

CLASSIFICATION OF UNEXPLODED ORDNANCE USING ADVANCED ELECTROMAGNETIC DATA – TECHNOLOGY UPDATE

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During munitions clean-up projects, classification technologies provide the means to identify, and separate, harmless metal objects from unexploded ordnance (UXO) prior to intrusive digging. A suite of advanced software tools (called UX-Analyze) has been developed by Acorn SI (and predecessors) and Geosoft Inc. over several years with funding from the US Department of Defense (DoD) Environmental Security and Technology Certification Program (ESTCP). The process works with advanced electromagnetic (EM) sensor survey data (such as the Geometrics MetalMapper 2x2) and provides a critical workflow for complete data processing, target selection and target analysis with modeling and classification processes, to yield decisions on targets of interest. A range of quality control and quality assurance capabilities support new contractor accreditation and project requirements introduced by the DoD in 2017.

With the new sensors and software, reliable classification of suspected UXO targets using geophysical survey data is possible, enabling millions of dollars in savings on clean-up projects. These technologies and processes have been thoroughly proven in live-site demonstrations sponsored by the ESTCP and have been used by most organizations that have successfully completed their accreditation in 2017.

Future work includes a current prototyping project to migrate the entire UXO classification workflow into the cloud – generating a host of benefits including enhanced security, fewer data transfers, automatic version control, faster data processing, improved collaboration and enhanced reporting.

This poster provides a high-level overview of the data processing and analysis workflow for UXO classification, for both dynamic data (collected in moving survey mode) and, static data (collected at each target after a standard target detection survey). Along with other recent advances, which are being incorporated into the classification workflow.