

Typhoon Yagi: Southeast Asia's Strongest Tropical Cyclone of the Year

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Why in News?

Typhoon Yagi, the strongest tropical cyclone in Asia this year and second only to Hurricane Beryl globally, has caused widespread devastation across Southeast Asia.

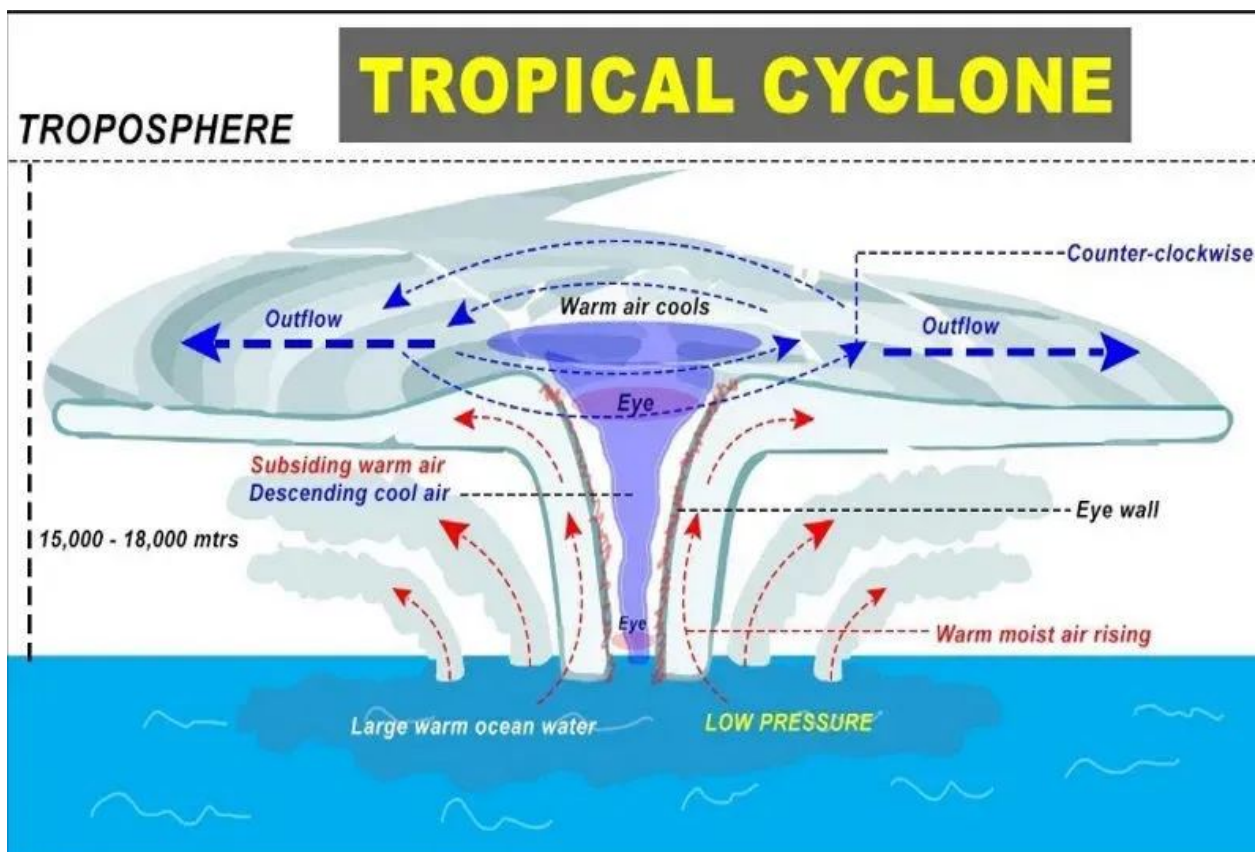
Countries like the Philippines, China, Laos, Myanmar, and Thailand have been severely affected, but Vietnam has borne the brunt of the storm, with around 233 deaths. Torrential rains, floods, and landslides have added to the challenges faced by millions in the affected areas.

Tropical Cyclones

- **About**

- **Cyclones** that develop in the regions between the Tropics of Capricorn and Cancer are called tropical cyclones.
- The World Meteorological Organisation uses the term 'Tropical Cyclone' to cover weather systems in which winds exceed 'Gale Force' (minimum of 34 knots or 63 kph).
- Tropical cyclones are the progeny of ocean and atmosphere, powered by the heat from the sea; and driven by easterly trades and temperate westerlies, high planetary winds and their own fierce energy.

- **Formation of cyclones**



- Tropical Cyclone is a **weather phenomenon**, which is formed **only over warm ocean waters near the equator**.
- **Characteristics of a Tropical Cyclone:**
 - The **centre of a cyclone is very calm and clear with very low air pressure**. The average speed is **120 kmph**.
 - They have closed **isobars** which leads to greater velocity.
 - Isobars are imaginary lines on a weather map that connect locations with equal atmospheric pressure.
 - They develop over oceans and sea only.

- They move from east to west under the influence of trade winds.
- They are seasonal in nature.

- **Classification of cyclones**

- Cyclones are classified **on the basis of wind speed** by the **Indian Meteorological Department (IMD)**:
- **Depression:** Wind speeds of between 31-49 km/h
- **Deep Depression:** Between 50-61 km/h
- **Cyclonic Storm:** Between 62-88 km/h
- **Severe Cyclonic Storm:** Between 89-117 Km/h
- **Very Severe Cyclonic Storm:** Between 118-166 Km/h
- **Extremely Severe Cyclonic Storm:** Between 166-221 Km/h
- **Super Cyclonic Storm:** Above 222 Km/h

- **Category of a tropical cyclone**

- The category of a tropical cyclone is determined by its sustained wind speed, as measured by the **Saffir-Simpson Hurricane Wind Scale**.
- It is classified into five categories — Category 1 to Category 5.
- While Category 1 tropical cyclones bring winds of 119 to 153 kmph, Category 5 tropical cyclones, which are the strongest, have winds of 252 kmph or higher.
 - Storms that reach Category 3 and higher are considered major tropical cyclones due to their potential to inflict significant damage.
- **Tropical cyclones are known by different names in various regions**
- **Hurricanes** – In the in the West Indian islands in the Caribbean Sea and Atlantic Ocean.
- **Tornados** – In the Guinea lands of West Africa and southern USA
- **Typhoons** – In the Northwest Pacific Ocean, particularly affecting East and Southeast Asia (e.g., Japan, Philippines, China, Taiwan).
- **Cyclones** – In the Southwest Indian Ocean (off the coast of Africa, Madagascar), the Southeast Indian Ocean, and the Southwest Pacific Ocean.
- **Willy-Willies** – An informal term used for tropical cyclones in Australia.

Reasons behind Typhoon Yagi becoming the strongest storm in Asia

- **Warm waters of South China Sea**

- Typhoon Yagi started as a tropical storm in the western Philippine Sea. It made landfall in the Philippines and started to weaken.
- However, due to unusually warm waters in the South China Sea, the storm intensified again.
- Later, it became a Category 5 typhoon with peak maximum sustained winds of 260 kmph.
 - Typhoon Yagi is one of four Category 5 storms recorded in the South China Sea, after Pamela in 1954, Rammasun in 2014, and Rai in 2021.
- The storm was subsequently downgraded to a tropical depression but still brought heavy rains last week in countries such as Myanmar, where it triggered severe floods around the remote capital, Naypyidaw.

- **Role of climate change**

- Scientists are still debating how climate change affects tropical cyclones, as many factors influence storm formation and development.
- However, there is agreement that rising global temperatures are making tropical cyclones more intense.
- A recent study suggests that in Southeast Asia, cyclones are now forming closer to coastlines, intensifying faster, and lingering longer over land.
- This is likely due to warmer sea surface temperatures, which have increased by nearly 0.9°C since 1850.
- Hotter oceans fuel storms with more water vapor and heat, leading to stronger winds, heavier rainfall, and increased flooding when storms make landfall.

Operation Sadbhav by India

- India launched Operation Sadbhav to provide humanitarian assistance and disaster relief (HADR) to Laos, Myanmar and Vietnam that have been hit by severe flooding caused by Typhoon Yagi.
 - India has committed \$1mn worth of flood relief assistance to Vietnam and \$1,00,000 worth of assistance to Laos.
 - India has been among the first responders in providing HADR to the region.
 - This Operation is part of India's broader effort to contribute to HADR within the ASEAN region, in line with its longstanding Act East Policy.
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Q.1. What made Typhoon Yagi the strongest storm in Asia this year?

Typhoon Yagi intensified due to unusually warm waters in the South China Sea, reaching Category 5 with winds of 260 kmph. It caused widespread devastation in Southeast Asia, particularly in Vietnam, where floods and landslides led to hundreds of deaths.

Q.2. How does climate change affect tropical cyclones like Typhoon Yagi?

Climate change is increasing the intensity of tropical cyclones by raising sea surface temperatures. Warmer oceans fuel storms with more heat and water vapor, leading to stronger winds, heavier rainfall, and more devastating landfall impacts.

Source: Behind Typhoon Yagi becoming the most powerful storm in Asia this year | CNN | NDMA | The Hindu

Source: <https://vajiramandravi.com/current-affairs/typhoon-yagi-cyclone/>

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