

Underwater Glider Sails from New Jersey to Halifax

Taking a page from Benjamin Franklin's description of the Gulf Stream and a color scheme out of a classic Beatles song, a robotic ocean glider rode the currents to complete a historic voyage from the coast of New Jersey to Halifax, Nova Scotia, silently collecting gigabytes of ocean data along the way.

The glider – a two-meter “yellow submarine” – was launched on March 7, 2008 and traveled over 2,600 kilometers before being recovered off Halifax on April 28. Named after Joshua Slocum, a Nova Scotian who was the first person to sail solo around the world, the robot adjusted its buoyancy and center of gravity to glide up and down through the ocean depths without active propulsion. As it was gliding, it collected three-dimensional data of the ocean environment, with an unprecedented level of resolution. The glider was steered to take advantage of the northward flow of the Gulf Stream, and then was able to catch a ring of water spinning off the Gulf Stream to position the device onto the Canadian continental shelf.

The robot was controlled by a pilot located at Rutgers University in New Brunswick, New Jersey, using satellite communication links to the robot when it surfaced at the top of each dive. “This is an amazing accomplishment,” said Scott Glenn, physical oceanography professor at Rutgers and member of the Coastal Ocean Observation Lab. “We were able to use real-time satellite



images of the dynamics of the ocean to guide and complete the longest recorded voyage to date of such a device.”

The expedition was a joint international project with Dalhousie University and Satlantic Inc., both of Halifax, Nova Scotia, who tracked the progress and coordinated the pickup of the robot at the end of the voyage. “This is the future of oceanography,” explains Marlon Lewis, Dalhousie oceanography professor and founder of Satlantic Incorporated. “These gliders can take measurements with higher resolution and can travel in far worse conditions than we can with ships – and they cost the equivalent of approximately 3 days of operating costs for our large seagoing vessels.”

The successful completion of this mission is a milestone in the international effort to better understand the ocean's role in weather and climate. Hopes are for future missions to travel even longer distances, perhaps even across entire oceans.