

## ***Interactive comment on “Historical modelling of changes in Lake Erken thermal conditions” by Simone Moras et al.***

**Roman Zurek (Referee)**

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The manuscript makes a significant contribution to the progress of science. The mathematical methods used showed the possibility of using even incomplete data.

Scientific quality: Are the scientific approach and applied methods valid? Are the results discussed in an appropriate and balanced way (consideration of related work, including appropriate references)? Scientific approach and applied methods valid for understanding climate change in relation to the functioning of stratified lakes. References are appropriate. All quotations in the text are given in References. The results are presented clearly and precisely. However, the reviewer lacks comparisons with other similar studies in the discussion like here and other similar: Report: Great Lakes

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feeling effects of rapid climate warming (Update). <https://phys.org/news/2019-03-great-lakes-effects-rapid-climate.html> Steven Sadro John M. Melack James O. Sickman , Kevin Skeen 2018. Climate warming response of mountain lakes affected by variations in snow. <https://doi.org/10.1002/lol2.10099> Vincent W.F. 2009. Effects of Climate Change on Lakes, Laval University, Quebec. W.M Mooij et al. 2005. The impact of climate change on lakes in the Netherlands: A review Aquatic Ecology 39(4):381-400 Skowron R. 2017. Water temperature in investigations of Polish lakes. Limnol. Rev. (2017) 17, 1: 31–46 It is valuable to discuss the biological effects of hypo- and epilimnion warming. Rating excellent.

The structure of the articles is clear, well-documented, language concise, it can sometimes be too concise. Drawings well document the theses of the article.

Increase letters in the X and Y axis descriptions

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Interactive comment on Hydrol. Earth Syst. Sci. Discuss., <https://doi.org/10.5194/hess-2019-199>, 2019.

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