

REMUS UUV Navigation Accuracy Testing

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Abstract: Three REMUS UUVs were taken to the Kingdom of Bahrain for testing 15 to 24 October 2002. The objective of the test was to measure the Probability of Detection/Classification, Contact Localization Accuracy, and to observe internal vehicle temperatures while operating in warm water. Detection, classification, and localization evaluations were independently performed by human interpretation and by computer aided interpretation. Prior to the test, seventeen mineshares were installed in three separate minefields to evaluate performance in different locations of a 1000-m by 1000-m operating area. The mineshares and long baseline navigation transponders were accurately installed using sub-meter accuracy DGPS. The first week concentrated on installing the minefield and the second week involved three days of testing followed by two days of mineshape removal.

Over the three days of testing, the REMUS UUVs were operated for a total of 11.5 hrs and covered a combined distance of 50.7 nautical miles. Each day of testing consisted of repeated searches of three separate minefields using various sonar range scales and lane spacing. After each mission, sonar and vehicle data was downloaded from the REMUS for post-mission processing and evaluation. In addition to the UUV tests, the accuracy of navigation transponder deployment was measured. On the last day of testing, one of the spare REMUS vehicles was operated at full speed for two hours to observe the internal temperature levels. After the test, all mineshares were recovered in two days using the INSS imaging sonar. It was originally intended to use the INSS navigation capability but equipment problems were encountered that prevented INSS navigation.

This presentation will outline the results of REMUS warm water testing.

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