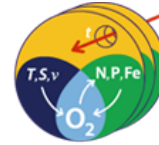


Seasurface and subsurface circulation dynamics off equatorial Peru during the last 17,000 years

Funding:
German Science Foundation (SFB 754), ended



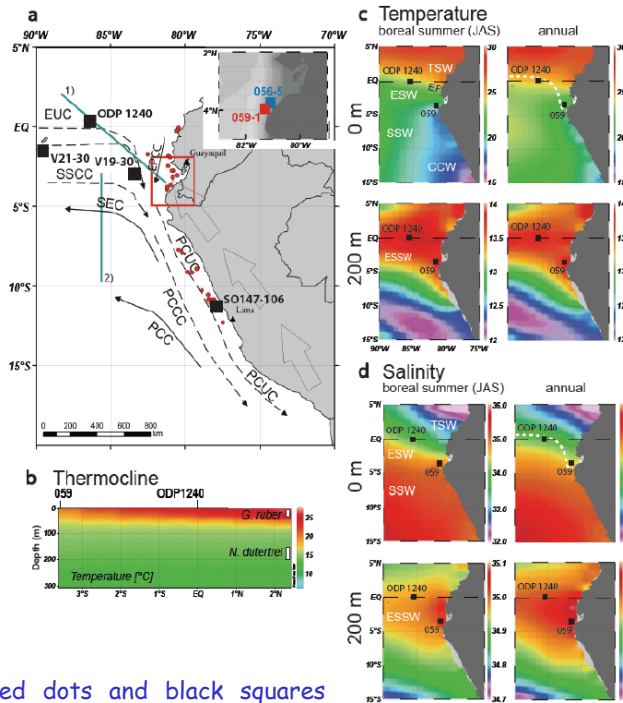
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Motivation:

Previous studies attempted to decipher the sea surface and subsurface temperature evolution in the Eastern Equatorial Pacific, contribution of the Equatorial Under Current, and the extension of the Peruvian coastal upwelling and oxygen minimum zone for different time periods.

Changes in the position of the Intertropical Convergence Zone further modify hydrographic features in the Eastern Equatorial Pacific like the Equatorial Front, and are thus important control factors for the local hydrography off Peru. On inter-annual time scales, the El Niño Southern Oscillation causes large variations in the chemical, physical and biological conditions of this sensitive system.

Study area offshore Peru / Ecuador. Red dots and black squares indicate locations considered in this study. Seasonally differentiated temperature and salinity distributions at surface (0m) and subsurface (200m) are indicated.

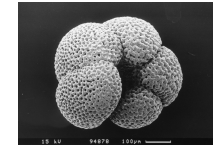


Proxy carrier:

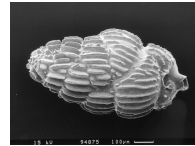
Foraminifers, single-cell calcifying organisms, carriers of (isotopic) geochemical information



G. ruber
lives at ~30 m



N. dutertrei
lives at ~200 m



U. peregrina
lives in the sediment

Goals:

- to resolve for seasonal contrasts in the deglacial to Holocene Eastern Equatorial Pacific seasurface temperature and salinity development and
- to relate the sea surface modifications to the subsurface hydrographic development
- in order to identify external forcing mechanisms and phase-relationships that affected the spatial and temporal variability of the Eastern Equatorial Pacific upper ocean hydrography.