Review of manuscript titled "*Parallel use of threshold parameter variation for tropical cyclone tracking*" by Enz et al. submitted to GMD

General comments:

Using TC-permitting ICON over a limited domain, the authors explored the sensitivity of tracked TCs over the North Atlantic to various combinations of parameters in a tracking algorithm. The initial/genesis and termination stages of TCs have been examined. Generally, valid genesis detections prefer weak constraints from the parameters.

Overall, I think this paper is well written and the methodology is clearly illustrated. There are several things need to be clarified. Please see my specific comments below.

Specific comments:

Title: "Parallel" sounds like parallel computing. How about "Combinations of threshold parameters variation for tropical cyclone tracking"?

Line 17: "increased frequency in a warmer climate": Bender et al. (2010) is cited here. However, I don't think there is enough evidence indicating increased TC frequency in a warmer climate, isn't it?

Line 115: the vertical component of relative vorticity is on 850 hPa?

Line 135: in terms of the minimum lifetime, how many cases have exactly 4 consecutive time steps (and what is the percentage)? Could variations of this parameter make a difference? I would assume that short-lived cases are usually associated with weak intensity.

Line 165 and Figure 1: the boundary layer inflow is a key feature, as the authors mentioned. However, the signals in the boundary layer are pretty weak in terms of Fig. 1 (very light blue shadings). I am wondering if the authors can compute the convergence of wind. For example, Fig. 9 from a recent paper highlights the role of boundary layer inflow by the convergence of the wind field, where the magnitude of convergence also increases with TC intensity.
(https://journals.ametsoc.org/view/journals/clim/aop/JCLI-D-22-0199.1/JCLI-D-22-0199.1.xml)

Figure 2: A color bar is needed for Fig 2b.

Line 253-256: I don't understand this part. More explanations are needed.

Line 274-277: rephase these lines

Around line 301 and Figure 7: the tracking algorithm stops when the translational velocity is too large, probably due to the background mean flow. For this case, what is the background mean flow like? E.g., the steam function at 500 hPa or some other variables.

Section 7: in addition to ACE, how about using Power Dissipation Index (PDI)? Do the results stay similar?

Section 9: is it possible that phase-dependent threshold parameters are introduced in a tracking algorithm? Basically, the genesis stage would use a set of parameters that are better for identifying weak TCs, while the termination stage would use a different set of parameters. Perhaps this requires a name tag indicating what the stage is at each time step and thus controlling the choice of parameters online.