

Response to Editor comments

January 5, 2026

In response to the following Editor comment:

Thank you for submitting your manuscript to Weather and Climate Dynamics. The reviewers were positive about the paper's clarity and scientific contribution, and I agree with their assessments.

I have only one minor editorial comment. The analysis focuses on all-months relationships between the ACWB, SAM, and JLI. While seasonal directional-constancy maps are included in the Supplement, the manuscript does not examine whether these large-scale relationships differ by season. Briefly exploring how the ACWB-SAM and ACWB-JLI relationships might change seasonally would strengthen the interpretation.

I'd be happy to accept the manuscript for publication after clarifying this point.

We thank the Editor for their comments.

The seasonality of the ACWB and other indices is something we did analyse when preparing the manuscript but it is a complex matter given the various drivers involved. We decided that the seasonal variations were not the most important results, in what was already a long paper. We considered it would substantially increase the length of the paper to provide additional text and figures to support a robust description of the seasonal effects. We have however added a short paragraph at the end of Sec. 4.3 to give an indication of how the seasonality of the ACWB is influenced by the seasonal variation in the local- and large-scale drivers.

Updated on 05/01/2026

In response to the following Editor comment, which follows on from the previous comments:

Thank you for your careful response and for adding a paragraph clarifying the role of seasonality in Section 4.3. I agree that presenting a full seasonal breakdown of all analyses in the main text would substantially increase the length of the paper. However, I still believe that including a seasonal version of Figure 5 in the Supplementary Material would add significant value to the manuscript. While the seasonal variations in ACWB are modest, the relationships with the large-scale indices are seasonally dependent (as you mentioned), and a dedicated figure would help clarify this point for readers.

We thank the Editor for the comment and have now added a seasonal version of Fig. 5 in the Supplementary Material (S4).

In addition, please explicitly define how fractional difference is calculated in the Methods section. At present, the definition appears only in the caption of Fig. A1, which makes it difficult for readers to locate. Please also ensure that the definition is presented in a general form, rather than being limited to the specific reanalysis comparison shown in that figure.

We thank the Editor for the comment. We have added a new section to the Methods, defining the fractional difference between two arbitrary variables. This equation is then referenced at various relevant points throughout the text and in the Supplementary Material.