# Review of the resubmitted version of "Investigating multiscale meteorological controls and impact of soil moisture heterogeneity on radiation fog in complex terrain using semi-idealised simulations" by Dongqi Lin et al. (egusphere-2022-1229)

The authors have made substantial efforts to improve the first version of the manuscript. The additional figures and analyses (e.g. pseudo-process diagrams) as well as the restructuring of the sections are well made. I am impressed by how much the text has improved and consider this work as valuable to the fog modelling community after a few minor revision points which are listed below have been addressed.

1. L18 and 38: As the model's horizontal resolution is on the order of several decametres, I would rather specify the microscale as "on the order of 100m to 1km".
2. L159: "This means THAT…"
3. L178: It is not self-explanatory what is meant by a "3D profile in west-east, south-north, and the vertical direction". I would replace the term "profile", as this in itself is associated with an extract of a quantity along the vertical dimension. Do you not just mean "soil moisture which varies both in the horizontal and vertical"?
4. L193 and 198: Repetition of "bulk cloud model only enabled in D04."
5. L199: "Cloud water sedimentation IS based on…"
6. L213: Improve wording of "fog event is the most significant".
7. L223: Swap ending of sentences: "..cross sections. The sunset time…on Day 1 and sunrise…"
8. L227: Either "temperature decreases" or "air cools"
9. L237: no "9" in "03900 LST".
10. L253: "High qv was PRESENT…"
11. L254 – 263: I find the explanation that clouds instead of fog formed very convincing and would replace "This is suspected to be due to" with "This is likely caused by". I would however specify the clouds to be "low stratus" which is often related to fog occurrence. The physical drivers could be more precise: "The layer of low stratus reflecting the outgoing LW radiation results in a reduced surface cooling and.." E.g. on the Swiss Plateau, the transition from fog to low stratus (and back) is often associated to increase (decrease) in wind speed. Is this also the case here?
12. L263: Suggestion: "Besides the low stratus clouds the simulation featured clear-sky conditions."
13. L331: T missing in "HET12p"
14. Figure 11: Specify not only the black solid line but also the grey shading in the first two columns.
15. L389: "Develop INto"
16. L408 and 409: The reasoning is not logically consistent:
    a) High LHF = high QL
    b) High soil moisture = high LHF
    c) High soil moisture =/ high QL
    -> Probably a) should be phrased differently.
17. L420: I suggest to replace "fact" with "conclusion/reasoning/hypothesis".
18. L440: At least for the two sites which feature classic radiation fog, Double and Half seemed to consistently increase and decrease certain aspects.
19. L464: "at THE microscale"
20. L465: "The occurrence of overlying clouds"
21. L476: "thorough"