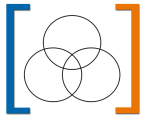




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# **Evaluation of coastdat II wind speed data for wind feedin simulation**

Clemens Wingenbach  
Openmod-Initiative Workshop  
Berlin, 13.04.2015

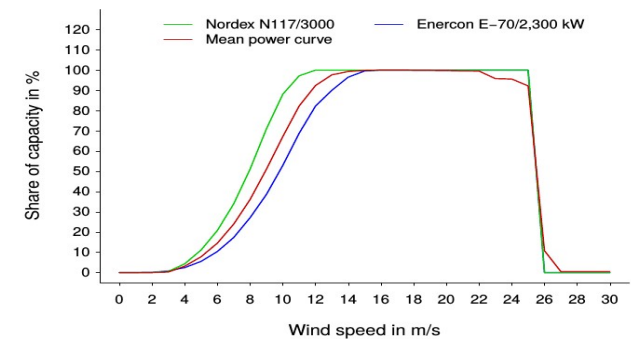
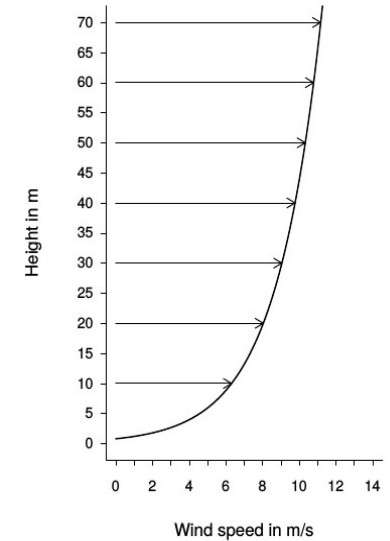
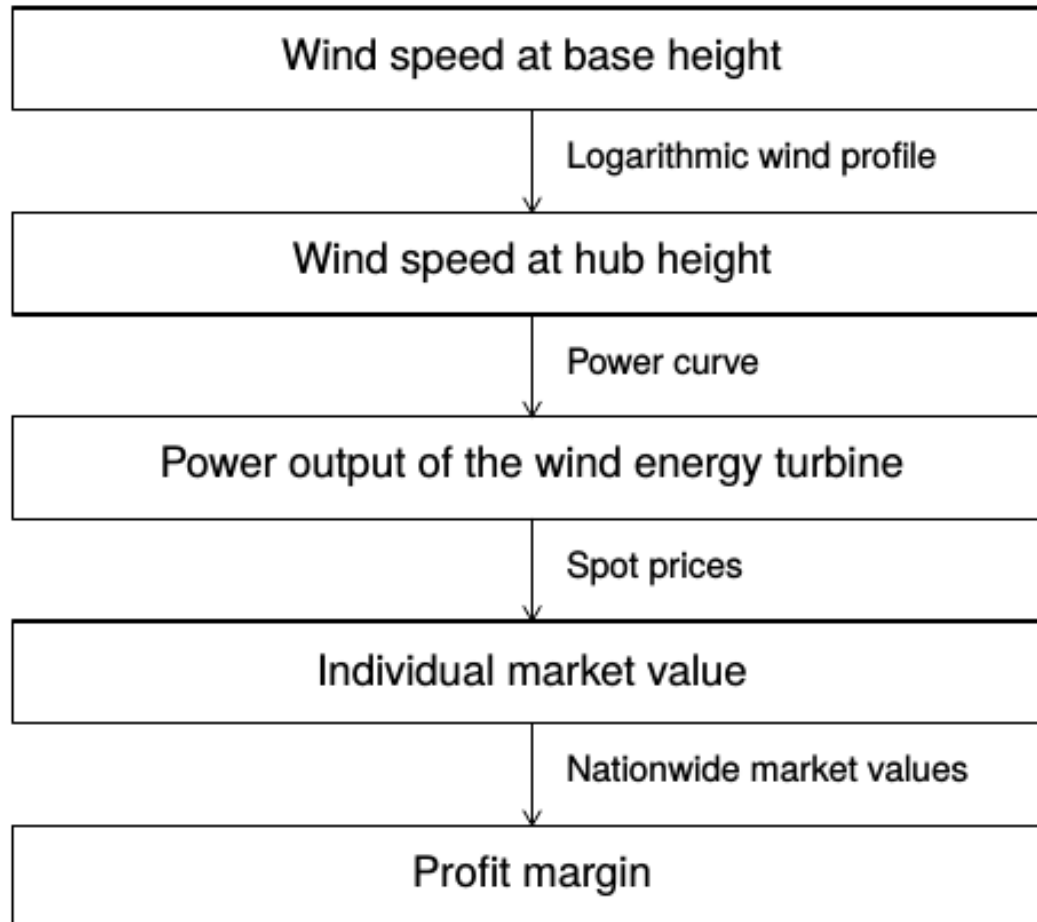


## Master Thesis, Hendrik Böhm at NEAS Energy: Location based spot market values of wind energy turbines

- Methodology
- Comparison: coastDat II wind speed with measurements from DWD stations
- Results



# Methodology

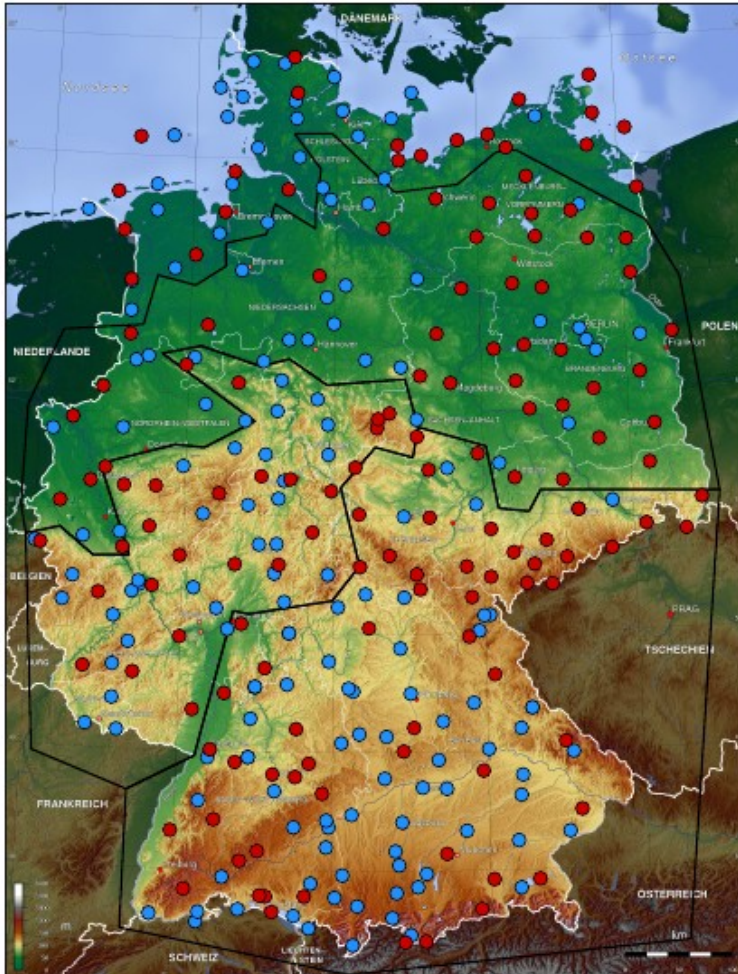




# Measurement from DWD



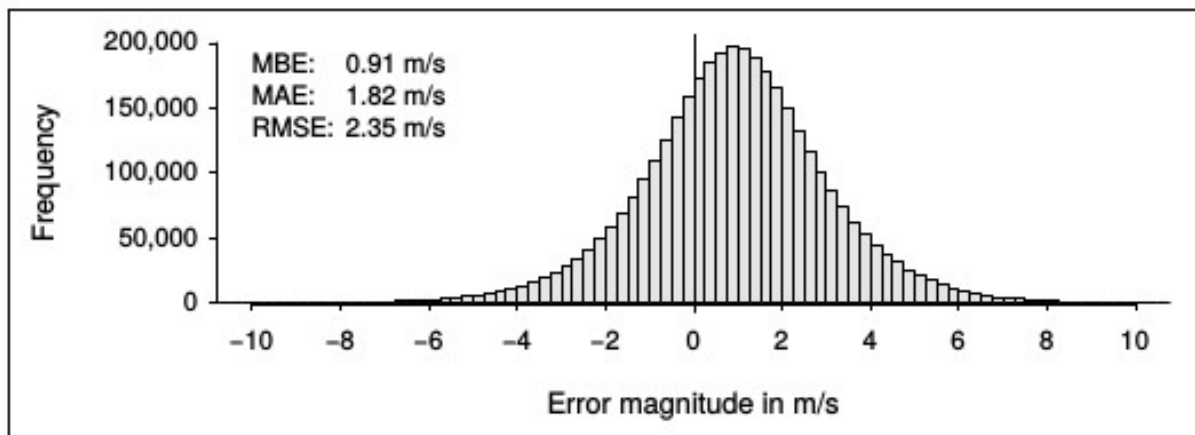
● 10 m    ● <> 10 m



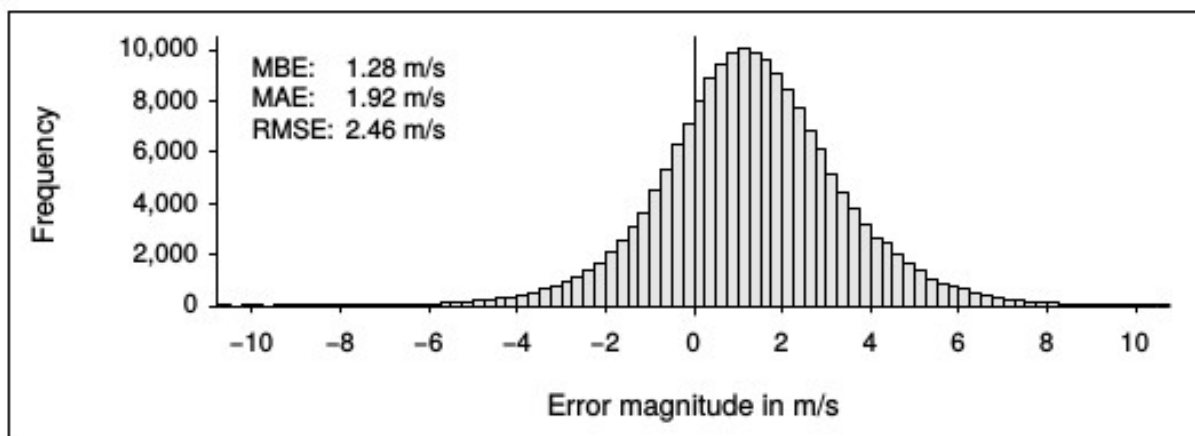
- Comparison with DWD measurements
- For every node with closest station
- Maximum distance: 16.8 km
- Close data nodes: < 5.6 km



# Error 10 m height



(a) All data nodes

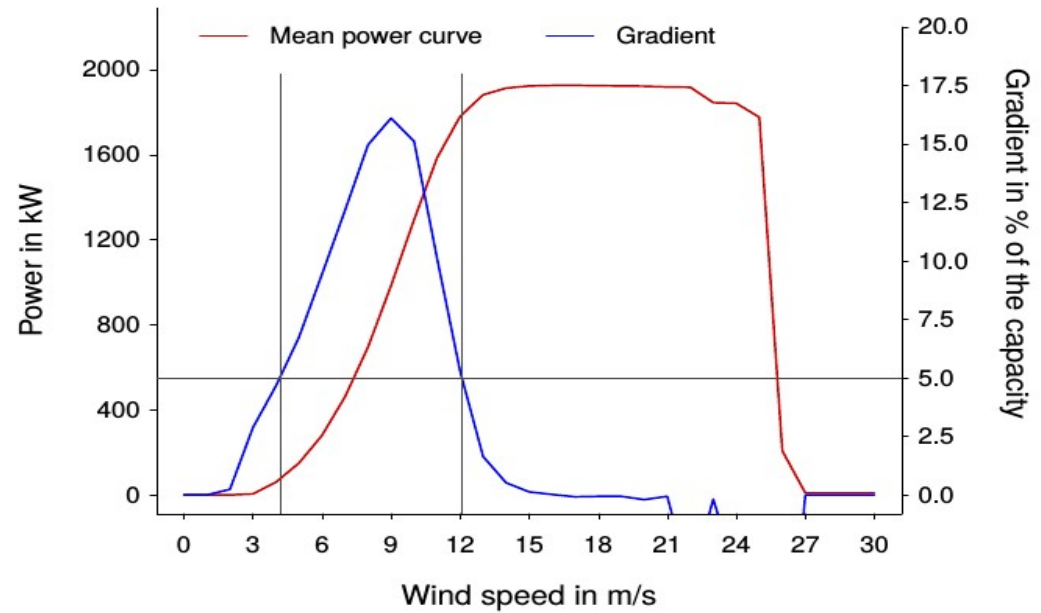
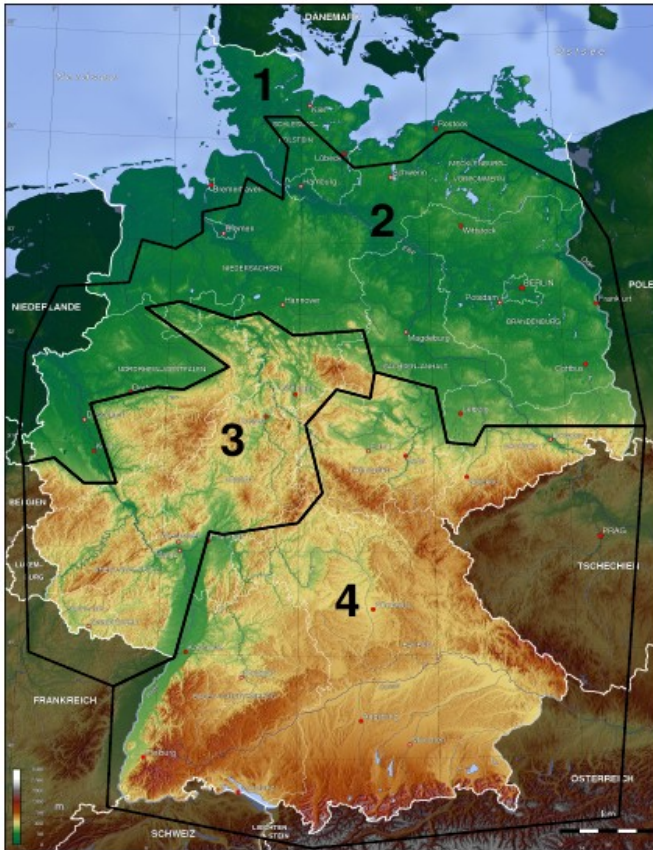


(b) Close data nodes

Figure 5.2: Error distribution of the wind speed at base height in region 1 at all and close data nodes from 2005 - 2014



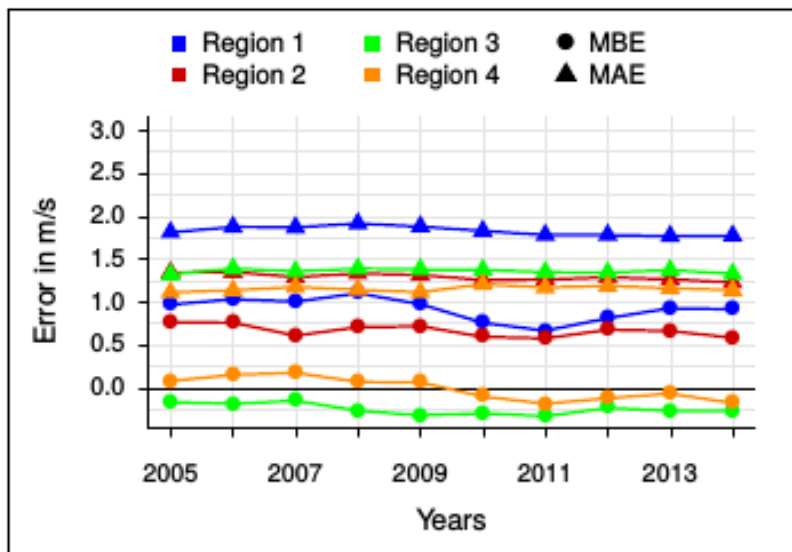
# Sensitivities



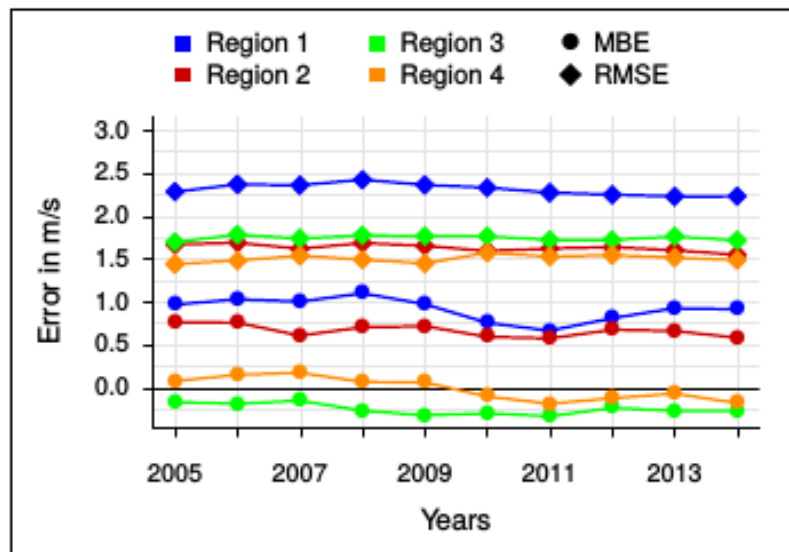




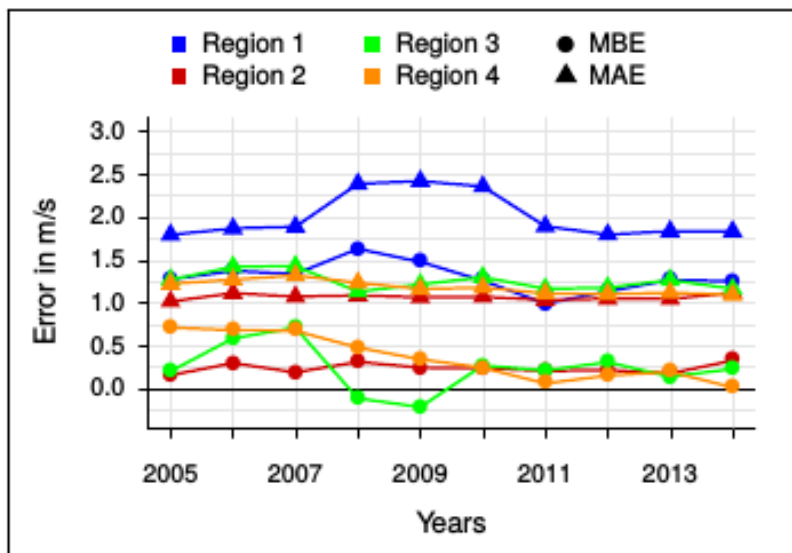
# Error 10 m height



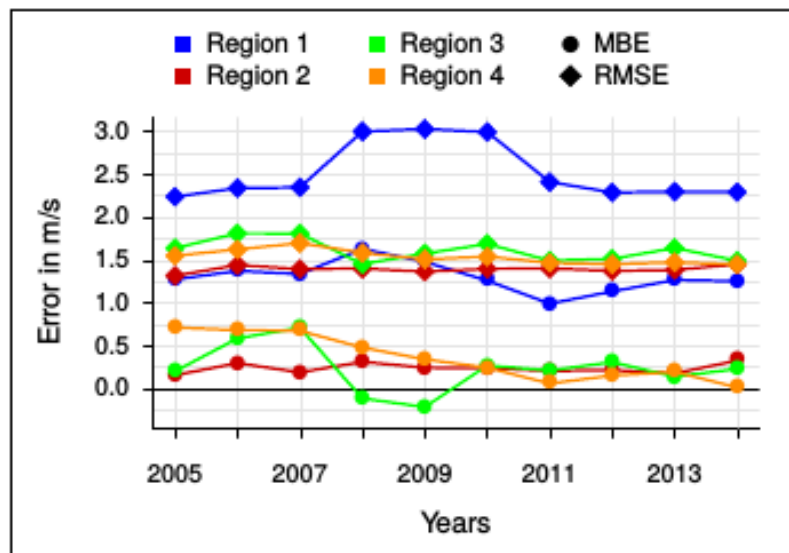
(a) Yearly MBE and MAE at all data nodes



(b) Yearly MBE and RMSE at all data nodes



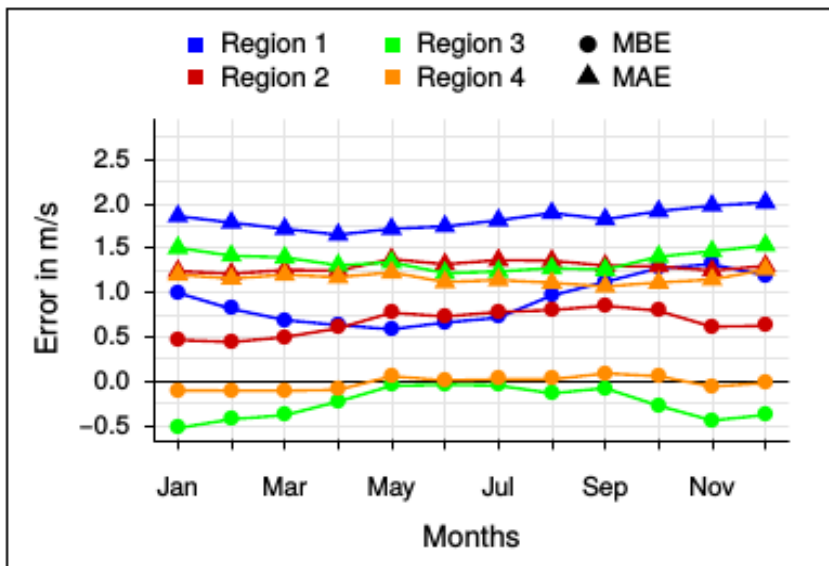
(c) Yearly MBE and MAE at close data nodes



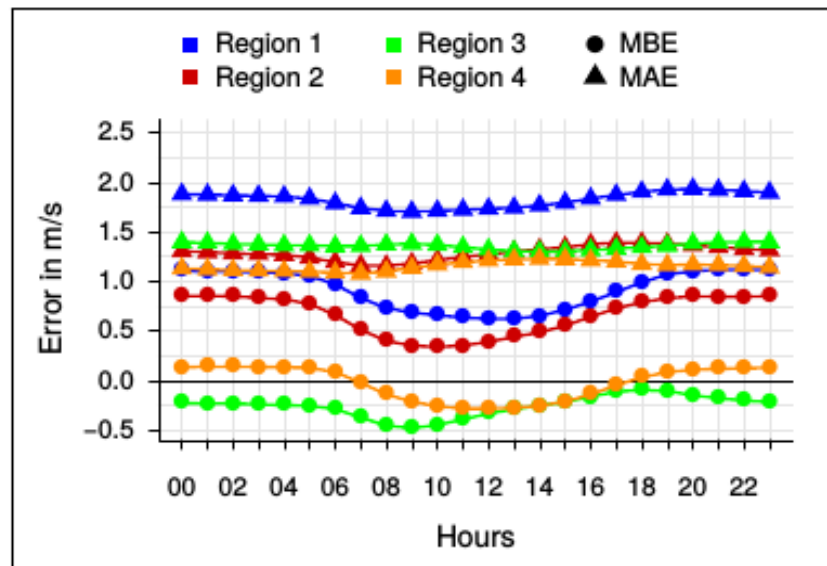
(d) Yearly MBE and RMSE at close data nodes



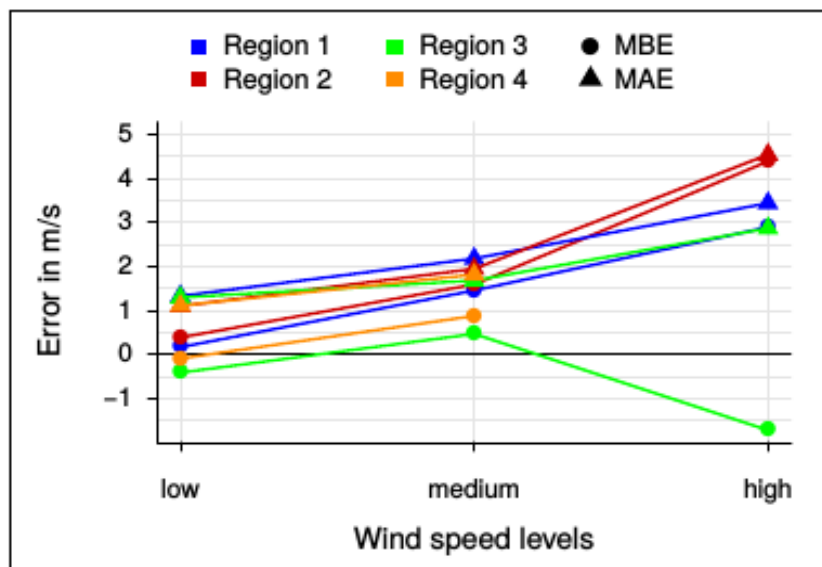
# Error 10 m height



(a) Monthly MBE and MAE



(b) Hourly MBE and MAE

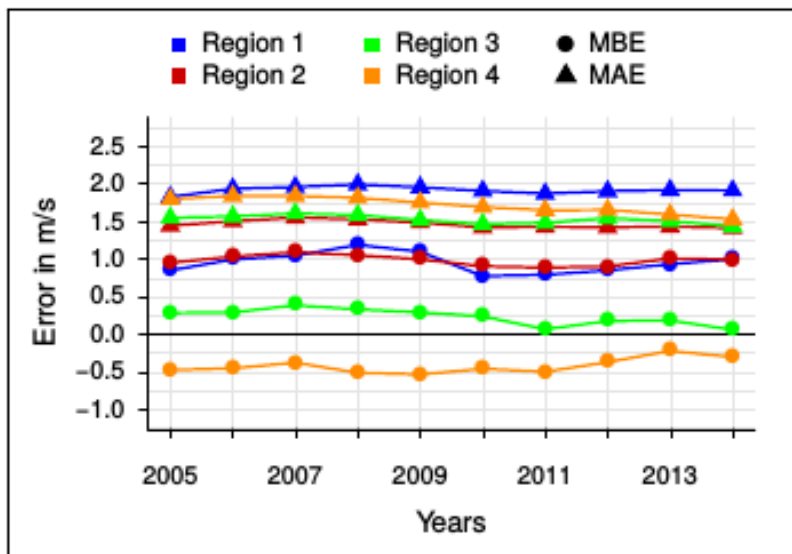


(c) Wind speed level-dependent MBE and MAE

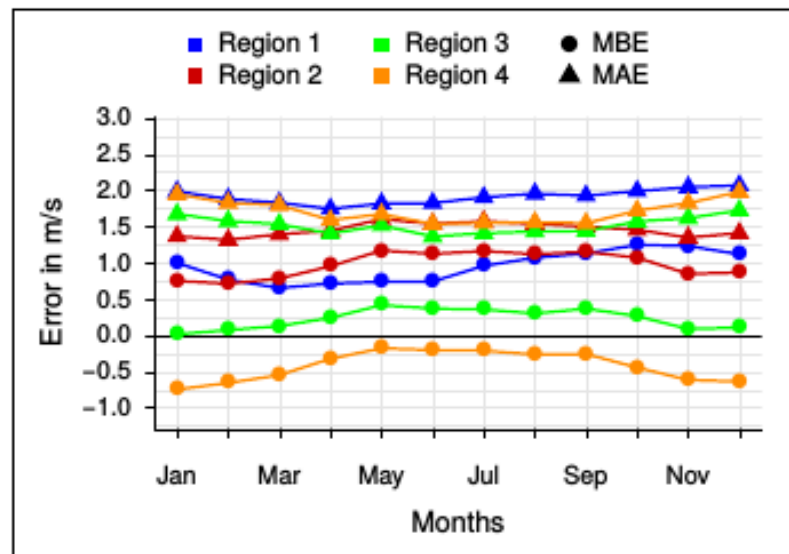




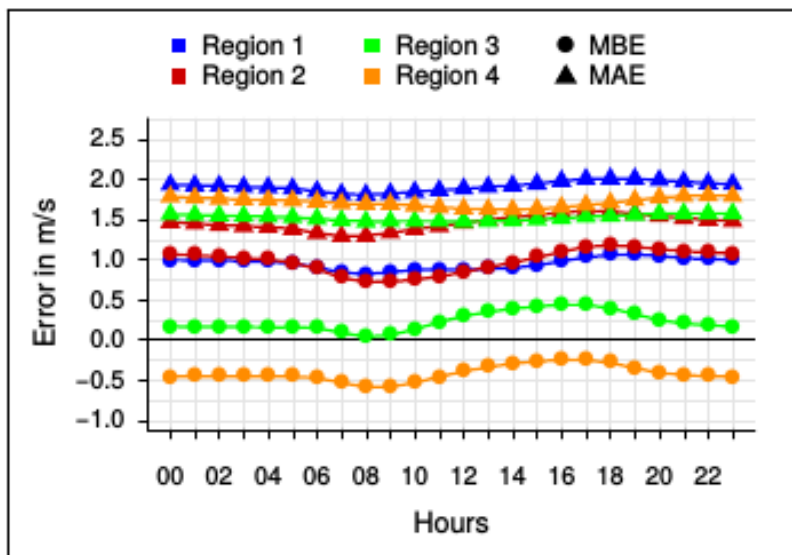
# Error other heights



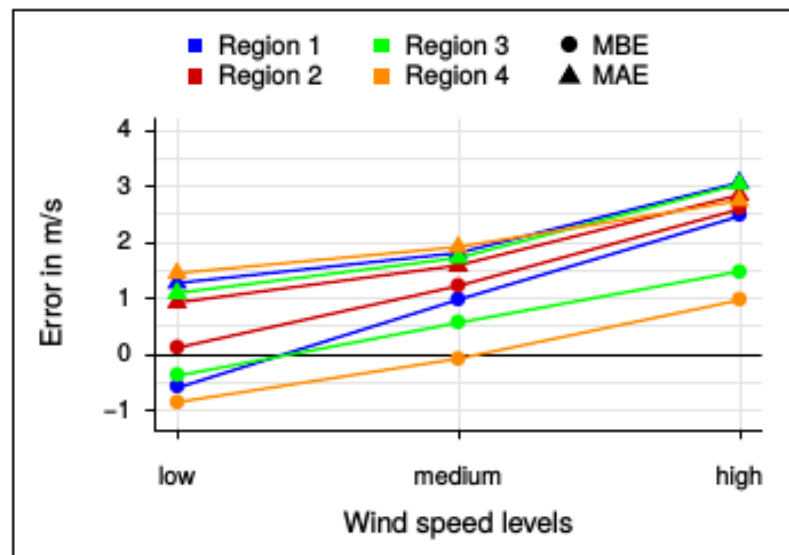
(a) Yearly MBE and MAE



(b) Monthly MBE and MAE



(c) Hourly MBE and MAE



(d) Wind speed level-dependent MBE and MAE

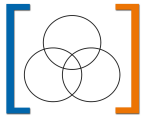


- Is it ok to compare nodes with stations at 10 km distance?
- What could be reasons for the overestimation?
- Will that be the same for the reconstructed wind speed data at 100 m?
- Can the roughness be used like that?



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Thank you for your attention!

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