Changes in Productivity along the California margin through the last 5 million years

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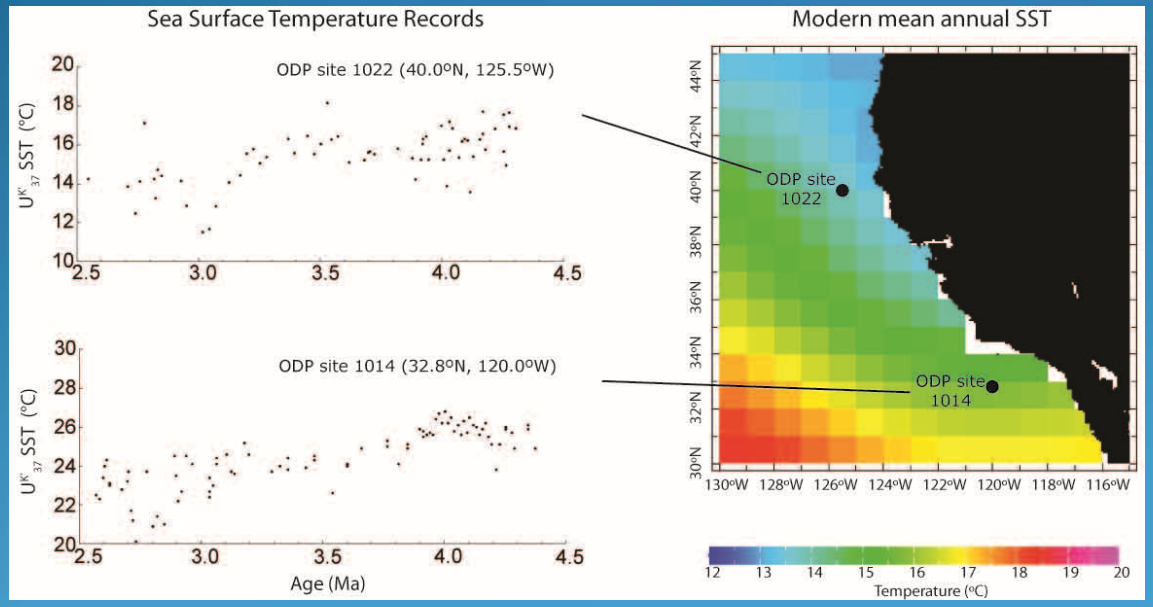
Coastal California sea surface temperatures were 2-9˚C warmer in the early Pliocene compared to today, yet productivity may have changed little. Using grain size analysis and organic biomarkers this project aims to differentiate between changes in primary productivity and preservation within the sedimentary environment

Site Locations and SST records:



$U^{K'}_{37}$ SST estimates for ODP sites 1014 (Dekens et al., 2007) and 1022 (Reed-Sterret et al., 2010) from 2.5 to 5 Ma. Note that the warmest early Pliocene SST at ODP sites 1014 and 1022 are ~9˚C and ~2˚C warmer compared to today, respectively.

Preliminary work

- Initial ground-truthing work for grain size analysis has begun for ODP site 1022
- A clear correlation between petragraphic analysis of smear slides and grain sizes is emerging, indicating that grain size analysis will allow us to reconstruct the relative abundances of diatorms, coccolithophoirds and other phytoplankton.
- A masters student recently began work preparing the laboratory for organic extractions and biomarker work