

CLIMATE SUMMARY AUGUST 2019

Samoa Meteorology Division

Ministry of Natural Resources and Environment



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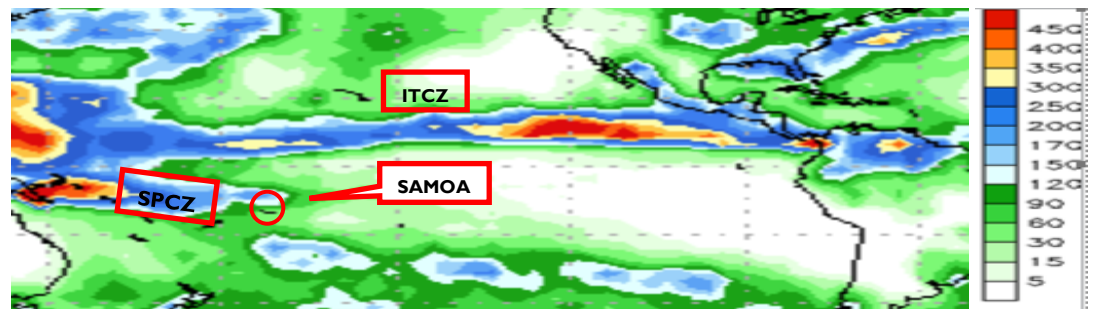


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HIGHLIGHTS

- ◆ Rainfall statistics showed “Well Below Average” rainfall was experienced throughout August 2019 **Pg 1 & 2**
- ◆ Lowest temperature of 14.4°C was recorded on the 04th at Afiamalu station. **Pg 3**
- ◆ Easterlies remained dominant as well throughout the island in August. **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 remain cooler than average, with warm anomalies developing below the cold column in recent weeks. **Pg 6**

Figure 1: SPCZ Position in August 2019



GLOBAL SCALE OBSERVATIONS

For the month of August, the South Pacific Convergence Zone (SPCZ) was rather compressed over the western Tropical Pacific, with rainfall activity limiting to that region. The positioning of the SPCZ (Figure 1) therefore meant precipitation for Samoa in the past month was insufficient, as seen in Page 2. The Inter Tropical Convergence Zone on the other hand sustained to the northern part of the Equatorial region, while being active mostly towards the Central American coast.

LOCAL SCALE OBSERVATIONS

A dry pattern was observed for Samoa in the last month, where rainfall status was generally recorded as “Well below Average” for most rainfall stations. The summary of statistics show Matautu Falelatai and Afiamalu as the wettest stations, having received 244.4mm and 160.4mm respectively. Furthermore, the stations with the highest one day fall were the same stations, with 79.6mm registered at Matautu Falelatai on the 27th, and 49.1mm at Afiamalu on the 30th. However, stations that recorded the lowest rainfall were registered at Fogasavaii and Aopo with 20.2mm and 22.4mm respectively. The easterly wind flow dominated August 2019, having occurred for about 75% of the time, providing brief showers and evidently gustily winds (Pg 4 & 5).

(Refer to Table 1 for June rainfall statistics)

Table 1: Rainfall Statistics in August 2019

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

Stations	August Rainfall (mm)	August 30 Year Long Term Average (mm)	% of Average	1 day fall (mm)	Date	# of Rainy Days	Rainfall Status
U P O L U							
Afiamalu	160.4	162	99	49.1	30 th	18	Average
Alafua	56.5	120	47	19.2	25 th	12	Below Average
Apia	46.9	106	44	11.8	26 th	12	Below Average
Faleolo	35.5	82	43	16.0	20 th	08	Below Average
Laulii	37.7	151	25	16.6	16 th	07	Well Below Average
Lepa	122.6	233	53	39.2	26 th	19	Below Average
Lotofaga	146.6	167	88	30.4	26 th	12	Average
Matautu Falelatai	244.4	174	140	79.6	27 th	17	Above Average
Nafanua	27.8	108	26	10.1	16 th	13	Well Below Average
Neiafu	72.8	56	130	13.4	21 st	15	Above Average
Nuusuatia	107.6	178	60	38.4	30 th	17	Below Average
Saleilua	117.4	381	31	27.0	06 th	12	Well Below Average
Saoluafata	59.6	208	29	13.4	16 th	26	Well Below Average
Tanumapua	94.8	108	88	18.2	05 th	18	Average
Togitogiga	144.5	362	40	31.0	25 th	20	Below Average
Vailoa Aleipata	78.0	117	67	37.6	16 th	10	Below Average
S A V A I I							
Aopo	22.4	92	24	17.6	16 th	05	Well Below Average
Falelima	87.4	61	143	33.4	26 th	08	Above Average
Fogasavaii	20.2	69	29	9.2	26 th	06	Well Below Average
Tuasivi	51.0	148	34	22.2	16 th	13	Well Below Average

Table 1: Well below average was generally the rainfall status for most part of the islands, with stations such as Salailua receiving only 6.2mm for the whole month of August.

Well Below Average
<40%

Below Average
40%-80%

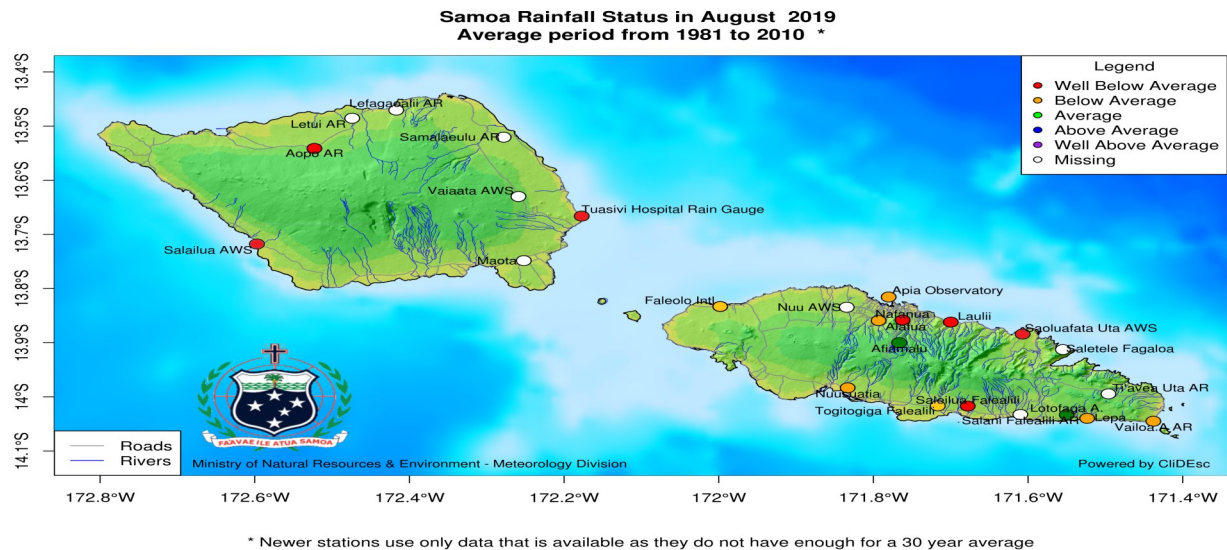
Average
80%-120%

Above Average
120%-160%

Well Above Average
>160%

Figure 3: Rainfall Status Map in August 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 August 2019

Stations	Max Temperature (°C)			Stations	Min Temperature (°C)	
	Mean Daily Temperature (°C)	Extreme Temp Max (°C)	Date		Extreme Temp Min(°C)	Date
Apia	27.3	30.9	15 th	Apia	21.6	04 th
Saoluafata	26.8	31.5	11 th	Saoluafata	20.6	22 nd
				Faleolo	20.2	04 th
				Afiamalu	14.4	04 th
				Alafua	20.4	04 th

Warm temperatures were recorded for August in Samoa, with the warmest daytime temperature of 31.5°C on the 11th. During the night time, the coolest temperature was 14.4°C on 04th at Afiamalu station. Low temperatures were recorded across the island in the early morning of the 4th day as trade winds strengthened as a result of a high pressure development at the southeast of Australia (*Weather Summary, August 2019*)

ATMOSPHERIC PRESSURE

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

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

Station	Highest MSL Pressure (hPa)	Date	Lowest MSL Pressure (hPa)	Date	Average MSL Pressure (hPa)
Apia	1016.5	14 th	1011.7	20 th	1013.6
Faleolo	1016.7	14 th	1011.2	18 th	1013.8

The highest MSL pressure of 1016.7 hPa for August was registered at Faleolo on the 14th. Although it was registered at the same station, the lowest of 1011.2 hPa was recorded on the 18th.

(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 August 2019.

Figure 4a : Apia Station

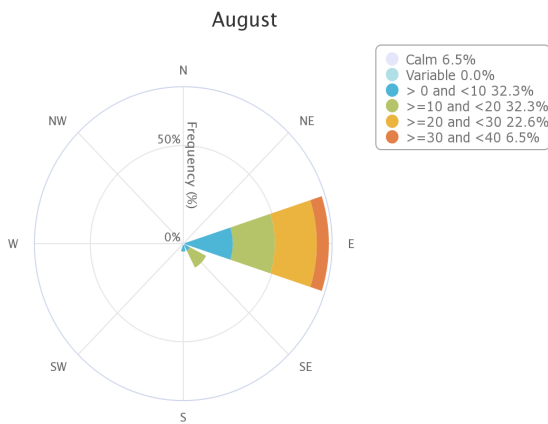
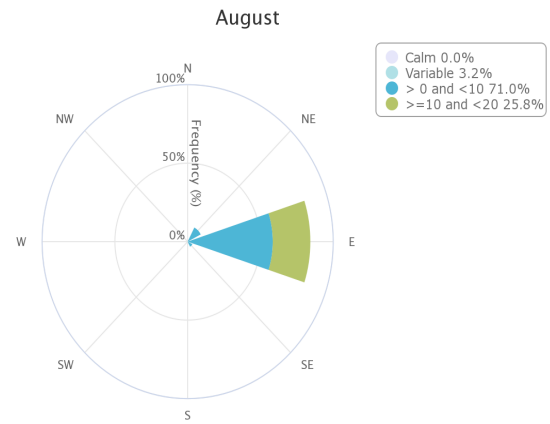


Figure 4b: Saoluafata Station



Both Apia and Saoluafata stations recorded dominant easterly winds in the previous month. Wind strength however showed slight (1-10km/hr) and moderate (11-20km/hr) breeze being the most occurring at Apia, while Saoluafata experienced just slight breeze for most of August.

Figure 4c : Afiamalu Station

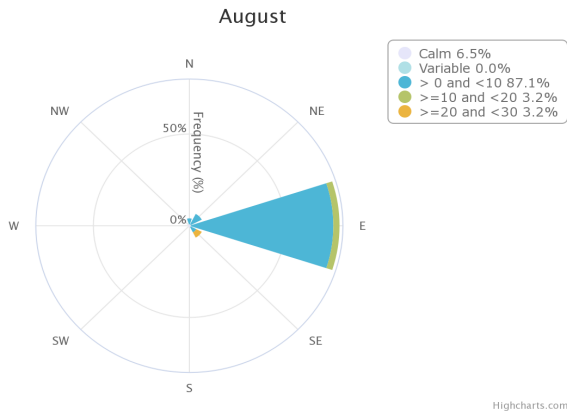


Figure 4d: Nafanua Station

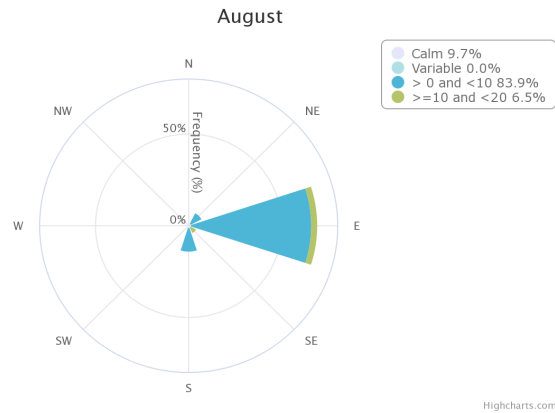
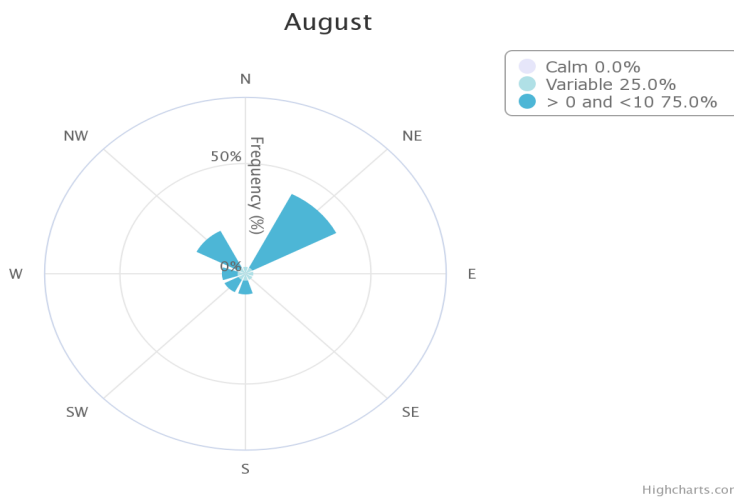


Figure 4e: Salailua Station



Slight breeze was common among the highland stations of Afiamalu and Nafanua, where the majority of the time was registered as easterly winds. Salailua station on the other hand registered dominant north easterlies with predominant slight (1-10km/hr) breeze.

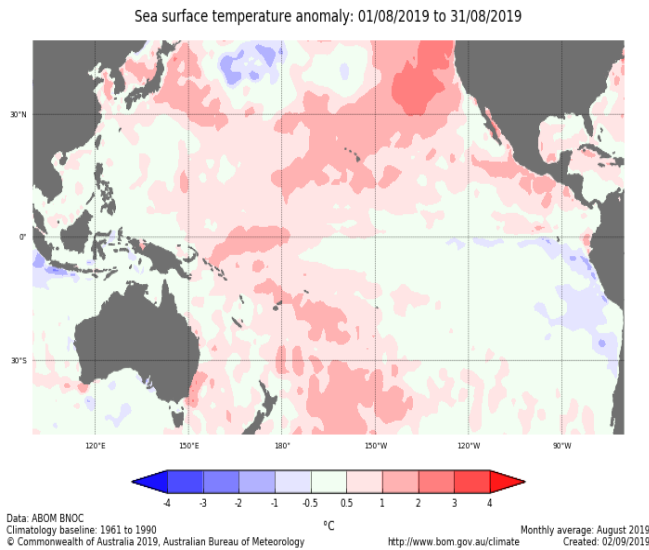
EL NINO SOUTHERN OSCILLATION (ENSO)

CURRENT ENSO STATUS

A neutral ENSO state currently in place, meaning it neither leans towards La Nina nor El Nino. Climate indicators also suggest that it will remain so in the coming months.

Oceanic Indicator of ENSO

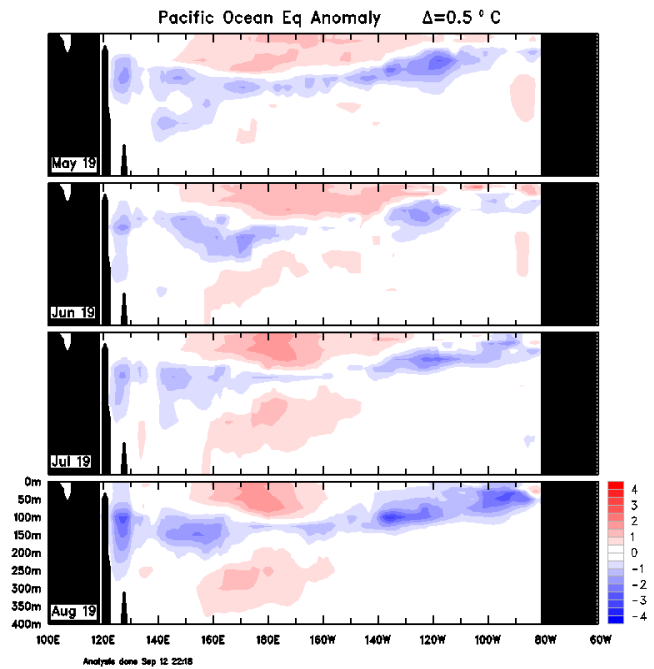
Figure 5: Sea Surface Temperature in August 2019



Sea surface temperatures as seen in Figure 5, were observed to be warmer than normal in the western and central tropical ocean, while the Eastern Equatorial region was cooler in recent months, extending to the rest of the South Pacific.

Our indices values therefore at the moment Nino 3 at +0.0°C, Nino 3.4 at +0.4°C and Nino 4 at +0.7°C.

Figure 6: Sub-surface Temperature



Below the equatorial sea surface, cool anomalies have extended to most part of the column at a depth of about 100-200m, and rising to shallow levels in the eastern region. Warm sub surface temperatures however remain below this cool column, which was a typical trend since May 2019.

Atmospheric Indicator of ENSO

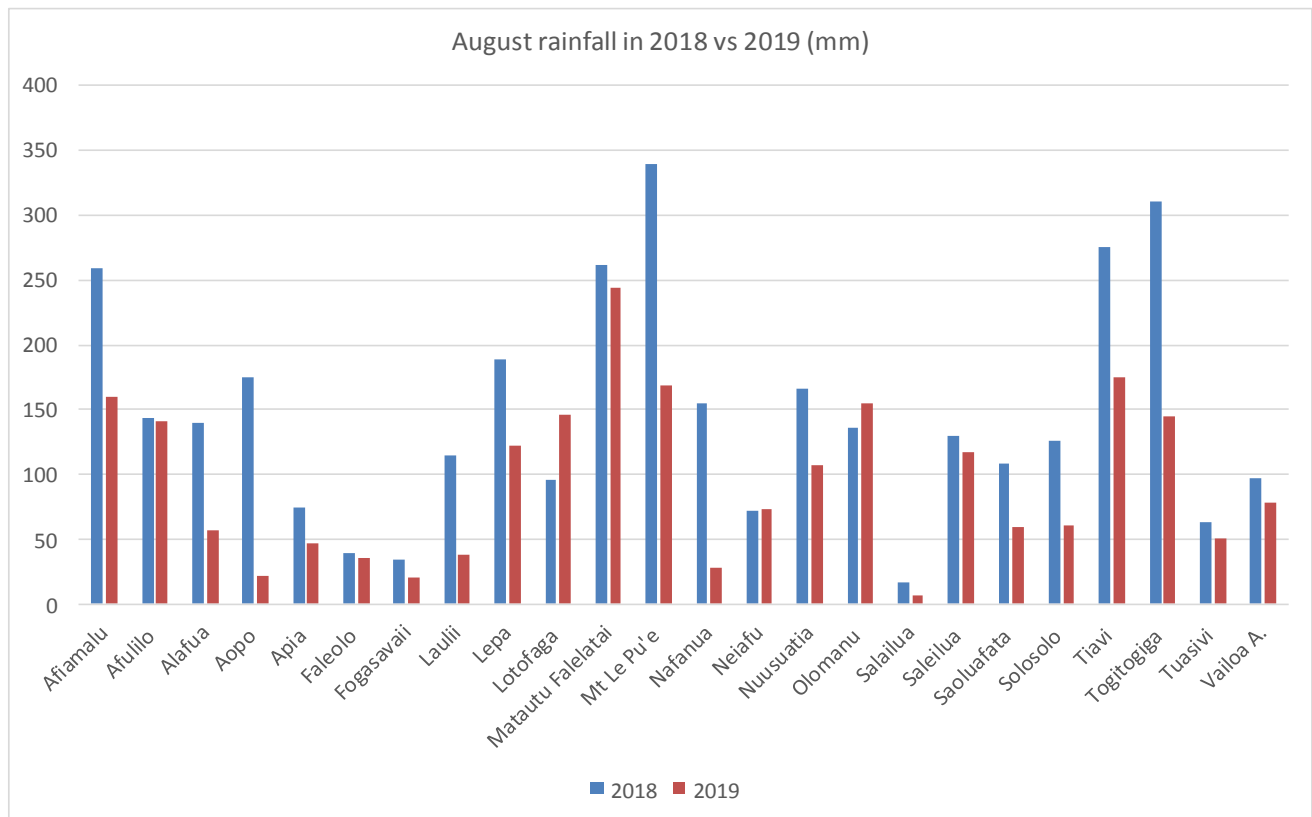
Southern Oscillation Index (SOI)

The approximate 30-day and 90-day Southern-Oscillation Index (SOI) values to 13th September were -11.9 and -9.0 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 August 2018 vs August 2019 in all rainfall stations.



In Figure 7, rainfall between the two year periods illustrates that August 2018 was wetter than August 2019. Both years received below 350m rainfall in both months. The positioning of the SPCZ greatly affected the rainfall status of the group in August, having provided low to very low precipitation in most parts. Although some synoptic features eventuated in the last few days of the month, characteristics of the dry season were evident in August 2019.