

Reviewer 1 – Second Round

Thanks to the authors for their thorough and thoughtful responses to mine and the other reviewer's comments. I request a few more technical corrections listed below. After these minor corrections, I feel this paper will be suitable for publication.

We appreciate the thoughtful suggestions from reviewer 1.

Our responses are in blue below each comment from the reviewer.

Technical corrections

- L45–46: "observation, research, and forecast communities" --> "observational, research, and forecasting communities"

Revised as suggested.

- L97: "vertical-integrated" --> "vertically-integrated"

Revised as suggested.

- L130–131: "...to better capture the ARs less well-structured" – What does this mean?

We have revised it to "... to better capture ARs that are less well-structured."

- L192: "was interpolated" --> "were interpolated"

Revised as suggested.

- L195: "data is" --> "data are"

Revised as suggested.

- L357: "stronger" --> "strong"

Revised as suggested.

- L368: "higher" --> "high"

Revised as suggested.

- L410: "weaker" --> "weak"

Revised as suggested.

- L425–427: This sentence is an incomplete sentence fragment. Please revise.

We have revised this sentence: "Their vIVT threshold is higher in summer due to the increased temperature and moisture, and lower in winter because of the decreased temperature and moisture."

- L516: "data is" --> "data are"

Revised as suggested.

- L532–533: "AR's contribution to surface melt" --> "AR contributions to surface melt"

Revised as suggested.

- L537: "AR's" --> "AR"

Revised as suggested.

- L581: "ranking" --> "rankings"

Revised as suggested.

- L635–636: "polar AR scale" --> "the polar AR scale"

Revised as suggested.

- L649: "AR's contribution" --> "AR contributions"

Revised as suggested.