

## ***Interactive comment on* “Evolution and dynamics of the vertical temperature profile in an oligotrophic lake” by Zvezdana B. Klaić et al.**

### **Anonymous Referee #1**

Received and published: 17 February 2020

In the paper, the authors do a thorough analysis of a single lake in Croatia. They look mostly at observations in the lake and at a meteorological station located on land to the north from the lake observation point. Authors discuss the evolution of thermocline, pycnocline and investigate properties of internal and surface seiches in the lake.

The analysis methods are solid and well explained. It would be easy to reproduce when the data become available, I appreciate the authors' efforts in this regard. I find that the manuscript is well written and I only have a few minor comments and suggestions.

Science: Since the meteorological and lake observation points are not co-located that could introduce uncertainties in the analysis of the causality of forcing on the lake conditions. Have you tried to ensure that those uncertainties are small?

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When you were selecting independent variables for the multivariate linear model you have rejected air humidity due to the high correlation with air temperature. What is the correlation value? I am concerned as to how the linear relation (10) eliminates all the high-frequency variability from wind and temperature data. Have you divided the data into fitting and validation parts? Validation should be performed over data that were not used during fitting (i.e. estimation of the parameters). Were the data from the monthly routine measurements by the PLNP used during the parameter estimation for the multivariate model?

Writing:

- P11, L2 (and elsewhere): I would rephrase the “naked eye” because the details seen in the plots are sensitive to the scale you choose. Please try to find a more objective term.
- P16, L18: typo “hypolimnon”, missing i.

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Interactive comment on Hydrol. Earth Syst. Sci. Discuss., <https://doi.org/10.5194/hess-2019-559>, 2020.

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