

Vanuatu Monthly Climate Summary

Vanuatu Meteorology & Geo-Hazards Department

September 2019



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Issue 09

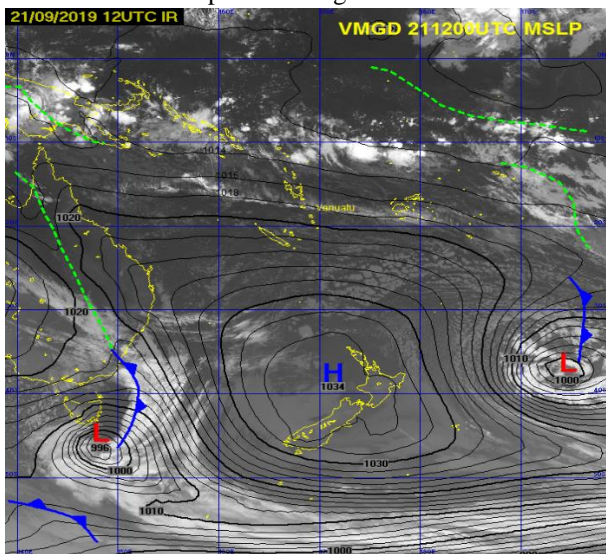
1. Highlights

Rainfall	<ul style="list-style-type: none"> Above Normal: Sola, Port Vila, Whitegrass & Aneityum Normal: Lamap & Bauerfield Below Normal: Pekoa
Temperature	<ul style="list-style-type: none"> Daytime temperatures ranged from 28.7°C up north to 26.3°C down south, and night time temperatures ranged from 24.2°C up north to 17.7°C down south.
Significant Weather	<ul style="list-style-type: none"> High pressure systems mostly experienced in September Trade winds of moderate to fresh felt during this period
ENSO	<ul style="list-style-type: none"> Neutral State

2. Weather Patterns

Vanuatu has experienced periods of rain during the first four days of September due to series of troughs which extended from the Solomon Islands to a cut off low south of New Caledonia. On the 4th, a ridge from a high pressure near eastern Australia pushed over Vanuatu and shifted the trough towards Fiji Islands. The high pressure contributed to cool and dry weather over Vanuatu from the 5th to the 07th of October 2019.

A trough appeared north of the Vanuatu on the 8th and pushed southwards creating unstable weather over the country till the 12th. This troughs linked with a sub-tropical front south of New Caledonia. Another high pressure pushed in from the southeast on the 12th creating fresh to strong winds over Vanuatu. From the 13th to the 15th, an upper level convergence remained over Vanuatu with some areas experienced light rain.



3. Rainfall

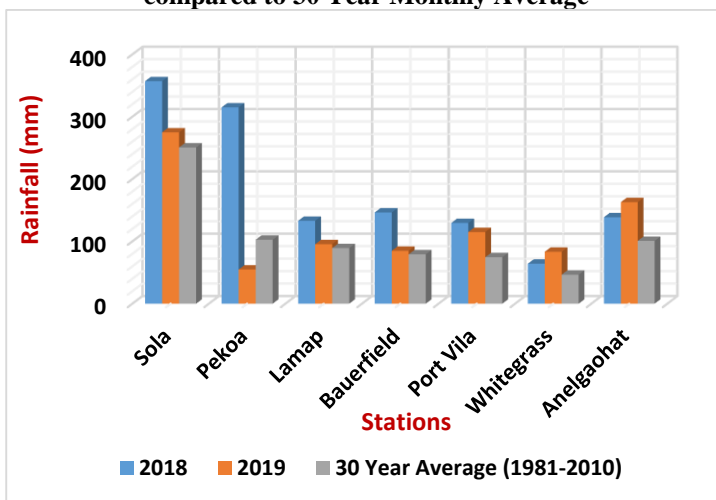
As most of the stations recorded above normal rainfall in September (**Table 1**), drier than normal conditions have been reported for the northern and western parts of larger islands. The lag effect of the partially-developed El Niño event has prolonged the effect of the annual dry season for Vanuatu, which resulted in water shortages in most rain-shadow areas of Ambae, Pentecost, Malekula, Ambrym, Efate, Tanna and Aneityum. From the synoptic stations below, normal and above normal rainfall were recorded for most of the eastern side of the respective islands.

Table 1: September 2019 Rainfall Summary for Vanuatu

Stations	Total Monthly Rainfall (mm)	Highest Daily Rainfall (mm)	Date of Daily Highest Rainfall Recorded	30 Year Monthly Average (1981-2010)	SCOPIC Rainfall Status
Sola	274.9	94.0	Monday 2 nd	250.7mm	Above Normal
Pekoa	54.9	29.2	Tuesday 3 rd	102.6mm	Below Normal
Lamap (AWS)	95.5	66.5	Saturday 31 st	89.2mm	Normal
Bauerfield	84.9	37.0	Friday 13 th	79.3mm	Normal
Port Vila (AWS)	115.0	36.5	Friday 13 th	74.6mm	Above Normal
Whitegrass	83.4	57.1	Thursday 12 th	46.6mm	Above Normal
Anelgaohat	163.0	83.5	Thursday 12 th	100.8mm	Above Normal

*Note: AWS – Automatic Weather Station

Figure 2: September 2019 vs. September 2018 Rainfall compared to 30 Year Monthly Average



Rainfall received in September this year was significantly lower in most northern and central islands compared to September last year.

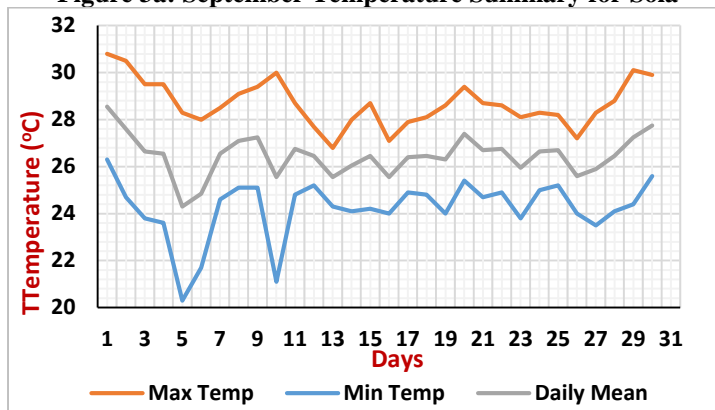
4. Atmospheric Temperatures

Table 2: September 2019 Temperature Summary for Vanuatu

Region	Stations	Source	Mean Max Temp (°C)	Mean Min Temp (°C)	Daily Mean Temp (°C)
Northern	Sola	AWS	28.7	24.2	26.5
	Pekoa	Manual	28.7	22.6	25.5
	Lamap	AWS	28.0	22.4	25.3
Southern	Bauerfield	Manual	26.8	17.6	22.2
	Port Vila	AWS	-	-	-
	Whitegrass	Manual	26.3	17.7	22.3
	Anelgaohat	AWS	26.4	18.9	22.6

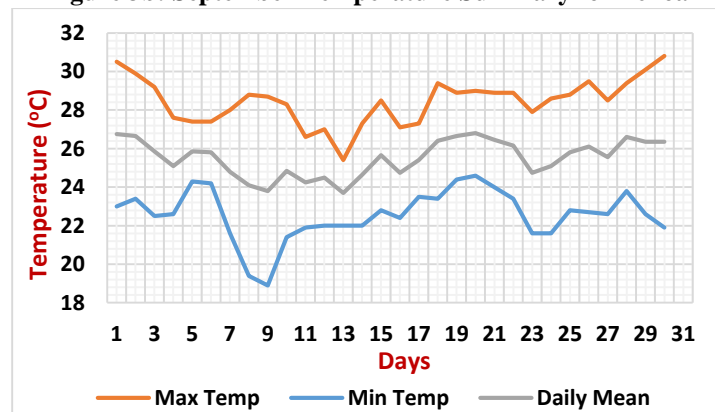
Recorded daytime temperatures for September ranged from 28.7°C up north to 26.3°C down south. Night time temperatures ranged from 24.2°C up north to 17.7°C being the lowest down south.

Figure 3a: September Temperature Summary for Sola



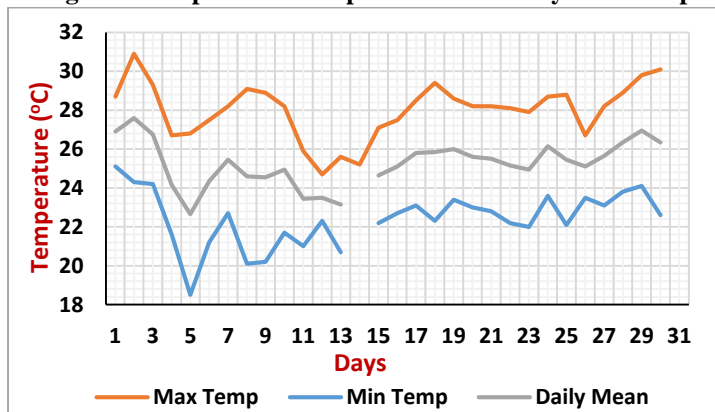
The coolest night at Sola was recorded on Thursday 5th at 20.3°C, and the warmest day was experienced on Sunday 1st at 30.8°C. The station recorded a total of 3 days where temperatures exceed 30.0°C.

Figure 3b: September Temperature Summary for Pekoa



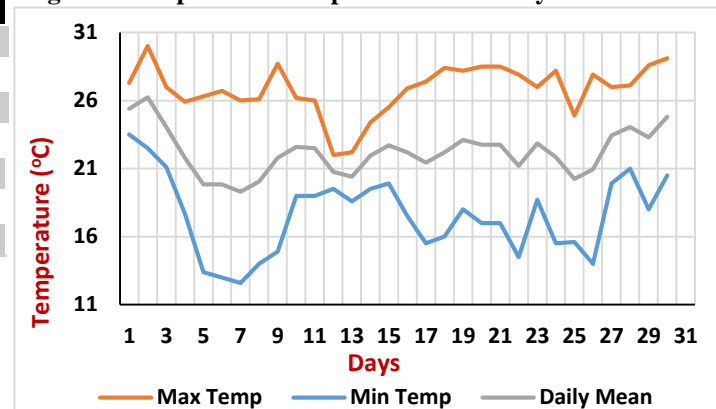
The coolest night recorded for Pekoa was on Monday 9th at 18.9°C, and the warmest day was on Monday 30th at 30.8°C. Pekoa experienced a total of 3 days where temperatures exceed 30.0°C.

Figure 3c: September Temperature Summary for Lamap



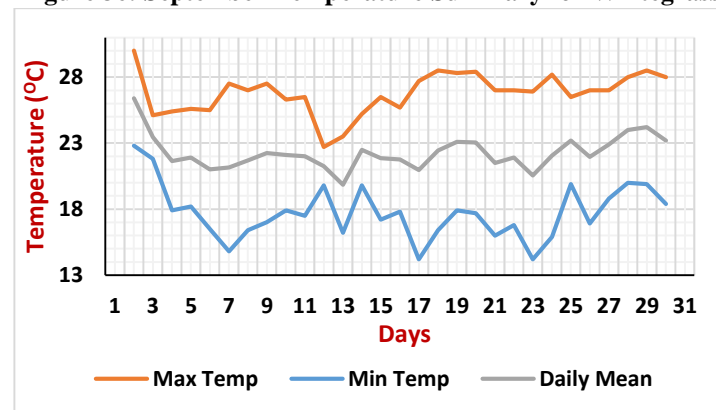
The coolest night on Lamap was recorded on Thursday 5th at 18.5°C, and the warmest day was 30.9°C on Monday 2nd. Lamap experienced a total of 2 days where temperatures exceed 30.0°C.

Figure 3d: September Temperature Summary for Bauerfield



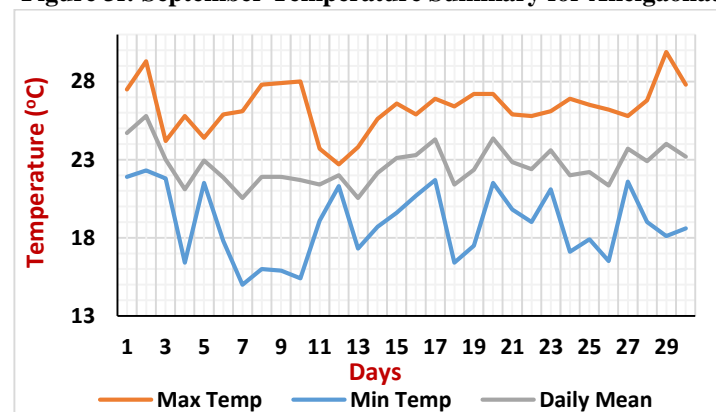
Bauerfield experienced the coolest night out of all the stations at 12.6°C on Saturday 7th. The warmest day at the station was recorded on Monday 2nd at 30.0°C. Bauerfield experienced a total of 10 cold nights where temperatures drop below 16.0°C.

Figure 3e: September Temperature Summary for Whitegrass



The coolest night was recorded on Monday 23rd at 14.2°C, and the warmest day was on Monday 2nd at 30.0°C. Whitegrass experienced a total of 4 cold nights where temperatures drop below 16.0°C.

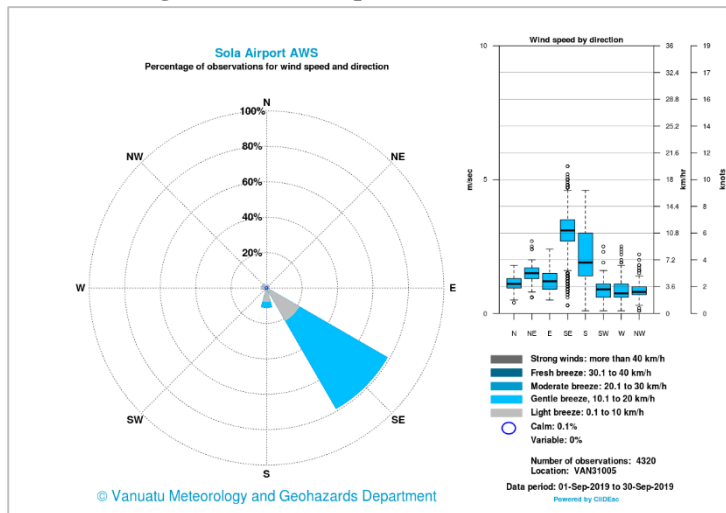
Figure 3f: September Temperature Summary for Anelgaohat



Anelgaohat recorded its coldest night on Saturday 7th at 15.0°C. Its warmest day was recorded at 29.9°C, on Sunday 29th. The station experienced a total of 3 cold nights where temperatures drop below 16.0°C.

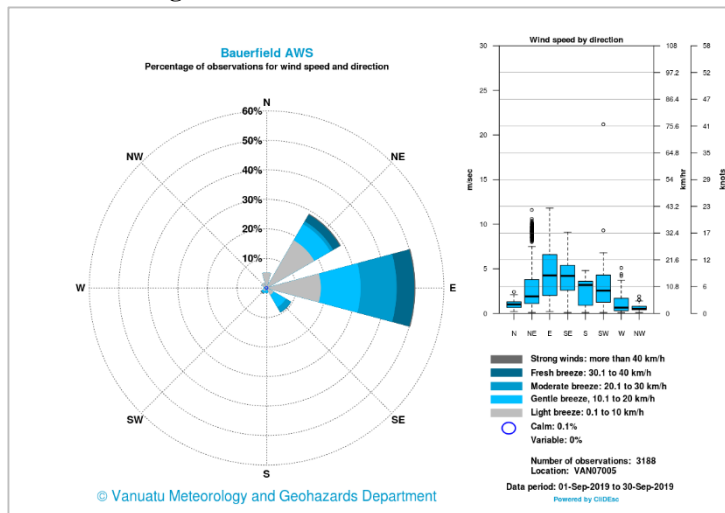
5. Wind

Figure 4a: Sola Airport WindRose AWS



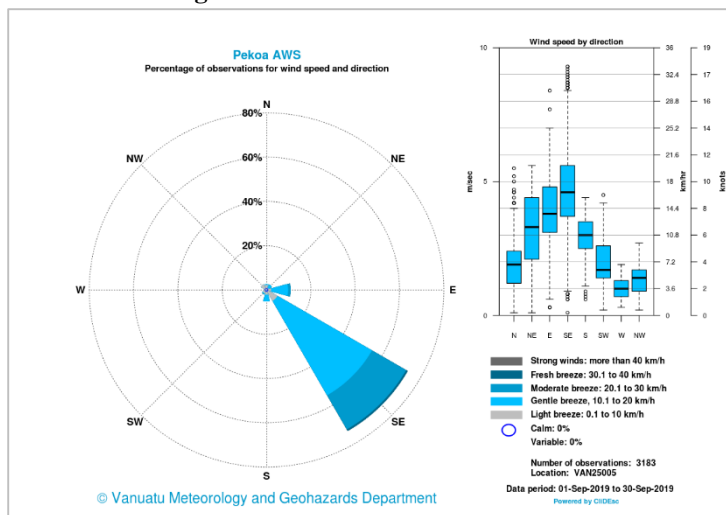
Gentle south-easterly breeze dominated Sola in September. Wind speed were generally 10.1km/h – 20km/h (5 – 10 knots).

Figure 4d: Bauerfield WindRose AWS



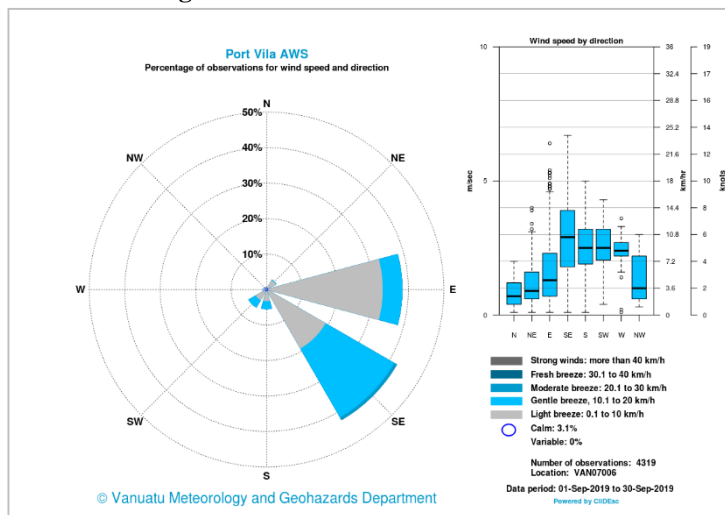
Compared to the other stations, much of the fresh breeze was felt at Bauerfield at 30.1 to 40 km/h (16 to 22 knots). Wind direction was mostly E and NE.

Figure 4b: Pekoa WindRose AWS



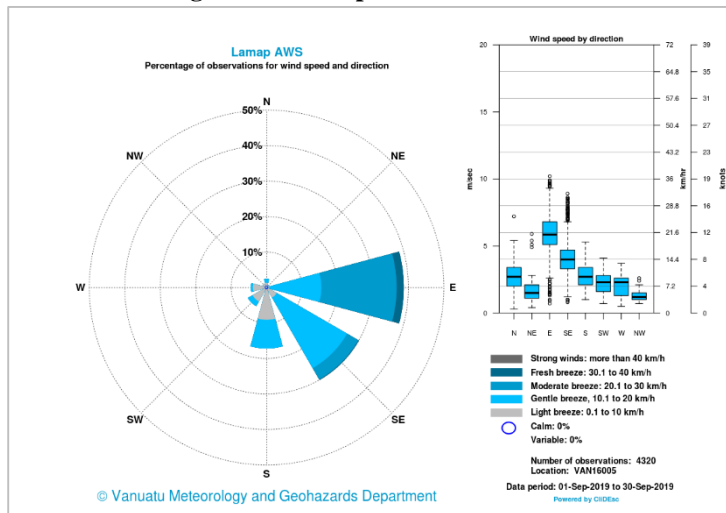
South-east breezes were dominant at Pekoa in September, most of which were gentle breeze of 10.1 to 20 km/h (5 to 11 knots). The station received maximum wind speeds of 20.1 or 30 km/h (11 to 16 knots).

Figure 4e: Port Vila WindRose AWS



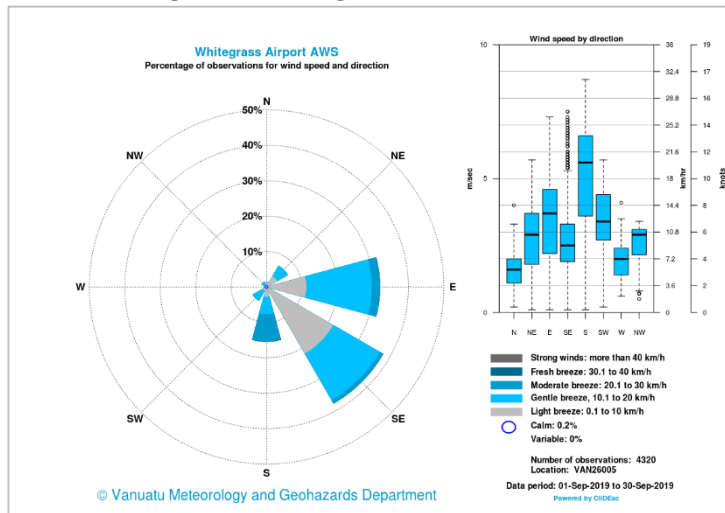
Light to gentle E and SE breeze was mostly felt in Port Vila during September. Wind speed varied from 0.1 to 20 km/h (0.1 to 11 knots).

Figure 4c: Lamap WindRose AWS



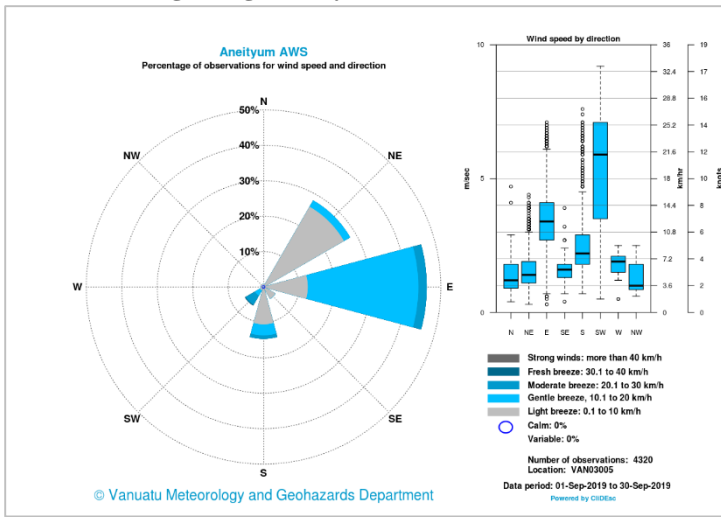
Dominant wind speed experienced at the station were gentle breeze of 10.1 to 20 km/h (5 to 10 knots). Gentle to moderate SE and E breeze were generally experienced in September.

Figure 4f: Whitegrass WindRose AWS



Light to moderate S, SE and E breeze prevailed at Whitegrass in September. Maximum wind speed recorded was 20.1 to 30 km/h (11 to 16 knots).

Figure 4g: Aneityum WindRose AWS

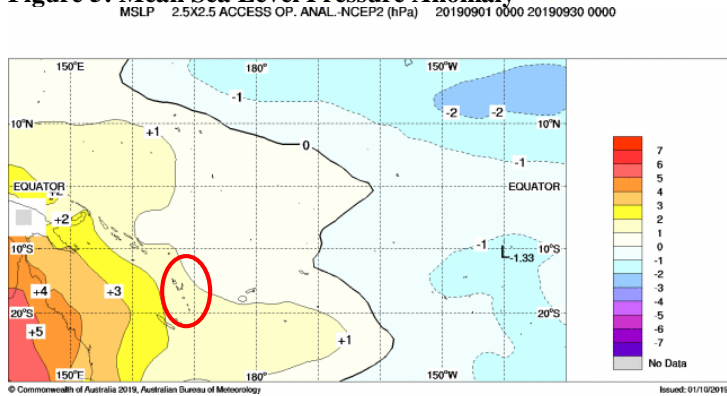


Aneityum was more dominated by gentle E breeze in September. Maximum wind speed recorded was 10.1 to 20 km/h (5 to 10 knots).

6. Mean Sea Level Pressure (MSLP)

The September MSLP anomaly map (Figure 5) shows positive anomalies increases towards Australia's interior. MSLP anomalies over Vanuatu was +1, indicating suppressed rainfall in September. Pressure anomalies in the eastern Pacific have decreased further to -2 compared to the previous month.

Figure 5: Mean Sea Level Pressure Anomaly

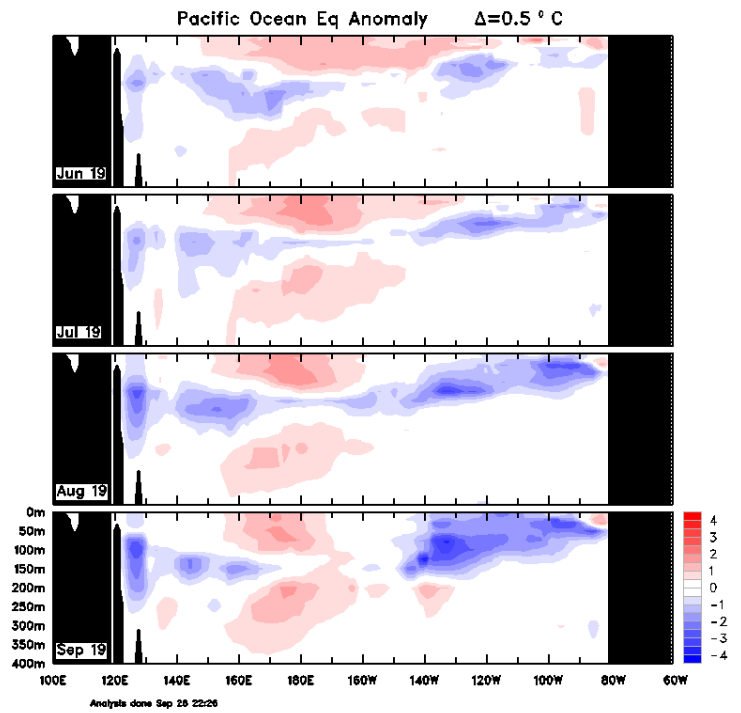


Source: <http://www.bom.gov.au/cgi-bin/climate/cmb.cgi?variable=mslp&area=spac&map=anomaly&time=latest>

7. El Niño Southern Oscillation (ENSO)

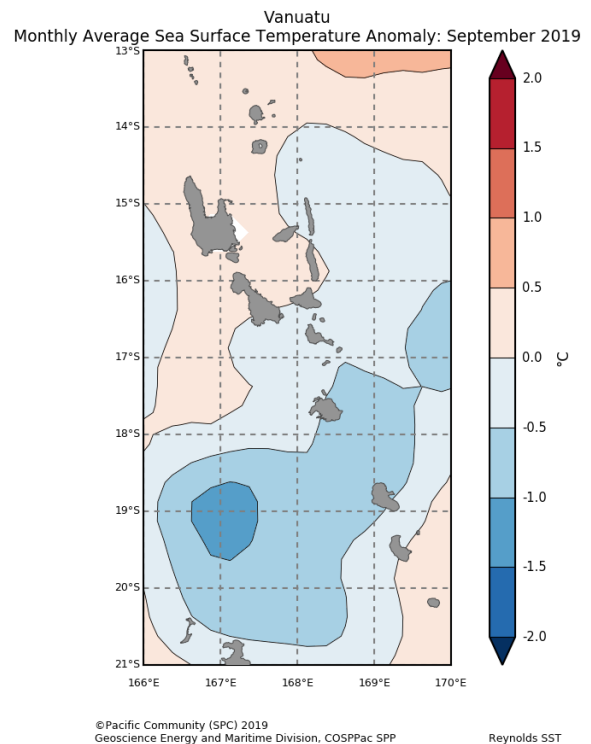
The September sub-surface temperatures shows an ENSO neutral state (Figure 6). There is a pattern of weak cool anomalies extending across the equatorial Pacific. Weak warm anomalies extend across most of the column depth between about 160°E and 160°W. This general pattern has been in place since July. Cool anomalies in the east have intensified in September and reach more than 3 degrees cooler than average, while warm anomalies in the west are weaker, reaching up to 2 degrees warmer than average. Atmospheric indicators such as trade winds and cloudiness fluctuated around average since early 2019. The persistent high pressure over Darwin (Australia) is the dominant factor influencing SOI values, hence the recent negative values do not correlate with an active El Niño.

Figure 6: Equatorial Sub-surface anomalies



8. Sea Surface Temperatures (SSTs)

Figure 7: Vanuatu Average Sea Surface Temperature Anomaly for September 2019

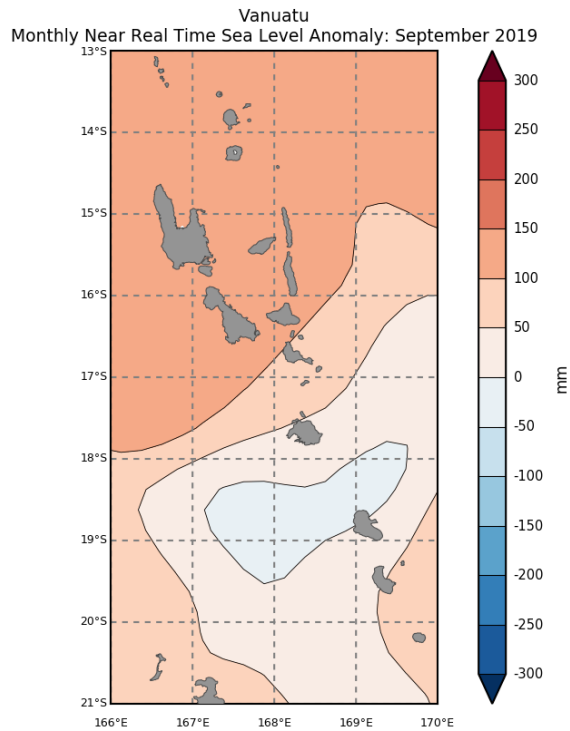


Source: <http://oceanportal.spc.int/portal/app.html#climate>

The cooling spots observed further south of Vanuatu in August had gradually shifted towards the central islands in September. On the regional scale, warmer SSTs were observed further towards the North Eastern Pacific while cooler SSTs were evident over Vanuatu.

9. Sea Level (SL)

Figure 7: Vanuatu Average Sea Level Anomaly for September 2019



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Geoscience Energy and Maritime Division, COSPPac SPP AVISO Ssalto/Duacs SLA

Source: <http://oceanportal.spc.int/portal/app.html#sealevel>

Near normal sea level was observed toward the southern region of Vanuatu, while the northern region experienced much higher SL.

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Information presented in this summary is based in data available at the time of publication