Lockheed Martin Program Helps Detect Deviations In Maritime Vessel Normal Behavior

The Defense Advanced Research Projects Agency (DARPA) awarded Lockheed Martina 12-month contract to continue development of a next-generation Maritime Domain Awareness (MDA) technology that detects vessel deviations from normal at sea and near ports.

Current MDA systems require operators to wade through volumes of data to identify threat potential. In contrast, the Predictive Analysis for Naval Deployment Activities (PANDA) program uses sophisticated pattern-based learning technologies, historical data, and track monitoring to learn a ship's "normal" behavior.

By understanding normal behavior, PANDA automatically detects deviations that might otherwise go unnoticed or be assessed too late. In addition to providing faster and more meaningful threat assessment, PANDA also helps operators deal more effectively and efficiently with information.

"With tens of thousands of ships on the world's oceans every day, it is very difficult to identify behavior that may indicate a threat," said Rich Dickinson, ATL's PANDA program manager. "We believe PANDA provides a great improvement for MDA by automatically detecting deviations and alerting operators to them."

During Phases 1 and 2, PANDA successfully demonstrated the feasibility of using motion-based pattern learning and context filtering to detect and assess unusual vessel behavior. During Phase 3, PANDA will be expanded to monitor thousands of vessels, refine detection capabilities, and enhance operator usability by filtering information and creating a simplified user interface.

Lockheed Martin Advanced Technology Laboratories (ATL) serves as the Systems Engineering and Integration Lead for the PANDA program. As lead, Lockheed Martin is responsible for requirement definition, component integration, system performance, system testing, site installation, and deployment. During Phase 3, Lockheed Martin will work with DARPA, the other PANDA performers, and the Office of Naval Intelligence to transition PANDA to the National Maritime Intelligence Center in Suitland, MD.

Headquartered in Bethesda, Md., Lockheed Martin is a global security company that employs about 140,000 people worldwide and is principally engaged in the research, design, development, manufacture, integration and sustainment of advanced technology systems, products and services. The corporation reported 2008 sales of $42.7 billion.

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