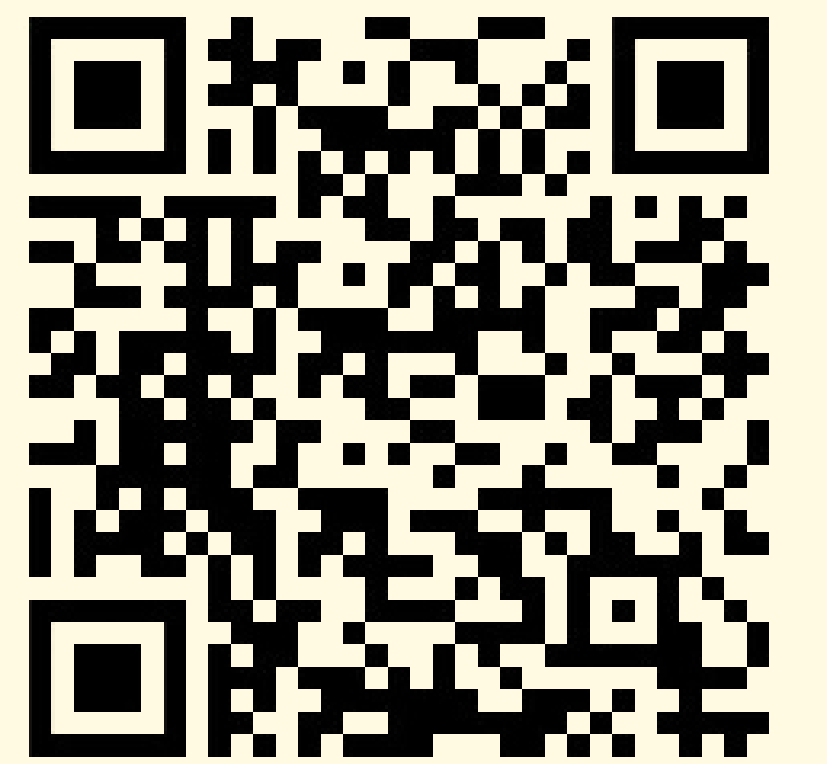


Deglacial slowdown of Meridional Overturning enhanced ventilation of the North Atlantic Oxygen Minimum Zone

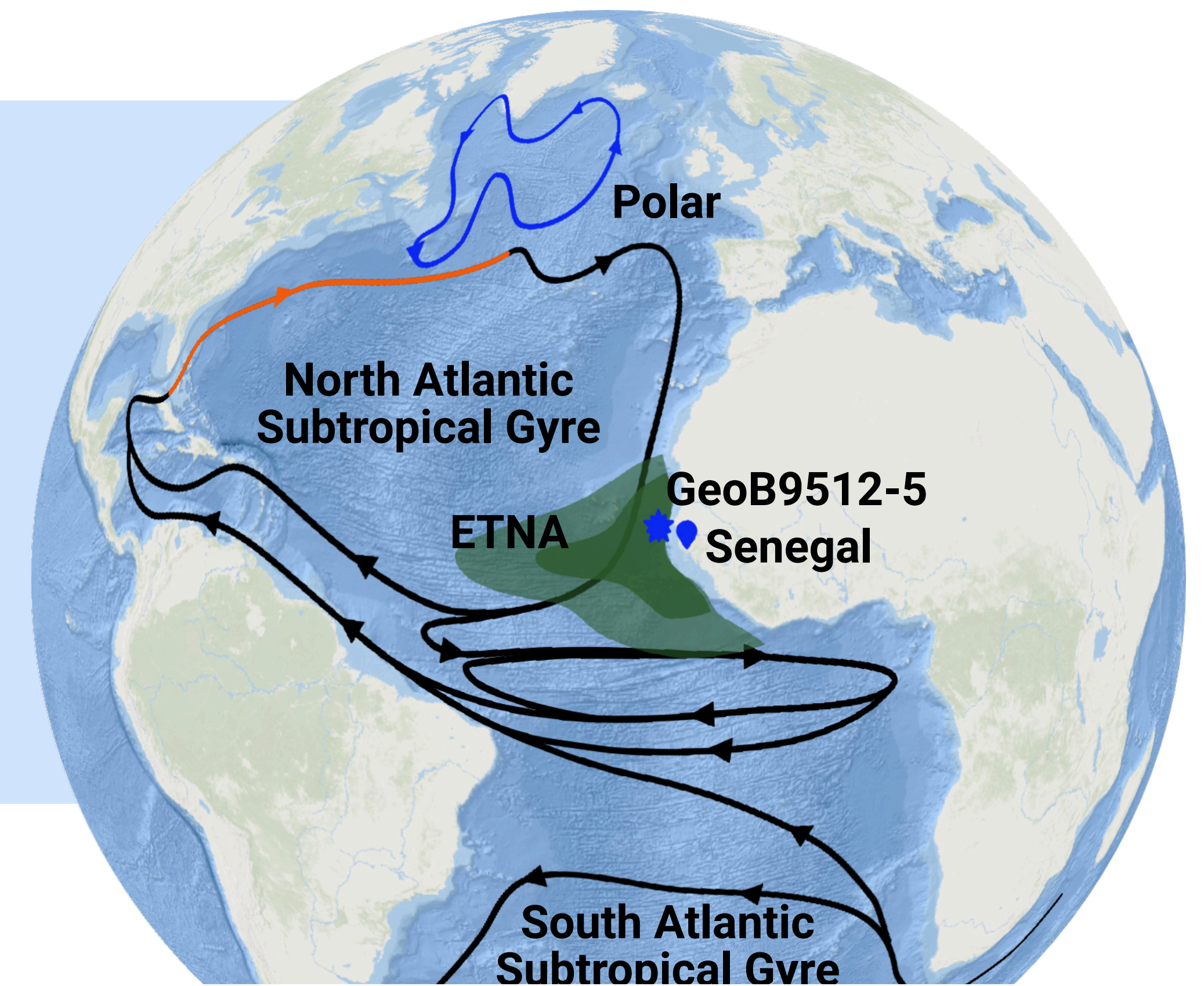
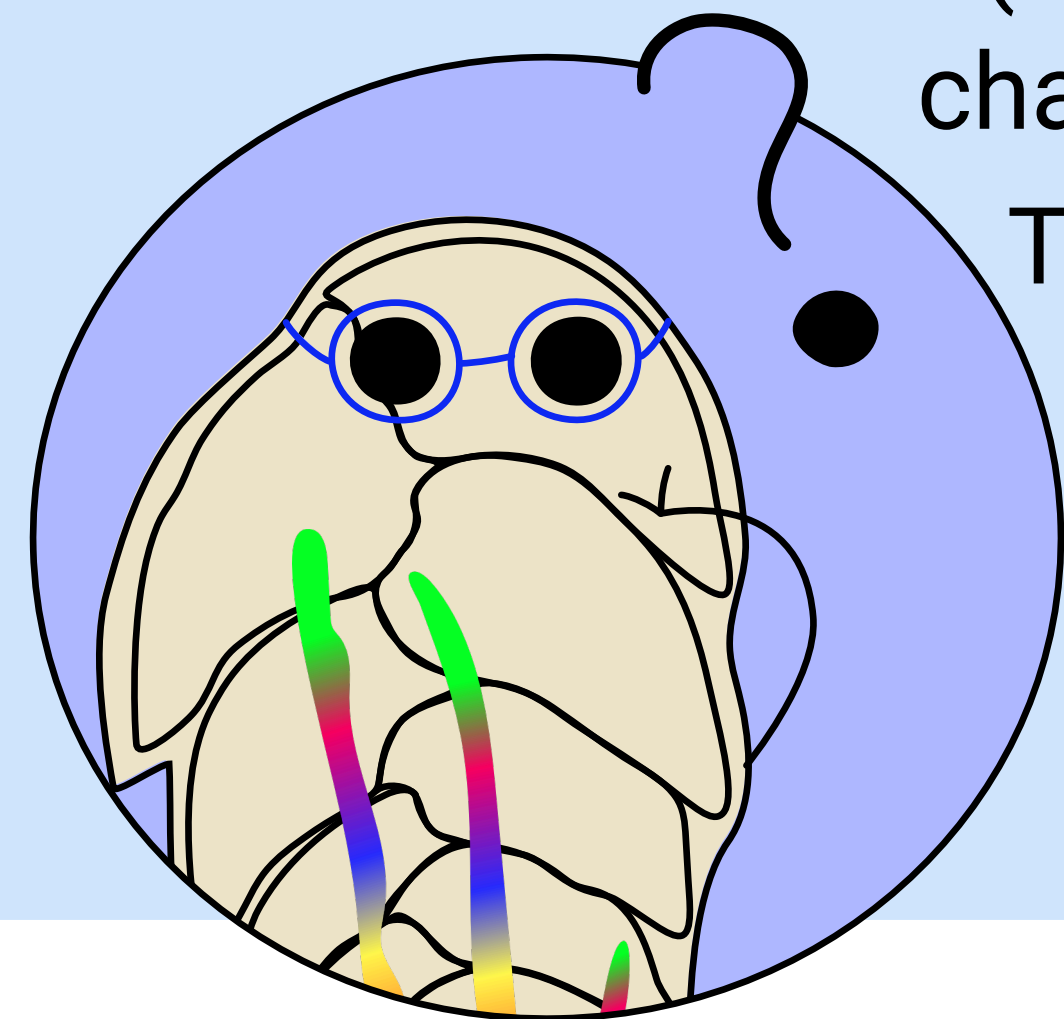
Sofía Barragán-Montilla, Heather J. H. Johnstone, Stefan Mulitza, Dharma A. Reyes Macaya, Babette A. A. Hoogakker, Heiko Pälike



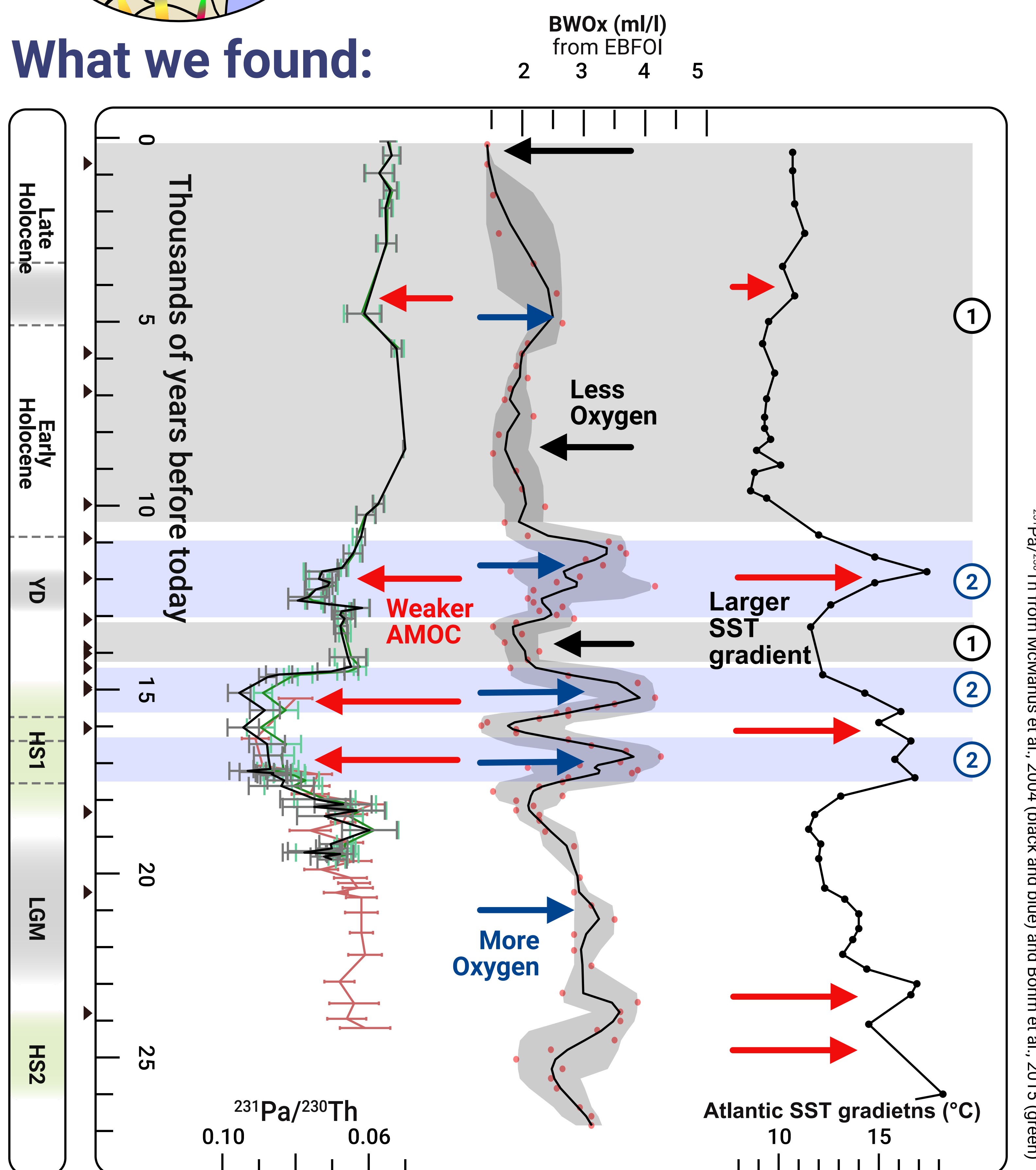
Barragán-Montilla et al.,
in revision at Nat. Comm.

What we did...

Using benthic foraminifera from the last 27,000 years from site GeoB9512-5 (798 m water depth), we reconstructed the oxygen changes during the last deglaciation in the Eastern Tropical North Atlantic Oxygen Minimum Zone (ETNA OMZ). We show how the slowdown of the Atlantic Meridional Overturning Circulation (AMOC) influenced ETNA-OMZ via ventilation changes.



What we found:



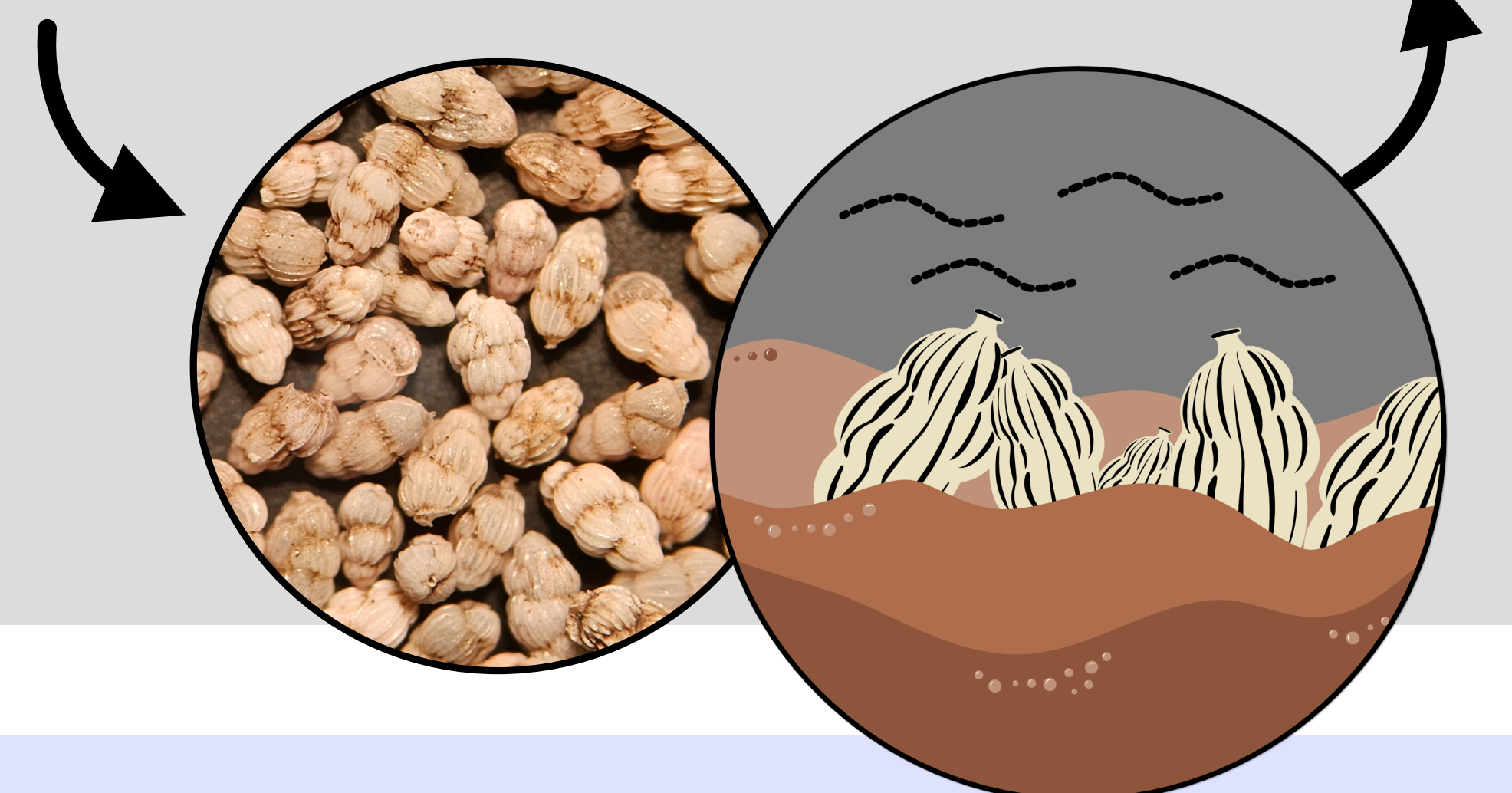
²³¹Pa/²³⁰Th from McManus et al., 2004 (black and blue) and Böhm et al., 2015 (green)

①

When AMOC was active (like today)

We found abundant microfossils who prefer low oxygen

this suggests water masses are less ventilated

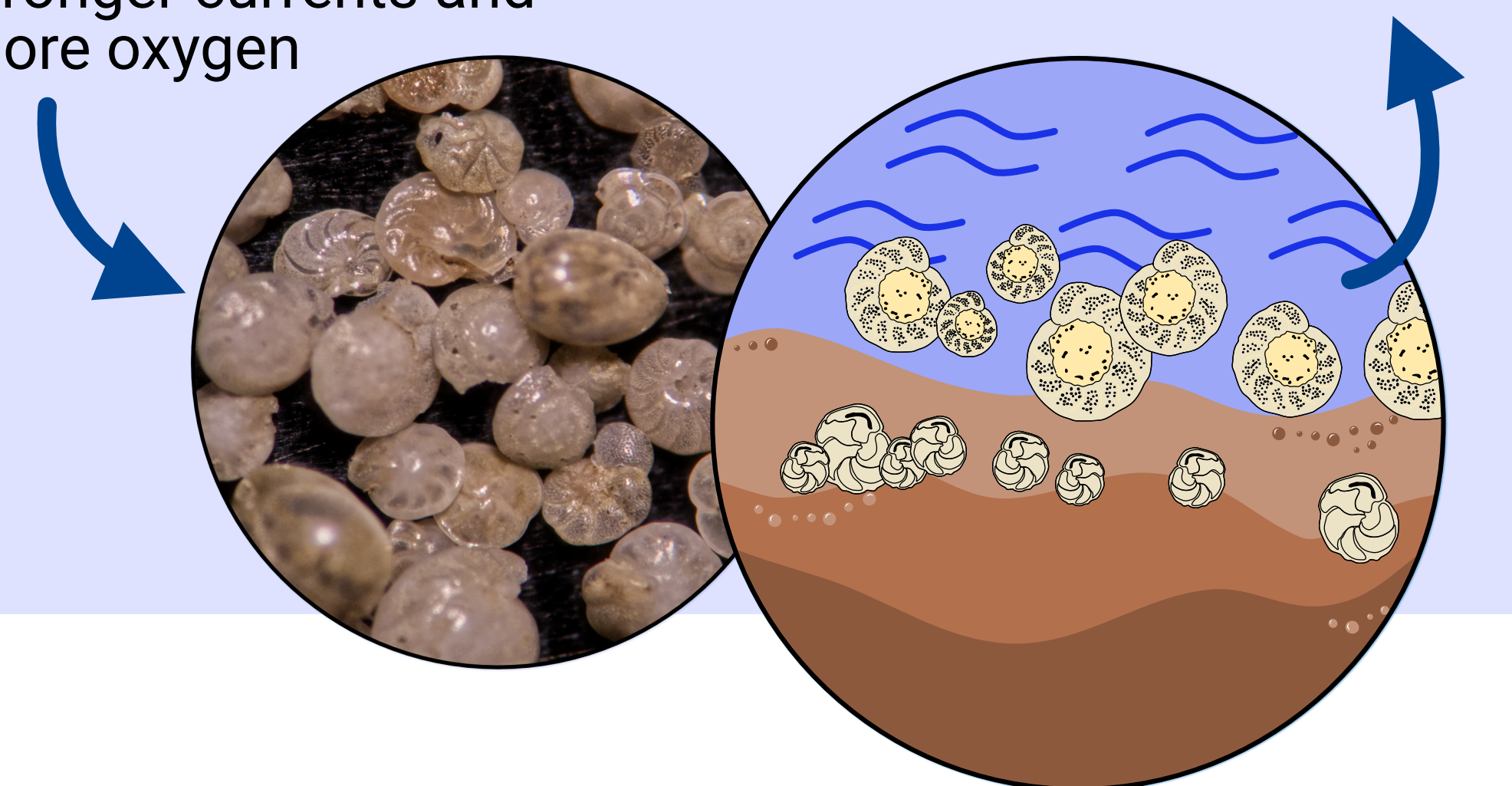


②

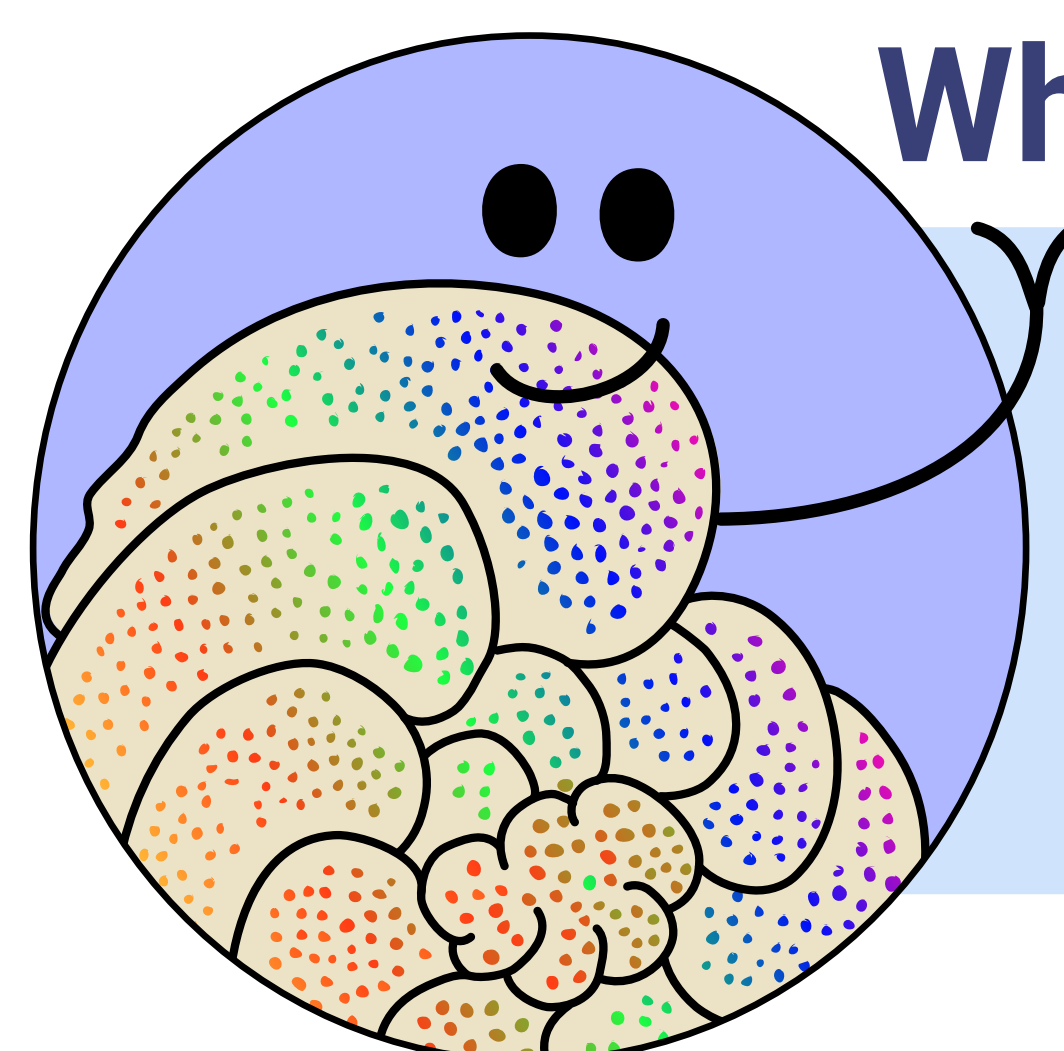
When AMOC slowed down in the last deglaciation

We found more microfossils who prefer stronger currents and more oxygen

meaning water masses were more ventilated



What it means!



The eastern tropical North Atlantic oxygen minimum zone is critically dependent on the state of the Atlantic Meridional Overturning Circulation. The very likely AMOC decline in the 21st century (IPCC, 2023) could counteract the de-oxygenation trend in this OMZ driven by global warming.

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For questions/comments
you can contact me at
sobarraganmo@gmail.com

@sofigerina

