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SOAP-3: An example of integrated oceanographic information system for naval applications

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From the mid-90's, SHOM (www.shom.fr) has been conducting research and development in the framework of the SOAP program (System for Operational Analysis and Forecast) to support French Navy activities. This incremental program has been generating successive prototypes of increasing complexity and growing end user applications.

Primarily designed and developed to support anti-submarine warfare at operative level (description of the synoptic scale), the SOAP System is dedicated to routinely compute, qualify, prepare and deliver added value military products. The final version of the SOAP System (SOAP-3) entered service early 2010 and has become the core component of the oceanographic support for naval operations.

In this talk or poster, we propose to present SOAP-3 as an illustration of the progress in operational forecasting systems over the past 10 years, in terms of modeling capability and tools to forecast ocean situation. SOAP -3 is an integrated system which is able to support the overall processing of oceanographic information. It relies on various functionalities ranging from observations and/or model retrieval up to the processing and layout of the products. Samples of final products sent out to the navy ships such as classical iso-depth maps of sound channel interfaces but also added-value products will be shown to illustrate the requirements on products accuracy for the naval applications.

The different functionalities for routine monitoring of the system performance and quality assessment of the products will be described with emphasis on the issue to include these tasks in the timeliness of the production. SOAP -3 results on comparisons between forecasted and observed products on specific case will be presented to illustrate the contribution of an integrated production system. In particular, SOAP-3 capacity to handle "multi-model" and "multi-scale" (cascade of nested high resolution models) production will be discussed as an answer to better estimate products quality by taking advantage of the comparison of the "same" reality as viewed by various ocean models.

Finally, forecast report will be presented to give insights into the issue faced by ocean forecasters to summarize model assessment information in useful indicators for end-users and decision–makers.