and 3°N). The correlation between the records based on changes in the low-field susceptibility and the inclination is extremely detailed. The time versus depth correlation has been established from the $\delta^{18}O$ record (0-140 kyrs B.P.).

The magnetic mineralogy is dominated by two components. The signal carried by magnetite is reflected by large variations in the low-field susceptibility and the intensities of the remnant magnetizations with strong increases during warm periods, while low values are observed during cold episodes. In contrast, the signal carried by the hard coercivity fraction is controlled by hematite and shows a significant increase during glacial episodes. These features are unchanged for cores located within and outside the upwelling of Somali. The records have been expressed in terms of terrigenous inputs after correction for the effects of dilution by carbonates. Fluxes of magnetite are interpreted as changes in the amount of river-transported sediments, while changes in fluxes of hematite are linked to dust transport by winds. These results will be discussed in connection with the changes in continental aridity in this area during the Late Pleistocene.

SETTLING-VELOCITY OF SAND-SIZE FRACTION FOR COMPARISON OF QUATERNARY GLACIAL/INTERGLACIAL SEDIMENTS FROM NORTHERN NORTH ATLANTIC

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Depositional environment varies significantly due to changes of the oceanographic circulation pattern during glacial/interglacial cycles in Quaternary times. Glacial times are generally characterized by high amounts of terrigenous detritus whereas interglacial maxima are mainly made up of biogenic particles with foraminiferal shells as main constituent.

Based on the determination of the settling velocity in a 'Settling Tube,' it is possible to define specific hydrodynamical properties. The settling velocity is influenced by size, density, shape, and surface roughness of the particles.

The result of a settling-tube analysis is a settling-velocity distribution with several peaks representing the modes of different particle-assemblages.

A next step is to characterize the sediment particles of the various peaks. This is done by means of a 'Separator,' where particles can be distinguished depending on their sinking rate (e.g., different species of foraminifers).

Finally, the peaks are expressed in percentage of the total settling-velocity distribution.

These results will be presented for samples from different core sites in the northern North Atlantic for oxygen isotope stages 1, 2, 5 and 6.

THE PERSIAN GULF: GIANT SEDIMENT WAVES AS INDICATORS OF LONG TERM CURRENT ACTIVITY?

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Environmental impact studies were performed (Nov./Dec. 1991) on the Mesopotamian shelf in the northern region of the Persian Gulf. The area has a small fresh-water inflow from the Tigris-Euphrates and Karun rivers at its head, which surrounded by sites of some of the earliest civilizations of human history and has developed into one of the richest oil regions of the globe. A cruise (RV AKADEMIK) to the 20 m to 60 m shallow Mesopotamian shelf resulted in a

geophysical survey covering an area of 4600 km² by side-scan sonar (EG&G, 105 kHz) and uni-boomer, acoustic-profiling records (EG&G, model 230-1). To ground truth the geophysical data the sea floor was sampled using box and gravity cores. Sediments vary from terrigenous muds to more biogenic carbonate sands which accumulate at a reef and towards the basin. Since the Persian Gulf was dry during the last glacial followed by a sea-level transgression during post-glacial times, it seems likely that the reef and the observed bedforms were developed during post-glacial times. The results of the detailed geophysical mapping program show large-scale SSW to NNE migrating asymmetric bedforms, that developed in a small area at the eastern flanks of the basin. Observed bedforms reach heights of up to 5 meters and wavelengths of up to 2 km in water depths of 50 m. The preferential orientation of the wave crests is NNE-SSW and stands in marked contrast to the surrounding sea floor. Presently, we cannot completely rule out the existence of a dune system beneath the bedforms which may have been developed during low stands of sea level. However, sediments from the upper three meters indicate a marine environment where the crests of the bedforms and the direction of migration may have been originally caused by tidal currents. The orientation of the crests line up with the river drainage system. Therefore, the migrating sediment-wave field may provide a long-term record of current flow history of the northern Persian Gulf, and possibly the drainage history of the Tigris-Euphrates river system.

POWER SPECTRUM ANALYSES OF STORM LAYERS IN HOLOCENE SEDIMENTS OF KIEL BAY: A TOOL FOR PALAEOCLIMATIC RECONSTRUCTION?

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The information on climatic conditions is essential for the interpretation of processes which affect the coastal zone. Climatic events cause sea level variations, currents and waves which are the main processes responsible for erosion and transportation of material. In Kiel Bay (western Baltic) bottom currents, generated by storms, transport major amounts of coarse grain sized particulate matter into the deeper parts of the glacial valley system where the sedimentation of mud dominates. This mud becomes interlayered with sand which is accumulated in significant horizons documenting specific events.

In order to estimate the feature of the storm layer sequence on cyclic, transient, or stochastic characteristics, the optical density of a x-radiograph from a sediment core sampled in Kiel Bay was digitized. In this x-radiograph the storm layers are marked by low densities. Bioturbation could destroy the layering and the sample has to be observed critically on these effects.

The determined sequence which was taken in 1989 comprises the most recent sediments form the past 50 years. By using dated horizons and converting the core depth into a time scale the fast Fourier transformation of the autocorrelation function gives an estimation of the power spectrum.

This estimation shows two significant peaks with period of 6-8 and 2 years. The result indicates that the process in formation of storm layers is rather cyclic than stochastic. In the upper layer of the sediment core the two year period dominates, whereas in the lower layer the 6-9 years cycle can be determined. The analyses of the power spectrum of storm-induced sediments might be a tool to reconstruct the climatic variations.