

# Vanuatu Monthly Climate Summary

## January 2020



Photo: Albert Willy

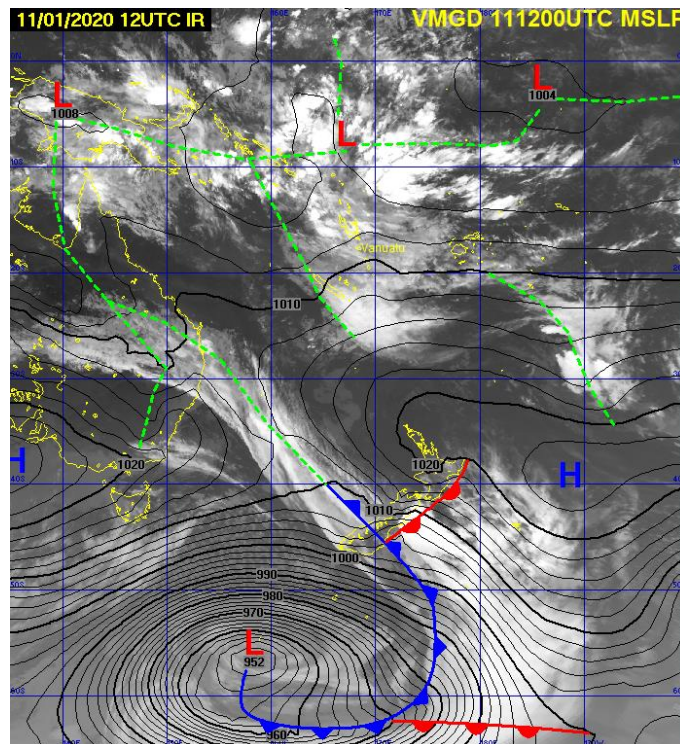
### 1. Highlights

<b>Rainfall</b>	<ul style="list-style-type: none"> <li>• Above Normal: Sola &amp; Aneityum</li> <li>• Normal: Peko</li> <li>• Below Normal: Lamap, Bauerfield, Port Vila &amp; Whitegrass</li> </ul>
<b>Temperature</b>	<ul style="list-style-type: none"> <li>• Daytime temperatures ranged from 31.2°C up north to 29.3°C down south, and night time temperatures ranged from 24.9°C up north to 22.2°C down south.</li> </ul>
<b>Significant Weather</b>	<ul style="list-style-type: none"> <li>• MJO was active over the country in January.</li> <li>• Associated cloudiness and rainfall from TC Tino also contributed to severe weather over the country.</li> </ul>
<b>ENSO</b>	<ul style="list-style-type: none"> <li>• Neutral State</li> </ul>

### 2. Weather Patterns

January 2020 began with fine weather across the country as Ex TC Sarai moved further east towards Tonga. A high pressure system emerged from the Tasman Sea on the 1st and remained northwest of New Zealand during the first week of the month, creating south easterly winds of gentle (>5 knots - 11 knots) to moderate breeze (>11 knots – 16 knots) over the central and southern islands. On the 5th, a trough extending from a low pressure over Papua New Guinea casted showers of rainfall over the northern islands. On the 6th – 13th, Madden Julian Oscillation (MJO) was active over the Maritime Continent. Peak rainfall from this system began from the 9th for most stations in Vanuatu. An overlying low pressure northwest of Vanuatu (east of Solomon Islands) was fueled by the MJO into a Tropical Low on the 13th. The Tropical Disturbance remained north of Vanuatu from 14th – 15th, and was later baptized into Tropical Cyclone Tino (CAT 1) when it reached Fiji's area of responsibility (AoR) on the 16th. Associated showers were mostly felt in the northern and central islands, however there were no direct impact from the cyclone over Vanuatu. A ridge of high pressure developed over New Caledonia on the 17th, which pushed TC Tino further southeast from the 18th – 20th. The remainder of the month sees series of high pressure systems emerging over Tasman Sea, which mostly contributed to the fine weather experienced over the central and southern islands. Meanwhile, troughs continued affecting the northern parts of Vanuatu, casting showers of rainfall to the northern islands towards the end of the month.

Figure 1: Mean Sea Level Pressure at 11:00pm 11<sup>th</sup>/Jan/2020; An active MJO Phase



### 3. Rainfall

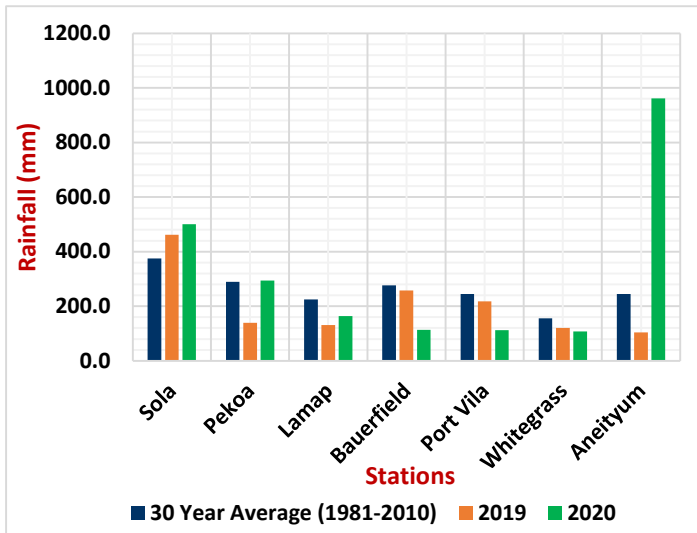
Below normal rainfall were evident at most central and southern islands. Lamap, Bauerfield, Port Vila and Whitegrass recorded below normal rainfall in January. Sola and Aneityum recorded above normal rainfall. The peak rainfall for both stations were observed during an active MJO over the country, which coincided with the development phase of TC Tino.

Table 1: January 2020 Rainfall Summary for Vanuatu

Stations	Total Monthly Rainfall (mm)	Highest Daily Rainfall (mm)	Date of Daily Highest Rainfall Recorded	30 Year Monthly Average (mm) (1981-2010)	SCOPIC Rainfall Status
Sola	500.8	89.9	Monday 13 <sup>th</sup>	391.6	Above Normal
Peko	293.5	75.8	Saturday 11 <sup>th</sup>	200.5	Normal
Lamap (AWS)	164.0	54.5	Tuesday 14 <sup>th</sup>	133.1	Below Normal
Bauerfield	113.1	32.1	Friday 10 <sup>th</sup>	172.8	Below Normal
Port Vila (AWS)	112.2	-	-	172.9	Below Normal
Whitegrass	107.7	41.3	Thursday 9 <sup>th</sup>	91.9	Below Normal
Anelghahohat	961.4	549.0	Thursday 9 <sup>th</sup>	206.4	Above Normal

\*Note: AWS – Automatic Weather Station

Figure 2: January 2019 vs. January 2020 Rainfall compared to 30 Year Monthly Average



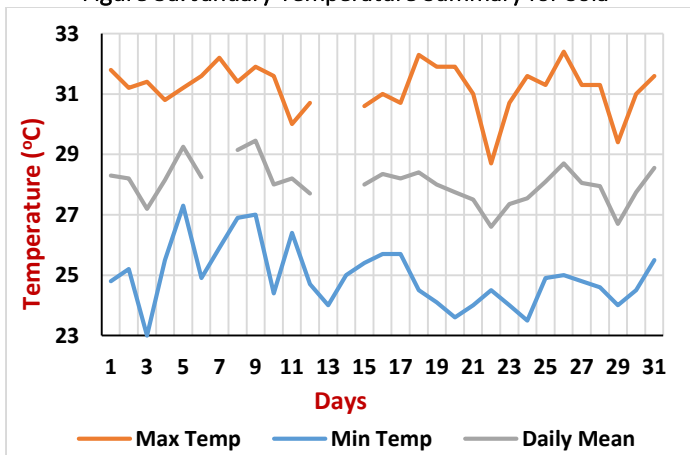
The January 2020 rainfall in Sola, Pekoa, Lamap and Aneityum, was higher compared to January last year. The opposite trend was observed at Bauerfield, Port Vila and Whitegrass.

#### 4. Atmospheric Temperatures

Table 2: January 2020 Temperature Summary for Vanuatu

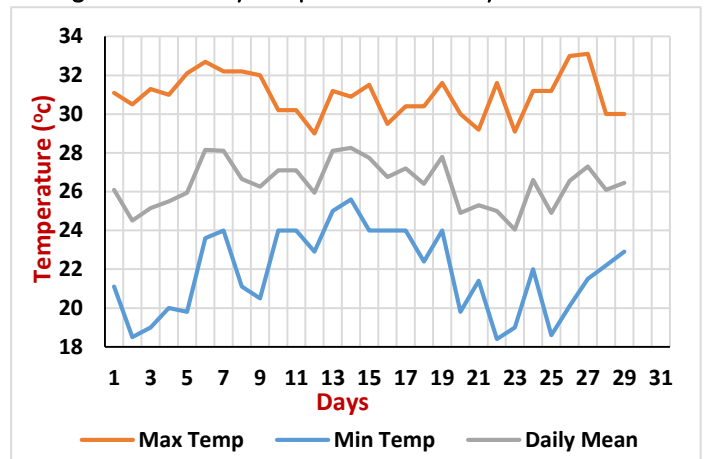
Region	Stations	Source	Mean Max Temp (°C)	Mean Min Temp (°C)	Daily Mean Temp (°C)
Northern	Sola	Manual	31.2	24.9	28.1
	Pekoa	Manual	31.0	22.7	26.8
	Lamap	AWS	-	-	-
Southern	Bauerfield	Manual	31.0	21.8	26.4
	Port Vila	AWS	31.1	23.5	27.3
	Whitegrass	Manual	30.4	21.7	26.1
	Anelgaohat	AWS	29.3	22.2	25.8

Figure 3a: January Temperature Summary for Sola



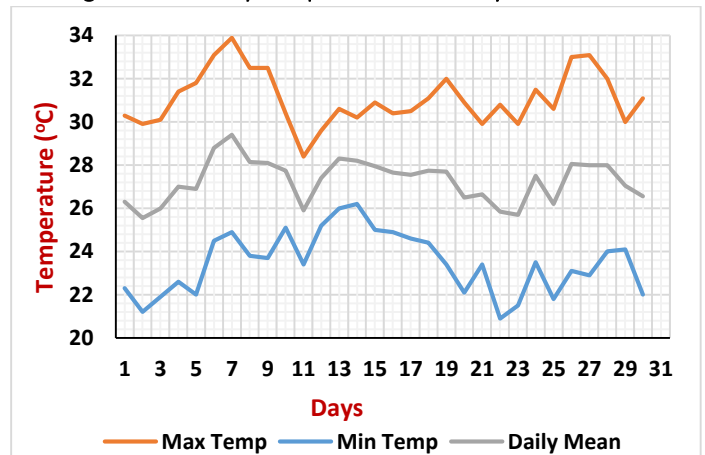
Sola recorded a total of 26 days where temperatures exceeded 30.0°C. The highest temperature was 32.4°C recorded on the 26<sup>th</sup>. The lowest temperature was 23.0°C, recorded on Friday night, the 3<sup>rd</sup>.

Figure 3b: January Temperature Summary for Bauerfield



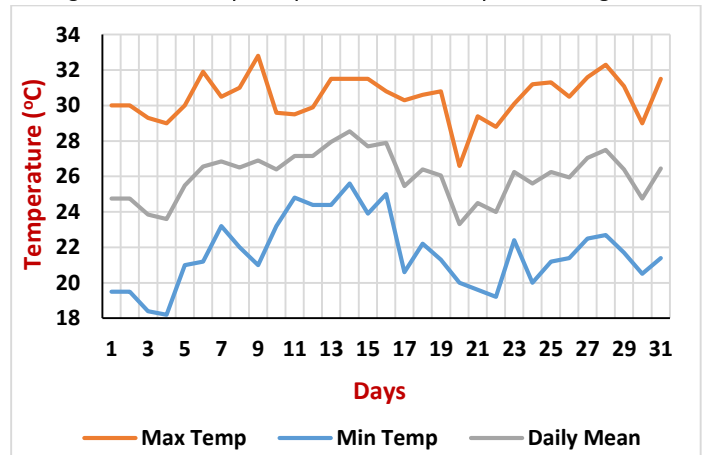
Bauerfield recorded a total of 23 days where temperatures exceeded 30.0°C. The highest temperature was 33.1°C on Monday 27<sup>th</sup>, and the lowest temperature recorded was 18.4°C on Wednesday night, the 22<sup>nd</sup>.

Figure 3c: January Temperature Summary for Port Vila



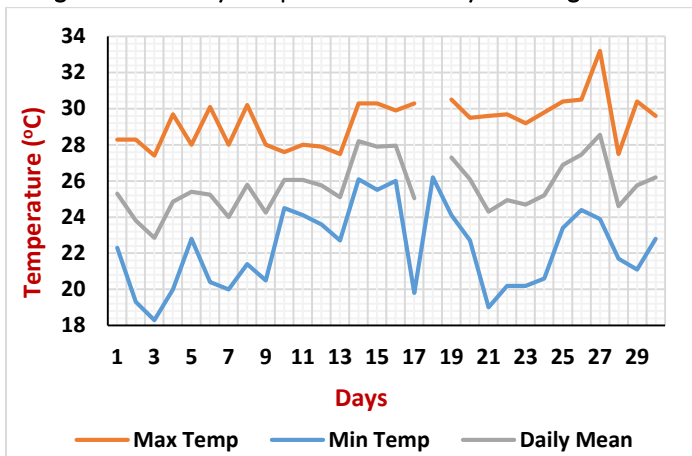
Port Vila recorded a total of 25 days where temperatures exceeded 30.0°C. The highest temperature was recorded on Tuesday the 7<sup>th</sup> at 33.9°C, and the lowest temperature was 20.9°C, recorded on Wednesday night, the 22<sup>nd</sup>.

Figure 3d: January Temperature Summary for Whitegrass



Whitegrass recorded a total of 19 days where temperatures exceeded 30.0°C. The highest temperature was 32.8°C recorded on Thursday 9<sup>th</sup>. The lowest temperature was 18.2°C, recorded on the Saturday night, the 4<sup>th</sup>.

Figure 3e: January Temperature Summary for Anelghaohat



Anelghaohat recorded a total of 11 days where temperatures exceed 30.0°C. The highest temperature was 33.2°C recorded on Monday 27<sup>th</sup>. The lowest temperature was 18.3°C, recorded on Friday night, the 3<sup>rd</sup>.

## 5. January 2020 Average and Extreme Temperatures

### 5.1 Maximum Temperatures (Tmax)

The graph below shows January Average Maximum Temperature (Tmax) for all stations with the time period used from 1990-2020. All extreme figures are averages for January in the years 1990-2020.

Figure 3f: January Maximum Temperature vs Climatology

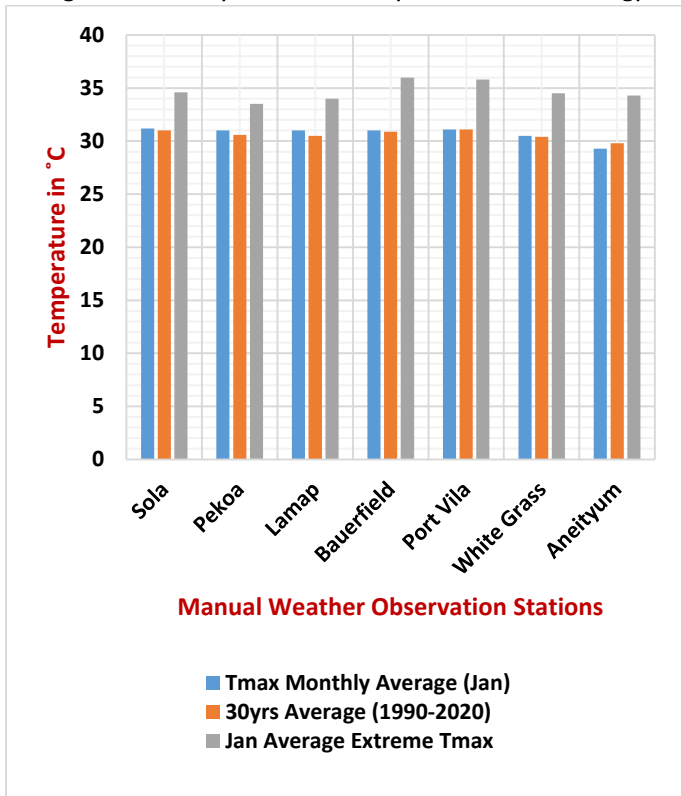
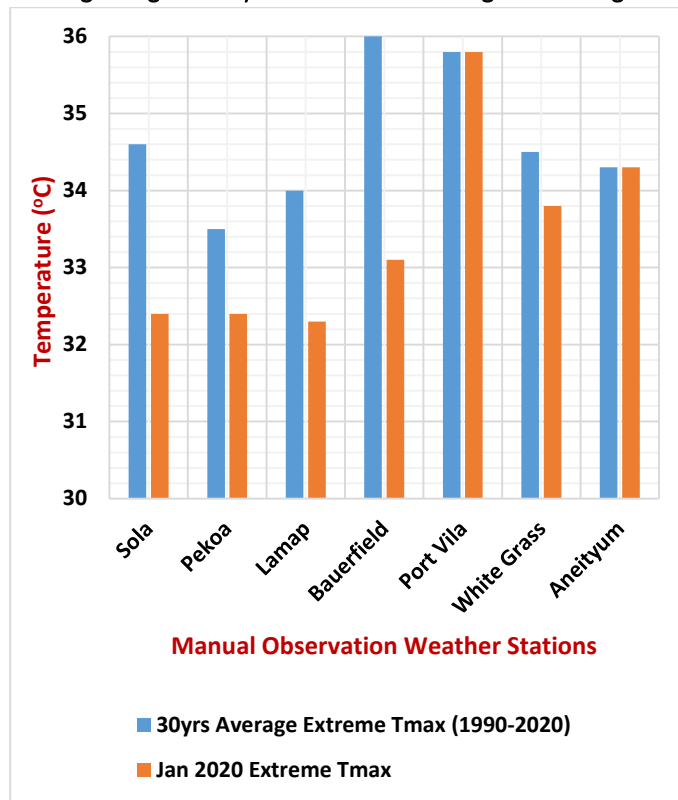


Figure 3g: January Extreme Tmax vs Longterm Average



- **Pekoa:** The average Tmax was 31.0 °C while the long term average is 30.6°C. The highest Tmax for January was 32.4 °C recorded on the 5<sup>th</sup> and its lowest Tmax is 29.3 recorded on the 12<sup>th</sup> of January. The January average extreme Tmax for Pekoa in its recent 30years of record is 33.5 °C.
- **Lamap:** The average Tmax for January 2020 is 31.0 °C (taken from AWS) while the long term average is 30.5 °C. The highest Tmax for January 2020 is 32.3 recorded on the 26<sup>th</sup> and its lowest Tmax is 30.1 °C recorded on the 3<sup>rd</sup>. The January average extreme Tmax for Lamap in its recent 30years of record is 34.0 °C.
- **Bauerfield:** The average Tmax is 31.0 °C while 30years average Maximum Temperature is 30.9°C. The highest Tmax was 33.1 °C recorded on the 27<sup>th</sup> and its lowest was 29.0 °C recorded on the 12<sup>th</sup> of January. The January average extreme Maximum Temperature for Bauerfield in its recent 30years of record is 36.0 °C.
- **Port Vila:** The average Tmax is 31.1 °C which is also the equal to the long term average for the 1990-2020 period. The Jan 2020 highest Tmax is 33.9 °C recorded on the 7<sup>th</sup> and its lowest is 28.4 °C recorded on the 11<sup>th</sup>. The average extreme Tmax for Port Vila is 35.8 °C.
- **White Grass:** The average Tmax is 30.5 °C and the 30years average Tmax for White Grass is 30.4 °C. The January highest Tmax for January 2020 is 32.8 °C recorded on the 9<sup>th</sup> and its lowest Tmax was 26.6 °C which was recorded on the 20<sup>th</sup>. The monthly average extreme for White Grass according to its recent 30years of records is 34.5 °C.
- **Aneityum:** The 2020 average Tmax is 29.3 °C while the 30years average Tmax for Aneityum is 29.8 °C. The January highest Tmax for Jan2020 is 33.2 °C recorded on the 27<sup>th</sup> and its lowest is 27.4 °C recorded on the 3<sup>rd</sup> of Jan2020. The monthly long term average extreme for Aneityum for the recent 30years is 34.3 °C.

## 5.2 Minimum Temperatures (Tmin)

The graph below shows January Average Minimum Temperature (Tmin) for all stations with the time period used from 1990-2020. All extreme figures are averages for January in the years 1990-2020.

Figure 3h: January Minimum Temperature vs Climatology

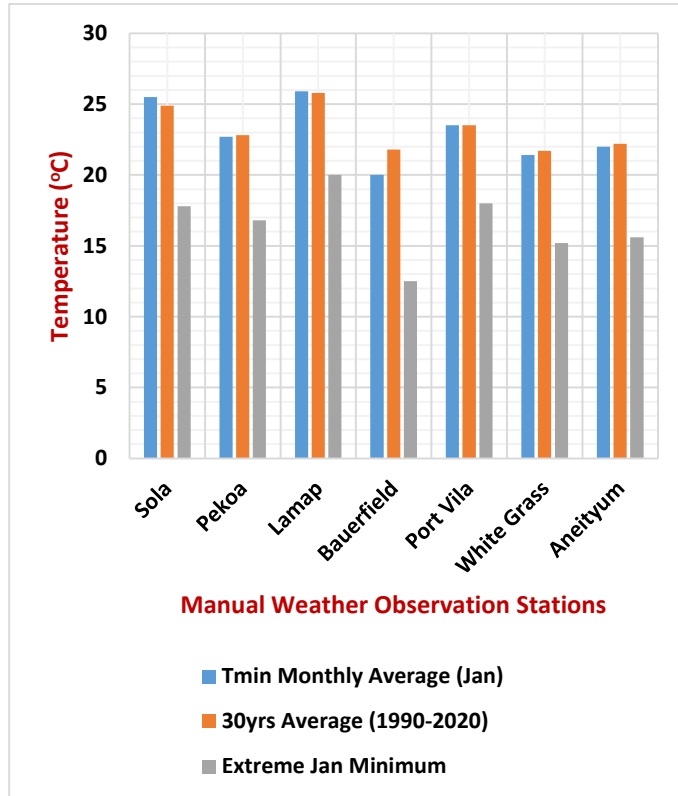
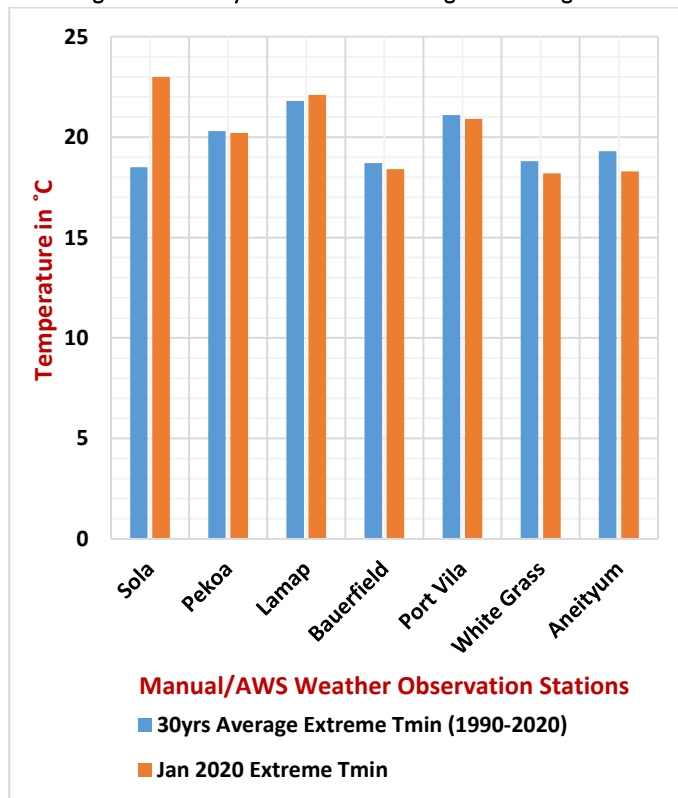


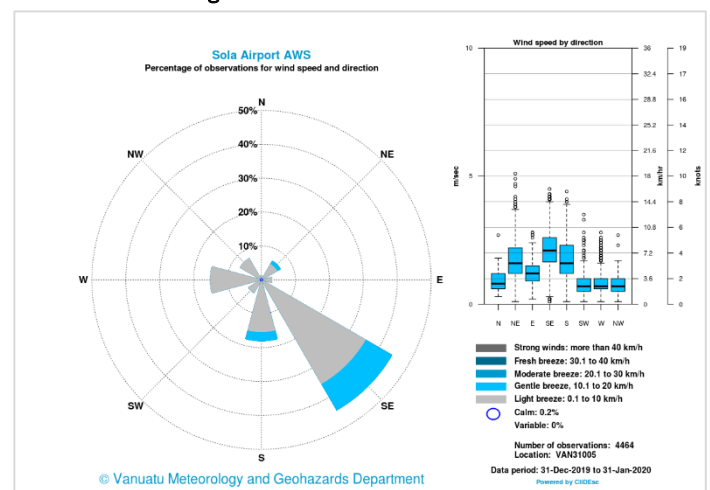
Figure 3i: January Extreme Tmin vs Longterm Average



- **Sola:** The average Tmin for January 2020 is 25.5°C while the long term average for the 30years period used is 24.9°C. The lowest Minimum temperature observed in January was 23.0°C and was recorded on the 3<sup>rd</sup> of January. The average long term extreme is 17.8°C for the period 1990-2020.
- **Pekoa:** The average Tmin for January 2020 is 22.7°C while the long term average for the 30years period used is 22.8°C. The lowest Minimum temperature observed in January was 20.2 °C on the 4<sup>th</sup> & 5<sup>th</sup> of January. The average long term extreme is 16.8 °C for the period 1990-2020.
- **Lamap:** The average Tmin for January 2020 is 25.5°C while the long term average for the 30years period used is 24.9°C. The lowest Minimum temperature observed in January was 23.0°C which was recorded on the 3<sup>rd</sup> of January. The average long term extreme is 17.8 °C for the period 1990-2020.
- **Bauerfield:** The average Tmin for January 2020 is 20.0°C while the long term average for the 30years period used is 21.8°C. The lowest Minimum temperature observed in January was 18.4°C on the 22<sup>nd</sup> of January. The average long term extreme is 12.5°C for the period 1990-2020.
- **Port Vila:** The average Tmin for January 2020 is 23.5°C while the long term average for the 30years period used is also 23.5°C. The lowest Minimum temperature observed in January was 20.9°C on the 22<sup>nd</sup> of January. The average long term extreme is 18.0°C for the period 1990-2020.
- **White Grass:** The average Tmin for January 2020 is 21.4°C while the long term average for the 30years period used is 21.7°C. The lowest Minimum temperature observed in January was 18.2°C on the 22<sup>nd</sup> of January. The average long term extreme is 15.2°C for the period 1990-2020.
- **Aneityum:** The average Tmin for January 2020 is 22.0°C while the long term average for the 30years period used is 22.2°C. The lowest Minimum temperature observed in January was 18.3°C on the 22<sup>nd</sup> of January. The average long term extreme is 15.6°C for the period 1990-2020.

## 6. Wind

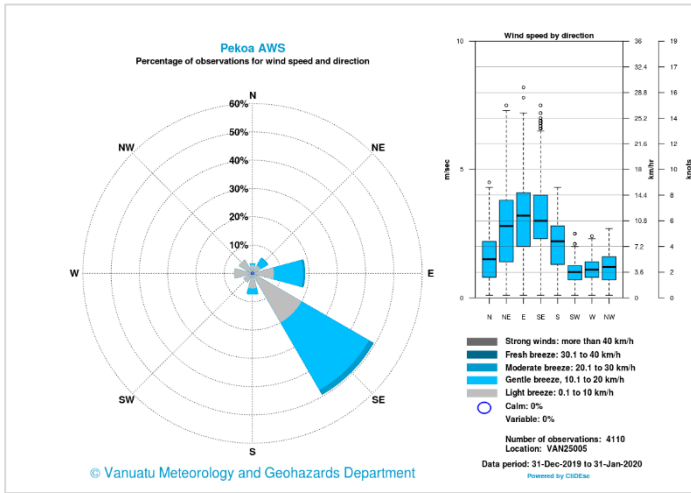
Figure 4a: Sola WindRose AWS



SE winds of light to moderate wind speed dominated Sola in January. Wind speed were mostly 0 – 5 knots. On the 5<sup>th</sup>, the station recorded SE wind speed of >5 to 11 knots. Torba

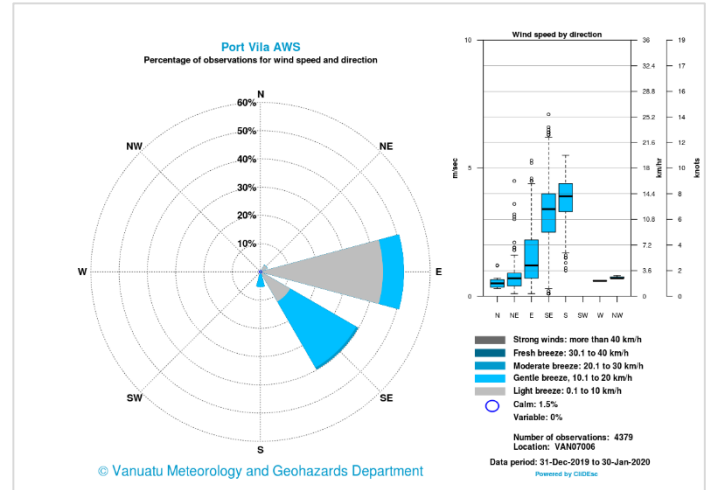
experienced severe weather from an associated trough during this time.

Figure 4b: Peko WindRose AWS



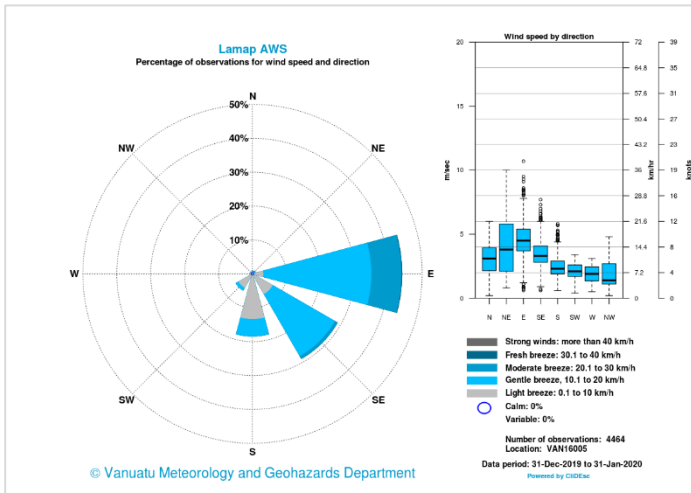
Wind speed over Peko in January were mostly above 5 knots to 11 knots. The highest wind speed observed at this station were moderate breeze, that is >11 to 16 knots.

Figure 4e: Port Vila WindRose AWS



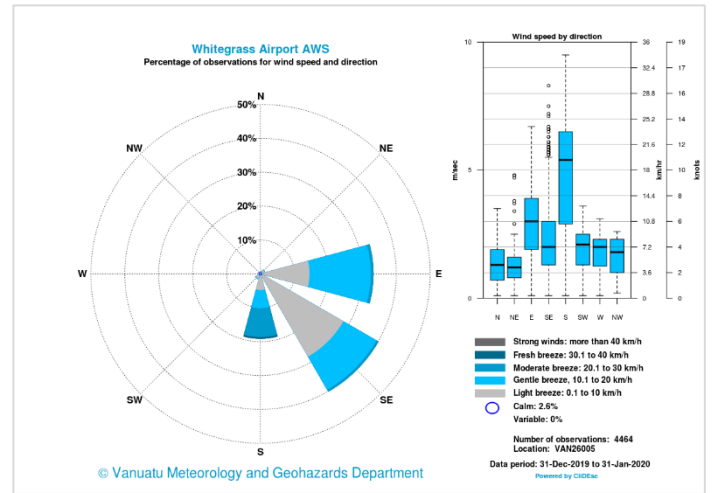
Light to gentle breeze of up to 11 knots were mostly felt in Port Vila during January. The highest wind speed observed were moderate breeze of > 11 to 16 knots. The station experienced mostly east and southeast winds.

Figure 4c: Lamap WindRose AWS



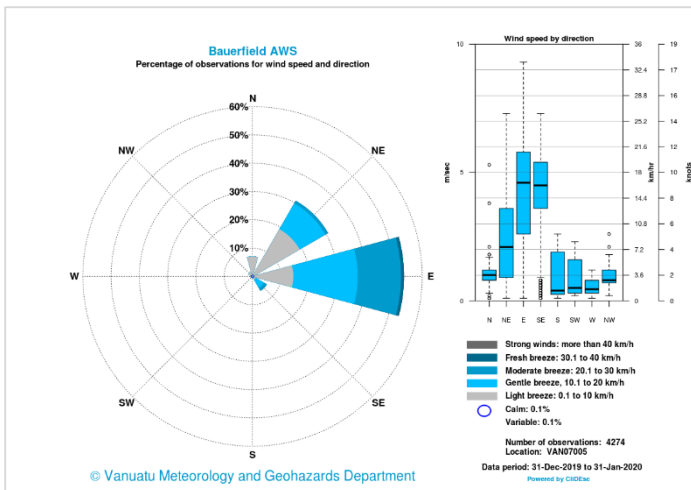
The highest wind speed observed at Lamap were moderate breeze of > 11 to 16 knots. The station experienced mostly east winds. The dominant wind speed were gentle breeze of > 5 to 11 knots.

Figure 4f: Whitegrass WindRose AWS



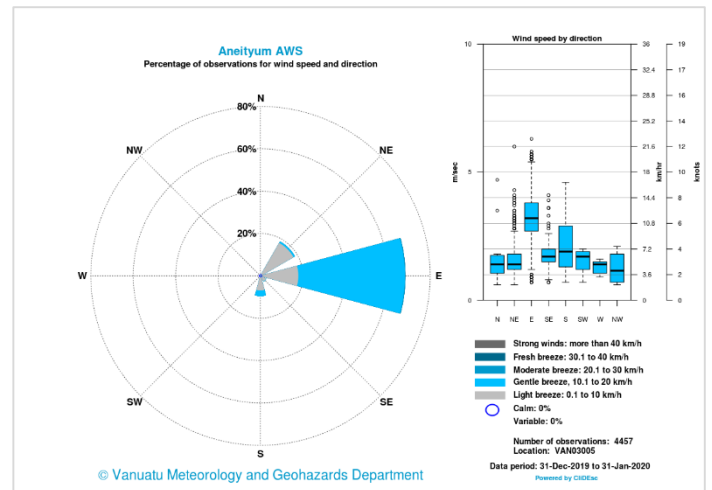
Light to gentle breeze of up to 11 knots were mostly felt at Whitegrass during January. The highest wind speed observed were moderate breeze of > 11 to 16 knots. The station experienced mostly east and southerly winds.

Figure 4d: Bauerfield WindRose AWS



The highest wind speed observed at Bauerfield were fresh breeze of > 16 to 22 knots. The station experienced mostly east winds. The dominant wind speed were gentle to moderate breeze of > 5 to 16 knots.

Figure 4g: Aneityum WindRose AWS

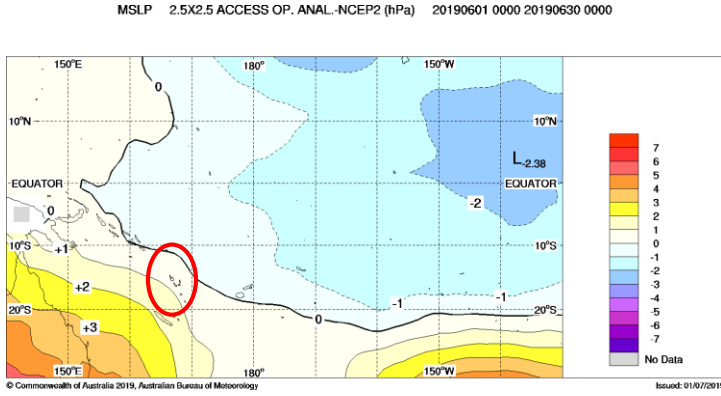


Aneityum experienced mostly gentle breeze of >5 to 11 knots, which were mostly east winds.

## 7. Mean Sea Level Pressure (MSLP)

The January MSLP anomaly map (Figure 5) shows atmospheric pressure over Vanuatu was normal (-1 to +1). Pressure anomalies increase towards Australia's interior in the south western Pacific (brown shades), while anomalies towards the north eastern Pacific were low (blue shades). Regions of high pressure anomalies are associated with suppressed rainfall, while enhanced convections are associated with regions of low pressure anomalies.

**Figure 5: Mean Sea Level Pressure Anomaly**

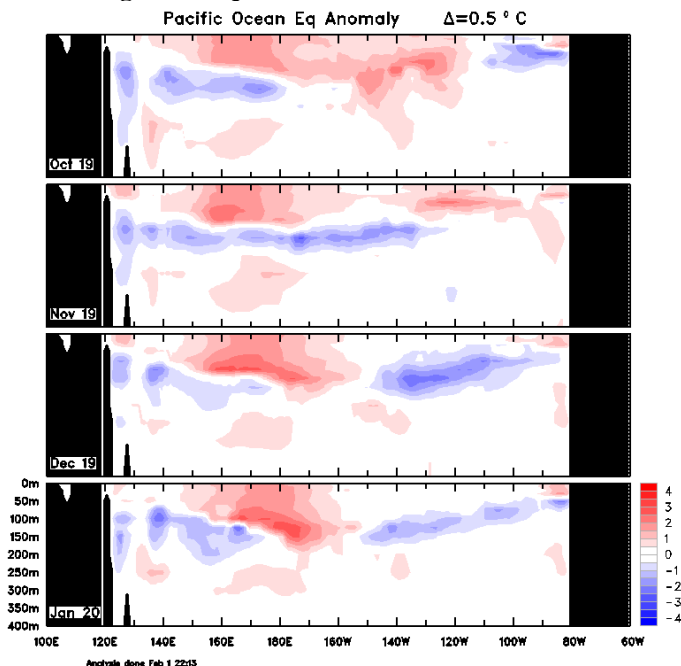


Source: <http://www.bom.gov.au/cgi-bin/climate/cmb.cgi?variable=mslp&area=spac&map=anomaly&time=latest>

## 8. El Niño Southern Oscillation (ENSO)

Atmospheric and oceanic indicators of ENSO remain neutral, including the Southern Oscillation Index (SOI), cloudiness near the Date Line, trade winds, and sub-surface temperatures in the Pacific. However, surface waters in the tropics near to and west of the Date Line are warmer than average. The four-month sequence of equatorial sub-surface temperature anomalies (to January) (Figure 6) shows the top 150 m of the equatorial Pacific is warmer than average between about 160°E and 160°W, reaching more than two degrees warmer than average. Slightly cooler than average waters are present at a depth of around 50 to 150 m across most of the remainder of the equatorial Pacific.

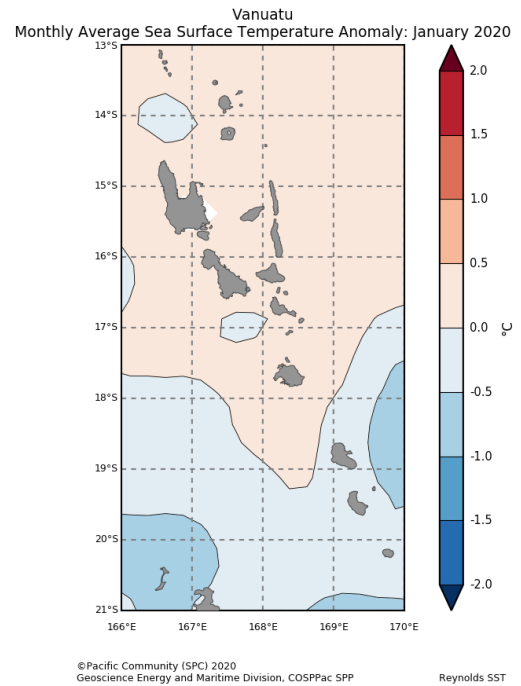
**Figure 6: Equatorial Sub-surface anomalies**



Source: <http://www.bom.gov.au>

## 9. Sea Surface Temperatures (SSTs)

**Figure 7: Vanuatu Average Sea Surface Temperature Anomaly for January 2020**

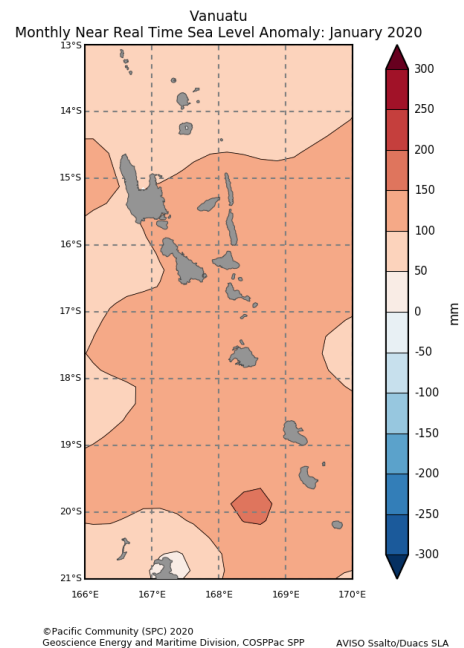


Source: <http://oceanportal.spc.int/portal/app.html#climate>

SSTs over Vanuatu during the month of January generally remain within the normal range (-0.5°C to +0.5°C). Positive anomalies of up to +0.5°C were evident over the northern and central islands, while negative anomalies of -0.5°C were evident over the southern islands.

## 10. Sea Level (SL)

**Figure 8: Vanuatu Average Sea Level Anomaly for January 2020**



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

Slightly higher than average sea level was observed over Vanuatu in January. Sea level reached up to 150 mm above its normal height over Sanma, Penama, Malampa, Shefa and Tafea.

**For further information please contact:**

**The Director  
Vanuatu Meteorology and Geo-Hazards  
Department**

Mail: Private Mail Bag 9054, Port Vila, Efate

Phone: 678 23866, Fax: 678 22310

Website: <http://www.vmgd.gov.vu>

Email: [climate@meteo.gov.vu](mailto:climate@meteo.gov.vu)

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