ANFIS: sediment-discharge modelling of ninety-nine artificial datasets

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ANFIS capability for sediment-discharge modelling has been widely tested in different parts of the world. The results so far have been promising but clearly more 'universal' tests are needed as the previous tests were mostly unique. For the purpose of creating a series of 'universal' or 'standardised' tests, ninety nine artificial sediment-discharge datasets that mimic various different hydrological conditions are created using eleven simple mathematical functions. These datasets, which each carry different complexities, provide a controlled environment for modelling so that the 'perfect' model is always known and degradation in modelling performance can be assessed as the 'perfectness' is slowly reduced. ANFIS models with different parameter settings are built on each dataset. The results are compared and analysed using both pictorial and statistical analysis.