

## ***Interactive comment on “Extreme fluctuations of wind speed for a coastal/offshore climate: statistics and impact on wind turbine loads” by Ásta Hannesdóttir et al.***

**Anonymous Referee #1**

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**Review of Extreme fluctuations of wind speed for a coastal/offshore climate: statistics and impact on wind turbine loads**

*Hannesdóttir, Kelly, Dimitrov*

The manuscript considers extreme fluctuations via a turbulence model per IEC to assess loadings on turbines. The model follows data taken over the coast of Denmark. The manuscript is motivated using arguments as proposed in standards for generating the fields and then observing their influence on the blade and tower relating to the

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various moments associated. The topic is of interest, by and large, to the wind energy and atmospheric science community. The manuscript provides justification for assumptions taken in almost its entirety, which is seen as positive. The manuscript is generally well written and its results substantiated by data. The manuscript would benefit by considering the points below.

0.) The title should be modified to more accurately represent the content of the manuscript; 1.) Including salient results in the abstract; 2.) Reducing non-descriptive adjectives in the introduction (big, short, etc.); 3.) Providing further detail on the site and measurements as these are critical to the overall framing of the manuscript; 4.) In figure 3 and 4, for example, subfigures are not discussed in their entirety - if not discussed then these should be removed; 5.) Placement of figures tend to occur prior to the narration; 6.) Comment on process for figure 4 to go from raw measurements to high-pass filtered measurements more carefully; 7.) When discussing design load cases and simulations, consider non-Gaussian fields as it is known that realistic fields may differ from Gaussian; 8.) Include literature on works considering conditional pdfs in regards to turbulence fields/statistics/wind power; 9.) Content/results on p12 should be expanded - this is the case with most results that physics based observations are missing. In this case, given that the simulations are based on a model, it is relevant to justify their physicality; 10.) §5 is difficult to follow and should be revisited as well as explaining the results in more detail; 11.) Figure quality may be improved; 12.) Conclusions can be presented in non-bullet form and at the present the discussion and conclusions sections may be combined; 13.) Is it possible to extend the analysis to further cases for sake of comparison?

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