



Circulation modeling of a Tyrrhenian coastal area, with an analysis of Cosmo SkyMed SAR wind forcing capabilities

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Results of a high-resolution circulation model of a southern Tyrrhenian coastal area are presented. The sigma-coordinate Princeton Ocean Model (POM) is implemented with a $1/144^\circ$ -resolution in a domain that includes highly-urbanized coastal areas, such as the Gulf of Naples and the nearby gulfs of Gaeta and Salerno, that are particularly relevant from an oceanographic, ecological and social viewpoint. The model takes initial and boundary conditions from a $1/48^\circ$ -resolution POM model of the whole Tyrrhenian Sea. The main forcing is provided by ECMWF wind data, but alternative wind fields obtained by remote sensing techniques are also tested: the advanced scatterometer ASCAT winds and winds obtained from the Italian Space Agency COSMO-SkyMed[®] Synthetic Aperture Radar data by means of a SAR wind speed retrieval algorithm based on the azimuth cut-off procedure. Several simulations referring to different seasons, and episodes of Kelvin wave propagation are presented and compared with observations, thus obtaining a significant validation of the modeling approach.