

Lessons learned from a high CO2 world: an ocean view from ~3 million years ago

Erin McClymont

Department of Geography, Durham University, U.K. @ErinMcClimate @geogdurham

for more details please see the discussion paper at *Climate of the Past Discussions*

Heather Ford, Sze Ling Ho, Julia Tindall, Alan Haywood, Montserrat Alonso Garcia, Ian Bailey, Melissa Berke, Kate Littler, Molly Patterson, Benjamin Petrick, Francien Peterse, Christina Ravelo, Bjorg Risebrobakken, Stijn De Schepper, George Swann, Kaustubh Thirumalai, Jessica Tierney, Carolien van der Weijst, and Sarah White



Key questions

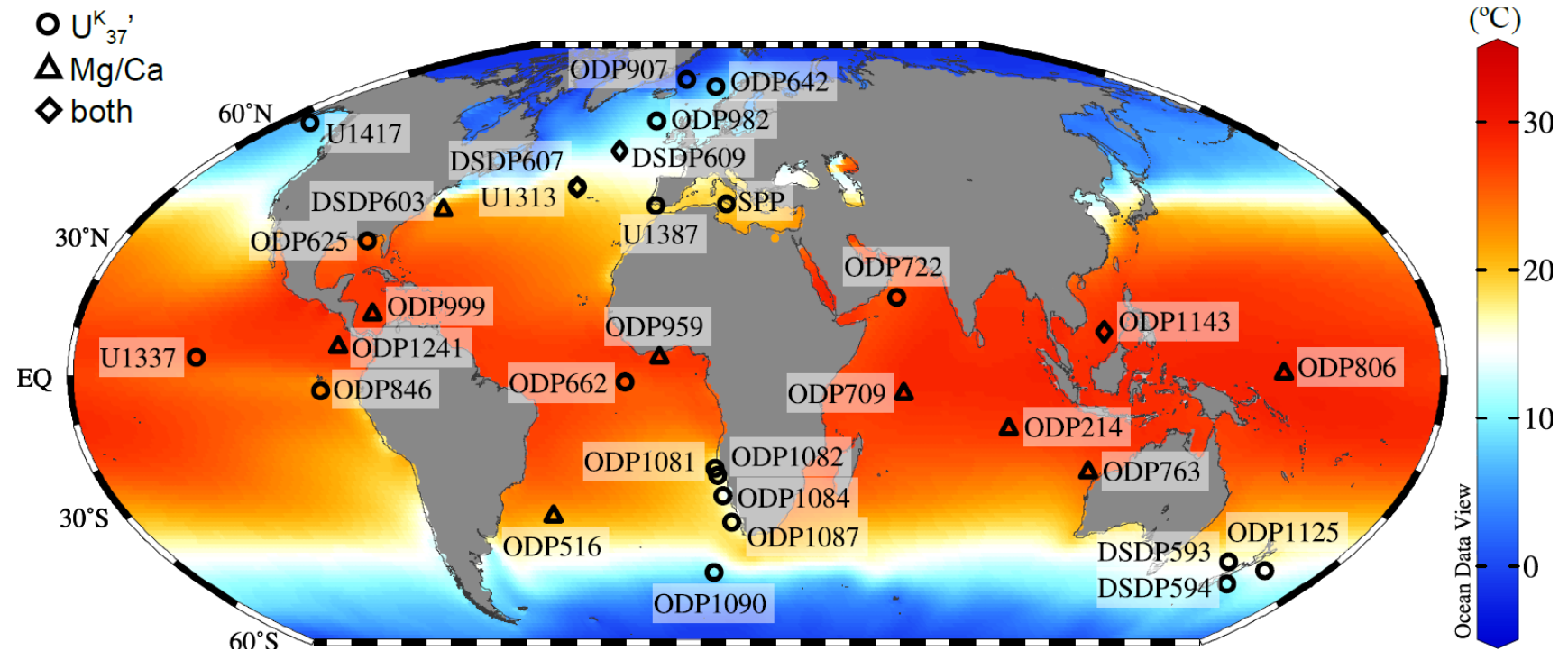
- How variable was late Pliocene climate?
- What are the key forcings and responses?



@PlioceneClimate

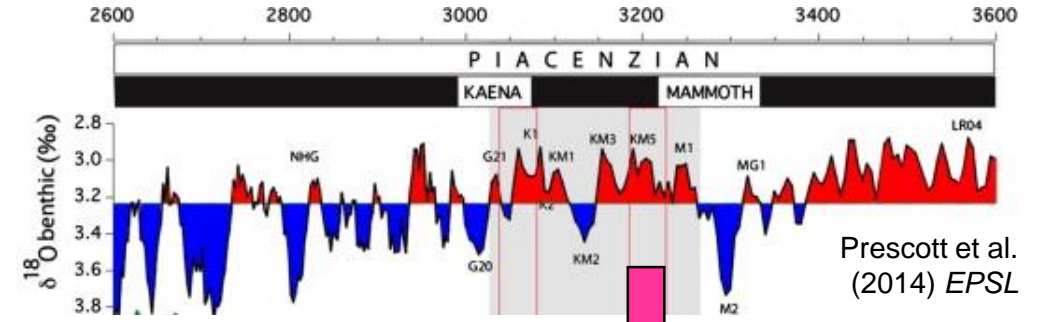
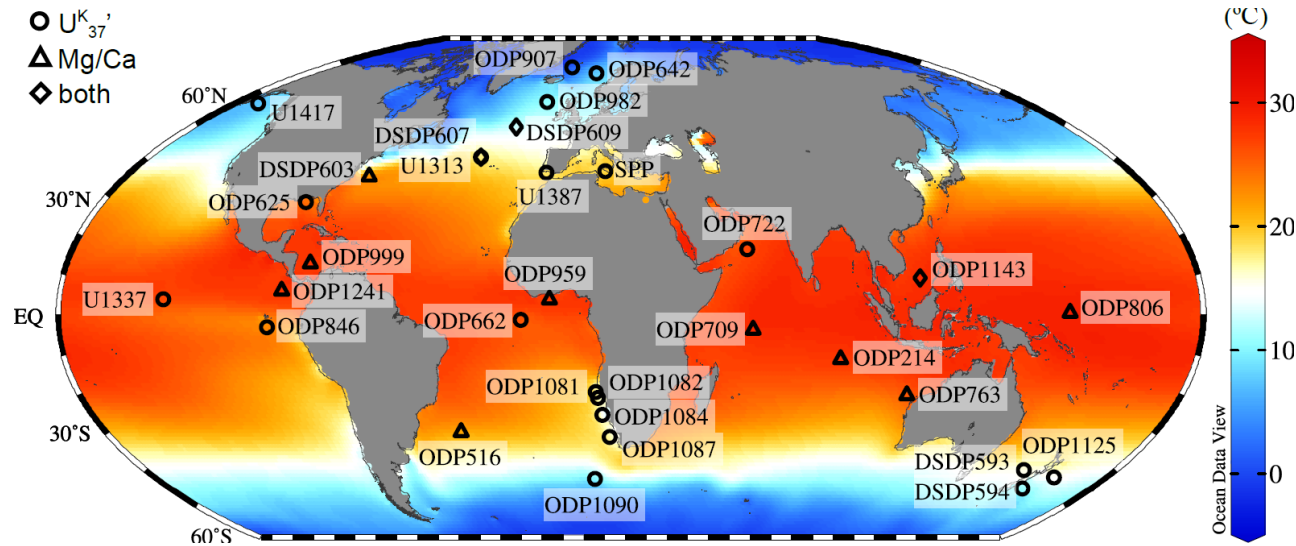
➤ How did the oceans respond at a global scale?

(PlioVAR SSTs)

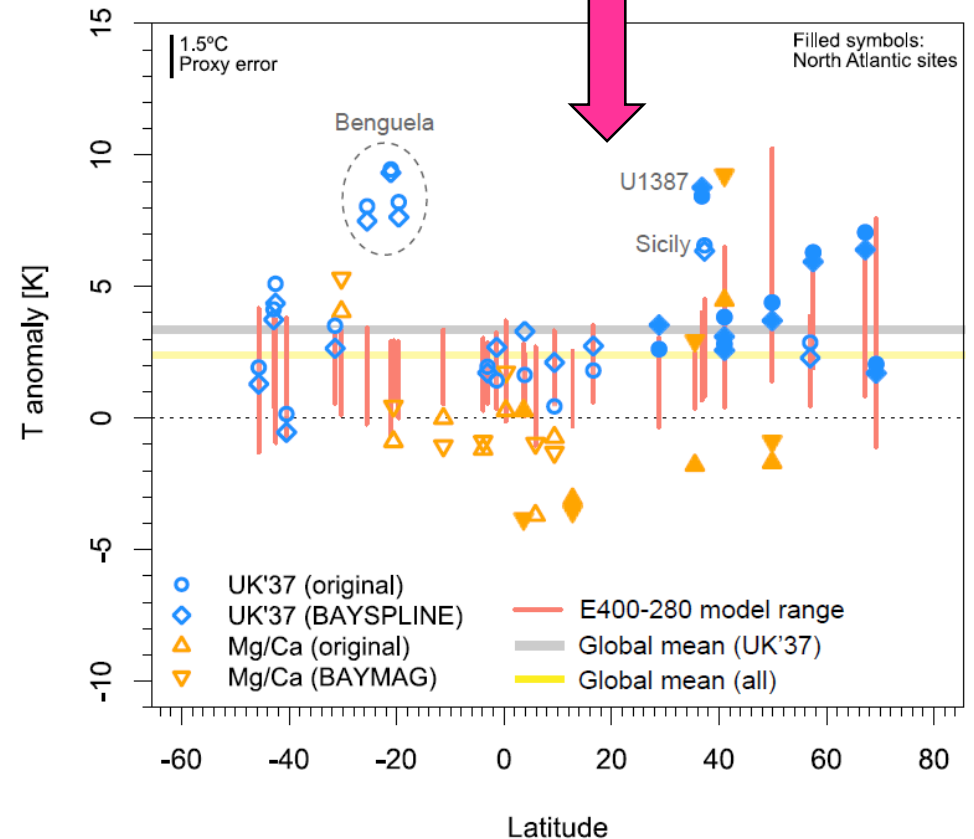


2) Ocean temperature response to elevated atmos. CO₂

- Previously, data and models recording different things?
- New approach gives better agreement

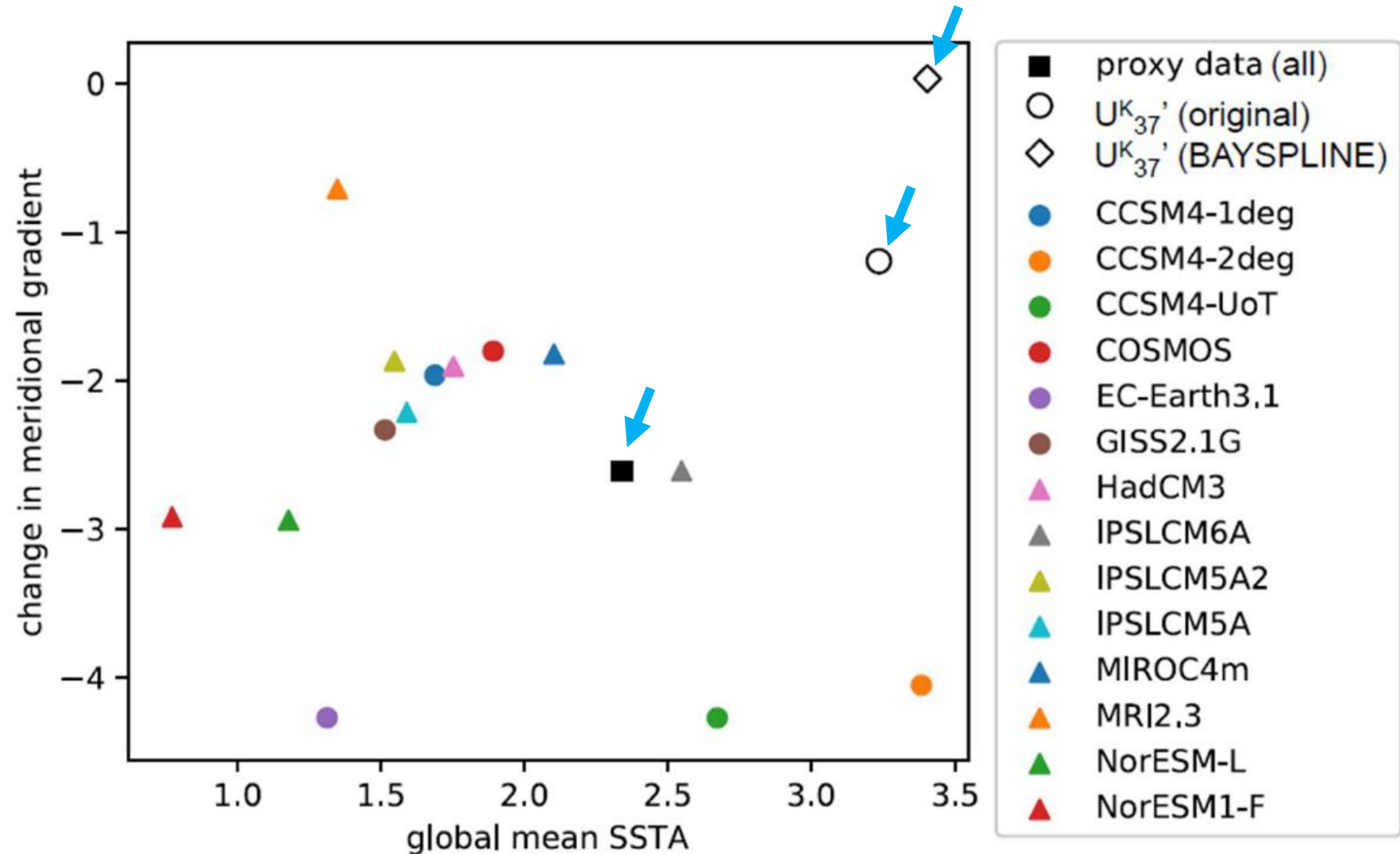


Prescott et al. (2014) *EPSL*



2) Ocean temperature response to elevated atmos. CO₂

- Warmer ocean than Pre-Industrial
- High-latitude warming > low-latitude
- **But proxy-dependent and model-dependent**



Role of seasonality in the proxy signals?

