ID17- OPERATING AROUND OFFSHORE INFRASTRUCTURE AND SAFE MANOEUVRING BY AUTONAUT USV

In 2017, an AutoNaut wave-propelled unmanned surface vehicle (USV) conducted a "close pass" trial in proximity of an operating oil and gas platform. The 4-day mission required the vehicle to follow a series of pre-planned transect lines within a 4km sq area around the asset. Multiple close passes on all four sides of the asset were completed. At the closest point, a transit within 150 metres of the asset was achieved.

A strict 500metre "safety zone" is typically implemented around offshore oil and gas assets. Within which vessel traffic is restricted to essential operations. For this task, a marine autonomous system (MAS) offered two key advantages over other data collection methods close to platforms; such as conventional vessels or drifting devices:

1. A significantly reduced risk profile – no personnel, small size and propulsion characteristics of the Autonaut.
2. Movements following pre-planned transects in a controlled manner

Precise and consistent positioning of the AutoNaut USV was vital to mission success and for safety assurance. Throughout the mission the AutoNaut operated in sea states up to Beaufort 5-6 and surface currents of up to 1knot. Complete reliability was required of the command/control system and protocols: Offshore based remote operators on a supporting vessel (outside the safety-zone) utilised wireless comms, specifically for close-pass manoeuvres during day time periods. Shore based remote operators located in a different time zone oversaw USV operations during night time periods over iridium satellite link.

Challenges were posed by operating a USV in a busy working area, with other fixed assets and support vessels in the vicinity undertaking simultaneous operations. Robust planning and following established procedure were vital to meet stringent safety requirements and gain industry assurances for the operation of a USV near an oil and gas asset.