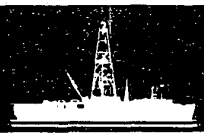
NEWS RELEASE
Ocean Drilling Program



Karen Riedel
Ocean Drilling Program
Texas A&M University
College Station, TX 77840
(409) 845-9322

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ODP Leg 126

Scientists track 30-million year volcanic record

COLLEGE STATION -- Scientists with the Ocean Drilling Program were able to record the geologic history of an event that began more than 30 million years ago and is still occurring today. They also drilled one of the deepest holes ever drilled into basement rock, documented a reversal of Earth's magnetic field that occurred more rapidly than previously thought and discovered a large pocket of briny water that is the most altered seawater analyzed in the drilling program.

The scientists drilled into the Izu-Bonin volcanic islands of the Western Pacific to learn about their origin and evolution and the rifting processes that are still occurring today.

The great arc-shaped island chains and adjacent trenches slashing the ocean floor in the Western Pacific owe their configuration to crustal plate movement. When two oceanic plates converge, as they do in this region, one is subducted beneath the other. Partial melting of the subducted plate initiates volcanic activity that eventually results in a chain of small volcanic islands called island arcs.

The ODP scientific team, using the drill ship *JOIDES*

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Resolution, drilled into the island-arc system that lies south of the main island of Japan. A 1100-kilometer-line of volcanic islands -- the approximate distance between El Paso and Los Angeles -- borders a trench 9.7 kilometers deep (6 miles). Sumisu Jima and Tori Shima islands are among the few above-water expressions of the volcanoes that rise from the seafloor.

The scientists drilled seven holes with two primary objectives:

--to retrieve sediment and rock samples from the basins between the arc volcanoes to record the history of the volcanic eruptions

--to recover sediment and basement rock to learn how the arc system is being ripped apart.

The samples collected reveal a fascinating history that began when part of the Pacific Ocean floor broke apart and was pushed under what is now the floor of the Philippine Sea. The collision created the Izu-Bonin volcanic island chain and the deep trench next to it. During the last 31 million years, the island chain stretched and pulled apart in several locations. The most recent activity began between 1.1 to 3.5 million years ago.

31 million years of volcanism

The oldest material recovered was retrieved from a hole more than a mile deep (1700 meters). The basement rock -- the oldest rock underlying the sedimentary layer -- had erupted as volcanic

lava as the arc was being pulled apart. These rocks record the 31-million-year-old formation of a forearc basin, a broad shoulder of rock and sediment between the arc of volcanoes and the deep-sea trench. Another rift that began between 1 and 3.5 million years ago is still active today. At the beginning of this event, lava exploded from volcanic vents lying more than 2 kilometers beneath the ocean's surface. The retrieved lava is of an unknown form and resembles a frothy dessert similar to chocolate mousse.

Piles of volcanic ash several hundred meters thick are deposited on top of the volcanic rubble. The ash piles document intervals of explosive volcanic eruptions that occurred in two stages: from 31 to 27 million years ago and from 13 million years to the present day. Layers of sediment, which slowly accumulated when the volcanoes were dormant, separate the piles of ash.

By studying the plants and animals found in the sediment, scientists were able to document the age when the volcanoes were active.

Rapid magnetic field reversal

Scientists also studied the rocks and sediments to learn more about the history of Earth's magnetic field. They discovered that a magnetic reversal occurring 700,000 years ago had reversed itself more rapidly than previously thought, switching over a span of thousands of years and possibly in as little as several hundreds of years.

Another anomaly found in the region was water with an

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extremely high salt content. Water in this region percolates through the sediment similar to the way it would percolate through coffee grounds. The water squeezed from the samples of sediment was the most altered water ever studied in the drilling program. The water has interacted so intensely with the surrounding sediments that it no longer resembles normal seawater but is more similar to the brine in the salty lakes of Earth's hot desert regions.

The information and results from this cruise will help scientists understand the major geologic forces that are still active in this region. Their research will ultimately enhance our knowledge not only of this region but also of the global picture of the living plant that continues to evolve around us.

Co-chief scientists for the cruise were Dr. Brian Taylor from the University of Hawaii, Honolulu, and Dr. Kantaro Fujioka, University of Tokyo, Japan, were the co-chief scientists for the cruise. Dr. Thomas Janecek of Texas A&M University was the staff scientist.

The ship departed Tokyo on April 20 and returned to Tokyo on June 19. The cruise, which was the 26th cruise for the Ocean Drilling Program, sailed with 26 scientists from nine countries: Australia, Canada, France, Italy, Japan, Norway, Sweden, the United Kingdom and the United States.

Floating research center

JOIDES Resolution, registered as *SEDCO/BP 471*, is the

research vessel for the ODP, which is funded by the United States National Science Foundation, Canada and Australia, the European Science Foundation Consortium for the Ocean Drilling Program, Federal Republic of Germany, France, Japan and the United Kingdom.

The 470-foot-long drill ship's derrick towers 200 feet above the waterline. A seven-story laboratory stack provides facilities for on board examination of sediment and hard-rock cores. Laboratories contain space and equipment for studies in chemical, gas and physical properties, paleontology, petrology, paleomagnetics and sedimentology. Marine geophysics research is conducted while the ship is under way.

Texas A&M University, as science operator, operates and staffs the drill ship and retrieves cores from strategic sites around the world. The science operator also ensures that adequate scientific analyses are performed on the cores. To do this, Texas A&M maintains shipboard scientific labs and provides logistical and technical support for shipboard scientific teams. On shore, in the Texas A&M University Research Park, the science operator manages post-cruise activities, curates the cores and publishes the scientific results.

Lamont-Doherty Geological Observatory of Columbia University is responsible for downhole logging.

Joint Oceanographic Institutions for Deep Earth Sampling (JOIDES), an international group of scientists, provides scientific planning and program advice. Joint Oceanographic

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Institutions (JOI, Inc.), a nonprofit consortium of 10 major U.S. oceanographic institutions, manages the program.

"During the next two years, JOIDES Resolution will drill in the western Pacific," said Dr. Philip D. Rabinowitz, director of the ODP. "We will investigate the Pacific's complex tectonic zones, which comprise several oceanic and continental plates."

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(Note: JOIDES Institutions are: University of California at San Diego; Columbia University; University of Hawaii; University of Miami; Oregon State University; University of Rhode Island; Texas A&M University; University of Texas at Austin; University of Washington; and Woods Hole Oceanographic Institution.

Non-U.S. members are Canada and Australia Consortium, European Science Foundation: Belgium, Denmark, Finland, Iceland, Italy, Greece, the Netherlands, Norway, Spain, Sweden, Switzerland and Turkey; Federal Republic of Germany; France; Japan; and the United Kingdom.)

The scientific party for Leg 126 was: Kantaro Fujioka, co-chief scientist, Ocean Research Institute, University of Tokyo, Japan; Brian Taylor, co-chief scientist, Hawaii Institute of Geophysics, University of Hawaii at Manoa, Honolulu; Tom Janecek, Ocean Drilling Program, Texas A&M University, College Station; Jonathan Aitchison, University of New England, Armidale, New South Wales, Australia; Stanley Cisowski, University of California, Santa Barbara; Albina Colella, Universita della Calabria, Scalo, Italy; Patricia Ann Cooper, Hawaii Institute of Geophysics; Kathleen Dadey, University of Rhode Island, Narragansett; Per Egeberg; University of Oslo, Norway; John Firth, Florida State University, Tallahassee; James B. Gill, University of California, Santa Cruz; Yvonne Herman, Washington State University, Fullman; Richard N. Hiscott, Memorial University, St. John's, Newfoundland, Canada; Malynn Isiminger-Kelso, Florida State University; Kunio Kaiho, Tohoku University, Aoba, Japan; Adam Klaus, Hawaii Institute of Geophysics; Masato Koyama, Shizuoka University, Japan; Henriette Lapierre, Universite d'Orleans, France; Michael Lovell, Nottingham University, United Kingdom; Kathy Marsaglia, University of Texas at El Paso; Akira Nishimura, Geological Survey of Japan, Ibaraki; Philippe Pezard, Lamont-Doherty Geological Observatory, Columbia University, New York; Kelvin Rodolfo, University of Illinois, Chicago; Rex Neil Taylor, University of Southampton, United Kingdom, Kazue Tazaki, Shimane University, Japan; Peter Torssander, University of Stockholm, Sweden.