LIVE-SITE SURVEY WITH THE ULTRATEMA-4

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The presentation will share the preliminary results from the UltraTEMA-4 survey at the USCG Kodiak site in Women’s Bay conducted in September 2024. The UltraTEMA-4 is a remotely operated towed vehicle (ROTV) single-pass marine dynamic classification system for wide-area assessment and full coverage surveys. This project is in preparation for the construction of a new pier. Updates to the UltraTEMA-4 system and deployment vessel were made prior to deployment to facilitate navigation in and around obstacles such as the existing pier structure. These included addition of an integrated autopilot and thrusters into a min-dynamic positioning system (Mini-DP). The autopilot provided improved line following capabilities. Offsets between the planned and surveyed lines averaged only 0.3m for 60% of the survey area. Bow thrusters provided improved the turning radius for survey operations and station keeping capabilities to support dive operations. The system mapped 10.5 acres in 3 days. Inversion of the collected data and the development of the dig list has been conducted in anticipation of intrusive dive operations in 2025. This included new IMLI algorithms to improve inversion performance between swaths. Advanced Geophysical Classification (AGC) was applied to the 5.2-acres survey area, producing 4,700 raw anomaly detections. High density areas near the existing pier were flagged as SRAs (Saturated Response Area) due to high target densities. A total of 293 locations were selected for digging outside of SRAs, and 320 in SRAs. Matches to TOI (Target of Interest) ranged from 40mm projectiles to 7.2in depth charges. Examples of classification performance across the site will be presented.