一般克利金法、倒傳遞網路與分析調整綜合網路在空間內插之實證比較

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摘要

In this research, we compared Ordinary Kriging Method, back-propagation neural networks (BPN), and Analysis-Adjustment-Synthesis Networks (AASN) in spatial interpolation applications. This research took rainfall distribution in Taiwan as research case. The results showed that (1) the prediction error of the testing dataset outside the training dataset demonstrated that AASN was the most accurate among the three methods, BPN was the next best, and Ordinary Kriging Method was the worst. Moreover, AASN was much better than the two others, (2) Ordinary Kriging Method can fit well the training dataset, and produce a rainfall interpolation model with several local concentration areas; BPN can not fit well the training dataset, and can only produce a rainfall interpolation model with approximately parallel contours with different intervals; however, in fact, the prediction error of testing dataset of Ordinary Kriging Method was larger than that of BPN, (3) AASN can fit well the training dataset, and produce a rainfall interpolation model with several local concentration areas, and the model can accurately predict the rainfall of testing dataset; hence, AASN has generalization learning capacity.

關鍵字：spatial interpolation, Kriging method, back-propagation network, analysis-adjustment-synthesis networks.