Hydrol. Earth Syst. Sci. Discuss., 4, S1020–S1021, 2007
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Hydrology and Earth System Sciences Discussions

Interactive comment on "Prediction of littoral drift with artificial neural networks" *by* A. K. Singh et al.

Anonymous Referee #2

Received and published: 20 September 2007

This paper uses ANNs to predict littoral drift using a small data set collected in India. The paper compares the results to both regression and commonly used empirical formulae from the Coastal Engineering Research Centre. A second extended ANN is also developed,which is shown to outperform the other methods. An ANN-regression hybrid model is developed for practitioners. The results are positive and the research has value for operational purposes. Finally the authors use simple sensitivity analysis to determine if the ANN produces physically meaningful behaviour, which it generally does.

My specific comments are as follows:

1. Section 2.2 - did you collect the data at regular intervals across the 4 month period? More information about the data collection process is required.

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2. Section 2.3 - With such a small data set, you need to repeat the NN experiments several times with different random selections of your 75/25 split. This is the one major change that I suggest you make so that you can ensure your results are valid.

3. Section 2.3 - what learning algorithm resulted in the best performance? This should be linked to comment 2 above, i.e. did you find consistency in the learning algorithm when trying out further modelling experiments.

4. Section 4 - more explanation is needed of the extended two stage network. Is the extension learning the errors of the first network?

Editorial comments

The paper is well written. Just two small changes:

1. Introduction - change to 'better alternative to statistical methods'

2. Conclusions - change to 'less accuracy than the ANN'.

Interactive comment on Hydrol. Earth Syst. Sci. Discuss., 4, 2497, 2007.