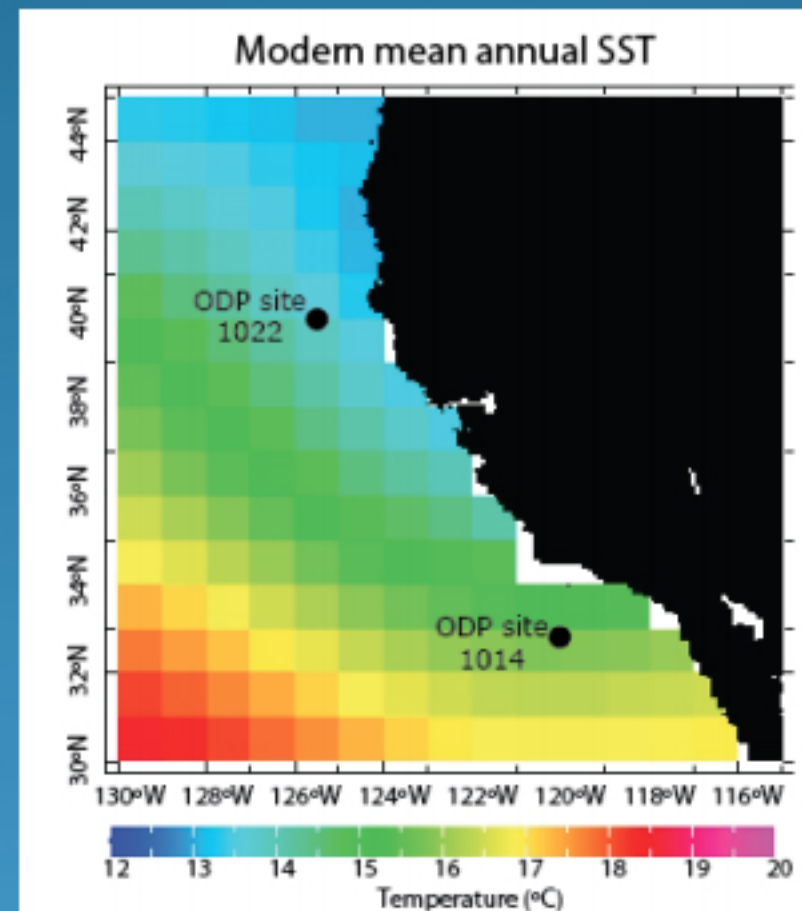
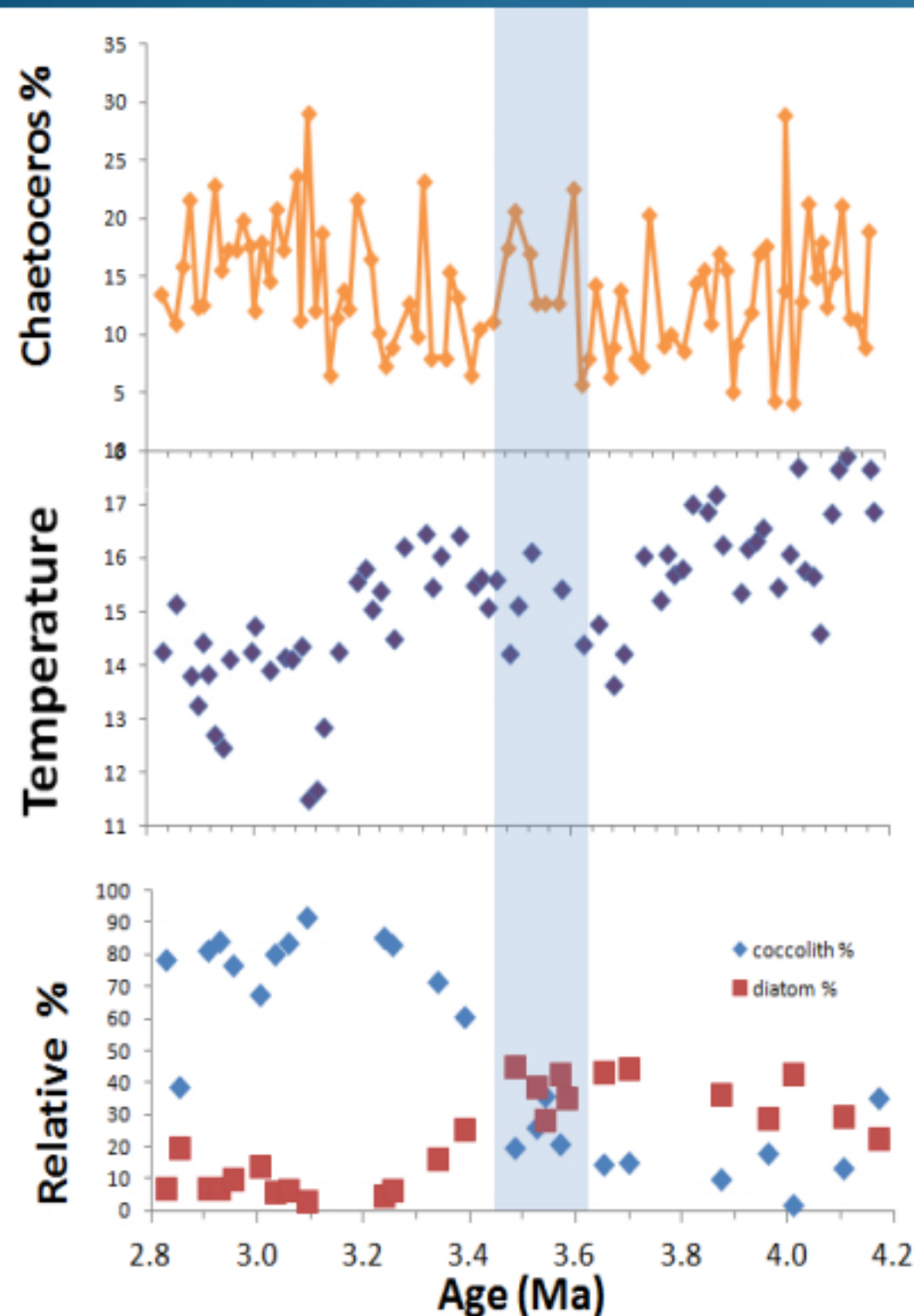


# Changes in Productivity along the California margin through the last 5 million years

Petra Dekens, Department of Geosciences, San Francisco State University

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



Above: Map of modern mean annual SST and site locations. Left: Data for ODP site 1022 A. % Chaetoceros diatoms, an indicator of upwelling (Reed-Sterret et al., 2010). B.  $U^{K'}_{37}$  SST estimates for ODP site 1022 (Reed-Sterret et al., 2010) from 2.5 to 5 Ma. Note that the warmest early Pliocene SST is ~2°C warmer compared to today. C. % diatoms and coccoliths from smear slide data

## Work to Date

- Data from petrographic analysis of smear slides and laser particle size analysis are not correlated for sediments at ODP site 1022.
- Smear slide analysis shows a shift from a system dominated by diatoms before 3.5 Ma to one with coccolithophorids dominate after 3.5 Ma.
- Organic biomarker work will allow us to differentiate if this shift is due to changes in productivity or changes in preservation.
- smear slide analysis is also underway at ODP site 1014.