



# Fiji Meteorological Service

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certified Climate Services

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## Climate Outlook for Hydro-electricity Generation from January to March 2025

### Current Conditions

#### Fiji's Climate

Mainly fine weather prevailed during December, with occasional troughs of low pressure systems affecting the Fiji Group, which resulted in significant rainfall for some parts of the country.

There were 22 rainfall stations that reported in, in time for the compilation of this bulletin, with 9 stations reporting *well below average*, 10 *below average* and 3 stations reporting *average* rainfall.

The total monthly rainfall at Monasavu, until 22<sup>nd</sup> December was 306mm, which is in *below average* category (48% of *normal*), when compared against the WMO standard 30-year average.

During October to 22<sup>nd</sup> December Monasavu recorded 1423mm of rainfall, which was 95% of the *normal*, while in the past 6 months (July to 22<sup>nd</sup> December, 2182mm of rainfall was recorded (98% of the *normal*) at the station (Figure 1).

#### El Niño Southern Oscillation (ENSO) Status

ENSO status is currently in neutral, however, most models favor the development of La Niña. Sea surface temperatures (SSTs) are currently above average in the western Pacific Ocean, while near to below average SSTs are being observed in the central and eastern Pacific.

The Southern Oscillation Index (SOI) for November 2024 was 6.5, with the 5-month running mean of 2.1. The latest 30-day value to 20<sup>th</sup> December 2024 was 14.4.

Trade winds have been stronger than average in the western Pacific and close to average across the central Pacific. Cloudiness has been below average. Overall, ENSO indicators currently reflect neutral conditions, with the likelihood of a weak La Niña developing in the coming months.

### El Niño-Southern Oscillation and Monasavu Climate Predictions

#### El-Niño Southern Oscillation Prediction

Global climate models on average favor development of a weak La Niña in the coming months, and a return to ENSO-neutral state from January to March 2025 period.

#### Minimum & Maximum Air Temperature Predictions - January & January to March 2025:

Day and night time temperatures are both likely to be *above normal* across Viti Levu and Vanua Levu during January, as well as the January to March 2025 period (Figure 3).

#### Rainfall Predictions:

#### Fortnightly: 22<sup>nd</sup> December – 4<sup>th</sup> January & 29<sup>th</sup> December - 11<sup>th</sup> January

Rainfall across Viti Levu is likely to be above median from 22<sup>nd</sup> December to 4<sup>th</sup> January, as well as from 29<sup>th</sup> December to 11<sup>th</sup> January.

#### January 2025

There is 75% chance of receiving at least 375mm of rainfall at Nadarivatu station, 75% chance of at least

383mm of rainfall at Nadarivatu Dam and Monasavu, and 75% chance of receiving at least 363mm of rainfall at Wailoa. There is high confidence in this forecast (Table 1).

#### January to March 2025

For the January to March 2025 period, there is 75% chance of receiving at least 1283mm of rainfall at Nadarivatu station, 75% chance of at least 1343mm of rainfall at Nadarivatu Dam and Monasavu, and 75% chance of receiving at least 1250mm of rainfall at Wailoa. There is currently high confidence on the generated outlook (Table 1).

#### Summary

Wetter than normal conditions are likely for the month of January, as well as the January to March 2025 period.

Confidence for both, January and January to March 2025 rainfall predictions, are high.

Figure 1

Monthly Rainfall Distribution at Monasavu until 22nd December 2024

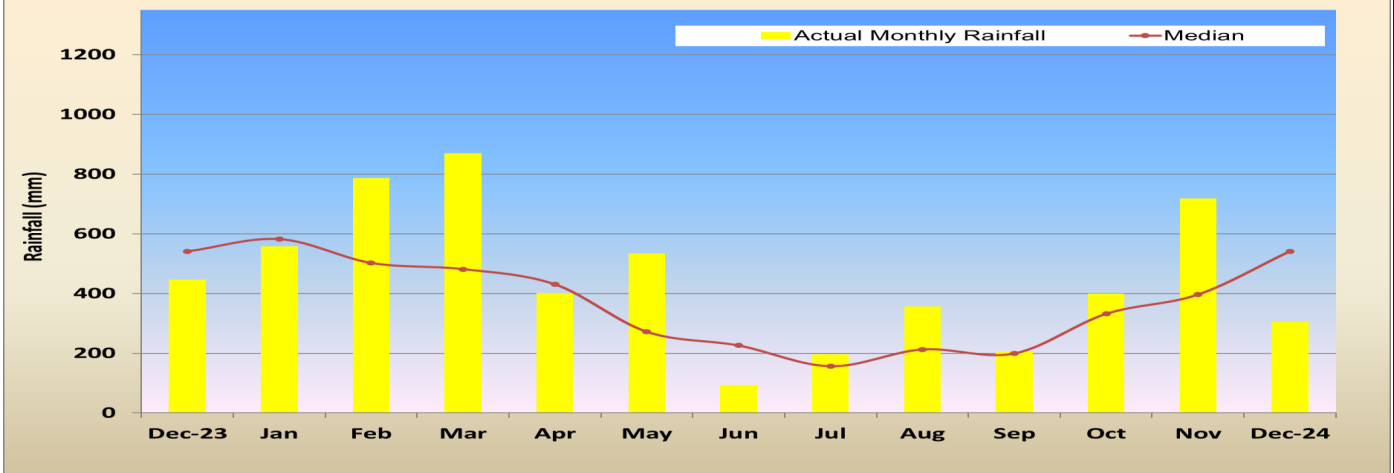
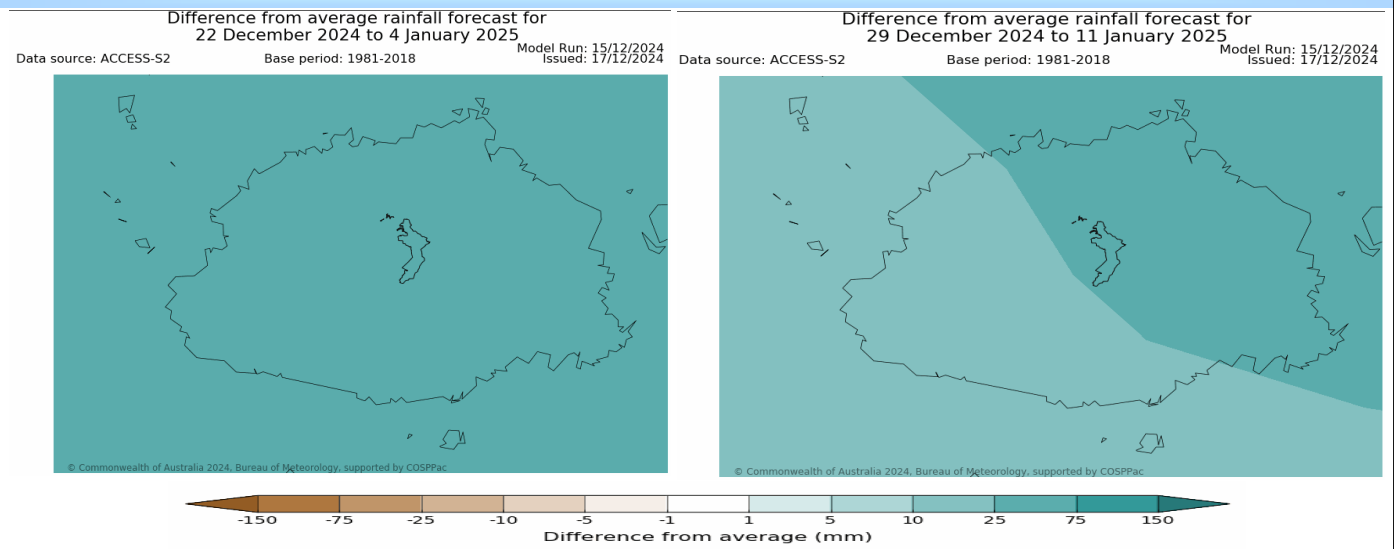


Table 1: Rainfall Outlook: January & January to March 2025

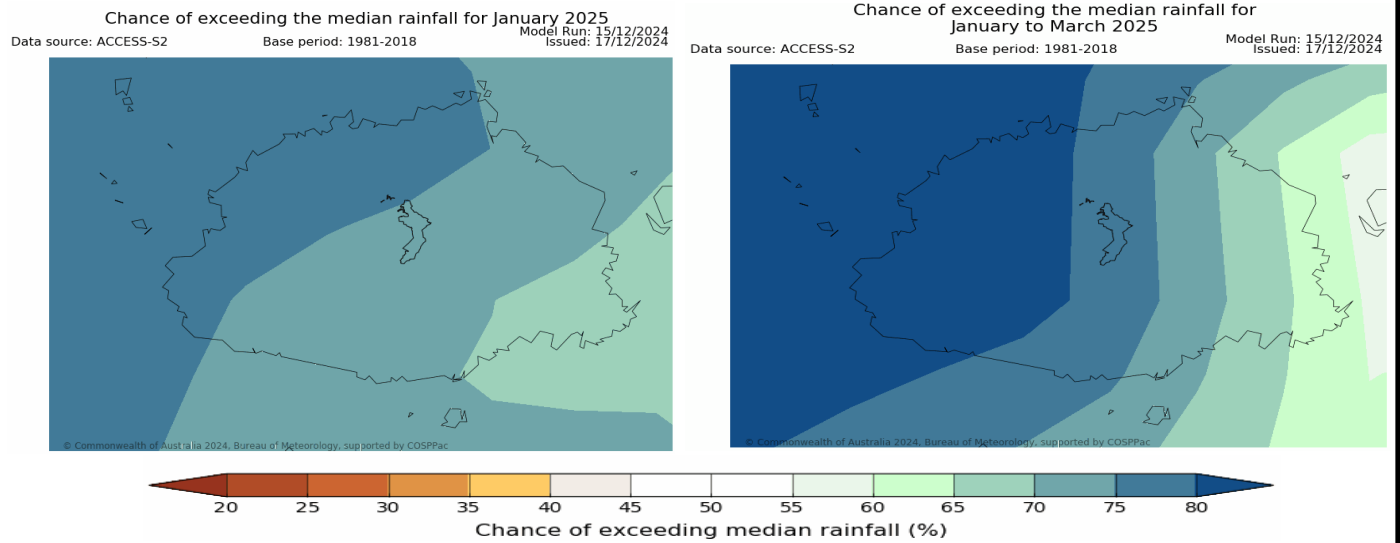
January Outlook				
	25% chance of at least (mm)	50% chance of at least (mm)	75% chance of at least (mm)	Forecast Confidence
Nadarivatu station	840	504	375	High
Nadarivatu Dam	833	498	383	High
Monasavu Dam	833	498	383	High
Wailoa	794	471	363	High
January to March Outlook				
	25% chance of at least (mm)	50% chance of at least (mm)	75% chance of at least (mm)	Forecast Confidence
Nadarivatu station	1765	1524	1283	High
Nadarivatu Dam	1814	1575	1343	High
Monasavu Dam	1814	1575	1343	High
Wailoa	1731	1497	1250	High

The table above provides 25%, 50% and 75% chances of each station receiving the amount of rainfall mentioned above.

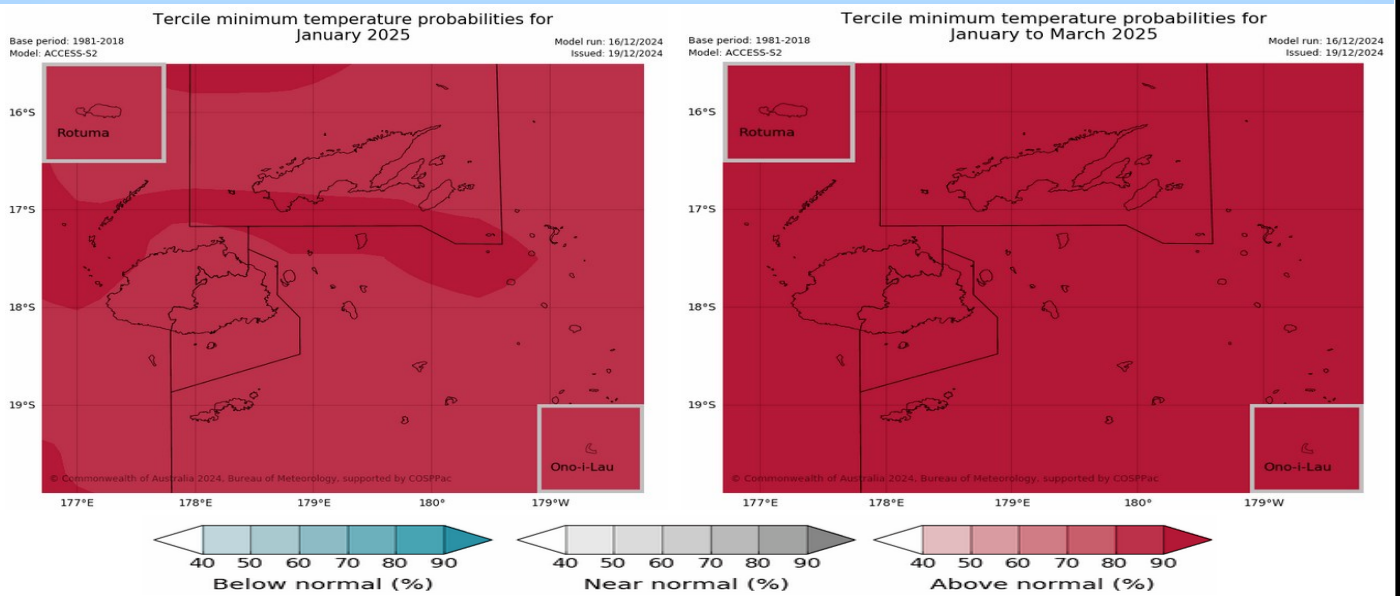
Figure 1: Rainfall Outlook: Fortnightly: 22<sup>nd</sup> December – 4<sup>th</sup> January & 29<sup>th</sup> December – 11<sup>th</sup> January



**Figure 2: Rainfall Outlook: January & January to March 2025**

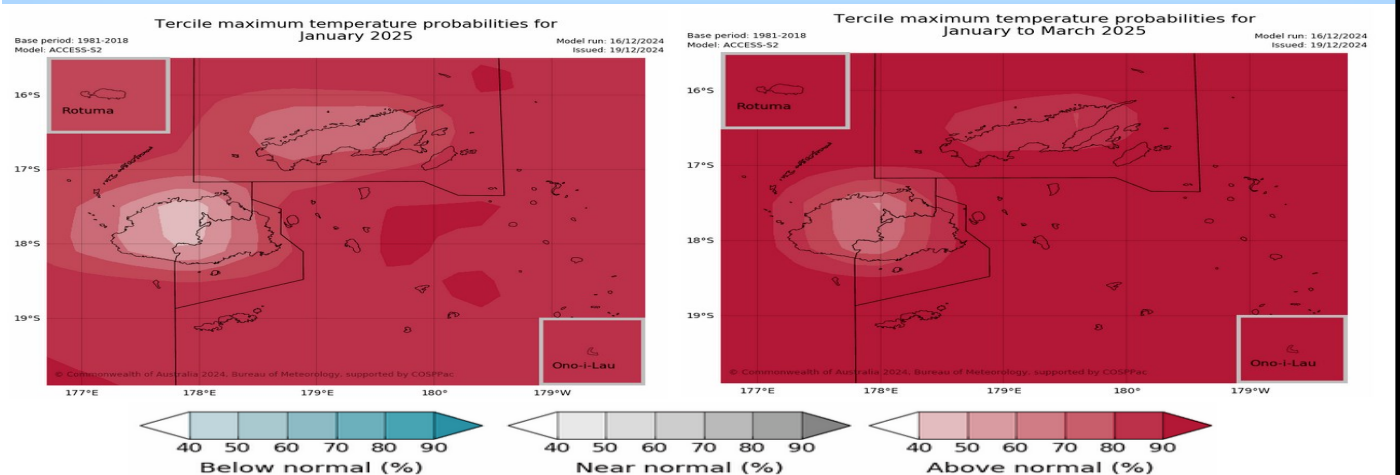


**Figure 3: Minimum Air Temperature Predictions: January & January to March 2025**



Minimum air temperatures are expected to be *above normal* across Viti Levu and Vanua Levu, during January and January to March 2025 period. *Source: ACCESS-S2 Model.*

**Figure 3: Maximum Air Temperature Predictions: January & January to March 2025**



Maximum air temperatures are likely to be *above normal* across Viti Levu and Vanua Levu, during January and January to March 2025 period. *Source: ACCESS-S2 Model.*

## Explanatory Notes

Climate Outlook for Hydro-electricity Generation is produced to provide advisories to Energy Fiji Limited (EFL). It aims to provide advanced warning on climate abnormalities for planning on economic generation mix and hydro-storage optimization.

### Climate (Rainfall/Air Temperature) Outlook

**Above normal** – indicates that the rainfall/temperature value lies in the highest third of observation recorded in the standard 30 year normal period.

**Near normal** – indicates that the rainfall/temperature value lies in the middle third of observation recorded in the standard 30 year normal period.

**Below normal** – indicates that the rainfall/temperature value lies in the lowest third of observation recorded in the standard 30 year normal period.

**Climatology** – means that there are equal chances of receiving below normal, normal and above normal rainfall.

**Median** – rainfall value which marks the level dividing the ranked data set in half, that is, the midpoint of the ordered (lowest to highest) monthly or yearly rainfall totals.

**Above Median** – rainfall value that lies above the median value.

**Below Median** – rainfall value that lies below the median value.

### El Niño Southern Oscillation (ENSO)

ENSO is the principal driver of the year-to-year variability of Fiji's climate. There are three phases of this phenomenon, *El Niño*, *La Niña* and *Neutral* conditions. El Niño or La Niña events are a natural part of the global climate system and usually recur after every 2 to 7 years. It normally develops around April to June, attains peak intensity between December to February and usually starts to decay around April to June period the following year. While most events last for a year, some have persisted for up to 2 years. It should be also noted that no two El Niño or La Niña events are the same. Different events have different impacts, but most exhibit some common climate characteristics.

Usually there is a lag effect on Fiji's climate with ENSO events, that is, once an El Niño or La Niña event is established in the tropical Pacific, it may take 2-6 months before its impact is seen on Fiji. Similarly, once an event finishes, it can take 2-6 months for climate to normalise.

**El Niño** events are associated with warming of the central and eastern tropical Pacific. El Niño events usually result in reduction of Fiji's rainfall. Often the whole of Fiji is affected in varying degrees and it is quite unusual for one part of the country to experience a prolonged dry spell, while the other is in a wet spell. The relationship and level of rainfall suppression is greater in the Dry Zone than in the Wet Zone. It is the suppression of rainfall during the Cool/Dry Season (May to October) that is normally of most concern. A reduction in Cool/Dry Season rainfall in the Dry Zone results in little or no rainfall until the next Wet Season. While usually the strength of an ENSO event is proportional to its impact on Fiji, at times weak event can also have a significant impact.

**La Niña** events are associated with cooling of the central and eastern tropical Pacific. Usually La Niña results in wetter than normal conditions for Fiji, occasionally leading to flooding during the Warm/Wet Season (November to April).

During **Neutral** condition, neither El Niño nor La Niña is present, it has little effect on global climate, meaning other climate influences are more likely to dominate.

**Lag effects** – means that there is a delay in a change of some aspect of climate due to influence of other factors that is acting slowly.

#### Climate bulletins that can be viewed together with this bulletin include:

- 1) *Fiji Climate Summary* at <https://www.met.gov.fj/index.php?page=FijiClimateSummary> (issued monthly)
- 2) *Fiji Climate Outlook* at <https://www.met.gov.fj/index.php?page=ClimateOutlook> (issued monthly)

*This information is prepared as soon as ENSO, climate and oceanographic data is received from recording stations around Fiji and Meteorological Agencies around the world. While every effort is made to verify observational data, Fiji Meteorological Service does not guarantee the accuracy and reliability of the analyses presented, and accepts no liability for any losses incurred through the use of this information and its contents. The information may be freely disseminated provided the source is acknowledged. For further clarification and expert advice, please contact the Fiji Meteorological Service HQ, Namaka, Nadi.*

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