Editorial Preface

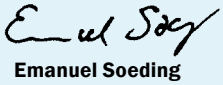
Dear Reader:

Earth sciences are entering an exciting new phase in scientific drilling. Several new projects are starting or expanding, and new drilling tools are being developed. After a 20-month drilling hiatus, IODP now starts its second phase in October 2007 with the first expedition by the new Japanese riser drilling vessel *Chikyu*, and to be followed in early 2008 by expeditions of the totally remodeled riserless drilling vessel *JOIDES Resolution*. ICDP now has access to a completely new portable and state-of-the-art drilling rig, capable of drilling on land to depths of 5 km. And, other innovative projects are rapidly underway such as the MeBo, a containerized drilling device that can be deployed to the seabed from research vessels, and core up to 50 m into the sea floor. Furthermore, the European Commission has rated very highly a proposal to develop an icebreaker with deep-water drilling capability for use in the Arctic. If realized, vastly more ground-breaking data and drill cores can be obtained from the critically under-explored Arctic Ocean. With reference to the international polar year, we also report on the ultra-deep ice coring in Antarctica. This report, together with workshop reports including the research field of the deep biosphere, illustrates that scientific drilling now engages in studies of the lithosphere, the hydro- and cryosphere, the biosphere, and equally importantly, the interactions between Earth's different "spheres".

This exciting development, however, takes place with the background of a troublesome fiscal situation. Dramatic cost increases in all drilling related services, fuel, supplies, and materials impose a heavy fiscal toll on scientific drilling projects. The direct consequence for IODP is that its two permanent drilling vessels cannot be operated throughout the full year on the funds available, but must take up other work during periods of the year. It is hoped that this will generate sufficient program savings to allow IODP to continue operating at the high level one would expect from this world leading program. ICDP is following a similar path, by offering commercial use of the German mobile drilling rig while it is not in use for scientific projects. A new major exploratory challenge for scientific drilling is to see whether this sharing of facilities between science programs and users like industry can develop into mutually rewarding scientific and technological partnerships, or will simply remain a fiscal arrangement of necessity.

The multitude of projects and developments reported here demonstrate a vibrant and ambitious scientific drilling community. The creativity and energy of this growing community bodes well for the future of drilling supported science. So now the scientific drilling community is ready to jointly and boldly go where no man has gone before!

Hans Christian Larsen
Editor-in-Chief



Emanuel Soeding
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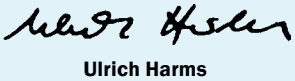

Ulrich Harms
Editor

Front Cover: Drillbit from IODP Expedition 310, Tahiti Sea level. *Photo by Rolf Warthmann (ETH, Zurich).* **Left inset:** Aerial view of the Tahiti barrier reef in the Faaa area. *Photo by Gilbert Camoin.* Read more on page 4.

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IODP is an international marine research drilling program dedicated to advancing scientific understanding of the Earth by monitoring and sampling subsea-floor environments. Through multiple drilling platforms, IODP scientists explore the program's principal themes: the deep biosphere, environmental change, and solid earth cycles.

ICDP is a multi-national program designed to promote and coordinate continental drilling projects with a variety of scientific targets at drilling sites of global significance.

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