Responses to RC1:

General Comments

In my opinion, this paper is an instrumental compilation for researchers working on this topic, but it will also be of value to workers not very familiar with the details of the topic. The way the methods, results, and interpretations are presented is concise but provides sufficient details on the individual aspects. It is straightforward to follow the authors' reasoning and the explanations for their approach, and the implications for future research. Compilations like this one will always be crucial and help make data more approachable to researchers. Following the guidelines provided for reviewers, the data is of high quality. The paper is appropriate to explain the database provided. The length and structure of the article are appropriate, the language is consistent and precise, and the figures and tables are correct and of high quality. Overall, I would rate this manuscript "excellent" and think it deserves publication.

Response: Thanks for your careful reading and comments. Your comments are valuable in improving the quality of our manuscript.

Specific Comments

The only specific comment I have is related to chapter 2.3. In lines 154-169, the wording could be improved. The continuous wind dataset is constructed based on the predictor variables, which are calculated by the multiple linear regression by considering the predictors, including constant of 1, the wind data in segment b, oscillations with periods of 12, 6, 36, 24, 4, and 3 months. It would be better to discuss the ability of the MLR method to capture the variation of wind, which could improve the rationality of data processing methods. For instance, one may wonder how much of the variation in the raw data in each segment could be explained by the reconstructed data based on the MLR predictors.

Response: Thanks for your suggestion. To clarify all the predictor variables, we have added "The predictor variables can be summarized as a constant of 1, the wind data in segment b, oscillations with periods of 36, 24, 12, 6, 4, and 3 months." in the end of step (2).

Following your suggestion, to quantify the rationality of the MLR method, we used R^2 score, which is the ratio of the variations in the observation data explained by the model and defined as,

$$R^2 = 1 - \sum_{i=1}^{n}(y_i - f_i)^2 / \sum_{i=1}^{n}(y_i - \bar{y})^2,\ \bar{y} = \frac{1}{n}\sum_{i=1}^{n} y_i. \quad \text{(R1)}$$

Here, y_i and f_i are the observation data and model results, respectively. The best R^2 score is 1 when the predicted values are the same as the observation data. For segments a, c, and d, their R^2 scores are 0.63, 0.59, and 0.65, respectively. And their available observation months are 60, 57, and

34, respectively. It should be noted that the R^2 scores increase with the increasing number of predictor variables. However, the increasing number of predictor variables reduces the robustness of the model when the available observation months are short (e.g., segment c). Thus, the predictor variables chosen here are an optimal compromise between the R^2 score and the robustness of MLR model.

This has been added to in the text to quantify the rationality of the MLR model.

Technical Corrections

A short list of typos/inconsistencies:

L. 167: The sentence should be rewritten.

Response: This sentence has been rewritten as "It is reasonable to expect that the MLR predictions in the time intervals of missing observations are reliable (e.g., 2013 and 2014, before November 2002 and after September 2017) and can be used to construct BU.

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L. 207-208: "can be seen both in both BU and MerU" --> "can be seen in both BU and MerU".

Response: We have revised it as "can be seen in both BU and MerU".