

Atmos. Chem. Phys. Discuss., referee comment RC2
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Comment on acp-2021-387

Anonymous Referee #2

Referee comment on "Inter-annual, seasonal and diurnal features of the cloud liquid water path over the land surface and various water bodies in Northern Europe as obtained from the satellite observations by the SEVIRI instrument in 2011-2017" by Vladimir S. Kostsov et al., Atmos. Chem. Phys. Discuss., <https://doi.org/10.5194/acp-2021-387-RC2>, 2022

Review of "Inter-annual, seasonal and diurnal features of the cloud liquid water path over the land surface and various water bodies in Northern Europe as obtained from the satellite observations by the SEVIRI instrument in 2011-2017" by Kostsov et al.

This manuscript focuses on the variability of the LWP gradient by seasons and by the horizontal scale of lakes. Obviously, the variability depends on the dynamic and thermodynamic states around the lakes (oceans). It is impossible to avoid the analysis of the boundary layer structure and comparison of the characteristic length-scale of the circulation and the scale of lakes. Linear-theory will support you to explain the observed phenomena. However, the authors did not mention the dynamical aspect of the meso-scale circulation in the introduction section at all and slightly looked at the ICON simulations. Since the corresponding author already documented several papers about the land-ocean contrast, and hence, it is about time to analyze dynamics in addition to the statistical analyses. Therefore, my recommendation is reject. The authors can easily find some past researches on the meso-scale circulation related to the land-ocean contrast as follows. Please review in detail.

Hadi et al., (2000)

Tropical Sea-breeze Circulation and Related Atmospheric Phenomena Observed with L-band Boundary Layer Radar in Indonesia,
https://www.jstage.jst.go.jp/article/jmsj1965/78/2/78_2_123/_article

Niino (1987)

The Linear Theory of Land and Sea Breeze Circulation,
https://www.jstage.jst.go.jp/article/jmsj1965/65/6/65_6_901/_article/-char/en

Yan and Anthes (1987)

The Effect of Latitude on the Sea Breeze

[https://doi.org/10.1175/1520-0493\(1987\)115<0936:TEOLOT>2.0.CO;2](https://doi.org/10.1175/1520-0493(1987)115<0936:TEOLOT>2.0.CO;2)