

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.

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

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.

Impacts

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

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®.