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Editor decision – comments to the authors

Interactive 3-D visual analysis of ERA5 data: improving diagnostic indices for marine cold air outbreaks and polar lows

by M. Meyer et al.

Dear Dr. Meyer

Many thanks for your revisions and for addressing the points raised by the reviewers in great detail. I am happy to accept your paper for publication in WCD subject to technical corrections, as suggested below. Congratulations and thank you for submitting your paper to WCD!

L75: provide → provided

L83: discuss → discussed

L125/127 and throughout the paper (e.g., also in caption of Figs. 1, 2, 3, etc.): the format of dates differs from case to case and is not according to journal standards. The format should be “on 18 December 2002”, or “at XX:00 UTC on 18 December 2002”.

L135: symbols t , p_v , ... are not defined. I don't think that they are required here, you can omit them. In case you decide to keep them, then please introduce the symbols and then t should be T , z should be Z , and p_v should be PV .

L140: I think you have all these references already in the introduction (where they are important). Here they can be omitted.

Eq. 2: I am not sure that this notation is elegant and fully appropriate. In my understanding, m^p_θ is a function of p . Therefore $m_\theta(p)$ would be, in my view, the more appropriate notation. The full equation should then read: $m_\theta(p) = \theta_{\text{skin}} - \theta(p)$

L168: for the vertical levels → for all vertical levels

L183 and in many other places: during years → during the years

L209: should read “performance of the diagnostic ...”

L214: should read “(in this case a diagnostic index)”

L219: confusing ... what is T ? Is $T = t_{\text{end}} - t_0$?

L222: should read “(a comparable approach ... was used in Terpstra ...”

Caption of Fig. 1: $\text{kg/kg} \rightarrow \text{kg kg}^{-1}$

L257: $\text{m/s} \rightarrow \text{m s}^{-1}$

L258: references should be in chronological order

L262: I don't understand “Resolved dynamics of cloud cover”. But maybe it is anyway best to delete this sentence?

Caption of Fig. 2: please shorten this caption. The caption should only explain what the lines, colors, ... in the plot mean, but the caption should not interpret the figures. The sentences “As expected ...” and “The illustrated aspects ...” can be deleted and the rest can be shortened.

L290-300: here I had the feeling that this is mainly repetition from Sect. 2.3. Please consider to shorten this part.

Eq. 5: again the notation, I suggest to write $\theta(p^*)$ instead of the subscript.

L317: delete “defined here ...”, this was mentioned before.

L353: low or absent forcing \rightarrow weak or no forcing

L361: delete “or any fitting procedure” (or explain what it means)

L391: “as compared” \rightarrow “compared”

Eq. 7: and another notation: in the same spirit as above I suggest $m_\theta(p_{\text{crit}}) = \theta_{\text{skin}} - \theta(p_{\text{crit}})$

L534: do you really want to emphasize the “slow-wind eye” here? In every circular symmetric vortex the wind speed must be zero at the center, so the “slow-wind eye” is not so much a surprise(?).

L546: report \rightarrow reported

List of references: unlike the main paper, this part is not yet in very good shape. Often page numbers, volume numbers or DOIs are missing. Sometimes journal names are abbreviated,

sometimes not (please check in other WCD publications for the standard abbreviations to be used).
Also please update the reference of the Afargan-Gerstman et al. paper.

I am looking forward to receiving the final version of your manuscript.

With best regards,

Heini Wernli