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The application GIS, RS and artificial Neural network of modeling of sediment prediction, a case study : Golestan Dam II basin, Iran

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Soil erosion occurring in different forms on the earth surface is an unavoidable phenomenon that is deteriorated by human activities. Knowledge of the erosion status and its prediction has always been a general concern for example. in this regard , a plethora of models and procedures have so far been adopted for sediment computations ,each designed for a specific condition and mostly derived from statistical methods and designed for a specific condition , and mostly derived from statistical methods and therefore lacking the required accuracy .

The present study investigates and forecasts the scale of sedimentation and its relationship with change in land use with the aid of such techniques as ANN, RS, and GIS in the Golestan Dam II basin.

First, the amount of sediment was measured and modeled for two periods of time and the relations among the results were studied using geostatistical methods. Then, the results of this analysis were entered in the artificial nervous system. Due to the presence of the level of sediment as the output of the algorithm of, the functions and algorithms of the nervous system were consumed. With respect to the fact that the nervous system had been trained earlier, the level of sediment was requested from this system on the basis of the information pertaining to the parameters effective on sediment in 2002. There was a slight difference(less than 0/018.65) between the level of sediment obtained through the system ANN and the results obtained by GIS analyses that showed the efficiency of this technique in sediment prediction.

Keywords: Sediment prediction, Artificial neural network , Geographical information system (GIS), Remote Sensing , Zoning , Golestan Dam II basin