

## ***Interactive comment on “A spatial neural fuzzy network for estimating pan evaporation at ungauged sites” by C.-H. Chung et al.***

**Anonymous Referee #2**

Received and published: 3 January 2012

By proposing a new modeling framework, the authors of this paper have made an attempt to address one of the complex problems in hydrological modeling – spatial characterization of evaporation. The proposed modeling framework is based on conjunction of adaptive network based fuzzy inference system (ANFIS) and kriging. Recently, research in application of data driven models for hydrological modeling is directed towards building hybrid models, and the study proposed in this paper belongs to this subject area. In general, the paper is written well, and I could recommend this paper accepted for publication after the following comments have been adequately addressed by the authors.

Major Comment:

C5538

1. In Table 3, the authors provide performance statistics (RMSE and CE) for the testing set only. Performance statistics for both the training and the validation set should also be provided, as it helps readers to understand the “generalization” achieved by the proposed hybrid model.

2. Testing is done based on only 3 stations. This in my opinion is not a robust testing. If the authors disagree, then they should explain in the paper why considering only 3 stations would still be valid for testing the proposed model.

3. For the three stations (No. 17, No. 18, No. 19), what would be the values obtained by single ANN models? Providing this comparison would help readers gauge the merits and demerits of adopting the proposed model in a diverse topographic and climatic area.

Minor Comments:

Some of my minor comments have already been noted by the other reviewer. Here are some additional comments –

1. P 9682, L 12 – Is it radiation or “net radiation”?

2. P 9682, L 11-13 – add more details about the collected data (e.g. weather station instrumentation). At what height(s) are wind speed, temperature, humidity, and radiation measured? How is precipitation handled? If any correction for precipitation has been made, please explain it in the manuscript.

3. P 9684, L 15-16 – State the values adopted for “slope vapor pressure curve” and “psychrometric constant”

4. P 9686, L 3 – How are parameters “C1” and “a” estimated?

Interactive comment on Hydrol. Earth Syst. Sci. Discuss., 8, 9675, 2011.

C5539