

High resolution meteorological modeling at heterogeneous surface

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Abstract

Harmonie-Arome is non-hydrostatic convection-permitting numerical weather prediction (NWP) model which is used in operational short-range weather forecast in several countries including in Finland. It uses horizontal resolution of 2.5 km and it have 65 vertical model levels. Models dynamical down scaling is from forecasts of European centre for medium-range weather forecast (ECMWF)

Flow of air in boundary layer is strongly affected by roughness of the surface below air. One of challenging environment for NWP models to model is heterogeneous surface such as coastline of land and sea where meteorological phenomenas, which affect in flow structure of air, are smaller than models horizontal resolution and there for hard to model.

For researching capacity of Harmonie-Arome to model realistic boundary layer over heterogeneous surface, horizontal resolution of Harmonie-Arome is set to be 0.5 km and model area is set in environment of nuclear power plan of Loviisa. In this poster is presented results of model data validation of observation data from spring 2015 measurement campaign of Loviisa nuclear power plan.