

How to Read the FMS Tropical Cyclone Threat Map

Purpose

The Tropical Cyclone Threat Map is designed to provide a clear and concise overview of tropical cyclone activity affecting the Fiji region and surrounding areas. The tropical cyclone (TC) season is typically defined; however, cyclones may also develop outside of the official season.

This product highlights the current location, movement, intensity, and spatial extent of associated winds of any active tropical cyclone. It is intended to support situational awareness for forecasters, decision-makers, and stakeholders by summarizing key threat elements in a single, easy-to-interpret visual format.

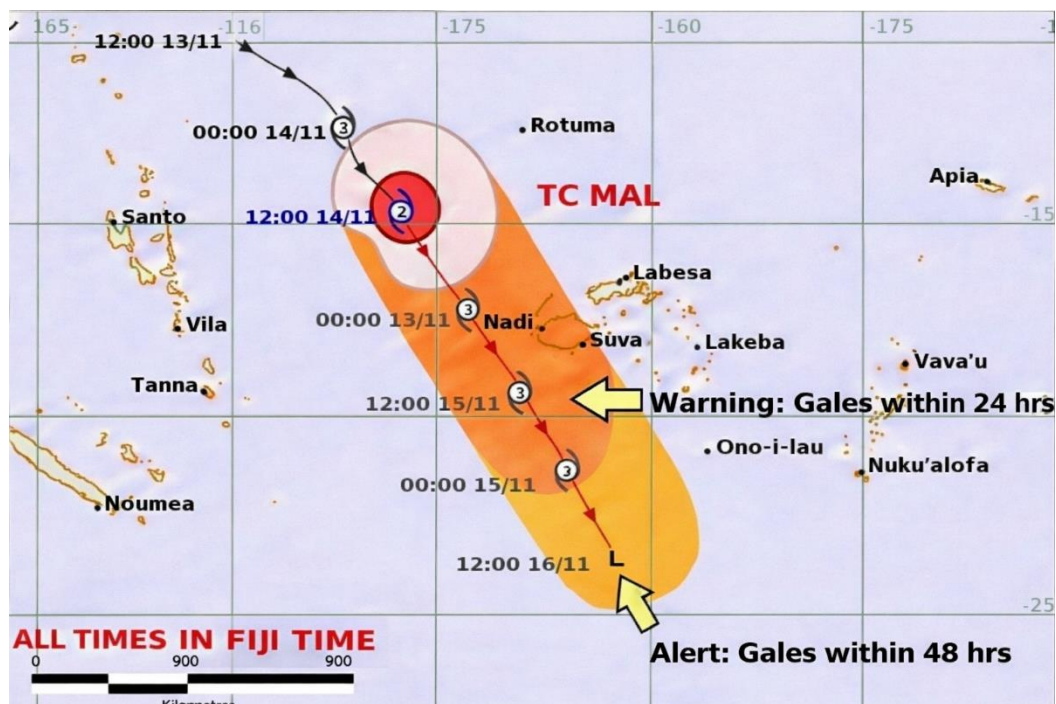
Criteria for Issue:

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.

Overview

The Fiji Meteorological Service (FMS) Threat Map is designed to answer one critical question: "When will the winds hit me?" within the next 48 hours from time of map issue.

Unlike the Track Map, which focuses on the cyclone's center, this map highlights the specific geographical areas likely to experience gale-force winds or stronger within the next 24 to 48 hours. It is your primary tool for timing your disaster preparations.



Sample Threat map of Tropical Cyclone Mal indicating gale force winds or stronger and onset.

1. The Threat Zones (The "Swath" of Colors)

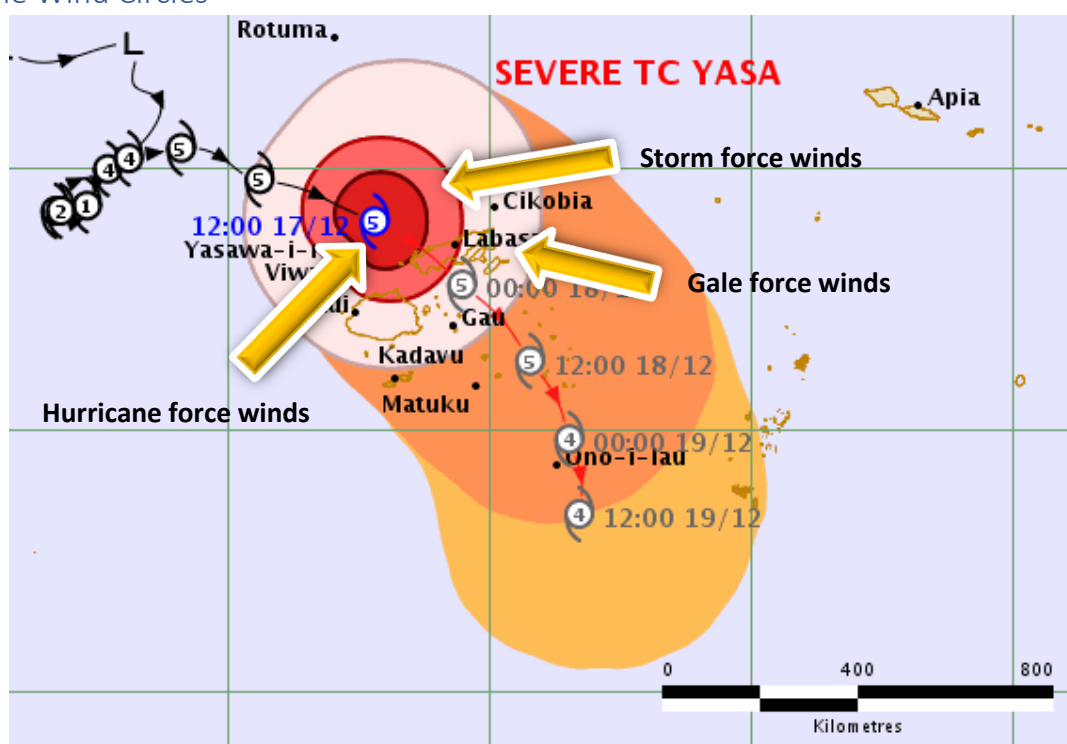
This is the most critical feature for public safety. The map uses color-coded zones to show *when* dangerous winds are expected to impact your area.

ALERT: Gale force winds or stronger expected within **24–48 hours**.

WARNING: Gale force winds or stronger expected within **24 hours**.

Note: These zones can shift as the forecast updates. For example, if you are in the Alert zone now, you could be in the Warning zone within the next 24 hours.

2. The Wind Circles



Sample Threat map of Severe Tropical Cyclone Yasa as a Category 5 system.

Around the center of the cyclone, you will often see concentric colored rings. These show how far out the significant winds of various strengths from the center at the time of analysis.

- **Dark Red Circle (Inner): Hurricane Force Winds** (Very Destructive) for Category 3 or higher TCs only.
 - Winds above **63 knots (117 km/h)**. Capable of widespread structural damage.
- **Pinkish Red Circle (Middle): Storm Force Winds** (Destructive) for Category 2 TCs or higher.
 - Winds between **48–63 knots (89–116 km/h)**. Can cause significant damage to trees, crops, and weak structures.

- **Light Pink Circle (Outer): Gale Force Winds (Damaging).**
 - Winds between **34–47 knots (63–88 km/h)**. The threshold where minor damage begins (breaking twigs, damaging signs).

TC Strengths and related potential damages

Category	Maximum Wind Gusts (km/h)	Typical Effects / Damage
1	90 – 125	Very destructive winds. Damage to house roofs, carports, awnings and trees. Some power outages likely.
2	125 – 164	Destructive winds. Significant damage to roofs and structures. Flying debris may cause injury. Power failures likely.
3	165 – 224	Very destructive winds. Some structural damage, especially to older buildings. Many trees uprooted. Power and water services disrupted.
4	225 – 279	Very destructive winds. Significant structural damage. Dangerous airborne debris. Widespread power failures.
5	≥ 280	Extremely destructive winds. Widespread destruction of homes and infrastructure. Very dangerous debris. Long-term service disruptions.

Crucial Visual Rule:

As the cyclone moves, these circles travel with it along the track. They may not stay the same size. If the cyclone strengthens, the destructive wind circles will expand. If you are in the path of the Red Line, you must prepare for these winds to hit you, potentially covering a larger area than shown on the current threat map.

3. Understanding Time (UTC vs. Local Time)

Tropical Cyclone maps often uses a standard time. Misinterpreting this could lead to dangerous delays in preparation. Always check the map legend.

Case A: Universal Coordinated Time (UTC)

- **Indicator:** The map uses "Z" or "UTC" next to the time (e.g., 1800 UTC).
- **What to do:** You must add the relevant conversion amount as per the following table to convert to local time.

e.g. Calculation: 1800 UTC + 12 hours = 6:00 AM the next day.

Country	Time conversion	0200UTC in local time will be
Tonga	UTC +13	3:00pm
Samoa	UTC +13	3:00pm
Tokelau	UTC +13	3:00pm
Fiji	UTC +12	2:00pm
Tuvalu	UTC +12	2:00pm
Vanuatu	UTC +11	1:00pm
Solomon	UTC +11	1:00pm
Niue	UTC -11	3:00pm previous day
Cook Islands	UTC -10	4:00pm previous day
American Samoa	UTC -11	3:00pm previous day

Note: The above time conversions do not account for daylight savings.

Case B: Fiji Standard Time (FST) – Cyclones which directly affect Fiji waters.

- **Indicator:** The map text explicitly says "ALL TIMES IN FIJI TIME."
- **What to do:** Read the time directly (e.g., "2:00pm 14/11" is 02:00 PM on Nov 14th).

Summary Checklist for Reading the Map

1. Check the Date/Time Label: Is the map current? Is the time shown in Fiji Time or UTC?
2. Find Your Location: Are you in the Alert or Warning zone? How much time do you have left to prepare?
3. Check the Wind Circles: Look at the "Bullseye." Is the Dark Red (Hurricane) or Pink (Gale) circle approaching your location?
4. Read the Text Bulletin: The map is a summary. Always read the accompanying Special Weather Bulletin for critical details on rainfall, flash flooding, and storm surges which the map does not show.

4. STAY INFORMED: Official Sources

- **Radio:** 📻 Listen to the radio for the latest updates.
- **Website:** www.met.gov.fj
- **Social Media:** Official weather warnings and advisories available on Fiji Meteorological Services social media.

5. Glossary

- **TD (Tropical Disturbance):** A spinning low pressure system that can bring heavy rain and floods. It can intensify into a tropical depression.

- **TD (Tropical Depression):** A spinning low pressure system that brings heavy rain, floods and gale force winds. It can intensify into a tropical cyclone.
- **Storm Surge:** Rising sea water pushed by the winds in the vicinity of a cyclone.
- **Special Weather Bulletin:** The official text message that explains the map with warning areas and expected weather conditions. It is a good idea to be aware of the contents of this bulletin.

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-hours.

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.

END OF GUIDE --- For the latest weather updates, visit www.met.gov.fj