



### 1. Highlights

<b>Rainfall</b>	<ul style="list-style-type: none"> <li>Sola &amp; Pekoa recorded <i>normal</i> rainfall.</li> <li>Bauerfield recorded <i>below normal</i> rainfall.</li> <li>Aneityum recorded <i>above normal</i> rainfall.</li> </ul>
<b>Temperature</b>	<ul style="list-style-type: none"> <li>Average temperature was <b>25.1°C</b> in May.</li> <li>Average daytime temperature was <b>28.5°C</b>.</li> <li>Average night time temperature was <b>21.7°C</b>.</li> </ul>
<b>Significant Weather</b>	<ul style="list-style-type: none"> <li>Fresh, moderate to strong east and south-easterly winds on the 08<sup>th</sup> -10<sup>th</sup>.</li> <li>Low pressure near Solomon Islands developed into Tropical Cyclone Ann (CAT 1) as it left Vanuatu Area.</li> </ul>
<b>ENSO</b>	<ul style="list-style-type: none"> <li>ENSO outlook remains at El Nino WATCH.</li> </ul>

### 2. Weather Patterns

A big high pressure moving from Tasman Island to west of New Zealand during the first five days of May created mostly moderate to fresh south-easterly winds over Vanuatu. A marine and inland strong wind warning was issued for Vanuatu during these periods. On the 5<sup>th</sup> & 6<sup>th</sup>, a trough of low pressure situated south of Solomon Islands extended to east of Fiji islands with little effect on the northern part of Vanuatu. This trough contributed 82.1 mm of rainfall within 24 hours over Sola weather station. While a cold front to the south of New Caledonia also extended a trough to west of Vanuatu. A low pressure developed near south of the Solomon Islands moved closer to northeast of Vanuatu with series of troughs extending over the country on the 7<sup>th</sup> resulted in unstable weather experienced over Torba province

From the 08<sup>th</sup> to the 10<sup>th</sup> of May, the low pressure slowly intensified and remain stationary between the Solomon Islands and Vanuatu before moving westwards into the Coral Sea. The low pressure contributed to high daily rainfall recorded over Sola on the 10<sup>th</sup> at 60.9 mm. Meanwhile, a high pressure from the northeast of New Zealand maintained tight pressure gradient over Vanuatu during the same period resulting strong wind and rough seas. MV Sowades, a local interisland vessel was washed aground on east Pentecost on the 9<sup>th</sup> due to rough seas and strong easterly winds the low pressure near Solomon Islands moved passed 160°E (Vanuatu Area of Responsibility) before developing into a category 1 cyclone (TC Ann) at 5pm on the 12<sup>th</sup> of May 2019. Tropical cyclone Ann moved further westwards, remained as a Cat 1 system before downgraded to a low as it made landfall on the eastern coast of Australia.

Area of high pressures moved into the Tasman Sea from South Australia from the 13<sup>th</sup> to 22<sup>nd</sup> of May contributing to moderate to fresh east and south-easterly winds over Vanuatu during these periods. While, area of convergences were mainly concentrated to the northeast of Vanuatu and extended to the Fiji Islands. On the 23<sup>rd</sup>, a trough extended from a weak low pressure over Fiji Islands to the south of Tafea province. The trough remain over Tafea province before dissipated on the 24<sup>th</sup>. This trough has damped 20.8 mm of rainfall over Aneityum on the 24<sup>th</sup>.

A weak surface trough developed west southwest of Vanuatu on the 25<sup>th</sup> and remain till the 27<sup>th</sup>. This trough linked with an east ward movement of the cold front to the south of Vanuatu and New Caledonia. The last four days of May was dominated with moderate to fresh south-easterly wind from a strong high pressure

over South Australia. A marine strong wind warning was issued for all open waters of Vanuatu on the 30<sup>th</sup> of May 2019.

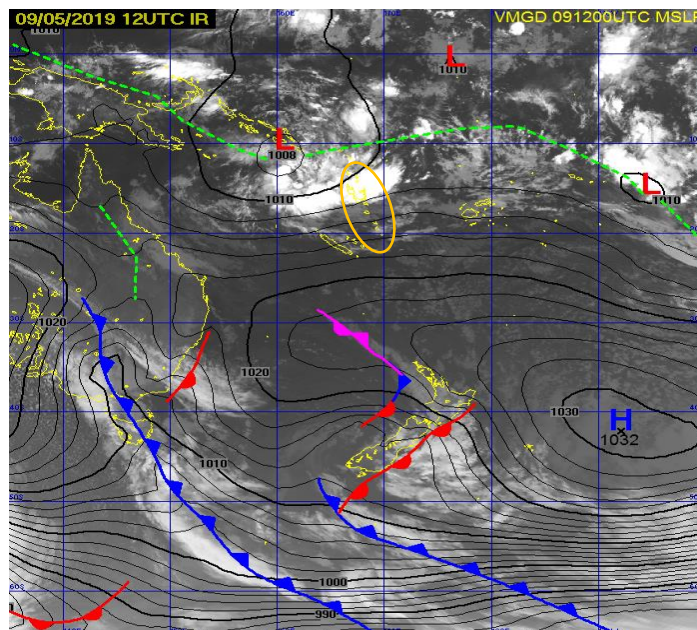


Figure 1: Mean Sea Level Pressure @ 11 pm on 09/05/2019

### 3. Rainfall

During the month of May, rainfall patterns varied across the country ranging from *below normal* to *above normal*. 3 stations recorded *normal* rainfall (Sola, Pekoa, Whitegrass), 1 received *below normal rainfall* (Bauerfield), while Aneityum experienced *above normal* rainfall.

Sola recorded the highest monthly rainfall out of the 5 stations at 324.5mm, followed by Aneityum at 256.6mm and Pekoa at 119.2mm. In contrast, Bauerfield experienced lowest monthly rainfall out of the 5 stations at 53.8mm (**Table 1**).

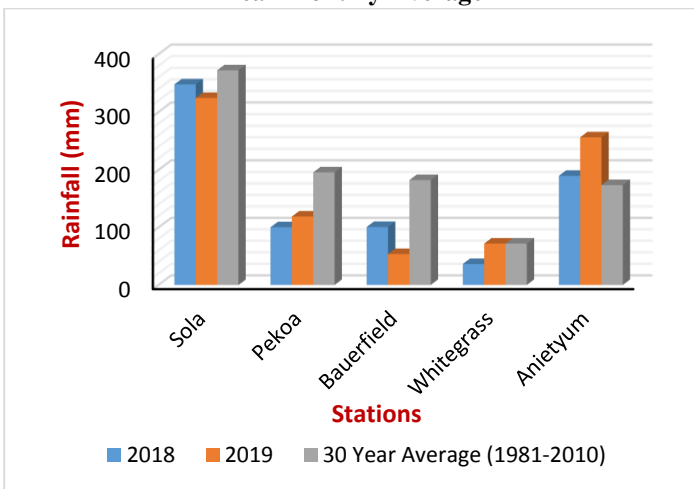
In May 2019, Sola and Bauerfield received lower rainfall compared to May 2018 by 23.5mm and 47.1mm respectively (**Figure 2**). The opposite was observed at Pekoa, Whitegrass and Aneityum. For Pekoa, rainfall was higher by 18.7mm, while Aneityum received 66.6mm more rainfall compared to 2018. On the other hand, rainfall at Whitegrass was precisely at the 30 year average compared to the previous year.

**Table 1: May 2019 Rainfall Summary for Vanuatu**

Stations	Total Monthly Rainfall (mm)	Highest Daily Rainfall (mm)	Date of Daily highest Rainfall recorded	30 Year Average for May (1981-2010)	Rainfall Status
Sola	324.5	No Data Available		372.3	Normal
Pekoa	119.2	51.0	Mon, 13 <sup>th</sup>	196.0	Normal
Lamap (AWS)	No Data Available				
Bauerfield	53.8	12.1	Tue, 7 <sup>th</sup>	182.6	Below Normal
Port Vila (AWS)	No Data Available				
Whitegrass	72.1	39.8	Tue, 7 <sup>th</sup>	72.1	Normal
Aneityum	256.6	53.0	Fri, 10 <sup>st</sup>	173.8	Above Normal

\*Note: AWS – Automatic Weather Station

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



\*Note: Calculations are based on 30 Years Average (1981-2010)

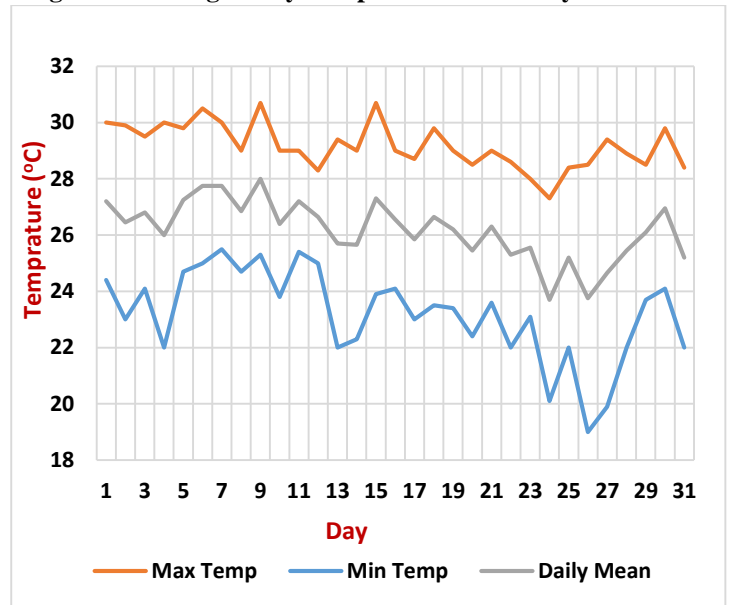
#### 4. Atmospheric Temperatures

**Table 2: May 2019 Temperature Summary for Vanuatu**

Region	Stations	Source	Mean Max Temp (°C)	Mean Min Temp (°C)	Daily Mean Temp (°C)
Northern	Sola		No Data Available		
	Pekoa	MANUAL	29.2	23.2	26.2
	Lamap		No Data Available		
Southern	Bauerfield	MANUAL	28.3	19.8	24.1
	Port Vila		No Data Available		
	Whitegrass	MANUAL	28.7	19.9	24.3
	Aneityum	MANUAL	26.9	20.8	23.9
<b>Vanuatu Average</b>			<b>28.3</b>	<b>20.9</b>	<b>20.7</b>

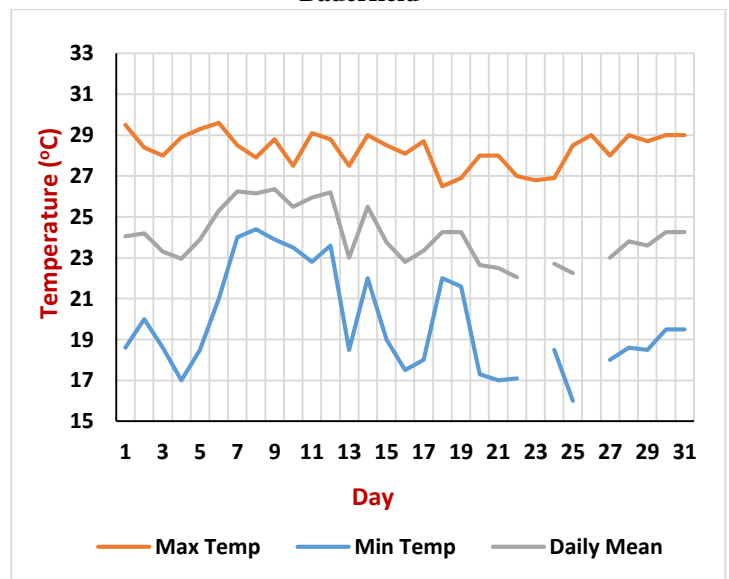
In May, Pekoa experienced warmer days compared to the other stations. The station recorded a mean max temp of 29.2°C (Table 2). In contrast, Aneityum experienced less warmer days with an average of 26.9°C. In terms of minimum temperature, Bauerfield experienced cooler nights out of all stations while Pekoa recorded warmer nights on average.

**Figure 3: Average Daily Temperature Summary for Pekoa**



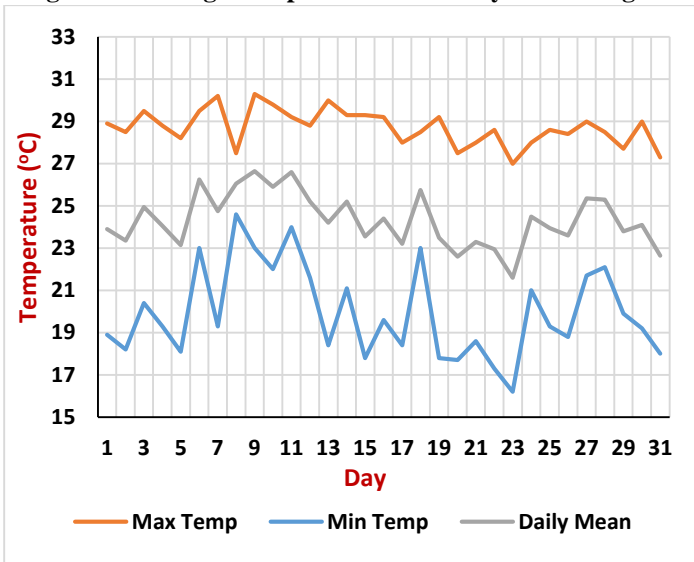
Out of the 5 stations, the warmest day in May was observed at Pekoa on Wednesday 15<sup>th</sup> with 30.7°C (Figure 3). The least warm day experienced in this station was recorded on the 24<sup>th</sup> at 27.3°C. Pekoa experienced a total of 3 days where max temp exceeds 30°C. The coolest night was observed on the 26<sup>th</sup> at 19°C.

**Figure 4: Average Daily Temperature Summary for Bauerfield**



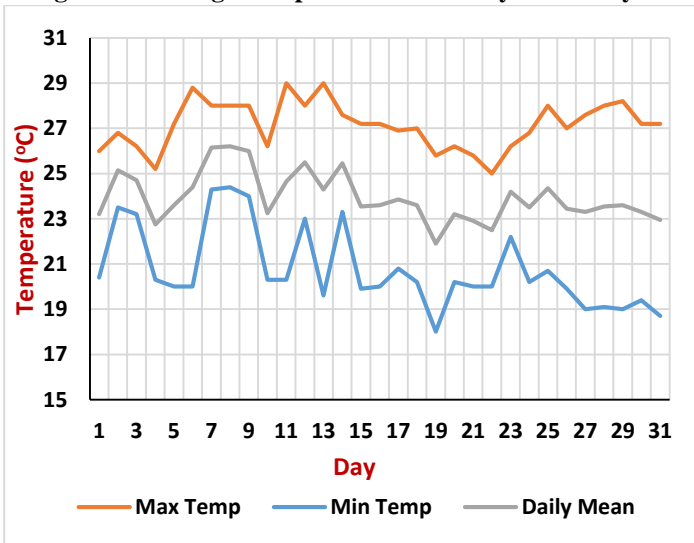
The warmest day recorded in Bauerfield was 29.6°C on the 6<sup>th</sup>, while the least warm-day was observed on the 18<sup>th</sup> at 26.5°C (Figure 4). The station experienced the coolest night out of all stations at 16.0°C on the 25<sup>th</sup>. Bauerfield observed a constant increase in minimum temperature from the 5<sup>th</sup>, prior to the highest monthly rainfall experienced in the area on the 7<sup>th</sup> at 12.1mm.

Figure 5: Average Temperature Summary for Whitegrass



Like the other stations, Whitegrass experienced significant rainfall events during the 1<sup>st</sup> - 2<sup>nd</sup> week of May, with a peak of 39.8mm on the 7<sup>th</sup>. As a result, the warmest day and night were recorded on the following days at 8<sup>th</sup> and 9<sup>th</sup> respectively (Figure 5). On the other hand, the coolest day and night temperatures were observed on the 23<sup>rd</sup>.

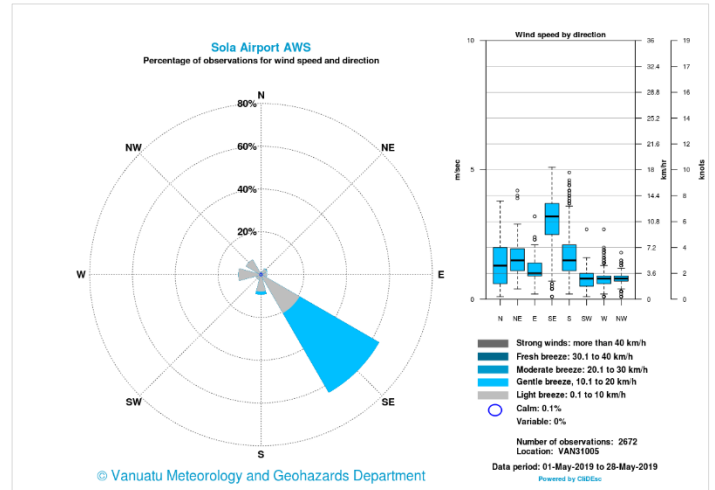
Figure 6: Average Temperature Summary for Aneityum



Aneityum recorded the warmest days on the 11<sup>th</sup> and 13<sup>th</sup> at 29°C respectively (Figure 6). The warmest night was observed on the 8<sup>th</sup> at 24.4°C, prior to the highest monthly rainfall recorded on the 10<sup>th</sup> at 53.0mm. The coolest day was observed on the 22<sup>nd</sup> at 25.0°C, and the coolest night was experienced on the 19<sup>th</sup> at 18.0°C.

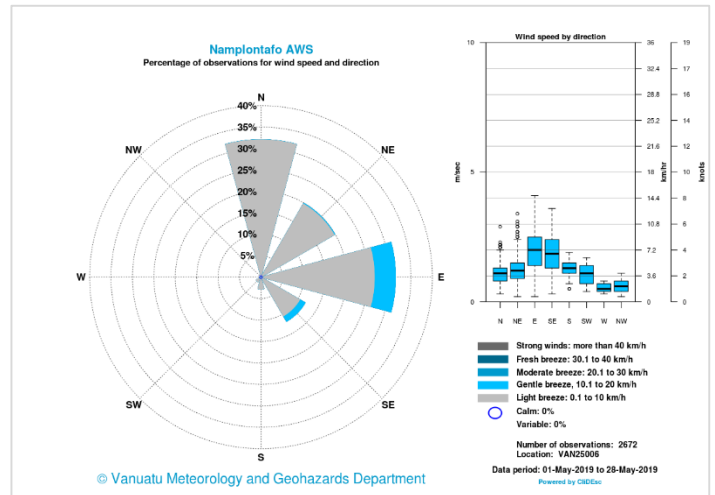
## 5. Wind

Figure 6a: Sola Airport WindRose AWS



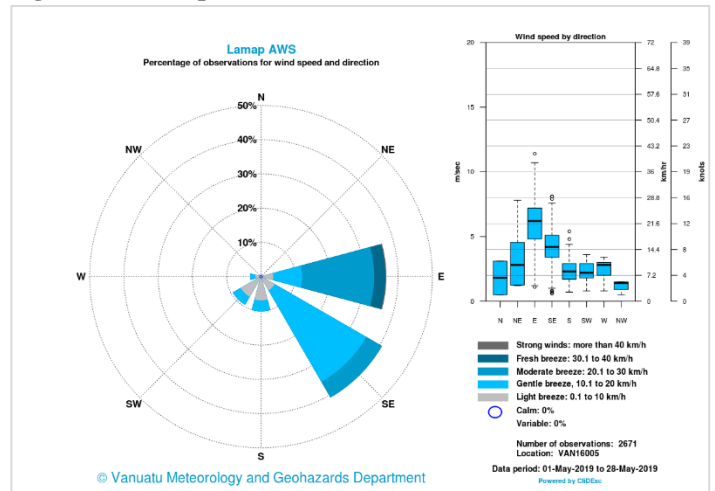
Gentle south-easterly breeze dominated Lamap in May. Wind speed were generally 10km/h – 20km/h (5 – 10 knots).

Figure 6b: Namplontafo WindRose AWS



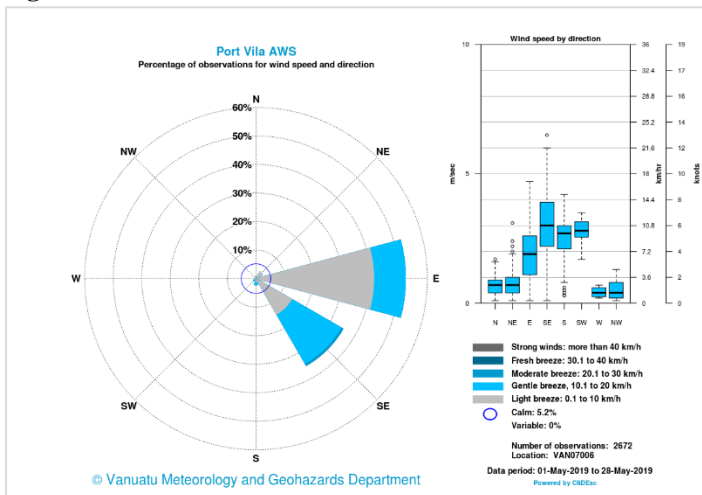
Light northerly breeze of up to 10km/h (5 knots) dominated Namplontafo in May, followed by easterlies of up to 20km/h (10 knots).

Figure 6c: Lamap WindRose AWS



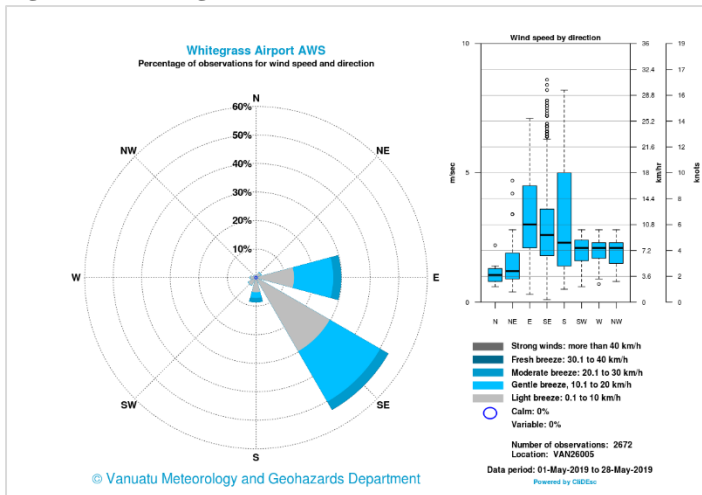
Lamap recorded easterly strong winds of more than 40km/h (21 knots) in May, however south-easterly breeze of up to 20km/h (10 knots) were predominant.

Figure 6d: Port Vila WindRose AWS



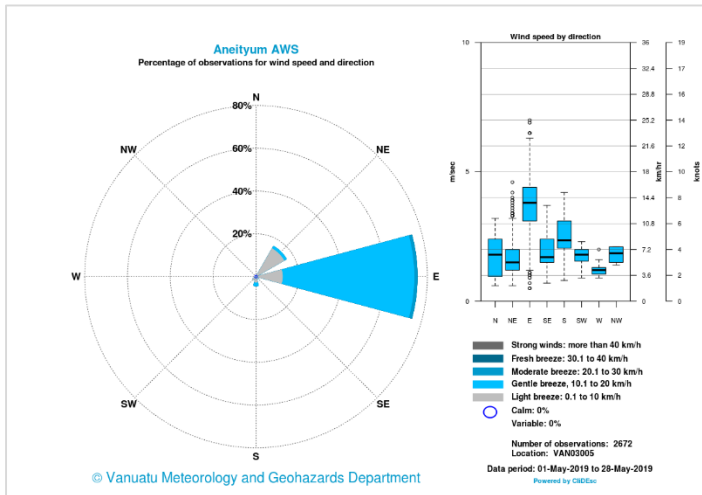
Port Vila experienced mostly easterlies of up to 20km/h (10 knots), followed by south-easterlies of up to 30km/h (16 knots).

Figure 6e: Whitegrass WindRose AWS



Light to moderate south-easterlies prevailed at Whitegrass during May, followed by easterlies. Wind speed were generally up to 40km/h (21 knots).

Figure 6f: Aneityum WindRose AWS

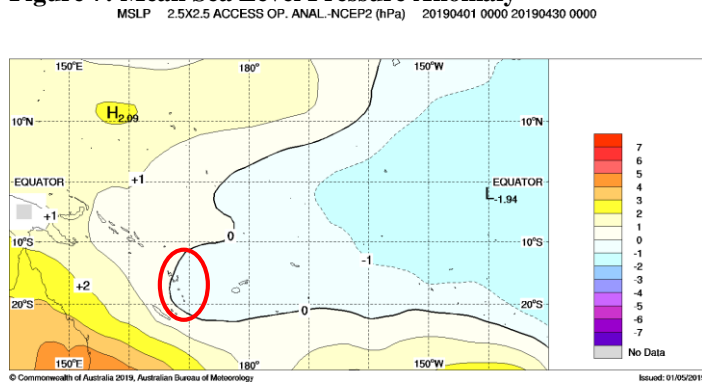


Aneityum experienced gentle to moderate easterlies in May. Wind speed varied from 10km/h – 30km/h (5 – 16 knots).

### 6. Mean Sea Level Pressure (MSLP)

MSLP remained close to normal over Vanuatu in May. Anomalies showed MSLP were up to 1 hPa above average.

Figure 7: Mean Sea Level Pressure Anomaly



Source: <http://ftp.bom.gov.au/anon/home/ncc/www/cmb/mslp/anomaly/month/colour/latest.spac.hres.gif>

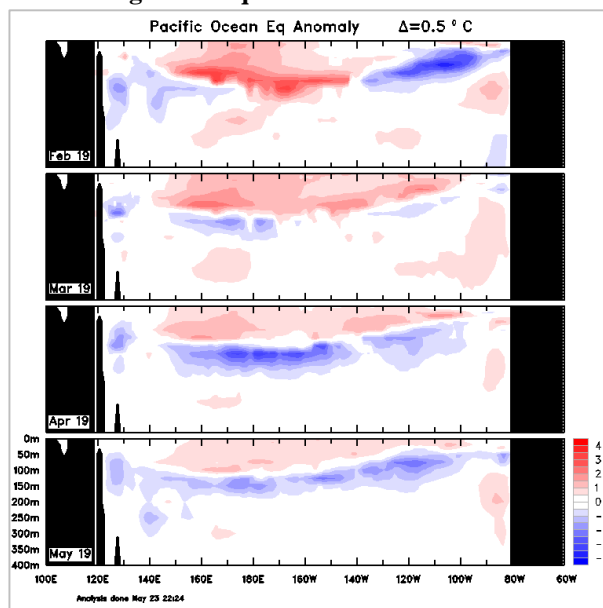
### 7. El Niño Southern Oscillation (ENSO)

The ENSO status issued in May generally remained at El Niño WATCH. The outlook was downgraded on the 14<sup>th</sup> and maintained its status within the proceeding update on the 28<sup>th</sup>.

The Niño3.4 weekly temperature anomalies for May fluctuated near the El Niño threshold, beginning at +0.8 °C during the first week and reducing to +0.7 °C towards the end of the month. The gradual cooling of the equatorial sub-surface temperature anomalies persisted in May. The cooling, although extended throughout the equatorial Pacific, weakened in the central Pacific compared to the previous month (Figure 8).

The SOI value for the 30 days to 26 May was -7.4, while the 90-day average increased to -5.3, which indicated an ENSO-neutral phase. Other atmospheric indicators also persisted at neutral; such as average trade winds along the equatorial Pacific, and average cloudiness over the Date Line.

Figure 8: Equatorial Sub-surface anomalies

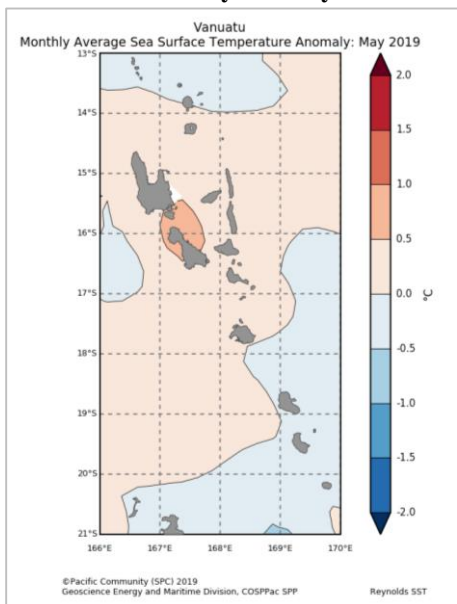


Source: <http://www.bom.gov.au>

### 8. Sea Surface Temperatures

SSTs for May were generally higher in the northern region compared to the southern region. The warmer region maintained anomalies of 0.5°C to 1°C warmer than average, while the southern region experienced an average of half degrees cooler than normal (Figure 9).

**Figure 9: Vanuatu Average Sea Surface Temperature Anomaly for May**

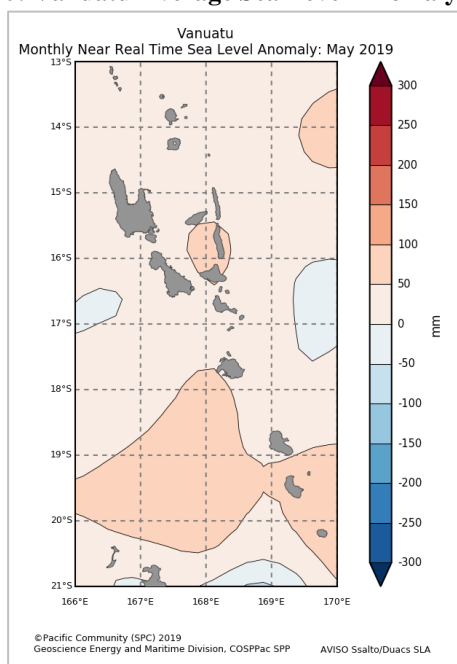


Source: <http://oceanportal.spc.int/portal/app.html#climate>

### 9. Sea Level

Sea level remained close to average over Vanuatu at the regional scale. The local scale showed SL experienced in May were up to 100m above average in some parts of Vanuatu (Figure 10).

**Figure 10: Vanuatu Average Sea Level Anomaly for May**



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

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