Data-driven Modeling in River Channel Evolution Research: Review of Artificial Neural Networks Applications

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Abstract: Any interaction with river systems requires detailed consideration of channel evolution. The multiplicity of physical processes occurring within catchment and channel-floodplain complex causes complicated processes in river channel. Therefore, it demands reliable and accurate methods in research, which are capable to consider exclusive and non-linear relationships in river system. In the recent years, new approaches, relied on intelligence models of machine learning are proposed. Among them artificial neural networks (ANN) method is presently widely used in the data-driven modelling for non-linear system behaviour. This paper presents a review of artificial neural network models and numerous applications of ANNs in river channel processes research.

Keywords: artificial neural networks, intelligence models, channel processes, sediment transport, channel erosion.

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