

Application of BP neural network to predict rainfall interception loss in an arid region in China

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Abstract In arid desert regions, rainfall interception loss (RIL) from the vegetation canopy is an important component of the water cycle. RIL will directly influence soil moisture from rainfall. The RIL process is not a simple physical process, and also not a simple stochastic process, but is a complicated composite process; RIL is affected by many factors, e.g. rainfall, rainfall intensity, leaf area index, etc., all of which make it difficult to predict and estimate accurately. In this paper, a four-layer back propagation (BP) neural network model for predicting RIL is constructed. Ejina Basin, an arid desert region in China, is chosen as our experimental region, where *Populus euphratica* (the dominant tree species) is chosen to construct the model. The model is trained and tested by field data. The result shows that the BP neural network can predict RIL with sufficient accuracy and can be used in practice.

Key words arid desert regions; BP neural network; predict; RIL
