

## **MICROBES BENEATH THE OCEAN FLOOR AND THE POSSIBILITY OF EXTRATERRESTRIAL LIFE**

Dr. Martin Fisk, Oregon State University

The biosphere is usually thought of as a thin zone of plants and animals near the Earth's surface. New evidence from the Ocean Drilling Program indicates a deep biosphere of microbes exists in mud and volcanic rock beneath the sea floor. The mass of this deep biosphere may equal or exceed the mass of our familiar surface biosphere. The microbes, which rely on chemical energy from minerals and water, are found as deep as 1000 meters below the sea floor and in rocks up to 170 million years old. Only temperatures above 100°C prevent the microbes from inhabiting the subsurface. The harsh conditions in the subsurface biosphere are similar to those in other planetary bodies that have water, such as Mars. Dr. Fisk is a geologist and oceanographer and has participated in ODP Legs 115 (Indian Ocean), 140 and 148 (Eastern Pacific near the Galapagos Islands), and 185 (Western Pacific). He is a member of the ODP Deep Biosphere Program Planning Group.