



Combined observations of a Bora event in the Adriatic Sea by means of ETA model and SAR data

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The Bora is a cold, strong, low level wind which blows from the northeast along the Adriatic coast (Ivančan-Picek and Tutiš, 1996, Lazić and Tošić, 1998, Morelli and Berni, 2002). Bora wind is known to have multiple surface wind jets linked to the orography of the Dinaric Alps and alters significantly the sea status (Cesini et al, 2004).

A recent version of the Eta model (Mesinger et al, 2012), which is a three-dimensional, primitive equation, grid-point model, was used to represent the low level wind field corresponding to the Bora event occurred at the beginning of February 2012. Numerical simulations, initialized by ECMWF data, were performed with different horizontal resolutions (approximately 20 km and 4 km) and domain extent. The numerical simulations describe the atmospheric conditions of the period and reveal the spatial structure of the wind, in good agreement with the understanding as well as the observational knowledge of the bora.

In addition, the wind speed and direction was estimated on the ASAR images. Wind directions were obtained by exploiting a novel technique based on the use of 2D continuous wavelets (Zecchetto and De Biasio, 2001, 2008). Then, the retrieved wind directions were used to estimate the wind speed from the ASAR NRCS by inverting the semi-empirical backscatter model CMOD-5 (Hersbach, 2005).

The ASAR observed morphology, wake patterns and, where present, dual-jet structure of the Bora wind were analysed for 2 and 5 February at the two different Eta resolution scales. Results of the comparisons between Eta prediction and ASAR data will be shown.

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