*Unmanned Warrior 2016 Mission Theme: Geospatial Intelligence

Slocum Gliders

AT A GLANCE

WHAT IT IS:

Underwater gliders "fly" in the ocean by changing buoyancy or using a propeller. These UUVs can remain at sea for months at a time, continuously collecting environmental information to better understand how the ocean works.

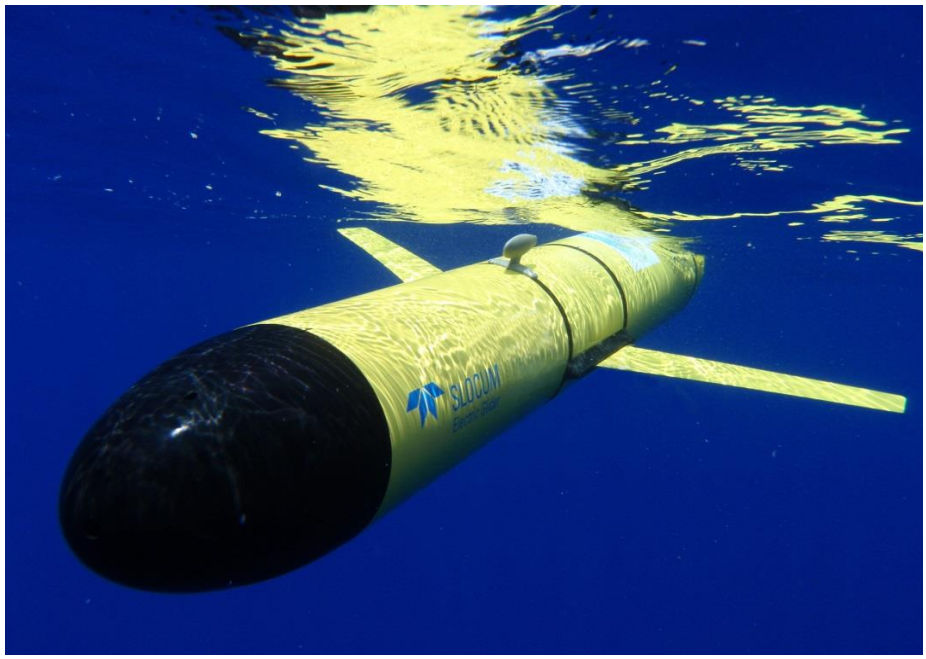
HOW IT WORKS:

Traditional gliders propel themselves forward by changing their buoyancy to sink or rise through the water column. "Hybrid" vehicles can make use of a prop ("thruster") to increase forward speed and escape environmentally hazardous areas. While they glide up and down from the ocean surface to depths as great as 1000 meters, they measure the temperature, conductivity, and optical (light) properties of the water they pass through.

WHY IT IS IMPORTANT:

Data collection from gliders provide near real-time measurements of conditions at a greater data volume and fraction of the cost of traditional platforms. This in turn enhances the ocean model nowcasts and forecasts to yield faster and greater environmental insight to naval operational commanders.

**Unmanned Warrior is part of exercise Joint Warrior 2016, hosted by the United Kingdom off the North-West coast of Scotland.*



Sensors aboard Unmanned Underwater Vehicles (UUV) gather data on the physical properties of the ocean environment in real-time. This information is then transmitted back to a shore-side facility for use in real-time oceanographic models, historical databases, and environmental assessment products.

This data has been used by scientists in the study of temperature effects on the strength of hurricanes and typhoons. It is also used by divers in determining horizontal and vertical visibility. UUVs outfitted with additional sensors are used in environmental studies and gathering meteorological data for weather prediction.

Due to their ability to collect massive amounts of data over long time periods at low cost, UUVs like the Slocum glider are becoming increasingly important to the Navy to better inform the warfighter. Measurements made by gliders are used in the investigation of mine and/or "mine-like" objects to support naval sub-surface security.

Unmanned Warrior 2016, allows the US Navy, the British Royal Navy and allies to test UUVs in real operating environments with coalition forces. Gliders will be deployed from shore-based facilities as well as ships of opportunity, and operate in varying water depths off the North-West Scottish coast line.

Research Objectives for US in Unmanned Warrior 2016:

- Conduct joint operations with US-UK Slocum gliders
- Demonstrate near real-time data sharing between USN and RN
- Explore Command and Control aspects with other UUVs