



Idealised simulations of valley winds: the role of domain size and horizontal resolution

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In this project the development of valley winds and related exchange processes between the valley atmosphere and the free atmosphere are studied. The investigations are based on high resolution idealised numerical simulations with a simplified valley-plain topography. First examinations focus on the question how the development of valley wind systems and exchange processes is influenced by the size of the model domain and therefore by the ratio of the plain size to the valley size, as well as by the choice of the lateral boundary conditions. Another investigation concentrates on the role of horizontal grid resolution. Simulations with horizontal mesh sizes of 1 km are compared to large-eddy simulations (LES) with horizontal grid distances of 100 m to study differences due to parameterized and resolved turbulence.