Microscale wind simulations and wind resource assessment
Microscale wind simulations using Reynolds Averaged Navier-Stokes (RANS) and Large-Eddy Simulation (LES) turbulence models can be used to model the boundary layer in complex terrains for wind resource assessment (wind farm modelling) and short-term wind forecasts.

Summary

In wind energy, numerical modeling has become a key tool for industry at several stages, from early wind resource assessment to operational wind energy turbine maintenance. Coupling of mesoscale meteorological models (WRF) with CFD allows for high-resolution microscale wind forecast on complex terrains.

Objectives

- Wind resource assessment
- Wind farm modelling
- Operational forecast of high-resolution winds in complex terrains coupling mesoscale meteorological models (WRF) with CFD

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