

Reviewer comments on "Operational Weather Windows for Offshore Wind in the Taiwan Strait: Long-Term Variability, Regional Wind Modes, and Climate Linkages"

September 18, 2026

1 General comments

The study analyzes the interannual variability of weather conditions favorable for wind farm maintenance activities over the Taiwan Strait. Specifically, the study examines the number of summer weather windows, where a weather window is defined as a 12-hour period during which the 100 m wind speed remains persistently below 12 m s^{-1} . The weather window count is calculated from ERA5 data for one grid point over the Taiwan Strait. The relationship between the summer weather window count and regional climate modes and teleconnections is investigated. An Empirical Orthogonal Function analysis is performed on the 100 m wind speed over a $4 \times 4^\circ$ area covering the Taiwan Strait. A hierarchical model is formulated to predict the summer weather window count, with five predictors considered: the first two principal components associated with the EOF analysis, the seasonal number of tropical cyclones, the El Niño-Southern Oscillation, and the Western North Pacific Summer Monsoon.

The paper is internally consistent. However, the manuscript is hard to understand, and the structure of the presentation needs to be improved.

2 Major comments

1. Parts of the paper are difficult to follow on a first read, particularly due to the order in which the information is presented. This applies especially to Sect. 2. I suggest revising the structure to improve the flow and clarity. In particular, I recommend addressing at least the following points:
 - (a) In Sect. 2.1, lines 84-98, the text introduces additional datasets used for analyses presented in the supplement. While these analyses address important points, their introduction at this stage makes it more difficult for the reader to identify the main analysis and its primary data source. The authors may consider moving this information to the discussion in Sect. 4, where the additional analyses could be discussed in the context of the main results.
 - (b) In Sect. 2.1, PCA1 and PCA2 are referred to before the EOF analysis is introduced and its purpose is explained. Further, in Sect. 2.4, the phrase "to evaluate the model skill" is used before it is clear to the reader which model is being evaluated. To avoid this, a short overview of the performed analysis could be given at the end of Sect. 1, or at the start of Sect. 2.
 - (c) In Sect. 2.3, lines 135-138, the current definition of "summer-mean 100 m wind-speed hourly anomalies" is difficult to follow. In particular, the relationship between the different timescales (hourly anomalies, monthly mean, and summer mean) is hard to understand. Could this be reformulated?
 - (d) Figure 7a contains many numbers, which are not self-explanatory. In my opinion, the figure does not help the reader.
 - (e) The abstract should be improved by stating the main aim of the study more explicitly at the beginning. I also recommend including the definition of the weather window in the abstract, as this is central to the analysis.
2. The study focuses on the weather window count at a single grid point over the Taiwan Strait. A short discussion of the applicability of the results to neighboring grid points ($+/- 0.25^\circ$) is included in lines 127-133. However,

it is questionable to what extent the results can be generalized to regions further north or south in the Taiwan Strait. In particular, given the north-south dipole structure of EOF2, the correlation between the PC of EOF2 and the weather window count likely varies substantially with latitude.

More generally, the motivation for the EOF analysis in the context of weather windows is not sufficiently clear to me. It would be important to explain more explicitly what the EOF analysis contributes to the understanding or prediction of weather window variability.

3 Minor comments

1. Line 115: The definition of "accessibility" is only used in the Supplement. Maybe it does not need to be highlighted here?
2. Figure 1: Add information on the red polygon in panel (a). Additionally, it would be beneficial to add a legend to Figure 1b and increase the font size in Figure 1c.
3. Figures 4 and 5: It would be helpful to mark the location of the analyzed grid point.
4. Line 103: The reference for NOAA's Climate Prediction Center is missing.
5. In Fig. S1a, add the meaning of n to the figure caption.