Geophysical Research Abstracts
Vol. 17, EGU2015-14181-1, 2015
EGU General Assembly 2015

The effects of the accuracy of the atmospheric forcings on the prediction of the sea surface transport in coastal areas.

Andrea Cucco (1), Giovanni Quattrocchi (1), Andrea Satta (1), Fabio Antognarelli (1), Antonio della Valle (2), Francesco De Biasio (2), Enrico Cadau (3), Stefano Zecchetto (2), and Georg Umgiesser (4)

(1) CNR - National Reasearch Council, IAMC - Institute for Marine Coastal Environment, Oristano, Italy (andrea.cucco@cnr.it), (2) CNR - National Reasearch Council, ISAC - Institute for Atmospheric Sciences and Climate, (3) Sardegna Clima Onlus, (4) CNR-ISMAR, Arsenale - Tesa 104, Castello 2737/F, 30122 Venezia, Italy

In the framework of the Italian flagship project RITMARE (http://www.ritmare.it/en/) an Operational Oceanography Systems (OOS hereafter) based on high resolution 3D hydrodynamic model has been developed for the Oristano Gulf (Sardinia, Italy), with the aim of making short term predictions of water currents and pollutant transport. Atmospheric data provided by the SKIRON meteorological model system (http://forecast.uoa.gr/) were used to make the predictions.
In order to asses the quality of the wind field adopted to force the hydrodynamic model, a coastal wind measuring system (WMS hereafter) was developed. The WMS is composed by five three-components anemometers located along the Gulf coasts, which provide hourly and operationally wind measurements. These data are then used operationally to derive high resolution wind fields over the entire Gulf and surrounding coastal areas. The modelled wind data have been compared with the measured ones and the meteorological model accuracy estimated. A set of lagrangian buoys were deployed within the Gulf to measure the sea surface transport due to the main local wind regimes. The OOS were used to reproduce the paths followed by each lagrangian buoy using as forcing conditions both the wind fields measured by the local WMS and the predicted ones. Therefore the effects of the atmospheric forcing quality on predicting the surface hydrodynamics at coastal scale were determined.