



CLIMATE SUMMARY MAY 2019

Samoa Meteorology Division

Ministry of Natural Resources and Environment



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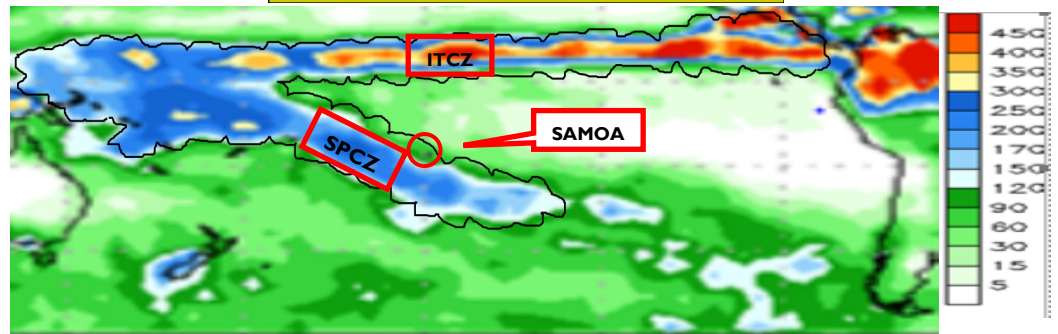


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HIGHLIGHTS

- ◆ Above Average rainfall was generally received for most stations in May 2019 **Pg 1 & 2**
- ◆ The warmest temperature of 33.0°C was registered on the 31st at Sala'ilua station. **Pg 3**
- ◆ Winds show typical dry weather pattern i.e. easterlies and southerly winds. **Pg 4 & 5.**
- ◆ Our El Nino Southern Oscillation (ENSO) status is now 'Inactive', meaning it neither leans to an El Nino nor La Nina event.
- ◆ Sub Surface temperatures have significantly cooled in recent weeks, where warm anomalies have weakened in the Central Equatorial region. **Pg 6**

Figure 1: SPCZ Position in May 2019



Data Source: NCEP CMAP Precipitation

GLOBAL SCALE OBSERVATIONS

The South Pacific Convergence Zone (SPCZ) position fluctuated mostly over Fiji, and south of Samoa. Rainfall activity within the SPCZ were enhanced as well, providing sufficient amount of precipitation south of the group. The Inter Tropical Convergence Zone (ITCZ) was also seen to be more active than normal, while maintain its position within the Equatorial region.

LOCAL SCALE OBSERVATIONS

May 2019 was observed to receive wetter than average conditions for southern stations, while the northern region remains dry, due to dominating easterly wind flow activity for most of the month. The highest May rainfall therefore was registered at Saleilua of 975.4mm, with the second highest of 731.0mm at Nuusuatia. A heavy rain advisory was issued in the second week of the month, where the highest one day fall of 265.6mm was received at Nuusuatia station, and the second highest of 254.4mm at Saleilua. On the other hand, the driest station in May was Aopo station, having received only 109.6mm for the month.

There were two off-season Tropical Depressions (TD) that developed in the western Pacific region last month. One of the TD was developed and moved to the Australian region and named Tropical Cyclone (TC) Ann by the Bureau of Meteorology.

(Refer to Table 1 for May rainfall statistics)

Table 1: Rainfall Statistics in May 2019

This table displays the rainfall status of all stations in the country in April 2019

Stations	May Rainfall (mm)	May 30 Year Long Term Average	% of Average	1 day fall (mm)	Date	# of Rainy Days	Rainfall Status
U P O L U							
Afiamalu	373.5	315	118	64.6	09 th	28	Average
Alafua	223.0	216	103	25.0	09 th	25	Average
Apia	218.7	207	105	47.4	09 th	19	Average
Faleolo	227.6	128	178	46.5	06 th	18	Well Above Average
Laulii	314.7	223	141	72.0	10 th	14	Above Average
Lepa	536.2	387	139	72.6	09 th	26	Above Average
Lotofaga	712.8	229	311	157.2	08 th	26	Well Above Average
Nafanua	258.2	246	104	64.0	09 th	24	Average
Nuusuatia	731.0	161	484	265.6	08 th	26	Well Above Average
Saleilua	975.4	483	202	254.4	08 th	24	Well Above Average
Saletele	121.8	475	26	22.4	01 st	29	Well Below Average
Saoluafata	212.0	390	54	67.2	27 th	19	Below Average
Togitogiga	723.3	457	158.2	110.4	13 th	29	Above Average
S A V A I I							
Aopo	109.6	200	55	22.6	04 th	17	Below Average
Falelima	179.0	105	170	32.2	17 th	18	Well Above Average
Salailua	228.2	135	169	65.4	03 rd	16	Well Above Average
Tuasivi	163.8	398	41	40.0	03 rd	20	Below Average

Table 1: Generally, most of the northern stations registered below normal rainfall. Southern and highland stations recorded average to above average rainfall for the period.

Well Below Average <40%	Below Average 40%-80%	Average 80%-120%	Above Average 120%-160%	Well Above Average >160%
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ATMOSPHERIC PRESSURE

Table 3: Atmospheric Pressure at Mean Sea Level (MSL)

This table displays the atmospheric statistics recorded across two stations in May 2019

Station	Highest MSL Pressure (hPa)	Date	Lowest MSL Pressure (hPa)	Date	Average MSL Pressure (hPa)
Apia	1013.4	26 th	1010.0	07 th	1011.5
Faleolo	1013.8	26 th	1009.0	08 th	1011.8

Both stations registered their highest Mean Sea Level (MSL) Pressure on the 26th of the month. However the lowest MSL pressure of 1009.0 was recorded early May, at Faleolo station.

(Note: Generally, high pressure systems associate with good weather conditions whereas low pressure systems associate with bad weather conditions)

WIND

Figure 4: Wind Speed and Directions

The following diagrams show the different wind speed and direction that recorded daily at 9am across the country in May 2019.

Figure 4a : Apia Station

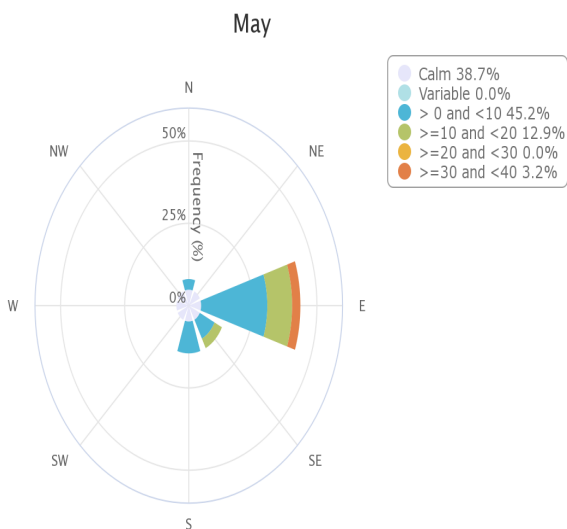
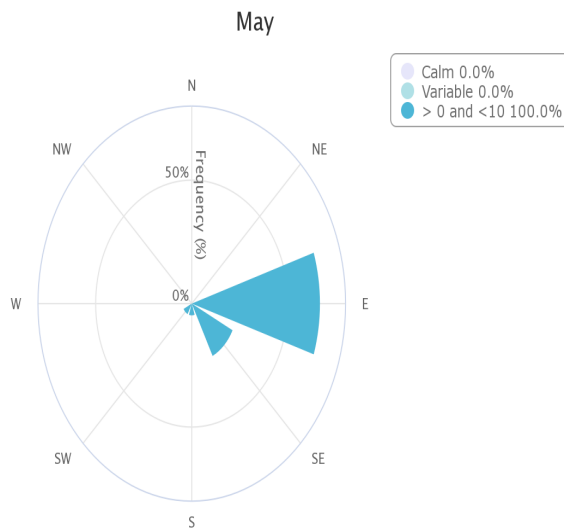


Figure 4b: Saoluafata Station



Both Apia (Figure 4a) and Saoluafata (Figure 4b) stations experienced dominant easterly winds for May. Slight breeze (1-10km/hr) were the most occurring wind speeds for both stations, with some fresh breeze (30-40km/hr) evident at Apia station.

Figure 4c : Afiamalu Station

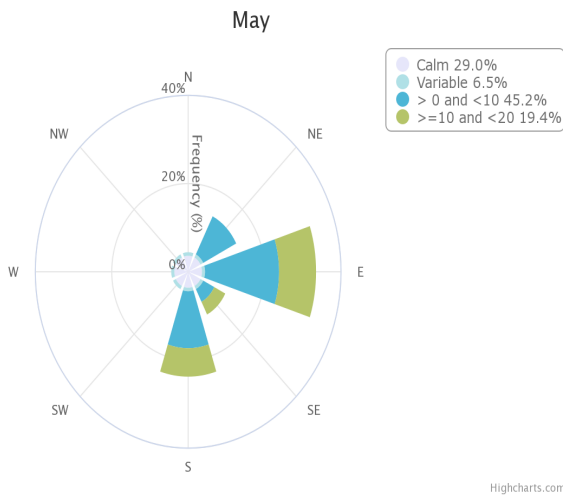


Figure 4d: Nafanua Station

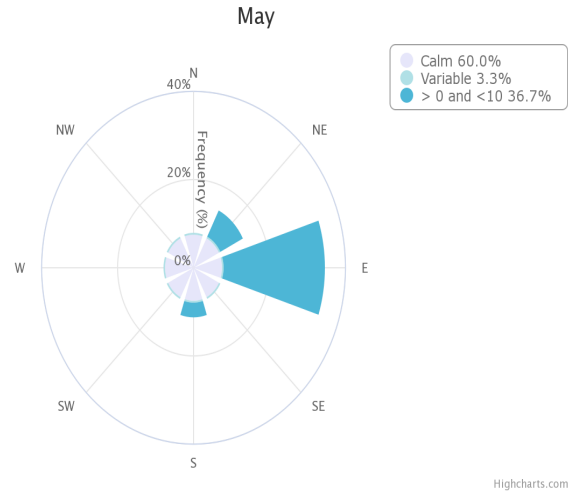
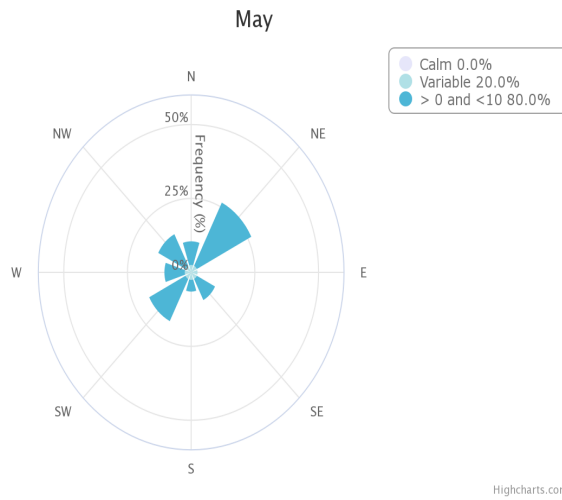


Figure 4e: Salailua Station



Easterly winds remained dominant for stations Afiamalu and Nafanua, where slight breeze (1-10 km/hr) were the most occurring wind speed in May. Sala'ilua station on the other hand registered prevailing north easterlies with noticeable south west winds. Slight breeze were also dominant for our Savaii station for most of last month.

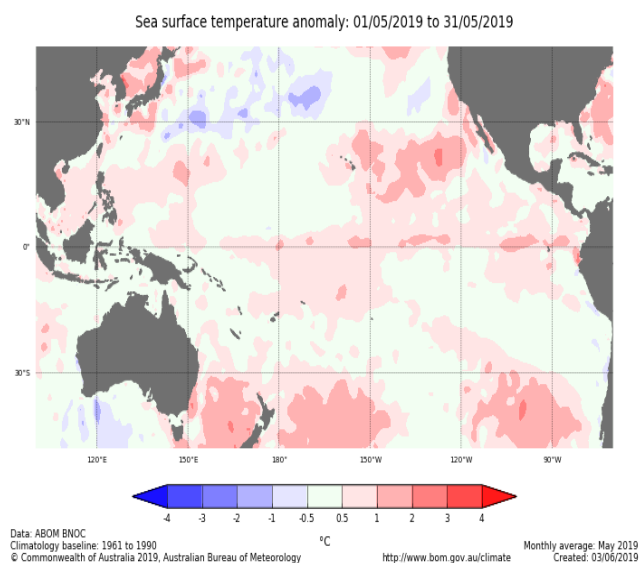
EL NINO SOUTHERN OSCILLATION (ENSO)

CURRENT ENSO STATUS

Both oceanic and atmospheric indicators shows a retreating trend from El Nino levels to neutral, hence our ENSO as of now is 'INACTIVE', meaning it neither leans towards El Nino levels as anticipated in recent months, nor does it lean towards La Nina as well.

Oceanic Indicator of ENSO

Figure 5: Sea Surface Temperature in May 2019



Although warmer than normal was observed across the Tropical Pacific Ocean, some area have cooled since April 2019. Further south of the Pacific Ocean continue to experience enhanced warm conditions, extending from the east Australian coast through New Zealand region.

In addition, the May indices values have shown little change since April, where the Nino 3 value is at $+0.7^{\circ}\text{C}$, Nino 3.4 $+0.7^{\circ}\text{C}$ and Nino 4 $+0.6^{\circ}\text{C}$.

Figure 6: Sub-surface Temperature

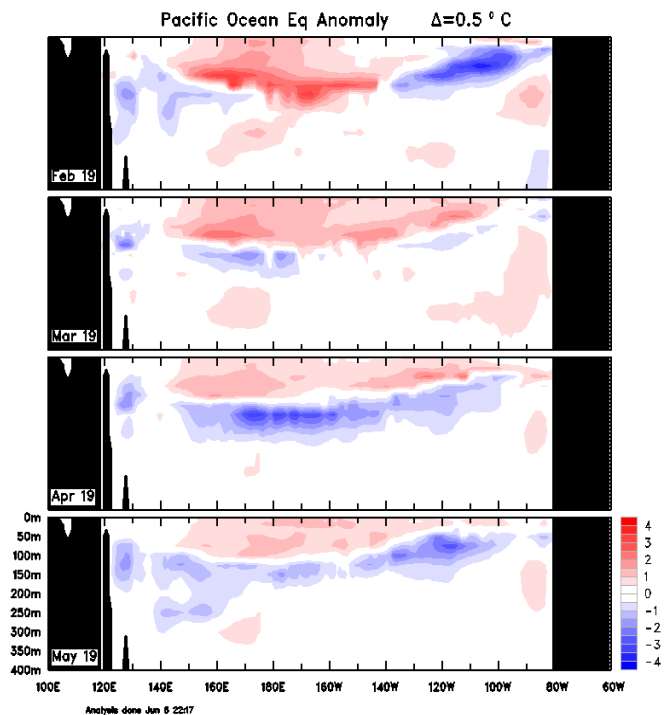


Figure 6 shows warm anomalies in the top 100m of the sea surface continue to persist in the last four months. Below 100m, weak cooler anomalies that developed in recent months have stretched from far west to most eastern part of the Tropical Pacific Ocean. These significant underwater depth cooling has contributed to the downgrade of the current state of ENSO.

Atmospheric Indicator of ENSO

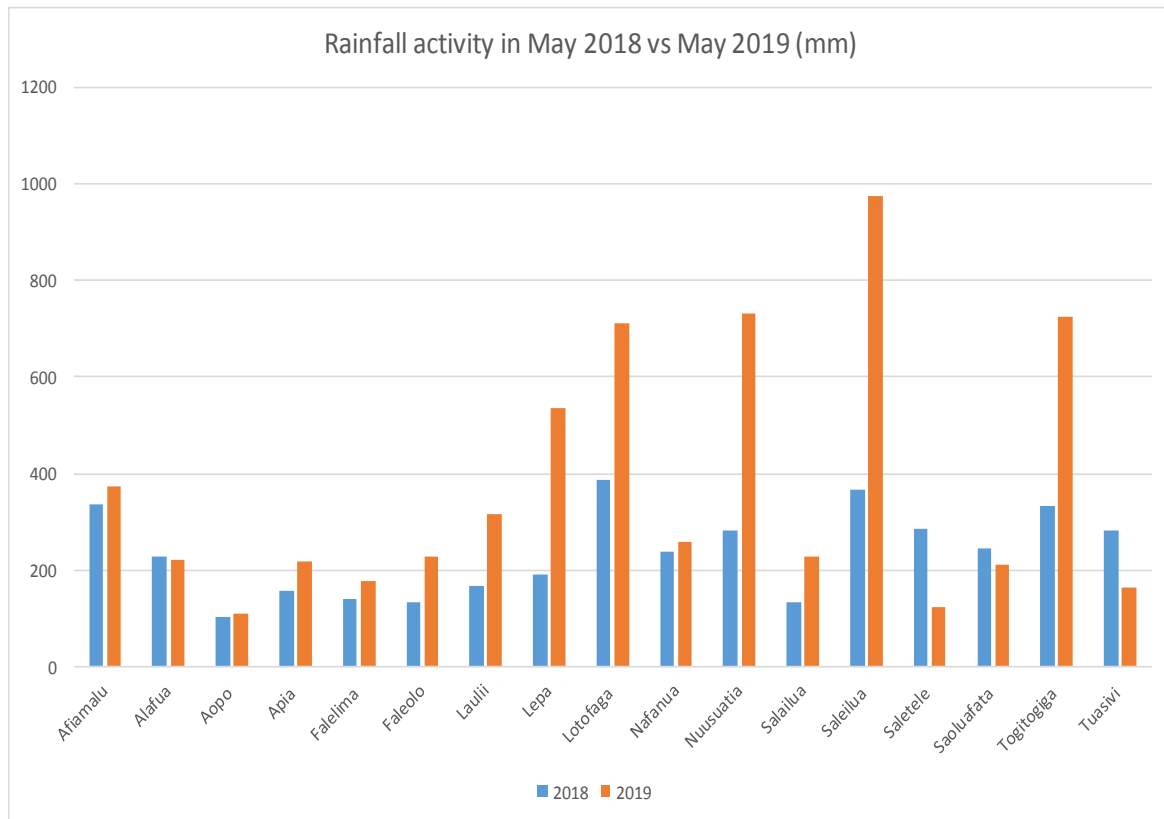
Southern Oscillation Index (SOI)

The approximate 30-day and 90-day Southern-Oscillation Index (SOI) values to 23rd June were -8.7 and -5.6 respectively.

(Sustained positive values of the SOI above $+7$ indicate La Nina. Whereas sustained negative values below -7 indicate El Nino. Values within -7 and $+7$ shows neutral conditions.)

APPENDIX

Figure 7: Graphical representation of total monthly rainfall in May 2018 vs May 2019 in all rainfall stations.



The above figure shows a comparison between rainfall received in May 2018 vs May 2019. Not much difference can be observed as illustrated in Figure 7 except for southern parts of the group where wetter conditions were experienced compared to highlands and northern stations. These are typical features of the dry season, as seen in past years.

The weather summary shows that rainfall advisories were issued three times in the first few weeks of the month, due to a number of synoptic features mostly approaching from the south of Samoa. In the first page of this report as well, the South Pacific Convergence Zone averaged its position south of the islands, providing significant rainfall activities to our southern stations.