Variability of south west monsoon rainfall in West Bengal: An application of principal component analysis

PIJUSH BASAK
Narula Institute of Technology, Kolkata, India
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e mail: pijushbasak@rediffmail.com

Abstract. The principal component analysis is utilized to understand the spatial and temporal variability of monsoonal rainfall. The south west monsoon rainfall data of West Bengal, situated over 21 stations widely spread over the state has been analyzed for a period of 60 years for inter-annual variations. A coherent subset of 8 north and 13 south stations has been studied separately to bring out statistically significant inter-annual signals. It is observed that above/below transition is quite significant both for station rainfalls and principal components for state-wise and coherent zone analysis.

Key words – South west monsoon, Variability, Principal component analysis, Empirical orthogonal function, Eigen value, Spatial structure, Transition probability.