# Shifting Monsoon Patterns

## Why in news?

The India Meteorological Department (IMD) has said that the monsoon has begun to retreat from Rajasthan in late September this year.

## What is monsoon?

- The seasonal reversal of wind direction during a year accompanied by corresponding changes in precipitation.
- The monsoon or southwest monsoon is a sea-breeze from the Arabian Sea and the Bay of Bengal that officially onsets over Kerala on June 1 and retreats from Rajasthan by the end of September.
- It is then replaced by the retreating, or northeast monsoon in November which is the key source of rainfall for several parts of Tamil Nadu, Andhra Pradesh and north interior Karnataka.

## What is monsoon withdrawal?

- The cyclonic systems that fuel the monsoon is replaced by an ‘anti-cyclone’ circulation which causes dry and windless condition to prevail over western and northern India.
- This cessation of rainfall activity over northwest India for straight five days is the withdrawal of the monsoon.

## How was the monsoon in India this year?

- Central India and the southern peninsula were expected to get 6% more than their historical average but saw a sharp surge in rainfall.
- Rains in Central India were surplus by 20% and in southern India by 25%.

## Why excessive rains in southern and central India?

- These heavy rains are due to **La Nina,** characterised by cooler than normal sea surface temperatures in the central Pacific.
- India is experiencing **triple dip La Nina**, thus having a surplus rain in September, a month that usually marks the retreat of the monsoon.

## What is triple dip La Nina?

- The extended spell of La Nina lasting across three winter seasons in the northern hemisphere is called ‘Triple dip La Nina’.

| El Nino | La Nina |
|---|---|

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| Warmer sea surface temperature in the central pacific ocean. | Cooler than normal sea surface temperatures in the central pacific ocean. |
| Causes reduced rains over India. | Causes excessive rains over India. |

## What are the impacts of surplus monsoon rains?

- **Floods -** There were several instances of flooding in Kerala, Karnataka and Madhya Pradesh.
- **Droughts -** On the other hand, large parts of U. P., Bihar, and Odisha have seen large deficits.
- **Impacts on summer crops -** Impacts the sowing of the kharif (summer crops).
- Impacts planting of paddy and reduces its sown area.
- It is expected a shortfall in rice production and is likely to elevate inflation.

## Are monsoon patterns changing?

- India is witnessing excessive rainfall in the monsoon since 2019 except last year.

| Year | June -September | September |
|---|---|---|
| 2019 | 10% more | 52% more |
| 2020 | 9% more | 4% more |
| 2021 | 1% less | 35% more |
| 2022 | 6% surplus so far | Surplus rain expected. |

- According to IMD's records, this is an unprecedented event of three years of above normal rain in a block of four years.

### References


1. https://www.thehindu.com/sci-tech/energy-and-environment/shifting-monsoon-patterns/article65935590.ece?homepage=true


