

# Industry Takes a Technology Tour - Oceanology International 2018



London's docklands became home to a fleet of both manned and unmanned surface and subsea vehicles during this year's Oceanology International 2018 (Oi18), reflecting an increasing focus on connected autonomous systems in the ocean space.

Situated alongside the London ExCeL exhibition halls, vessels of all sizes were moored up, while underwater vehicles and

unmanned surface vehicles took advantage of open water to carry out practical on-water trials and demonstrations of the latest technology.

## On the Water

One of the most eye-catching of these demonstrations was when iXblue showed the potential of its iconoclastic new unmanned survey vehicle, the DriX. The sleek DriX resembled more of a surfaced submarine. What the viewer could not see, however, was the thin counterbalancing keel that allowed the DriX its tight turning radius. At the keel's tip, 2m below the waterline, was a gondola that housed the electronic sensors, keeping the sensitive electronics far away from any interference noise generated from the diesel motors above. Bibby HydroMap proclaimed that they had become one of the early adopters of the vehicle – partnering with iXblue to bring DriX to the European market.

## Away from the Water

Inside the exhibition first-time exhibitor Xocan showed its large unmanned catamaran. The catamaran is powered by a 2kW diesel generator and 640W solar panels that work in conjunction to keep the 5kWh lithium battery charged and able to power both the payload as well as the electric thrusters. Travelling at 3.5kn, the catamaran has an 18 day or 1,500 nautical mile range. Interestingly, the company says that it can offer surveys on a no data - no fee basis, where it accepts all the risk in terms of weather. Xocan estimates it can work at around a third of the cost of conventional manned survey methods.

Another autonomous vehicle designer, Ocean Aero, said that it plans to supplement its 10m rated Submarine S10 vehicle, with a newer, higher capacity, 200m rated model, called the S200, later this year. The Submarine is powered mainly by a wing sail that can retract, and by pumping 660l of water into the hull, the entire vessel can submerge. This could be to evade severe weather, avoid detection or simply for subsurface data gathering.

Another well-established vehicle design, that will shortly see a larger capacity addition to the range, is the Autonaut. The 3.5m vehicle is soon to be joined by a 5m version. In the new iteration, the rudder system has been redesigned to make it more resilient and manoeuvrable while there is additional space and potentially more power for the payload.

Autonaut is currently looking to make the boat capable of operating in the Southern Ocean in winter and to that end, the company has been speaking with universities to look for solutions to icing and collision avoidance. As solar panels are not going to be as effective in winter months, the vehicle may need an alternative power source to provide the onboard electricity.

## Under the Water

Like the surface equivalent, it was no surprise that autonomous underwater vehicle (AUV) manufacturers were also showing their latest designs. L3 showed the new 300m rated Iver PW (Precision Workhorse). The vehicle is powered by NMIH batteries, which gives the vehicle a capacity of 2000Wh that translates as 40 nautical miles of use and in doing so, makes it twice as powerful as the original version.

Teledyne's well established Gavia AUV is a small hand-portable vehicle, able to work in 500-1000m water. The vehicle is characterised by its modularity - adding or subtracting functional modules to the main body to extend or match its intended requirements. Teledyne has now expanded its offering by introducing a novel vehicle able to work at up to 6000m. Called the Sea Raptor, it is aimed at the search and

recovery, salvage, exploration, construction support, oceanography and marine archaeology markets.

KONGSBERG subsidiary Hydroid is expanding into the small AUV market with the announcement of the M3B micro AUV, which is small enough to fit into a submarine or be deployed from the air. It typically surveys at 3-4kn but can reach speeds of over 10kn. It has a deployment duration of up to 6-8 hrs. KONGSBERG was also present dockside with Hushcraft and the GEBCO-NF Alumni team, to show-off the USV Maxlimer – a unique Unmanned Surface Vessel (USV) / AUV concept that was built for the US\$7 Million Shell Ocean Discovery XPRIZE competition.

One company at the show, Evologics, said that using USVs, such as its Sonobot, can increase the efficiencies of AUVs. By sailing the Sonobot directly above the AUV it can receive satellite or wireless signals for position fixing and relay this to the AUV below in a two-way communication.

## All-electric Vehicles

For many years, global remotely operated vehicle (ROV) manufacturer Forum offered a wide range of electric vehicles under its Sub Atlantic brand. At the show, however, Forum launched its XLe, the first of five all-electric vehicles that will extend from small observation vehicles up to a size and capacity approaching hydraulic vehicles.

Elsewhere, SEAMOR added the Mako ROV to its product line, capable of carrying 14kg (30lb) as a standard build, and is upgradeable to 22.5kg (50lb). This higher carrying capacity permits larger instrumentation such as multi-beam imaging sonars to be integrated.

## Non-vehicle Products

STR showed its latest Sea Spyder, a drop camera frame able to incorporate lights, video, stills cameras and strobe flash/units. This latest iteration operates over longer cable lengths for operation down to 1000m.

Edgetech launched its 6205S combined side-scan and bathymetry towfish as well as the 4205 which is a tri-frequency unit, a first for a towed side-scan. This gives the operator the ability to use any two of three frequencies built into the system.

Valeport unveiled its Swift Plus, which not only measures sound velocity, temperature and pressure, but it computes salinity density, conductivity and importantly, it also measures turbidity. The company is aiming the Swift Plus at the environmental monitoring market, particularly the dredging sector where measuring turbidity is particularly important.

Impact Subsea showed what it claims to be the world's smallest imaging sonar. Called the ISS 360, it is optionally available with an integrated Attitude and Heading Reference System (AHRS), providing pitch and roll showing how the sonar is sitting and in which direction the sonar is pointing.

Tritech exhibited its new Gemini 720im - billed as the world's smallest multibeam sonar. This is important because the limited payload of many small ROVs has historically ruled out a multibeam.

Sonardyne showed the Micro-Ranger 2, its smallest ever underwater target tracking system. This is Sonardyne's third ultra-short baseline (USBL) acoustic tracking system. This new entry-level model introduces features that make it good for supporting diving and small vehicle operations in rivers, lakes and coastal waters.

IXblue launched its Canopus beacon and software which essentially gives the company a full long baseline capability. Imenco showed its fish farm camera system. Datawell has developed a new system to record air temperature on its buoys.

There were far too many new and innovative products at the show to cover them all, but with Interspill being co-located with Oi18 and the authoritative conference programme, Oi18 was certainly an outstanding event in the 2018 underwater technology conference calendar. Roll on 2020, which is when the next London edition will be held at ExCeL from 17-19 March.

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