

DEVELOPMENT AND EVALUATION OF AN UNDERWATER ADVANCED TIME-DOMAIN ELECTROMAGNETIC SYSTEM

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Poster will present an update as of summer 2017 on a multi-year project to develop and perform Underwater Advanced Time-Domain Electromagnetic System for the detection and classification of Unexploded Ordnance (UXO) in the marine environment. This project is funded by the Environmental Security Technology Certification Program (ESTCP).

Problem Statement

Over 400 underwater sites have been identified by the U.S. Army Corps of Engineers and the U. S. Navy as potentially containing munitions. The cost to characterize underwater sites is significantly greater than performing the same activities for terrestrial sites. Current technologies allow for detection of metallic items in the underwater environment but there are currently no underwater systems for characterization. Characterization currently performed through expensive and time-consuming process of manual inspection by Explosive Ordnance Detonation (EOD) experienced divers.

Technical Objective

The overall objective of the project being presented is to design, build and demonstrate an underwater advanced time-domain electromagnetic (TEM) system for cued classification of UXO in the underwater environment. The emphasis of this project is to design a system that can demonstrate classification effectiveness in the marine environment (as opposed to solving longer term issues such as positioning, deployment methods, system rigor). The phased approach consists of initial design and modeling (Phase 1 – completed), engineering design and construction (Phase 2 – completed), underwater evaluation of the system (Phase 3 – completed), and an optional Phase 4 demonstration of the system at a field site (to be completed in 2018). In addition to summarizing Performance Objectives to date, this poster will describe the sensor system designed, constructed, and tested.