

## OCEAN-CLIMATE

# “America’s Ship for Ocean Exploration”: New Technologies Bring the Excitement of Real-time Discovery Ashore

### *Impacts* Sharing the excitement of real-time discovery with scientists and the public

Stay dry, and explore the ocean from the comfort of your living room! Through technologies aboard the NOAA Ship *Okeanos Explorer* – the only vessel in the world dedicated to ocean exploration – OAR’s Office of Ocean Exploration and Research has launched a new paradigm for exploration, giving shore-based explorers of all ages access to the excitement of real-time discovery.

Commissioned in August 2008, the *Okeanos Explorer* is outfitted with a deep-water mapping system, remotely-operated vehicles (ROVs), and unique “telepresence” technology. This newest member of the NOAA fleet will explore our largely unknown ocean for the purpose of discovery and advancing knowledge.

The deep-diving ROV system – capable of operating at depths of 6,000 meters – consists of a maneuverable vehicle fully equipped to collect high-definition video and take samples of its surroundings and a non-maneuverable “camera sled,” positioned to film as it investigates interesting features and habitats.

Telepresence, is the key technology that promises to change ocean exploration fundamentally. Traditionally, scientists explore the ocean from the ship. In contrast, telepresence uses real-time broadband satellite communications and high-speed Internet to bring the ship and its discoveries to scientists. When situated at any of five Command Centers, scientists also can interact directly with the *Okeanos Explorer* and remotely participate remotely in each mission.

Also, anyone with a computer and web access can watch and listen in on operations aboard ship, bringing real-time exploration into living rooms, offices, schools, and businesses around the globe. Our goals are to advance knowledge and, at the same time, excite and engage people so they are able to make informed decisions about environmental issues that relate to the ocean, climate, and life on our planet. We also hope to inspire a new generation of oceanographers, scientists, and engineers.

*Images, top to bottom: NOAA Ship Okeanos Explorer; NOAA research diver; high school students investigating water quality as part of the NOAA Emerging Scientist Program.*

The ocean covers more than 70 percent of the Earth’s surface, driving weather, regulating temperature, and supporting life on this planet. The ocean remains 95 percent unexplored, unknown, and unseen by human eyes.



Through telepresence, NOAA Ship *Okeanos Explorer* brings live broadcasts of exploratory missions directly into the classroom.