



An evaluation study of the WRF model for wind resources assessment in Andalusia (Southern Spain)

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We present preliminary results of an evaluation study of the WRF (Weather Research and Forecasting) Numerical Weather Prediction (NWP) model for wind resources assessment in Andalusia (Southern Spain). Particularly, 16 alternative configurations of the WRF model, including different microphysics, cumulus, planetary boundary layer (PBL), land surface layer and radiation parameterization schemes were tested. The aim to obtain an optimal set up of the model for wind resources analysis in the study region and to evaluate the reliability of this set up for this analysis. The evaluation was carried out for the different seasons of the year 2005, with a 3 km model spatial resolution and one hour temporal resolution. Results were tested against ground data measured at 9 meteorological towers (3 offshore) at different elevation above sea level. The study area is located in a transition zone from middle latitudes to subtropical climates, with the Atlantic Ocean and the Mediterranean region in the southern bound. In addition, the region presents a high complex topography. This allows to properly evaluating the different parameterizations of the WRF model. Results showed that no single parameterization schemes were found to perform the best neither for all the seasons of the year nor for all the stations. Any case, the WRF proved to be a useful tool for wind resources assessment in the study region. The use of the best set up provide estimates with RMSE of the order of 2 ms⁻¹ for the wind speed, while wind direction distribution are reliable reproduced by the WRF model.