



Exploring the palaeoenvironmental context of surface archaeology in the Namib Sand Sea

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The hyper-arid conditions of the Namib Sand Sea in the present day pose significant challenges for all but some extremely well-adapted species. The presence of a rich-archaeological surface record of stone age lithics at numerous interdunal pan sites raises questions around the evolution of this environment throughout the Quaternary. Specifically, was this region subject to phases of elevated humidity, allowing the proliferation of a network of 'green corridors' through which hominin populations exploited this landscape, or were hominins adapted to hostile conditions much like those of today?

Earlier insights into the palaeoenvironmental context of interdune pan sites were provided by Teller et al. (1990), although this was before the development of chronological techniques that could provide reliable age constraint on sediments greater than 100 ka, where we have found the quartz luminescence signal to be in saturation. Feldspar dating protocols will allow us to provide age control for the later part of the Earlier Stone Age and the Middle Stone Age (e.g. Stone et al., 2024). The PANS project (Palaeoenvironmental context of Palaeolithic Archaeology in the Namib Sand Sea) applies single grain and multiple grain multiple elevated temperature infrared-stimulation luminescence (MET-IRSL) alongside a multi-proxy approach to environmental reconstruction at new sites in the northern Namib Sand Sea to situate environmental change and patterns of hominin activity within the regional palaeoclimatic framework. We present MET-IRSL results alongside palaeoclimatic proxies and explore the use of palaeoecological markers, at key new sites visited in 2025. We combine these datasets with remote sensing techniques to reconstruct former watercourses in this hyper-arid environment.

Stone, A., Leader, G., Stratford, D., Marks, T., Efraim, K., Bynoe, R., Smedley, R., Gunn, A. and Marais, E., 2024. Landscape evolution and hydrology at the Late Pleistocene archaeological site of Narabeb in the Namib Sand Sea, Namibia. *Quaternary Science Advances*, 14, p.100190.

Teller, J.T., Rutter, N., Lancaster, N., 1990. Sedimentology and paleohydrology of Late Quaternary lake deposits in the northern Namib Sand Sea, Namibia. *Quat. Sci. Rev.* 9, 343–364.