**WIND
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Interactive
comment

Interactive comment on "A surrogate model approach for associating wind farm load variations with turbine failures" *by* Laura Schröder et al.

Anonymous Referee #1

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To whom it may concern,

The overall quality of the discussion paper "A surrogate model approach for associating wind farm load variations with turbine failures" is good. The paper addresses a recent and relevant scientific question, as the relation between operation / loads and wind turbine failures is not fully understood but crucial for improving O&M activities. The objectives of the paper are clearly presented and the methodology is neatly described, so the scientific methods can be reproduced. Additionally, the overall well-structured presentation will help. Also, figures and tables are useful and informative.

Even though the suggested methods cannot be fully backed up by failure data, the authors are aware of this problem and try to validate the new concept by other comparisons. Therefore, an accurate conclusion can be reached. Furthermore, the title

reflects the contents of the paper and will help interested reader to find the paper and to get a first idea about the topic. The abstract provides a concise and complete summary. Solely quantitative results could be presented more precisely in the abstract. Specific comments are addressed in the attached PDF. Only a few aspects should be rechecked or maybe reformulated. To mention a few (also addressed and highlighted in attached PDF): Description of the bathtub curve (line 29), division of data set (line 267), discussion / comparison model predictions and failure maps (line 324ff).

Technical corrections are nearly not needed as the language is fluent and grammatically correct. Only line 25 should be checked once more as it seems to have words missing or too many (see attachment).

To sum it up, the paper is interesting and of high interest in research and industry. Made assumptions and critical points of the analysis are understood and well described by the authors, so the reader is aware of limitations.

Please also note the supplement to this comment:
https://wes.copernicus.org/preprints/wes-2020-79/wes-2020-79-RC1-supplement.pdf

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Interactive comment on Wind Energ. Sci. Discuss., https://doi.org/10.5194/wes-2020-79, 2020.