

NEWS RELEASE

Ocean Drilling Program



For information:

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

July 27, 1987

Leg 116.1

COLLEGE STATION, TX -- When the wandering subcontinent of India bumped against Asia, the collision created two of the world's great geologic features. The Himalayas form the world's highest mountain range and the submarine Bengal Fan contains the world's largest accumulation of redeposited sediments.

Scientists who are part of the Ocean Drilling Program (ODP) will investigate the forces which created these two geologic superlatives. ODP is an international effort to explore the history of Earth's origin and development through scientific drilling using the ship JOIDES Resolution.

Both geologic features owe their existence to the activities of the Indian tectonic plate. At one time India, Australia and Antarctica were part of a huge land mass clustered at the South Pole. After tectonic forces broke apart the megacontinent, India began about 90 million years ago to make its long journey north.

For the next 40 million years, India crossed the ancient Tethys Sea at the relatively fast rate of 15 centimeters (six inches) a year. The plate movement destroyed the Tethys Sea, leaving in its wake the new Indian Ocean.

-more-

add one

India first made contact with the Asian continent about 53 million years ago in what geologists call a "soft collision." About 10 million years ago, India rammed into Asia in a "hard collision," causing the initial uplift of the Himalayas. The force of this collision also produced long wave-like folds in the upper portion of ocean crust and overlying sediments of the Indian plate. The mechanism causing this intraplate deformation can be compared to a rug pushed across the floor. When the edge of the rug hits the wall, waves or folds pile up behind it.

Scientists on the cruise will drill into these undersea folds to determine when the compression began and what has since happened to this region of the Indian Ocean. The drilling results will also enable them to document the history of uplift that created the Himalaya Mountains.

The 3,000-kilometer-long Bengal Fan at the mouth of the Ganges and Brahmaputra rivers is directly related to the Himalayan uplift. The river system currently dumps sediments from the Himalayas into the Bay of Bengal at the rate of about 70 centimeters (28 inches) per 1,000 years. Scientists, however, know very little about the history and mechanics of the fan's sediment deposition.

By drilling at the outer edge of the fan, scientists will obtain uninterrupted sections of sediment layers representing millions of years of deposition. They will study these continuous cores to learn how and when the sediments were deposited and how the geologic history of the fan has changed over time. This knowledge will help scientists describe the forces that created the Himalayas and Bengal Fan, and

-more-

add two

clarify how subsequent events have affected these geologic features.

Co-chief scientists for the cruise are Dr. James R. Cochran, Lamont-Doherty Geological Observatory, Palisades, New York, and Dr. Dorrik A. V. Stow, Nottingham University, United Kingdom. Dr. Christian Auroux is the ODP staff scientist representative from Texas A&M University.

"This cruise marks our second excursion into the Indian Ocean," said Dr. Philip D. Rabinowitz, director of ODP. "During the rest of 1987 and 1988, JOIDES Resolution will be drilling in what is the least scientifically explored of the world's oceans."

The evolution of the Indian Ocean is directly linked with the destruction of the ancient Tethys Sea, the origin of the Himalayan mountain range and the development of the circum-Antarctic current.

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

-more-

add three

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.

-30-

(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.)