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Exploring how sand ramps respond to Quaternary environmental change in Southern Africa

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The current climate of southern Africa is particularly complex and interesting due to the interaction of several climatic systems. However, reconstructions of how these systems behaved in the past, and how the environment responded, have been hampered by a general paucity of records and poor chronological control.

Sand ramps may provide the potential to improve palaeoenvironmental reconstructions of southern Africa (and beyond). Formed against a topographic barrier, sand ramps include a combination of aeolian, fluvial and colluvial deposits in varying proportions. Therefore, they have the potential to record changes in moisture availability, circulation patterns and sediment supply which can be independently dated using luminescence dating. Nevertheless relatively little attention has been paid to these features and thus the environmental controls on their formation are not yet fully understood. In particular, there is debate as to whether they reflect deposition during a 'window of opportunity' in which high-magnitude, low-frequency events are recorded (Bateman et al. 2012) or whether they record more gradual, cyclic climate change (Bertram, 2003) or even if there is a uniform control on their formation.

This research aims to investigate how sand ramps respond to environmental change and what they can tell us about the paleoenvironment of southern Africa. This poster displays preliminary results based on initial field investigation. This confirmed sand ramps to be ubiquitous in southern Africa and that they record a complex interaction of aeolian, fluvial and colluvial deposits which appears to differ between sand ramps. Preliminary luminescence dating results and sedimentology are displayed for two sand ramps, one from south west Namibia the other from the Karoo region of South Africa.