

# ***Interactive comment on “Evaporation from a large lowland reservoir – (dis)agreement between evaporation methods at various timescales” by Femke A. Jansen and Adriaan J. Teuling***

## **Anonymous Referee #1**

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The paper is focused on lake IJsselmeer, the largest fresh water lake in The Netherlands, with an important hydrological function. Evaporation rates from different hydrological models are shown for historical and future periods based on 1) data from long-term meteorological data observed in De Bilt station situated approximately 50 km distance from the lake; and 2) data from climate projections generated with RCM RACMO2 driven by EC-EARTH 2.3 climate model. This is a manuscript on an important topic containing very interesting material, a good overview of the models and a clear discussion of the final results. Therefore, I recommend this paper to be published after minor revisions.

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General concerns: 1- I think the title should be rephrased mainly because the manuscript present results from hydrological models (estimations of evaporation) instead of direct measurements. Thus, I believe it could be more realistic the title “Estimation of evaporation .....”. 2- Page 7, line 12 – “we chose to give preference to a long-term dataset ... rather than shorter-term dataset ... more close proximity to lake IJsselmeer”. I understand this point but can you explain more about the shorter dataset? Where is it? When started and finished? Which are the variables? Have you done a data comparison between this site and De Bilt? 3- Page 17, line 21 – You present Table 2 as a summary for IJsselmeer region. In your opinion what is the extension of your results? Can be extended for the northern region of the lake, for example? 4- Page 17, line 25 and 30 – What is the average annual accumulated precipitation in the region? And the magnitude of other input's?

Specific comments: Page 3, Figure 1 – Figure 1 is not cited in the text and, in my opinion should be moved to section 2.3. Page 5, Equation 1 – Please explain all symbols used in the text. Page 7, Figure 2 – Please add a scale to the map. Page 8, line 4 – Please add information on Ewater. For example: “distribution of water evaporation (Ewater)”. Page 8, line 5 – Please add a Figure with WST obtained with Flake simulation. Page 8, line 14 – remove “and its sign”. Page 8, line 32 – “using a grid cell representing De Bilt”, please explain/extend this sentence. Page 9, line 18 – I would like to see latent heat data from Cabauw in this section. Page 10, Figure 3 – In caption please add information of the “lowered 7.5 degrees Celsius”. Page 10, line 3 – replace “Celcius” by “Celsius” Page 10, line 13 – i) add the methods acronyms. ii) add information that the methods which incorporate heat storage capacity are correlated with u. Page 10, line 14 – Air temperature has distinct CCW than what? Page 13, Figure 5 – Green color is difficult to perceive. Please replace by another color. Page 14, line 1 – “were to change” replace by “is expected to change” Page 14, line 17 – Before cite Figure 9 you have to introduce it first. The introduction to Figure 9 is in page 15, line 10. Page 15, Figure 7 – There are different bar sizes for “0.1” value, please correct. What is Ez? Please clarify. Page 17, line 5 – The temperature gradient

used in GH method was between water temperature resultant from FL model and air temperature from De Bilt? Please clarify and add information in the manuscript. Page 17, line 22 – Add the average and dry year's. Page 18, Figure 9 – YY axis are close each other's and numbers are confused, please arrange it. Page 18, line 3 – Please rephrase it. Page 18, line 8 – The surrounding land surfaces are agriculture surfaces? Page 18, line 14 – Please rephrase it. Page 19, Figure 10 – In this figure caption please remove the sentences starting on “The simulations . . .”. Page 20, line 9 – Replace “All radiation methods” by “The methods that use the radiation approach” Page 20, line 22 – Please rephrase it. Page 26, Table A1 – If possible add a new column with method abbreviations. What is the symbol  $r_a$  ? aerodynamic resistance?

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