***Jörn Thiede***

*Köppen-Laboratory, Institute of Earth Sciences SPbGU, St.* Petersburg

[jthiede@geomar.de](mailto:jthiede@geomar.de)

**The History of the Arctic Ocean Sea Ice Cover and the Interaction of the Arctic Ocean with its Eurasian Hinterland**

Deciphering the Arctic Ocean paleoenvironments and their interaction with the Eurasian hinterland during the Cenozoic represents one of the most exciting chapters of modern polar research which opened up during the past decades. Even though modest insights were possible based on short sediment cores taken from ice island stations earlier, major progress was only achieved when modern heavy duty research ice breakers capable to reach the central Arctic deep-sea basins could be deployed. They allowed to acquire long sediment cores whose sediment composition reflected the impact of the alternating glacial and interglacial climatic intervals during the youngest geological past, as originally defined by the Köppen, Wegener and Milankovitch. The ice breakers involved were YMER and ODEN (both Sweden), KAPITAN DRANITSYN, AKADEMIK FEDEROV and TRYOSHNIKOV (Russia), HEALY (US), POLARSTERN (Germany), AMUNDSEN (Canada); more recently they were joined by polar research vessels from China and Korea. It became quickly clear that the fresh water influx from the Eurasian continental hinterland had a major impact on the formation and stability of the Arctic Ocean sea ice cover. Close linkages have been established to the history of the Siberian river drainage system as well as to the waxing and waning the Pleistocene Eurasian ice sheets. ECORD drilling on Lomonosov Ridge demonstrated that Cenozoic northern hemisphere glaciations started already during Eocene times, approx. 48 Mio. years ago. Only the future will show how northern hemisphere ice covers will develop and if we can really expect an Arctic Ocean free of sea iceGerard was less successfully assessed than the other nominees was found to be in the category of “Impact of Coordination Activities".