

Interactive comment on “On wake modeling, wind-farm gradients and AEP predictions at the Anholt wind farm” by Alfredo Peña et al.

Anonymous Referee #1

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The manuscript presents a comparison between an evaluation of wind turbine SCADA data and mesoscale model simulations for the Anholt wind farm. Assessing wakes in larger wind farms is an important topic that deserves attention. The efficiency of wind farms very much depends on a meaningful consideration of possible wake effects. Although wake properties are very much determined by atmospheric stability, the simulations for this manuscript have been made without taking atmospheric stratification into account.

Unfortunately, I'm inclined to reject the manuscript in its present form. Reasons for this negative decision are:

(1) The Introduction does not present a thorough scientific discussion of the current problems regarding turbine wakes in larger wind farms and does not identify clearly for-

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ulated research issues which are to be addressed in this manuscript. The manuscript rather appears to be a collection of isolated evaluations made from the SCADA data, the Jensen park wake model and several mesoscale models (I found "Fuga", a linearized RANS model and WRF mentioned in the text without seeing a clear strategy how and why they have been used).

(2) Page 12, line 2 declares the greatest deficiency of the manuscript: atmospheric stability is not accounted for in the simulations. Why do the authors present such incomplete simulations, although they state in the introduction the importance of atmospheric stability?

(3) The last sentence of the Conclusions gives the final reason why I should not read this paper. Here, the authors clearly state that their results are wind farm specific and SCADA specific and cannot be transferred to other wind farms.

Further issues:

(4) Some references point to grey literature. This is not convenient for the possible reader (e.g., p. 7, line 20).

(5) The denotation of the different wake model simulations is inconsistent. "Park 1" and "Larsen 2" have the same characteristics (as have "Park 2" and "Larsen 1"). This is irritating.

(6) What is meant by a "quadratic sum"? It would be helpful to give a few mathematical formulae in order to avoid unnecessary ambiguity.

(7) The statement in line 20 on p. 2 needs references to the existing literature.

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