

# **Integration-based Extraction and Visualization of Jet Stream Cores**

## **Corrections**

Submission ID: gmd-2021-240

**Geoscientific Model Development**

Dear Reviewers,

Again, we would like to thank you for your constructive and helpful comments. We made the suggested changes and hereby submit the revised files.

Sincerely,  
The authors.

## Review by Gloria Manney

### General Comments:

This paper presents a new method and software for tracking and visualizing jet stream cores. This is a potentially very useful new method with some important advantages and should be a valuable addition to existing tools for jet characterization and analysis. The authors have done a thorough job of addressing my comments on the first version, and I believe the paper is now suitable for publication in GMD after the authors consider the following additional small changes / corrections (line numbers from ATC version):

Figures: I still think the color bars and their text labels are too small.

**We further increased the size of all color bars by 20% and increased the font size of their text labels from “\scriptsize” to “\small”.**

Line 94, suggest “...which is called the jet core... (add “the”)

**Done.**

*“The center of the jet stream, which is called the jet core [...]”*

Line 109, typo, should read simply “...(Lee and Kim, 2003;...”

**Fixed.**

*“[...] continuous spectrum of jet characteristics (Lee and Kim, 2003; [...]”*

Lines 115–119, this is probably more detail than you need, you could simply start with “Manney et al (2011, 2014) identified...” and then leave out the sentence starting “This approach was applied...”. Also you might reduce this a little further by saying something like “...inside latitude-altitude slices, with additional criteria applied to determine whether multiple maxima in the same 30 m s<sup>-1</sup> contour represented separate jet stream cores.” (If you keep the same wording for this part, note that “below” on line 117 should be “by more than”.) Finally, you could delete the sentence about Manney & Hegglin’s subtropical / polar jet definition here (lines 118-120) since you have already said it earlier.

**We reworded the paragraph as suggested. We would like to keep the more detailed version that explains the additional criteria.**

*“Manney et al. (2011, 2014) identified [...]”, “[...] drops by more than [...]”, and we removed the last sentence as suggested.*

Line 176, suggested wording “...other time periods, both below and above our chosen thresholds (e.g., Manney et al., 2014).”

**Done.**

*“[...] above our chosen thresholds (e.g. Manney et al., 2014).”*

Line 263, suggest “...or are duplicated for numerical reasons...”

**Fixed.**

*“[...] or are duplicated for numerical reasons.”*

Table 1 caption, first line, change “here listed” to “listed here”.

**Fixed.**

*[...], listed here for the default parameters [...]*

Line 414, change “involved physical processes” to “physical processes involved”.

**Fixed.**

*[...] dynamical analysis of the physical processes involved, [...]*

Line 418, would be good to give the Maher et al (2019) and Winters et al (2020) references here along with Koch et al (2006).

**Added.**

*[...] gradient (Maher et al., 2019; Winterset al., 2020; Koch et al., 2006), [...]*

Line 462, I don’t think “tangible” is the right word here. I think what you mean is more like “tractable” or “managable”.

**Changed to “manageable”.**

*“It becomes more manageable if [...]*”

Line 468–469, either say “...becomes more noticeable when too little weight is given...” or “became more noticeable when too little weight was given...”

**Added “more” (first suggestion)**

*[...], which becomes more noticeable when too little weight [...]*”