

# Archaeology in the Sand Sea: Updates on research and dating of the sites south of Gobabeb

George Leader  
with Ted Marks, Abi Stone, Rachel Bynoe, Kaarina  
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# The Namib Sand Sea (NSS)

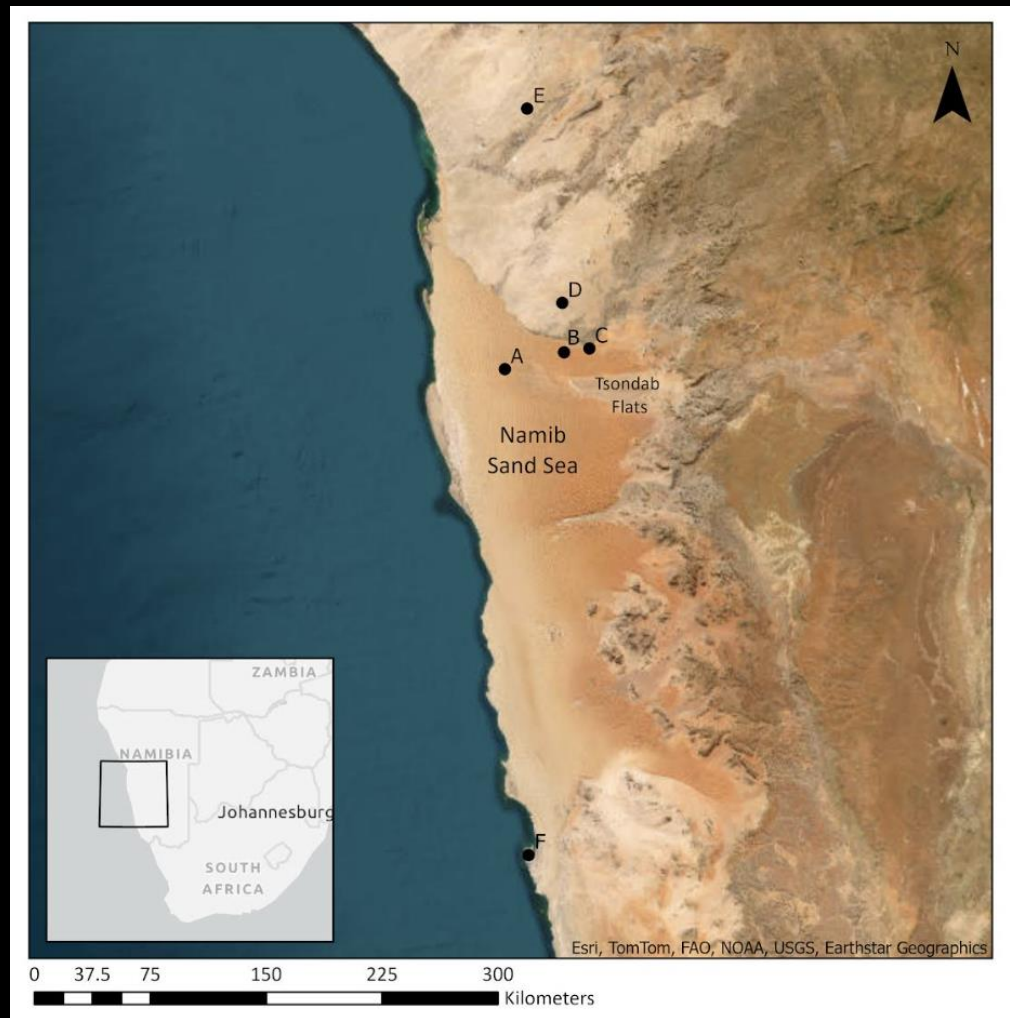
34,000 km<sup>2</sup> from Lüderitz to Walvis Bay, bounded by the Great Escarpment and the Atlantic

Current NSS likely accumulated over the past 2-3 Ma based on input rates

Miocene “Proto-NSS” represented by Tsondab Sandstone formation

Miocene surfaces incised by E-W flowing rivers

Dunes ranging from >100 ka to <100 years old



2024



Quaternary Science Advances

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Landscape evolution and hydrology at the Late Pleistocene archaeological site of Narabeb in the Namib Sand Sea, Namibia

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2023

JOURNAL OF FIELD ARCHAEOLOGY  
<https://doi.org/10.1080/00934690.2023.2219102>

 **Routledge**  
Taylor & Francis Group

 Check for updates

### Revisiting the Acheulean at Namib IV in the Namib Desert, Namibia

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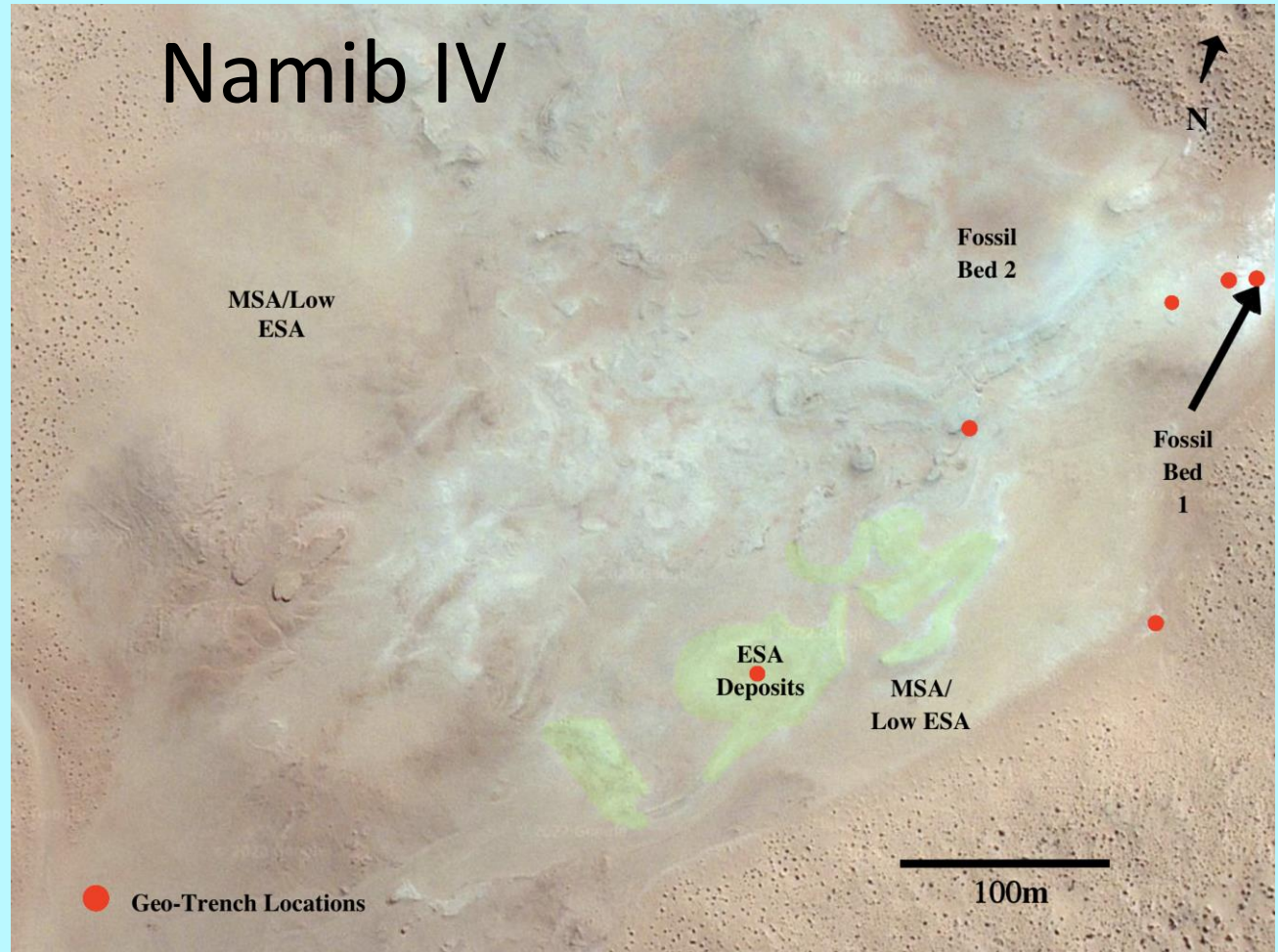
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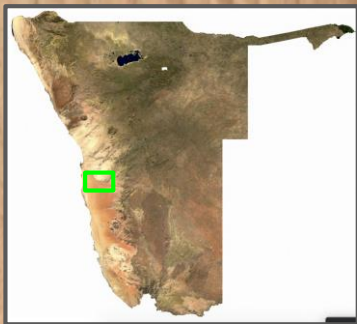
### Anibtanab: An Earlier and Middle Stone Age Site in the Namib Sand Sea

Last time we spoke...

How can we link surface artifacts and deposits?

Six geo-trenches were excavated at the edges of the deposits... thus providing a contact point between the deposits.





Gobabeb Research  
Station

Kuiseb River

● Narabeb West

● Anibtanab

● Namib IV

Narabeb ●

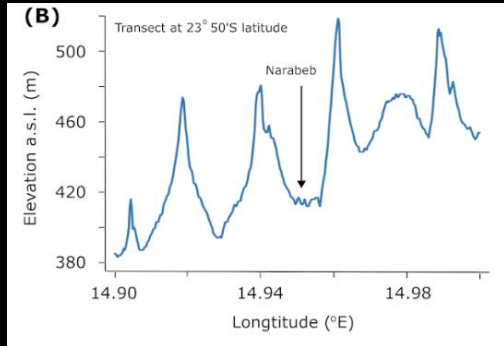


Tsondab Flats

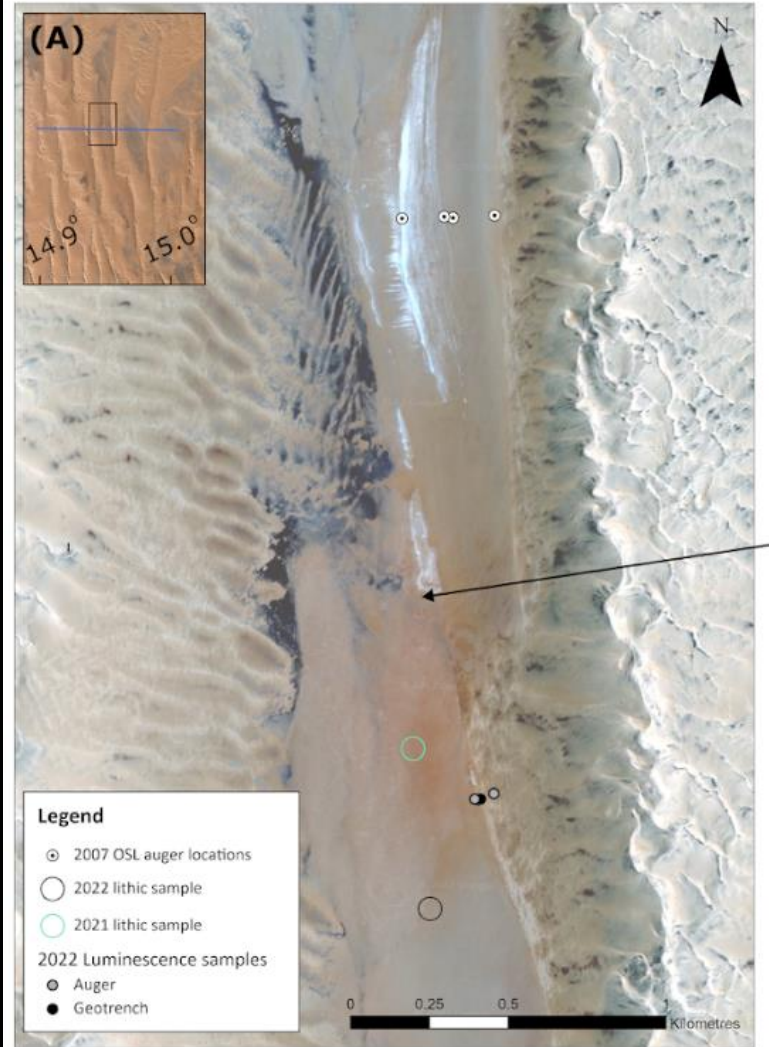
Tsondab Vlei

0 10 20 km





- 2 15 x 15 m lithic sampling grids
- Auger samples in 2 ~E/W transects
- 2 Geotrench excavations



**Southern African MSA material at Narabeb (Levallois flakes/cores, blades, denticulates, etc.)**

**N=302 lithics analyzed in the surface grids**

**~93% flakes and debitage, ~6% cores, ~1% formal tools**

**96% on local gray/brown chert**

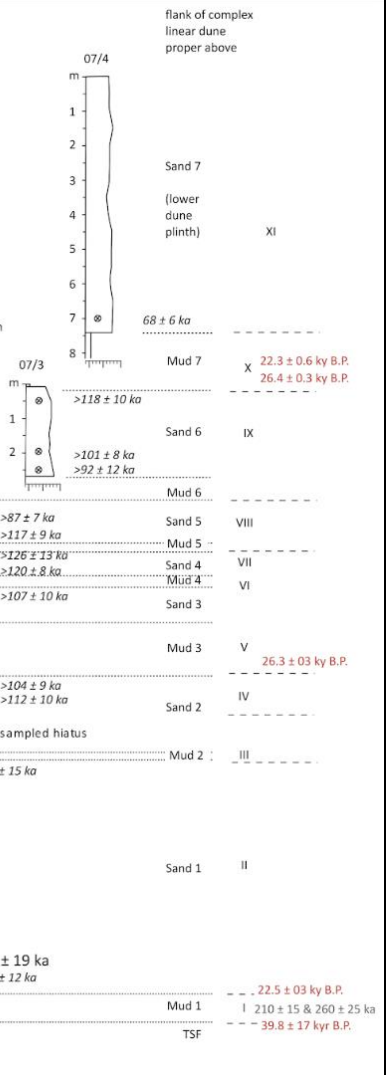
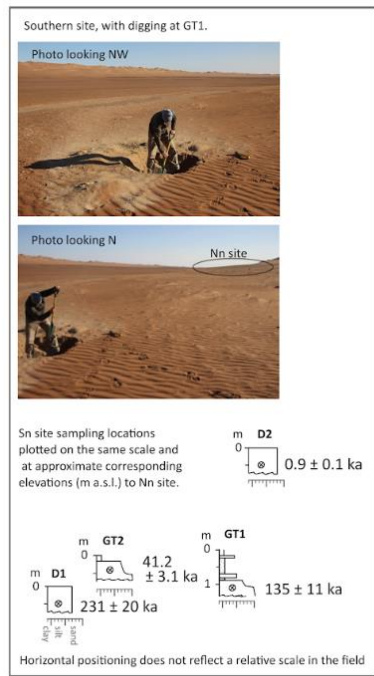
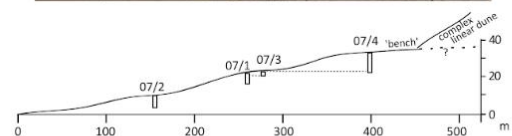


Alternating mud and aeolian sand units through an ~8 m sequence

Muds indicate low-energy lacustrine environment w/ freshwater diatoms

Luminescence dates indicate surface water at  $230-220 \pm 20$  ka and  $130 \pm 10$  ka, with further minor water-lain sediments at  $43 \pm 3$  ka

See our article in QSA for detailed discussion of dating results





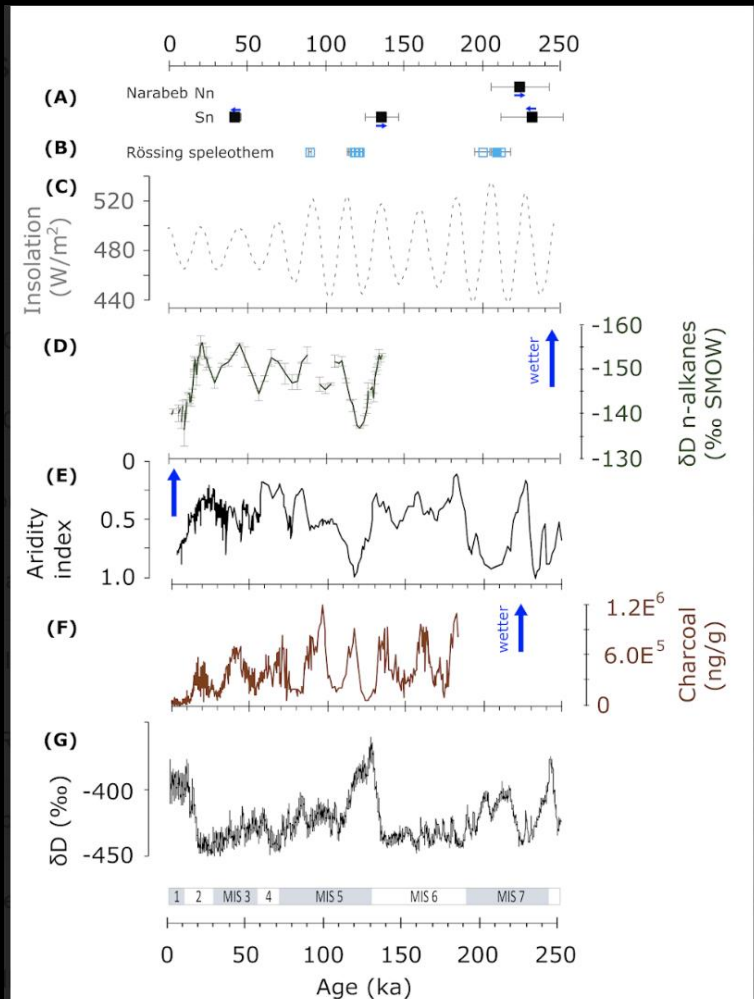
Dates for surface water at Narabeb broadly correspond to U-Th dates for periods of heightened speleothem growth at Rössing Cave approx. 150 km north (Geyh and Heine 2014)

Narabeb dates also appear to correspond with wetter phases around the MIS 7/6 and MIS 6/5 transitions based on marine sediment core data (Stuut et al., 2002)

Unknowns:

What is driving wetter phases in the NSS?

What hydrologic processes are responsible for transporting water to Narabeb?



# Conclusions on Narabeb

**Ponded water at Narabeb at ca. 230-220 ± 20 ka and 130 ± 10 ka (approx. at MIS 7/6 and MIS 6/5 transitions), additional minor water-lain sediments at ca. 43 ± 3 ka**

**Problematic associations between surface artifacts and these dates, but this is the best hypothesis we currently have for MSA chronology in the NSS**

**Typical MSA technology, signs of on-site tool manufacture using local materials**

**Complex and asynchronous patterning of Late Pleistocene sites in NSS needs further research**



Gobabeb Research

ESA

Station

LSA + MSA?

Kuiseb River

● Narabeb West  
MSA  
ESA?

Narabeb ●  
MSA

No Material?

● Namib IV  
ESA + MSA

● Anibtanab  
ESA + MSA

Tsondab Flats

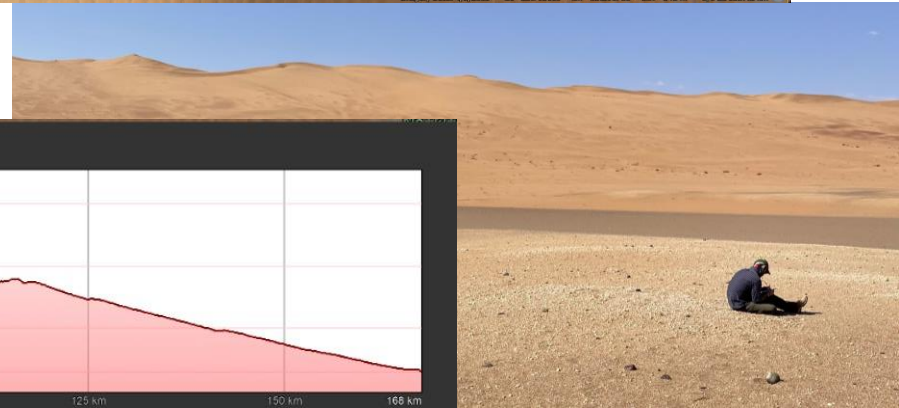
Tsondab Vlei

0 10 20 km



# 2024 (Last week)

- **Walked** across the Sand Sea.
- Mapped 55 archaeological locations
- Recorded 125 pan and landscape features



No, really, we actually walked... 160km. 12 days.



# Preliminary Observations from transect:

## Why no ESA material along the transect?

### Could it be that:

- There is a “missing” older landscape?
- That the Tsondab is younger? (Not flowing during ESA)
- Tsondab Sandstone not homogeneous?



# **Please check out some of our recent work:**

**Stone, A., Leader, G. M., Stratford, D., Marks, T., Bynoe, R., Efraim, K., Smedley, R., Gunn, A., & Marais, E. (2024) Landscape evolution and hydrology at the Late Pleistocene Archaeological Site of Narabeb in the Namib Sand Sea, Namibia. *Quaternary Science Advances***

**Leader, G. M., Bynoe, R., Marks, T., Stone, A., Efraim, K., Stratford, D., & Marais, E. (2023). Revisiting the Acheulean at Namib IV in the Namib Desert, Namibia. *Journal of Field Archaeology*, 48(5), 380-394.**

**Leader, G.M., Marks, T., Efraim, K., Marais, E. (2022). Anibtanab: An Earlier and Middle Stone Age Site in the Northern Sand Sea. *Journal of the Namibia Scientific Society*. Vol 69.**

**In review: Marks, T.P., Stratford, D.J., Leader, G.M., Efraim, K., Marais, E. Submitted, In Review. A Schisted Living: Exploratory Excavations of Charé Rockshelter, Namibia. Submitted to *Journal of Field Archaeology***

# Thank you to the NSS for inviting me to talk!

## Questions?

