

RIAB: A Data Fusion Architecture for Rapid Environmental Assessment

Mr. Alex Trangeled

Scientist, SACLANT Undersea Research Centre
trangeled@saclantc.nato.int 011 39 0187 527296

Dr. Robert Charles Tyce

Oceanography Dept. Head, SACLANT Undersea Research Centre
tyce@saclantc.nato.int 011 39 0187 527369

Abstract: In support of Rapid Environmental Assessment (REA), SACLANT Undersea Research Centre (SLC) has developed a deployable maritime data fusion server for use with ships of opportunity. Termed REA-In-A-Box (RIAB), it is meant to be a turnkey solution that can be deployed on site with little advance notice and minimal setup, into a variety of communications environments, including low earth orbit satellite systems (LEOS). Prototype systems have been deployed as part of several recent NATO REA trials. RIAB is an integration of commercial computer hardware, software and communications systems designed to ingest data aboard ship and guarantee data delivery to all participants in a data

fusion network (including both ships and shore) by the best communication paths available. It consists of an open source Unix PC plus wireless routers and different satellite communication systems including Inmarisat, Iridium, Globalstar, and VSAT.

This paper will review the development and deployment experiences for these systems. It includes technical details of data processing, fusion and transmission, along with illustrations of the techniques adopted and their innovative impact on the overall capabilities of the system for REA operations.