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Multi-model prediction of downward short-wave radiation

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Global and mesoscale NWP models represent the main tool for short-term (1-3 days ahead) prediction of photovoltaic power. The choice of an NWP model and its parameterizations has a significant influence on key explanatory variables, such as short-wave radiation or cloud cover, which are used for prediction of photovoltaic power production.

In order to investigate predictive ability of the NWP models separately from the model of photovoltaic power, we have performed several long-term simulations with different versions and configurations of the models MM5 and WRF and compared the results with measurements collected from pyranometers installed in the stations of automatic imission monitoring of the Czech Hydrometeorological Institute.

A possibility to combine the models for the purpose of improved prediction of radiation has been investigated and a multi-model ensemble has been tested.