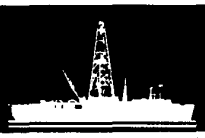
NEWS RELEASE
Ocean Drilling Program



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Leg 116.2

COLLEGE STATION, Tx -- After deep-sea drilling in the Indian Ocean during July and August, scientists are prepared to rewrite current theories about the timing of the Himalayan mountain range uplift and the subsequent formation of the enormous Bengal Fan.

They discovered that previous theories about the initial uplift were off at least 10 million years. By drilling a series of holes up to about 1000 meters (3,300 feet) deep into the ocean floor, scientists on board JOIDES Resolution, drill ship for the Ocean Drilling Program, recovered critical data that bear on the uplift and erosion of the world's highest and most impressive mountain range.

Analyses from the deep-sea sediment cores, retrieved from the Bengal Fan due south of Sri Lanka, reveal that the Himalayas had been uplifted at least 20 million years ago, 10 million years earlier than scientists had originally projected. Furthermore, they learned that the enormous body of sediment derived by erosion from the Himalayas was even larger and thicker than they had realized. They also studied underground forces which act like huge compressional devices that bend and fracture the ocean crust and overlying sediments of the central Indian Ocean.

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The region's geologic history began 140 million years ago when India was still part of the Southern Hemisphere supercontinent that geologists call Gondwanaland. For some as-yet-unexplained reason, the great land mass began to slowly break apart. The major continents separated and drifted to their present positions, and India began its long flight northwards, traveling across a former major body of water called the Tethys Sea.

The plate movement consumed the ancient sea, creating in its wake the new Indian Ocean. About 60 million years ago, the northern edge of India began to make contact with the Eurasian continent in what is called a "soft collision." This initial bumping eventually gave way to to a hard continent-to-continent collision that caused the first major uplift of the mountain chain that we know today as the Himalayas. Scientists had previously identified the hard collision as occurring about 10 million years ago, but results from this summer's drilling push that time back at least an additional 10 million years.

The key to the history of the Himalayan uplift lies not in the snow-capped mountains, but in the residue that million of years of erosion has carried to a huge underseas fan 3,000 kilometers away. The rigors of weather slowly wear mountains until they become no more than low-lying plains, their vanishing grandeur carried by the rivers to the seas over hundreds of thousands of years. In the case of the Himalayas, the Ganges and Brahmaputra rivers carry to the head of the Bay of Bengal more than three billion tons of sediment a year, more than any other river system in the world today. Some of the material becomes part of the Ganges delta, but much more is carried thousands

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of kilometers further down submarine channels to the deep sea.

The Bay of Bengal in the Northeast Indian Ocean, the world's largest sediment accumulation, is the result of these tremendous erosive forces. The fan covers three million square kilometers (almost two million square miles) and stretches more than 2,500 kilometers (1,550 miles) across the equator. The Bengal Fan's volume is estimated to be between five and 10 times the volume of the portion of the Himalayas presently above sea level.

By drilling on the edge or "feather" portion of the fan, scientists discovered that from the Ganges delta dense, sediment-laden currents carried large volumes of silt, sand and wood at least as far as the drill sites on the edge of the fan, a distance further than they had previously expected. By dating the microscopic fossils in the sediments, they learned that the process had been ongoing for at least the last 20 million years, which implies that the Himalayas were first formed before that time. They now believe that the uplift forming the Himalayas may have occurred in several stages. The mighty mountain range may have eroded to almost nothing after it was initially formed. Then, within the past million years, plate movement may have suddenly uplifted the mountain range once more, thus repeating the slow cycle of erosion and deposition.

The rapidly deposited Bengal Fan sediments also preserve a record of the folding and faulting that affects a large area of the central Indian Ocean. The northward motion of India on one side, combined with the continued generation of new seafloor at the mid-ocean ridge to the south, has caught the central part of the Indian Ocean in a

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huge, vise-like compressive grip. The central ocean has crumpled and fractured as a result, forming a series of massive fault blocks. The holes drilled on one of these blocks proved that the deformation began 7 million years ago and continues to the present day.

"Results from this cruise, when combined with those from other cruises planned for this region, will give the most complete history to date of the Himalayan uplift, India's spectacular movement north over millions of years and the mechanics of how giant submarine fans are formed," says Dr. Philip D. Rabinowitz, director for the ODP.

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

The ship departed Colombo, Sri Lanka, July 7, and returned to Columbo on Aug. 18.

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, the 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.

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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.

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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.)

Scientists on Leg 116 were: James Cochran, co-chief scientist, Lamont-Doherty Geological Observatory, Palisades, NY; Dorrik A.V. Stow, co-chief scientist, Nottingham University, Nottingham, United Kingdom; Christian Auroux, ODP staff scientist, Texas A&M University, College Station; Kazuo Amano, Ibaraki University, Ibarakiken, Japan; Peter S. Balson, British Geological Survey, Notts, United Kingdom; Garrett W. Brass, University of Miami, Florida; Jacques Boulegue, Universite Pierre et Marie Curie, Paris, France; Jeff Corrigan, University of Texas at Austin, Austin, Texas; Stefan Gartner, Texas A&M University, College Station; Stuart Hall, University of Houston, Texas; Sylvia Iaccarino, Universita di Parma, Italy; Toshio Ishizuka, University of Tokyo, Japan; Irena Kaczmarska, Mount Allison University, Sackville, New Brunswick, Canada; Heidemarie Kassens, Universitat Kiel, Federal Republic of Germany; Greg Leger, Dalhousie University, Halifax, Nova Scotia, Canada; Franca Proto-Decima, Istituto di Geologia dell Universita, Padova, Italy; C.V. Raman, Andhra University, Visakhapatnam, India; Will Sager, Texas A&M University, College Station; Kozo Takahashi, Woods Hole Oceanographic Institution, Woods Hole, Massachusetts; Thomas Thompson, Colorado School of Mines, Golden; Jean-Jacques Tiercelin, Universite de Bretagne Occidentale, Brest, France; Mark R. Townsend, University of Nottingham, United Kingdom; Andreas Wetzel, Geologisches Institut, Tubingen, Federal Republic of Germany; Pallege Nanayakkarawasam Wijayananda, National Aquatic Resources Agency, Colombo, Sri Lanka; Colin Williams, Lamont-Doherty Geological Observatory, Palisades, NY.

Leg 116: Intraplate Deformation