Cabled Array Infrastructure Awards



*NEPA - (National Environmental Policy Act) required

- Array. 2018
- 20|8*
- 20|8,20|9*?





Axial Seamount

Chadwick, W. – OSU (NSF - OCE 1634 150): Enhancements to the OOI Cabled Array at Axial Seamount. Bottom Pressure Tilt instrument and CTD at Axial Seamount. 2017

Sasagawa, G. and Zumberge, M. – UC San Diego: NSF - Continuous and Drift Free Vertical Deformation Measurements at Axial Seamount - Installation of a Self Calibrating Pressure Recorder on the OOI. 2018

Wilcock, W. – UW (NSF - OCE1634103): A Flipping Tiltmeter for Marine Geodesy: Development and Testing at Axial Seamount on the OOI Cabled

Dyer, D. – UW-APL and Creare Inc: ONR - Creare Energy Harvest System.

Southern Hydrate Ridge

Sahling, H. and Bohrman, G. – MARUM Germany: Future-oriented sonar monitoring of climate-damaging methane to gas emissions from the sea - A contribution to the understanding of global change. Up to 4 instruments.





NSF Cabled Array DATA -Workshop Awards

OLCANOLOG

Seismic constraints on caldera dynamics from the 2015 Axial Seamount eruption

Villiam S. D. Wilcock,¹* Maya Tolstoy,² Felix Waldhauser,² Charles Garcia,¹ en Joe Tan,² DelWayne R. Bohnenstiehl,³ Jacqueline Caplan-Auerbach,⁴ Dziak.⁵ Adrien F. Arnulf.⁶ M. Everett Mann



Wilcock et al., Science,

354 1395-1399,

2016

Crone, T. – Columbia University and Marburg, A. – APL-UW (NSF -OCE 1700923): Collaborative Research: Cloud-Capable Tools for MG&G-Related Image Analysis of OOI HD Camera Video.

- Current system.





► Hickey, B. and McCabe, R. – UW (NSF – OCE1332753): Structure of crossshelf circulation in a buoyancy-influenced, wind-driven Eastern Boundary

Torres, M. – OSU (NSF – OCE 1608 177): A mini-workshop to define scientific strategies and next steps for optimizing the OOI-node on Hydrate Ridge. Gordon Workshop addition.

Wilcock, W. – UW and Waldhauser, F. – Columbia University (NSF – OCEI536219) Collaborative Research: Understanding the Spatio-Temporal Characteristics of Earthquakes at Axial Seamount Late in an Eruptive Cycle.







Axial Seamount

Arthropods Ciliates Cnidaria Echinoderms Fish Mollusks Polychaetes Salps

TAGS

axial biology





Cataloging the Inhabitants of a Deep Sea Volcano

RELATED STORIES



Ciliates

Colonial ciliates are single celled organisms, members of Kingdom Protista. ...



Polychaetes

Echinoderms

Echinodermata.

Tubeworms, palm worms and scale worms (Phylum Annelida, Class Polychaeta) are all common on hydrothermal vents at Axial Seamount. ...

Seastars, brittle stars, urchins, and sea

cucumbers all belong to Phylum



Cnidaria

Phylum Cnidaria includes jellyfish, anemones and coral, all of which may be found at Axial Seamount. ...



Mollusks The Phylum Mollusca includes limpets, snails, and clams as well as octopuses and squid! ...





Salps (Tunicates) Salps are planktonic Tunicates, and are in Phylum Chordata along with fish and all vertebrate animals ...

Arthropods

Axial Seamount's spider crabs, squat lobsters, shrimp and sea spiders all belong to Phylum Arthropoda, ...

FISN Bony Fish and Cartilaginous Fish ...

http://interactiveoceans.washington.edu/





Student Built Biological Catalog

Cockatoo Squid

Student built site for best hits OOI Cabled Array high definition video and still imagery of animals 39 unique faunal species, 63 videos, 62 images



Cabled Array Engagement Student at Sea Program ERIS: student built cabled observatory

Dashboard

Chart

z 1d 1w 1m 3m 1y All

Interactiveoceans Site

Ocean



DWOOI Education Site

Live cruise updates & streaming video at sea

Student Blogs

Video, image resources



• Hands on at sea experience for students (10-85 days)

- Senior thesis projects and peer reviewed publications (G3), AGU presentations
- OOI data tools developed

Over 100 students from across the US have participated; mentoring for early career scientists

A ERIS OCEAN TECHNOLOGY CENTER STUDENT PROIECTS **RESEARCH AREAS ERIS** Student Clubs Exploration & Remote Instrumentation by Students RELATED PEOPLE ERIS (Exploration and Remote Instrumentation by Students) is a student designed and built cabled Fritz Stahr Ð observatory that serves as an underwater learning facility at the University of Washington (UW). Students work with ERIS through a series of courses offered by the UW Ocean Technology Program, through the Miles Logsdor School of Oceanography. ERIS, with its educational mission, enables undergraduate students to design build, operate, and maintain a cabled underwater observatory that emulates the NSF Ocean **RELATED FILES** Observatories Initiatives (OOI) Regional Cabled Array, by providing for a continuous data-stream for analysis, interpretation, and communication by students. From inspiration through implementation, this Organization of ERIS program is focused on the creation and operation of an underwater science sensor network that is **Data Service (EDS)**

physically located off the dock of the School of Oceanography at UW Seattle Campus

ERIS Cable Data Live data from CTD & exploration tool Measurements Plotted 105742 measurements in 1221ms FroFieb 2, 2017 To May 2, 2017





Ocean Crust

Data Products

UW Center for Environmental Visualization

HD imagery now streams live 8 times/day for ~ 13 minutes with set positions. UW NOVAE site photomosaic of 40 frame grabs changes over time

http://novae.ocean.washington.edu/story/Ashes_CAMHD_Live



C+STEM WA Olympic STEM Pathways Project



Each year, Third Graders in Amy Radtke-Cowsert's classes at Sand Hill Elementary School in Belfair, Washington raise Fall Chum Salmon to release into Sweetwater Creek. Amy has been involved involved in the Olympic STEM Pathways Partnership (OSPP) for the past three years and submitted this story about their OSPP project.

Ocean

Sand Hill Elementary is in a rural setting and has about 63.5% free and reduced lunch. The salmon are brought from the hatchery as eggs in January and are released into the creek in April. As the salmon eggs develop and become alevin, then fry the students observe the process and monitor the tank. The students use a thermometer to measure temperature and water testing strips to monitor pH, chlorine, and nitrates in the tank on a weekly basis. It is important to the students and the teachers to have a tank that closely matches the environment in which the salmon are going to be released. The tank has large and small gravel, branches, and a continuous flow of water. The survival rate for the salmon in the Sand Hill tank is almost 100% and the students attend a field trip to elease the salmon into Sweetwater Creek at the heler Wetlands.

It is important to the students and the teachers to have a tank that closely matches the environment in which the salmon are going to be released.



Third graders at Sand Hill Elementary School in Belfair, WA used a SeaState Pyboard-based temperature sensor in their salmon tan and in the Sweetwater Creek to monitor temperatures so that their Chum Salmon could be released under com conditions.



plied to the local environment that they live in. The sensors can be stions to be addressed, and chosen sensors to build, we w





35 teachers and their students are learning real world skills involving integrated engineering, science, math, and computer programming around sensor building



3-year project involving 17 school districts, 35 KI2 teacher leaders, 90 teachers

Teachers increase content mastery and skills in STEM subjects through microprocessor-driven sensor building applied to environmental questions

• Operationalize WA State Learning standards in classroom practice

Scaling local sensor data exploration to OOI data exploration & inquiry



Offshore Geophysical Monitoring of Cascadia for Early Warning and Hazards Research

WELCOME

To help improve our early warning capabilities for offshore earthquakes and tsunamis and improve our capabilities to monitor the Cascadia subduction zone, we are exploring the design and cost-benefit of an offshore real-time network extending along the full length of the subduction zone. This effort is a collaboration between earth scientists in the College of the Environment and engineers at the Applied Physics Laboratory. Support for this effort has been provided by the Gordon and Betty Moore Foundation.

Preliminary Feasibility Effort funded by Moore Foundation

Ocean

April 3-5, 2017 Seattle Chairs: David Schmidt and William Wilcock ~100 participants Discuss scientific and societal motivation for such a system. requirements, and merits of alternate engineering approaches

