

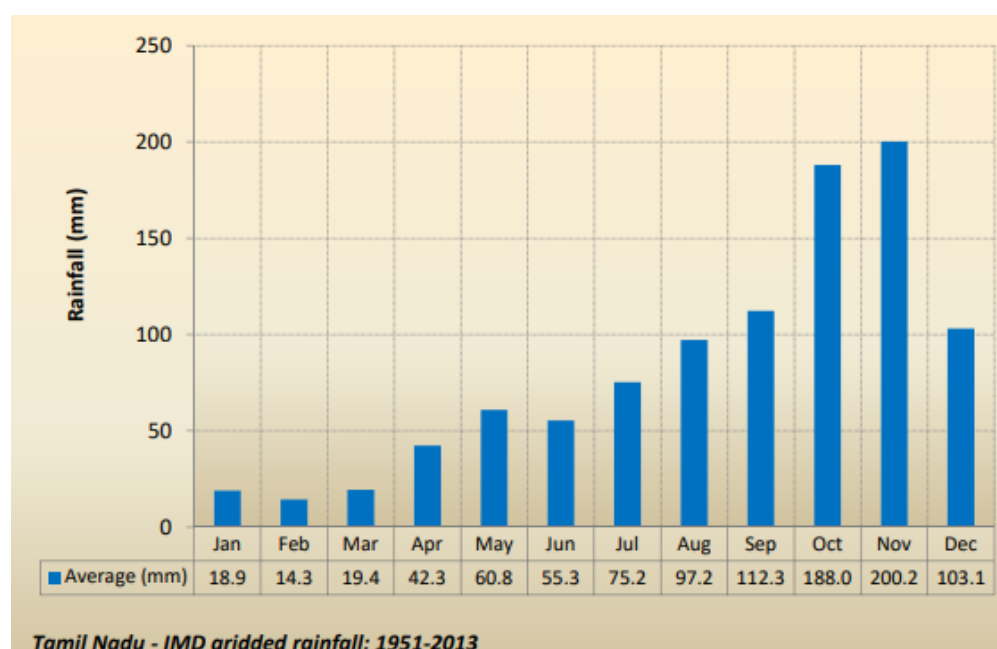
## Extreme December rainfall in Tamil Nadu

### Why in news?

Tamil Nadu has witnessed heavy rainfall in December 2023.

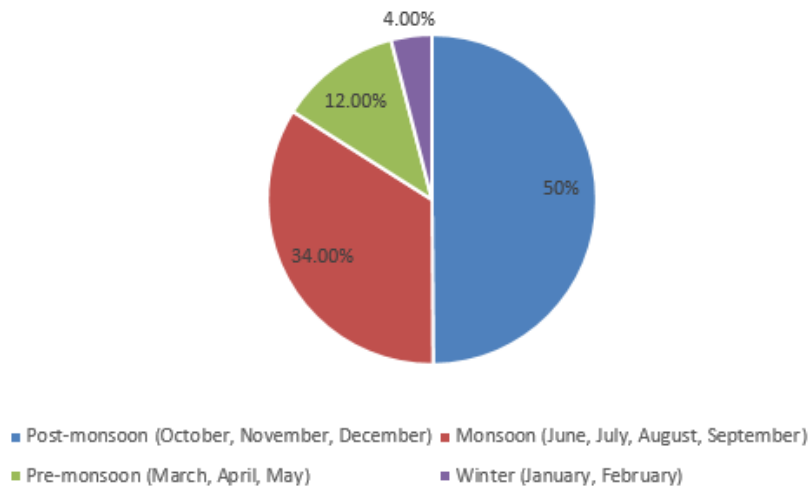
### What is the rainfall pattern in Tamil Nadu?

- **Weather conditions** - The state is *vulnerable to extreme weather conditions*, while coastal districts experience flooding, other areas experience severe droughts.
  - According to IMD, from the *year 1951 to 2013*, Tamil Nadu has received **47 normal, 8 excess, 6 deficient, and 2 scanty rainfall** over a period of time.
- **Annual rainfall** - **About 987mm** with a range varying from 317.4 mm to 1890.5 mm over the 63 years period (1951-2013).
  - While *Nilgiris receives the maximum* average annual rainfall, *Thoothukkudi and Karur receive the least*.
- **Coefficient of variation in annual rainfall** - It lies in the range of *0.21 to 0.37 (21 to 37%)* across the districts of Tamil Nadu.



- **Rainfall share** - Tamilnadu receives the maximum rainfall (around 443.3mm) during post-monsoon (October, November, and December) mainly due to [cyclones formation](#) in Bay of Bengal.

Seasonal Rainfall share



Unlike Tamilnadu, the rest of India receives the maximum rainfall in the months of June, July, August, and September months (monsoon).

### What is the rainfall scenario in December 2023?

- Since October 1, Tamil Nadu has received 450mm of rainfall.
- **Surplus rainfall** - Many coastal districts have already received their surplus rainfall.
  - The annual rainfall of Kanyakumari is 760mm, whereas the district has already recorded 1050.7mm during October 1 - December 20, 2023.
- **Deficient rainfall** - During the ongoing season (till December 20), **only 14 districts** out of total 38 have deficient rainfall.
- **Exceptionally heavy rainfall** - It occurred in 3 districts of southern Tamil Nadu **during December 17-19**.
  - IMD stated that these districts had received about 100 per cent or more surplus rain during these 3 days over the previous week (December 6 - 13, 2023).
- **24-hour time span exceptional rainfall** - It was reported by nearly 40 meteorological stations across Thoothukudi (Tuticorin), Thirunelvali and Kanyakumari districts.
  - For example, in Kalyanapattinam, it was 950 mm in December 18<sup>th</sup>, which is close to the annual rainfall of Lucknow and Ambala (960 mm each) and more than the annual rainfall of Allahabad (918 mm).

### What caused the record rainfall over southern TN?

- **Strong northeast monsoon** - It remained vigorous over Tamil Nadu since mid-December, bringing in steady rain bands, especially over the south Tamil Nadu and neighbouring Kerala.
- **Movement of cyclonic circulation** - It was developed in the southwest Bay of Bengal in December 16, located off the western Sri Lankan coast.
- As this system moved westwards and reached southern Tamil Nadu, it gave impetus to the northeast monsoon winds, persisted over the southern Tamil Nadu region on December 18 and 19.

- A ***heavy cloud convection*** was observed here, resulting in exceptionally heavy rainfall (more than 200mm in 24 hours) over *Thoothukudi, Tirunelveli and Kanyakumari districts* of Tamil Nadu and *Idukki district* of Kerala.

## References

1. [The Indian Express| Heaviest December rainfall in Tamil Nadu](#)
2. [TNSAPCC| Rainfall pattern in Tamil Nadu](#)

