Terms and terminologies

As per agreed terms, the Regional Specialized Meteorological Centre (RSMC) provides the forecast of following weather phenomena to the National Meteorological and Hydrological Services (NMHs):

1) **Heavy rainfall**
2) **Winds**
3) **High waves**
4) **Cyclonic disturbances**
5) **Storm Surge**

Standardized weather terms and terminology provide a **common and consistent language** for describing weather phenomena. Clear definitions help meteorologists communicate accurately and enable emergency responders, decision-makers, researchers, industries, and the public to understand weather information consistently.

The commonly used terms and terminologies are presented below:

1. **Central pressure of a tropical cyclone:** Surface pressure at the centre of the tropical cyclone as measured or estimated
2. **Classification of cyclonic disturbances over the North Indian Ocean have been categorised as:**

A cyclonic disturbance is a non frontal synoptic scale low pressure system originating over tropical waters with organized convection and definite cyclonic wind circulation. Various cyclonic disturbances are classified as below:

Type of disturbance	Associated maximum sustained wind
1. Low pressure Area	Not exceeding 17 knots (< 31 kmph)
2. Depression	17 to 27 knots (31-49 kmph)
3. Deep depression	28 to 33 knots (50-61 kmph)
4. Cyclonic Storm	34 to 47 knots (62-88 kmph)
5. Severe Cyclonic Storm	48 to 63 knots (89-117 kmph)
6. Very Severe Cyclonic Storm	64 to 90 knots (118-167 kmph)
7. Extremely Severe Cyclonic Storm	91 to 119 knots (168-221 kmph)
8. Super Cyclonic Storm	120 knots and above (≥ 222 kmph)

3. **Cloud distribution:** (a) Isolated: <25%, (b) Scattered: 25-50%, (c) Broken: 50-75% and Solid>75%
4. **Convection Intensity:** (a) Weak: Cloud Top Temperature (CTT)> 25°C, (b) Moderate: CTT: -25°Cto-40°C, (c) Intense: CTT: -41°Cto-70°C and (d) Very Intense: Less than-70°C
5. **Cyclogenesis:** It is the development or strengthening of a low pressure area into a depression.
6. **High waves:**

High waves over the region have been categorised as:

Condition of Sea	Wave height (m)
1. Moderate	1.25 - 2.5
2. Rough	2.5 – 4
3. Very Rough	4.0 - 6.0
4. High	6.0 - 9.0
5. Very High	9.0 - 14.0
6. Phenomenal	Over 14.0

7. Madden Julian Oscillation: The Madden–Julian Oscillation (MJO) is a large-scale, eastward-moving tropical disturbance characterized by a coupled variation in deep convection, rainfall, winds, pressure and atmospheric circulation over the tropics. It typically moves eastward from the Indian Ocean across the Maritime Continent into the Pacific Ocean and has a life cycle of about 30–60 days. The MJO can influence the development, movement and intensity of tropical cyclones, monsoon rainfall, and other tropical weather systems**.** Phases 2,3,4,5 are favourable for Indian Summer Monson rainfall and cyclogenesis over the North Indian Ocean.

8. Rainfall

When classifying rainfall intensity, forecasters often used a terminology based on certain threshold values. Following terminology is used for various categories of heavy rainfall:

- No heavy rainfall: < 5 cm
- Heavy rainfall: ≥ 5 cm
- Very heavy rainfall: ≥ 10 cm
- Extremely heavy rainfall: ≥ 15 cm

9. Risk

Risk is the potential for loss of life, injury, damage to property, disruption of livelihoods and services, or environmental impacts resulting from the interaction of a hazard with exposed and vulnerable people, infrastructure and systems**.**

Risk = Hazard × Exposure × Vulnerability

10. Wind speed

Similarly, when discussing the strength of winds, especially in the context of meteorological events, it's essential to understand the classification based on wind speed. Following terminology is used for various thresholds of strong wind:

- < 20 KT
- 20-33 KT with no cyclonic disturbance
- 20-33 KT alongwith any cyclonic disturbance (depression/deep depression)
- ≥ 34 KT

1 knot (KT) = 1.85 kmph

11. Storm Surge: Storm surge is the abnormal rise of sea level above the astronomical tide caused by a meteorological disturbance, mainly a tropical cyclone. It results primarily from the shoreward movement of seawater due to wind stress.

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