



Extreme Wind Statistics at the North Sea offshore site FINO at different temporal resolutions

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The atmospheric turbulence plays a major role in determining the expected lifetime and the wind power production of the wind turbines. With the increase in commercial harvesting of the wind energy at offshore sites, where the regular maintenance can sometimes be severely limited, the detailed study of turbulence characteristics for offshore conditions is essential.

The statistics of wind gusts is computed for the FINO mast measurement data in the north sea. The behaviour of the statistics from short (10 Hz) to large timescales (10 yr) is examined using the measurements, mesoscale simulations and the reanalysis data. The mesoscale model WRF simulations are analysed for test situations for extracting the wind gust statistics and validated with the measurements.