



OCEAN ♦ DRILLING ♦ PROGRAM

News Release

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FOR IMMEDIATE RELEASE

West African Monsoon Climate Variations ODP Leg 159 Explores the Cote d'Ivoire-Ghana Margin

College Station, Tx, Feb. 10 – Understanding climate changes of the West African Monsoon and the history of the oceanic gateways between the Central and South Atlantic are some of the objectives scientists are currently studying off the coast of Ghana, Africa in the eastern equatorial Atlantic. Co-chief scientists for the Ocean Drilling Program's Leg 159 are Dr. Jean Mascle (Laboratoire de Géodynamique Sous Marine in France) and Dr. G. Patrick Lohmann (Woods Hole Oceanographic Institution in the U.S.). The staff scientist from ODP is Dr. Peter Clift.

Scientists representing seven different countries are on board the scientific drill ship *JOIDES Resolution* collecting core samples from more than 2,000 meters below the ocean surface at the Cote d'Ivoire-Ghana (CIG) Margin. This is one of the best known examples of a former transform boundary between continental and oceanic crusts which are about 100 million years old. Here, research is being conducted to compare the subsidence history of a transform margin versus a divergent margin.

The science party began this cruise Jan. 5 and will conclude March 2 when they port in Marseille, France. Once in Marseille, a new group of scientists will board the ship and begin a four month expedition in the Mediterranean Sea.

The West African Monsoon and its influence on equatorial upwelling and climate variations were also a great interest to the international research team. The Monsoon is driven by seasonal land-sea temperature differences. It influences upwelling along the West African coast and the transfer of moisture into the continental interior. The strength of this system is expected to have increased with the decreasing temperatures and increased temperature gradients during the last 50 million years. The high sedimentation rates expected at various sites being drilled and its close proximity to the West African Monsoon should offer a record of its long-term evolution and of the amplitude of its local effect on upwelling and the climate.

This information can be used in modelling climate change in the equatorial regions and may be used to predict future climate change in this region.

“Collecting core samples in this region is going to help us better understand seismic disturbances associated with transform continental margins,” says Dr. Mascle. “We need to increase our knowledge regarding the response of the upper oceanic waters to past and future climate change. This expedition will also help other scientists compare modern active transform settings such as California, the San Andreas fault zone or the Dead Sea Valley.”

Transform margins display many specific characteristics, including sedimentary, thermal and tectonic that have never been investigated by drilling into the ocean crust. Leg 159 provided essential geological data for developing thermo-mechanical models of transform margin formation.

Scientists from France, Germany, Great Britain, Japan, Sweden, Finland and the U.S. conducted their research on board the *JOIDES Resolution* for two months collecting rock samples.

The Ocean Drilling Program is funded by the U.S. National Science Foundation, Canada, Australia, the European Science Foundation Consortium, Germany, France, Japan, and the United Kingdom to investigate such topics as earth's history and evolution, climate change and the formation of the ocean crust..

Texas A&M University, science operator, operates and staffs the drill ship and retrieves core samples from strategic sites around the world. Lamont-Doherty Earth 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, Inc., a nonprofit consortium of 10 major U.S. oceanographic institutions, manages the program.

Note: U.S. members of JOIDES are: University of California at San Diego, Columbia University; University of Hawaii, University of Miami; Oregon State University; University of Rhode Island, Texas A&M University, University of Texas at Austin; University of Washington, and Woods Hole Oceanographic Institution. The European Science Foundation Consortium consists of Belgium, Denmark, Finland, Iceland, Italy, Greece, The Netherlands, Norway, Spain, Sweden, Switzerland and Turkey.

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