

Mesoscale Modeling and EM Propagation during the SMARTEx Field Campaign

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The (Small Maritime Target Experiment) SMARTEx Field Experiment was conducted by the USCG for a two week period offshore of Dauphin Island Alabama during June 2012. The experiment was designed to collect target signature and identification, and target detection and tracking data in conjunction with radar propagation and meteorological measurements. The warm, humid environment of the Gulf of Mexico provided a complimentary dataset to the VAMPIRA campaign over the North Sea held in March 2004. Several members of the NATO SET 143 Panel participated in both exercises.

The overarching goal of the SMART-Experiment was to explore synergy between IR and RF sensor suites commonly used by the USCG and other defense organizations for search and rescue, surveillance, communications and target tracking. In addition to USCG helicopter, aircraft and boat assets, instrumentation was provided by UK Met Office, TNO (Netherlands Organisation for Applied Scientific Research), New Zealand Defence Technology Agency (DTA) and Germany's Fraunhofer. Real-time operational forecasts were performed by the NRL Marine Meteorology Division coupled air-sea mesoscale model COAMPS®¹. The model forecasts fields are being analyzed along with observed data collected by DTA's Kite-sondes vertical profiling measurements using Kestrel weather sensors. These data will be used to assess the propagation environment during the Field campaign and the prediction capability of high-resolution model forecasts, electromagnetic propagation codes and commonly used sensor performance tools.

¹ COAMPS is a registered trademark of the Naval Research Laboratory