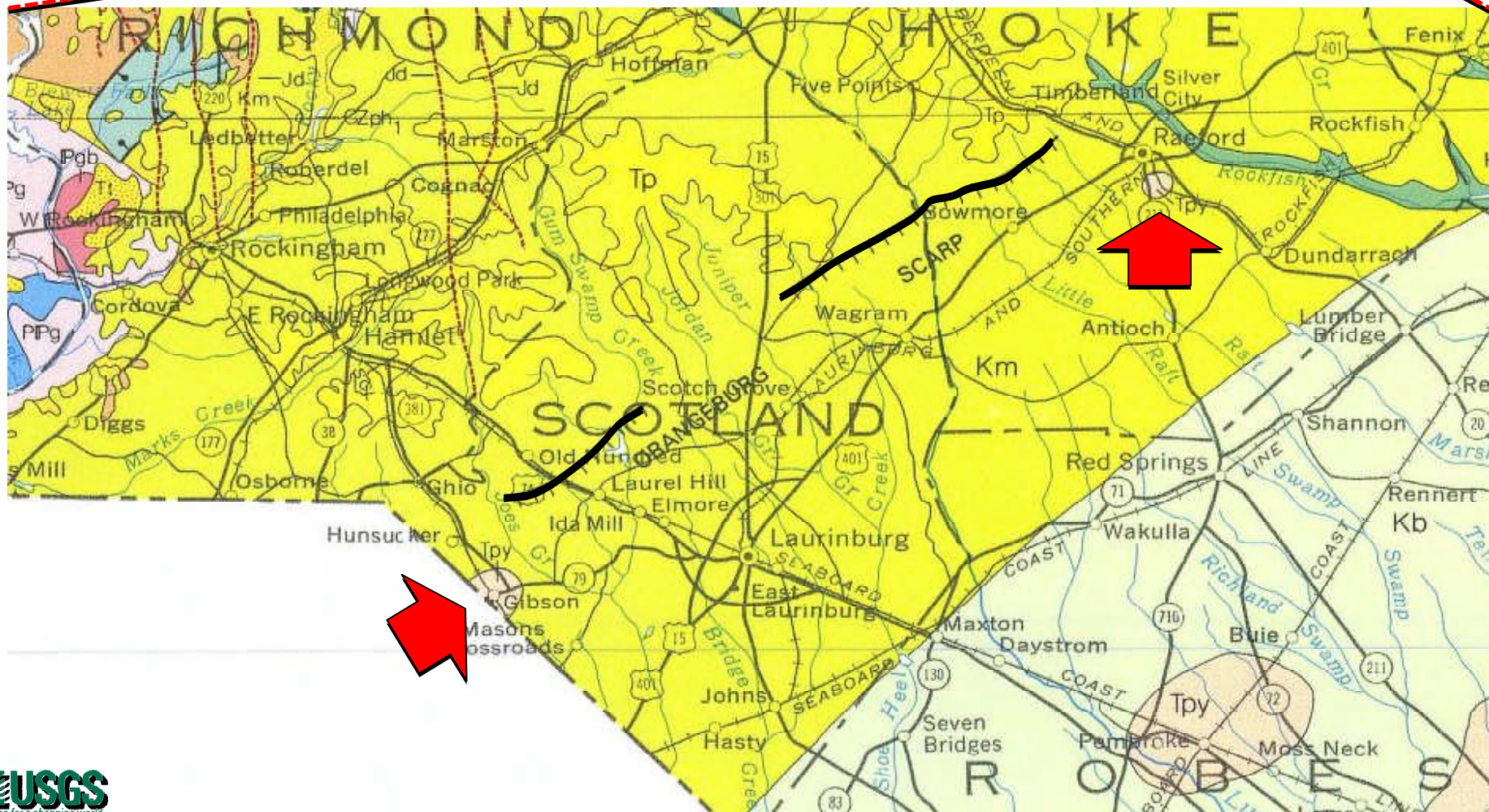
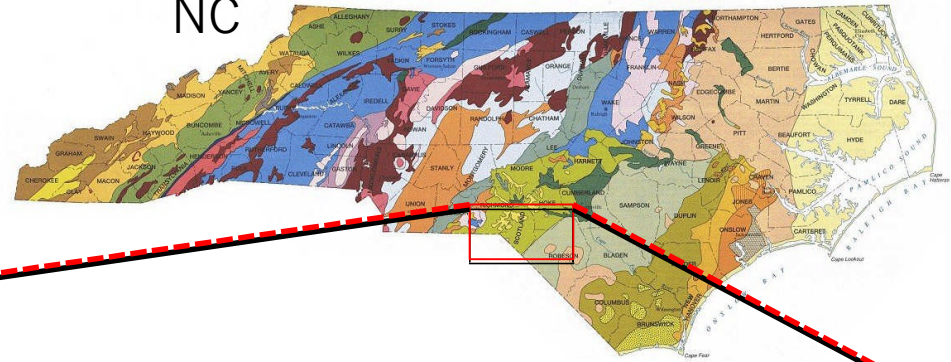
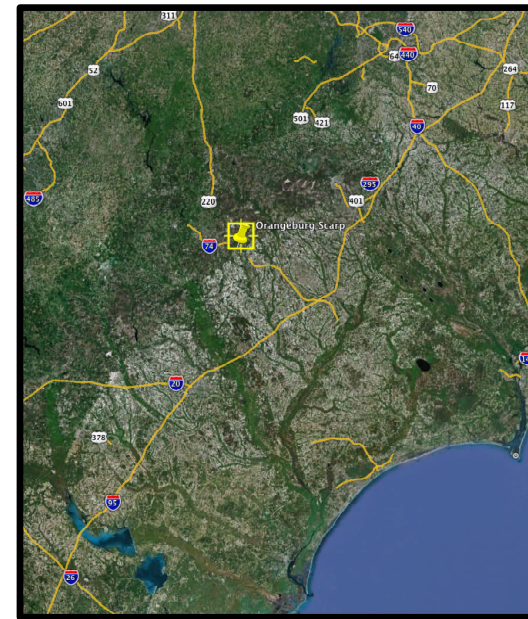
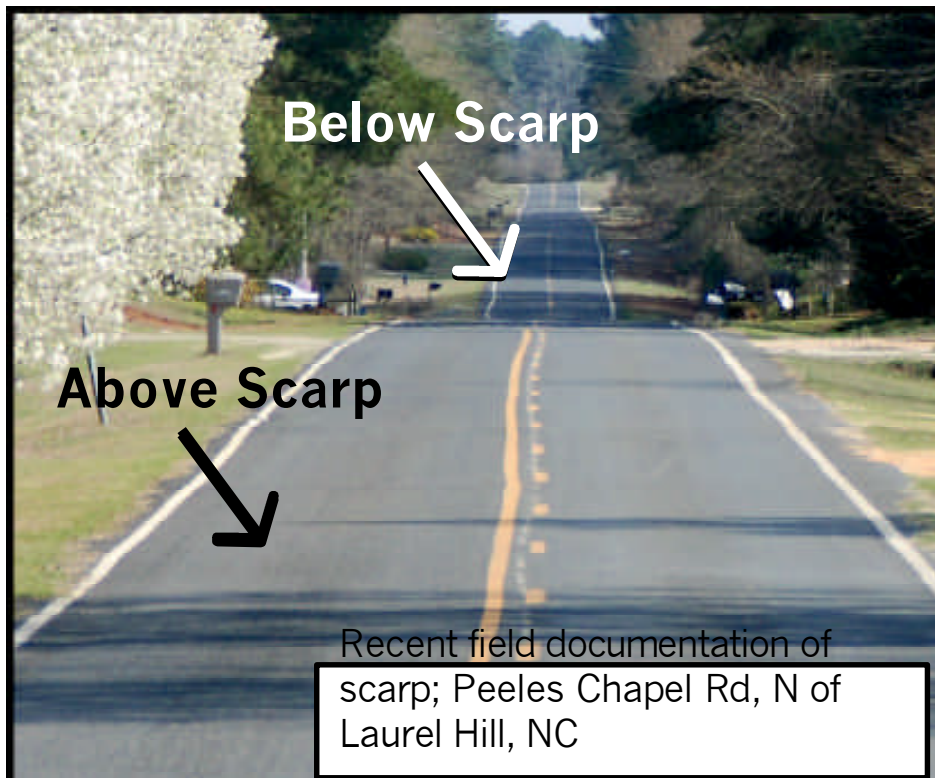


# Orangeburg Scarp

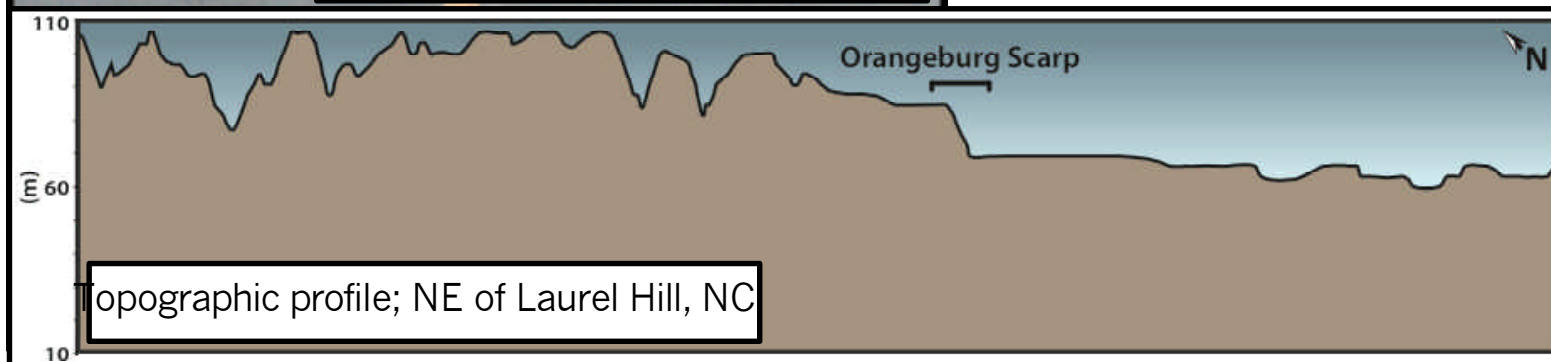
NC



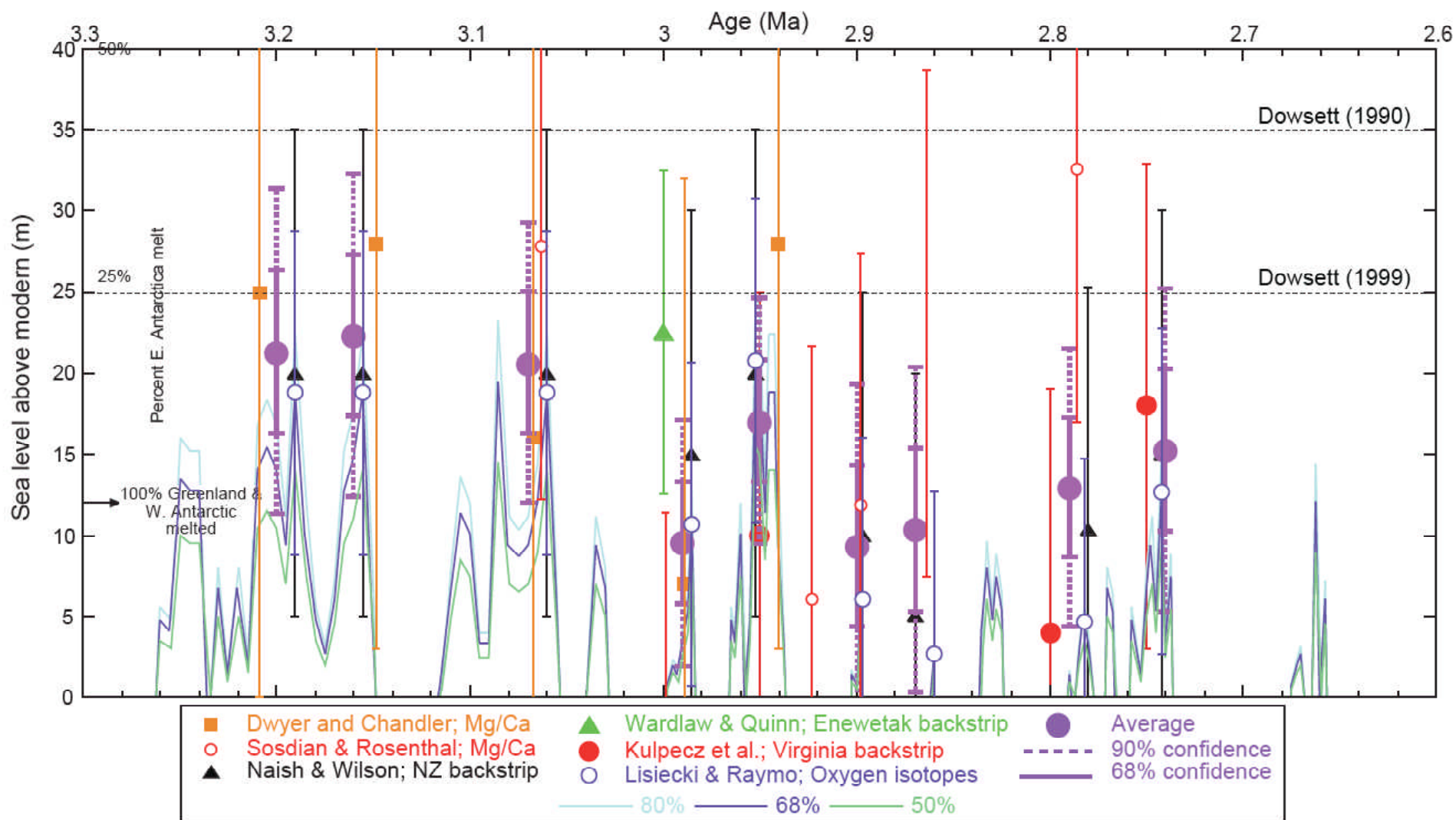
# Orangeburg Scarp



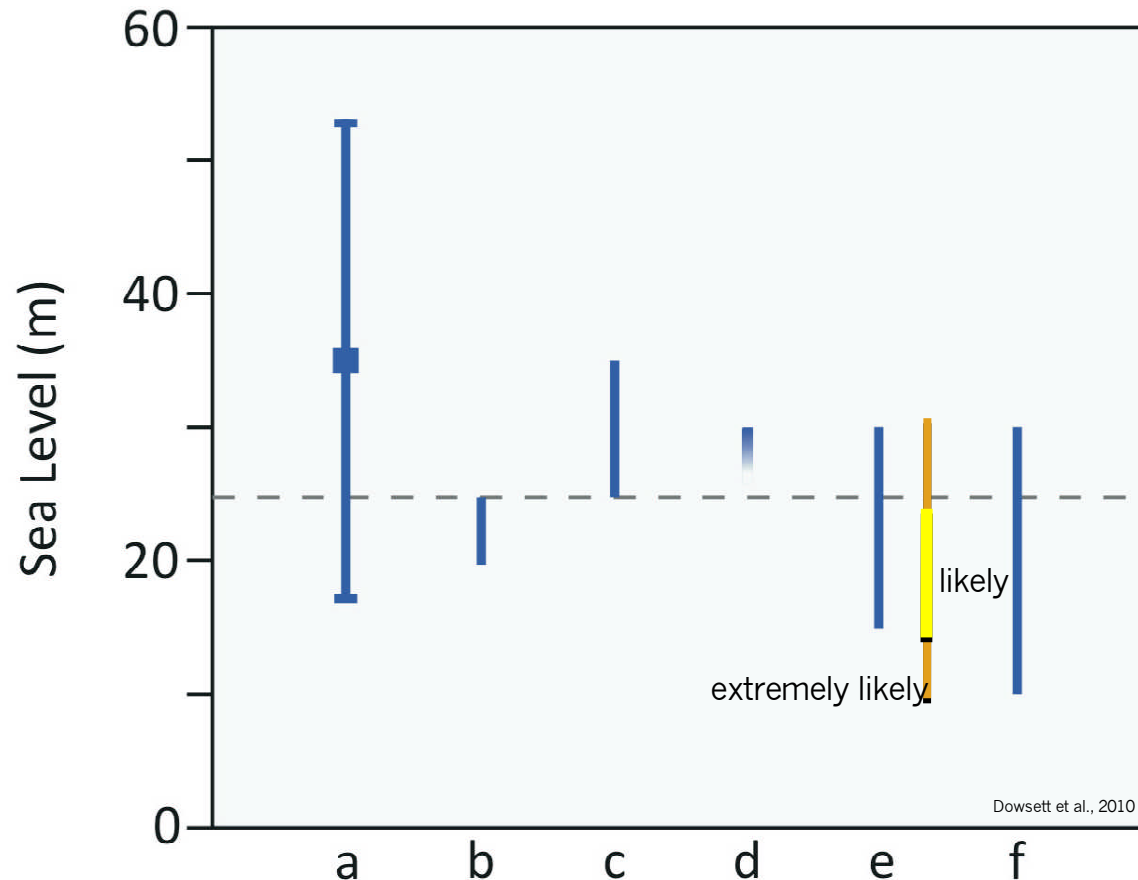
East Coast, US: Satellite image of Orangeburg Scarp; visible by soil color variation



# Pliocene sea level estimates



# Estimates of the peak position of sea level during the Pliocene have a wide range



(a) **Orangeburg Scarp**,  $+35 \pm 18$ m  
(Dowsett and Cronin 1990)

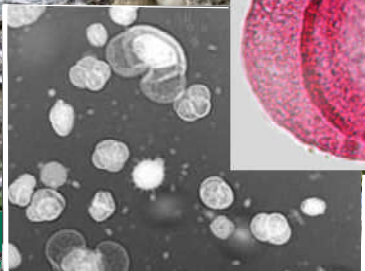
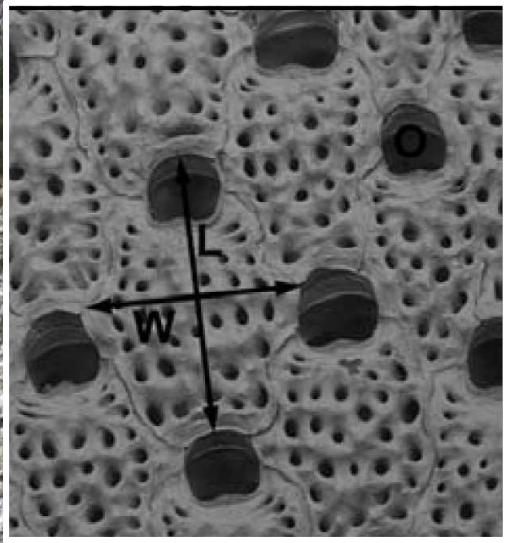
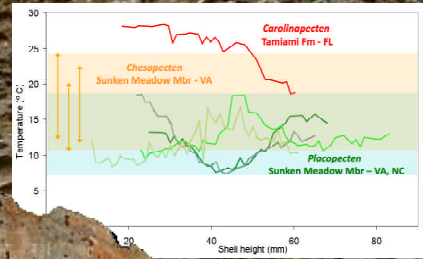
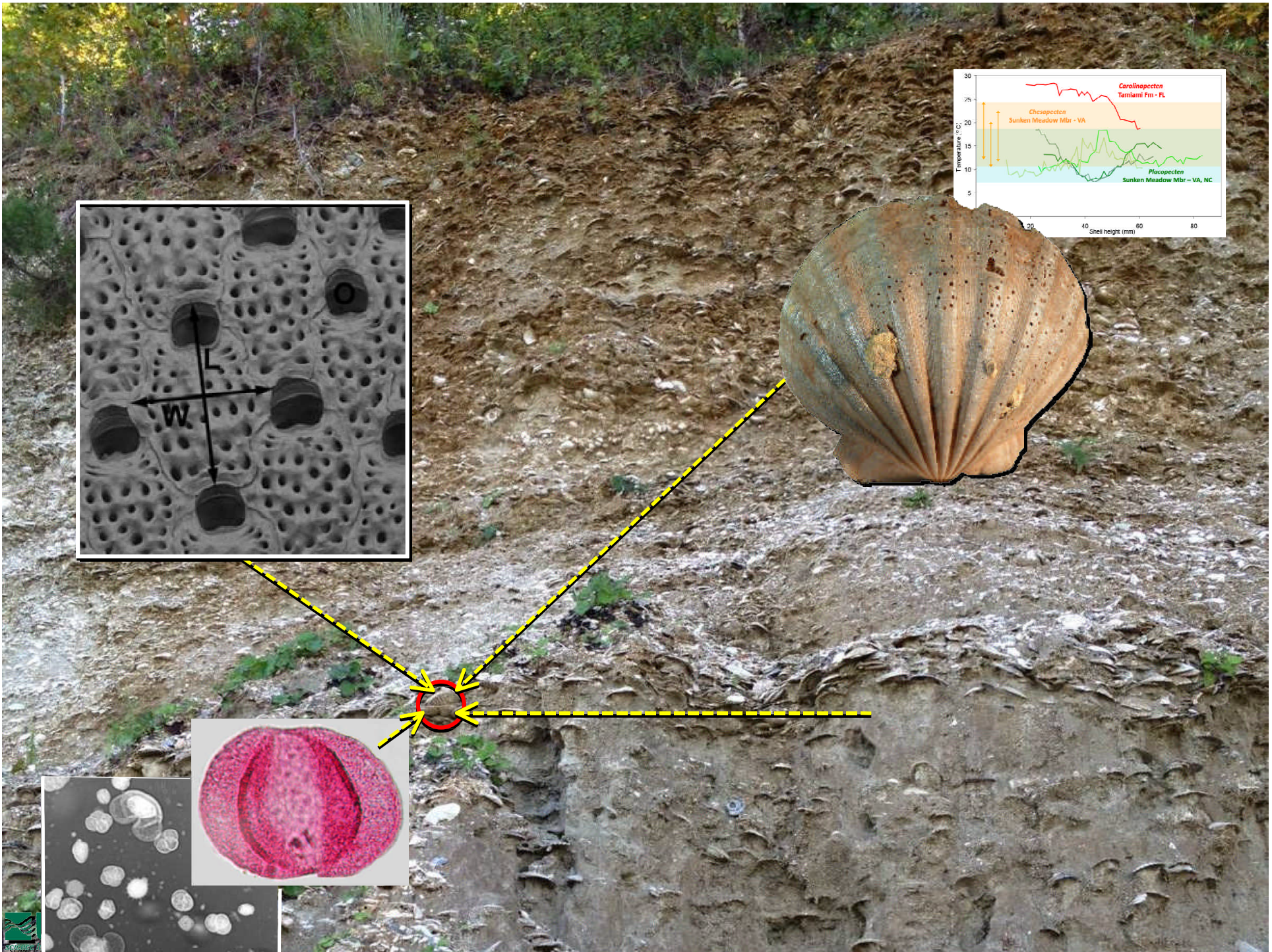
(b) **Enewetak Atoll**, +20 to 25m  
(Wardlaw and Quinn 1991)

(c) **Atlantic Coastal Plain**, +25 to 35  
(Krantz 1991)

(d) **LR04 oxygen isotope stack**, +30  
(see Raymo *et al.* 2009)

(e) **Sites 925 and 926**, +15 to 30m  
(Dwyer and Chandler 2009)

(f) **Wanganui Basin NZ**, +10 to 30m  
(Naish and Wilson 2009)

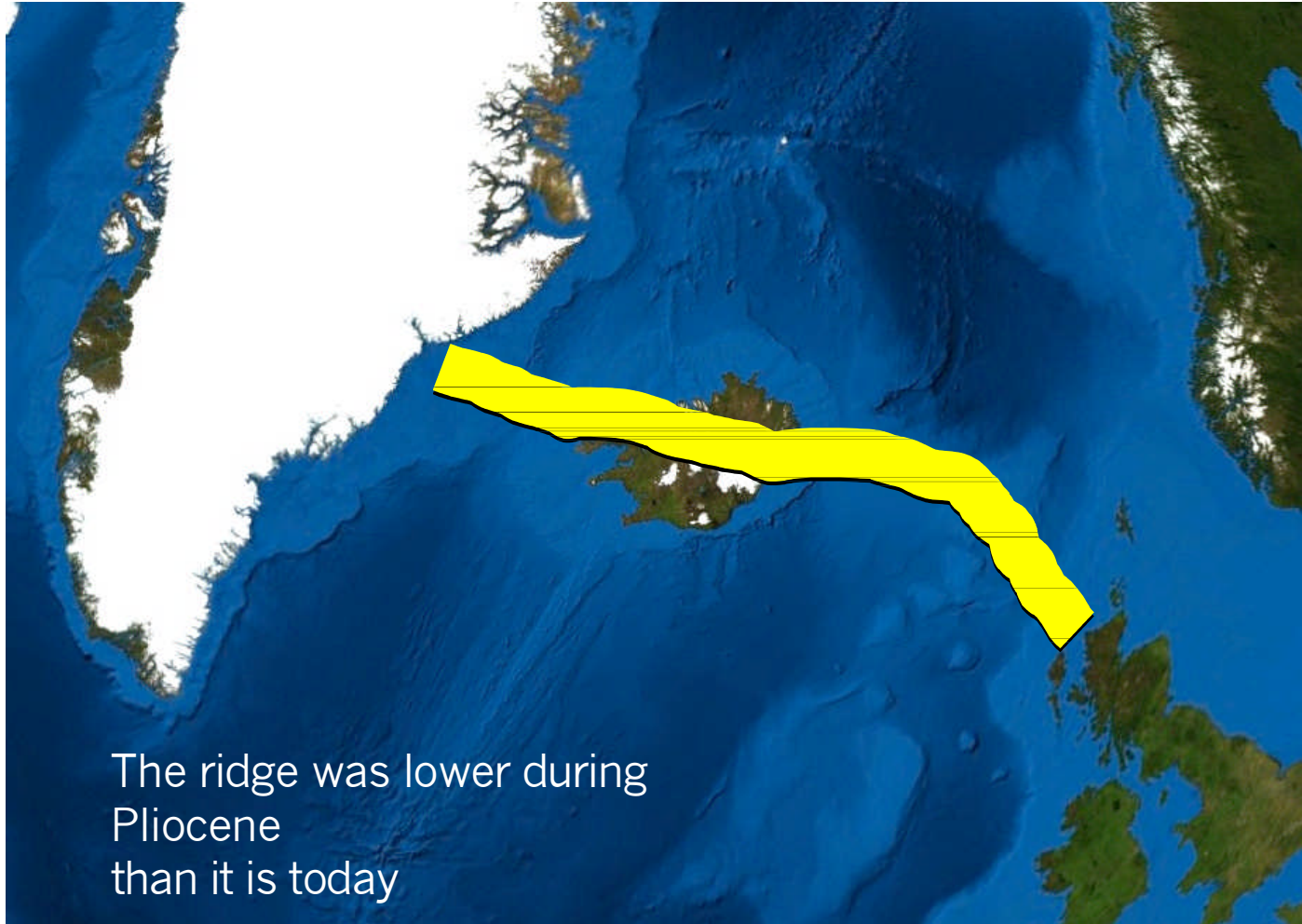


# PRISM4 Program

1. Stratigraphically focused proxy-fusion reconstructions targeting particular regions (tropics, mid-to-high latitude North Atlantic) and dynamic processes (upwelling) identified by PlioMIP results; emphasis on variability.
2. Multiproxy analysis and new chronology for the Yorktown Formation (collaboration with Virginia DEQ).
3. Document and map Orangeburg Scarp (collaboration with SC Survey).



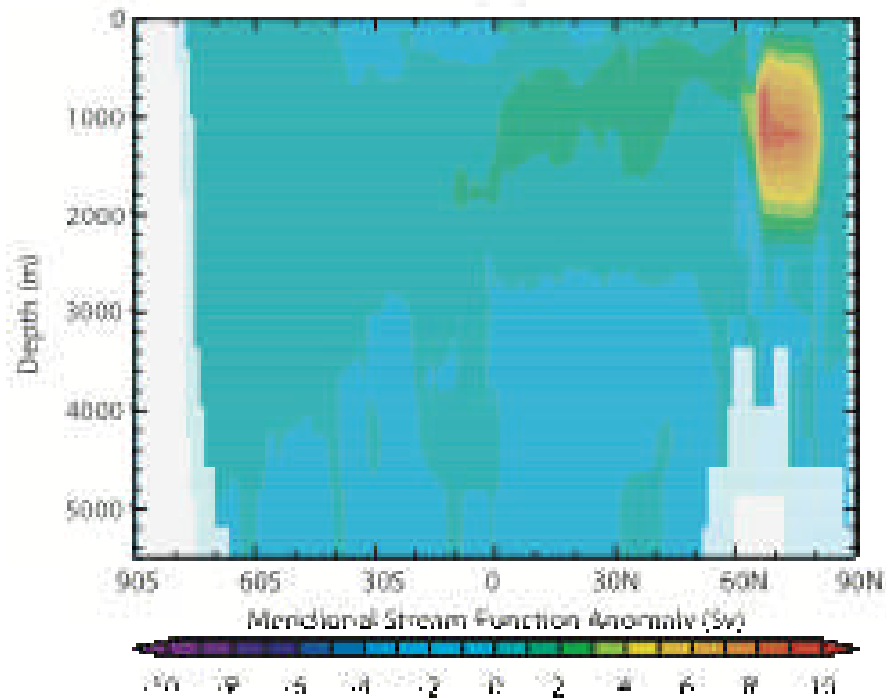
# Boundary condition changes GIS Ridge



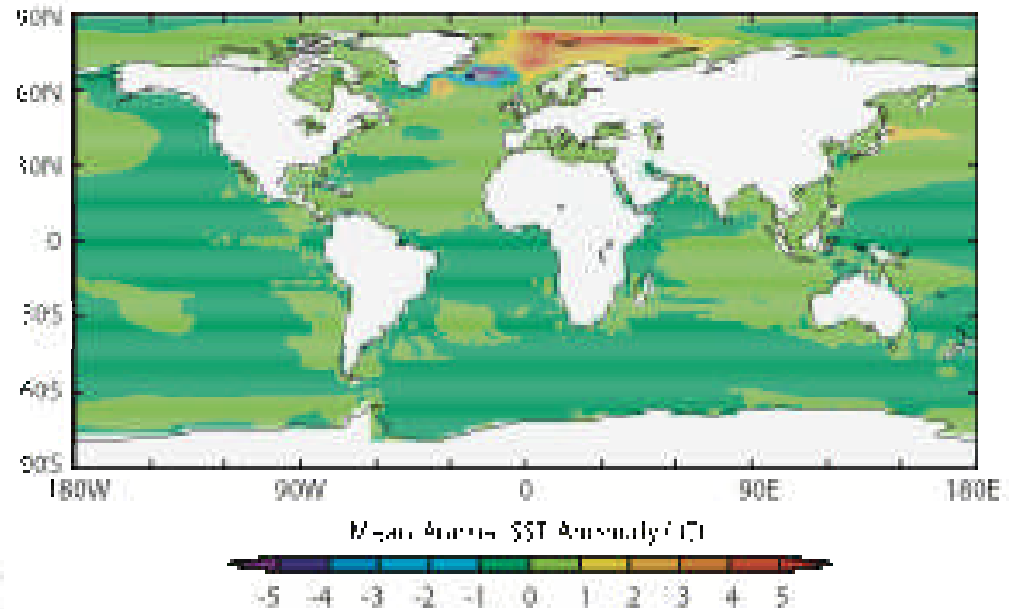


# Results show increase in NCW production and Arctic warming

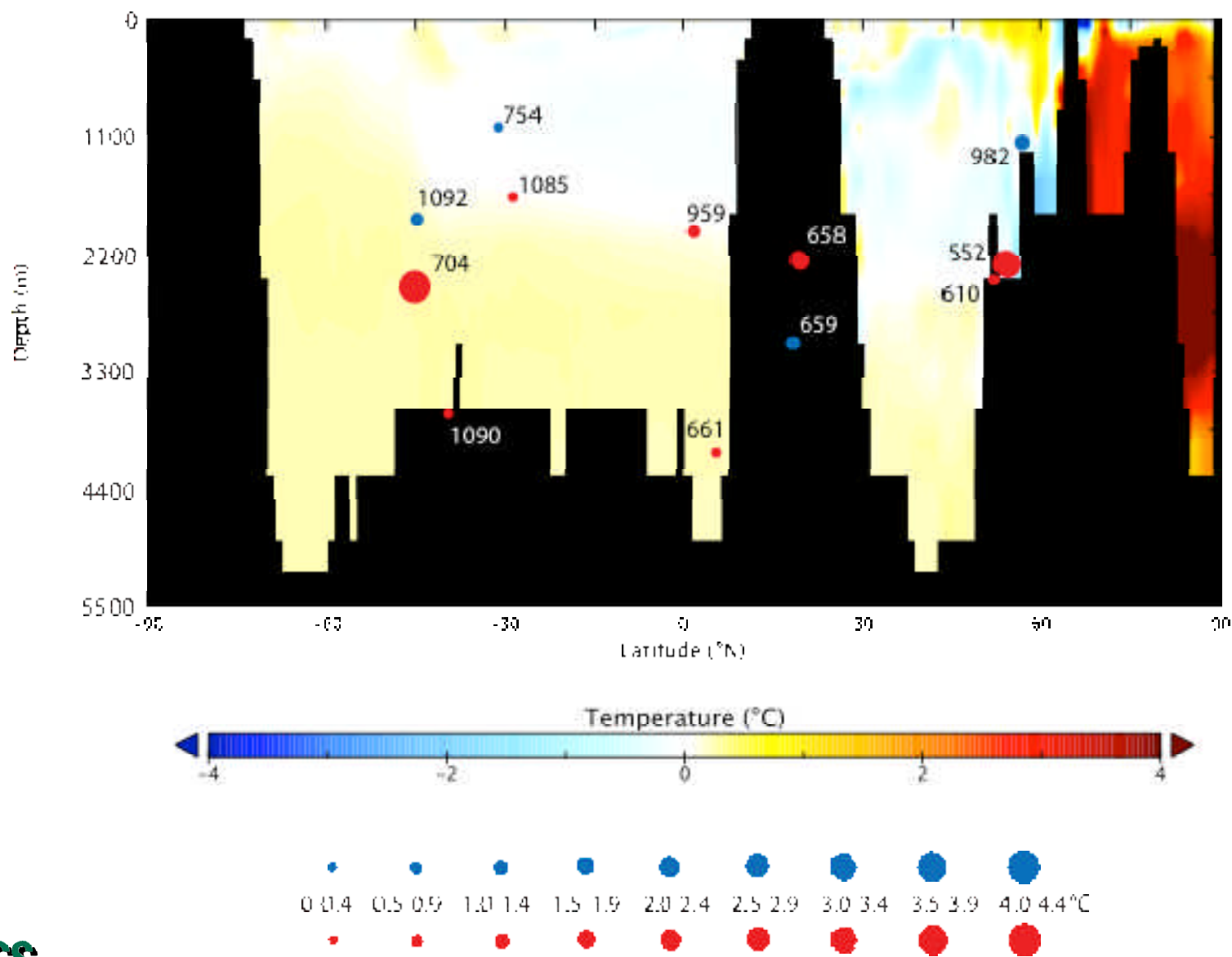
Transport



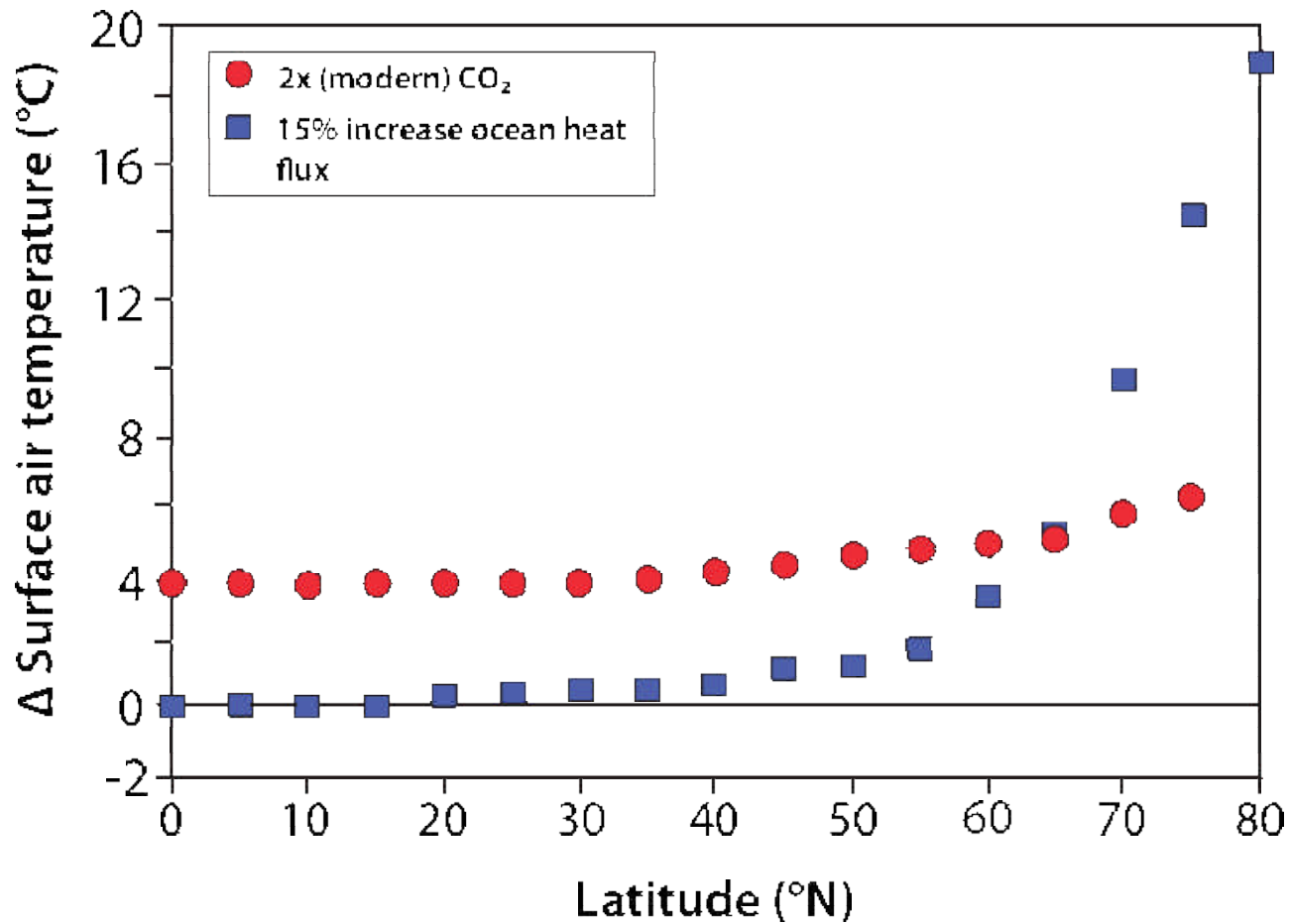
Temperature



### Pliocene Ocean Temp Anomaly, Greenland-Iceland-Scotland Sill, 15W (Sill Exp-Std Plio)



CO2 paleoclimate  
 OCEAN stable isotope  
 foram pollen ice sheet aabw  
 fossil ANALOG  
 NADW stratigraphy DIATOM PERMAFROST  
 AMOC atmosphere alkenone SEA ICE  
 DEEP TIME carbon  
 IPCC radiolarian

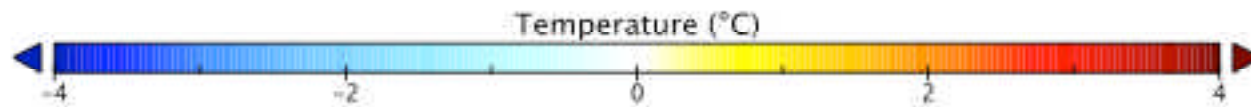
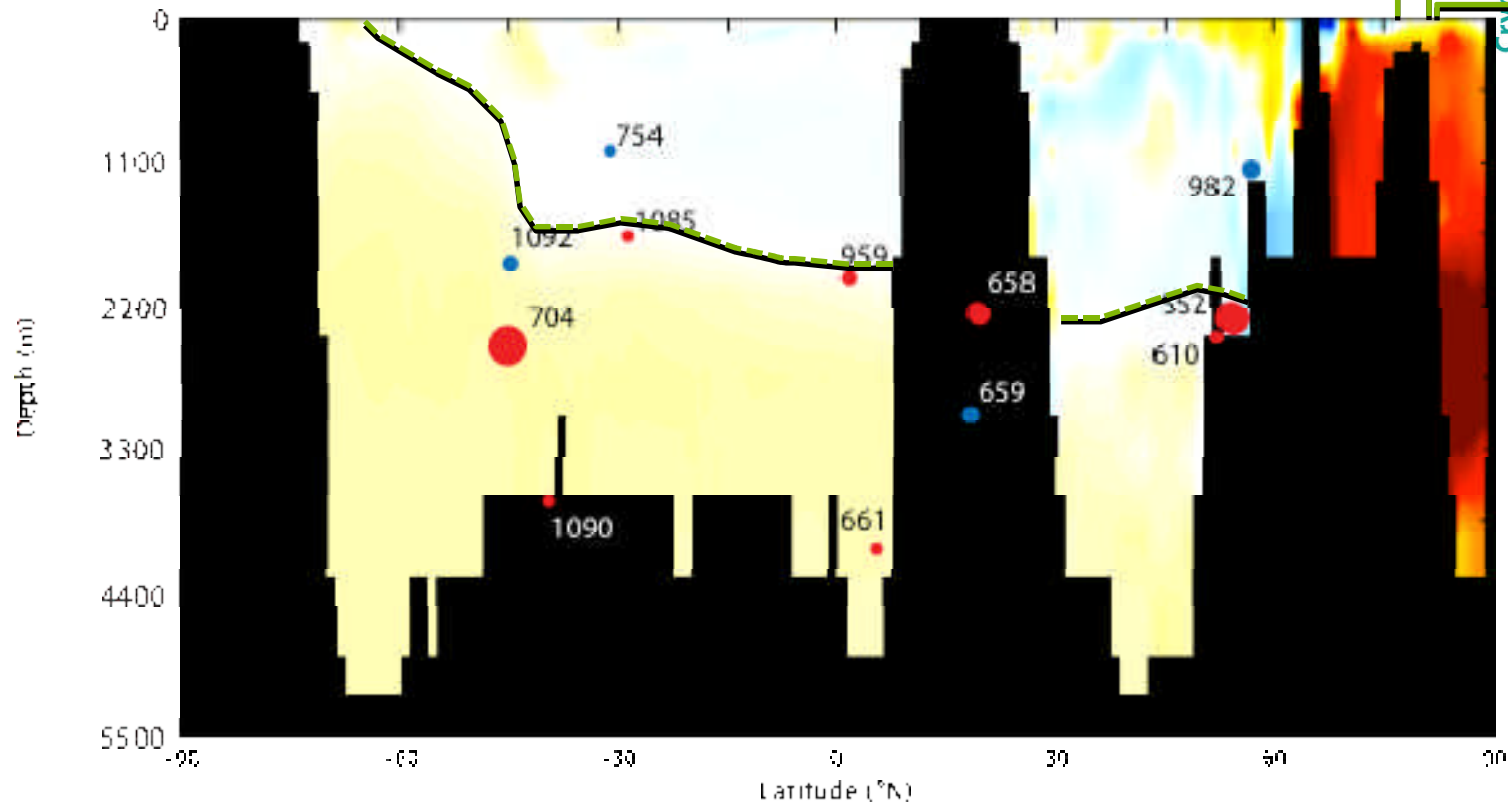


Dowsett, H.J. et al., 1992. Micropaleontological Evidence for Increased Meridional Heat Transport in the North Atlantic Ocean During the Pliocene. *Science*, 258(5085): 1133-1135.

# 3. Sill depth experiment

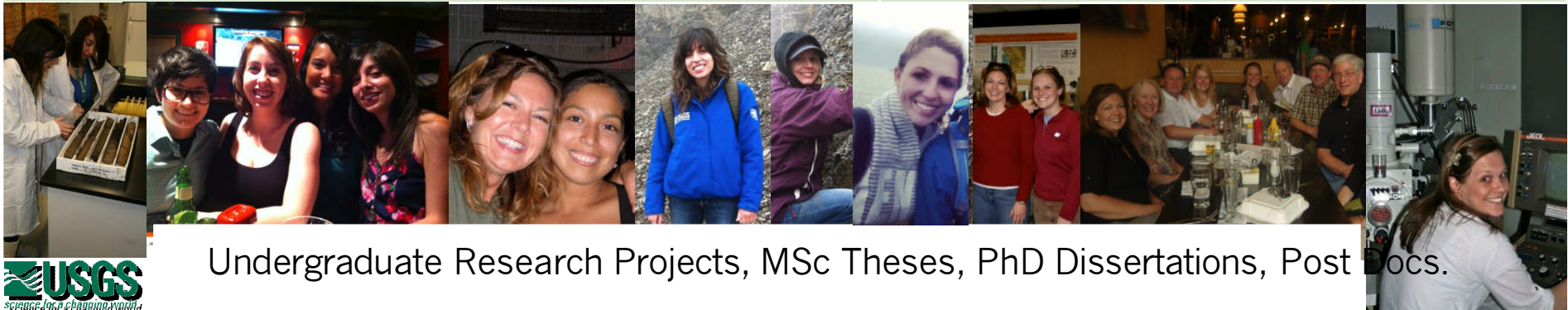
CO2 paleoclimate  
 OCEAN stable isotope  
 aabw  
 ALBEDO  
 ice sheet  
 NADW  
 DIATOM  
 PERMAFROST  
 radiolarian  
 SEA ICE  
 DEEP TIME  
 carbon  
 IPCC

Pliocene Ocean Temp Anomaly, Greenland-Iceland-Scotland Sill, 15W (Sill Exp-Std Plio)

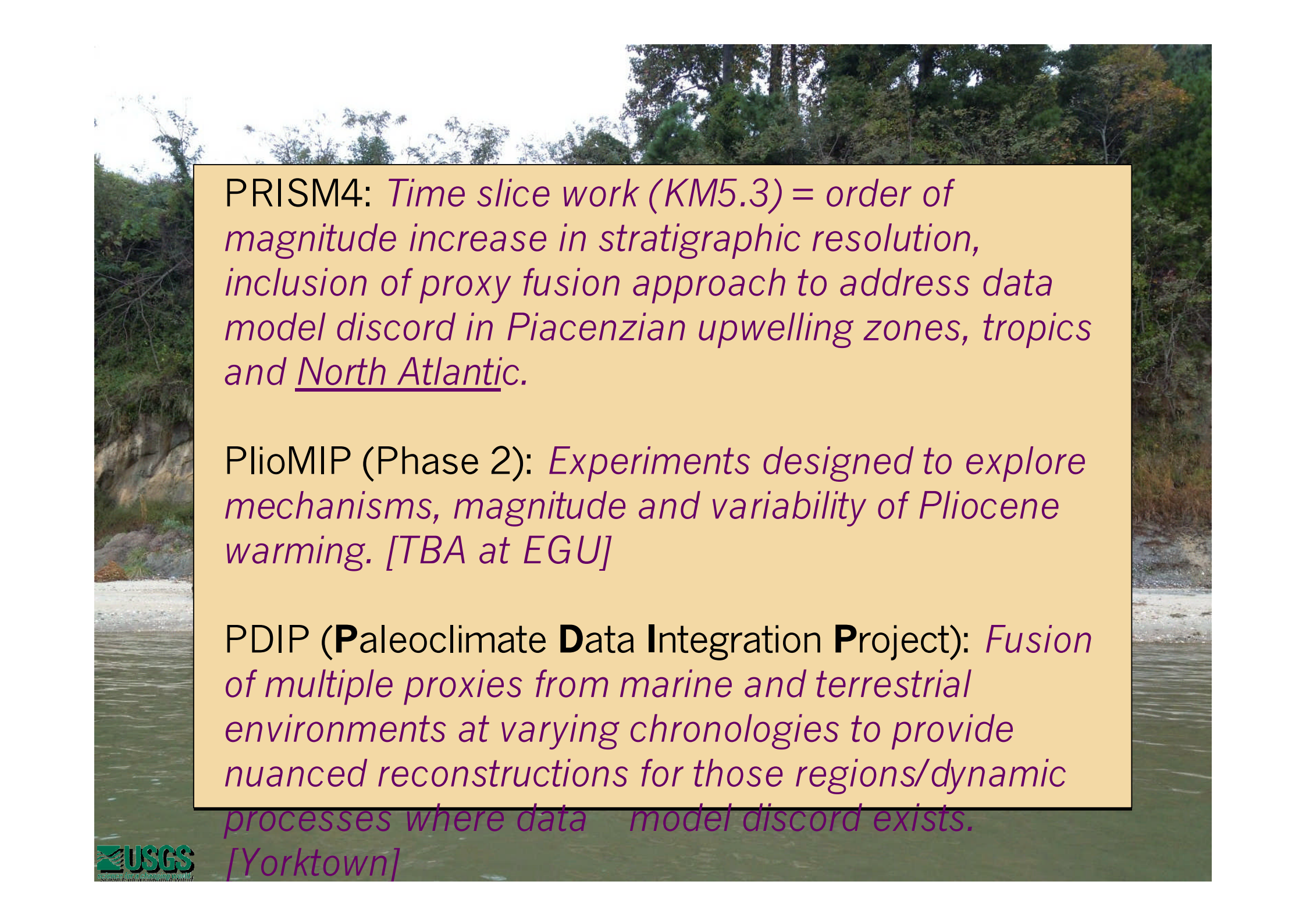


# GMU students

Former (and Current ) GMU	Graduate Schools
Danielle Stoll	<i>Alaska Pacific University</i>
Jean Self-Trail	<i>University of Nebraska</i>
Kevin Foley	<i>George Mason University</i>
Stephanie Strother	<i>Northumbria University</i>
Naseem Naghdi	?
Gina Valvo	
Jodi Deprizio	<i>George Mason University</i>
Kristen Mickulesku	<i>San Francisco State</i>
Rocio Caballero-Gill	<i>Brown University</i>
Marci Robinson	<i>George Mason University</i>
Lorrin Massengill	?



Undergraduate Research Projects, MSc Theses, PhD Dissertations, Post Docs.

The background of the slide is a photograph of a riverbank. On the left, there is a rocky outcrop with sparse vegetation. The river flows from the bottom left towards the center. The right bank is covered in dense green trees. A large yellow rectangular box with a black border is centered on the slide, containing three paragraphs of text in a purple, italicized font.

PRISM4: *Time slice work (KM5.3) = order of magnitude increase in stratigraphic resolution, inclusion of proxy fusion approach to address data model discord in Piacenzian upwelling zones, tropics and North Atlantic.*

PlioMIP (Phase 2): *Experiments designed to explore mechanisms, magnitude and variability of Pliocene warming. [TBA at EGU]*

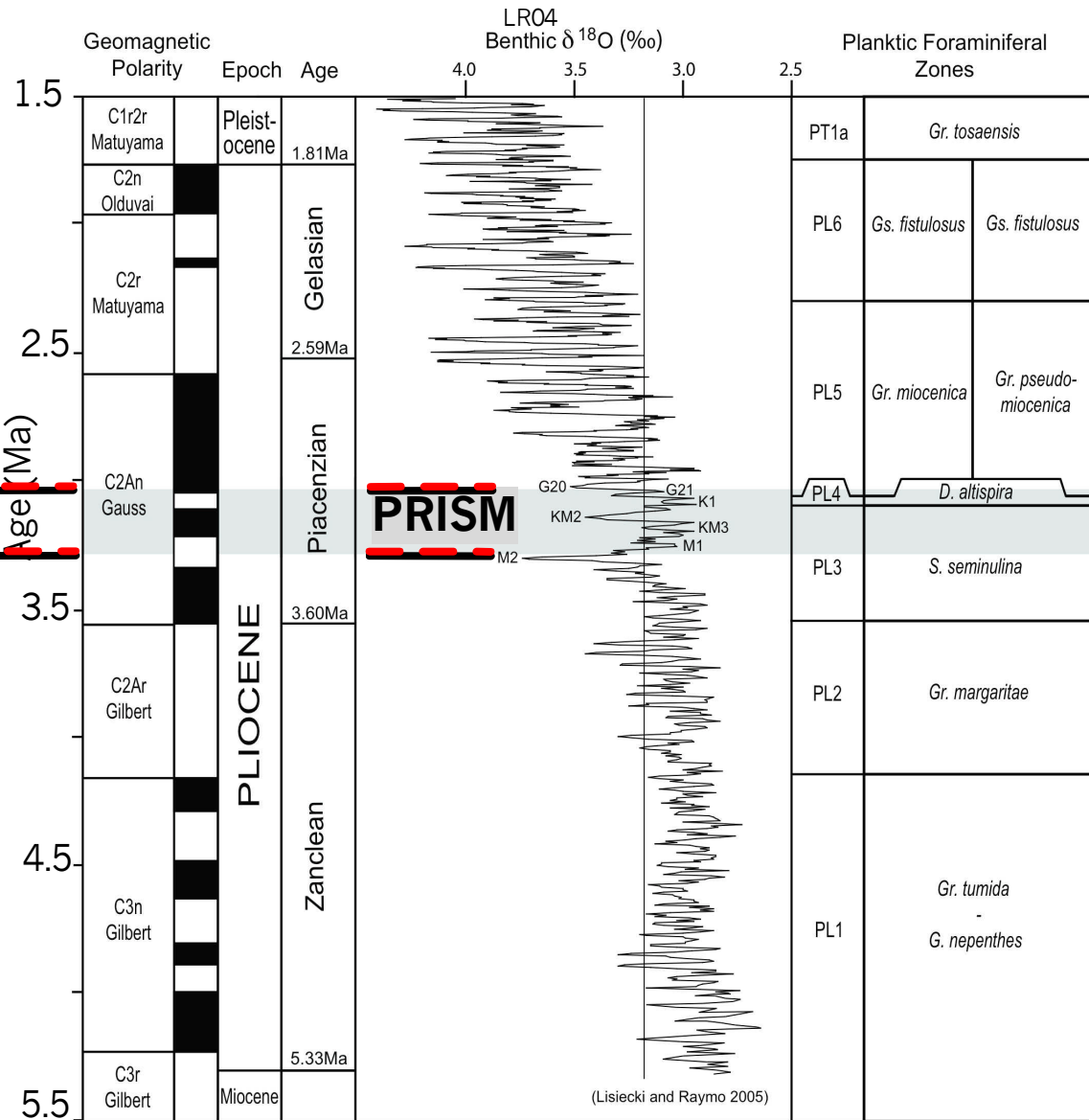
PDIP (**P**aleoclimate **D**ata **I**ntegration **P**roject): *Fusion of multiple proxies from marine and terrestrial environments at varying chronologies to provide nuanced reconstructions for those regions/dynamic processes where data model discord exists. [Yorktown]*

# Chronology

G21/G20  
[3.025 Ma]

M2/M1  
[3.264 Ma]

240,000  
yrs



# *Arctica islandica* composite

