Early Southwest Monsoon

Why in News

After arriving at the Kerala Coast two days behind the schedule, the Southwest Monsoon has hit early across some areas of south peninsular and central India.

Key Points

- **Cause of Early Monsoon:**
    - **Cyclone Yaas**, formed in the Bay of Bengal in May, helped in bringing the crucial southwest monsoon winds over the Andaman Sea..
        - As a rule-of-thumb, the monsoon makes its onset over Kerala roughly ten days after it makes its advent over the south Andaman sea.
    - After delaying in Kerala, **fast progress was mainly due to strong westerly winds from the Arabian** Sea, and also the **formation of a low-pressure system over the North Bay of Bengal**, that currently lies over **eastern Uttar Pradesh and Bihar.**
    - An **off-shore trough**, prevailing **between Maharashtra and Kerala**, has helped the monsoon arrive early over Karnataka, Goa, Andhra Pradesh, Telangana, Maharashtra and southern Gujarat.
- **Further Progress:**
    - Over **Northwest India**, the monsoon becomes **active only when the monsoon currents** - either from the Arabian Sea or the Bay of Bengal - reach the region. As it is not expected to happen soon, the monsoon progress will remain slow.
    - Also, a stream of **mid-latitude westerly winds** is approaching Northwest India, which will **hinder the monsoon advancement** in the immediate coming days.
- **Early Monsoon and Rainfall Quantum:**
    - The **time of monsoon onset over a region has no direct impact on the rainfall quantum** received during the season, or in the monsoon's progress.
    - For instance, **the monsoon took 42 days in 2014 and 22 days in 2015** to cover the entire country. Even with such distinct ranges, **India recorded deficient rainfall during both years.**
- **Impact on Summer-Sown Crops:**
    - The early arrival of monsoon rains in central and northern India will help farmers accelerate sowing of **summer-sown crops** such as paddy rice, cotton, soybean and pulses, and may boost crop yields too.
- **Indications of Climate Change:**
    - The onset of the monsoon over various parts of the country each year can be ahead of time, in time or late. These variations are generally considered normal, given the complexity of the monsoon.
    - However, climate experts have linked **extreme weather events like intense rainfall over a region within a short time span or prolonged dry spell** during the four

months (June-September) as indications of climate change.

Monsoon in India

- **About:**
    - The **climate of India** is described as the **'monsoon'** type. In Asia, this type of climate is found mainly in the south and the southeast.
    - Out of a total of **4 seasonal divisions** of India, **monsoon** occupies 2 divisions, namely:
        - **The southwest monsoon season** - Rainfall received from the southwest monsoons is seasonal in character, which occurs between June and September.
        - **The retreating monsoon season** - The months of October and November are known for retreating monsoons.
- **Factors Influencing South-West Monsoon Formation:**
    - **The differential heating and cooling of land and water** creates a low pressure on the landmass of India while the seas around experience comparatively high pressure.
    - **The shift of the position of Inter Tropical Convergence Zone (ITCZ)** in summer, over the Ganga plain (this is the equatorial trough normally positioned about 5°N of the equator. It is also known as the monsoon-trough during the monsoon season).
    - **The presence of the high-pressure area**, east of Madagascar, approximately at **20°S over the Indian Ocean.** The intensity and position of this high-pressure area affect the Indian Monsoon.
    - **The Tibetan plateau gets intensely heated** during summer, which results in strong vertical air currents and the formation of low pressure over the plateau at about 9 km above sea level.
    - **The movement of the westerly jet stream** to the north of the Himalayas and the presence of the **tropical easterly jet stream** over the Indian peninsula during summer.
    - **Tropical Easterly Jet** (African Easterly Jet).
    - El Nino/Southern Oscillation (SO)**:** Normally when the tropical eastern south Pacific Ocean experiences high pressure, the tropical eastern Indian Ocean experiences low pressure. But in certain years, there is a reversal in the pressure conditions and the eastern Pacific has lower pressure in comparison to the eastern Indian Ocean. This periodic change in pressure conditions is known as the SO.

Source: IE