



CLIMATE SUMMARY JUNE 2020

Samoa Meteorology Division

Ministry of Natural Resources and Environment



(+685) 20855/20856



www.samet.gov.ws

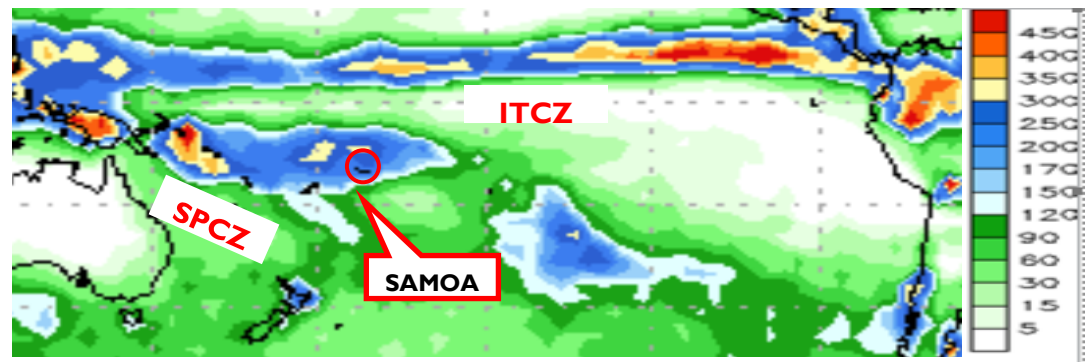


[www.facebook.com/Samoa Meteorological Services](https://www.facebook.com/Samoa-Meteorological-Services)

HIGHLIGHTS

- ◆ 'Above Average' rainfall recorded in June 2020. **Pg 1 & 2**
- ◆ Warmest daytime temperature of 32.3°C was recorded at Nafanua station **Pg 3**
- ◆ Apia station recorded fresh breeze of 31-40km/hr in June. **Pg 4 & 5**
- ◆ El Nino Southern Oscillation (ENSO) remains Neutral while observations indicate a La Nina trend. **Pg 6**

Figure 1: SPCZ Position in June 2020



GLOBAL SCALE OBSERVATIONS

The activeness of the South Pacific Convergence Zone in June was evident, as seen in Figure 1 above. However the fragmented positioning of the SPCZ also meant other regions did not receive similar conditions as Samoa. Rainfall activities were observed to be very frequent during the month and helped boost the rainfall status to *Well above average* for most stations across the island. The Inter Tropical Convergence Zone (ITCZ) on the other hand was fairly active in the far eastern part of the equatorial region, while remaining its normal June position.

LOCAL SCALE OBSERVATIONS

Generally, *Above average* rainfall was observed across most stations in Samoa for June 2020. According to the weather summary, a total of ten significant events occurred in June, providing wet conditions for the group, The southern region experienced the most impact from these different systems, where Saleilua station recorded the highest June rainfall of 504.8mm, along with Togitogiga station recording the second highest of 491.8mm. Shower activities were evident, especially during the third week, where most stations registered their highest rainfall within twenty four (24) hours. Lepa therefore recorded the wettest amount of 141.4mm, with Saolufata the second wettest of 110.6mm, both on the 20th of June. Nonetheless, the western region of the island recorded minimal rainfall for June, with the lowest rainfall of 161.6mm registered at Falelima station and the second lowest of 200.0mm at Aopo.

Table I: Rainfall Statistics in June 2020

This table displays the rainfall status of all stations in the country in June 2020

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							
Afiamalua	338.5	183	185	61.5	20 th	23	Well Above Average
Alafua	259.7	147	177	63.5	20 th	17	Well Above Average
Apia	262.0	138	190	55.9	11 th	16	Well Above Average
Faleolo	234.4	88	266	82.6	14 th	17	Well Above Average
Laulii	454.3	171	266	98.4	12 th	17	Well Above Average
Leauva'a	247.6	219	113	56.4	20 th	18	Average
Lepa	455.9	310	147	141.4	20 th	22	Above Average
Lotofaga	410.7	174	236	103.0	20 th	29	Well Above Average
Nafanua	319.5	137	233	87.1	20 th	19	Well Above Average
Nuu	226.6	147	154	52.0	20 th	14	Above Average
Salani	408.0	174	234	109.8	20 th	29	Well Above Average
Saleilua	504.8	392.5	129	79.0	11 th	22	Above Average
Saletele	362.0	269	134	33.0	04 th	29	Above Average
Saoluafata	420.6	231	182	110.6	20 th	26	Well Above Average
Tanumapua	275.2	147	187	33.2	04 th	29	Well Above Average
Ti'avea	474.2	283	168	110.2	20 th	28	Well Above Average
Togitogiga	491.8	358	137	65.2	12 th	29	Above Average
Vailoa.A	248.2	122	203	95.4	20 th	24	Well Above Average
S A V A I I							
Aopo	200.0	99	202	59.8	14 th	13	Well Above Average
Falelima	161.6	63	257	40.8	25 th	11	Well Above Average
Tuasivi	324.4	148	219	71.4	11 th	21	Well Above Average

Well Below Average
<40%

Below Average
40%-80%

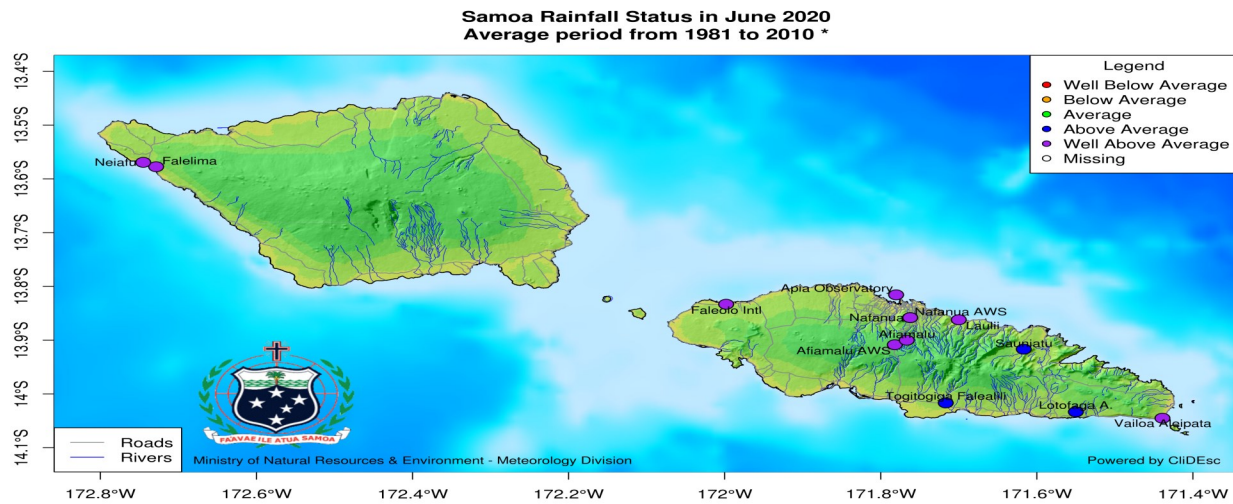
Average
80%-120%

Above Average
120%-160%

Well Above Average
>160%

Figure 3: Rainfall Status Map in June 2020

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 2020

Stations	Max Temperature (°C)		
	Mean Daily Temperature (°C)	Extreme Temp Max (°C)	Date
Afiamaalu	21.3	28.1	05 th
Alafua	27.0	32.0	04 th
Nafanua	27.5	32.3	05 th
Nuu	24.5	31.6	04 th

Stations	Min Temperature (°C)	
	Extreme Temp Min(°C)	Date
Apia	22.2	10 th
Faleolo	22.2	18 th
Afiamaalu	15.0	06 th
Alafua	20.4	16 th
Nafanua	21.0	16 th
Nuu	16.2	16 th

During June, temperatures were observed to be much cooler than normal. The mean daily temperatures fluctuated between 21°C to 28°C during the previous month. The easterly wind flow became dominant in the second and third week, providing clear skies and cooler temperatures, where most stations recorded their lowest night time temperatures. However the coolest of 15.0°C was registered on the 06th at Afiamaalu station, with the second coolest at Nu'u station of 16.2°C. On the other hand, the warmest daytime temperature of 32.3°C was recorded at Nafanua with the second warmest at Alafua of 32.0°C.

ATMOSPHERIC PRESSURE

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

This table displays the atmospheric statistics recorded across two stations in June 2020

Station	Highest MSL Pressure (hPa)	Date	Lowest MSL Pressure (hPa)	Date	Average MSL Pressure (hPa)
Apia	1015.9	02 nd	1010.4	30 th	1012.8
Faleolo	1016.5	01 st	1010.4	30 th	1013.2

During June, the highest mean sea level (MSL) pressure of 1016.5hPa was recorded at Faleolo station on the 01st, while the lowest MSL pressure of 1010.4hPa were both recorded at Apia and Faleolo on the same day, the 30th 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 2020.

Figure 4a : Apia Station

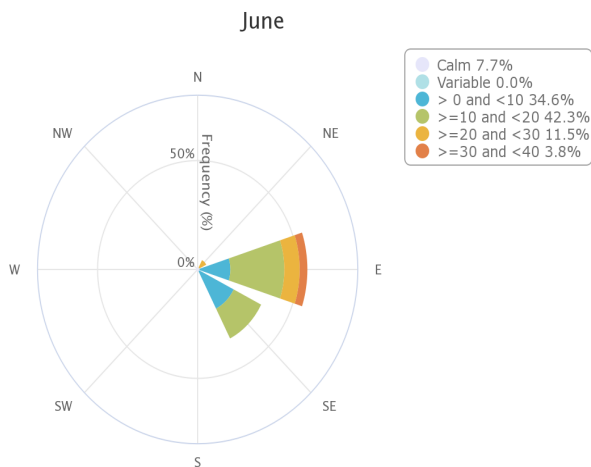
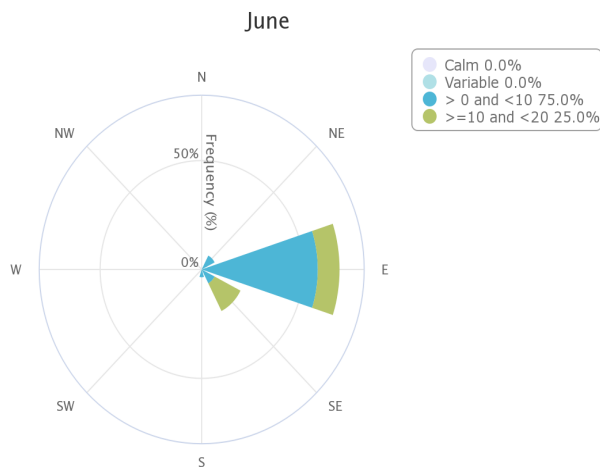


Figure 4b: Saoluafata Station



Wind activities in June showed the dominance of the easterly wind flow for both Apia and Saoluafata stations. Although slight breeze (1-10km/hr) were dominant, fresh breeze (31-40km/hr) were recorded over at Apia station during the month.

Figure 4c : Afiamalu Station

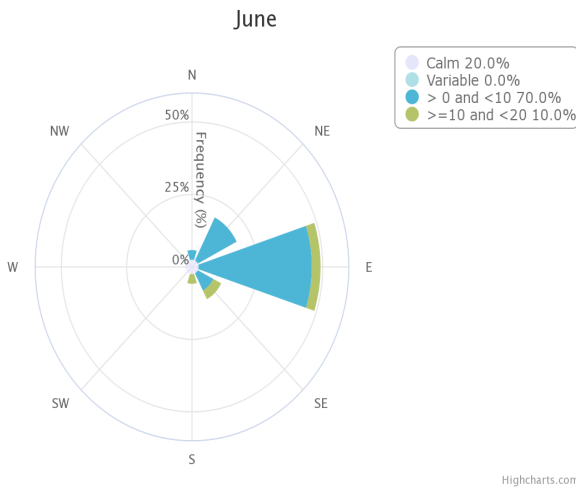


Figure 4d: Nafanua Station

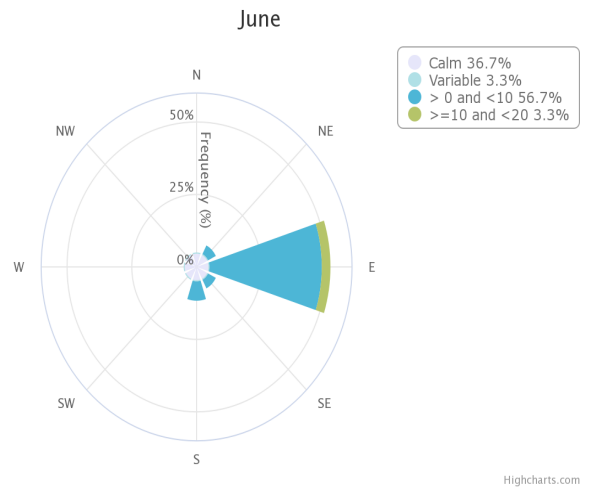


Figure 4e : Alafua

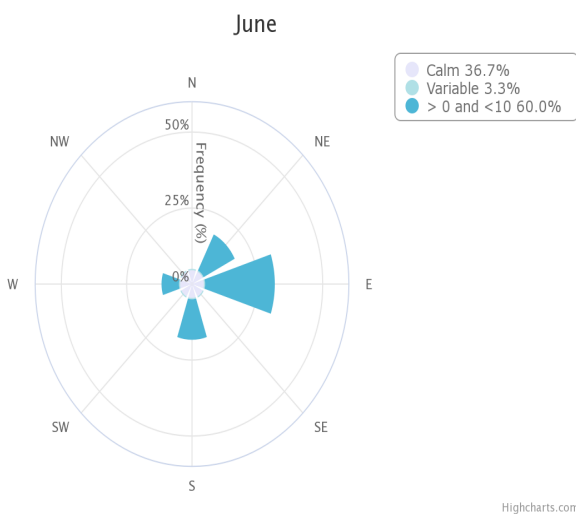
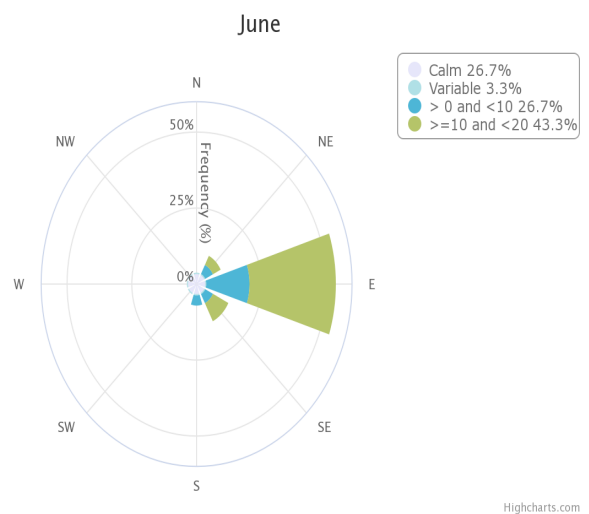


Figure 4f : Faleolo



Wind statistics showed easterly winds as the dominant wind direction for Afiamalu, Nafanua and Faleolo, whereas Alafua station registered variable wind directions in June. Nonetheless, slight breeze were the dominant wind speeds for all the above stations.

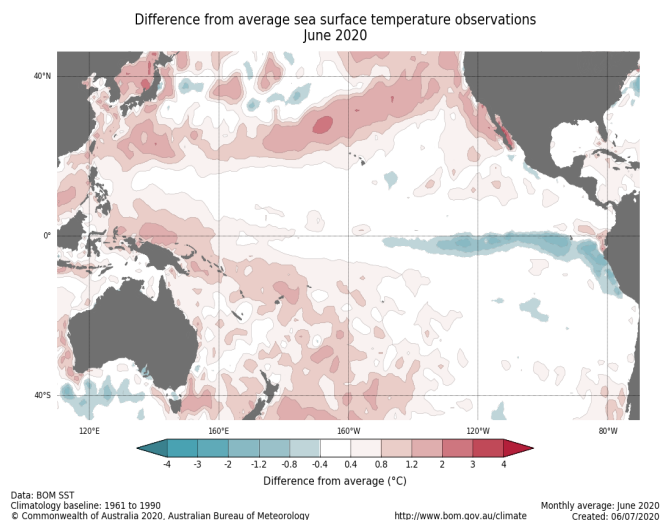
EL NINO SOUTHERN OSCILLATION (ENSO)

CURRENT ENSO STATUS

Currently the El Niño Southern Oscillation is at neutral state. However climate indicators are now experiencing La Niña conditions in recent months, with climate models suggesting a possible La Niña event to occur in the upcoming months.

Oceanic Indicator of ENSO

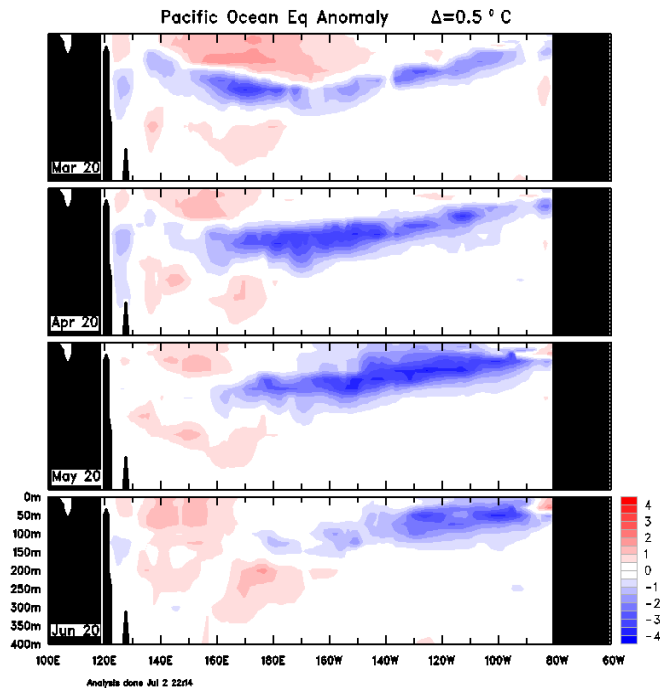
Figure 5: Sea Surface Temperature in June 2020



A significant cooling has been observed for June, especially the eastern and central equatorial region, with warmer waters strengthening in the western and southern parts of the Pacific Ocean. In June, rainfall activities in Samoa and other neighboring countries were elevated, meaning above average rainfall, due the strengthening of warmer than average Sea Surface Temperatures (SSTs) as seen in Figure 5. Observations also show this is caused by the influence of the easterly trade winds, dominating in the last few months, sustaining warmer SSTs to the western and south Pacific

In addition, Niño values for 2020 were seen to have cooled, where June values for Niño 3 were -0.4°C , Niño 3.4 at -0.0°C and Niño 4 at $+0.4^{\circ}\text{C}$.

Figure 6: Sub-surface Temperature



The four month sequence of sub surface temperatures indicate the persistence of cooler anomalies in the eastern and central equatorial region. However, a column of warmer anomalies are gradually strengthening in the western part of the equatorial region. If the given triggers (sustaining trade winds) were to persist, a current situation has a potential to evolve into a La Niña.

Atmospheric Indicator of ENSO

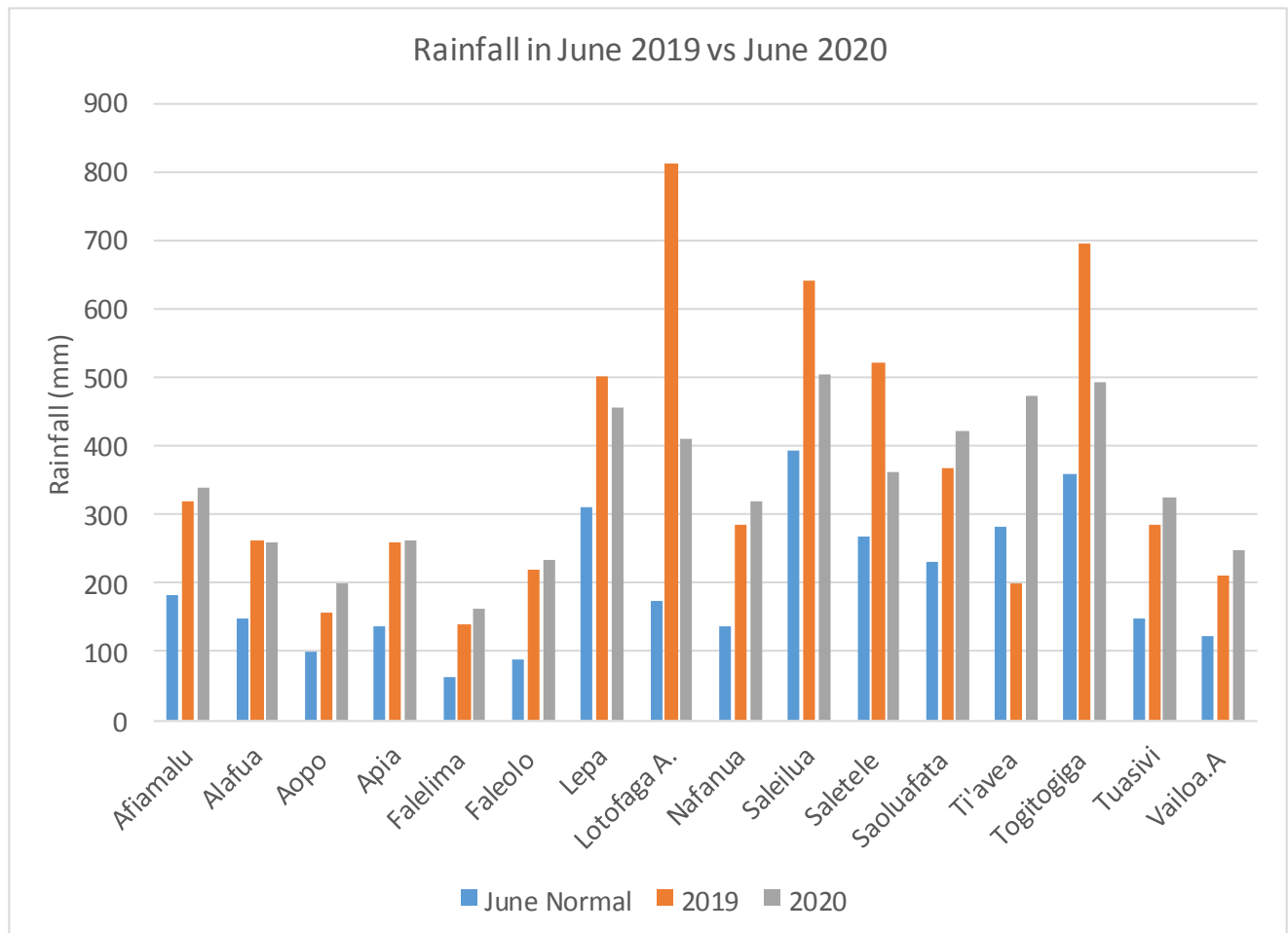
Southern Oscillation Index (SOI)

The approximate 30-day and 90-day Southern-Oscillation Index (SOI) values to the 19th of July were $+3.2$ and -0.9 respectively.

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

APPENDIX

Figure 7: Graphical representation of total monthly rainfall in June 2019 vs June 2020 in all rainfall stations.



In comparison, June 2019 experienced more rainfall activities than June 2020. According to observations, the movement of warmer sea surface temperatures over our region has helped boost rainfall activities in recent months. This is an abnormal observation for both years since we are now in the dry season. The graph also illustrates the abnormal rainfall received in June 2019 and June 2020 compared to the thirty (30) year average shaded blue.