



## **Short-term Wind Forecasting at Wind Farms using WRF-LES and Actuator Disk Model**

Gokhan Kirkil

Turkey (gokhan.kirkil@gmail.com)

Short-term wind forecasts are obtained for a wind farm on a mountainous terrain using WRF-LES. Multi-scale simulations are also performed using different PBL parameterizations. Turbines are parameterized using Actuator Disc Model. LES models improved the forecasts. Statistical error analysis is performed and ramp events are analyzed. Complex topography of the study area affects model performance, especially the accuracy of wind forecasts were poor for cross valley-mountain flows. By means of LES, we gain new knowledge about the sources of spatial and temporal variability of wind fluctuations such as the configuration of wind turbines.