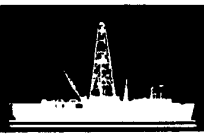
NEWS RELEASE
Ocean Drilling Program



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November 21, 1986

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COLLEGE STATION -- The region that encompasses the Andes and the Pacific Ocean off Peru is punctuated by active volcanoes, some of the world's most damaging earthquakes and mysterious changes in weather that play havoc on both land and sea.

Scientists representing several earth science disciplines will spend November and December exploring this turbulent region on board JOIDES Resolution, drill ship for the Ocean Drilling Program (ODP). The expedition's two objectives are to explore the region's tectonic history and its ancient environmental regimes. The ship will drill a series of deep (1000 meters) and shallow (200-600 meters) holes into the seafloor. The cores of sediment and rock retrieved on board will be examined for clues into the processes associated with active continental margins, and the evolution of climate and oceanic circulation in this part of the world.

Tectonics is the study of the plate movement and deformation of Earth's ocean and continental crust. When two plates of crust collide, one must give way to the other. In the case of South America's western coastline, the Nazca plate, composed of oceanic crust approximately 6 kilometers thick (3.8 miles), is sliding under

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the thicker (40 kilometers or 25 miles), but more buoyant South American continental crust.

Scientists call this particular kind of plate movement a convergent or active margin. The Nazca plate is pushed eastward away from the East Pacific Rise, the major location of seafloor spreading in the Pacific Ocean. When the Nazca plate, which is riding like a passenger on a huge conveyor belt, meets South America, part of the plate slides underneath and part piles up on the edge of the continent, forming the toe of the Andean mountain range.

The Nazca-South American plate convergence is remarkable in that at the rate of 17 centimeters a year (almost seven inches), it is one of the fastest moving in the world. The high rate of movement is responsible for the area's history of earthquakes and volcanic activity, as well as some of the margin's features which are atypical in comparison with more slowly converging plates.

Scientists know that the two plates started converging approximately 200 million years ago. What they don't understand, and what they hope to learn more about on this cruise, is how the present-day configuration of the margin was formed.

Lying between the Peru-Chile trench and the Andes are deep subterranean depressions called forearc basins. These basins are divided by a series of structural highs, ridges made up of old (350 million years) metamorphic rocks. What scientists hope to learn is how these ridges evolved, their subsidence rate, and the timing and extent of metamorphism. These findings will be compared to what has geologically occurred on land in order to put together a more complete

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picture of this active margin's geologic history.

Scientists will also be looking at the ancient climate of the area and its effect on today's environment. The Pacific Ocean in this region is the site of intense upwelling which occurs when wind following the coastline of the adjacent continent blows the surface water away. Nutrient-rich bottom water rises up to replace the missing surface water, resulting in the richest production of marine life in the world.

Unfortunately this potential food-producing paradise is spoiled by the capricious weather disturbance called El Nino which occurs periodically off the coasts of Ecuador and Peru and affects weather conditions throughout the Pacific and the North American west coast.

Scientists will examine the recovered cores to identify what climatic and oceanic changes have affected this region in the past by examining fossils in the sediment. These biological indicators help scientists determine what the past nutrient availability, sedimentation rate, and water temperature and circulation were over time. This information will in turn help them to trace the pattern of El Nino's occurrences during the past several million years and the effect of glacial activity on today's water level and circulation.

Co-chief scientists for the cruise are Dr. Erwin Suess from Oregon State University, Corvallis, and Dr. Roland von Huene of the U.S. Geological Survey in Menlo Park, Ca. Dr. Kay-Christian Emeis is the Texas A&M University staff scientist.

JOIDES Resolution, registered as SEDCO/BP 471, is the research vessel for ODP which is funded by the United States National Science

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Foundation, Canada, the European Science Foundation Consortium for the Ocean Drilling Program, France, Japan, West Germany 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, provides logistical and technical support for shipboard scientific teams, manages post-cruise activities, is curator for the cores and of 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 Institutions (JOI, Inc.), a nonprofit consortium of 10 major U.S. oceanographic institutions, manages the program.

"The ship will drill in the Weddell Sea the first two months of 1987," said Dr. Philip D. Rabinowitz, director of ODP. "Scientists will study the Antarctic's history of glaciation and circumpolar

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currents. A third area of investigation is the tectonic history of the region, specifically the processes which separated the South American and Antarctic continents," Rabinowitz 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, Department of Oceanography; 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 Department of Energy, Mines, and Resources, Earth Sciences Sector, Canada; European Science Foundation Consortium for the Ocean Drilling Program, Belgium, Denmark, Finland, Iceland, Italy, Greece, the Netherlands, Norway, Spain, Sweden, Switzerland and Turkey; Bundesanstalt fur Geowissenschaften und Rohstoffe, Federal Republic of Germany; Institut Francais de Recherche pour l'Exploitation de la Mer, France; University of Tokyo, Ocean Research Institute, Japan; and Natural Environment Research Council, United Kingdom.)