

## Cyclone Warning and Marine Weather Services Decision Support System (DSS)

*Prelims: Current events of national and international importance | Geography*

### Why in News?

The India Meteorological Department (IMD) launched an interactive WebGIS-based Cyclone Warning and Marine Weather Services Decision Support System (DSS).



- **Launched on** - 12<sup>th</sup> October 2026, during IMD's pre-cyclone preparedness meeting for the post-monsoon cyclone season (October-December).
- **Cyclone**

| Cyclone | Year | Important fact                                                                   |
|---------|------|----------------------------------------------------------------------------------|
| Phailin | 2013 | Very severe cyclonic storm that made landfall in Odisha                          |
| Hudhud  | 2014 | Very severe cyclonic storm that made landfall near Visakhapatnam, Andhra Pradesh |

*Their anniversaries coincided with the DSS launch date, highlighting the importance of cyclone forecasting and preparedness.*

- **Aim** - To help disaster management authorities, government agencies and the public

understand cyclone-related hazards and take timely action.

- **Accessible through** - The websites of IMD and the Regional Specialised Meteorological Centre (RSMC).
- **Key Features**
  - **Interactive WebGIS maps** - Presents cyclone-related information through maps and visualisations.
  - **Cyclone track and intensity** - Displays predicted cyclone paths and intensity forecasts.
  - **Wind distribution** - Provides information on wind patterns and potential impacts.
  - **Rainfall warnings** - Helps users understand expected rainfall and associated hazards.
  - **Storm surge information** - Supports assessment of coastal inundation risks.
  - **River catchment rainfall forecasts** - Helps identify potential flooding risks in river basins.
  - **Location-specific information** - Supports localised preparedness and response.
  - **Decision support** - Bridges the gap between weather forecasts and practical action.
- **Significance** - The system provides support for the following functions:
  - Facilitation of early evacuation and relocation.
  - Enhancement of coastal and marine safety.
  - Improvement of disaster response planning.
  - Protection of human life, property, and livelihoods.
  - Facilitation of coordination among government agencies and emergency responders.
- **WebGIS (Web-based Geographic Information System)** - It is a platform that enables users to access, visualize, and analyze geographically referenced data using web-based interfaces.

| Feature                       | Application in cyclone management                                         |
|-------------------------------|---------------------------------------------------------------------------|
| Geospatial visualisation      | Maps cyclone tracks and affected areas                                    |
| Location-specific information | Identifies hazards relevant to particular locations                       |
| Layer-based mapping           | Helps visualise different hazards, such as wind, rainfall and storm surge |
| Decision support              | Assists authorities in prioritising preparedness and response measures    |

**India Meteorological Department (IMD)**

- **Established** - 1875.
- **Headquarters** - New Delhi.
- **Nodal ministry** - Ministry of Earth Sciences (MoES).
- **Primary role** - It involves observing, analyzing, and forecasting weather and climate, as well as issuing warnings for cyclones and other severe weather events.
- **Cyclone-related responsibilities** - Monitoring tropical cyclones, issuing forecasts and warnings, and providing marine meteorological services.

### Regional Specialised Meteorological Centre (RSMC)

- The RSMC New Delhi, operated by IMD, is responsible for tropical cyclone advisories and related services for the North Indian Ocean region.
- The North Indian Ocean basin comprises the Bay of Bengal and the Arabian Sea.

### Pre-Cyclone Preparedness Exercise Meeting

- The India Meteorological Department (IMD) has convened biannual pre-cyclone preparedness meetings since 2008.
- These meetings enhance coordination among meteorological agencies, disaster management authorities, defense forces, state governments, and other relevant stakeholders.
- The October 2026 session addressed the following key areas:
  - Assessment of preparedness for the post-monsoon cyclone season.
  - Evaluation of progress on recommendations from the previous meeting.
  - Review of operational requirements across participating agencies.
  - Demonstration of the new Decision Support System (DSS) platform.
  - Collection of stakeholder feedback to enhance operational effectiveness.
- **Participating Organizations**
  - National Disaster Management Authority (NDMA)
  - National Disaster Response Force (NDRF)
  - Ministry of Home Affairs
  - Indian Navy, Indian Air Force, and Indian Coast Guard
  - Central Water Commission (CWC)
  - State Disaster Management Authorities
  - Fisheries Departments, as well as other relevant ministries and scientific institutions.

## Reference

[TOI | Interactive Cyclone Warning and Marine Weather Platform](#)