



The “Hole” Story About Ocean Cores

Integrated Ocean Drilling Program (IODP) Expedition 309 – Superfast Spreading Rate Crust 2 was the second of three scientific expeditions to drill into the upper oceanic crust in the eastern equatorial Pacific. Site 1256 is located along the East Pacific Rise in an area that formed during a period of superfast spreading (>200 mm/yr). The core images on the front of this poster are from different depths in this complete section of upper oceanic crust (the first of its kind) recovered from Site 1256. For detailed information about Expedition 309, visit: <http://iodp.tamu.edu/scienceops/expeditions/exp309.html>.

Alan Gelatt, a high school science teacher from Romulus, New York, sailed on Expedition 309 as the Teacher at Sea. To read his shipboard journal over the course of the two-month expedition, visit: <http://iodp.ideo.columbia.edu/EDU/TAS/309/>. With the shipboard scientific party, Alan developed five laboratory exercises that use the scientific results from Expedition 309 to simulate the scientific operations aboard the *JOIDES Resolution*. These exercises (listed below) use near life-size core images to guide students through experimental analyses that are conducted in the laboratories on the *JOIDES Resolution*.

This poster and related laboratory exercises were specifically designed for upper level high school and early undergraduate Earth systems science courses. The text and activities address National Science Education Content Standard D: Earth and Space Science and Standard G: History and Nature of Science for grades 9-12.

To download printable individual copies of the exercises on this poster, visit <http://www.oceanleadership.org/education/deep-earth-academy/resources/posters-pencils-and-more/dea-poster-the-hole-story/>.

Poster Front Images

Core Section Curation – The Gulf Coast Repository at Texas A & M University in College Station, Texas holds thousands of cores in climate-controlled buildings.

Mineralogy and Petrology of Oceanic Crust – Thin sections taken from the four cores show close-ups of the texture, mineralogy, and other characteristics of the oceanic crust.

Visual Core Description – High school science teacher, Alan Gelatt, describes cores aboard the *JOIDES Resolution* for IODP Expedition 309.

Drilling Rates through Oceanic Crust – Drilling into the oceanic crust requires special tools like this Rotary Core Barrel drill bit, that uses tungsten carbide inserts to cut through hard igneous rocks.

We'd like to hear from you! Please contact us with questions or comments. Visit www.deepearthacademy.org for other education materials resources and programs.

Deep Earth Academy
Consortium for Ocean Leadership
1201 New York Avenue, 4th Floor, Washington, DC 20005
202.232.3900
deepearthacademy@oceanleadership.org

Credits: Writing - Alan Gelatt, Leslie Peart, Matthew Niemitz; Design - Matthew Niemitz; Images courtesy IODP-USIO. The authors wish to thank Dr. Neil Banerjee, Staff Scientist; Dr. Damon Teagle, Co-chief Scientist; Dr. Susumu Umino, Co-chief Scientist; Paula Weiss, Marine Curatorial Specialist; Lisa Crowder, Assistant Lab Officer; the Expedition 309 shipboard science party; and the captain, staff, technicians, and crew of the JOIDES Resolution. This poster was made possible by the United States Implementing Organization for the Integrated Ocean Drilling Program.

Copyright © 2010 Consortium for Ocean Leadership. All rights reserved. Educational institutions may duplicate portions of this poster for use with their students.