

Ground-Breaking Arctic Expedition

September 28 2004

A scientific party including four University of Rhode Island oceanographers and a science teacher from Narragansett Pier Middle School has just returned from the Arctic Ocean on a landmark expedition to recover seafloor sediments to reconstruct the geologic history of the [Arctic](#). The nineteen scientists on the expedition, hailing from eight nations, collected a total of 339 meters of sediment, the oldest of which is **80 million years**.

URI ocean engineer and geological oceanographer Dr. Kathryn Moran, the expedition's co-chief scientist, noted, "Although we've looked at only 3% of the material so far, it reveals a treasure-trove of exciting results. For example, 55 million years ago, the sediments indicate that the Arctic was an ice-free balmy sea, with warm surface waters (68°F rather than today's 28°F) that were sometimes less salty, almost like an estuary. With further research, we expect to uncover additional clues as to how Earth's climate system worked long ago, prior to mankind's 'global experiment' of pumping massive quantities of CO₂ into the atmosphere."

The primary objective of the \$12.5 million Arctic Coring Expedition (ACEX), conducted under the auspices of the international Integrated Ocean Drilling Program, was to recover hundreds of meters of sediment draped atop the Lomonosov Ridge, an underwater mountain chain that snakes from Greenland, to the North Pole, and over to Russia.

In addition to Moran, the URI/GSO scientists on the expedition included biological oceanographer Dr. David Smith, assistant dean Dr. John

Farrell, and graduate student Matthew O'Regan. GSO geological oceanographer Dr. John King will also join in the effort during the post-expedition phase. Also on the expedition, as part of the URI ARMADA Project, was Narragansett teacher Kathy Couchon.

This expedition is the first ever to successfully recover long sediment cores from the high Arctic. Logistical challenges, such a surface ocean that's more than 90% covered with thick (3 to 15 feet) ice that often drifts at 0.3 knots, has previously thwarted efforts to keep a drillship on a fixed location. The ACEX expedition used three icebreakers to meet this challenge, and the team successfully penetrated up to 430 meters below the seafloor in water depths of over 1300 meters.

In November, the ACEX team will travel to the core repository, in Bremen, Germany, to begin analyzing the cores and generating additional scientific results.

Source: University of Rhode Island

Citation: Ground-Breaking Arctic Expedition (2004, September 28) retrieved 23 April 2024 from <https://phys.org/news/2004-09-ground-breaking-arctic.html>

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