



The Great Challenges in Arctic Ocean Paleoceanography and Scientific Drilling

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The Arctic is both the harbinger of change and the region that will be most affected by global warming. Arctic research is motivated in part by climate change models predicting the greatest future temperature changes in polar regions and because polar systems may be particularly sensitive to change. Despite the importance of the Arctic in the climate system, however, the data base we have from this area is still very weak, and large parts of the climate history have not been recovered at all in sedimentary sections, mainly due to major technological/logistic problems in reaching this permanently ice-covered region. In order to fill this gap in knowledge, international, multidisciplinary expeditions and projects for scientific drilling in the Arctic Ocean are needed. The new detailed climate records from the Arctic Ocean spanning time intervals from the Paleogene Greenhouse world to the Neogene-Quaternary Icehouse world and to be obtained by future drilling, will give new insights into our understanding of the Arctic Ocean within the global climate system and provide an opportunity to test the performance of climate models used to predict future climate change. With this, studying the Arctic Ocean is certainly one of the major challenges in climate research for the coming years. Key questions as well as key areas for such projects have already been identified on several workshops during the last two decades. For 2011, further international workshops will be carried out to make progress in concrete planning of future Arctic Ocean drilling campaigns. Key questions as well as key areas are presented and summarized in this poster.