



## Large-Eddy Simulation of sea-breeze in an idealised peninsular site

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A high-resolution Large-Eddy Simulation (LES) has been performed to simulate a sea-breeze circulation over an idealized peninsular domain. The simulation is forced with internal and external parameters that are obtained from a WRF model simulation in a realistic case study affecting Salento peninsula (southeastern Italy). This procedure allows investigating the physical phenomena that are peculiar for a sea breeze circulation and that generally require spatial resolution of the order of one hundred meters or less. These phenomena involve the interaction between the sea-breeze front with the convective turbulence generated over-land, the formation of the zero-velocity layer and the formation of the Kelvin Helmholtz billows. Scaling analysis applied to the LES output field reveals that during the phase of inland penetration the scaling laws for sea-breeze strength and depth have both a proportionality coefficient equal to 0.15.