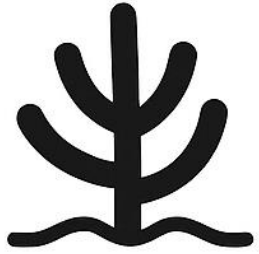


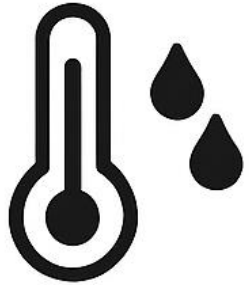
The Red Sea Survived the Last Glacial Maximum



Morgan Chakraborty, Arash Sharifi, Ali
Pourmand, Francois Tissot, Bolton
Howes, Peter Swart, Chaojin Lu, Sam
Purkis



Deep-water fossil corals survived the LGM lowstand



Seawater chemistry remained stable



Microfossils mainly persisted during this time



Red Sea did not experience basin wide sterilization

Deep-water corals indicate the Red Sea survived the last glacial lowstand

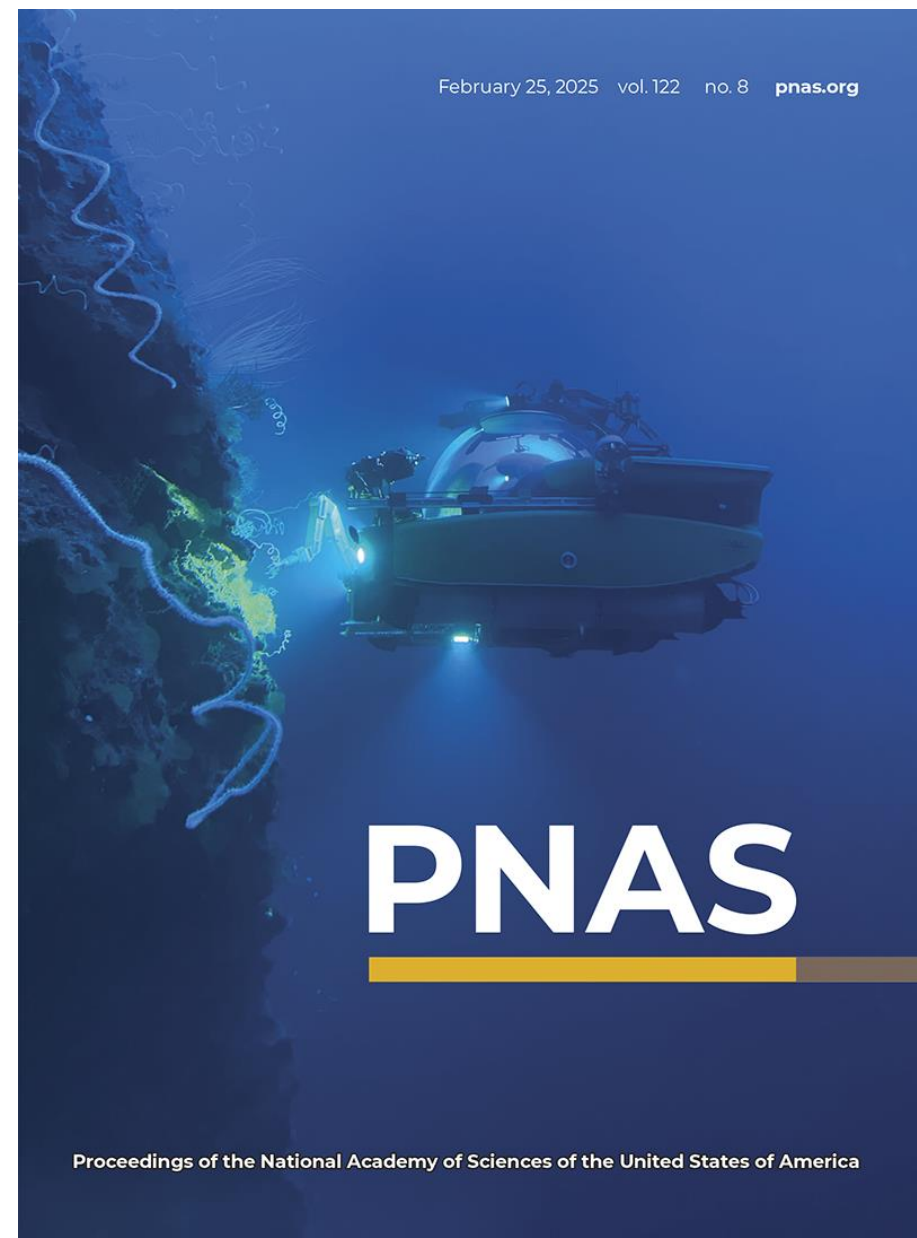
Morgan I. Chakraborty , Arash Sharifi, Francesca Benzoni, François L. H. Tissot , Ali Pourmand, Marco Taviani , Bolton Howes , Peter K. Swart, Choajin Lu, Mattie Rodrigue, and Sam J. Purkis  -7 [Authors Info & Affiliations](#)



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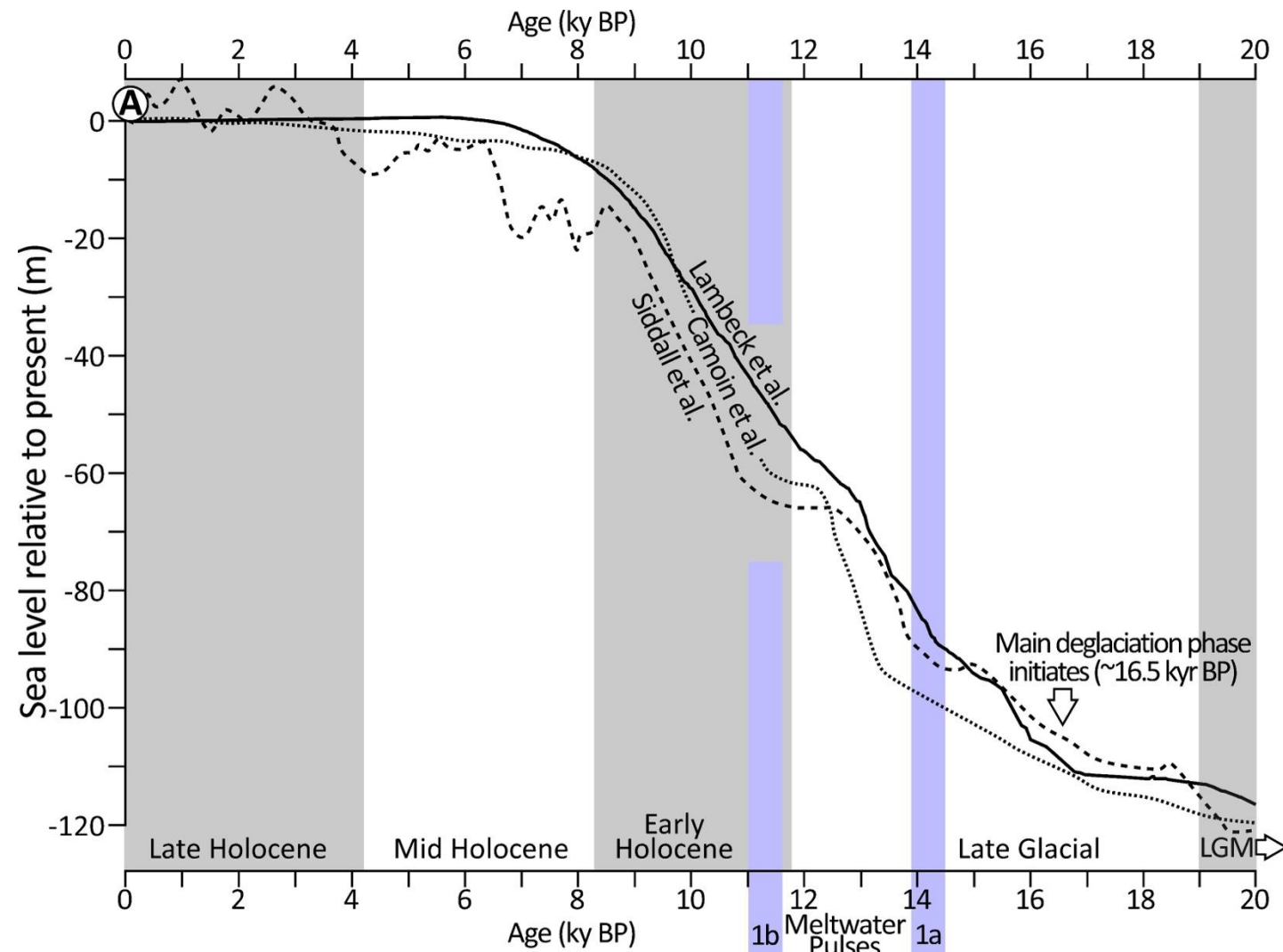
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King Abdullah University of
Science and Technology



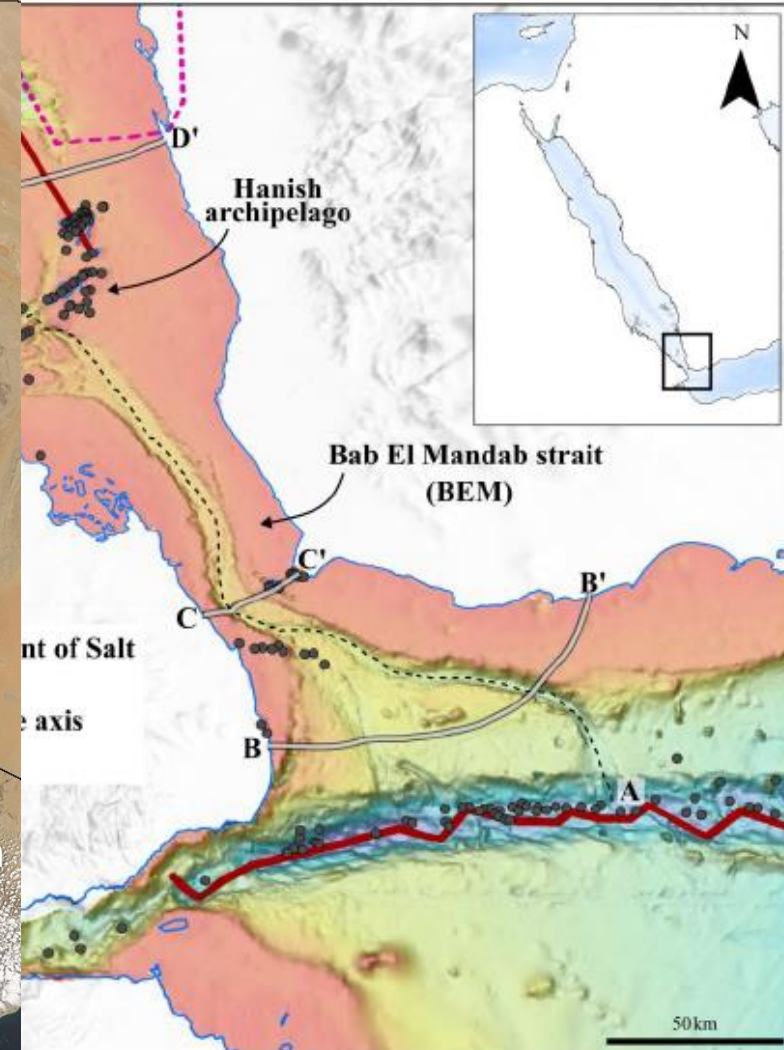
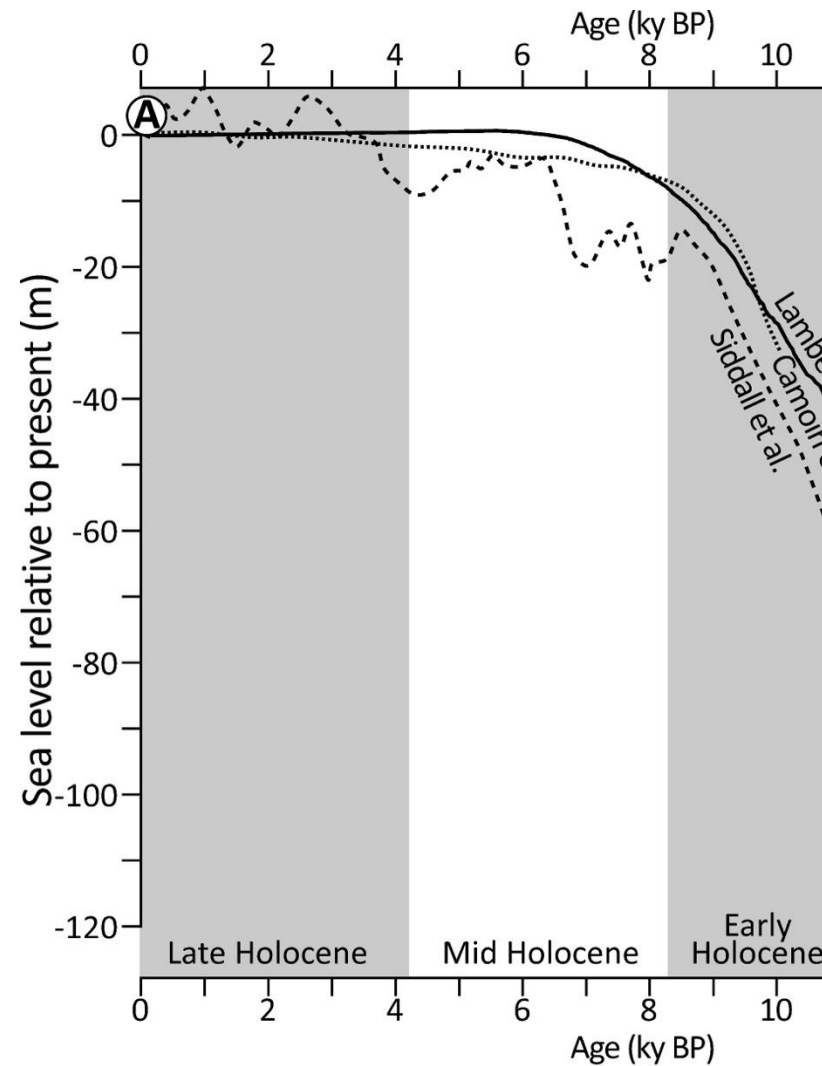
Red Sea during the LGM

Chakraborty et al., 2025



Red Sea during the LGM

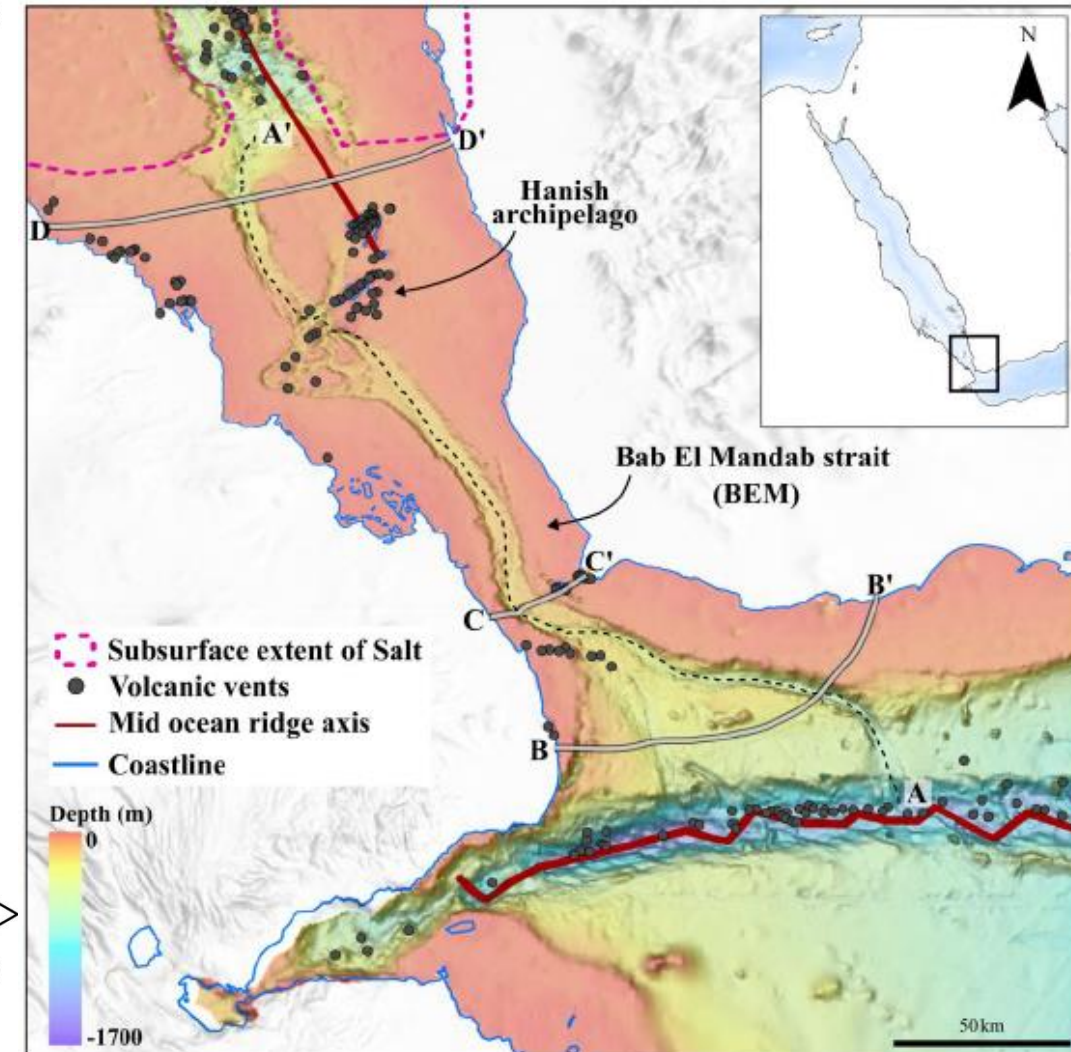
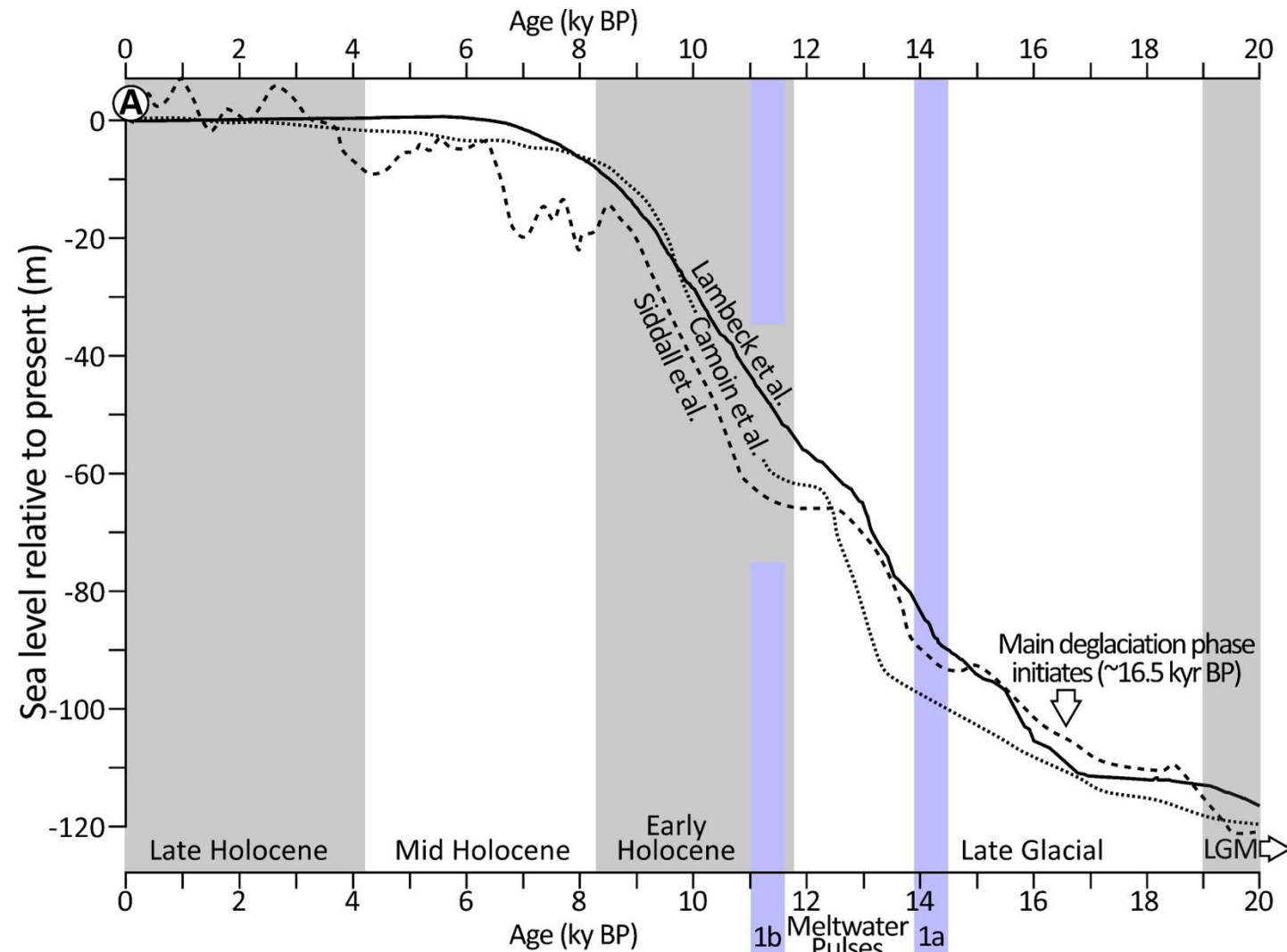
Chakraborty et al., 2025



Pensa et al., 2025

Red Sea during the LGM

Chakraborty et al., 2025



Pensa et al., 2025

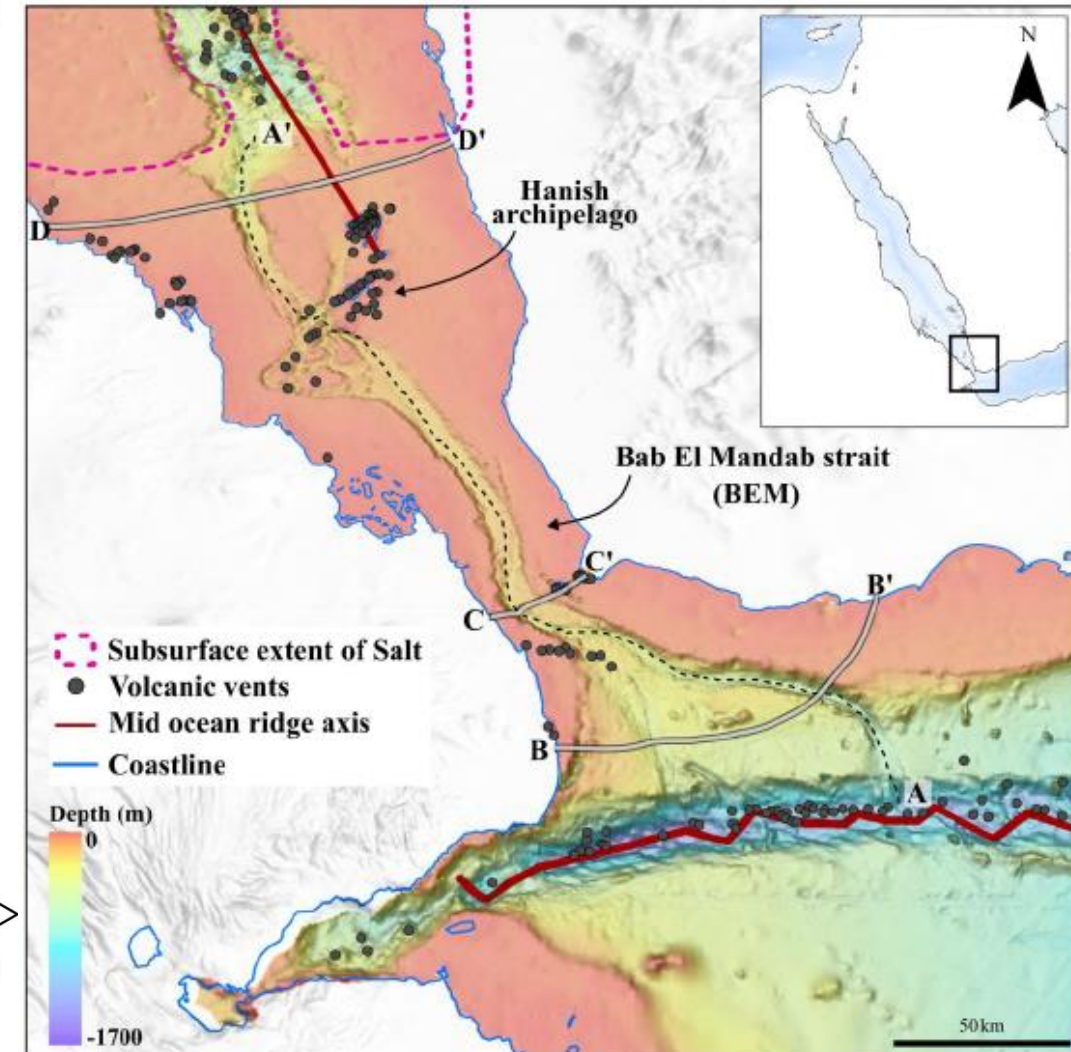
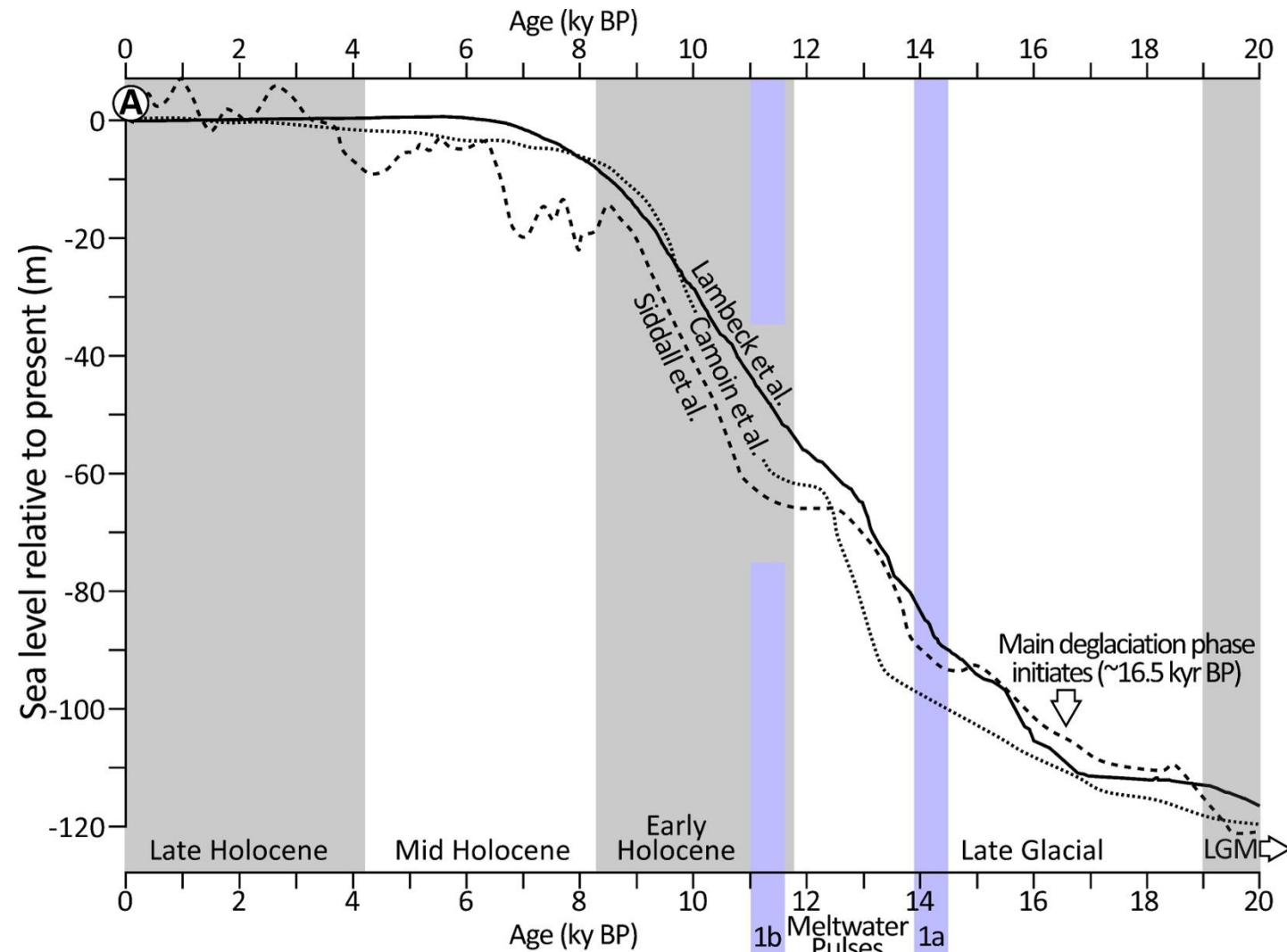
Red Sea during the LGM

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Red Sea during the LGM

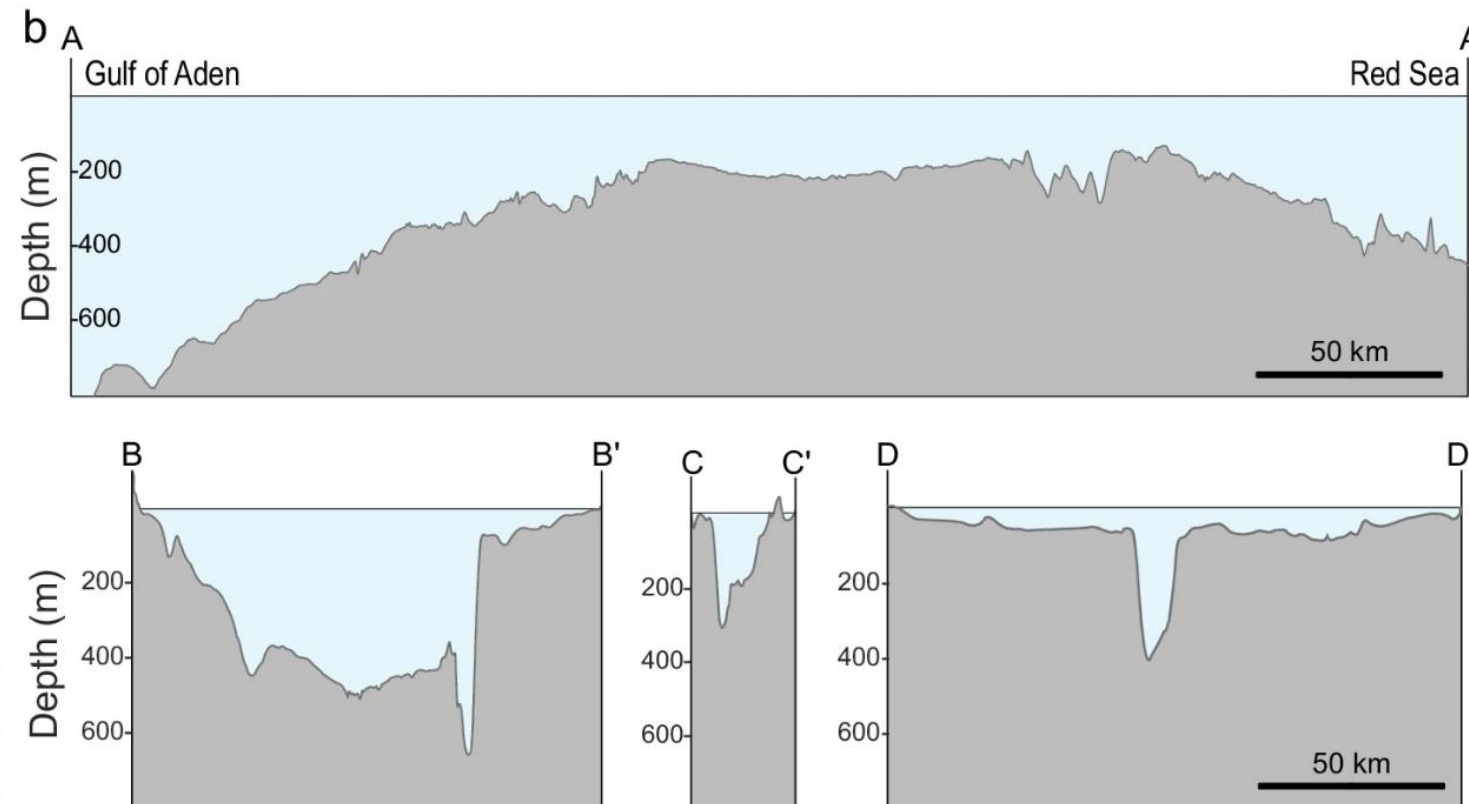
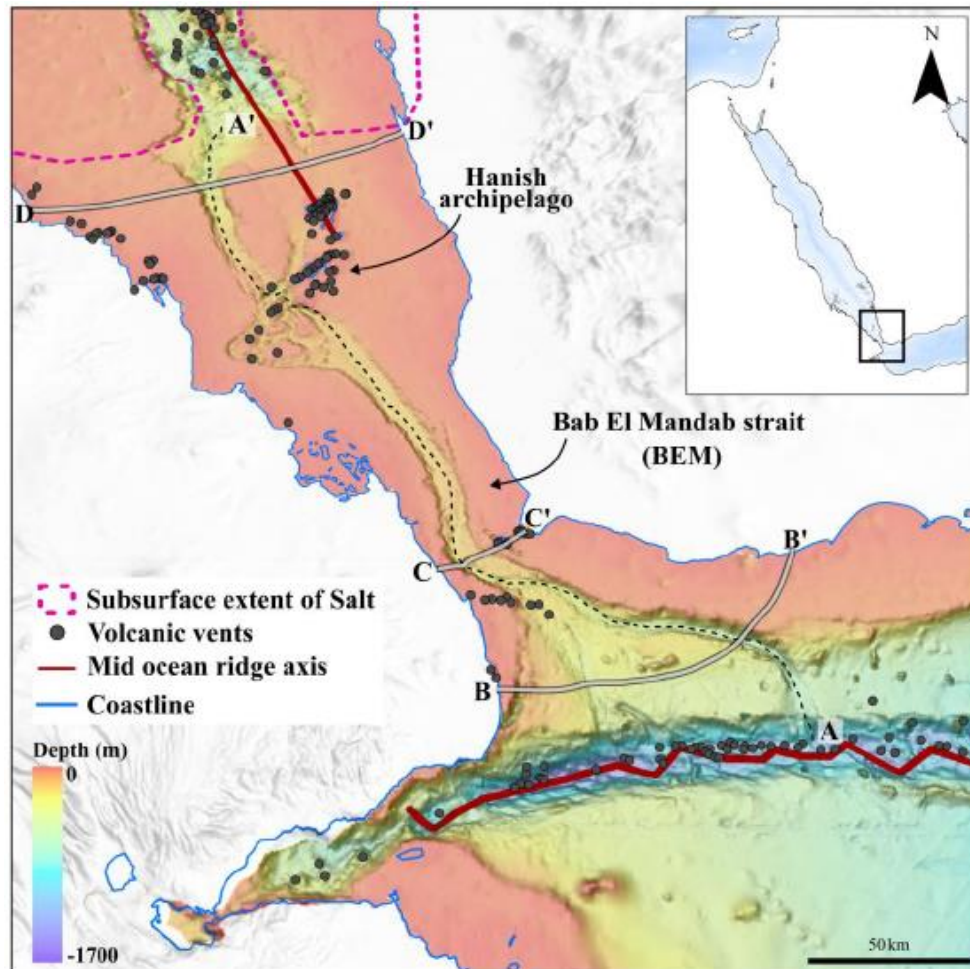
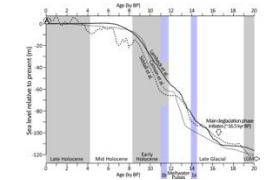
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Red Sea during the LGM

Chakraborty et al., 2025



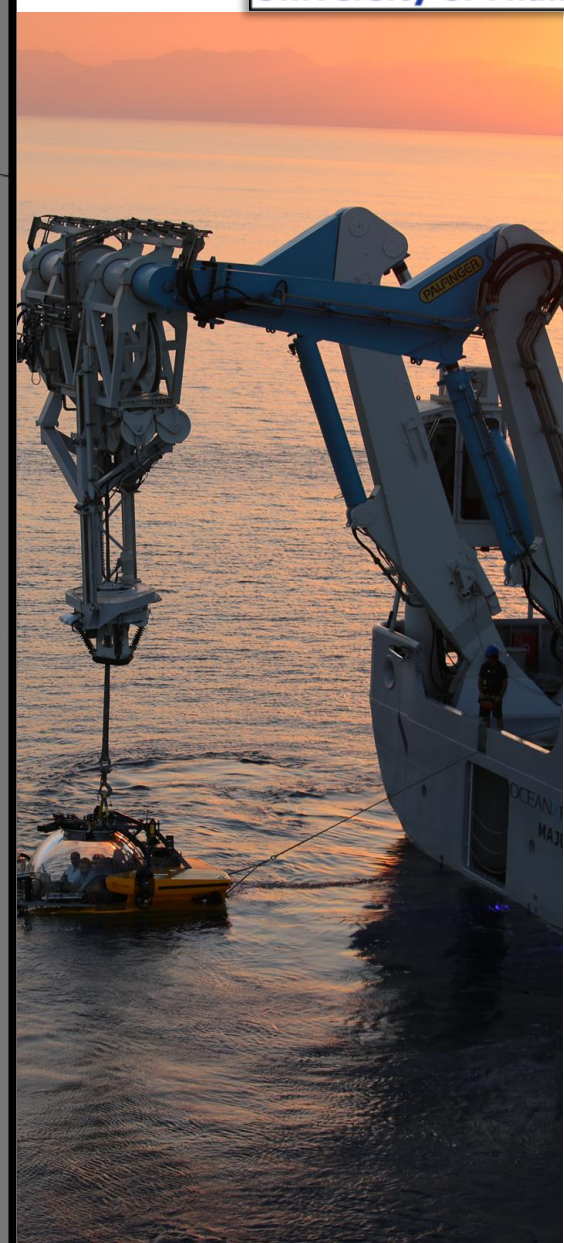
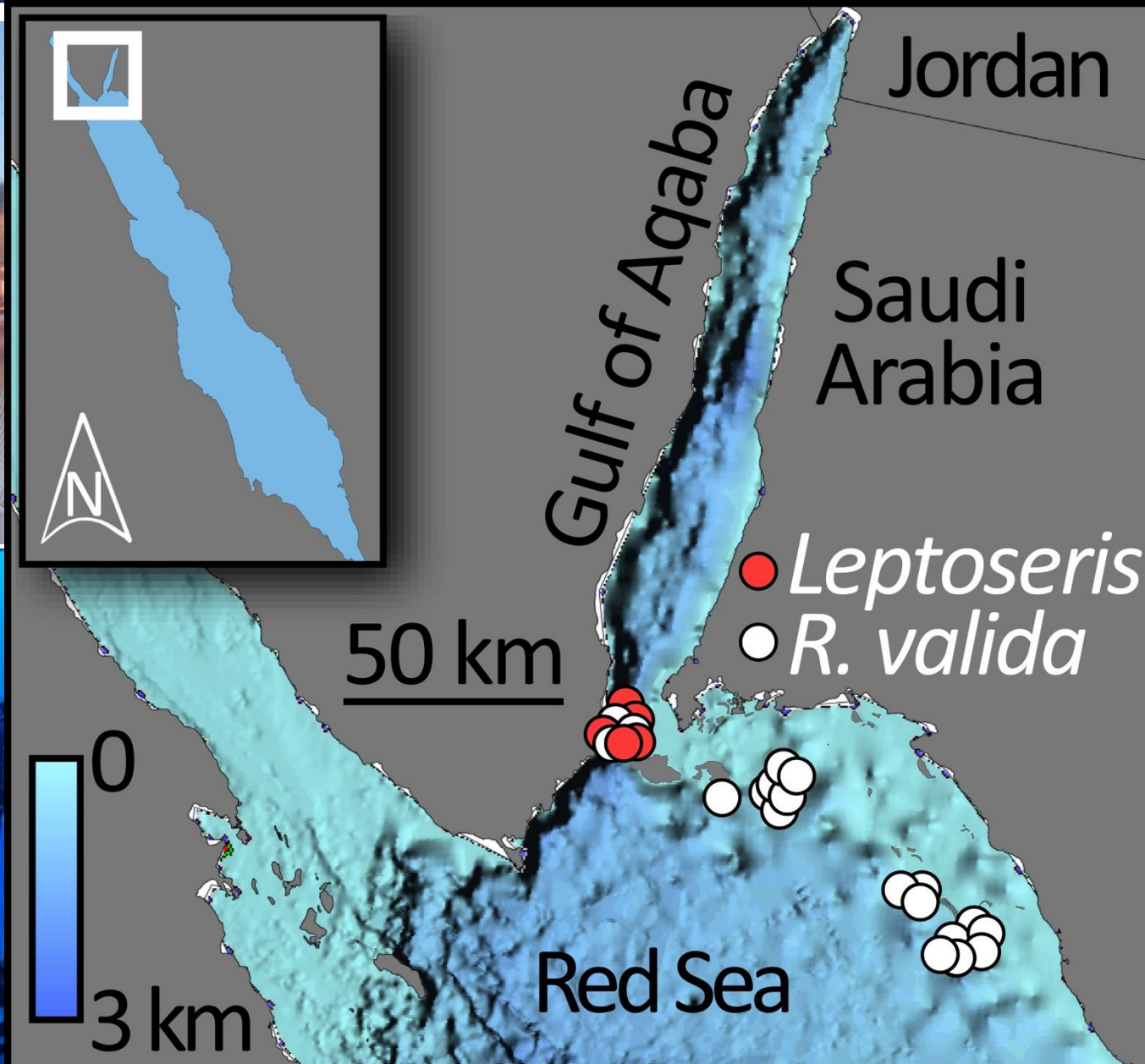
Pensa et al., 2025

Investigate how the Red Sea
responded to sea level fall

Hypothesis: the Red Sea was not
completely sterilized during the LGM

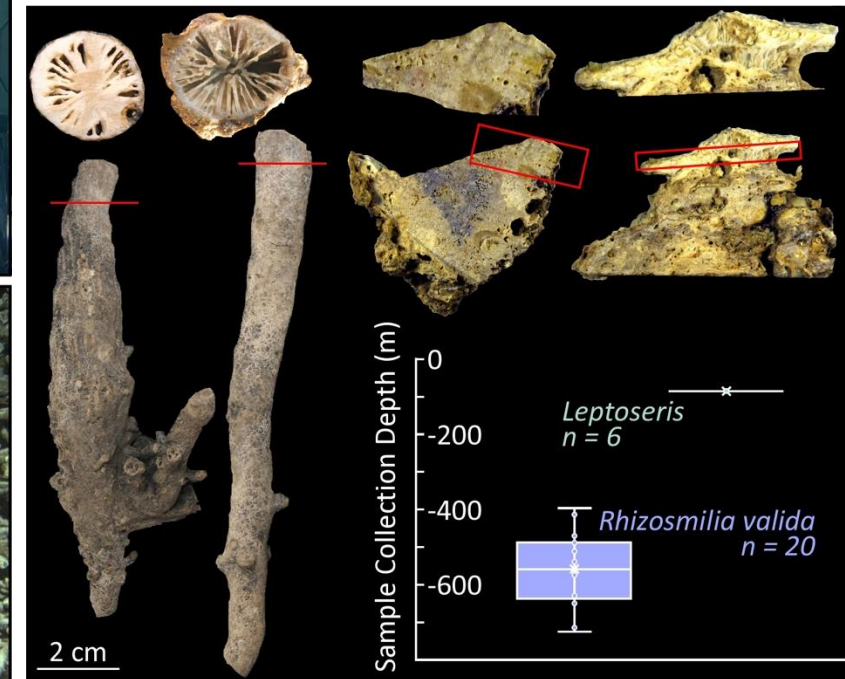
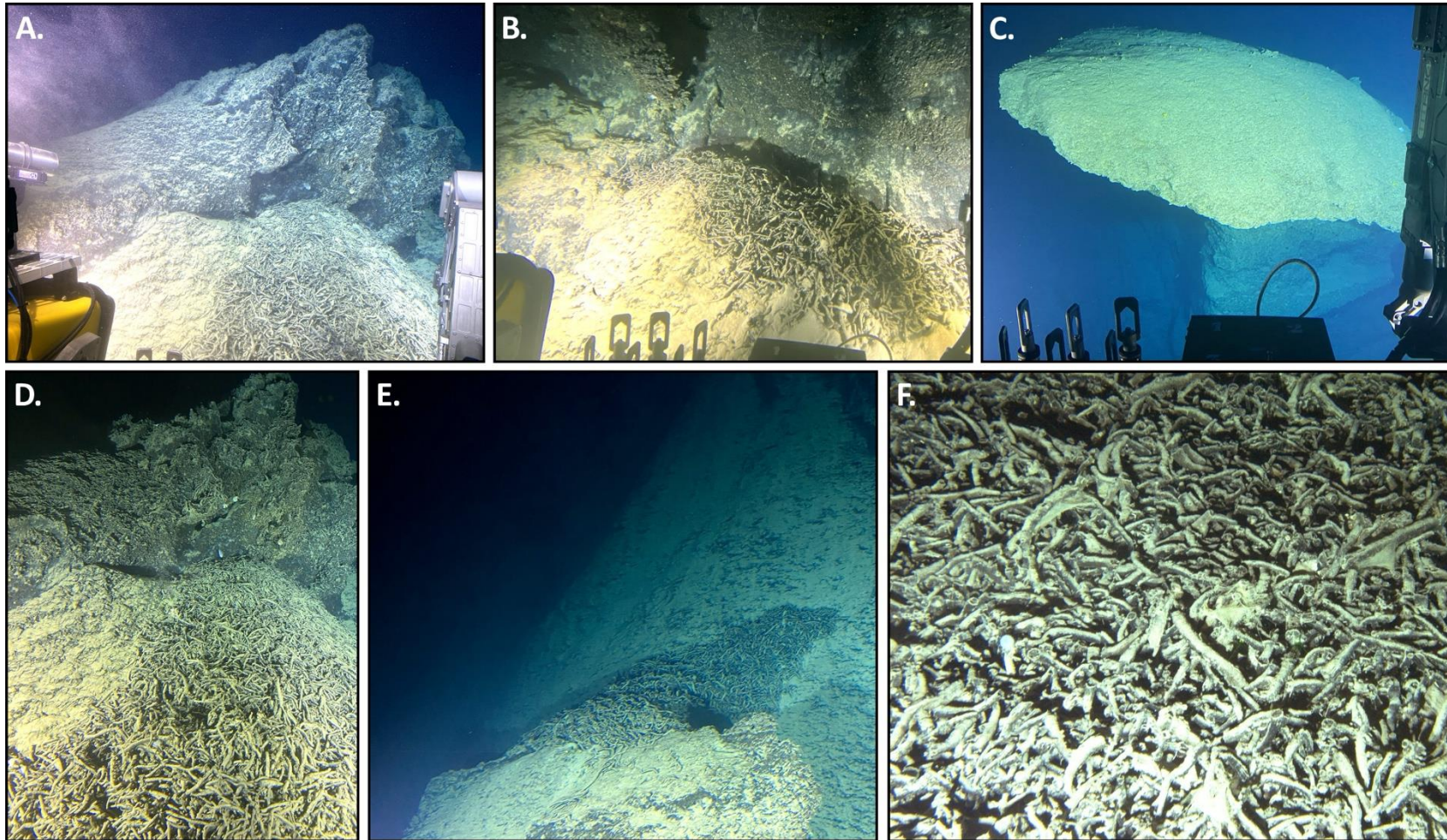
Methods - Fieldwork

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Fossil Deep-water Corals

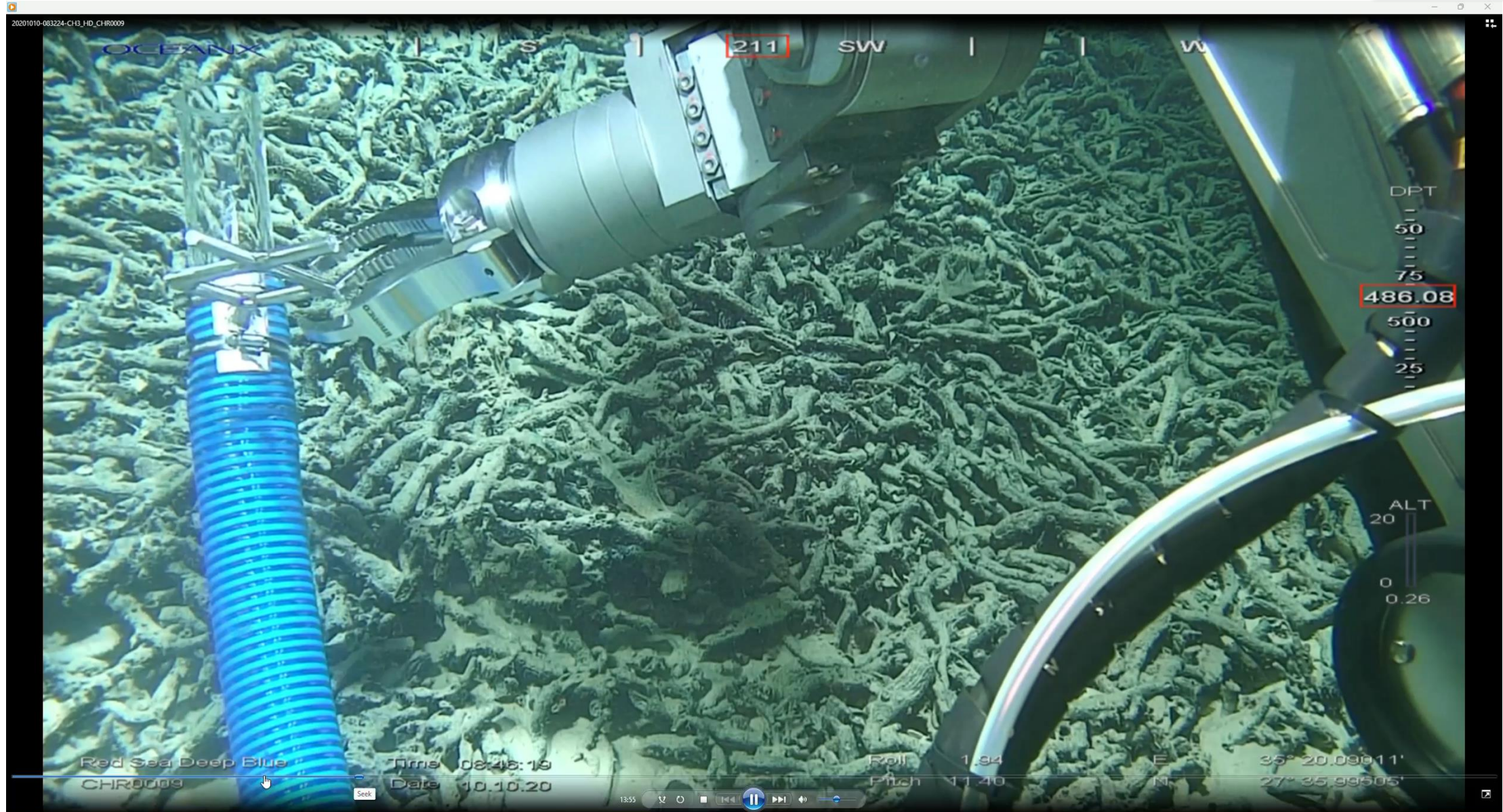
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Fossil Deep-water Corals

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Uranium-Thorium
Geochronology



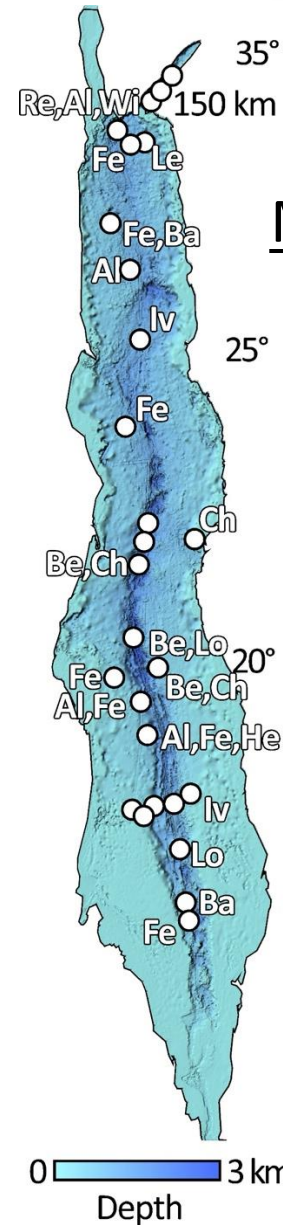
Radiogenic
Strontium



Clumped Isotope
Thermometry



Stable Oxygen
Isotopes

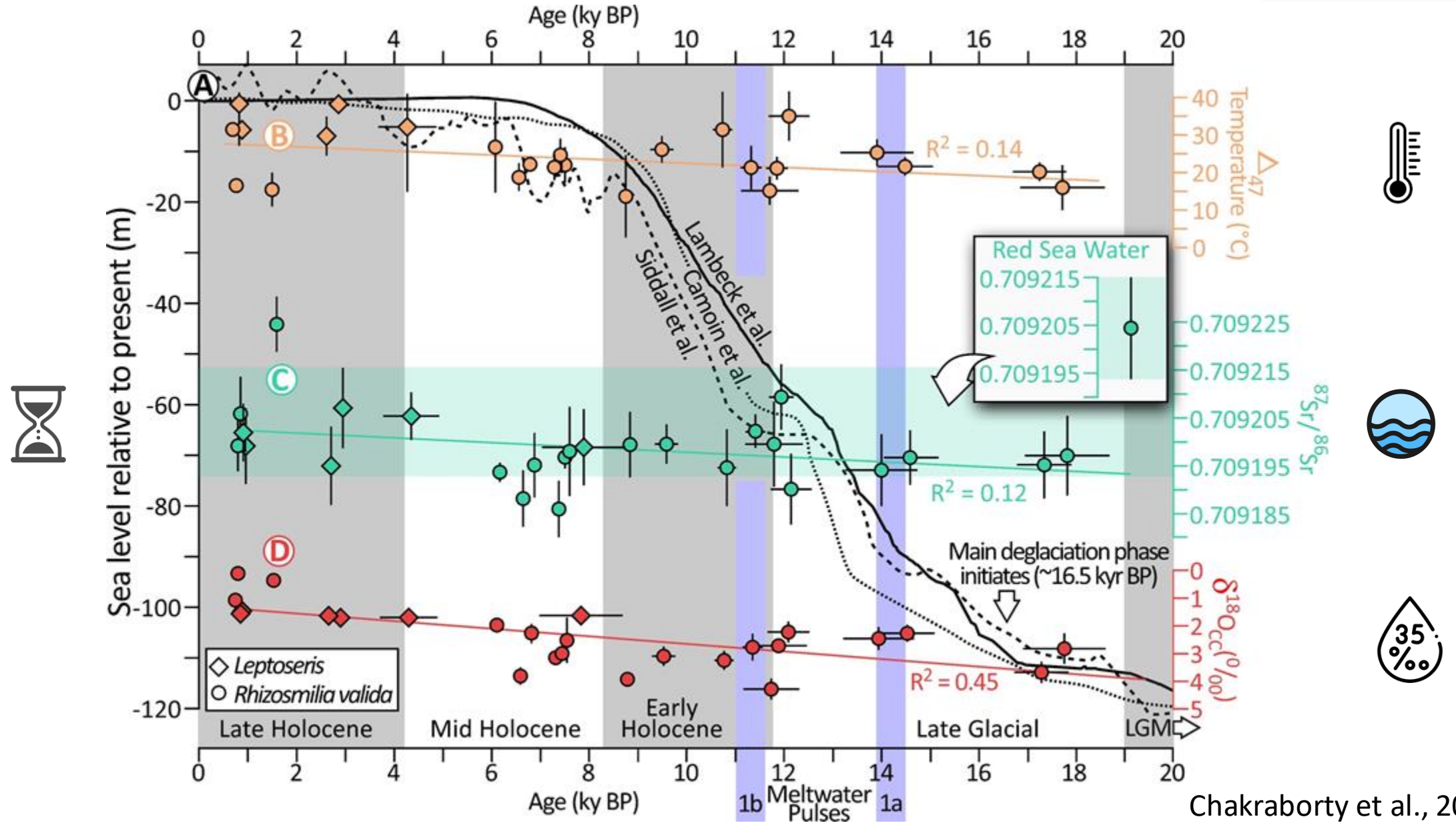


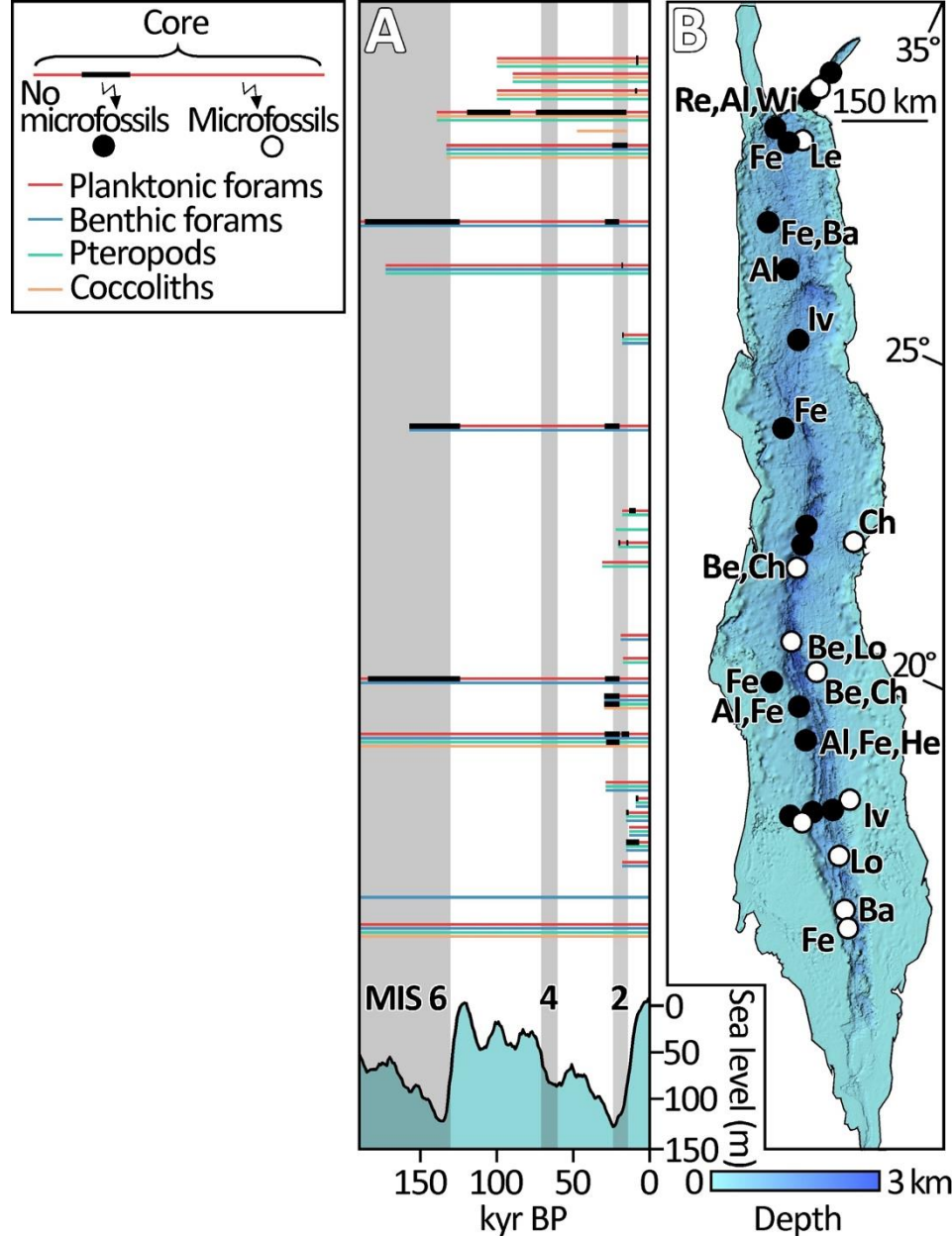
Meta-analysis

27 cores

13 studies

Results





Al: Almogi-Labin, 1982; Almogi-Labin et al., 1986; Almogi-Labin et al., 1991; Almogi-Labin et al., 1998

Ba: Badawi et al., 2005.

Be: Berggren et al., 1969

Ch: Chen et al., 1969

Fe: Fenton et al., 2000

He: Hemleben et al., 1996

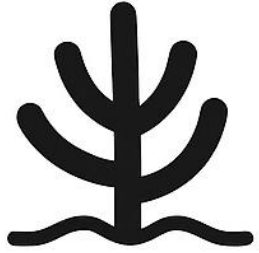
Iv: Ivanova, 1985

Le: Legge et al., 2008

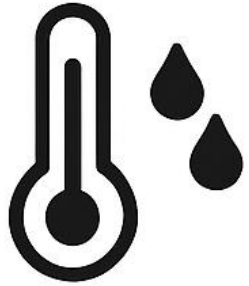
Lo: Locke and Thunell, 1988

Re: Reiss et al., 1980

Wi: Winter et al., 1983



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Use $\delta^{234}\text{U}$ to track abrupt Quaternary climate shifts

- **Method:** Screen & date 38 fossil corals with $^{234}\text{U}/^{238}\text{U}$ and trace metal concentrations
- **Goal:** Develop $\delta^{234}\text{U}$ as a paleo proxy and link Red Sea variability to Arabian climate records



Thank you!

Chakraborty et al., 2025



Sam Purkis
Marco Taviani
Bolton Howes
Peter Swart

Ali Pourmand
Arash Sharifi
Francesca Benzoni
Francois Tissot

Chaojin Lu
Mattie Rodrigue
OceanX crew
Mike Ackerman



OCEANX



Thanks for listening! Questions?

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