



EUROPEAN RESEARCH ICEBREAKER



**27 March 2007: A New Milestone for Polar and Marine Research  
German Federal Ministry of Education and Research (BMBF) approves technical development work for research icebreaker and drilling vessel AURORA BOREALIS**

The Alfred Wegener Institute for Polar and Marine Research is receiving more than 5 million Euro from the Federal Ministry of Education and Research (BMBF). The funds will be dedicated to continue technical development of the new European research icebreaker AURORA BOREALIS, together with the Department of Naval Architecture at the University of Applied Sciences in Bremen. Simultaneously, the search for international partners interested in contributing to construction and maintenance costs of the vessel has begun.

As early as May 22, 2006, the Science Council, with the stipulation of previous completion of some technical development work, recommended the design of the ice-breaking research drilling vessel AURORA BOREALIS under German leadership. With its current approval, the BMBF is following the Science Council's recommendation by providing the funds for associated scientific engineering tasks.

Since November 2006, construction of the new ship has also been central to the European agenda, as AURORA BOREALIS represents one of 35 large-scale research projects included in the so-called ESFRI list (ESFRI = European Strategy Forum on Research Infrastructures) of the European Commission. ESFRI has identified large-scale infrastructure projects that will be of highest priority for the European research environment over the next decades. Through its 7th Framework Programme for research, the European Commission will provide approximately 200 million Euro for the preparation and development of management structures associated with those 35 large-scale projects. Hence, the AWI, together with the European Polar Board and the European Science Foundation, will also apply for funding under this programme. Fortunately, more than 11 European countries, including Russia, have already expressed their interest in contributing to the currently approved preparation phase.

**Background**

AURORA BOREALIS represents a new type of ship which is the first to be constructed anywhere in the world. Combining ice-breaking, drilling and multi-purpose features, the research vessel will be able to operate in polar regions and open oceans, throughout all seasons.

Both international and interdisciplinary expeditions aboard AURORA BOREALIS travelling to the central Arctic Ocean during all seasons will be providing new insights into one of the last unexplored regions of the world, through the novel option of year-round operation of the vessel. AURORA BOREALIS will be able to operate without additional accompanying icebreakers. In addition to a multitude of scientific investigations (i.e. meteorological, biological, oceanographic, glaciological and geophysical research) that can be carried out aboard the ship, the technical facilities of the vessels will include options for remote sensing, marine technology (so-called Subsea Floor Engineering) and Arctic deep sea drilling. One of the most extraordinary features of the vessel will be her capacity for deep sea drilling under a complete cover of sea ice. With her wide range of capabilities, AURORA BOREALIS will be equipped to serve all disciplines of marine technology and marine polar research.

AURORA BOREALIS will be part of the polar class of heavy icebreakers, comparable to the large Russian icebreakers, exceeding 50 megawatts of power. This enormous driving force will be necessary to guarantee all-season assignments in nearly all regions of the Arctic. The drilling equipment of AURORA BOREALIS will allow for operating depths of 4,000 meters (plus 1,000 meters drill depth in the sediment), hence allowing access to ninety percent of all Arctic Ocean deep sea regions. Additional technical innovations of the vessel include modularised mobile laboratory systems which will facilitate project specific selection of research laboratories. Two specialised technical devices in the hull of AURORA BOREALIS, so-called

'Moon Pools', will assure that remotely operated deep sea vehicles (ROVs), autonomous underwater vehicles (AUVs), ocean floor observatories, can continue to operate during drilling also. In the future, scientific updates and technology can be integrated into the laboratory system without much effort.

The AURORA BOREALIS project was instigated by the Alfred Wegener Institute and continues to be pursued through the European Polar Board (EPB) of the European Science Foundation (ESF). In addition, it will be linked to existing research programmes, especially to the 'Integrated Ocean Drilling Programme' (IODP). Whereas the Department of Naval Architecture, Ocean Engineering and Applied Sciences at the University of Applied Sciences in Bremen oversees technical management of the project, overall project coordination and leadership rests with the Director of the Alfred Wegener Institute, Prof Dr Jörn Thiede.

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