Estimating Typhoon Rainfall over Sea from SSM/I Satellite Data Using a Back-propagated Network

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Abstract

This paper proposes a back-propagated network (BPN) and applies it to predict the rainfall using meteorological
satellite data. In the case study, the back-propagated network (BPN) combining with SGji-Dao SM/I microwave frequency channels was employed to establish a suitable method for estimating rainfall at sea surface during typhoon periods. These results are then verified with the data from four rainfall stations located at Peng-Jia-Yu, Don-, Lan-Yu, and Green Island. From the results, the back-propagated network (BPN) outperforms the traditional multiple linear regression and empirical equations with lower estimating errors for predicting the sea-surface rainfall during typhoon periods.

Keyword：satellite, SSM/I, back-propagated network (BPN)