

Drink. Water Eng. Sci. Discuss., referee comment RC3
<https://doi.org/10.5194/dwes-2021-8-RC3>, 2021
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Comment on dwes-2021-8

Anonymous Referee #2

Referee comment on "Predicting turbidity and Aluminum in drinking water treatment plants using Hybrid Network (GA- ANN) and GEP" by Ruba Alsaeed et al., Drink. Water Eng. Sci. Discuss., <https://doi.org/10.5194/dwes-2021-8-RC3>, 2021

The paper is about the modelling of the removal of turbidity and the concentration of residual aluminium during coagulation at a surface water treatment plant. This is an important topic, since accurate dosing of chemicals can lead to better performance of the plant and cost reduction. However, the quality of the paper is low. The use of references in the introduction and for the discussion of the results is poor, and the manuscript has severe language issues. In addition, the manuscript has redundant and superfluous information, including figures and tables (e.g. Fig 1, 2, 4, 8, 10; Table 1, 6). Moreover, a discussion lacks on the quality and usability of the data. Data are used from an existing plant that is operated. The obtained data are thus not independent and the results are biased. How can the model then be used in future to optimize coagulant dose?

General comments:

- Let the language be checked by a native speaking person
- Explain at the end of the introduction, what the "knowledge" gap is, what the "objective" of the study is and how it "contributes" to science/engineering.
- Avoid too much theoretical background and explanation of the used models, but concentrate on the reason why they are used and how they can be used.
- Avoid giving results of the modelling efforts in the Materials and Methods section
- Conclusions section should only give short introduction with objectives and main findings (without references)

Specific comments:

- Line 3-4, avoid too general introductions
- Line 8, explain that turbidity also has to do with "organoleptics"

- Line 10, delete (not a clear sentence)
- Line 16, "bottom of the waterbed"?
- Line 15-20, give values from small to large
- Line 25-30, give references
- Line 31, "standardize them"?
- Line 32-35, biological processes are not relevant here
- Line 38-39, delete (repetition)
- Line 46-52, rephrase
- Line 57, "raw water KMnO₄ and PAC/KMnO₄"?
- Line 61, "GMDH"?
- Line 62-63, not clear what is meant. Does it deal with a reference of with the present study?
- Line 5-72, give references
- Line 82, "water drained for the station"?
- Line 84, "All chemical additives are added before the main dispenser"?
- Line 85, "precipitations"? "double-exposed"?
- Line 90-140, see in general comments
- Line 143, "Mythology"?
- Line 145-146, how can you train then for these situations?
- Line 156, unclear why conductivity is a relevant parameter for coagulation (explain better)
- Line 157, pH determines the solubility of what?
- Line 164-166, how significant are the differences? It is also good to have a model with the lowest number of input parameters...
- Line 246: what is the difference between validation and testing? ; Fig 5 = Fig 6
- Line 258, is Tur-out and input parameter?
- Line 265, explain sensitivity method in Materials and methods section. In addition, in the OAT the parameters is not removed but changed...
- Line 271-275, not relevant for the paper
- Line 278-285, rephrase.. (part should be to materials and methods). Here only results and discussion should be given
- Line 301-302, rephrase
- Line 321, rephrase... (very good in relation to what)
- Line 322-323, give studies and discuss in this light
- Line 329-351, see general comments