

carbon, quartz, and feldspar near the Gauss/Matuyama boundary, paralleled by the onset of loess deposition in China, is interpreted as intensified atmospheric and oceanic circulation triggered by the development of major northern hemisphere glaciation near 2.5 Ma. The biogenic sediment composition of Site 798 and Site 799 sediments is characterized by high organic carbon contents; the organic matter is mainly a mixture of marine and terrigenous origin. Marine organic carbon enrichments are probably caused by increased preservation rate of organic carbon under anoxic deep water conditions and/or increased paleoproductivity.

One priority of our investigations is focussed on the characteristics and causes of the distinct cyclicity of the late Plio-/Pleistocene sediment composition at Site 798. Based on the isotope-, bio-, and magnetostratigraphy, these cyclic changes can probably be divided into two different genetic types.

The late Plio-/Pleistocene interval is characterized by short-term Milankovitch-type changes in both siliciclastic and biogenic sediment composition, probably reflecting glacial/interglacial, arid/humid climate cycles. Spectral analyses of logging data point to a dominant 41ky (tilt) cyclicity.

Superimposed to the climatic cycles, distinct, dark-light subcycles of 1,000 to 12,000 y with changes in biogenic and organogenic composition occur, indicating dramatic short-term paleoceanographic variations.

### ANTHROPO-CHEMICAL POLLUTANTS: TRACERS FOR ARCTIC SEA ICE DYNAMICS?

D. Dethleff (GEOMAR, Kiel, Germany), J. Hansen, H. Kassens, S. Melnikov, D. Nürnberg, G. Petrick, E. Reimnitz, D.E. Schulz, J. Thiede, and S. Vlasov

(Preliminary results from the E.S.A.R.E. 1992, and AARI research program 1990)

Studies of anthropo-chemical pollutants in the Arctic region have been carried out in the framework of the GEOMAR E.S.A.R.E. '92 winter expedition to the Laptev Sea and during the AARI (Arctic and Antarctic Research Institute, St. Petersburg) Arctic research program in 1990. Compared to the Baltic Sea, one of the most polluted bodies of ocean waters, Arctic measurements show 1-2 magnitude higher concentrations of PCBs, HCH, DDT group (DDT, DDD, DDE) and PHC (petroleum hydrocarbons). Mean annual concentrations of pollutants in Siberian shelf areas amount to 1.0 ng/l PCBs, 1.66 ng/l HCH, 0.46 ng/l DDT and 15.5 yg/l PHC in sea water and 2.0 ng/l PCBs, 1.18 ng/l HCH, 0.41 ng/l DDT and 16.2 yg/l PHC in shelf ice (unpublished data, AARI 1990).

River discharge and waste waters of coastal industrial settlements are primary contributors of chemical pollutants into Arctic shelf water and sea-ice cover. Extensive yearly sea ice export from the Laptev Sea to the central Arctic Ocean thus could be responsible for a widespread distribution of chemical pollutants. Concentration and distribution patterns of anthropo-chemical pollutants are believed to record recent ice formation and drift processes in the entire eastern Arctic Ocean (Siberian shelf area, central Arctic Ocean, ablation areas). Re-identification of anthropo-chemical ice inclusions in the entire Arctic Ocean is believed to give references to Arctic sea-ice drift patterns, and will be a focal point of further investigations.