

# NEWS RELEASE

## Ocean Drilling Program



For information:

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

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ODP Leg 124E

COLLEGE STATION, TX -- The Ocean Drilling Program (ODP) will test for the first time on the high seas engineering technology that previously has been used to drill for ore and minerals on land.

ODP, which has been engaged in scientific ocean drilling since 1985, will devote the first month and half of the new year to testing prototype engineering systems at sites off the island of Guam and in the Luzon Strait north of the Philippines.

This is ODP's first cruise exclusively dedicated to trying out the technology that is vital to the program's success and plans for its two-year expedition in the Western Pacific.

In addition to the system adapted from mining technology, ODP engineers will test how drill string bends when drilling in deep water. They will also experiment with several innovations to better recover material in geologic formations with interbedded sequences of hard and soft material.

Several sites that ODP plans for its Pacific explorations will require drilling through highly fractured volcanic rocks and basement material (igneous and metamorphic rocks underlying the sediment layer), formations that are usually difficult to recover.

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ODP engineers will use mining techniques in hopes of overcoming obstacles associated with drilling these formations. The new system is a streamlined version of the traditional methods used in the oil patch or in offshore drilling where heavy drill pipe and large coring bits crush the rock into chips. In the mining system, smaller drill pipe and drill bits operate at a faster speed, cutting rather than crushing their way through hard-rock formations.

The mining system is called the Diamond Coring System because the coring bits are embedded with industrial diamonds, making it possible to cut through much harder rock formations.

To operate the specially made drill bits and drill pipe, ODP devised a smaller rig to fit inside the 200-foot drill tower on the ship. Other special features include a separate drill floor and a heave compensator, which will work with the ship's primary compensator to remove up to 99 percent of the effect that the ship's up-and-down motion has on the drill string.

Diamond coring systems have operated successfully for decades in land mining. ODP's engineering cruise will be the first time that oil field and mining technologies have been combined to drill difficult geologic formations in deep water.

ODP will also try to determine the water-depth limits that drill pipe can undergo before breaking. The experiment will be conducted in one of the ocean's deepest trenches, the Marianas, at a water depth of 8,250 meters or more than five miles, which will establish a record for drilling from a floating vessel. At the same time, ODP will test all the ship's drilling systems to their maximum rated depths.

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ODP will also experiment with a variety of tools, drill bits and engineering strategies in resolving another problem: how to drill through chert and chalk formations. Chert is an extremely hard, dense rock, of which flint is an example. These interbedded sequences are difficult to drill through because of their alternating characteristics. Again, ODP is interested in finding a successful method so that it can drill at sites in the Pacific that previously have been unsuccessful because of limited technology.

The cruise, Leg 124E, departed Manila, Jan. 9, and will arrive in Guam, Feb. 15. In addition to the ODP engineering staff, participating engineers are from France, the Federal Republic of Germany, Japan and the United Kingdom and the United States. Barry W. Harding is manager of engineering and drilling operations for the ODP. Mike Storms is supervisor of development engineering.

JOIDES Resolution, registered as SEDCO/BP 471, is the research vessel for ODP, which is funded by the United States National Science Foundation, Canada and Australia, the European Science Foundation Consortium for the Ocean Drilling Program, France, Japan, West Germany and the United Kingdom.

Joint Oceanographic Institutions for Deep Earth Sampling (JOIDES), an international group of scientists, provides scientific planning and program advice. Joint Oceanographic Institutions (JOI, Inc.), a nonprofit consortium of 10 major U.S. oceanographic institutions, manages the program.

"ODP is naturally excited about this opportunity to devote several weeks to testing innovative engineering techniques," said Dr.

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Philip D. Rabinowitz, director.

"We know that future scientific exploration can go forward only if we have the technology to drill difficult sites and explore the geologic formations that are critical to Earth's past," he said.

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(Note: JOIDES institutions are: University of California at San Diego, Scripps Institution of Oceanography; Columbia University, Lamont-Doherty Geological Observatory; University of Hawaii, Hawaii Institute of Geophysics; University of Miami, Rosenstiel School of Marine and Atmospheric Science; Oregon State University, College of Oceanography; University of Rhode Island, Graduate School of Oceanography; Texas A&M University, College of Geosciences; University of Texas at Austin, Institute of Geophysics; University of Washington, College of Ocean and Fishery Sciences; and Woods Hole Oceanographic Institution.

Non-U.S. members are the Canada and Australia Consortium for the Ocean Drilling Program, Department of Energy, Mines, and Resources and Bureau of Mineral Resources; European Science Foundation Consortium for the Ocean Drilling Program: Belgium, Denmark, Finland, Iceland, Italy, Greece, the Netherlands, Norway, Spain, Sweden, Switzerland and Turkey; Federal Republic of Germany, Bundesanstalt für Geowissenschaften und Rohstoffe; France, Institut Français de Recherche pour l'Exploitation de la Mer; Japan, University of Tokyo, Ocean Research Institute; and United Kingdom, Natural Environment Research Council.)

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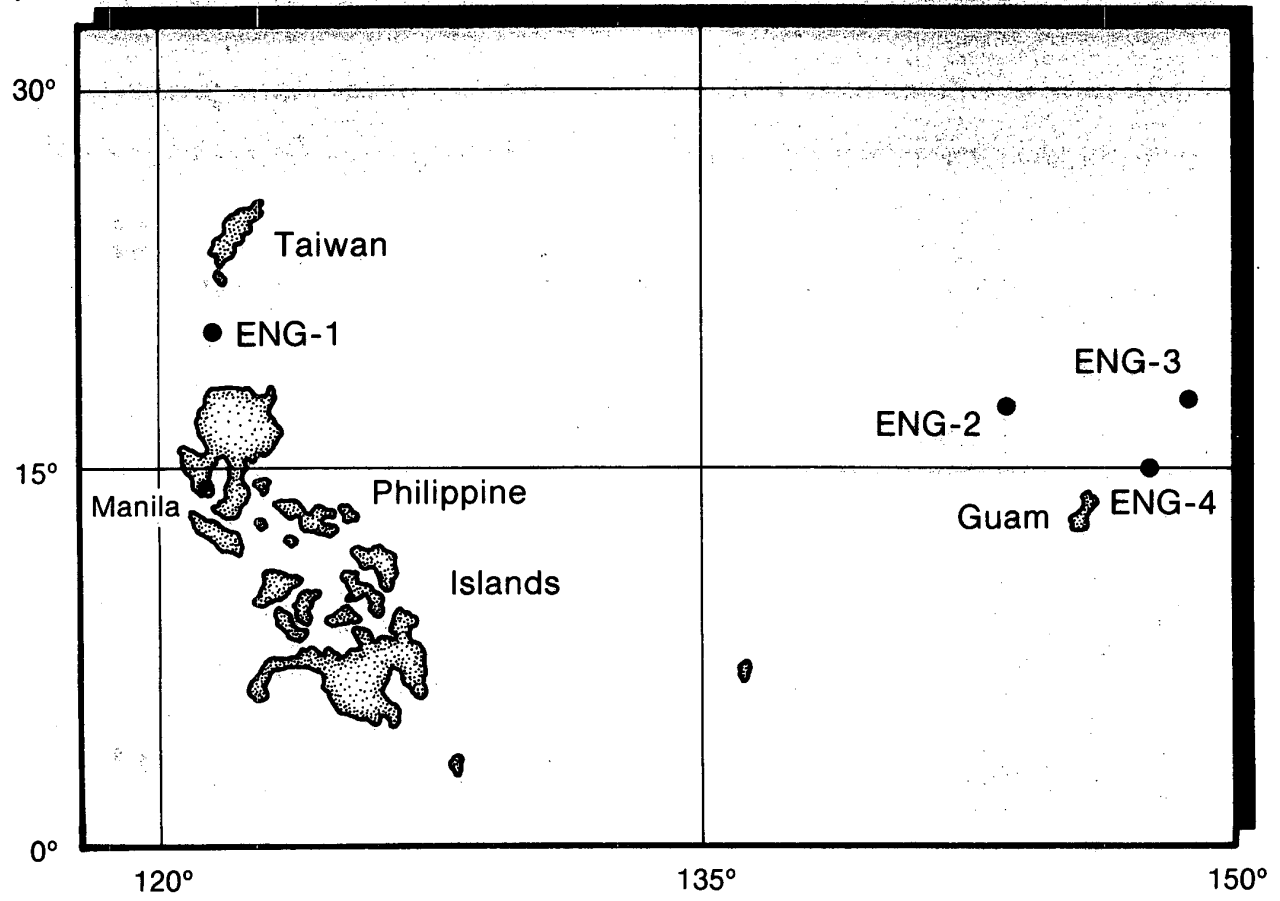
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Sites for ODP Leg 124E  
January-February 1989

Diamond coring system rig inside  
drilling rig on board *JOIDES  
Resolution*.

