Second review for egusphere-2025-1819: “Observation based precipitation life cycle analysis of heavy rainfall events in the southeastern Alpine forelands” by Stephanie J. Haas, Andreas Kvas, and Jürgen Fuchsberger

The authors have nicely addressed most of my major points raised. I suggest further adjustments to the following open issues, from my point of view.

1.) Instrument uncertainties: The MWR is an essential instrument in your study. And you are using it to analyze the atmosphere around heavy precipitation events. Ground-based MWR are prone to errors due to a wet radome. Please provide information on how you quality control/assure your observational data in this sense. You may find some useful information here: https://zenodo.org/records/11422901 or here: https://egusphere.copernicus.org/preprints/2025/egusphere-2025-1727/

2.) In section 3.1 you now write: *Most HPEs observed do not form within the comparatively small region of the WEGN. This means that before a HPE the sky is either clear or filled with some fair weather clouds which get displaced by cumulus clouds close to the actual event. This is represented by a decrease in the CBH anomaly of about 1000 m prior to the event onset.*

You are implying a physical causality here that I cannot recognize. 1h before the HPE, you see an >1kg/m2 increase in IWV (Fig. 3). Don’t you think this could lead to lowering of the CBH, e.g. through a lowering of the LCL or CCL? Did you check the near-surface spread (T-Td) for this?

3.) It great that you have provided a figure with the LR time series. But why put it in the appendix? Your paper does not have too many figures and the LR figure is an additional analysis, so I suggest moving it to the main body of the paper. In any case, you need to discuss this figure more quantitively if you add it to the paper. Fig. B1 before the HPE makes sense (strong instability close to the surface and then conditional stability above). But I wonder what is going on after the HPE. Why do you see a persistent inversion up to 12h after the event peaking around 500m?

4.) Cold pools, you now write: *Another reason for the increase in temperature variability might come from convective cold pools (Kirsch et al., 2024) which are often detected at the location of HPEs before the event onsets. While we do find indications of such cold pools for a few of the investigated HPEs (not shown), most of the HPEs do not form directly in the region covered by the WEGN, which means that potential cold pools cannot be found in that area as well.*

Could you include an argument why cold pools cannot be detected if the HPE doesn’t form in the WEGN region? Cold pools are generally defined by rapid horizontal wind increase (gust front) and simultaneous temperature drop shortly before the event, both which you nicely see in Fig. 3.