

Anonymous Referee #2

Dear reviewer,

We are grateful for your work and appreciate your comments. Below you will find details how we will revise our manuscript based on your review.

With best regards,

Jennie Molinder (née Persson Söderman)

General comments 1. First of all I would like to state that it is an important subject with a clear application and obvious benefits. 2. How much new stuff is offered here? Neighbourhood method was suggested by Mittermaier [2014] but perhaps not applied. Using ensembles for short-term prediction of icing: To my knowledge this is new.

3. It is a weakness that only a very short time period studied: 2 sites in 2 weeks. One site has two icing events; the other one. So all in all the authors are presenting and discussing three (3) icing events and comparing those with an ensembles modelling. This is a somewhat weak evidence.

3: We agree that the period is rather short, which is why we stressed the case study character of our work. The limitation resulted from the fact that global EPS data is required on the boundaries. These data are not operationally archived by ECMWF, only selected periods are available. We picked the most relevant period with available production observations. During this period, one of the three stations is containing two icing episodes and that, when combining all days and stations with icing, we have about 17 days of icing for validation. Given the scarcity of production observations and high computational costs of EPS runs, we still think that the results are robust for these meteorological conditions showing the possible benefit of using probabilistic forecasting for icing related production loss forecasts.

The extension of the dataset is not impossible, but not a simple task due to the need of global boundary data, high computational costs in running and storing the high-resolution ensemble and scarcity of icing and production observations. If regarded necessary, we are willing to find a solution. We welcome guidance to this question by editor and reviewers.

4. There is a short discussion at the end of paper. However, in order to judge the practical feasibility of using ensembles for ice prediction I miss more details on the calculations e.g. time elapsed for model runs and a discussion of whether it is feasible using the present approach or is likely to become feasible using input from National weather services. By feasible I am thinking on feasible for owners of wind farms to e.g. obtain that service from specialized consultants.

4: Thank you for the comment, we will include a discussion on feasibility and delivery times in the revised version. Since the introduction of the European INSPIRE directive, more and more national weather services are providing their forecasts as open data. Given the high computational costs of EPS, it seems beneficial, when national weather service can provide high-resolution EPS data for wind farm owners and specialized consults.

Detailed comments 5. On page 8 15 10 sites are mentioned, What happened to the 8 remaining? I miss a reason for eliminating these 8 sites

5: We have 10 sites with meteorological observations, but only three sites with production data. We apologize for the confusion in the description and will describe this in more detail in a revised version.

6. The neighbourhood principle is based on either following the landscape or using same height. I suppose you know where the sites are and might have added a short (anonymized) description of the landscape without revealing the location of the site?

6: Yes, we will add a characterisation and approximate location for each wind farm.

7. Effect curve is termed power curve by many in the wind community.

7: Ok thank you, we will change this.

8. It is not clearly stated whether de-icing equipment is included for the turbines

studied.

8: Thank you, it should be mentioned as you say that no de-icing system is used. We will add this to the manuscript.

Technical corrections 9. Figures are generally too small especially figures 4 to 10. 10. The choice of colour of the individual curves makes it hard to distinguish the curves especially figs 6, 9 and 11

9 & 10: Thank you, we will revise these aspects in the next version of the paper.