

## Comparison of RF Predictions Based On Two Numerical Weather Prediction Models and In-situ Observations in the North Sea

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In September 2014, researchers at the Space and Naval Warfare Systems Center, Pacific (SSC Pacific), Naval Surface Warfare Center, Dahlgren Division (NSWCDD), the Netherlands Defense Materiel Organisation (DMO), and the Netherlands Defense Academy (NLDA), conducted a field experiment in the Netherlands, collecting both one-way and two-way RF propagation data as well as meteorological measurements. The propagation path was along the same bearing between two fixed shore-site emitters (X-Band radar and S-Band CW) and two Royal Netherlands Navy (RNLN) vessels (a small fast-moving craft and a tug). Meteorological observations consisted of surface layer measurements and balloon-borne radiosondes taken from shore and the tug, located approximately 20 km offshore.

Forecasts from two numerical weather prediction (NWP) models were used in support of the field campaign; 1) the US Navys Coupled Ocean / Atmosphere Mesoscale Prediction System (COAMPS), and 2) the Netherlands High Resolution Limited Area Model (HiRLAM) Aladin Research on Meso-scale Operational NWP in EuroMed (HARMONIE). Comparisons between both NWP forecasts and radiosonde measurements were reported previously (K. Horgan, et al., Joint IEEE-APS/URSI Symposium, Vancouver, July 2015), as well as initial analysis results between observed and predicted RF propagation data based on both NWP models (R. Navarro, et al., Joint IEEE-APS/URSI Symposium, Vancouver, July 2015).

This presentation is an extension of the previous two summaries in that we now focus on the complete set of in-situ observations, which include surface layer measurements describing the evaporation duct combined with upper air radiosonde measurements. Analysis of RF predictions based on locally-observed meteorology will be presented, as well as comparisons between observed RF propagation data with in-situ and NWP-based RF predictions.