Flow in complex terrain - a Large Eddy Simulation comparison study

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We present Large-Eddy Simulation (LES) results of flow over the double ridge complex site at Perdigão in Portugal. The focus is to compare simulated flow features from two LES codes with different discretization techniques. We compare a finite volume discretization with a pseudo spectral approach in two different terrains. Mean wind properties and turbulent kinetic energy from the two codes are to a large degree in agreement. The largest discrepancy we observe is attributed to the different effective resolution in the two codes which results from the numerical discretizations. Comparison with measured data from three installed meteorological masts inside the simulated domain show that many of the main flow features have been captured by the LES simulations despite its relatively simple setup.

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