



## **Model and scatterometer sea surface winds for storm surge applications in the Adriatic Sea**

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**Abstract:** Recurrent storm surge events cause remarkable damages in coastal areas, as the northern Adriatic Sea and the Venice Lagoon. Storm-surge numerical models are operated by several national agencies to predict such phenomenon, all of them relying on numerical weather prediction (NWP) model forecasts as forcing fields. They can be supplied both by atmospheric global circulation models (AGCMs) or local area models (LAMs), but few attempts have been made to understand the accuracy of these products with respect to the ground truth, taken in this case as the satellite-borne scatterometer measurements.

This study aims to perform a comparison between the 1-day forecast surface wind fields from the ECMWF operational global model, three different LAMs (COSMO-LAMI, ALADIN and the Weather Research & Forecasting Model) and the wind fields measured by ASCAT and SeaWinds scatterometers onboard the QuikSCAT and Metop-A satellites.

Even if the effective resolution of the AGCM results inadequate to resolve the details of the complex surface wind flow in narrow basins surrounded by steep orography like the Adriatic Sea, the statistical analysis indicates an overall better performance of the ECMWF model fields over the LAM simulations, when compared to the scatterometer data.