

How to Read the FMS Tropical Cyclone Track Map

Purpose:

The Tropical Cyclone (TC) Track Map provides a clear visual of a cyclone's current position, forecast track, and expected intensity to support situational awareness and decision-making. It helps users identify the system's movement, understand its likely path and uncertainty, and assess areas that may be affected, supporting timely preparedness and response.

Overview:

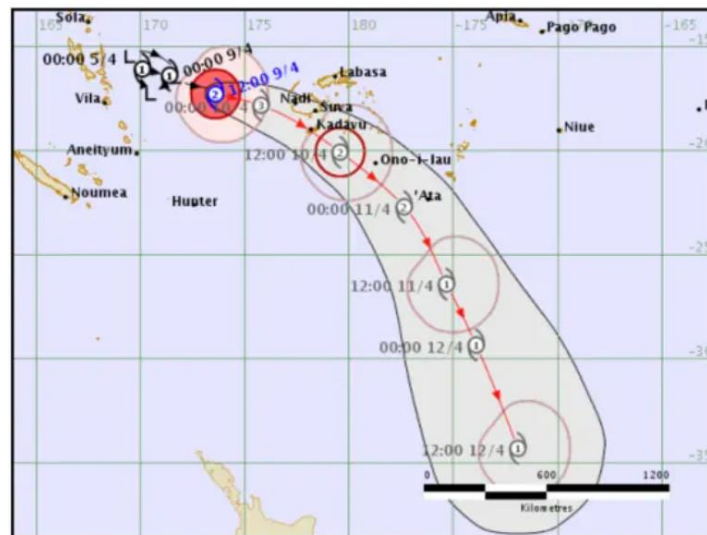
The Fiji Meteorological Service (FMS) Tropical Cyclone Track Map provides a visual history and future prediction of a tropical cyclone's journey. It tracks the path of the system's center, showing where the cyclone has been (Past Track) and where it is predicted to go over the next 3 days (Forecast Track).

Criteria for Issue:

This product is issued when a Tropical Disturbance/Depression (TD) is assessed as having moderate to high likelihood of intensification into a Tropical Cyclone, or once the system is classified and named as a Tropical Cyclone.

Primary Use:

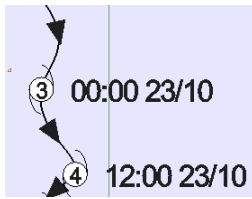
Use this map to monitor the tropical cyclone's evolving category (strength) and its general trajectory relative countries in RSMC Nadi's area of responsibility.



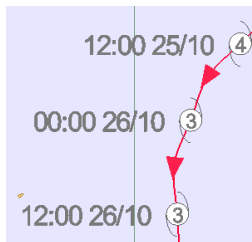
Sample TC Track map of Tropical Cyclone Mal as a category 2 system at the time of analysis.

1. The Track Lines (Movement)

The curving line across the map represents the path of the cyclone's centre.



- **Black Line with Arrows (Past Track):** Shows where the cyclone centre has already travelled.



- **Red Line with Arrows (Forecast Track):** Shows the most likely future path of the centre. The arrows indicate direction of movement.

2. The Symbols (Intensity & Position)

Follow the track line to see numbered circles symbols. These show you how strong the cyclone is predicted to be and when it is expected to reach that location.

A. The Colors (Timeline)



Black Icon: Past position (History)



Blue Icon: Current position (Analysis time).



Grey Icon: Forecast position (Future prediction).

B. The Numbers (Category)

The number inside the circle symbol represents the **Tropical Cyclone Category** (Intensity) at that specific location and time.



Category 1



Category 3



Category 5

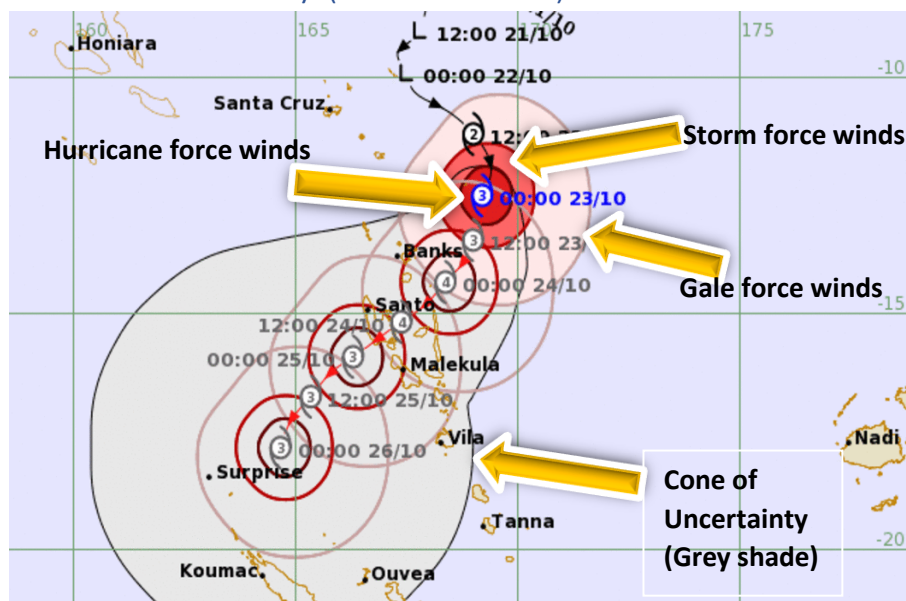


Low



Tropical Depression/Disturbance

3. The Cone of Uncertainty (Shaded Area)



Sample track Map of TC Lola

Cone of Uncertainty is the grey shaded area that surrounds the forecast track line.

What it means: The cone represents the probable area where the **center** of the cyclone is likely to pass. It is a **margin of error**, not a shield.

Why does it get wider? You will notice the cone widens the further out the map goes (e.g., from 24 hours to 48 hours). This visualizes that **forecast uncertainty increases with time**. The wider the cone the higher the uncertainty and this can be different for every other cyclone.

Crucial Rules for the Cone:

1. **Center Only:** The cone predicts the path of the *center*. It **does not** show the size of the storm.
2. **Impacts extend outside:** Damaging winds, heavy rain, and storm surges can often extend significantly **outside** the shaded cone.

Understanding Uncertainty:

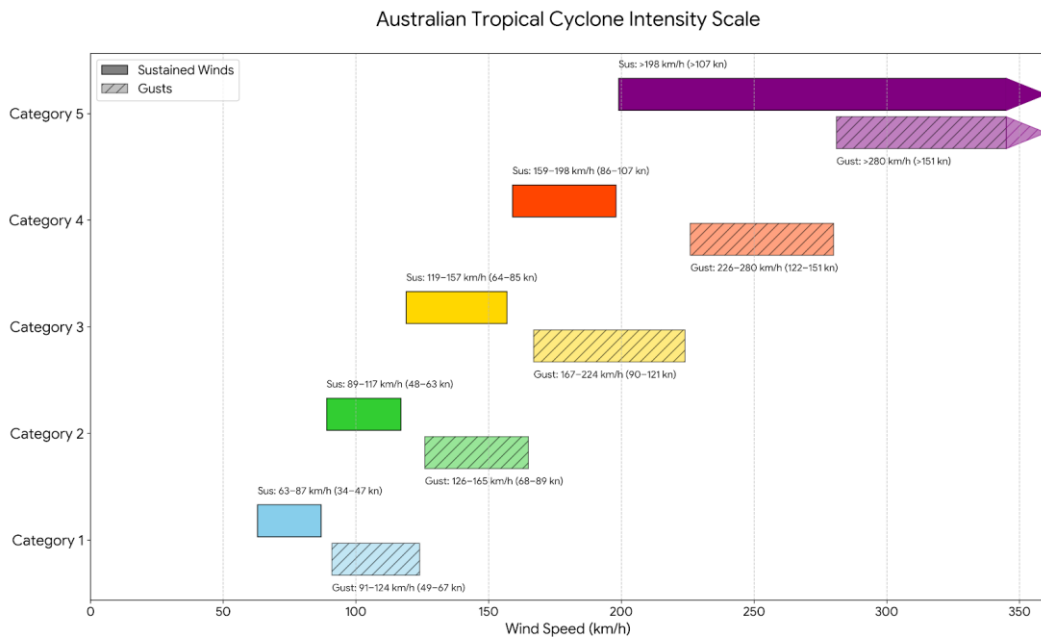
It is important to remember that the "Red Line" is the best estimate. Any cyclone can deviate to the left or right of this forecast line due to environmental conditions. There are four main types of uncertainty in every forecast:

1. **Speed:** The cyclone can speed up or slow down unexpectedly during its life cycle.
2. **Intensity:** The system may intensify or weaken at a faster rate than indicated in the forecast.
3. **Track:** The cyclone may deflect slightly from the forecast path.
4. **Size:** The size of a TC (Extent of Gales, Storm and Hurricane force winds) can increase or decrease with time.

Important Note: A cyclone can be a massive system. Focusing only on the "center line" may not give you the complete picture of its impacts. **Always check the "Alert and Warning" zones in the TC Threat Map and Special Weather Bulletins for TC related hazards and impacts.**

4. Understanding the "Category" Scale (Regional Standard)

It is important to understand which intensity scale is being used on the track map. The Fiji Meteorological Service uses the **Australian Tropical Cyclone Intensity Scale**, which is the standard for the South Pacific region.



⚠ Important Distinction: Do not confuse this scale with the Tropical Cyclone scales used in the other regions of the world. They are different.

Additional Notes:

These maps are updated every 6 hours. If it is more than 6 hours old, find a newer one that has been issued or will be issued shortly. If the tropical cyclone is to directly affect Fiji, these maps may be issued every 3-hourly.

The track maps are based on the official forecast track and account for the uncertainties that exists for every Tropical Cyclone.

Fiji Meteorological Service uses 10-minute wind average to determine strength of winds. This may differ from other regions of the world hence TC strengths can be different according to various centers.

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