Review by Femke Jansen

The manuscript by Vimal and Singh brings back to our attention the century old Horton's lake evaporation formula. The authors give a thorough historical overview on how the formula was developed and how it relates to other evaporation methods of varying complexity. The authors show us that Horton's formula outperforms the other methods.
I have appreciated reading the manuscript that has been written in a story-telling form including quotes of the original papers of Horton. This provides the reader a good overview and sense on how the authors have reconstructed how Horton's formula was developed and subsequently fell into oblivion. The authors managed to re-awaken the use of it by applying it on data from a subarctic Canadian catchment and found that the use of the variable vapor pressure deficit (VVPD) term introduced by Horton is of added value compared to the use of only VPD which is frequently used in other evaporation methods.

In short, I have read the manuscript with great interest and I think it fits the special issue *History of hydrology.* My suggestion is to publish the manuscript with very minor revisions for which I provide feedback in my comments below.

General comments

- Please, provide units when explaining the variables of equations for clarity. In some cases it is given (e.g. p.12 L.358), but in most not.
- The order of the tables as they are mentioned in the text is the other way around of the appearance of the tables itself.

Specific comments

- Is there a specific reason why the authors are using θ for temperature, instead of the commonly used *T*? To my knowledge θ is more commonly used to indicate potential temperature.
- p.11 L.315 and L.325; w.r.t. – don't write as abbreviation
- p.14 L.422-425; in more recent past, there are many other studies that have found Dalton's method to work well. Especially in the oceanographic community it is widely used. The authors could refer to that as well for a bit of nuance.
- P.16 L.490; the reference of Vimal and Mikuszeit, 2021, is not included in the reference list of the manuscript.
- P.18 L.534; humidity and temperature gradients is probably referring to *horizontal* gradients.
- P.18 L.533/534; do the authors have a reference that underpins the statement that evaporation rates are constant over large lakes?
- P.18 L.534-539; First, the authors state that horizontal variability of the thickness of the vapor blanket is negligible, while the next paragraph is dedicated to the importance of horizontal variation and it is mentioned that this is the main theoretical breakthrough of Horton. Please, make this transition more clear or explain better.
- P.20 L.583; typo: Vercauteeren --> Vercauteren
- P.20 L.584; do the authors mean 'were not explored' instead of 'were not unexplored'?