

NOAA Ship *Okeanos Explorer*



Okeanos Explorer was named by a team of five students from Woodstock High School in Woodstock, Illinois. The team won NOAA's nationwide ship-naming contest with its name selection and supporting educational project. *Okeanos* is the ancient Greek term for ocean.

NOAA Ship *Okeanos Explorer* will be America's first ship dedicated solely to ocean exploration and discovery. *Okeanos Explorer* carries cutting edge technology that will enable explorers at sea and at command centers ashore to investigate the unknown and poorly understood ocean and its phenomena. Exciting new discoveries will be shared via the Internet with everyone ranging from policymakers at the top levels of government to school children studying the mysterious ocean.

The vessel, formerly the USNS *Capable*, was transferred from the U.S. Navy to NOAA in 2004 and converted to conduct deep-ocean exploration. *Okeanos Explorer* will support the mission of NOAA's Office of Ocean Exploration and Research (OER) as part of the U.S. President's Ocean Action Plan. OER supports national and NOAA objectives by using advanced technologies to explore the ocean in all its dimensions for discovery and the advancement of knowledge.

Telepresence and High Speed Communications

The most unique visible feature will be the satellite dome atop the mast, containing a 3.7 meter diameter satellite dish or VSAT (Very High Speed Aperture Terminal) capable of transmitting data to shore, which will provide explorers the ability to engage in and manage expeditions from the comfort of shore-based Exploration Command Centers via Internet 2 connections.

The VSAT will be able to send up real-time high-definition video feeds from the dedicated Remotely Operated Vehicle (ROV), images of mapping data collected by a hull

mounted multibeam mapping system, and data collected by numerous sensors installed aboard the ship and ROV. Explorers will be able to communicate with the ship, and assess information and conditions to make decisions on which actions and activities to pursue.

Deep Diving 6000m Dual-Body ROV System

The ROV system will consist of two vehicles: (1) a primary vehicle fully equipped to collect high-definition video of its surroundings, as well as samples; and (2) a "camera sled," outfitted with a high-definition camera, that will be positioned above the primary vehicle in order to film it as it investigates interesting features and habitats. Each vehicle can carry special equipment and sensors to explore under a variety of conditions. The ROV system will be capable of operating in water depths to 6000 meters, and will be permanently installed on the ship and operated out of a dedicated control room.

Next-Generation 3D Mapping System

The vessel has been outfitted with a new multibeam swath mapping system. The hull mounted, first of its kind, Kongsberg-Simrad EM302 will provide explorers with high resolution maps of the seafloor from 40-7000 meters. Maps from the system will be used to identify unique sea floor features for further exploration and will provide a road map for exploring a particular site with the ROV.

A New Paradigm for Exploration

With these tools, NOAA will advance a new paradigm for exploration, giving shore-based explorers of all kinds and ages access to the excitement of real-time discovery. Using Internet 2 connections and the Exploration Command Centers, explorers can remain on shore and lead or be part of the exploration operations, communicating real-time with the shipboard operators. Through standard Internet connections, 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 across the globe.



The Very High Speed Aperture Terminal satellite dome will be used to transmit data to shore

Ship Specifications

Length (LOA): 224 ft
Breadth: 43 ft
Draft: 17 ft
Full Load Displacement: 2312t
Lightship Displacement: 1616t
Speed: 10 knots
Range: 9600 nm
Endurance: 40 days
Hull Number: R337
Call Letters: WTDH
Commissioned Officers: 6
Licensed Engineers: 3
Crew: 18
Mission Personnel: 19
Launched: October 28, 1988
Transferred to NOAA:
September 13, 2008
Commissioned: August 13, 2008
Builder: VT Halter Marine, Inc.
Moss Point, Mississippi



The camera and ROV will transmit data to the ship in real time.

Office of Marine and Aviation Operations

Since NOAA's beginning, NOAA ships and aircraft have played a critical role in the collection of its oceanographic, atmospheric, hydrographic, fisheries and coastal data. This fleet of platforms is managed and operated by NOAA's Office of Marine and Aviation Operations (OMAO), an office composed of civilians and officers of the NOAA Commissioned Officer Corps, one of the Nation's seven uniformed services.

NOAA's fleet of research and survey ships is the largest fleet of federal research ships in the Nation. The fleet ranges from large oceanographic research vessels capable of exploring the world's deepest ocean, to smaller ships responsible for charting the shallow bays and inlets of the United States. The fleet supports a wide range of marine activities, including fisheries research, nautical charting and mapping, and ocean and climate studies. Many of NOAA's research vessels are unique in their ability to conduct scientific research.

NOAA's fleet of aircraft operates throughout the world providing a wide range of capabilities including hurricane prediction research, marine mammal and fisheries assessment, and coastal mapping. NOAA aircraft are modified to carry scientists and specialized instrument packages to conduct research for NOAA's missions.

In addition to research and monitoring activities critical to NOAA's mission, NOAA ships and aircraft provide immediate response capabilities for unpredictable events. NOAA survey ships found the wreckage of EgyptAir Flight 990, TWA Flight 800 and John F. Kennedy Jr.'s aircraft. Our ships, aircraft and personnel have also conducted damage assessments after major oil spills, such as the Exxon Valdez and Persian Gulf War, and after land-falling hurricanes. Following Hurricanes Katrina and Rita, NOAA ships conducted emergency surveys for navigation hazards that helped Gulf ports reopen quickly, and tested the waters for contamination to ensure seafood safety. Aerial images of disaster-torn areas taken by a NOAA aircraft were posted on the Web with a Google interface, enabling residents and emergency workers to see if houses, bridges and roads were still standing.

NOAA Commissioned Officer Corps

The NOAA Corps is one of the seven uniformed services of the United States. It is composed of commissioned officers who provide NOAA with an important blend of operational, management, and technical skills that support the agency's science and surveying programs at sea, in the air, and ashore. NOAA Corps officers, in addition to managing and operating ships and aircraft, are also scientists and engineers. Corps officers serve in NOAA's research laboratories and program offices throughout the Nation and in remote locations around the world. For example, an officer serves as station chief at the South Pole, Antarctica.

About NOAA

NOAA conducts research and gathers data about the global oceans, atmosphere, space, and sun, and applies this knowledge to science and service that touch the lives of all Americans.

NOAA warns of dangerous weather, charts our seas and skies, guides our use and protection of ocean and coastal resources, and conducts research to improve our understanding and stewardship of the environment that sustains us all.

A Commerce Department agency, NOAA provides these services through five major divisions: the National Weather Service, the National Ocean Service, the National Marine Fisheries Service, the National Environmental Satellite, Data and Information Service, and Office of Oceanic and Atmospheric Research; and numerous special program offices. More information about NOAA can be found at <http://www.noaa.gov>.

Visit the ship's Web site at www.moc.noaa.gov/oe/
For more information, contact OMAO at 301-713-1045
or visit our Web site at www.oma.noaa.gov