**Hydrology and Earth System Sciences Discussions**

# *Interactive comment on* "Auto-control of pumping operations in sewerage systems by rule-based fuzzy neural networks" *by* Y.-M. Chiang et al.

**Anonymous Referee #1**

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The paper presents a case study of an ANN application to pump stations operation in sewerage systems. Specifically, the authors built and compared two models in order to predict the number of operating pumps to avoid flooding during heavy rainfall events in an urban catchment at Taipei City. Even if the paper deal with well known tools (neural networks), in my opinion this work is interesting for HESS readers because of its practical usefulness for urban sewerage planning and operation authorities.

However, some comments must be done. 1. In the introduction (p.6727, l.24), the authors point out that neural networks have been widely used in the recent years in modelling complex systems. Nevertheless, in my opinion, authors should include here some lines discussing why this modelling is better for their purpose than other possi-

bilities like event or continuous modelling, stochastic modelling,... 2. (p.6734, l.16) As water level predictions are a key input for the model, results from the referred previous study should be briefly summarized, mainly, in the way they were obtained. 3. The last paragraph of conclusions (p.6741, l.4) should be improved as it contains some obvious statements: the role of water levels is obvious and also the forecast lead time considerations are. 4. Figure 1 is poor and must be improved. The legend could be moved out the picture and rain gauge station symbols enlarged. Besides, a scale should be added.

Other minor remarks: a) p.6726, l.8. Please correct "counterpropagation" instead of "counterpropagatiom". b) p.6726, l.21. Please, in the whole paper use "flood/flooding" instead of "inundation". c) p.6730, l.10. Please add "value" after "a DELTA". d) p.6733, l.17. Please use "m3/s" instead of "cms". e) p.6740, l.6. Please correct "pumps" instead of "pump". f) p.6740, l.15. Please correct "predicting" instead of "predict". g) Figure 3. Please, add water level to the legend. h) Figure 4. Maybe axis captions and numbers are too small...

I consider these comments and remarks should be considered while revising the manuscript and re-writing the final paper that could be published without any major review.

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