BayCEER Kolloquium

Lectures in Ecology and Environmental Research

Winter 2021/22

UNIVERSITÄT BAYREUTH

Donnerstag/Thursday

18.11.2021

12:15 in H8, GEO or Zoom

hybrid talk

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Micrometeorology, BayCEER, UBT

Investigating local topographic effects on the stable boundary layer structure in mountainous terrain using large eddy simulations

Our understanding of the atmospheric boundary layer has improved with the recent advances in the state-of-the-art remote sensing instruments and computational resources. Atmospheric boundary layer (ABL) is the lowest part of the atmosphere, which is influenced by the presence of earth's surface and its interaction with the surface forcings. The turbulent exchange of momentum, heat, and moisture between the earth surface and the atmosphere needs to be well understood for proper simulation of the ABL processes. In addition to observations, large eddy simulation tools are used for the development of boundary layer turbulence parameterization schemes used in the atmospheric numerical weather prediction (NWP) models. Stable boundary layer (SBL)s are governed by processes such as intermittent turbulence, gravity waves, radiative cooling, katabatic flows, and fog formation. These processes have a direct impact on the society for example, fog modeling for road safety, aviation, frost for agricultural sector and also air quality modeling. We discuss the evolution of the SBL over a valley in the Fichtelgebirge mountains from observations and model simulations.

Bayreuth Center of Ecology and Environmental Research

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