**Reply to the reviewer's comments (Referee #2)**

We would like to thank the reviewer for carefully evaluating our revised manuscript.

**Reviewer:** The authors have improved the presentation and have added analyses and some discussions. Overall the paper is a nice and important contribution to our understanding of midwinter suppression specifically, and more generally, to how the statistics of single-storm evolutions combine to give the Eularian diagnostics of storm tracks. The authors added an analysis of eddy statistics in an area centered about the seasonally varying climatological baroclinic conversion, which is where the eddies draw energy from the mean flow APE. This is a nice choice since the peak baroclinic conversion region, which indicates where growth via extraction of mean PE, remains concentrated in the western Pacific. I agree with the authors that this is better than my initial suggestion to examine the statistics following the EKE maximum which peaks in the central pacific and is fed by cyclones originating in different regions than are shown in figure 2. I find the paper worthy of publication, but suggest making some minor clarifications.

**Authors:** We are pleased to read that our revisions have adequately addressed the reviewer's concerns. We would like to thank the reviewer for suggesting the analysis of a moving box, which nicely expanded our study.

**Reviewer:** The authors added a calculation of the baroclinic conversion efficiency, and this helps clarify some of the statements in the original version, however, I think the authors should add a paragraph in section 2.2 discussing what this quantity means qualitatively, and not just refer the reader to Schemm and Riviere's 2019 paper. The way I see it, after going through Schemm and Riviere (2019) is that the baroclinic conversion efficiency isolates the influence of the eddy structure (vertical-horizontal tilt of the geopotential height surfaces relative to the mean flow temperature gradients) on the magnitude of the baroclinic conversion, as opposed to the influence of the mean flow baroclinicity.

**Authors:** Yes, this is correct, the conversion is related to the vertical structure. We added two more sentences to further clarify what this quantity means but because it is a novel concept and several aspects would require extended explanations, we refer the reader to Schemm and Rivière (2019) for a more complete discussion.

**Reviewer:** Figure 7. The authors should clarify if the regions are kept similar in terms of longitudinal range and shifted latitudinally only, and if the area of the moving box is kept equal between the months or not. Also I would increase the black dots along the tracks and thicken the black box a bit to make them clearer to the eye.

**Authors:** The target region is kept similar in terms of longitudinal and latitudinal range and is shifted only in the meridional direction. We added this information to the main body of the manuscript and added the precise coordinates of the target region to the figure caption. We also increased the size of the black dots and the target box.

**Reviewer:** Figure 8 - looking at the figure I think the important feature for the midwinter minimum is the the *difference* between the before and after max-deepening which varies significantly between the months. The changes between Nov-Jan-Mar in the values before, or the values after the max deepening are not that large - specifically line 350- "The midwinter suppression affects only time steps after maximum deepening (gray boxes in Fig. 8)." is confusing because the Nov-Jan increase in the before box is larger than the Nov-Jan decrease in the after box, but the drop

in baroclinic conversion is much larger and I think this is what makes the difference because the EKE values in the northern box result from an integration over the whole eddy life cycle.

**Authors:** Yes, we agree and corrected this sentence accordingly. The drop is significant here and is now highlighted in the manuscript.


**Reviewer:** Sentence on lines 175-176 is very confusing.

**Authors:** We reformulated the sentence.