Fiji Meteorological Service

ISO 9001:2015 certified Climate Services

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Climate Outlook for Hydro-electricity Generation from September to November 2024

Current Conditions

Fiji's Climate

The weather across the country from 1st to 28th August was dominated by a few troughs of low-pressure systems, resulting in afternoon showers, while fine weather prevailed on most of the occasions.

There were 20 rainfall stations that reported in, for the compilation of this bulletin, with 7 stations reporting *well below average,* 3 *below average,* 1 *average,* 8 *above average,* and 1 recorded *well above average* rainfall.

Monasavu's rainfall (until 28th August) was 341mm, which is *above average* (140% of *normal*), when compared against the standard 30-year average.

During June to 28th August, Monasavu recorded 632mm of rainfall, which was 93% of the *normal*, while in the past 6 months (March to 28th August), 2435mm of rainfall was recorded (124% of the *normal*) at the station (Figure 1).

El Niño Southern Oscillation (ENSO) Status

The El Niño–Southern Oscillation (ENSO) is currently neutral. Sea surface temperatures (SSTs) in the central equatorial Pacific Ocean are ENSO-neutral, having gradually cooled from El Niño levels since December 2023.

The Southern Oscillation Index (SOI) for July 2024 was –6.9, with the 5-month running mean of –1.7. The latest 30-day value to 26th August 2024 was 2.7.

Trade winds have been slightly above average across the western tropical Pacific, with cloudiness near the Date Line currently below average. Overall, ENSO indicators are indicative of ENSO neutral conditions.

El Niño-Southern Oscillation and Monasavu Climate Predictions

El-Niño Southern Oscillation Prediction

Global climate models on average favor ENSO-neutral conditions to continue into the August to October period, with borderline La Niña conditions likely during the October to December period.

Minimum & Maximum Air Temperature Predictions - September & September to November 2024:

Minimum and maximum temperatures are both likely to be *above normal* across Viti Levu and Vanua Levu during September, as well as the September to November 2024 period (Figure 3).

Rainfall Predictions: Fortnightly: 1st - 14th September & 8th - 21st September

Rainfall across Viti Levu is likely to be below median from 1st to 14th September and slightly above median from 8th to 21st September.

September 2024

There is 75% chance of receiving at least 82mm of rainfall at Nadarivatu station, 75% chance of at least 94mm of rainfall at Nadarivatu Dam and Monasavu, and 75% chance of receiving at least 99mm of rainfall at Wailoa. There is low confidence in this forecast (Table 1).

September to November 2024

For the September to November 2024 period, there is 75% chance of receiving at least 492mm of rainfall at Nadarivatu station, 75% chance of at least 518mm of rainfall at Nadarivatu Dam and Monasavu, and 75% chance of receiving at least 540mm of rainfall at Wailoa. There is currently moderate confidence on the generated outlook (Table 1).

Summary

There is no strong biasness for drier or wetter than usual conditions for the month of September.

For September to November period, most parts of Viti Levu is likely to experience wetter than usual conditions. There is moderate skills, for the above rainfall predictions.

Figure 1 Monthly Rainfall Distribution at Monasavu until 28th August 2024

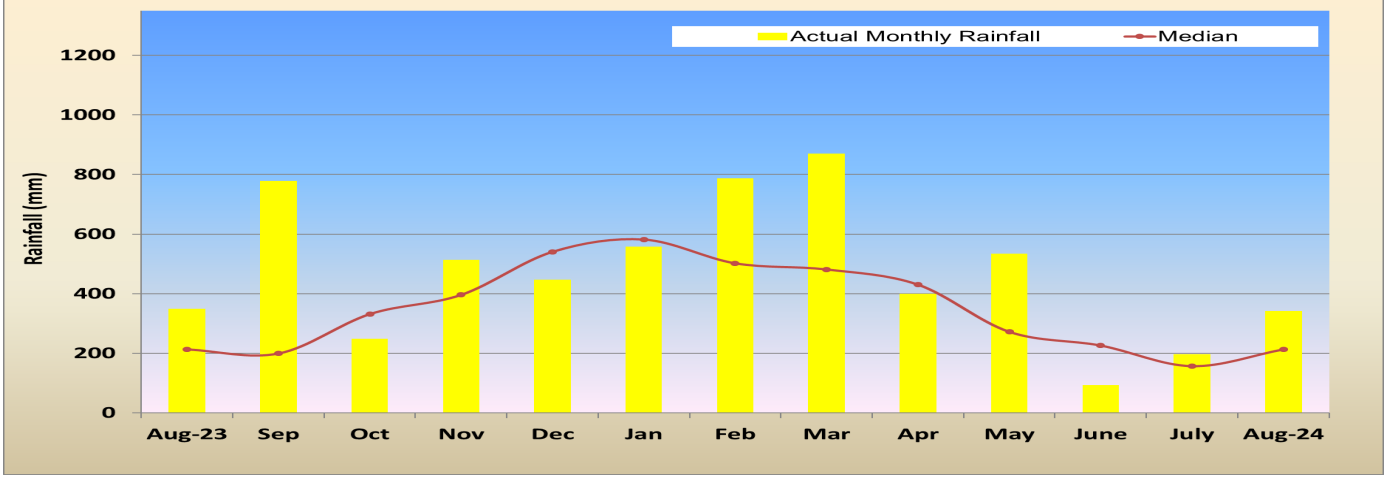


Table 1: Rainfall Outlook: September & September to November 2024

September Outlook				
	25% chance of at least (mm)	**50% chance of at least (mm)**	**75% chance of at least (mm)**	**Forecast Confidence**
Nadarivatu station	201	119	82	Low
Nadarivatu Dam	222	130	94	Low
Monasavu Dam	222	130	94	Low
Wailoa	244	130	99	Low
September to November Outlook				
	25% chance of at least (mm)	**50% chance of at least (mm)**	**75% chance of at least (mm)**	**Forecast Confidence**
Nadarivatu station	795	633	492	Moderate
Nadarivatu Dam	842	654	518	Moderate
Monasavu Dam	842	654	518	Moderate
Wailoa	907	677	540	Moderate

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

Figure 1: Rainfall Outlook: Fortnightly: 1st - 14th September & 8th - 21st September

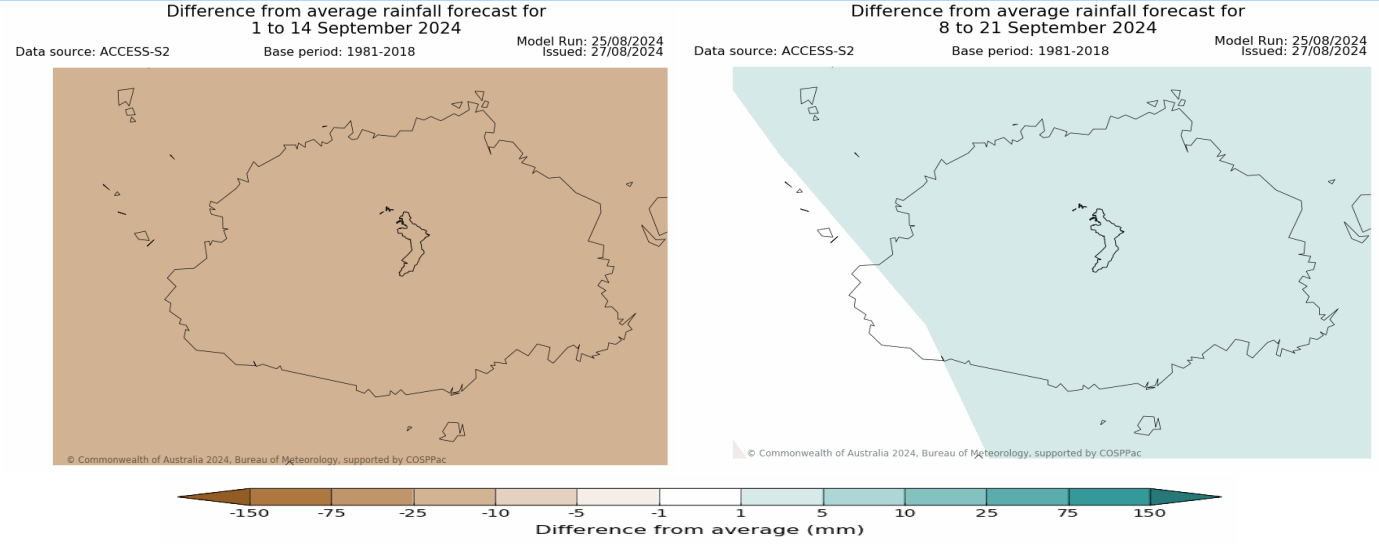


Figure 2: Rainfall Outlook: September & September to November 2024

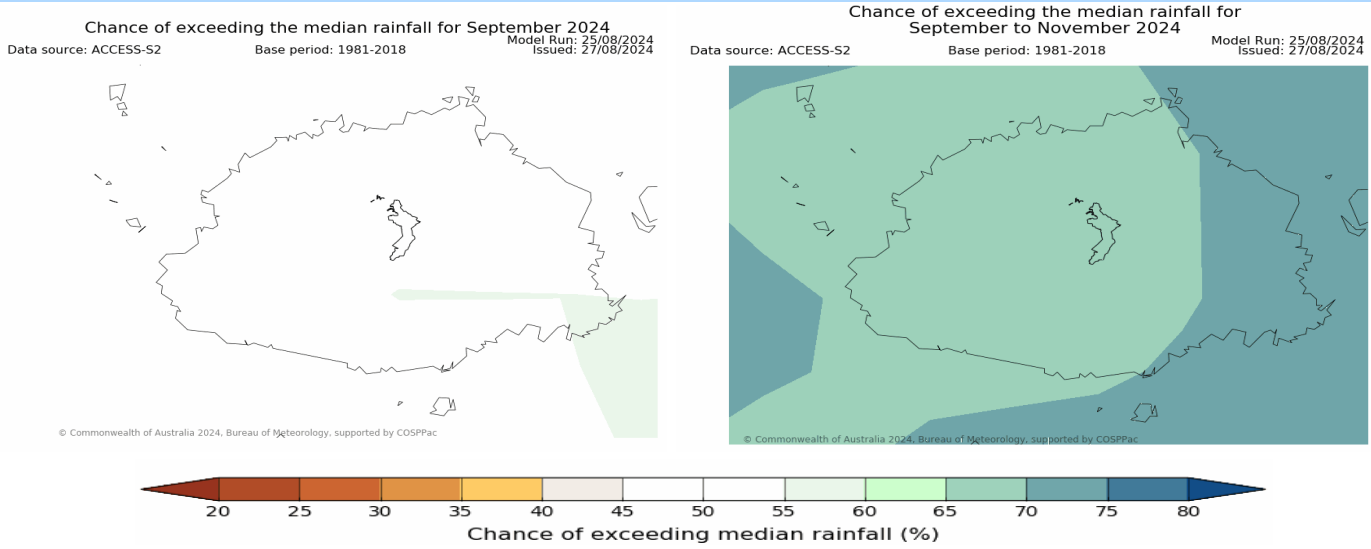
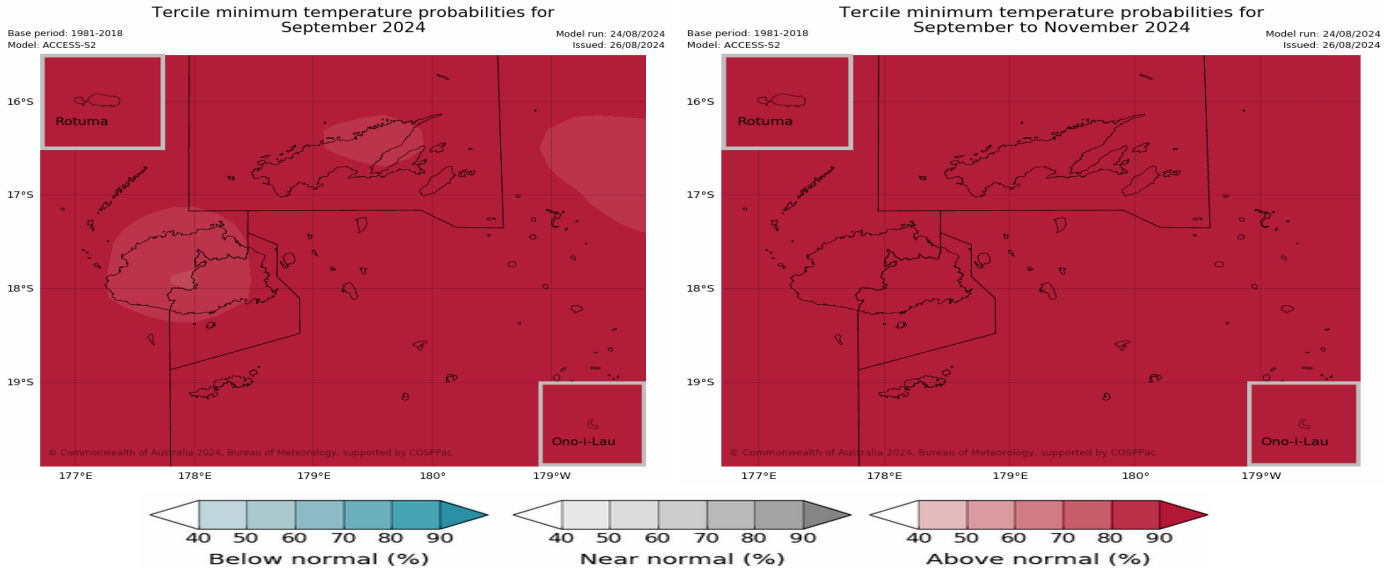
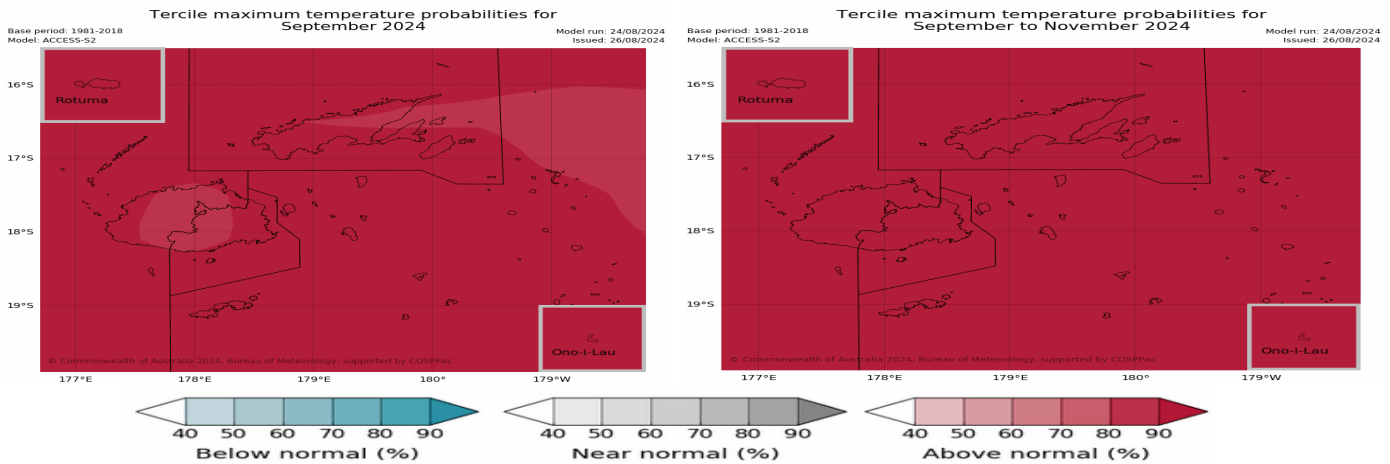


Figure 3: Minimum Air Temperature Predictions: September & September to November 2024



Minimum air temperatures are expected to be *above normal* across Viti Levu and Vanua Levu, during September and September to November 2024 period. *Source: ACCESS-S2 Model.*

Figure 3: Maximum Air Temperature Predictions: September & September to November 2024



Maximum air temperatures are likely to be *above normal* across Viti Levu and Vanua Levu, during September and September to November 2024 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)*

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