# Editorial Preface

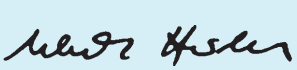
## Dear Reader:

Volcanoes have many stories to tell, and their activity profoundly impacts human life and Earth's environment. In this issue of *Scientific Drilling*, a report on the Hawaii Drilling Project highlights "hot spot" volcanism (p. 4). A decade of planning and drilling on the island of Hawaii resulted in 3500 m of drillcores from lava flows piled up by the Mauna Loa and Mauna Kea volcanic systems. Detailed analyses tell an intriguing story about the Earth's mantle down to 3000 km depth, and how the volcanoes, rising 10 km from the seabed, formed over time and host an unexpected hydrogeological system. Planned drilling in Kamchatka (p. 54) will address the source of energy and water driving hydrothermal systems in volcanoes typical of the Pacific Ring of Fire. And, a report on the potential for ocean drilling to address volcanic, seismogenic, and other geohazards is presented on p. 15.

Climate and environmental change are at the top of global research initiatives. The environment in which life flourished 3.2 billion years ago is the target for drilling in northwestern Australia (p. 34). Drilling into a lake in southeastern Europe holds the potential to recover much more recent records of environmental evolution linked to an amazing biological speciation (p. 51). The quest for drilling cores at high latitudes significantly depends on the ability to image targets seismically (p. 40) and the ability to cope with challenging logistics (p. 38). Gas hydrates are important components in the global carbon cycle and a potentially giant hydrocarbon resource. Technology to sample the icy gas under *in situ* conditions is reported on p. 44. Lastly, the global science community will be greatly supported by the concentration of ocean drilling cores (p. 31) in three fully accessible international core repositories.

Taken together, the fundamental contributions by scientific drilling projects to understanding Earth's environment and its immense natural variability over geological time should leave no doubt about their importance. Unfortunately, delays in drilling platform refurbishment and repair, and unavailability of mission-specific platforms—all related to an overheated offshore and shipyard market—have caused an almost three-year-long drilling hiatus during IODP's initial five years. Light now appears at the end of the tunnel. The Japanese riser drilling platform *Chikyu*, the U.S.-supplied *JOIDES Resolution* (following complete refurbishment of vessel, drilling equipment, and laboratory), and mission-specific platforms for shallow-water coring will all be active in 2009 (see schedule on back cover). This schedule will set a new high mark for scientific ocean drilling activity and provide a welcome backdrop for preparations for IODP renewal in 2013, which will start in 2009 with a major, community-wide conference (p. 66) addressing the scientific challenges and opportunities for ocean drilling after 2013. The constructive interaction with ICDP and other drilling programs, observatory science, and environmental modeling efforts will no doubt form the context of this major conference.

**Hans Christian Larsen**
**Editor-in-Chief**



**Ulrich Harms**
**Editor**

**Front Cover:** Formation of pahoehoe lava, Kilauea volcano, big island of Hawaii. Photo: Katharine Cashman, University of Oregon. See article on p. 4.
**Left inset:** Assembling drill core pieces after recovery and preparations for the initial core marking, description and optical scanning at the HSDP field laboratory in Hilo. (See 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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