

Linking Ocean Observing Systems With K-14 Classrooms

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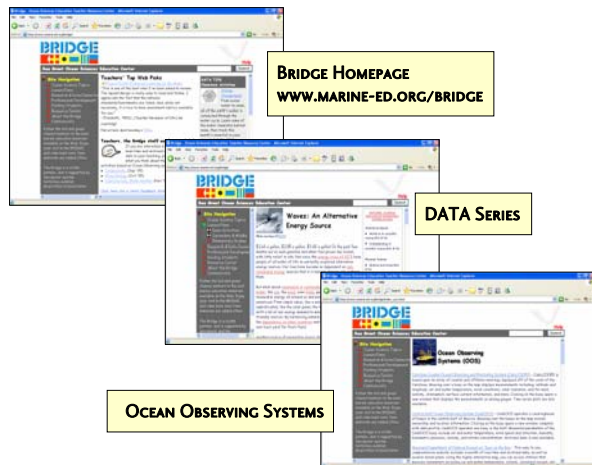
Christopher J. Petrone (petrone@vims.edu), Lisa Ayers Lawrence, Vicki P. Clark, Virginia Institute of Marine Science, Gloucester Point, VA 23062

Delivering Ocean Observing Data

The Bridge is a ocean science education web portal featuring teacher-reviewed resources, links, education program announcements, and a discussion list. Additionally, Bridge educators have developed 63 classroom-friendly activities highlighting on-line ocean science data. Several use data from ocean observing systems throughout the coastal United States and Great Lakes. The Bridge Data Analysis Teaching Activity (DATA) Series introduces teachers and students to on-line data resources and how to use them to complement their existing curricula.

DATAs are correlated with national science educational standards and most can be adapted for middle, high school, and introductory college students. They provide background information on an oceanography topic and step-by-step instructions for a classroom exercise that uses on-line oceanographic data.

On the Bridge, teachers can also find links to a wide variety of educator-reviewed Ocean Observing System (OOS) websites. These OOS sites range from regional to global systems and have been selected for their education-targeted sections and their easy-to-use data.



Identifying Teachers' Needs

In a recent survey conducted by the Bridge, educators were asked for insight on how they are currently using ocean observing system data in their classrooms and to identify what they would like to see from data websites.

Teachers' Comments on Using OOS Data In The Classroom

PROS

- It is real, live data
- Demonstrates science's dynamic nature
- Integrates multiple disciplines of science
- Encourages the use of computers for learning
- Introduces students to cutting edge technology
- Exposes students to ocean science careers

CONS

- Data can be too technical for students
- Data can be confusing if the connections with the lesson objectives are not clear
- Sites can be slow to load
- Unpredictability of data/equipment

Real Time Vs. Archived Data Sets

REAL TIME DATA

- Exciting and interesting to students making them feel a part of the research
- Make long-term data monitoring possible
- Good for extra curricular assignments, homework, or projects where more time is available

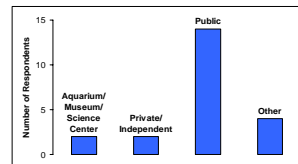
ARCHIVED DATA

- Allow for consistent concept demonstration with predictable results
- Let teachers gain experience before working with real time data
- Offer more flexibility in activities
- Are better for students with little to no previous exposure to this type of science

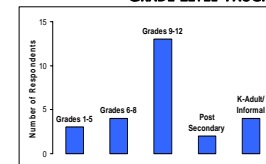
"Ideally, use archived data to initially demonstrate a concept, then access real time data for concept reinforcement and long-term comparison."

Survey Results

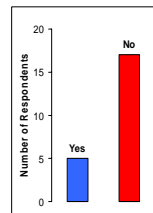
INSTITUTION TYPE



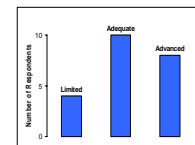
GRADE LEVEL TAUGHT



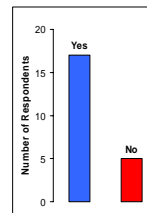
PRIOR USE OF OOS DATA



INSTITUTIONS' TECHNOLOGY



USE OOS DATA TO MEET STANDARDS



Facilitating Researchers' Broader Impact Efforts

How can the Bridge help researchers meet their broader impact requirements?

- The Bridge frequently partners with scientists to create Data Analysis Teaching Activities (DATAs) which interpret scientists' latest research. As a permanent addition to the Bridge's signature DATA Series, the activities are showcased to the ocean science education community via a spotlight on the Bridge homepage, articles in various ocean science education newsletters, and Scuttlebutt, the Bridge email listserv.
- Scuttlebutt, a no cost email discussion list, brings together more than 650 ocean science educators and researchers from 15 countries. It is an electronic venue for researchers to share their work with and respond to scientific questions from the ocean sciences education community.
- A team of educators review ocean science websites for inclusion on the Bridge. Our team can review your website and provide guidance on designing a site that facilitates use in an educational forum. Websites that meet the high standards of the Bridge are added to our clearinghouse and considered for inclusion in a special collection of the Digital Library for Earth Systems Education (DLESE).
- Researchers can be involved by serving as a Bridge STAR (Scientific & Technical Advisory Reviewer). STARs work with the Bridge on an as-needed basis to provide guidance in evaluating the scientific accuracy and validity of an education resource.

Tips for Scientists for Classroom-Friendly Data Sites

- Consult with educators when designing and creating ocean observing projects and websites
- Test the site and data with average students
- The site and data must be teacher friendly – easy to access and understand
- Exhibit the data in meaningful contexts, this will help keep students engaged
- Make archived data available for developing consistent activities/lessons
- Incorporate more human element – students enjoy learning about the methods of obtaining data and the researchers themselves
- Have support available when questions arise
- Keep the site current