

Cyclone Systems

Why in news?

Due to rapid intensification of cyclones there is a need for change in forecasting the cyclones.

What is cyclone?

- **Atmospheric disturbances** - Cyclones are caused by atmospheric disturbances around a low-pressure area distinguished by swift and often destructive air circulation.
- **Eye of the cyclone** - The low-pressure center of the cyclone is called the eye.
- Eye **provides energy** to the cyclones.
- The lower the pressure in the eye, the more intense is the cyclone.
- **Eye-wall** - Surrounds the eye with the strongest winds and heaviest rain and is the **most destructive part** of the cyclone.

The Cyclone Genesis Potential (GPI) to estimate the number of cyclones that may be born in a season is defined based on the variables that occur during the birth of cyclones



What is seedling of a cyclone?

- **Rotating low-pressure system** - It is the seed of the cyclone.
- It is the moisture converging near the surface when warm light air rises and takes the evaporated water with it.
- Rising air expands, cools and condenses to release energy in the middle atmosphere.
- **Madden-Julian Oscillations (MJO)** - Throw seeds of rotational low-pressure systems over the Indian and the Pacific Oceans.
- MJOs show a strong association with cyclogenesis, especially for the post-monsoon season.
- **El Niño and La Niña** - Influence the number of cyclone seeds and also the location and the expanse of warm water.
- **Easterly waves** - Produced by West Africa propagate cyclones from west from land onto the tropical Atlantic Ocean and sow the seeds for most hurricanes.

Tropics have all the critical environmental ingredients for cyclogenesis: Warm Ocean, atmospheric convection, vertical motion and mid-level humidity.

What is the environmental factors involved in cyclogenesis?

- Rotation or vorticity of a low-pressure system at the surface
- Sea surface temperatures or the volume of warm water available.
- The vertical motion of air in this low-pressure system.
- The amount of humidity available in the middle atmosphere.
- The vertical shear or the change in winds from the surface to the upper atmosphere.

Quick facts

National Disaster Management Authority (NDMA)

- NDMA is created by NDMA act 2005.
- NDMA is headed by prime minister.
- NDMA is the apex body for Disaster Management in India.
- NDMA is mandated to lay down the policies, plans and guidelines for Disaster Management to ensure timely and effective response to disasters.

References

1. [Down To Earth | Cyclone Process](#)
2. [NDMA | About NDMA](#)

