

Late Pleistocene hunter-gatherer networks: subcontinental or regional expressions?

- interdisciplinary geoarchaeological investigations in south-western Namibia

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INTRODUCTION

Middle Stone Age (MSA) research in southern Africa has become a multidisciplinary endeavour (Wadley 2006; Henshilwood & Lombard 2013), reflecting the closely interwoven variety of involved research questions.

Given the current state of the art in south-western Namibia, a recently funded geoarchaeological research project analytically disentangles three scales of joint analysis and interpretation in order to understand varying dimensions

of human-environment interaction during the Late Pleistocene. The main research questions, chosen methodological approaches as well as preliminary results will be summarised here:

LOCAL SCALE



Re-excavation & geoarchaeological sampling of Pockenbank 1 rock shelter

In 1969 a small-scale test excavation at Pockenbank 1 rock shelter (south-western Namibia) focussed on Holocene deposits (Wendt 1972). Additionally, a multilayered Late Pleistocene stratigraphic sequence was encountered (Fig. 1). Several promising features were recorded, among them the presence of grass bedding, a rockfall layer, thick ash lenses and organic preservation.



Fig. 1. Profile section of the upper part of the stratigraphy at Pockenbank 1 rock shelter: multiple laminated layers including ash lenses and charcoal concentrations.

Archaeologically, occurrences of so called *Still Bay*- and *Howieson's Poort*-horizons of Marine Isotope Stage (MIS) 4 as well as considerable deposits associated with late MSA and Pleistocene Later Stone Age (LSA) remains – broadly corresponding to MIS 3 and 2, respectively – have been recognised and initially studied (Vogelsang 1998; Ossendorf 2013). Thus, Pockenbank 1 mirrors the comprehensive cultural sequence of the regional key-site Apollo 11 (Vogelsang et al. 2010).

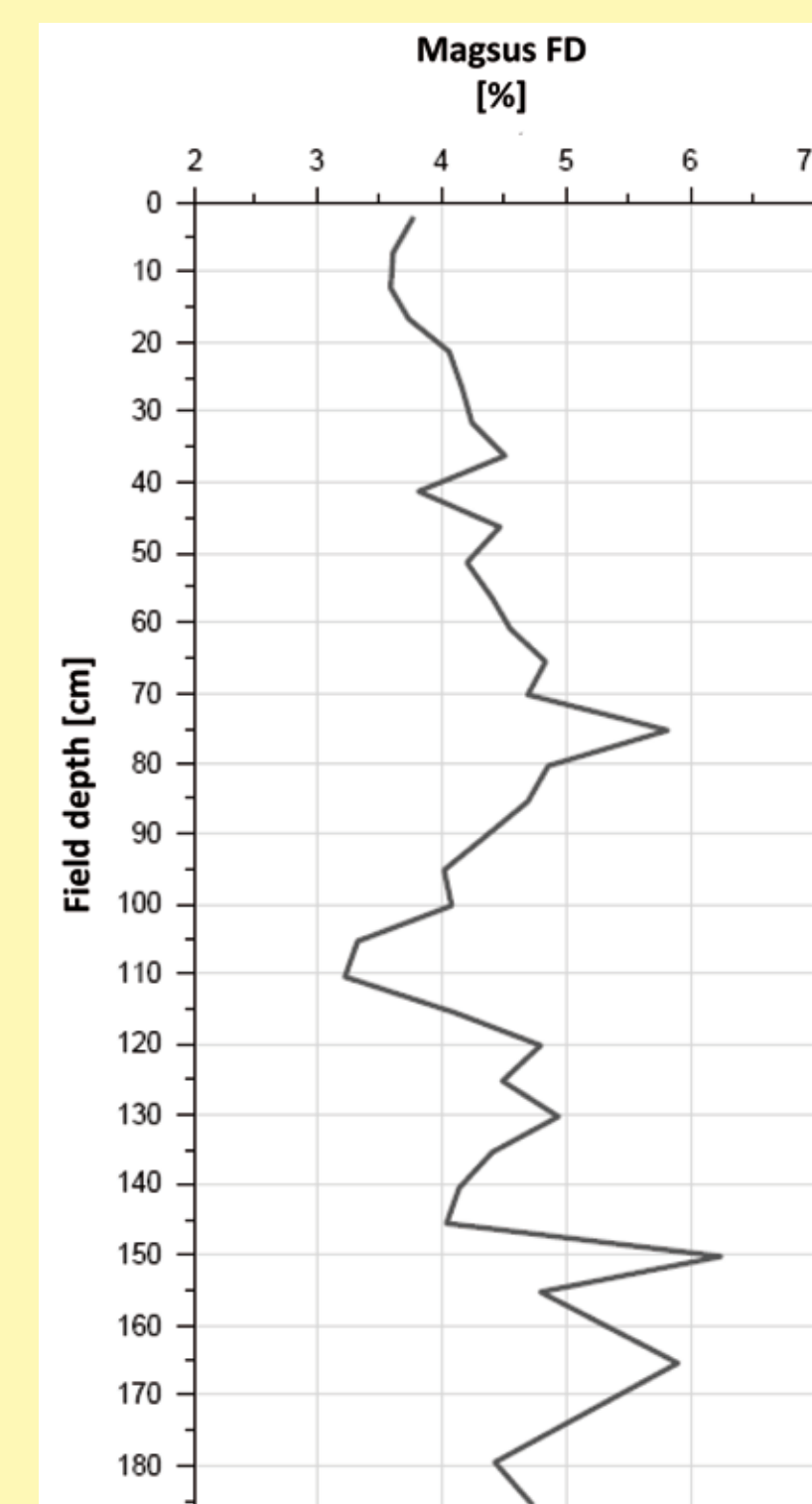


Fig. 2. Frequency dependent magnetic susceptibility of the Late Pleistocene deposits at Pockenbank 1 rock shelter: maximum values correlate with ash lenses/charcoal concentrations, while minimum values correlate with heavily cemented layers.

New excavations conducted in May 2015 generate basic framework-data on chronology and site formation processes by means of intensive geoarchaeological analysis and the application of modern excavation techniques. Detailed sedimentological (Fig. 2) and micromorphological analyses are currently underway, flanked by an AMS 14C and OSL/TL dating programme. The palaeoenvironmental context at the site is investigated by implementing anthracological analysis and palynology, as well as isotope studies on ostrich eggshell.

The geoarchaeological data will provide a framework for: (1) understanding the natural or anthropogenic origin of local processes and their interplay; (2) interpreting the palaeoecological signals; (3) reconstructing several behavioural facets of prehistoric hunter-gatherers by informed studies of the cultural material (technological, economical & functional studies).

REGIONAL SCALE



Landscape studies between Namib Desert and Escarpment (Huib Plateau)

Research on the effects of prehistoric mobility on the formation of the archaeological record is poorly developed in southern Africa (Mitchell 2008). The modelling of cultural and chronological oscillations on a regional scale remains desirable. The same is true for obviously diverging regional climatic and palaeoenvironmental fluctuations in southern Africa (Chase & Meadows 2007).

Particularly in our study region – at the margins of the Namib Desert – it still has to be investigated whether Late Pleistocene human occupational pulses (Fig. 3) do correlate with increasing rainfall. This has been proposed for similarly discontinuous and fragmented Holocene settlement phases (Kinahan 2011).

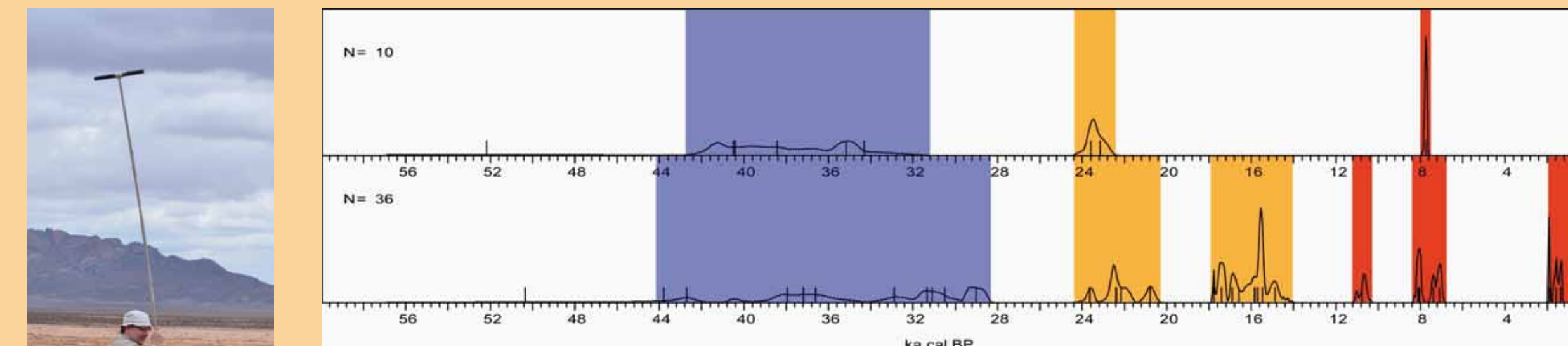


Fig. 3. Sum calibration of hitherto available 14C-dates from Apollo 11 (bottom) and Pockenbank 1 (top) indicates discontinuous but corresponding regional settlement pulses associated with late MSA (blue), early LSA (orange) and Holocene LSA (red) assemblages.

Fig. 4. Sediment coring of vleidelpos deposits at the foot of the Escarpment.

The topographic position of Pockenbank 1 allows the tracing of both North-South as well as East-West connections. While the former are important to identify the varying spatial and temporal extent of several cultural complexes (Ossendorf 2013), the latter additionally covers human land use between the Escarpment and the Namib Desert plains, including the Atlantic coastline. Considering other Late Pleistocene archaeological sites (Vogelsang 1998), a valid regional signal can be expected. This enables the reconstruction of several aspects of (changing) regional adaptations of *desert foragers* (Veth et al. 2005).

Archaeologically, the study of *technological organization*, raw material provenance and subsistence studies will yield important clues on land-use patterns, long-distance transport and movement, and use of marine resources. The analysis and dating of lacustrine and aeolian deposits (Fig. 4) in direct regional context of Pockenbank provides an ideal opportunity to study this relationship between palaeoenvironmental changes and human occupation of the area and to develop a more nuanced understanding of hydrological (Fig. 5), geomorphological and environmental processes in the region.

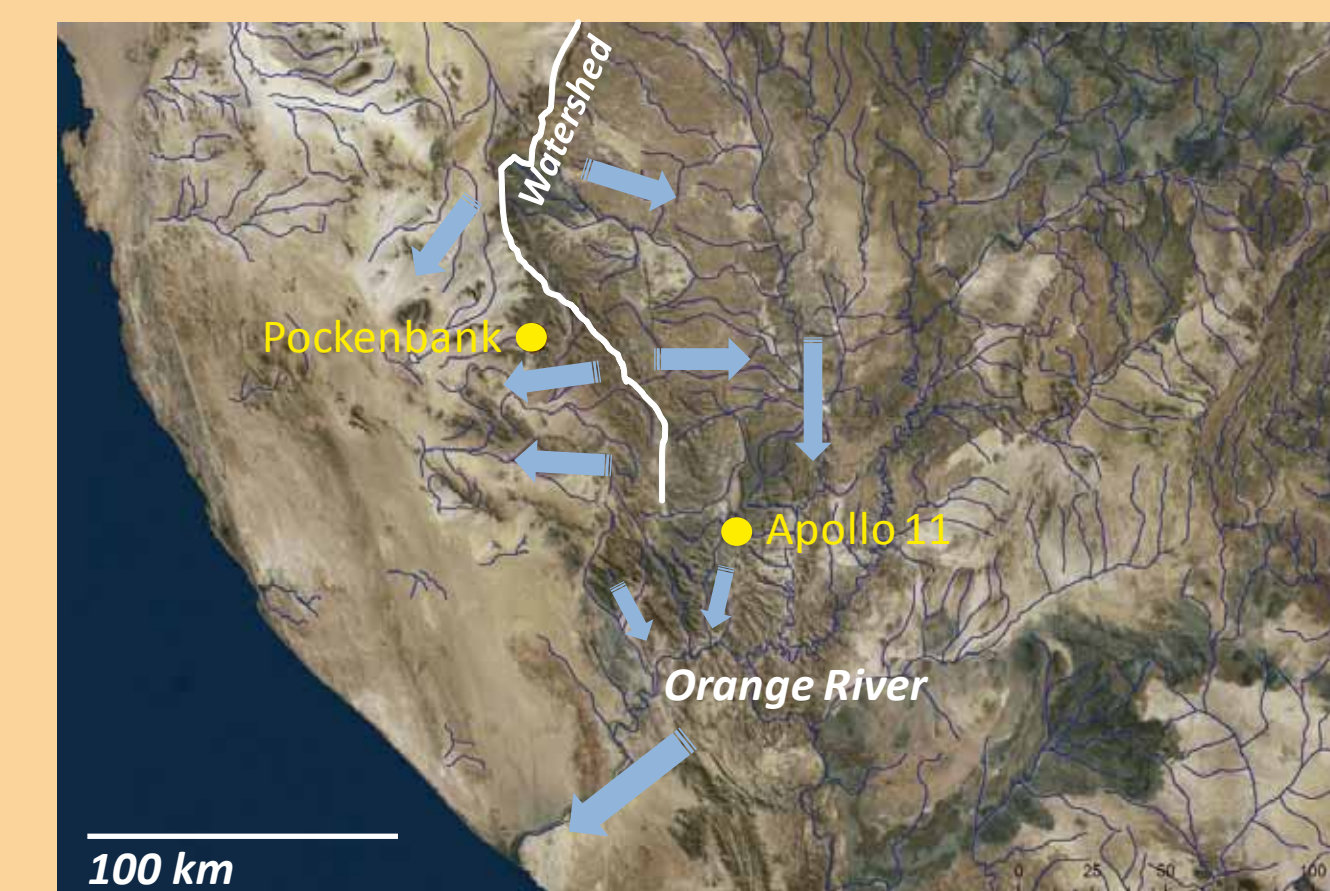


Fig. 5. South-western Namibian research area with major drainage systems north of the only perennial river (Orange River) and location of Apollo 11 and Pockenbank 1 rock shelter.

SUBCONTINENTAL SCALE



Late Pleistocene climatic fluctuations & interrelation with prehistoric networks

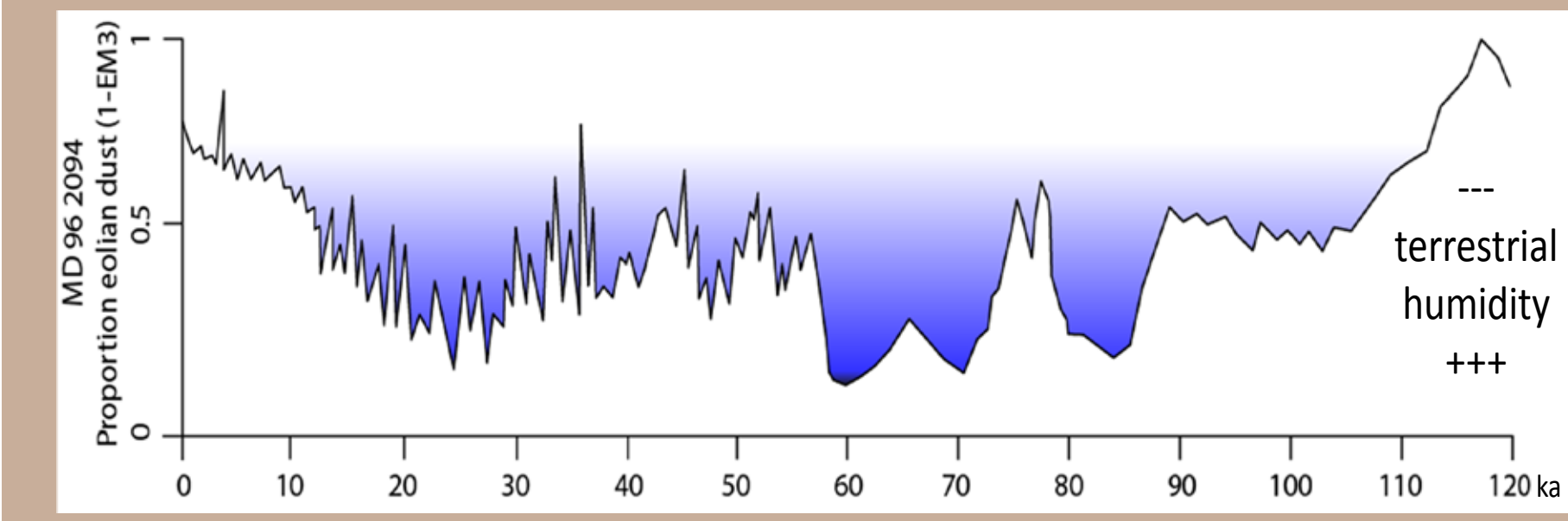


Fig. 6. Proportions of aeolian dust from a marine core off Namibia (Walvis Ridge), reflecting Late Pleistocene continental humidity in south-western Africa (modified after Stuut et al. 2002).

Mackay et al. (2014) have proposed changing phases of human fragmentation and coalescence on a subcontinental scale, which correspond to varying degrees of prehistoric interaction. These are linked with broad-scale diverging climatic regimes along three axes (Chase & Meadows 2007), likely to coincide at least temporarily with phases of regional isolation (Mitchell 2002).

Additionally, static culture-stratigraphic horizons are increasingly questioned in favour of a more dynamic view on cultural trajectories in southernmost Africa (Porráz et al. 2013), although research on processes and contexts (e.g. demographic pulses, transfer of innovations, climatic shifts [Fig. 6]) is only beginning to emerge. Finally, the marginality of desert environments has been postulated but never convincingly proved (Thackeray 2005).

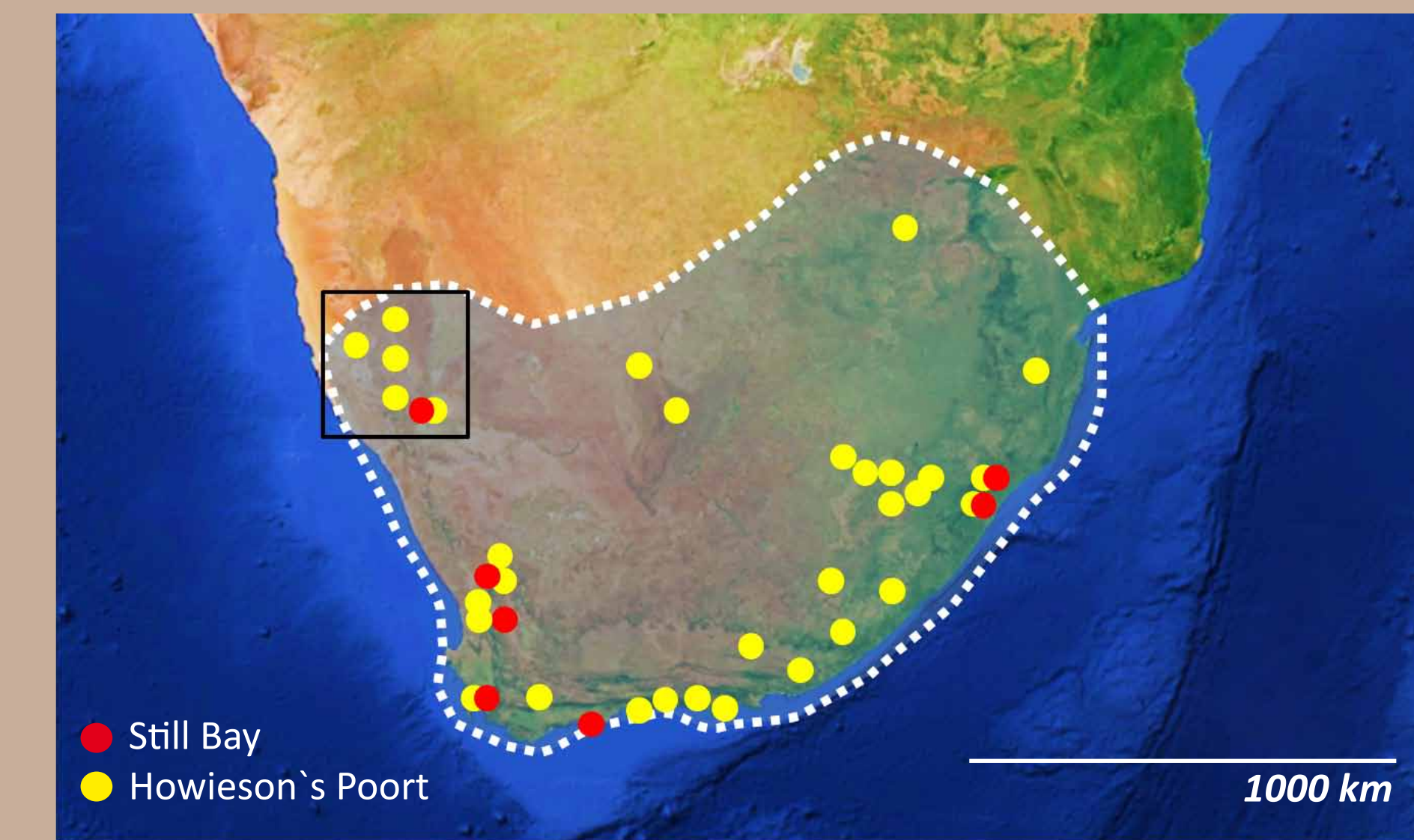


Fig. 7. Distribution of southern African sites with known *Still Bay*- and *Howieson's Poort*-assemblages in stratified deposits (modified after Jacobs et al. 2008; Henshilwood & Dubreuil 2011).

The south-western Namibian research region – uniting the three most arid biomes of southern Africa (Desert, Nama Karoo, Succulent Karoo) and influenced by both summer and winter rainfall regimes – is crucial in order to test for the above mentioned hypotheses: it currently constitutes the northwesternmost distribution of *Still Bay*- and *Howieson's Poort*-complexes (Fig. 7). Moreover, a complex and enigmatic Late Pleistocene settlement pattern has already become visible (Fig. 3) – consisting of similar occupational pulses, but not necessarily synchronous cultural developments compared to other southern African regions.

Our project will shift attention from local centres to peripheral regions of subcontinental prehistoric networks, ultimately aiming at the identification of cultural/behavioural and environmental variables leading to the success or failure of Late Pleistocene populations.

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