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An analysis of the seasonal wind regime in the Gulf of Naples using observational data and model outputs

Giovanni Esposito, Simona Saviano, Roberta Di Lemma, Berardino Buonocore, Paola de Ruggiero, Stefano Pierini, and Enrico Zambianchi

Dipartimento di Scienze e Tecnologie, Università di Napoli Parthenope and CoNISMa, Napoli, Italy (esposito.giovanni90@hotmail.it)

We present results of a comparison between simulated wind data from the Skiron atmospheric model and observations from weather stations installed in the Gulf of Naples. The weather stations were located on top of the Parthenope University main building and in the Naples harbor, respectively managed by the Dipartimento di Scienze e Tecnologie and by the Istituto Superiore per la Protezione e la Ricerca Ambientale (ISPRA). The Skiron/Eta atmospheric model has a spatial resolution of about 10 Km.
The data were compared qualitatively and quantitatively, and the statistical analysis shows a very good agreement between the two data sets.
The investigation was carried out for the months of February and August 2009.
The monthly analysis revealed important local coastal phenomena that influence the circulation within the Gulf especially during the summer, when breeze regime prevails. During the winter period the wind variability develops over larger time scales. However, due to atmospheric perturbations there may be direction reversals of and strong intensity increases/decreases.
Wind data retrieved from a HF coastal radar network installed in the same area were also analyzed, showing the potential of this kind of instruments for radial wind mapping.