



Benguela upwelling response during intervals of global climate transition

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In the present study sedimentary records from the southeast Atlantic ocean were used for reconstructing the variability of Benguela upwelling system as well as the Interoceanic exchange between Indian and Atlantic Oceans during the critical intervals. Planktic foraminiferal assemblage data revealed diminished upwelling in the Benguela upwelling region during the Pliocene warm interval (3.7-3 Ma) which is in contrast to the model reconstructions by Wang et al., 2015 proposing intensification of upwelling with projected future warming. Gradual intensification of Benguela upwelling was interpreted during the Pliocene - Pleistocene transition (3-2.5 Ma). Enhanced Benguela upwelling during the Northern Hemisphere Glaciation supposed to have played a major role in the drawdown of atmospheric carbon dioxide after Pliocene warmth interval (3.7-3 Ma). Enhanced Benguela upwelling also occurred during Mid- Pleistocene transition (1-0.7 Ma). Reduced interoceanic exchange has been identified between Indian and Atlantic ocean during Northern Hemisphere glaciation (2.5- 2 Ma) and Mid-Pleistocene transition (1- 0.7 Ma). Equatorward migration of subtropical fronts during these two intervals was probably responsible for the reduced interoceanic exchange.

Keywords: Pliocene-Pleistocene transition, Mid- Pleistocene transition, Benguela upwelling, Interoceanic exchange