

CAUSES OF WIDESPREAD RAINFALL ACROSS INDIA

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Context:

Last week, widespread rainfall was reported in at least 80% of the country, with heavy to very heavy spells hitting Assam, West Bengal, Uttar Pradesh, Uttarakhand, Gujarat, coastal Maharashtra and Karnataka, Kerala, and Lakshadweep.

Background:

Since the start of this month, multiple favourable weather systems have kept the monsoon either active or vigorous (with respect to rainfall events) over southern peninsular, east, northeast, and central India regions.

What factors are causing widespread rains?

There have been two main contributors to the enhanced rainfall:

1. continuous incoming of moisture-laden strong westerly winds from the Arabian Sea.
2. position of the monsoon trough (trough is a belt of low pressure extending to large area)
3. Monsoon trough is a semi-permanent, low-pressure area extending between Pakistan and the Bay of Bengal during the monsoon season — which usually oscillates between north and south within the season. When monsoon trough moves towards the south, as it has done in the present case, more rainfall can take place in central, eastern and peninsular India.
4. When the trough shifts towards the north, the Himalayan foothills are likely to receive more rainfall but the rest of India sees a drop in rainfall.
5. Apart from these two factors, other weather systems have also contributed to the widespread rainfall over all regions, except the extreme north India. They are:
6. The persistence of an off-shore trough (a shallow trough of low pressure, which develops along India's coast during the monsoon) between south Gujarat and north Kerala.
7. The intermittent development of a wind shear zone — where winds move with different velocities and directions — along latitudes 20 ° N between central and peninsular India.
8. The development of a low pressure system over the west-central Bay of Bengal, off the Odisha coast. The system moved over Chhattisgarh and adjoining Vidarbha and over to southeast Madhya Pradesh.