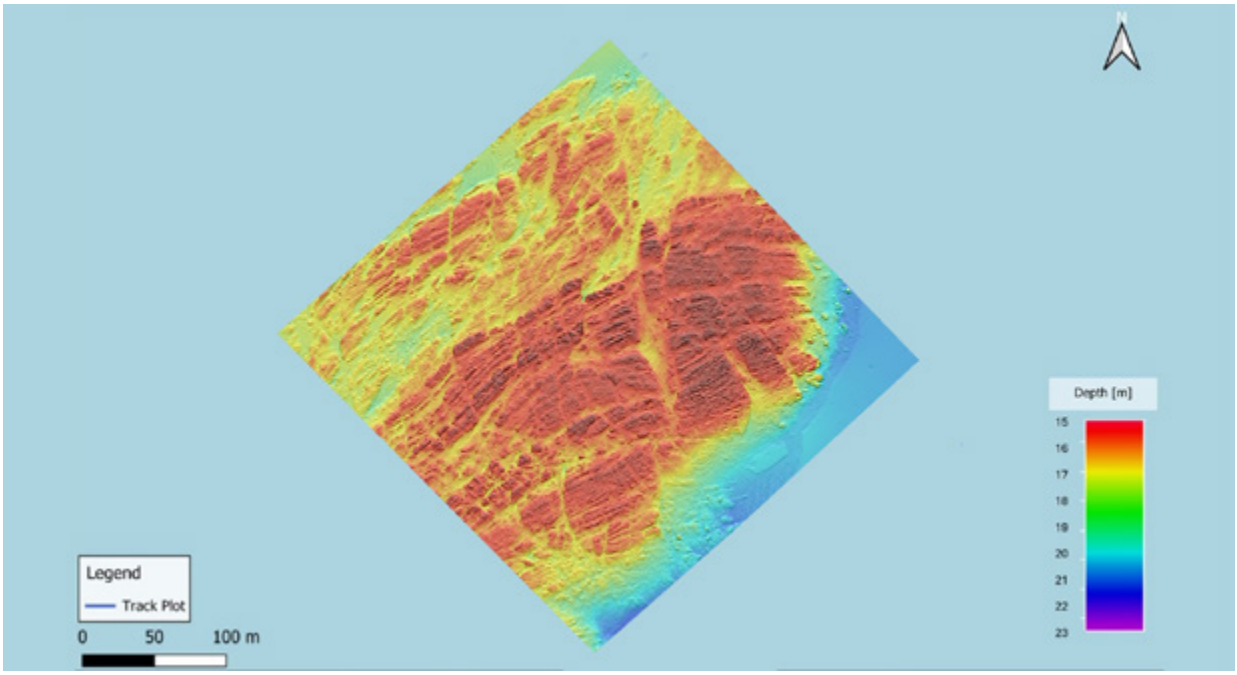
ACUA OCEAN

USV PIONEER

REDEFINING OFFSHORE SURVEYING WITH USV PIONEER

TRIAL OVERVIEW



The operations were conducted in Plymouth Sound, South of the Breakwater, an area selected for itsexposure to challenging sea states and identifiable seabed features. Survey trials were successfully executed over a 300 x 300 m grid in 1.25 to 1.5 m Hs conditions, where vessel motion had no observable impact on data quality.

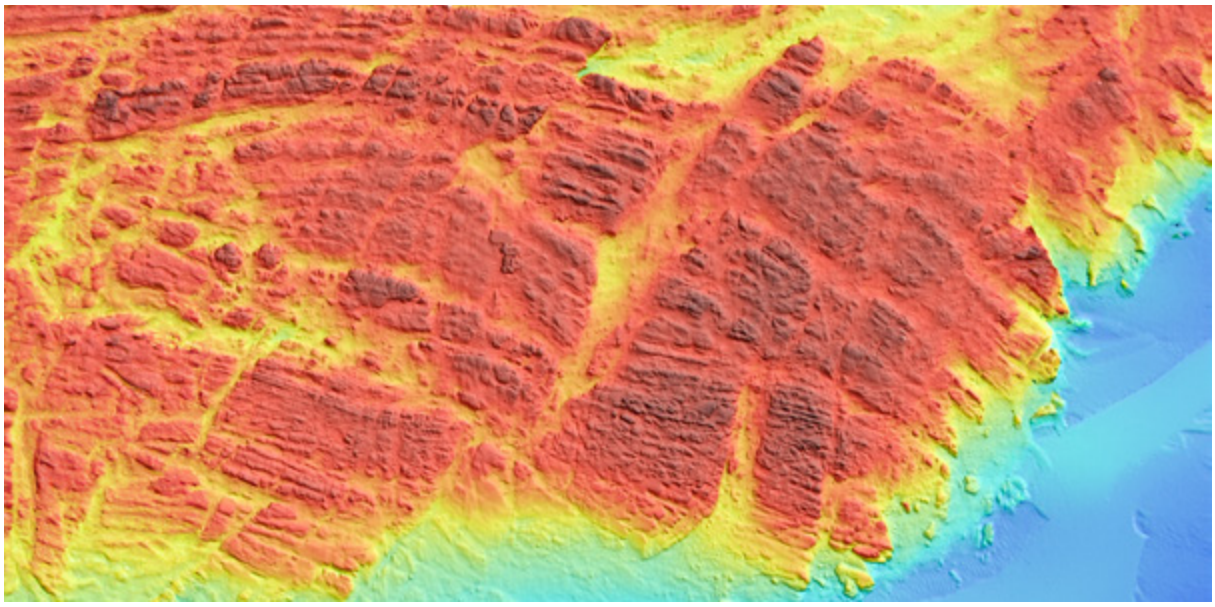
THE SOLUTION: ACUA OCEAN'S USV PIONEER

USV Pioneer is built to excel in the most challenging sea states, providing a stable platform in even the most challenging conditions. To demonstrate surveying capability, ACUA Ocean (AO) mobilised USV Pioneer for bathymetric survey trials in Q1 2026. Equipped with the industry-leading Norbit iWBMS multibeam echosounder (MBES) with integrated Applanix Pos-MV Oceanmaster utilising a Norbit Portus Pole. The trials aimed to prove the platform's ability to acquire high quality multibeam data in challenging sea states.

THE RESULTS

The USV Pioneer proved to be a highly stable survey platform, yielding high-quality results that required minimal cleaning or post-processing. The acquired data surpassed the highest industry standard—the International Hydrographic Organization (IHO) Exclusive Order.

The data's clarity allowed for precise measurement of seabed topography, including bedrock formations, sand ripples, and the historic Le Poulmic wreck.



KEY METRICS

Avg. TVU: 0.118 m (IHO EO: 1.80 m)	146% Coverage	Max Pitch: +/- 4.2°
Avg. THU: 0.572 m (IHO EO: 1.00 m)	Avgerage 25 Hits per, 0.2m cell	Significant Wave Height: 1.25-1.5m
WD: 15 - 22 m	Max Roll: +/-4.8°	Max Wave Height: 2m

THE USV PIONEER ADVANTAGE

- The platform demonstrated impressive stability during trials conducted at the conventional operational limit of approximately 1.5 m Hs.
- Motion behaviour remained well within acceptable limits for survey-grade bathymetry, with no observable degradation in swath density or positional accuracy.
- Based on the stability observed during the trials, Pioneer is expected to maintain survey-grade multibeam acquisition in significantly higher sea states, potentially approaching 2.5 mHs, subject to mission configuration and site conditions.
- Increasing the operational limits from 1.5 m Hs to 2.5 m Hs could significantly increase survey uptime from roughly 120 to 200 operational days per year in typical North Sea conditions.

CONCLUSION

The USV Pioneer is a commercially competitive, highly stable survey solution that outperforms existing solutions. Through delivering high-resolution data acquisition in elevated sea states, ACUA Ocean offers clients unprecedented certainty in project scheduling and significant reductions in operational costs.

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