



CLIMATE SUMMARY APRIL 2019

Samoa Meteorology Division

Ministry of Natural Resources and Environment



(+685) 20855/20856



www.samet.gov.ws



[www.facebook.com/Samoa Meteorological Services](https://www.facebook.com/Samoa-Meteorological-Services)

HIGHLIGHTS

- ◆ Generally, “average” rainfall was recorded in April 2019. **Pg 1 & 2**
- ◆ The warmest temperature of 34.0°C was registered on the 12th at Sala'ilua station. **Pg 3**
- ◆ Evident southerly winds were registered at most stations with easterlies remaining dominant throughout April. **Pg 4 & 5**
- ◆ ENSO status remains at neutral, while leaning towards El Nino thresholds in the upcoming season **Pg 6**
- ◆ 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 April 2019

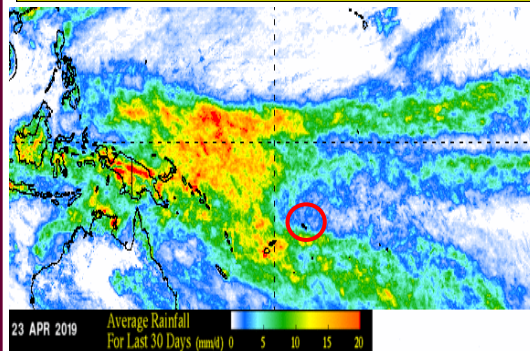
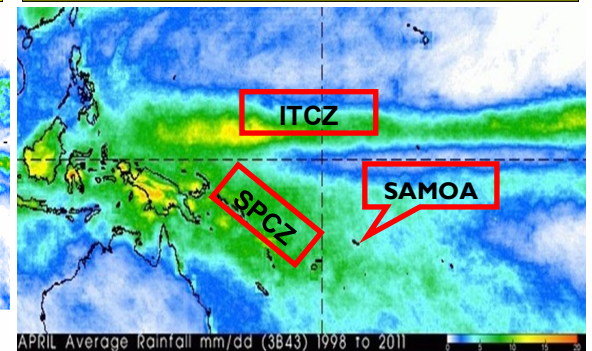


Figure 2: Normal Position of SPCZ in April



GLOBAL SCALE OBSERVATIONS

A more active and dispositioned SPCZ (South Pacific Convergence Zone) was observed for the month of April 2019. Although located south of the islands, fair amount of rainfall was experienced despite drier conditions in the northern parts of the group. The ITCZ (Inter Tropical Convergence Zone) on the other hand has also seen to be more active than normal, with activity mainly concentrated in the western Equatorial region, affecting groups such as PNG, Vanuatu and the Solomon Islands.

LOCAL SCALE OBSERVATIONS

Generally ‘average’ rainfall was received across the country, with the northern region experiencing slightly drier conditions than the southern and highland stations. The highest and second highest rainfall therefore was recorded at Afiamalu (347.2mm) and Ti’avea (330.4mm) respectively. In addition, Salailua station recorded the highest one day fall of 87.6mm on the 20th, with the second highest of 79.2mm at Nuusuatia on the 04th of April 2019. On the contrary, the lowest recorded rainfall was at Faleolo station, receiving only 99.5mm, and the second lowest at Tuasivi station, receiving 148.6mm of rainfall.

(Refer to Table 1 for April rainfall statistics)

Table 1: Rainfall Statistics in April 2019

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

Stations	April Rainfall (mm)	April 30 Year Long Term Average	% of Average	1 day fall (mm)	Date	# of Rainy Days	Rainfall Status
U P O L U							
Afiamalu	347.2	315	110	51.8	15 th	19	Average
Alafua	196.1	221	89	55.5	06 th	15	Average
Apia	212.9	212	100	55.6	06 th	14	Average
Faleolo	99.5	156	63	30.0	14 th	16	Below Average
Laulii	274.0	237	115	64.3	06 th	10	Average
Lepa	207.2	238	87	38.8	04 th	26	Average
Lotofaga	176.1	205	86	31.4	22 nd	23	Average
Nafanua	176.5	251	70	72.2	06 th	17	Below Average
Nuusuatia	218.8	154	142	79.2	04 th	19	Above Average
Saleilua	259.2	307	84	43.4	20 th	14	Average
Saletele	228.1	301	76	23.2	05 th	28	Below Average
Saoluafata	166.2	278	60	35	15 th	22	Below Average
Ti'avea	330.4	238	139	45.6	04 th	26	Above Average
Vailoa.A	165.6	140	118	25.8	20 th	22	Average
S A V A I I							
Aopo	252.2	181	139	54	30 th	14	Above Average
Falelima	159.4	122	131	35.4	20 th	16	Above Average
Tuasivi	148.6	232	64	35	21 st	19	Below Average
Salailua	181.6	100	181	87.6	20 th	16	Well Above Average

Well Below Average
<40%

Below Average
40%-80%

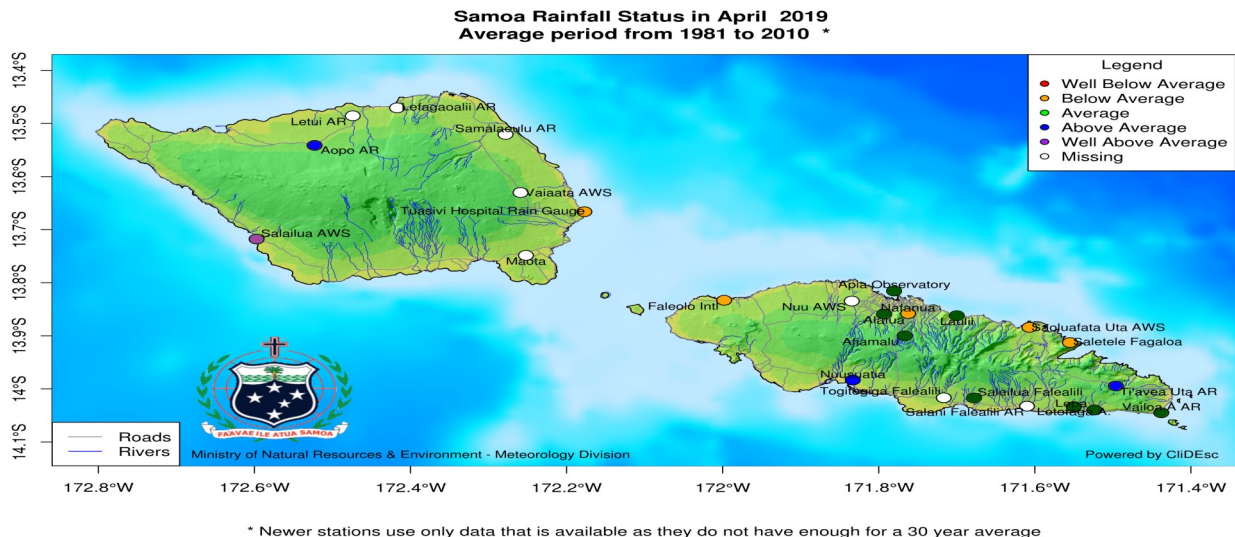
Average
80%-120%

Above Average
120%-160%

Well Above Average
>160%

Figure 3: Rainfall Status Map in April 2019

This rainfall map is generated using observation data from Table 1



TEMPERATURE

Table 2: Air Temperature Statistics

This table displays the temperature statistics recorded across stations in April 2019

Stations	Temperature (Degree Celsius)				
	Mean Daily Temperature (°C)	Extreme Temp Max (°C)	Date	Extreme Temp Min(°C)	Date
Afiamalu	N/A	N/A	N/A	17.7	14 th
Apia	28.5	32.4	10 th	23.0	13 th
Alafua	N/A	N/A	N/A	22.1	13 th
Faleolo	N/A	N/A	N/A	22.3	13 th
Saoluafata	27.5	33.0	02 nd	21.6	02 nd
Salailua	28.0	34.0	12 th	20.8	13 th
N/A = Data Not Available					

For April, mean daily temperatures ranged from 27.5°C to 28.5°C, where Sala'ilua registered the warmest day time temperature of 34.0°C on the 12th. On the other hand, the coolest night time temperature of 17.7°C was then registered at Afiamalu station on the 14th, due to moderate easterly breeze, and clear skies.

ATMOSPHERIC PRESSURE

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

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

Station	Highest MSL Pressure (hPa)	Date	Lowest MSL Pressure (hPa)	Date	Average MSL Pressure (hPa)
Apia	1013.9	08 th	1009.4	14 th	1011.4
Faleolo	1014.2	08 th	1010.0	13 th	1011.6

In April, both stations recorded their highest Mean Sea Level (MSL) pressure on the 08th. On the other hand, Apia station was registered with the lowest MSL pressure of 1009.4hPa on the 14th, which provided sufficient rainfall for the second week of April, 2019.

(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 April 2019.

Figure 4a : Apia Station

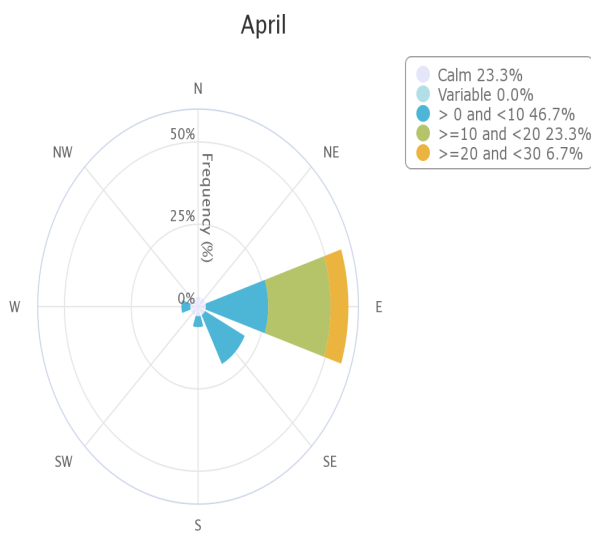
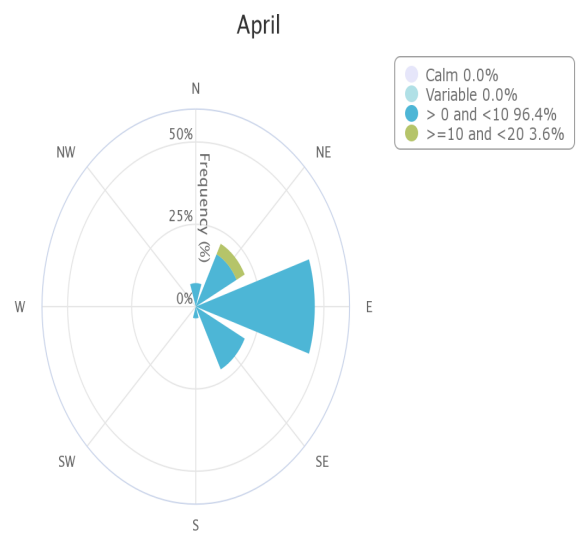


Figure 4b: Saoluafata Station



Apia station (Figure 4a) experienced predominant easterly winds, with calm conditions for most of the month. Evidently, there were also moderate winds of up to 20km/hr during this period. For Saoluafata station (Figure 4b), although easterly remained dominant, north easterlies and south easterlies were also evident in April, with calm conditions occurring 96% of the of the month.

Figure 4c : Afiamalu Station

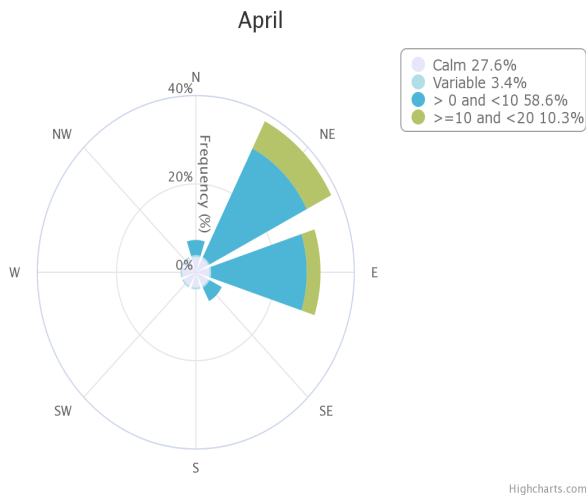


Figure 4d: Nafanua Station

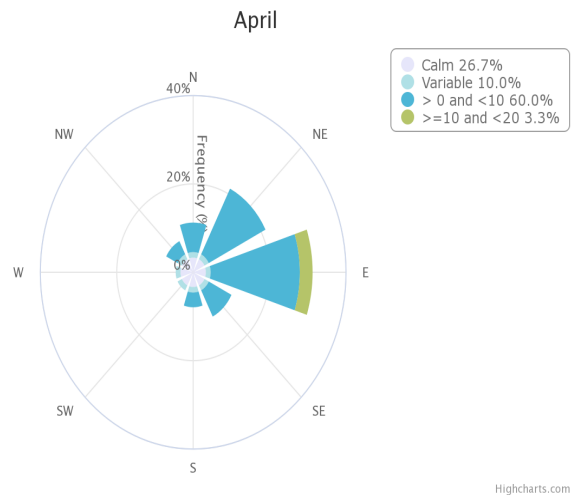
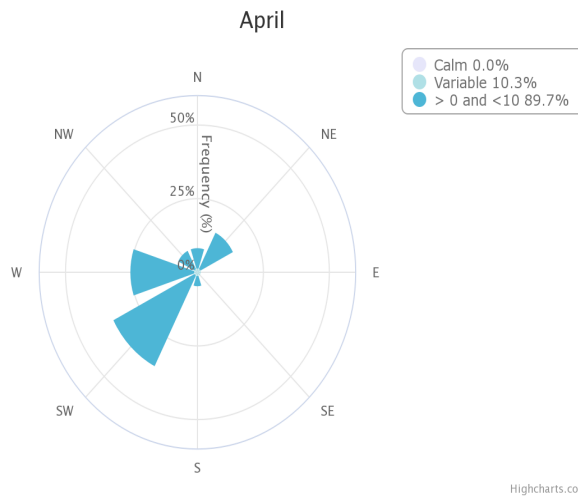


Figure 4e: Salailua Station



Afiamalu and Nafanua station both registered easterlies as the dominant wind direction, while wind speeds of 1-10km/hr continue to prevail. For our Savaii station, Salailua registered south westerlies as the most influential wind direction, with dominant slight breeze (1-10km/hr) conditions.

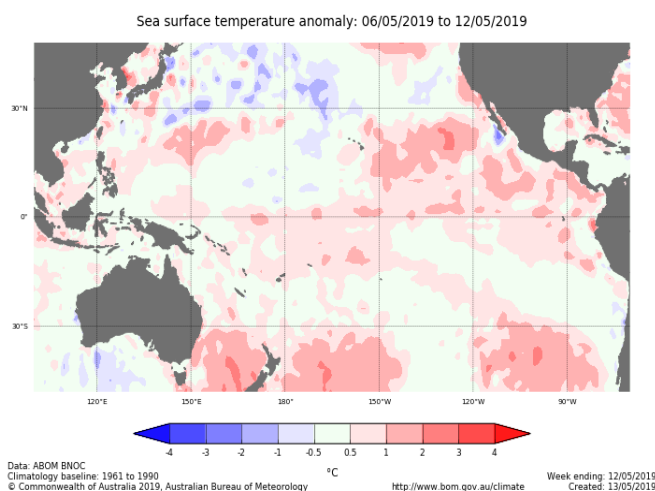
EL NINO SOUTHERN OSCILLATION (ENSO)

CURRENT ENSO STATUS

A neutral ENSO status remains in April 2019. Sea surface temperatures have lingered close to El Nino thresholds in the last couple of months, but early observations have seen a decrease in El Possibility later on in the year. The Outlook therefore has been downgraded to El Nino watch for the upcoming months.

Oceanic Indicator of ENSO

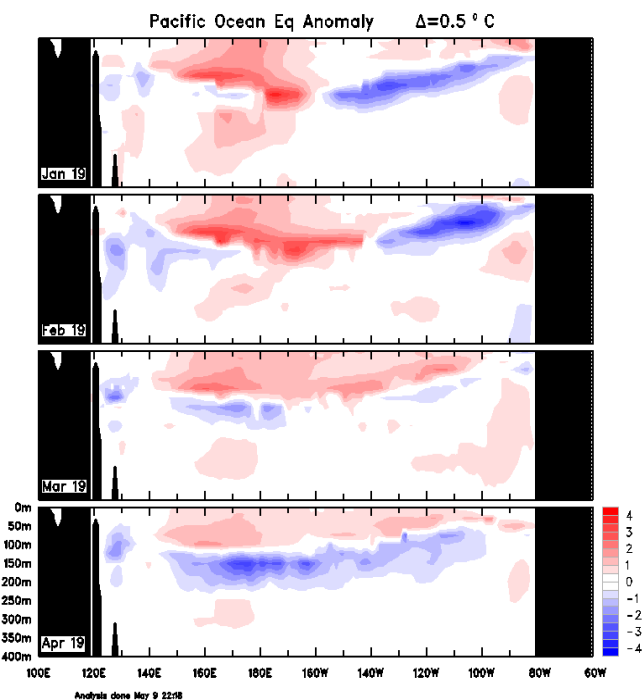
Figure 5: Sea Surface Temperature in April 2019



The Central Pacific as seen in Figure 5 shows a weakening in the warm SSTs since last month. Extreme temperatures were observed further south of the Pacific Ocean, mainly in the East coast of Southern Australia, extending towards New Zealand. Overall, SSTs were generally warmer than normal.

In addition, the April values are sustaining with not much difference since March. The values for March shows Nino 3 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



As seen in Figure 6, sub sea surface temperatures were warm over the Central Equatorial region. As the months progressed, these warm anomalies eventually weakened, and cool anomalies down to depths of 250m were strengthened since March 2019. This also illustrates an unlikelihood of an El Nino event to occur later in the year.

Atmospheric Indicator of ENSO

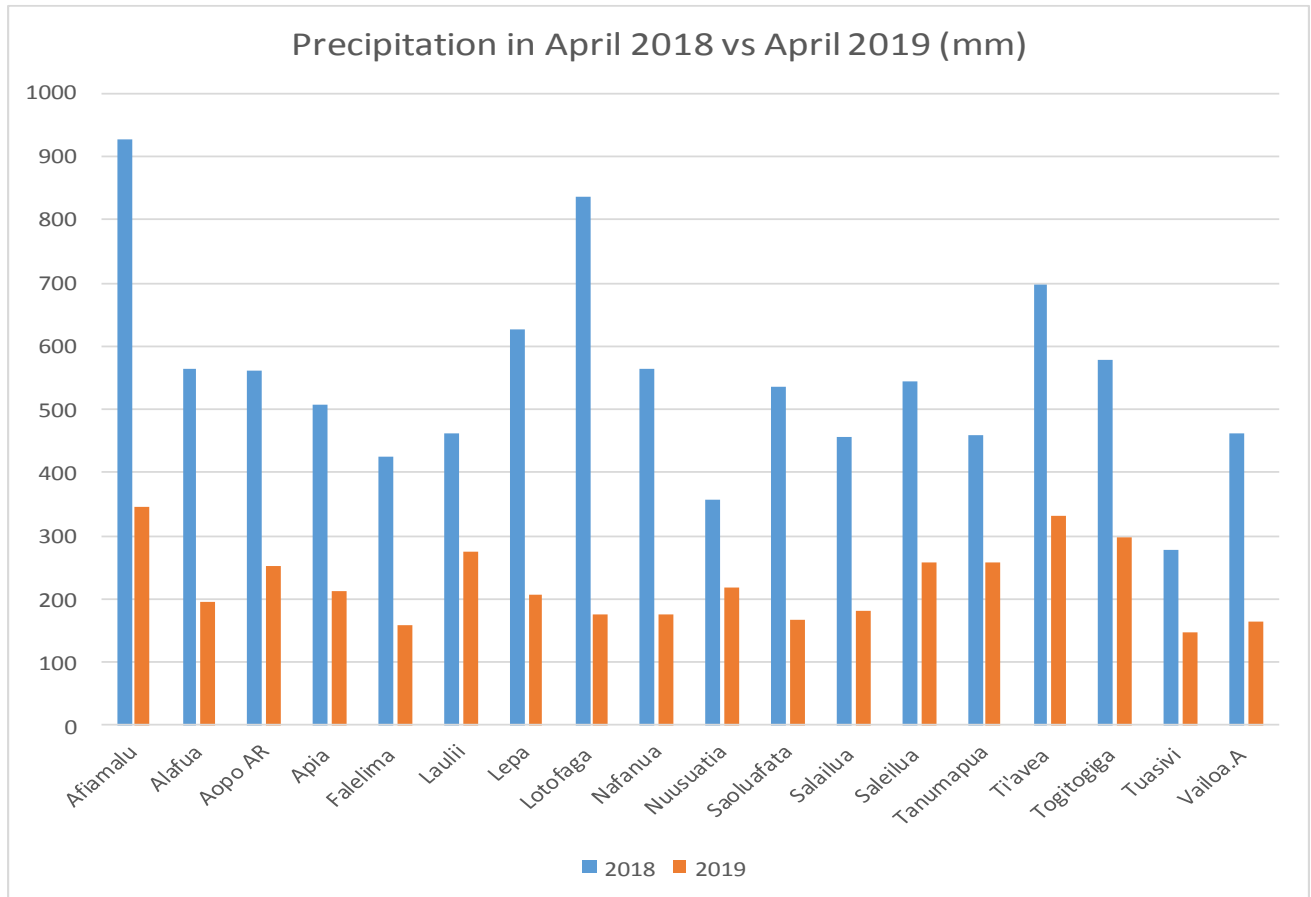
Southern Oscillation Index (SOI)

The approximate 30-day and 90-day Southern-Oscillation Index (SOI) values to 12 May were -6.2 and -8.3 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 April 2018 vs April 2019 in all rainfall stations.



The above figure shows a comparison between rainfall received in April 2018 and April 2019. The difference is significant, where there was more rainfall activity in the previous year than the current.

The weather summary also shows that April 2019 was seen to experience few synoptic activity, with wind flow providing majority of rainfall throughout the month. Although the southern region of Samoa experienced wet conditions, the general rainfall status of Samoa was recorded as 'Average' rainfall.