

Response to the comments by Anonymous referee #2

I am happy to see that all of my comments are considered in the revision. I have several very minor comments this time. The line numbers refer to ones in the tracked paper.

Response: We are grateful for the referee's thoughtful and constructive comments. The manuscript was revised by closely following his comments and suggestions. The following are responses to those specific comments.

1) L47: between 90° and 60°N => from 60°N to 90°N.

Response: We made the change as your suggestions.

2) L93, 100: Readers might be misled. The authors did not use the model simulations actually. Suggest to rephrase.

Response: In the revised manuscript, we changed the word of “simulations” in case of confusions.

“simulations” on L93 was replaced by “synthetic data”.

“simulations” on L100 was replaced by “an experiment”.

3) L113-115: I do not understand this sentence. Please rephrase.

Response: In the revised manuscript, this sentence was revised as:

“For the analysis of Q5DOs, the aliasing due to components with different wavenumbers is usually ignored, because Q5DOs with wavenumbers of 3 or 4 are rarely reported.”

4) L132: *shown in ... (Figure 1, 2019)=> shown in Figure 1 of... (2019)*

Response: We made the change as your suggestions.

5) L144: *from 3 to -3 (westward to eastward), probably reversed. positive corresponds to eastward, right? If I am right, please correct.*

Response: Positive corresponds to westward, thus we did not reverse those words.

6) L294: *needs to be done => is required*

Response: We made the change as your suggestions.

7) L425: *during ... times => delete "times" or replace with "seasons"*

Response: We made the change by deleting “times” as your suggestions.

8) L426: *What are neutral winds?*

Response: We deleted “neutral” in the revised manuscript.

9) L448, 449: *Q5DO and SPWs have been defined. Please use those abbreviations directly.*

Response: We made the change as your suggestions.