

Evaluation of Unmanned Surface Vehicles

The DBCP presently coordinates the network of over 1,250 drifting buoys and around 400 moored buoys, which provide measurements such as sea-surface temperature, surface current velocity, air temperature and wind speed and direction.

In recent years the growing use of autonomous vehicles, commonly referred to as 'gliders', for ocean data collection has increased. This includes autonomous (or unmanned) surface and underwater vehicles. While both are becoming important components of the ocean observing system, the primary interest of the DBCP community is on the potential of Unmanned Surface Vehicle (USV) platforms for collecting meteorological and oceanographic data from the oceans.

In recent years a number of commercially available USVs have been developed and these are becoming more widely used by the research community and industry. The various USVs typically have the following characteristics: long endurance (e.g. by harnessing the wave energy for propulsion), ability to carry a range of meteorological and/or oceanographic sensors and payloads, 2-way communications allowing them to be piloted remotely (e.g. to make measurements along a preset route or to operate around a fixed station) and to transmit data in real-time.

Over the coming years it is the intention of the DBCP community to evaluate USVs, which have the potential to enhance the ocean observing system, as observations from USVs can complement those from fixed platforms such as moored buoys. In particular USVs could also be used to provide observational cover during periods when moored buoys are out of service, or possibly even provide a cost-effective alternative to operating moored buoys. However, this will require a detailed examination of the quality of the data, the reliability of the USV platforms over extended deployments at sea and their operating costs. The aim of this web-page is to compile information on the various USVs and to make available results from various trials and evaluations.

The following are commercially available USVs known to the DBCP community that have meteorological/ oceanographic measurement capability. This list does not imply endorsement of those vehicles by the DBCP and there are likely to be other USVs in existence:

[Liquid Robotics Waveglider](#)

[MOST AutoNaut](#)

[ASV C-Enduro](#)

[Sailbuoy](#)

Scientific and Technical references

USVs in general

[Overview of Emerging Unmanned Systems Technologies for Marine Monitoring \(by Richard Crout and Walt McCall\) DBCP-28 S&T Workshop](#)

Liquid Robotics Wave Glider

[The Wave Glider, a mobile buoy concept for ocean science \(by Justin Manley and Tim Richardson\) DBCP-25 S&T Workshop \(September 2009\)](#)

[Luc Lenain and W Kendall Melville \(2014\), Autonomous Surface Vehicle Measurements of the Ocean's Response to Tropical Cyclone Freda, DOI: 10.1175/JTECH-D-14-00012.1](#)

Sailbuoy

[Sailbuoy article](#) in Marine Technology Reporter, Nov 2015

UK MASSMO (Marine Autonomous Systems in Support of Marine Observations) project

MASSMO web-site

Results/presentations from the [1st MASSMO workshop](#) (February 2015)