Contribution ID: **159** Type: **Paper**

Preliminary assessment of route optimisation for fuel minimisation and safety of navigation by the use of cooperatively collected data at sea

Friday, 22 June 2018 09:45 (15 minutes)

The growing pressure of the international regulations on GHG emissions from ships is pushing towards the adoption of a variety of operational energy efficiency measures. The fusion of measurement techniques, smart telecommunication technologies and numerical modelling approaches has a great potential for the implementation of services for the shipping industry. Among these, there are weather routing systems for improving both energy efficiency and navigational safety.
PROFUMO Demonstrator is an ESA ARTES-20 project. Its main goal is to implement a pre-operational system for fleet management and weather routing services, based on the cooperative collection of meteo-marine data from ships, to improve weather forecast. Atmospheric information from GNSS signals (Galileo , GPS) are utilised to improve numerical weather predictions and hence offer detailed Mediterranean route optimization services.
The architecture of the system and some first implementation results will be described, in particular on the integration of meteo-marine forecasting with ship modelling and route optimization, with some sensitivity analyses of the optimization process, under different approaches for modelling wind and waves added resistances and computing the ship powering performances. In perspective we imagine the use of in-service measured data to dynamically improve the ship modelling components of the system.

Primary author: Dr ORLANDI, Andrea (Researcher at Consorzio LaMMA)

Co-authors: Dr ORTOLANI, Alberto (CNR-IBIMET and Consorzio LaMMA); Dr COSTALLI, Luigi (Aleph srl, Florence, Italy.); Dr BENEDETTI, Riccardo (Consorzio LaMMA); Mr CAPECCHI, Valerio (Consorzio LaMMA, Firenze)

Presenter: Dr ORLANDI, Andrea (Researcher at Consorzio LaMMA)

Session Classification: Weather Routing and Environment Modeling

Track Classification: Numerical & experimental hydrodynamics