

Expedition 2015: Wiring the Abyss

Submitted by Tim Boesenkool Mon, 2015-08-24 10:25

The University of Victoria's Ocean Networks Canada (ONC) is about to embark on what's expected to be its most exciting expedition. For the first time ONC will be using two ships, exploration vessel (E/V) *Nautilus*, on its first trip to Canada, and research vessel (R/V) *Thomas G. Thompson*. Both ships are outfitted with robotic vehicles that provide realtime video streams of the ocean abyss to observers around the world.

"Ocean Networks Canada is delighted to have access to the E/V *Nautilus* in this exciting new partnership. It brings with it a world-class team of experts, high tech tools to do the job, and an onboard studio to support live one-on-one interactions from ship to shore. Attracting a ship that is one of only two dedicated ships of exploration in the world is testament to the work Canada is doing in the ocean," says Kate Moran, ONC president.

Beginning on Aug. 25, the three-week expedition will visit eight sites on ONC's west coast observatories in the Salish Sea and Pacific Ocean. The observatories span a wide range of environments from Canada's busiest coastal waterway to the Juan de Fuca volcanic ridge, 300 kilometres offshore, where new ocean crust is created and hot vents reside.

Scientists from around the world will connect to *Nautilus* and *Thompson* virtually while the teams on board install and connect complex sensors and instruments that will help us understand our global ocean.

Installation and deployment highlights include: high tech systems to measure underwater landslides; microphones to detect whales and understand ship noise; pig carcasses for forensic research; sensors to measure how offshore gas hydrates change as climate changes; and a tsunami meter to better predict coastal flooding. Along the way the team on board will be mapping the seafloor, sampling critical habitats, and videoing the hot vent towers to understand how they change over time.

The *Nautilus* is operated by Ocean Exploration Trust (OET) under the direction of its president Dr. Robert Ballard.

Ballard, a scientist and renowned ocean explorer, says, "I am thrilled to be bringing E/V *Nautilus* to Canada to support these advanced observatories which align with our mission: to

explore the world's oceans utilizing live telepresence capabilities; to develop innovative technology to enable exploration; and to inspire and educate the public and the next generation of explorers.?

Ballard founded OET in 2008 to engage in pure ocean exploration. Its international programs center on scientific exploration of the seafloor. In addition to conducting scientific research, they offer their expeditions to explorers on shore via live video, audio, and data feeds from the field. OET also brings educators and students of all ages aboard during E/V *Nautilus* expeditions, offering them hands-on experience in ocean exploration, research, and communications.

ONC, a University of Victoria initiative, manages the world's most advanced cabled ocean observatories off the west coast of British Columbia and in the Arctic for the advancement of science and the benefit of Canada. The observatories supply continuous power and Internet connectivity to a broad suite of subsea instruments and collect data on physical, chemical, biological, and geological aspects of the ocean over long time periods, supporting research on complex Earth processes in ways not previously possible.

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