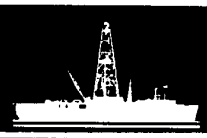
NEWS RELEASE
Ocean Drilling Program



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

April 20, 1987

Leg 113.2

COLLEGE STATION, Tx -- Scientists have discovered that a massive ice sheet whose melting would affect worldwide sea levels is more stable than previously believed. An international scientific team made the discovery during a recent two-month deep-sea drilling expedition in the Weddell Sea off the Antarctic continent.

Deep-sea coring of ocean sediments drilled at nine locations shows that the Antarctica's frigid climates and enormous ice sheets evolved over time rather than forming in one sudden event. The ice sheet now covering the continent first formed on East Antarctica, a continental platform, and several million years later on West Antarctica, formerly an archipelago.

The group, sailing on JOIDES Resolution, drill ship for the Ocean Drilling Program (ODP), completed the first stage of a four-part, two-year campaign to learn how Antarctica's climate has evolved into its present environment and how its cycles of glaciation have influenced the world's climate.

Of particular importance is evidence that points to the stability and permanence during the last 5 million years of the smaller West Antarctic ice sheet located south and west of South America and

-more-

add one

including the Antarctic Peninsula. The ice sheet formed about 8 million years ago and underwent an unstable period of alternating melting and freezing stages until about 5 million years ago when it stablized in much its present-day form.

Prevailing scientific opinion had previously held that this marine-based ice sheet was potentially unstable and could collapse. Any future global warming could therefore destablize it, leading to melting and a rise in sea level of several meters. Scientists are especially concerned that the greenhouse effect -- a buildup in carbon dioxide in the atmosphere that traps solar radiation -- could cause the ice to melt.

The drilling evidence from the Antarctic region suggests, however, that the ice sheet has been relatively stable during the last 5 million years and has even survived ancient subtropical climates.

Development of the West Antarctic ice sheet, a comparatively recent event in geologic time, was preceded by a long history of cooling and subsequent ice-sheet accumulation on East Antarctica, the area in the Indian Ocean and Australian sectors.

Until about 37 million years ago, Antarctica was a warm, ice-free continent. Scientists on board the ship discovered in the sediment cores pollen from southern beech trees and fern spores, wind-blown particles from West Antarctica indicating temperate climates and frost-free conditions for at least part of the year. The recovered sediments also indicate that the bottom waters were warm and that no sea ice or icebergs existed at the time.

The region's comparative warmth abruptly ended about 37 million

add two

years ago with marked cooling on the continent, the first of several critical stages leading to its present climate. The scientists recovered evidence of glaciation but no signs of major ice sheet formation until about 15 million years ago. After that, icebergs became much more abundant near East Antarctica. Thus the West Antarctica ice sheet formed much more recently than its eastern counterpart, and required a much colder global climate for its formation.

Of the nine sites, two were as far south as 71 degrees latitude and as close as 60 miles to the frozen Antarctic continent. Icebergs weighing up to 12 million tons were a continual threat to drilling operations and required towing by an ice-picket vessel, Maersk Master.

Leg 113 was the first of four cruises scientists hope will help complete the puzzle of the Southern Hemisphere's tectonic and ocean circulation history. Scientists will combine the results from this cruise with those from Leg 114, which is currently drilling in the South Atlantic, and future drilling in the Kerguelen Plateau region of the Indian Ocean to obtain a complete circum-Antarctic climate and glacial history.

Co-chief scientists for the cruise were Dr. Peter F. Barker, Birmingham University, Birmingham, England, and Dr. James P. Kennett, University of Rhode Island, Narragansett, Rhode Island. Dr. Suzanne O'Connell was the ODP staff scientist, Texas A&M University, College Station, Texas.

The ship departed Punta Arenas, Chile, Jan. 5, 1987, and arrived in East Cove, Falkland Islands, March 11, 1987. Twenty-five

-more-

add three
scientists from the U.S., Canada, the Federal Republic of Germany, France, Japan, Norway, Switzerland and the United Kingdom sailed on the cruise.

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. 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

in

add four

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

"During the rest of 1987 and most of 1988, JOIDES Resolution will drill in the Indian Ocean, the least scientifically explored of Earth's major oceans," said Dr. Philip D. Rabinowitz, director of ODP.

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.

(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 fuer 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 113 were: Peter F. Barker, co-chief scientist, University of Birmingham, Birmingham, England; James P. Kennett, co-chief scientist, University of Rhode Island, Narragansett, Rhode Island; Suzanne O'Connell, ODP staff scientist, Texas A&M University, College Station, Texas; Stephen Berkowitz, Texas A&M University, College Station, Texas; William R. Bryant, Texas A&M University, College Station, Texas; Lloyd H. Burkle, Lamont-Doherty Geological Observatory, Palisades, New York; Per Kristian Egeberg, University of Oslo, Oslo, Norway; Dieter Karl Futterer, Alfred Wegener Institut fuer Polar und Meeresforschung, Bremerhaven, Federal Republic of Germany; Rainer Erich Gersonde, Alfred Wegener Institut fuer Polar und Meeresforschung, Bremerhaven, Federal Republic of Germany; Xenia Golovchenko, Lamont-Doherty Geological Observatory, Palisades, New York; Norman Hamilton, the University of Southampton, Southampton, United Kingdom; David B. Lazarus, Woods Hole Oceanographic Institution, Woods Hole, Massachusetts; Lawrence Lawver, University of Texas, Austin, Texas; Malcolm Lonsdale, Birmingham University, Birmingham, United Kingdom; Barbara Mohr, Geologisches Institut, Zurich, Switzerland; Toshiyasu Nagao, University of Tokyo, Tokyo, Japan; Christopher P.G. Pereira, Memorial University, St. John's, Newfoundland, Canada; Carol J. Pudsey, University of Birmingham, Birmingham, United Kingdom; Christian M. Robert, CNRS-Luminy, Marseille, France; Eva Schandl, University of Toronto, Toronto, Ontario, Canada; Volkhard Speiss, Universitaet Bremen, Bremen, Federal Republic of Germany; Lowell D. Stott, University of Rhode Island, Narragansett, Rhode Island; Ellen Thomas, Wesleyan University, Middletown, Connecticut; Keith Francis M. Thompson, Texas A&M University, College Station, Texas; Sherwood W. Wise, Jr., Florida State University, Tallahassee, Florida.