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**Perceptible changes in Indian summer monsoon rainfall  
in relation to Indian Monsoon Index**

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**Abstract**

The changes in the summer monsoon rainfall over 30 meteorological subdivisions of India with respect to changes in circulation and the Indian Monsoon Index (IMI) have been studied for the period 1953-2012. The relationship between the IMIs in different months and whole season and the corresponding summer monsoon rainfall is studied and tested. The positive and negative extremes are evaluated basing on the normalized values of the deviations from the mean of the IMI. Composite rainfall distributions over India and the zonal wind distributions in the lower and upper troposphere of IMI's both positive and negative extremes are evaluated separately and discussed. In the recent three decades of global warming, the negative values of IMI in July and August lead to weakening of the monsoon system over India. It is observed that the rainfall variations in the Northeast India are different from the rest of India except Tamil Nadu in general.

**Keywords:** summer monsoon rainfall, Indian monsoon index, global warming.

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