the African Humid Period from fossil stromatolites and *Etheria elliptica* shells from the Chew Bahir Basin, southern Ethiopia

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In the context of human evolution and dispersal in Africa, it is important to understand past climate conditions and changes as possible drivers of these processes. One of the most recent climatic events was the end of the African Humid Period (AHP) at around 5 ka BP. This was marked by a decrease in precipitation following a long wet-phase in northern and eastern Africa, which caused many lakes to decrease in size or even desiccate. Although the termination of the AHP is well known, the timing and rate of the transition from wet to dry conditions is still heavily debated. To investigate the termination of the AHP at a high temporal resolution (subdecadal and subannual), fossil stromatolites and *Etheria elliptica* shells from paleo-shorelines in the Chew Bahir Basin, southern Ethiopia, were collected. Today, Lake Chew Bahir is a deltaic swamp, however in past pluvials a large lake was present that likely overflowed and connected to other basins similar to other amplifier lakes in the East African Rift System. Radiocarbon dating, oxygen and carbon stable isotope analyses, trace element analyses and petrographic mapping of stromatolite laminae structure were conducted. A strong correlation between $\delta^{18}\text{O}$ and $\delta^{13}\text{C}$ shows that paleo-lake Chew Bahir likely experienced highly evaporative conditions and indicate an endorheic state of the basin in times of stromatolite growth at 7.1, 5.8, 4.7 and 4.6 ka BP. Furthermore, our findings suggest highly fluctuating environmental conditions during these times and demonstrate that the transition to drier conditions was not a strictly linear trend. In summary, the stromatolites and *Etheria elliptica* shells are an excellent environmental archive due to their high temporal resolution, precise dating (± 30 yrs) and an indication of the paleo-lake water depth. These types of records provide insights to past changes in freshwater availability, the variability of which would have had large consequences for humans living in the region.