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The Holocene Southeast Atlantic: Paleoceanographic interpretations based on sedimentological and geochemical proxy-data

S. Muellegger, W.E. Piller
Institute for Earth Sciences, Austria, EU, Karl-Franzens University Graz

Sedimentation in the deep abyssal regions of the Southeast Atlantic (Cape Basin, Angola Basin and Guinea Basin) was studied to reconstruct changes in bio-productivity, surface and deep water circulation and water stratification during the Holocene. Samples were gained with a multicorer device during Meteor cruise 63/2 (2005) in water depths between 5100 and 5600 m. The superficial 30 cm of sediment, sampled in 1/2, 1 and 5 cm steps, were processed for this study. The record covers at least the Holocene (Angola, Guinea Basin) and the Younger Dryas (YD) (Cape Basin).

Various sedimentological and geochemical proxies, including carbonate and organic carbon content, foraminiferal fragmentation, grain size analyses and AMS ^{14}C dating, delivered a sound standing base for interpretations concerning surface biogenic production and ocean circulation.

Cape Basin localities show a pattern of enhanced carbonate preservation during the Younger Dryas. This pattern, which is typical for Pacific records, clearly points to an influence of Antarctic Bottom Water at water depths below 5000 m in the Northern Cape Basin (Hodell et al., 2001).

Angola Basin samples delivered a record of reduced carbonate dissolution around 8.2 ka BP possibly indicating a connection to the North Atlantic cold event about the same time.

Guinea Basin samples are largely unaffected by changes in dissolution and delivered just slightly increasing carbonate contents during the Holocene owing to a predomi-

nant influence of North Atlantic Deep Water north of the Guinea Rise. Stable isotope analyses on our samples from the Guinea Basin allowed a detailed reconstruction of thermocline depth fluctuations related to changes in the monsoon intensity in West Africa during the Late Holocene.

References:

Hodell, D.A., Charles, C.D., Sierro, F.J., 2001. Late Pleistocene evolution of the ocean's carbonate system. Earth and Planetary Science Letters 192, 109-124.