



CLIMATE SUMMARY JUNE 2019

Samoa Meteorology Division

Ministry of Natural Resources and Environment



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www.samet.gov.ws

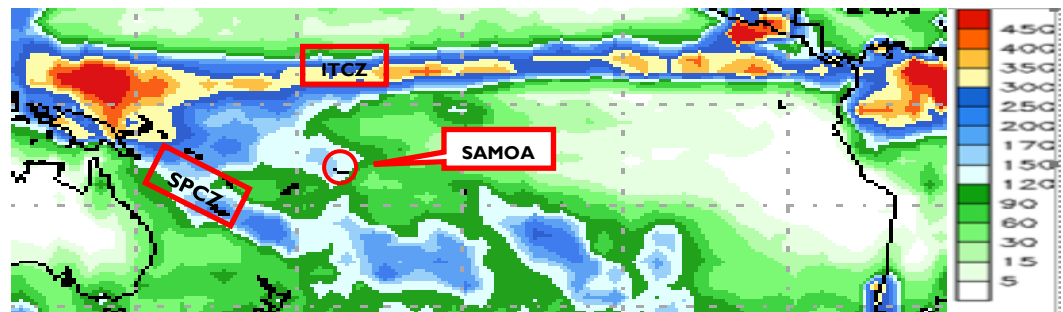


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HIGHLIGHTS

- ◆ Rainfall statistics showed “Well Above Average” rainfall was experienced throughout June 2019 **Pg 1 & 2**
- ◆ Temperatures were rather cool during June, with the lowest night time temperature of 14.1°C recorded on the 2nd of the month, 2019. **Pg 3**
- ◆ Easterlies remained dominant as well throughout the island in June. **Pg 4 & 5.**
- ◆ Our El Nino Southern Oscillation (ENSO) status is now ‘Inactive’, meaning it neither leans to an El Nino nor La Nina phase
- ◆ 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 June 2019



GLOBAL SCALE OBSERVATIONS

A rather active South Pacific Convergence Zone (SPCZ) was observed for the month of June, where oddly enough, Samoa received far wetter conditions as expected for the dry season. While its position have fluctuated further south of its normal, cloud bands still managed to provide above average rainfall over the group, as illustrated in page 2. The Inter Tropical Convergence Zone (ITCZ) was also enhanced along the equatorial region, where the eastern coast of South America experienced heavy downpours as well.

LOCAL SCALE OBSERVATIONS

The dry season for 2019 has been rather wet in its early months, where the general rainfall status for June was recorded as ‘Well Above Average’ (see Page 2). In summary, the highest rainfall recorded was 812.0mm at Lotofaga, with the second highest of 641.6mm at Saleilua. During the last week of June, two (2) low pressure systems developed over the Fiji region, where winds converged over the island and provided sufficient rainfall in less than 20 hours. Hence the highest one day fall of 275.4mm at Lotofaga and second highest of 268.0mm at Saleilua were registered on the 29th of June. On the contrary, the lowest rainfall recorded was 138.6mm and 158.2mm at Falelima and Aopo respectively.

(Refer to Table 1 for June rainfall statistics)

Table 1: Rainfall Statistics in June 2019

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

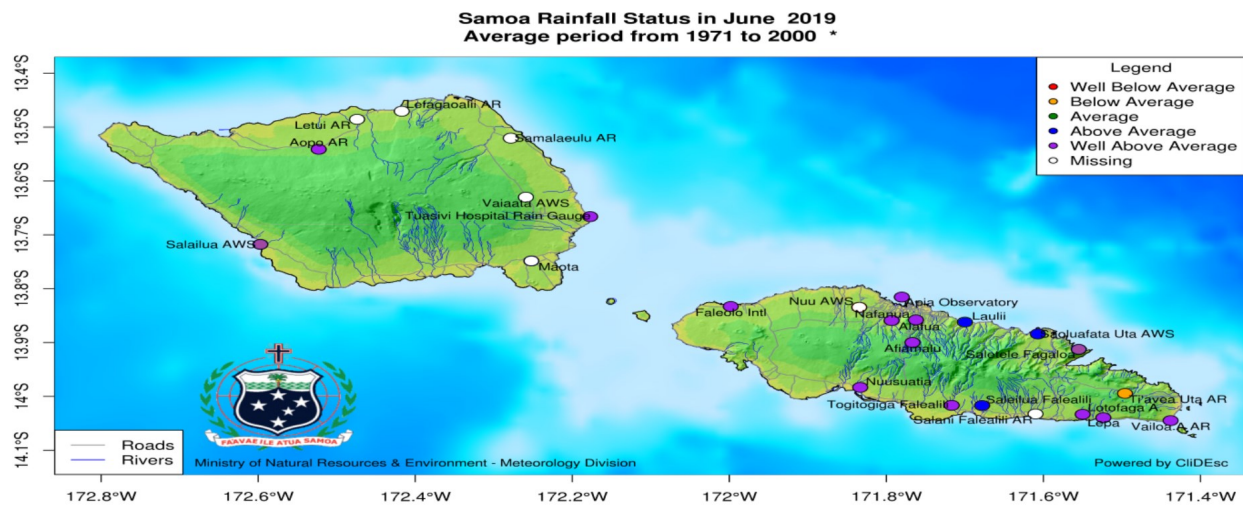
Stations	June Rainfall (mm)	June 30 Year Long Term Average	% of Average	1 day fall (mm)	Date	# of Rainy Days	Rainfall Status
U P O L U							
Afiamalu	319.5	183	174	172.4	29 th	21	Well Above Average
Alafua	263.6	147	179	143.2	29 th	16	Well Above Average
Apia	259.7	138	188	142.2	29 th	12	Well Above Average
Faleolo	219.6	88	250	123.0	29 th	12	Well Above Average
Gagaifo Lefaga	360.2	290	124	153.8	29 th	20	Above Average
Laulii	212.4	171	124	110.9	30 th	13	Above Average
Lepa	501.8	310	162	222.0	29 th	24	Well Above Average
Lotofaga	812.0	174	467	275.4	29 th	22	Well Above Average
Nafanua	284.3	137	208	160.6	29 th	17	Well Above Average
Saleilua	641.6	515	124	268.0	29 th	21	Above Average
Saletele	521.0	269	194	132.4	30 th	28	Well Above Average
Saoluafata	368.2	231	159	180.0	29 th	20	Above Average
Tiavea	200.2	283	71	68.8	20 th	22	Below Average
Vailoa Aleipata	212.0	122	174	81.2	29 th	19	Well Above Average
S A V A I I							
Aopo	158.2	99	160	76.8	29 th	10	Well Above Average
Falelima	138.6	63	220	51.2	29 th	13	Well Above Average
Salailua	340.8	127	268	159.0	30 th	17	Well Above Average
Tuasivi	285.4	148	193	96.4	29 th	20	Well Above Average

Table 1: Well above average was generally the rainfall status for most part of the islands, where the southern stations recorded as much as 800mm of rainfall in June.

Well Below Average <40%	Below Average 40%-80%	Average 80%-120%	Above Average 120%-160%	Well Above Average >160%
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Figure 3: Rainfall Status Map in June 2019

This rainfall map is generated using observation data from Table 1



* Newer stations use only data that is available as they do not have enough for a 30 year average

TEMPERATURE

Table 2: Air Temperature Statistics

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

Stations	Max Temperature (°C)			Stations	Min Temperature (°C)	
	Mean Daily Temperature (°C)	Extreme Temp Max (°C)	Date		Extreme Temp Min(°C)	Date
Apia	27.6	31.9	12th	Apia	21.1	4th
Saoluafata	27.1	32.8	9th	Saoluafata	19.3	3rd
				Faleolo	20.8	2nd
				Afiamalu	14.1	2nd
				Alafua	19.1	3rd

For June, the warmest daytime temperature of 32.8°C was registered at Saolufata on the 9th. On the other hand, the lowest night time temperature of 14.1°C was recorded at Afiamalu. The first week of July was seen to be very cool as illustrated by Table 2.

ATMOSPHERIC PRESSURE

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

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

Station	Highest MSL Pressure (hPa)	Date	Lowest MSL Pressure (hPa)	Date	Average MSL Pressure (hPa)
Apia	1014.7	25th	1010.7	21st	1012.5
Faleolo	1015.4	25th	1011.1	21st	1012.8

The highest MSL pressure of 1015.4 hPa for June was registered at Faleolo on the 25th. On the contrary, the lowest MSL pressure of 1010.1 hPa was recorded at Apia station on the 21st of the month. The weather summary showed downpours were evident during the third week of June.

(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 June 2019.

Figure 4a : Apia Station

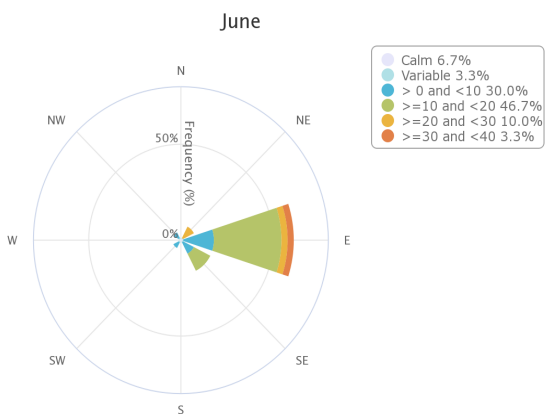
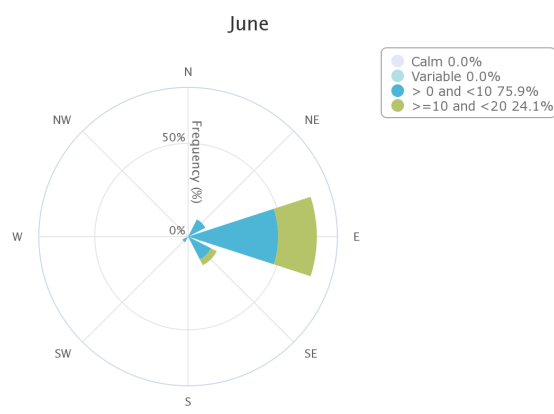


Figure 4b: Saoluafata Station



A dominant easterly flow was observed for both Apia (Figure 4a) and Saoluafata (Figure 4b) stations. Gentle breeze (11-20km/hr) were seen as the most occurring wind speed at Apia station, while Saoluafata experienced predominant slight breeze (1-10km/hr) for the month of June 2019.

Figure 4c : Afiamalu Station

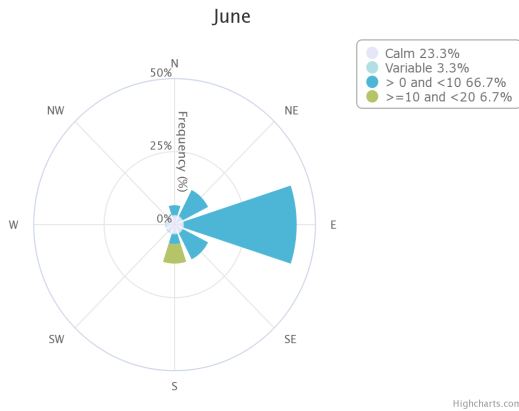


Figure 4d: Nafanua Station

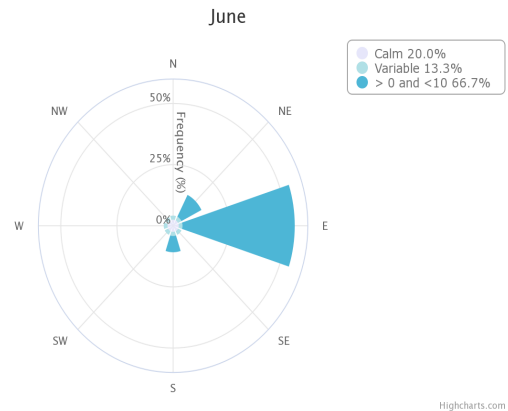
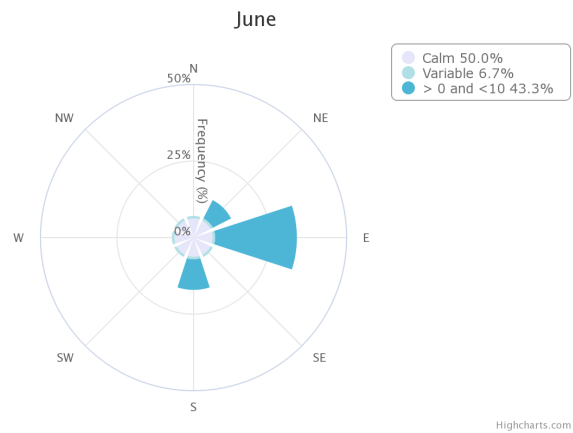


Figure 4e: Salailua Station



Observations continue to confirm dominant easterly winds for most stations during the month of June. And although coastal stations experienced strengthening winds, highland and the southern region registered Slight breeze for Afiamalu, Nafanua and Salailua station for most of the month.

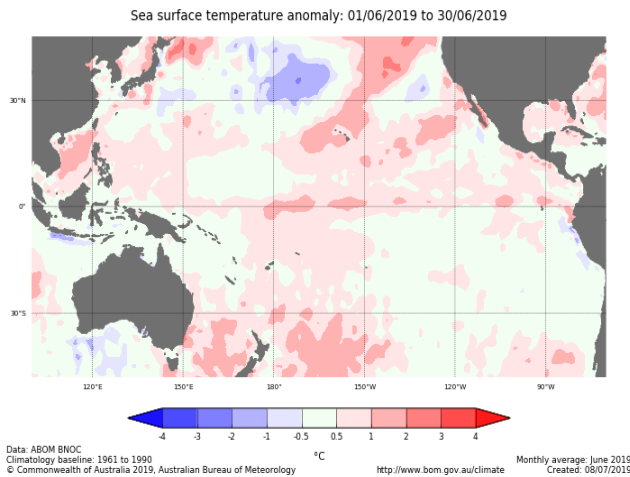
EL NINO SOUTHERN OSCILLATION (ENSO)

CURRENT ENSO STATUS

As of now, oceanic and atmospheric indicators are well within neutral thresholds, and as expected in the last few months, our ENSO status is now at neutral levels.

Oceanic Indicator of ENSO

Figure 5: Sea Surface Temperature in June 2019



For the Pacific region, sea surface temperatures (SSTs) were seen to be warmer than average. Although slight changes in the anomalies were observed, June SSTs remained constant throughout the month. The Samoa region experienced these warm anomalies as well, which helped provide wetter than average conditions in the previous month. In addition, the June indices values show a cooling in the western equatorial region, while the central and eastern parts remain warm. Our indices values therefore showed Nino 3 at +0.5°C, Nino 3.4 at +0.7°C and Nino 4 at +0.7°C.

Figure 6: Sub-surface Temperature

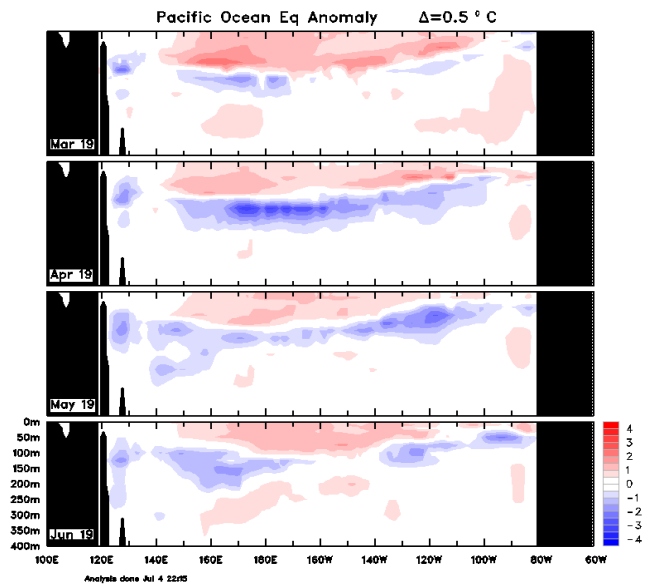


Figure 6 shows warm anomalies in the top 100m of the sea surface continue to persist in the last four months. Below 100m, weak cooler anomalies that developed in recent months have stretched from far west to the most eastern part of the Tropical Pacific Ocean. These significant underwater depth cooling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

Atmospheric Indicator of ENSO

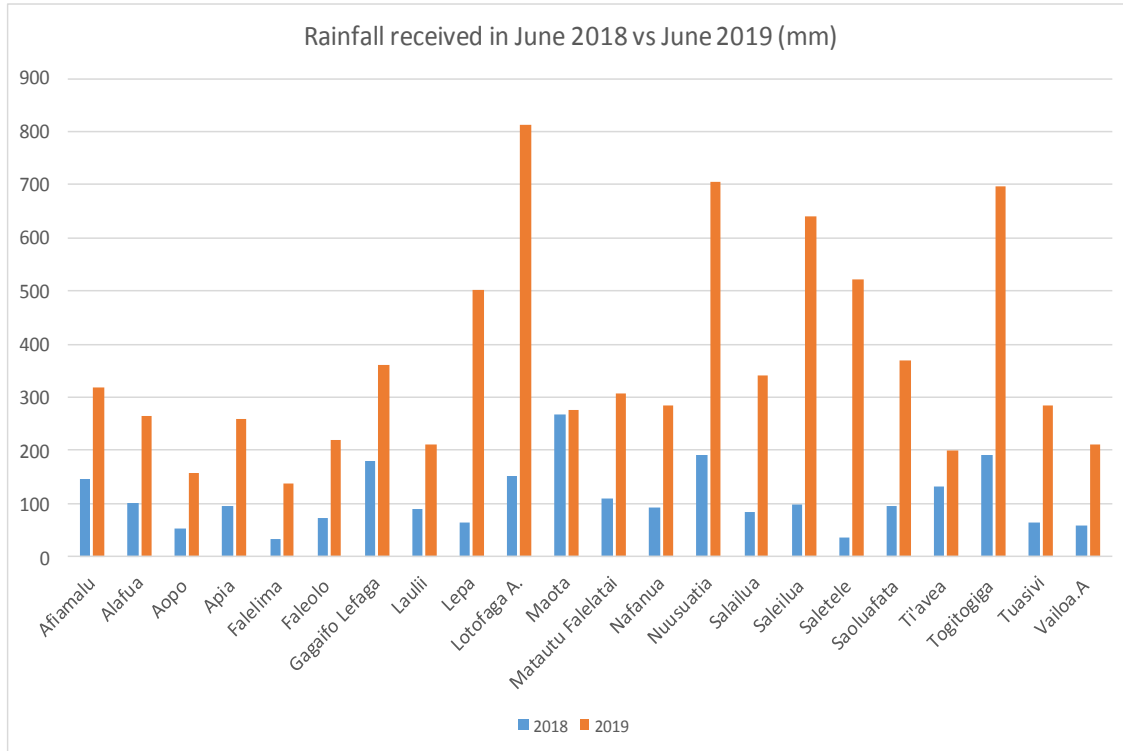
Southern Oscillation Index (SOI)

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 June 2018 vs June 2019 in all rainfall stations.



A significant difference can be seen between rainfall received in June 2017 compared to rainfall received in June 2019, as shown by Figure 7. While last year showed a typical dry season pattern, rainfall activity for this year has been really high, with the highest rainfall registered over 800 mm.

As mentioned in Page 1, low pressures developed over Fijis forecast zone in the last week of June managed to direct wind flow over Samoa islands, which then resulted in heavy rains from June 29th till the 30th of the month. An active SPCZ was also evident during this period.