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# Characteristic Features of Continuous Rainfall in India

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## Editorial

India's climate is governed by monsoon systems. Southwesterly winds transport moisture from the Indian Ocean into the northern hemisphere summer, resulting in significant rains throughout India from June to September. India's climate is classified into four seasons, which are principally defined by seasonality in rainfall: winter, pre-monsoon, southwest monsoon, and postmonsoon. Rainfall distribution in India by season and year. India receives 105 cm of rainfall on average every year, with the summer monsoon accounting for roughly 75–80 % of this total in several regions of the nation. The migration of depressions/storms originating over the Bay of Bengal or Arabian Sea is a prominent element of monsoon rainfall. However, due to western disturbances, the northern point of India receives a significant quantity of rainfall throughout the winter season. Some sections of India, such as northeast India, are experiencing pre-monsoon rainfall or thunderstorm activity.

October through December, or post-monsoon season, is the wettest month in the Southeast Peninsula. Rainfall climatology data is often accessible for time periods such as monthly, seasonal, and yearly rainfall, and is produced from daily rainfall quantities collected at specific stations. For the management of drainage systems, agricultural activities, and soil erosion research, it is also necessary to understand the climatic aspects of rainfall on shorter time scales such as daily, hourly, and even minutely.

In terms of short-duration precipitation, the mean diurnal cycle of rainfall can give intriguing insights into local rainfall features, which may have crucial consequences for effective water resource management. Many parts of India have received 40–100% of their average yearly rainfall in a single day. On an exceptional rainfall day, it has been found that approximately 60% of the rainfall falls in just a few hours in certain regions, triggering floods in the downstream area due to insufficient reservoir storage capacity to accommodate the extra rainwater. In northeast India and the Indo-Gangetic plains, such scenarios are widespread. On July 26, 2005, Santacruz, a station on India's west coast, received 94.4 cm of rain. 38.1 cm of rain fell in under 3 hours owing to the cloud burst event, whereas 56.3 cm fell over 15 hours and was linked to the continual regeneration of thunderstorm activity.

For many years, the scientific literature has focused on diurnal differences in rainfall patterns. Bleeker and Andre studied nocturnal rainfall patterns in the central United States and linked them to circulation networks created by day/night heating/cooling processes. Kousky investigated the role of local wind systems and orography on precipitation production in northeast Brazil, finding a strong link between local wind circulation systems in the form of mountain and valley breezes. Several earlier investigations have established orography's regulating function as a crucial aspect in the convectional process controlling tropical rainfall diurnal patterns. Many studies based on hourly rainfall data in India describe diurnal variation during the summer monsoon season or a specific season in India. Another essential component of hourly rainfall is the rainfall dispersion during a 24-hour strong rainstorm. The timing distribution of rainfall has a big impact on the water balance on the ground.

For planning the spillway capacity of a reservoir/dam, etc. of a river basin, information on the rainfall distribution on a heavy rain day, as well as the estimation of severe rainfall events, such as Probable Maximum Precipitation at a location, is required. PMP is a measure used in the construction of big hydraulic structures, and it is calculated using daily rainfall information over a lengthy period of time [1-5]. The study of hourly rainfall records is required to determine the distribution of rainfall or the breakup of exceptional rainfall levels on a daily time scale into shorter time periods. In the Indian context, many researches on temporal distribution analysis are linked to specific hydraulic projects or river basins.

## Conflict of Interest

None.

## References

1. Deshpande, N.R., A. Kulkarni, and K. Krishna Kumar. "Characteristic features of hourly rainfall in India." *Int J Climatol* 32 (2012): 1730-1744.
2. Lee, Jong Seol, and Jin Young Won. "Analysis of the characteristic of monthly rainfall erosivity in Korea with derivation of rainfall energy equation." *J Korean Soc Hazard Mitig* 13 (2013): 177-184.
3. Kashiwaya, Kenji, Takashi Okimura and Takeshi Kawatani. "Tree ring information and rainfall characteristic for landslide in the Kobe District, Japan." *Earth Surf Process Landf* 14(1989): 63-71.
4. Matsumoto, S., K. Ninomiya, and S. Yoshizumi. "Characteristic features of “Baiu” front associated with heavy rainfall." *J Meteorol Soc Japan Ser* 49 (1971): 267-281.
5. Tennant, Warren J., and Bruce C. Hewitson. "Intra-seasonal rainfall characteristics and their importance to the seasonal prediction problem." *Int J R Meteorol Soc* 22 (2002): 1033-1048.

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