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Effect of soil parameter differences on planetary boundary layer properties

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Planetary boundary layer height simulations are performed in the Carpathian Basin with the WRF model using different soil databases for one summer month. Around a measurement site, a nest with ≈2km resolution is applied covering a 120 km x 120 km region. Windprofiler and radiometer measurements were used to verify the PBL height simulations.
The analysis is focusing on one hand on the change in diurnal course of latent heat flux and PBL height. On the other hand, we investigated the causes of PBL height change analyzing different quantities which are relevant in modifying the strength of turbulence. Such relevant quantity is evapotranspiration which is highly dependent on soil parameter changes. Soil parameter induced evapotranspiration changes were up to 25% what increased the planetary boundary layer height in about the same rate.