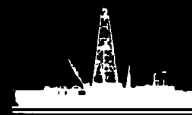


# NEWS RELEASE

## Ocean Drilling Program



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ST. JOHN'S, Newfoundland -- JOIDES Resolution, the scientific drillship for the Ocean Drilling Program (ODP) arrived in port today after two months of drilling in the stormy, iceberg-laden waters of Baffin Bay and the Labrador Sea.

Drilling above the Arctic Circle -- at the highest latitude and in the deepest water ever drilled that far north by a scientific vessel -- the ship retrieved almost one mile of sediment and rock cores from depths up to 3500 feet (1147 meters) beneath the seafloor.

Cores taken from three locations in water depths of between 1.2 and 2.1 miles (2 to 3.9 kilometers) gave scientists primary information about the behavior of the earth's crustal plates and the history of worldwide climatic changes through time.

The drilling results confirmed that Greenland, Canada and Western Europe formed a huge land mass until about 85 million years ago at which time Europe and Greenland began to move away from the North American continent. As the continents moved away from one another, molten volcanic material flowed upward to fill the gap formed by the continental split. When the hot lava cooled and solidified, it formed the deep seafloor of today's

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Labrador Sea.

About 55 million years ago, the relative motion between these continents again shifted, and Greenland began to separate from Baffin Island, forming a small, elongated ocean basin that we now know as Baffin Bay.

Meanwhile, as the Labrador Sea's floor continued to separate and spread, the orientation of the gap formed by the spreading shifted. By about 36 million years ago, Greenland ceased moving away from North America and the seafloor formed by the spreading of continents has slowly subsided.

The creation of the Labrador Sea and Baffin Bay allowed seawater to flow between the Arctic and the Atlantic oceans, dramatically changing the climate in that region.

By examining the sediment cores, scientists found the remains of microscopic organisms that lived both on land and the ocean bottom. These organisms are important records that reveal the significant changes occurring in the temperature and salt-content of the oceans.

Scientists discovered that until about 15 million years ago, this polar region of the world was much warmer than now. This cooling-off period continued until about 2.5 million years, culminating in thick, extensive ice sheets that covered large portions of the surrounding continents.

As melting icebergs traveled through these northern waterways, they dropped rocks and pebbles to the seafloor. By

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retrieving these ancient stones from the deep-sea cores, scientists now have a significant record of the initial glacial event and the subsequent era of glaciation that covered large areas of the world.

The icebergs were the remains of continental ice sheets that scoured material from adjacent continents, similar to but much more extensive than the masses of ice covering much of Greenland today. The recovered cores revealed the ice sheets' pattern of advance and retreat over tens of thousands of years as the earth experienced alternate episodes of extreme warming and cooling trends.

As the northern oceans continued to cool over millions of years, the cold, dense surface waters sank rapidly to the ocean bottom, pouring through the available Arctic and Atlantic pathways that were formed from the earlier episode of seafloor spreading. These water masses produced strong, deep currents capable of stirring and sweeping away the oozes and muds that covered the seafloor. JOIDES Resolution cored through some of these thick seafloor deposits, huge underwater dunes formed by the continual activity of the deep currents over time.

Co-chief scientists for the cruise were Dr. Shiri Srivastava from the Bedford Institute of Oceanography, Canada, and Dr. Mike Arthur from the University of Rhode Island. Dr. Bradford Clement was the Texas A&M University staff scientist representative.

An international team of 24 scientists from Canada, Denmark,

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France, Germany and the United States sailed on the cruise. A technical crew of 25 and a ship's crew of 68 also sailed.

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

The 470-foot long drillship's derrick towers 200 feet above the waterline. The heart of the floating research center is a seven-story laboratory stack which provides space and equipment for onboard examination of sediment and hard-rock cores. Studies include 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 drillship 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 distributes samples, and coordinates the editing and publishing of the scientific results.

Lamont-Doherty Geological Observatory of Columbia University is responsible for downhole logging.

The Joint Oceanographic Institutions (JOI, Inc.) manages the

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

The next cruise, scheduled for November and December, will be at the Mid-Atlantic Ridge where new drilling technology and a special reentry guide base will be used for the first time. This pioneering effort will allow scientists to investigate slow-spreading ridge processes and changes in the ocean crust along the rift valley.

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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 Canada, Department of Energy, Mines, and Resources, Earth Sciences Sector; Federal Republic of Germany, Bundesanstalt fur Geowissenschaften und Rohstoffe; France, Institut Francais de Recherche pour l'Exploitation de la Mer; and Japan University of Tokyo, Ocean Research Institute.)

Shipboard participants were: Co-chief scientists, Dr. Michael A. Arthur, Graduate School of Oceanography, and Dr. Surat P. Srivastava, Bedford Institute of Oceanography, Canada; staff scientist, Dr. Bradford Clement, Texas A&M University; Dr. Ali Aksu, Memorial University of Newfoundland, Canada; Dr. Jack Baldauf, Texas A&M University; Dr. Gerhard Bohrann, Geologisch-Palaeontologisches Institut und Museum der CAU, Federal Republic of Germany; Dr. William Busch, University of New Orleans; Dr. Tommy Cederberg, University of Copenhagen, Denmark; Dr. Michel Cremer, University de Bordeaux, France; Ms. Kathleen Dadey, University of Rhode Island; Mr. John Firth, Florida State University; Mr. Frank Hall, Texas A&M University; Mr. Martin Head, University of Toronto, Canada; Dr. Richard Hiscott, Memorial University of Newfoundland, Canada; Dr. Rich Jarrard, Lamont-Doherty Geological Observatory; Dr. Michael Kaminski, Woods Hole Oceanographic Institution; Dr. David Lazarus, Woods Hole Oceanographic Institution; Ms. Anne-Lise Monjanel, Universite de Bretagne Occidental Gis Oceanologie et Geodynamique, France; Dr. Ole Bjorslev Nielsen, University of Aarhus, Denmark; Dr. Ruediger Stein, Institute of Petroleum and Organic Geochemistry, Federal Republic of Germany; Dr. Francois Thiebault, Universite de Lille, France; Ms. Anne de Vernal, Universite du Quebec a Montreal, Canada; Mr. James Zachos, University of Rhode Island; and Dr. Herman Zimmerman, Union College.