

## Extreme Rainfall Events and Different Scales of Variability in the Indian Monsoon

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The association of extreme events in rainfall over India with modes of different scales of variability of the monsoon is discussed. The extreme events in rainfall over different regions of India have shown an increasing trend during last several decades. This study examines the relation of the extreme events with synoptic-scale activities, intraseasonal oscillations and interannual variability of the monsoon. The low-pressure systems (LPSs), formed mainly over the Bay of Bengal, are synoptic-scale systems that bring copious amount of rainfall over India through lows and depressions. The leading intraseasonal oscillations (ISOs), with 45-day and 30-day periods, propagate from the Indian Ocean and contribute to the active/break cycle of the rainfall. On interannual time scale, El Niño-Southern Oscillation (ENSO) and Indian Ocean Dipole (IOD) significantly influence the seasonal mean rainfall. The trends in the LPSs, ISOs and the interannual variability and their association with the extreme events are presented.