

Guides

[Guide to accessing and viewing the Wind Atlas for South Africa](#)

[Beginners Guide to Microscale Modelling using WAsP_v5](#)

Impact of resolution and the importance of microscale modeling

[Fig 1](#) shows WM05 (wasa wind measurement mast) and the demo wind farm on the Verified Numerical Wind Atlas (flat terrain, km resolution).

[Fig 2](#) shows the microscale modeling wind resource (terrain effects included, meter resolution) around WM05 (wasa wind measurement mast) and the demo wind farm.

From the relative low resolution (km) Numerical Wind Atlas ([Fig 1](#)) map it looks if the demo wind farm lies in a relative low (yellow) wind speed region. However by applying microscale modeling (relative high resolution, terrain effects included) it shows that the demo wind farm lies in an area which contains high wind speeds (red areas) as well ([Fig 2](#)).

Demo wind farm based on Verified Numerical Wind Atlas (“virtual” wind mast at the demo site) & wind measurements made at WM05 plus minus 20 km from the demo site

By making use of WAsP software the Annual Energy Production (AEP) was calculated for the demo wind farm for two sources of the wind climate:.

Wind climate based on physical wind measurements made at WM05 plus minus 20 km from the demo site gives a net AEP of 117.224 GWh (see [Demo WF Wind Measurements](#))

and

Wind climate based on the Verified Numerical Wind Atlas - “virtual” wind mast **at the demo site** gives a net AEP of 93.298 GWh (see [Demo WF NWA](#))

Making use of the wind climate based on physical wind measurements made at WM05 plus minus 20 km from the demo site over predicts with 26% the AEP at the demo site based on the numerical wind atlas wind climate at the site.

For representative prediction of the AEP at a site it follows to make use of the nearest numerical wind atlas wind climate (“virtual” wind mast) where no and even when the nearest wind measurement mast is only a few kilometres away (except where the wind measurement mast is the nearest).