**Drinking Water
Engineering and Science
Discussions**

Interactive comment on "Predicting the residual aluminum level in water treatment process" *by* J. Tomperi et al.

Anonymous Referee #1

Received and published: 19 March 2013

The paper describes a modelling exercise, based on artificial neural networks, for the prediction of the dosage of poly-aluminium chloride to minimize residual aluminium levels in the finished water. The paper is well written and can be excepted when the following changes are implemented: - In general, no comment is made about the fact that blackbox modelling of an existing plant has the disadvantage that no independent variables can be correlated. The plant is controlled by an operator who influences the dataset. In fact the ANN describes the existing operations rather than the process. - In the paper several times PAC is used. What is the meaning of PAC: powered activated carbon, poly aluminium chloride? - Pg 244, line 2-20: change the abstract in function of the observations below. - Pg 244, line 23: delete "chemical" - Pg 244, line 24-25: delete "because the….compounds" - Pg 244, line 26: "the" must be "a" - Pg, 245, line 4: "carrying" must be "flow" - Pg 245, line 8: "Canadian Study Health and Aging"

must be "A Canadian study on health and aging" - Pg 245, line 12: "(George et al., 2010)" must be "George et al. (2010), Mclachlan et al. (1996), WHO (2008).". - Pg 245, line 12-19: delete "It has been…. disease" (no extra information). - Pg 245, line 27: "effective parameters to" must be "most important parameter that affect" - Pg 246, line 2: "By WHO report (WHO, 2008)" must be "WHO (2008) reported that" - Pg 246, line 4; "coagulation" must be "coagulants" - Pg 246, line 9: "like using" must be "like when using" - Pg 247, line 5-10: explain in the introduction section what is new in the modelling approach in relation to earlier presented models - Pg 247, line 19: what is "PAC filtration"? see above. - Pg 248, line 11: delete "significantly" (this is not statistically proven) - Pg 248, line 22: "result" must be "results" and "value" must be "values" - Pg 248, line 26: What is the definition of "evident outliers"??? - Pg 249, line 7: insert "the" before "dataset" - Pg 251, line 21: insert "The" before "three-layer" - Pg 251, line 23: "due to" must be "because" and delete "very" (subjective) - Pg 252, line 12-16: explain why this configuration of the ANN is used (and not another) - Pg 252, line 22: "in which" should be "where" - Pg 254, line 5: insert "the" before "dataset" - Pg 254, line 8: insert "the" before "specific" - Pg 254, line 22-24: unclear explanation, because on pg 248, line 13-14 it was mentioned that measurements of drinking water quality were NOT used (which is logical). - Pg 254, line 29: what do you mean with "PAC-dosage" see above. - Pg 255, line 1-6: water temperature cannot be influenced, so what is the control action to be taken to diminish the residual aluminium level? - Pg 255, line 12: insert "of fit" after "goodness" - Pg 255, line 19-21: what is the value of using "drinking water quality parameters" in prediction? See above. - Pg 255, line 25: "even" should be "the same". - Pg 255, line 26-27: rephrase sentence. - Pg 256, line 1 and Pg 257, line 1: what is meant with "unequal"? - Pg 256, line 11: delete "significantly" (no statistical proof) - Pg 256, line 17-19: explain in the conclusions section what is new in the modelling approach in relation to earlier presented models and if the results are better or not. - Pg 256, line 26: "equal" should be "the same".