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## The importance of meteorological scales to forecast air pollution scenarios on coastal complex terrain

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**Abstract.** Some of the meteorological approaches commonly considered in urban air pollution models do not take into account the importance of the smaller scales in the meteorology of complex-terrain coastal sites. The aim of this work is to estimate the impact of using the proper meteorological scales when simulating the behaviour of the pollutant concentrations emitted in the lower layers over coastal complex terrain areas. The availability of experimental measurements of a power plant plume near the Castellón conurbation (on the Spanish Mediterranean coast) has allowed us to use this plume as a tracer of opportunity of the lower atmosphere to check the results of a simulation exercise using the RAMS mesoscale model coupled to the HYPACT particle model. The results obtained show that in a complex-terrain coastal site, because of the strong effect of the meteorological interactions between the different scales on the integral advection and the turbulent dispersion of pollutants, using an inadequate scale to solve the meteorology can result in a very big gap in the simulation of lower-layer pollutant behaviour at urban scales.

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