



The impact of a large water reservoir on local temperature by using the COSMO NWP model

Zbynek Sokol, Kristyna Bartunkova, and Lukas Pop

Institute of Atmospheric Physics, Praha, Czech Republic (SOKOL@UFA.CAS.CZ)

Large artificial lakes, which are due to reclamation of mined pit mines, influence microclimate in their area. The aim of our presentation is to show how the COSMO model can be used to study the influence of a lake on surrounding temperature and how COSMO results can be used to develop a simple physical model, which is very fast and requires only widely available meteorological data, and thus can be used to evaluate a climatological impact of a new lake.

The developed model, ALAKE, consists of simple physical equations containing parameters whose values were determined so that ALAKE outputs approached the “true” values. To determine the “true” values, we used the COSMO model, which we applied with a horizontal resolution of 333 m. ALAKE was developed for the flat terrain and uses relatively easily accessible data, which allow the model to be used in quite general conditions e.g. in Podkrusnohorske Valley, where the application of ALAKE is planned.