

Product Guide: Heavy Rainfall Alert and Warning

Fiji Meteorological Service

1. Purpose of the Product

Heavy rainfall is one of the most significant weather hazards affecting Fiji and is frequently associated with tropical disturbances, tropical cyclones, active troughs of low pressure, convergence zones, and persistent moist wind flows. Prolonged or intense rainfall can lead to flash flooding, river flooding, urban flooding, landslides, infrastructure damage, and disruption to communities and essential services.

The Heavy Rainfall Alert and Warning product is issued to provide early notification of widespread heavy rainfall events that may pose a threat to life, property, infrastructure, agriculture, and transportation. The product supports preparedness, response planning, and risk reduction activities by government agencies, emergency managers, stakeholders, and the public.

2. Definitions

Heavy Rainfall

Rainfall of sufficient intensity and duration that may lead to flooding, flash flooding, landslides, or other significant impacts.

Heavy Rainfall Alert

A Heavy Rainfall Alert is issued when there is moderate to high confidence that widespread heavy rainfall may affect an area within the next 24 to 48 hours.

An Alert may be issued when:

- Rainfall is expected to exceed 50mm in 24 hours and may potentially reach 100mm in 24 hours.

OR

- There is high confidence that rainfall will exceed 100mm in 24 hours within the next 24 to 48 hours.

OR

- A known vulnerable area is expected to receive rainfall amounts capable of producing significant impacts.

Heavy Rainfall Warning

A Heavy Rainfall Warning is issued when there is high confidence that rainfall will exceed 100mm in 24 hours and significant impacts are likely.

Warnings are generally issued within 24 hours of the expected onset of the event.

Flash Flooding

Rapid flooding that develops within a short period following intense rainfall, often with little or no warning.

River Flooding

Flooding that occurs when rivers, streams, or waterways exceed their banks due to prolonged or heavy rainfall.

Urban Flooding

Flooding that occurs when rainfall exceeds the capacity of urban drainage systems.

Landslide

The movement of soil, rock, or debris down a slope due to saturation of the ground from heavy rainfall.

3. Forecast Inputs and Monitoring Tools

Heavy Rainfall Alerts and Warnings are developed using:

Numerical Weather Prediction Models

Forecast guidance from global and regional weather models including ECMWF, ACCESS, GFS and WRF.

Satellite Observations

Monitoring of cloud structure, moisture availability, convective activity, and weather system development.

Radar Observations

Tracking rainfall intensity, distribution, and movement in real time.

Surface Observations

Rainfall observations from automatic weather stations, manual rainfall stations, and hydrological monitoring sites.

Upper Air Observations

Assessment of atmospheric moisture, instability, wind patterns, and lifting mechanisms.

Hydrological Information

River levels, catchment conditions, soil moisture status, and flood guidance products where available.

Forecaster Expertise

Professional assessment of model guidance, climatology, antecedent conditions, and local vulnerabilities.

4. Hazards and Impacts

Heavy rainfall may result in:

Flooding Impacts

- Flash flooding of low-lying and flood prone areas.
- Rapid rises in rivers, creeks, and streams.
- Urban flooding due to overwhelmed drainage systems.
- Inundation of roads and crossings.
- Isolation of communities.

Infrastructure Impacts

- Damage to roads, bridges, and drainage infrastructure.
- Disruption to electricity, water, and communication services.
- Transport delays and road closures.

Land Impacts

- Landslides and slope failures.
- Soil erosion and sediment movement.
- Damage to crops and agricultural land.

Public Safety Impacts

- Dangerous driving conditions.
 - Reduced visibility.
 - Increased risk to life from fast flowing floodwaters.
 - Displacement of communities in severely affected areas.
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5. Criteria for Issuance

Heavy Rainfall Alert

A Heavy Rainfall Alert may be issued when:

- There is moderate to high confidence that rainfall may exceed 50mm in 24 hours and could potentially exceed 100mm in 24 hours.

OR

- There is high confidence that rainfall will exceed 100mm in 24 hours within the next 24 to 48 hours.

OR

- Forecast rainfall amounts are expected to significantly affect a known vulnerable area.

Heavy Rainfall Warning

A Heavy Rainfall Warning may be issued when:

- There is high confidence that rainfall will exceed 100mm in 24 hours.

AND/OR

- The event is expected to commence within the next 24 hours.

AND/OR

- Observed rainfall has already exceeded 70mm and rainfall is expected to continue, with total accumulations likely to exceed 100mm within 24 hours.

AND/OR

- Rainfall is likely to result in flash flooding, severe flooding, or other significant impacts.
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6. Areas Covered

Warnings and Alerts may be issued for:

- Specific districts. • Provinces. • Divisions. • Groups of islands. • Entire Country.

Areas may be updated as confidence increases or decreases.

7. Product Format

The Alert or Warning should include (*Template in Appendix 1*):

- Product title and bulletin number.
- Issue date and time.
- Areas affected.
- Weather situation.
- Observed rainfall recorded above 100mm/24hrs (may also include >50mm/24hrs)
- Timing of onset.
- Potential impacts.
- Public safety advice.
- Validity period.
- Next update time.
- Graphical ALERT/WARNING area attachment where available (*refer to Appendix 2 for examples for Heavy Rain ALERT or WARNING for Fiji*).

8. Timing and Updates

Alert

Issued: • Typically 48 hours before onset.

Updated: • Every 6 to 12hours and as forecast confidence changes.

Warning

Issued: • 24hours before onset (or generally within 24 hours of onset).

Updated: • Every 3 to 6 hours and whenever significant changes occur in expected rainfall intensity, coverage, or impacts.

Downgraded or Cancelled: • When the threat has passed or confidence has reduced below warning thresholds.

9. Target Users

- General Public.
- National Disaster Management Office.
- Emergency responders.
- Infrastructure agencies.
- Government ministries.
- Media organisations.
- Agricultural stakeholders.
- Maritime and aviation sectors.

10. Key Public Safety Messages

Do

- ✓ Monitor official forecasts and warnings.
- ✓ Move to higher ground if flooding occurs.
- ✓ Keep away from flooded rivers, creeks, and drains.
- ✓ Prepare emergency supplies.
- ✓ Secure important documents and valuables.

✓ Follow instructions from emergency authorities.

Don't

✗ Walk, swim, or drive through floodwaters.

✗ Ignore warning updates.

✗ Camp near rivers or flood-prone areas.

✗ Allow children to play near flooded waterways.

✗ Attempt to cross flooded roads.

11. Limitations

- Rainfall distribution may vary significantly across short distances.
- Localized enhancement due to terrain may result in higher totals than forecast.
- Flood impacts depend on antecedent conditions, catchment response, and local vulnerability.
- Forecast rainfall amounts contain inherent uncertainty.
- Some areas outside warning zones may still experience significant impacts.

12. Official Advice

Always rely on official forecasts, alerts, and warnings issued by the Fiji Meteorological Service (website: www.met.gov.fj) and advice from emergency management authorities.

The Fiji Meteorological Service remains the authoritative source of weather warnings for Fiji.

APPENDIX

1. Heavy Rain Alert/Warning Template and Cancellation

84. HEAVY RAIN ALERT AND WARNING

WXFJ01 NFFN ~~gdhbm~~

Special Weather Bulletin Number ONE FOR HEAVY RAIN ISSUED FROM RSMC NADI AT 3.30pm on Monday the 1st of September 2021

HEAVY RAIN ALERT / WARNING

LIST ACTIVE ALERT / WARNINGS OVER FIJI.

A HEAVY RAIN ALERT IS NOW IN FORCE FOR ~~the~~ Area / Divisions / Sub-Division

SITUATION:

AN ACTIVE TROUGH OF LOW PRESSURE LIES SLOWMOVING OVER THE FIJI GROUP. ASSOCIATED RAIN AND THUNDERSTORMS IS EXPECTED TO AFFECT THE GROUP TILL _____.

Forecast:

FOR SUB-DIVISION 1 & .:

RAIN AND SQUALLY THUNDERSTORMS, BECOMING FREQUENT FROM LATER TOMORROW.

Forecast Confidence: LOW / MODERATE / HIGH

FOR SUB-DIVISION 2 & .:

OCCASIONAL RAIN AND SQUALLY THUNDERSTORMS, BECOMING FREQUENT FROM LATER TOMORROW.

Forecast Confidence: LOW / MODERATE / HIGH

FOR THE REST OF FIJI:

OCCASIONAL RAIN

Forecast Confidence: LOW / MODERATE / HIGH

POSSIBLE IMPACTS: ~~xxxx~~

- SOME LOCALISED BUSINESSES LIKELY TO BE AFFECTED
- FLASH FLOODING OF LOW LYING AREAS
- LOCALISED FLOODING OF IRIS CROSSING AND INFORMAL SETTLEMENTS
- SOME DISRUPTION TO TRAFFIC FLOW AND POOR VISIBILITY (LAND/SEA)

Significant 24hr rainfall recorded:

Station - 24 ~~hr~~ Rainfall

~~xxxx~~ = xx

THE NEXT SPECIAL WEATHER BULLETIN ON HEAVY RAIN WILL BE ISSUED AROUND 9.30 PM TODAY (6-12 HOURLY FOR ALERT / 3-6 HOURLY FOR WARN

WXFJ01 NFFN 251900

SPECIAL WEATHER BULLETIN NUMBER SIX FOR HEAVY RAIN ISSUED FROM THE NATIONAL WEATHER FORECASTING CENTRE, NADI AT 07:00AM ON TUESDAY, 26TH MAY, 2026.

HEAVY RAIN CANCELLATION

A HEAVY RAIN ALERT PREVIOUSLY IN FORCE FOR THE FIJI GROUP IS NOW CANCELLED.

Situation: A weakening trough of low pressure remain slow moving over the Fiji group. The associated clouds and showers are expected to affect parts of the country till later today. Meanwhile, a northwest to northeast windflow prevails over the group.

Forecast for the Fiji group:

Occasional showers over Vanua Levu, Lomaiviti, central and northern

Lau group. Fine weather over the eastern parts of Viti Levu.

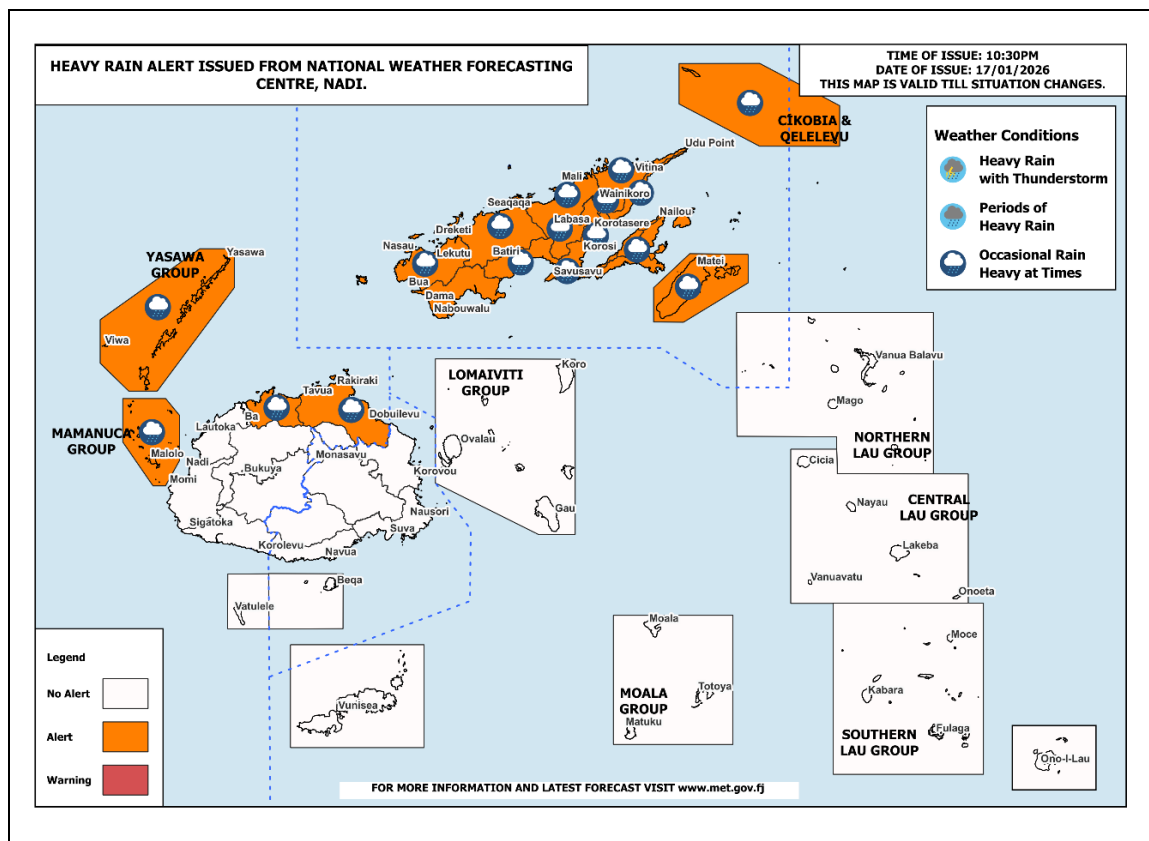
Elsewhere, cloudy periods with brief showers.

Isolated thunderstorms with heavy falls expected.

Showers expected to ease later today.

This will be the last Special Weather Bulletin issued for this event.

2. Heavy Rain Alert/Warning Graphics



HEAVY RAIN WARNING ISSUED FROM NATIONAL WEATHER
FORECASTING CENTRE, NADI.

TIME OF ISSUE: 10:30PM
DATE OF ISSUE: 15/01/2026
THIS MAP IS VALID TILL SITUATION CHANGES.

