



**Aberdeen Evening Meeting:
New Underwater Tooling and Technologies**

Robert Gordon University, Aberdeen

Wednesday 21st November 2018

By Martin Harley

A total of 43 people attended our November evening seminar titled 'New Underwater Tooling and Technologies' covering recent and soon-to-arrive innovations that will expand the ways in which pipelines and subsea assets can be managed.

Steffan Lindsø, Director of Emerging Technology for Oceaneering Europe, discussed 'Semi-Permanent Subsea Vehicles' and Oceaneering's e-ROV and Freedom vehicles. Their hydrodynamic design and power load is a continual trade-off between size and shape, range and costs for maximising deployment time and vehicle endurance. They estimate adoption of rim-driven thrusters, a sleeker exoskeleton and with appropriate choice of mission tooling, the Freedom ROV will be able to travel the length of the entire Norwegian Continental Shelf of 17 docking stations.

Donald Ballantyne, Commercial Director of Paradigm Flow Services, in 'Solving Subsea Flow Assurance Challenges in Riser, Pipelines and Flowlines' discussed their improved Flexi-Coil tool. Adapting coiled-tubing equipment normally used for well workover, they have been able to clean the insides of pipelines over a distance of 11,000ft/3.5km with a 10,000psi water-jet which simultaneously pulls itself along the line whilst jetting, allowing the head to pass through >560° of bends. Donald explained that the method should be capable of 15km though this has not yet been proven. He gave two case studies with video, showing recent jobs where they cleaned waxes and sand from blocked pipelines, allowing oil production to resume.

Dr Christopher Bridge, Domain Champion (Interpretation) of OneSubsea discussed 'Leak Detection Technologies and Applicability in the Subsea Environment'. Fibre-optic lines laid in the ground at OneSubsea's Cambridge Research Centre have been able to detect nearby vibrations caused by digging and traffic. Testing this capability for pipeline leaks has shown they can detect the signature of a pipe burst and infer the magnitude of a leak. With fibre-optic cables already capable of being built into the fabric of flexible risers and control umbilicals, it brings the possibility of subsea leak detection. A case study focussed on an existing installation on a subsea riser buoyancy can as a trial.

As is often the case, questions from our audience over-ran our allowed time and all three of our speakers were kept busy during the networking buffet afterwards, answering further questions there hadn't been time for in the auditorium.