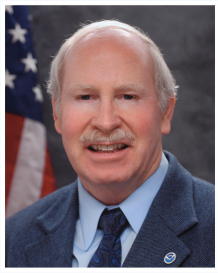
Science On a Sphere®: Seeing the Dynamics of a Changing Earth

Science On a Sphere® provides an exciting means for engaging students in science – an important step toward interesting young people in pursuing careers in science, vital to our Nation's future as a leader in scientific achievement.



Dr. Alexander E. "Sandy" MacDonald, inventor of Science On a Sphere® has excelled as few others in both conducting and communicating science to a wide variety of audiences.

Impacts

A creative, compelling method for bridging the gap between scientific knowledge and citizen understanding

Until recently, scientific data were presented in two dimensions. That changed in 2002, when an OAR scientist and visionary unveiled a way to present complex Earth data the way that nature presents it – on a sphere. Scribbles on napkins and a beach ball were the humble beginnings of an exciting scientific advancement that gives an estimated 11.3 million people annually a view of our fragile planet unlike any they have ever seen before.

Called "Science On a Sphere®" (SOS), this wrap-around cinema system – invented by Dr. Alexander E. "Sandy" MacDonald, Director of OAR's Earth System Research Laboratory and Deputy Assistant Administrator for Laboratories and Cooperative Institutes, uses four computer-driven video projectors to display images on a smooth, white fiberglass sphere. A fifth computer is used to control the operation of the display computers. The computers communicate with each other through a network. Each computer is a relatively powerful PC, with dual processors and high-end graphics cards.

Some of the first images displayed on SOS were the Earth's topography and bathymetry, lights of the Earth at night, infrared satellite imagery showing clouds in motion, and X-ray images of the Sun with solar storms raging across the face of the sphere. Today, the SOS team has worked with science centers and museums to place SOS displays at more than two dozen locations internationally, including the Smithsonian's new Sant Ocean Hall. One of the highlights of the U.S. visit by Great Britain's Queen Elizabeth and Prince Philip in 2007 was a royal showing of Science On a Sphere®, displaying a Hurricane Katrina sequence, climate change models such as Sea Ice Change, Nighttime Lights of the Earth, and images of deep space and the planets.

Image: Britian's Queen Elizabeth and Prince Phillip view Science On a Sphere®.

Learn More: sos.noaa.gov

Joining the "YouTube Generation": Ocean Explorer Website

Impacts

Inspires ocean stewardship, a new generation of ocean explorers, and encourages scientific discovery

Does the thought of browsing a government website make you yawn? *Scientific American* thinks OAR's *Ocean Explorer* website will change your mind. "Poseidon beware! NOAA is determined to penetrate every minnow hideout and barnacle cluster of your realm, and with technology this advanced, there's no stopping this league of swashbuckling scientists. *Ocean Explorer* is full of buried treasure," wrote the prestigious science magazine's editors in honoring *Ocean Explorer* with their Sci/Tech Web Award.

Ocean Explorer is a public portal to an ocean of sensory delights. Joining the YouTube generation, the *Ocean Explorer*'s Ocean Channel explores underwater volcanoes, coral reefs, and historic shipwrecks to name a few. Newsworthy events and mission stories are told in video and audio podcasts. Each mission has its own section on the website, and is accompanied by a log that records the experiences of the mission's various team members while out at sea.

Since its inception in April 2001, NOAA *Ocean Explorer* has been featured on hundreds of web sites and print media sources, and received many awards and special recognitions.

For anyone interested in a career in ocean exploration and research, the OceanAGE section provides profiles of over 20 people involved in ocean exploration. Along with scientists from multiple disciplines there are some unusual options, such as submersible pilot, NOAA Corps officer, marine archaeologist, research coordinator, and administrator. Resources for teachers, including modules to accompany missions, lesson plans, a glossary, and other activities, are also available. The *Ocean Explorer* website is used by teachers around the world.

Scientific American is not alone in recognizing the site. *Ocean Explorer* has been featured in *Discover* magazine, on the *Animal Planet* TV channel, and is a CNN science link. It has also been a site of the week on *Voice of America*. And, by the way, many of the videos at *Ocean Explorer* also appear on *YouTube.*

"This site…dares to go where no site has gone before. With a wealth of online goodies that will amaze even grizzled mariners of the Web, it tracks, records, photographs, and thrills to a fleet of deep sea expeditions. There's so much to talk about that it's almost painful to narrow it down…"

Yahoo! Picks, May 2006

Image: Screen capture of award-winning Ocean Explorer website.

Learn More: oceanexplorer.noaa.gov