

Reason for cyclones moving to the land

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Why in News?

Tropical Cyclone Montha is intensifying over the Bay of Bengal, threatening Andhra Pradesh and Odisha with severe winds and heavy rain.

- Tropical cyclones are carried by the large-scale wind patterns that govern the atmosphere.
- These storms form over warm ocean waters, where the sea surface temperature is ***about 26° C or more***, providing the heat and moisture they need to grow.
- But once they have formed, the way they move depends entirely on the winds that surround them.
- The tropical areas where cyclones develop are roughly between ***5° and 20° north and south (of the equator)***.
- Here the dominant winds are the trade winds, which blow from east to west throughout the year as part of the global ***Hadley circulation***.

Hadley circulation is a global-scale tropical atmospheric circulation where warm air rises near the equator, flows poleward at high altitudes, and sinks around 30° latitude, creating trade winds and driving weather patterns in tropical and subtropical zones.

- Because the earth rotates, the returning air is deflected towards the west by the **Coriolis effect**, creating the easterly trade winds.
- Winds push tropical cyclones westward, which is why storms in the Bay of Bengal move toward India's east coast, those in the Atlantic move toward the Americas, and those in the Pacific move toward Asia and Australia.
- Cyclones strengthen over warm oceans but are steered by prevailing winds, sometimes meeting other weather systems that can change their direction.

- While some storms move harmlessly out to sea, most are carried over land by the dominant wind flow.
- In the Indian Ocean, wind patterns shift with the monsoon. From June to September, southwest monsoon winds drive cyclones toward India's west coast.
- During winter and early spring, the northeast monsoon reverses the flow, pushing any cyclones westward toward the Arabian Peninsula or Somalia though few form due to cooler seas and strong wind shear.

Reference

[The Hindu | Why do cyclones move towards land?](#)

