



Quaternary paleoceanographic reconstruction of Eastern Equatorial Pacific: planktic foraminiferal evidence

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The Eastern Equatorial Pacific (EEP) is quite unique in its oceanographic set up and exhibits considerable variations on shorter to longer time scales. The region encounters intense upwelling caused by the Peru Current. The EEP shows a strong ocean-atmosphere coupling, which is manifested in form of events like (El Niño Southern Oscillations (ENSO) that affects the global climate.

The present work is based on planktic foraminiferal census data from the ODP Hole 846B, situated at 3°S latitude near the Galapagos spreading centre in the EEP, for paleoceanographic reconstructions for the Quaternary Period. Four species which show significant fluctuations in the relative abundance are *Globigerinoides ruber* (mixed layer and oligotrophic species), *Neogloboquadrina dutertrei* (fertility indicator and thermocline dweller), *Globigerina bulloides* (upwelling indicator) and *Globorotalia inflata* (temperate species).

Results of the analyses of the census count of the planktic foraminifera indicate the overall dominance of the shallow water thermocline species *N. dutertrei*, suggesting the prevalence of the robust EEP Cold tongue during the Quaternary.

The increase in the relative abundance of *Gs.ruber* marks seven planktic foraminiferal events (2.52Ma to 0.5Ma) of reduced strength of the cold tongue along the EEP. These intervals are concomitant with spreading and encroachment of warm water from the Western Pacific suggesting El Niño like conditions due to reduced strength of trade winds.

Seven planktic foraminiferal events (2.42Ma to 0.20Ma) show prominent increase in the relative abundance of *Gg.bulloides* indicating advection of nutrient rich waters due to enhanced coastal upwelling.

Invasion of the temperate species *Globorotalia inflata* is indicated by its abundance reaching up to 20 percent of the total assemblage at 3°S occur during ~ 2.07 Ma, 1.32 Ma and 1.05 Ma. The unusual occurrence of the cold water temperate species indicates the expansion of southern polar front which have resulted a northward displacement of Antarctic Circumpolar Current.