



## CYCLONE LANDFALL: GEOGRAPHY

**NEWS:** What is landfall?

### WHAT'S IN THE NEWS?

Cyclone landfall occurs when the eye of the storm crosses over land, cutting off its moisture supply and weakening the cyclone. It causes severe impacts like **storm surges, coastal flooding, and strong winds**, though some cyclones may re-intensify over water.

### Definition of Landfall:

- Landfall happens when the **eye of a tropical cyclone** crosses over land, marking a critical phase where the storm transitions from ocean to land.

### Structure of a Cyclone:

- Cyclones have a **calm eye** at the center, surrounded by the **eyewall**, which is the most intense part of the cyclone with heavy rains, strong winds, and lightning.

### Role of Moisture:

- Over oceans, cyclones draw moisture from warm water, fueling their intensity.
- After landfall, the cyclone loses its **moisture source**, leading to weakening due to reduced evaporation and cooling.

### Impacts During Landfall:

- **Storm Surges:** A sudden rise in sea level causes severe **coastal flooding**, damaging infrastructure and affecting livelihoods.
- **Strong Winds and Rain:** These can uproot trees, damage buildings, and lead to landslides in hilly areas.

### Post-Landfall Behavior:

- Cyclones typically weaken over land but can persist as low-pressure systems or dissipate.
- In some cases, cyclones may re-emerge over warm ocean waters, regaining strength.
- Example: **Cyclone Gulab** weakened after landfall in 2021 but re-strengthened over the Arabian Sea as **Cyclone Shaheen**.



## How tropical storms are formed

High humidity and ocean temperatures of over 27 °C are major contributing factors

Water evaporates from the ocean surface and comes into contact with a mass of cold air, forming clouds

A column of low pressure develops at the centre. Winds form around the column

As pressure in the central column (the eye) weakens, the speed of the wind around it increases



## Saffir-Simpson hurricane wind scale

Category 1	Category 2	Category 3	Category 4	Category 5
Minimal damage	Moderate damage	Extensive damage	Extreme damage	Catastrophic
Winds 119-153 kph	Winds 154-177 kph	Winds 178-208 kph	Winds 209-251 kph	Winds 252 kph and more

Source : <https://www.thehindu.com/sci-tech/science/cyclone-fengal-what-is-landfall/article68931261.ece#:~:text=Landfall%20is%20the%20moment%20in,strong%20winds%20and%20heavy%20rain.>

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