



The carbonate islands from the Chobe Enclave as Quaternary paleo-hydrological archives (NW Botswana)

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The Quaternary paleo-drainage history of the Middle Kalahari Basin has mostly been reconstructed through the study of fragmentary geological and geomorphological archives (Thomas and Shaw, 2002; Burrough et al., 2007). Records of hydrological changes are poorly preserved, though the occurrence of beach ridges in the Middle Kalahari Basin attests to the existence of large paleo-lakes in the past (Grove, 1969). In the Okavango Delta region (northern Botswana), carbonate platform islands are important sedimentological and geomorphological features in the landscape. Their origin is still unclear, but they are assumed to be related to late Quaternary hydrological changes. We aim to show that the carbonate islands from the Chobe enclave can act as significant paleo-environmental records for a region lacking of data (Diaz et al., in review).

Here, we report optically stimulated luminescence dating of key sedimentary horizons in and around a single carbonate island (Diaz et al., in review). The dose rate evolution for each sample was modelled individually, taking into account post-depositional changes in sediment chemistry and burial depth. The resulting ages suggest that the dated units were deposited between MIS6 to MIS1. The carbonate platform itself appears to have been deposited in two phases, separated by either an unexpectedly long (~40 ka) depositional hiatus or an episode of erosion. This study demonstrates the potential of using luminescence dating in such settings, and offers the possibility of linking sedimentary processes within the Chobe Enclave to regional paleo-hydrological records.

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