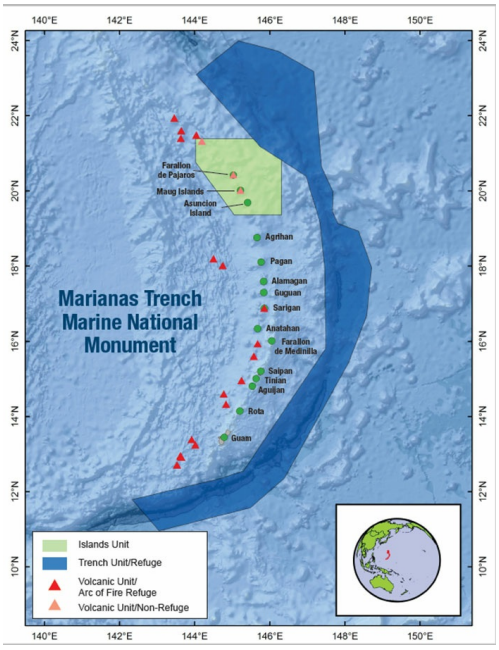
Ocean Exploration and Research

Ocean Exploration Education Highlights

May 2016

Welcome to the NOAA Ocean Explorer Education Highlights email. These monthly emails provide you with quick access to ocean exploration-focused, standards-based tips and tools to bring the excitement and science of ocean exploration into your classroom!

What's the Latest from NOAA Ocean Exploration for Your Classroom?



The region of work for the 2016 Deepwater Exploration of the Marianas expedition.

2016 Deepwater Exploration of the Marianas

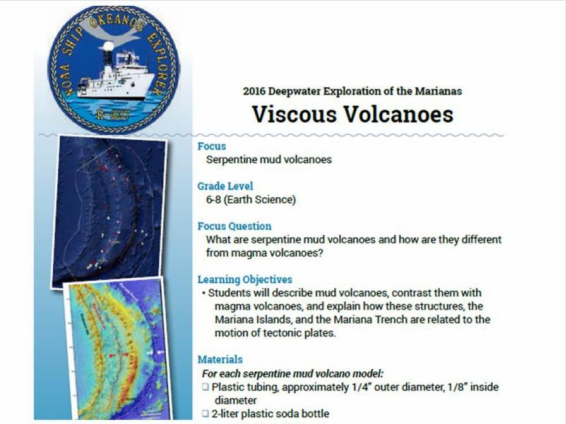
April 20 - July 10, 2016, the NOAA Ship *Okeanos Explorer* is exploring the incredible diversity within the deepwater habitats in the Commonwealth of the Northern Marianas Islands and Marianas Trench Marine National Monument. Scientists are taking a close look at hydrothermal vent sites, mud volcanoes, subduction zones, seamounts, and the variety of organisms found in these areas.

Educators can explorer the full Expedition Education Module, complete with standards-based lessons and theme pages on Deep-sea Corals, Seamounts, and Vents and Volcanoes, and view a 60-minute archived webinar for educators covering the science of this expedition and all of the associated education resources available.

Standards-Based Lesson

Viscous Volcanoes (Grades 6-8)

NGSS: MS-ESS2-3



In this lesson students describe mud volcanoes, contrast them with magma volcanoes, and explain how these structures, the Mariana Islands, and the Mariana Trench are related to the motion of tectonic plates.
Student groups also prepare a model of a typical magma volcano of the Mariana Islands, a model of a serpentine mud volcano or a model of a sediment-derived mud volcano in order to understand the similarities and differences between them.

Note: All lessons are written to support the NGSS and the Ocean Literacy Essential Principles and Fundamental Concepts.

Upcoming Expeditions!

The US Coast Guard Cutter *Healy*.

Hidden Chukchi Borderlands 2016

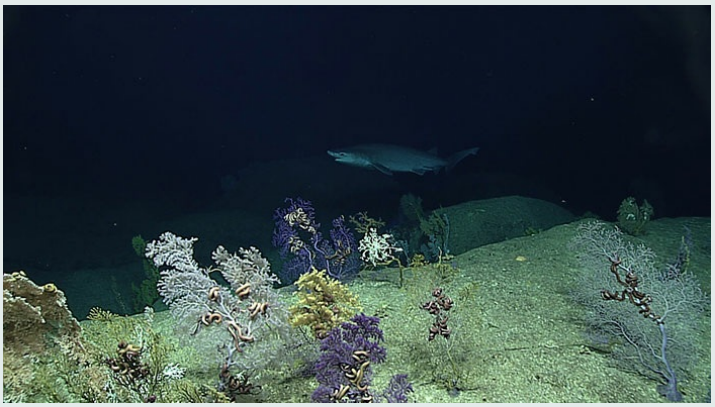
July 2 - August 10, scientists will be exploring the hidden microbial system within the sea ice of the Chukchi Borderlands on board the US Coast Guard Cutter
Healy.

Marking the entrance to the Arctic Ocean and approximately 1290 km south of the North Pole, the Chukchi Borderlands region is filled with complex topography where the waters of the Atlantic and Pacific Oceans interact.

The sea ice, pelagic (water column) and benthic (ocean bottom) communities of this region are tightly linked physically, chemically and biologically, yet these interactions are poorly understood. This mission is a multifaceted, multidisciplinary exploration to better understand the interdependence of these three realms, in the wake of rapid environmental change.

Stay tuned for more information on this unique and exciting expedition and a Webinar for Educators planned for late June!

Image of the Month



A sixgill shark paid us a visit, and even stuck around for a minute. Note the high diversity of coral species in the foreground. Look closely, and you can see brittle stars hiding in in the corals. *Image courtesy of the NOAA Office of Ocean Exploration and Research, 2016 Deepwater Exploration of the Marianas.*

Sixgill Shark

During the first dive of the 2016 Deepwater Exploration of the Marianas expedition, the ROV *Deep Discoverer* encountered this six gill shark.

Most shark species have five gill slits. Sixgill sharks are typically found at depths below 61m (200 ft) and up to 2483m (8,000 ft) so it is a rare opportunity to view one up close!

Watch the shark in its natural habitat in this short video and read the Daily Update from this encounter.

Dr. Patricia Fryer, Research Professor at the University of Hawaii.

Meet Dr. Patty Fryer

Dr. Patricia Fryer, Research Professor at the University of Hawaii, is a scientist participating from shore at the Exploration Command Center at the University of Hawaii - Manoa during the 2016 Deepwater Exploration of the Marianas expedition.

Educators learn why and how we explore the deep ocean during during a professional development workshop in Newport, Oregon.

Upcoming Education Professional Development

All spring 2016 professional development opportunities are now listed on our website. Join us for full-day onsite professional development at an Aquarium or Science Center near you!

Dr. Fryer's many dives in submersibles and expeditions with remotely operated vehicles have been primarily in the Mariana Trench and island arc areas.

Her research deals with volcanic and tectonic processes of trenches and mid-ocean spreading centers. It is currently focused on huge mud volcanoes near the Mariana Trench that are erupting cold, green, serpentine (asbestos) mud and producing ghostly carbonate chimney structures at springs that host unique biological communities from microbes to mussels.

Dr. Fryer received her B.S. in Geology from the College of William and Mary and Ph.D. from the University of Hawaii.

We hope that these Exploration Education Highlights will help you focus more of your classroom teaching and learning on the amazing discoveries taking place right here, right now, on our own Planet Ocean! Onward and downward!

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