



CLIMATE SUMMARY AUGUST 2018

Samoa Meteorology Division

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HIGHLIGHTS

- ◆ “Below Average” was generally the rainfall status across all stations. **Pg. 1 & 2**
- ◆ The month of August was recorded as the coolest month of 2018 yet, having recorded the lowest temperature of 12.1°C. **Pg. 3**
- ◆ Easterlies were the dominant wind directions for most of August, with noticeable South-easterlies as well. Gusts of up to 40km/hr were also registered among the stations. **Pg 4 & 5**
- ◆ Sea Surface Temperatures continue to warm in the Central Pacific region, where Global models are predicting a 50% chance of El Nino towards the end of 2018. **Pg 6**
- ◆ Sub surface temperatures show a weakening of warmer than normal anomalies, while cooler anomalies have now developed in the eastern equatorial region. **Pg 6.**

ISSUED: SEPTEMBER 2018

Figure 1: SPCZ Position in August 2018

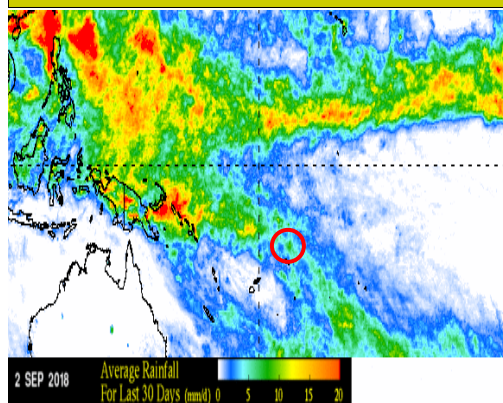
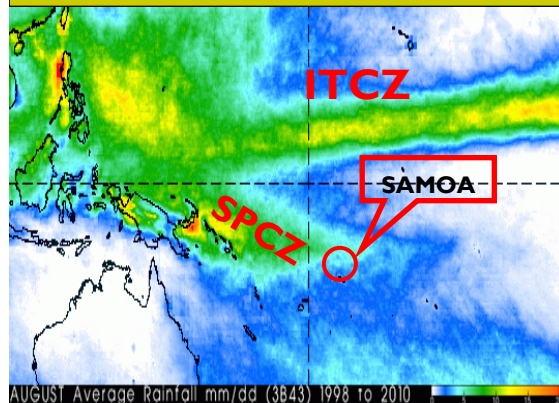


Figure 2: Normal Position of SPCZ in August



GLOBAL SCALE OBSERVATIONS

Strong Inter Tropical Convergence Zone (ITCZ) activity were mostly enhanced to the western side, while remaining within its normal August position, as seen in Figure 1. The South Pacific Convergence Zone (SPCZ) on the other hand was persistent and observed to be slightly active than normal i.e. frontal system enhancing activities as it moves from west to east, with very little effect over the islands, as shown in table 1, Pg 2.

LOCAL SCALE OBSERVATIONS

According to the weather summary, easterly wind flow dominated the month of August with some weak troughs also migrating from the east. This is a typical dry season regime, and has resulted in minimal rainfall activity among the Samoa Islands.

An in depth interpretation of the observation identified Afiamalu station as the wettest station of August 2018, having received 259.3mm of rainfall, with Ti'avea station being the second wettest station with 228.8mm in August. On the other hand, Faleolo station was registered the driest station, having only received 39.5mm of rain, while Saletele recorded the second driest with 42.0mm. Statistically speaking, 1 station recorded *Well Above Average*, 2 stations recorded *Above Average*, 2 stations with *Average*, 12 stations with *Below Average* and 4 stations registered *Well Below Average* rainfall throughout of last month.

Furthermore, when compared to the previous year, August 2018 was seen to be more dry and received less rainfall. This comparison is shown by Figure 7, Page 7.

Table 1: Rainfall Statistics in August 2018

This table displays the rainfall status of all stations in the country in August 2018

Stations	August Rainfall (mm)	August 30 Year Long Term Average	% of Average	1 day fall (mm)	Date	# of Rainy Days	Rainfall Status
UPOLU							
Afiamalu	259.3	174	150	64.0	14 th	22	Above Average
Alafua	139.8	130	108	23.2	15 th	17	Average
Apia	74.0	110	67	26.3	16 th	15	Below Average
Faleolo	39.5	93	42	9.0	03 rd	12	Below Average
Laulii	115.2	151	76	54.4	16 th	8	Below Average
Leauvaa	93.8	165	57	27.6	16 th	15	Below Average
Lepa	188.6	233	81	32.2	15 th	15	Average
Lotofaga	95.8	249	38	21.2	03 rd	14	Well Below Average
Nafanua	155.0	113	137	37	14 th	17	Above Average
Saleilua	129.7	381	34	19	13 th	14	Well Below Average
Saletele	42.0	286	15	6.4	19 th	22	Well Below Average
Saoluafata	108.2	208	52	32.4	14 th	21	Below Average
Savalalo	78.2	110	71	16.8	17 th	13	Below Average
Tiavea	228.8	306	75	58.4	14 th	20	Below Average
Togitogiga	144.9	340	43	23.0	26 th	24	Below Average
Vailoa.A	97.6	137	71	14.4	04 th	22	Below Average
Savaii							
Aopo	174.4	92	190	51.8	18 th	14	Well Above Average
Salailua	58.4	162	36	14	14 th	10	Well Below Average
Samalaeulu	91.8	200	46	22.2	18 th	14	Below Average
Tuasivi	63.8	148	43	13.8	14 th	15	Below Average
Vaiaata	195.0	410	48	39.8	18 th	21	Below Average

Well Below Average
<40%

Below Average
40%-80%

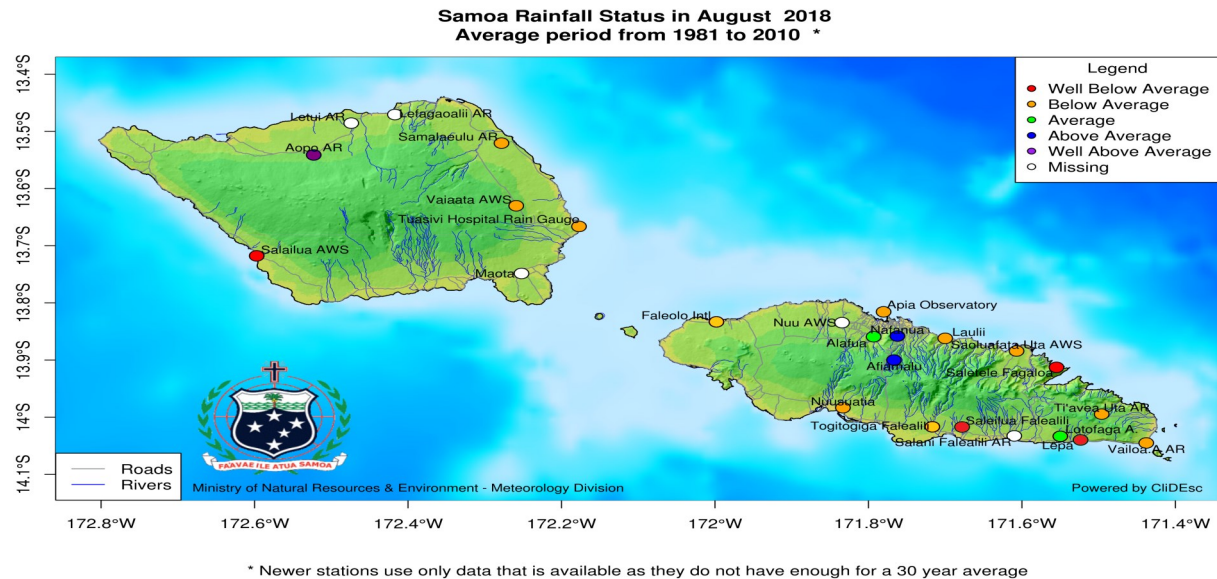
Average
80%-120%

Above Average
120%-160%

Well Above Average
>160%

Figure 3: Rainfall Status Map in August 2018

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 August 2018

Stations	Temperature (Degree Celsius)				
	Mean Daily Temperature (°C)	Extreme Temp Max (°C)	Date	Extreme Temp Min(°C)	Date
Faleolo	N/A	N/A	N/A	21.1	07 th
Afiamalu	21.7	27.9	22 nd	12.4	10 th
Apia	26.4	30.5	31 st	19.5	10 th
Alafua	30.5	N/A	N/A	17.1	11 th
Togitogiga	N/A	23.2	10 th	20.2	14 th
Vaiaata	26.6	32.6	13 th	19.7	11 th
N/A = Data Not Available					

Mean daily temperatures across the stations ranged from 21.7°C to 30.5°C for the month of August. The warmest daytime temperature of 32.6°C was recorded from a highland station at Vaiaata, while the coolest night time temperature of 12.4°C was recorded at Afiamalu station. In addition, a dry and cold air mass in the mid to upper levels had been advected aloft by the enduring south westerlies further contributing to the cooling process on land. As a result, the lowest temperatures for Samoa were recorded across all stations for the second week of the month.

ATMOSPHERIC PRESSURE

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

This table displays the atmospheric statistics recorded across two stations in August 2018

Station	Highest MSL Pressure (hPa)	Date	Lowest MSL Pressure (hPa)	Date	Average MSL Pressure (hPa)
Apia	1015.3	22 nd	1009.4	03 rd	1012.2
Faleolo	1013.2	01 st	1010.4	06 th	1012.0

The highest pressure of 1015.3hPa was registered at Apia on the 22nd., together with the lowest of 1009.4hPa on the 03rd. The low pressure helped triggered strong winds, as displayed on pages 3 and 4. (Note: 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 2018.

Figure 4a : Apia Station

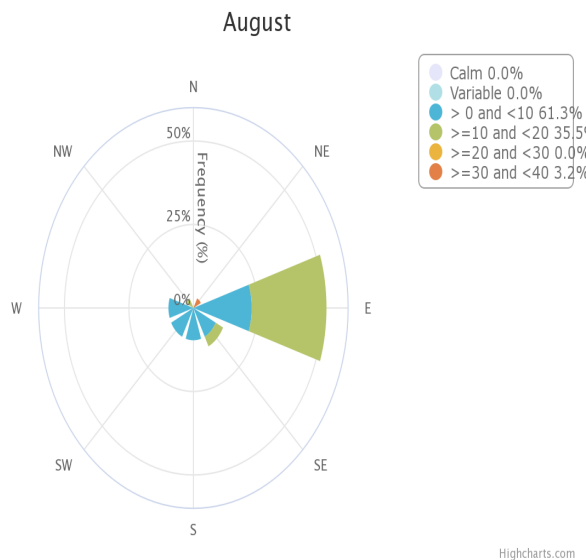
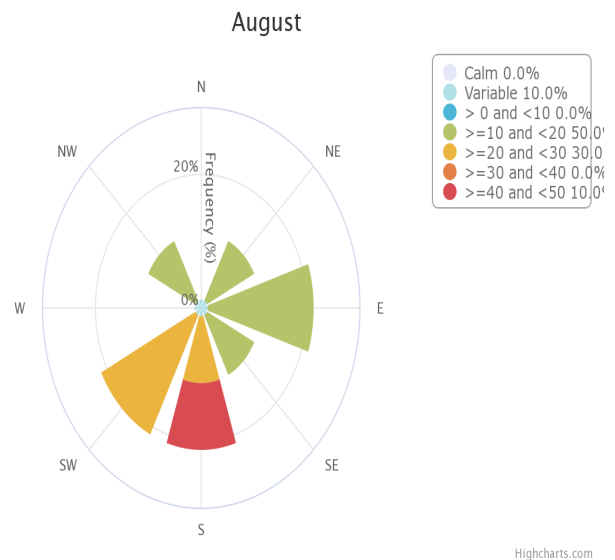


Figure 4b: Faleolo Station



Easterly winds dominated Apia station (Figure 4a) through most of August, with Gentle winds (10-20km/hr) being the most occurring wind speed.

Faleolo station (Figure 4b) however registered variable wind directions, mostly from the Southern and Eastern side of the group. Although Gentle (10-20km/hr) were dominant, significant wind speeds of up to 40km/hr were also recorded at Faleolo station.

Figure 4c : Afiamalu Station

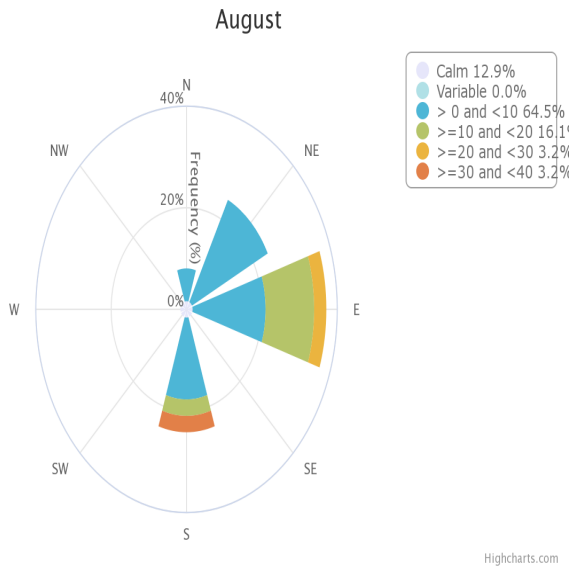
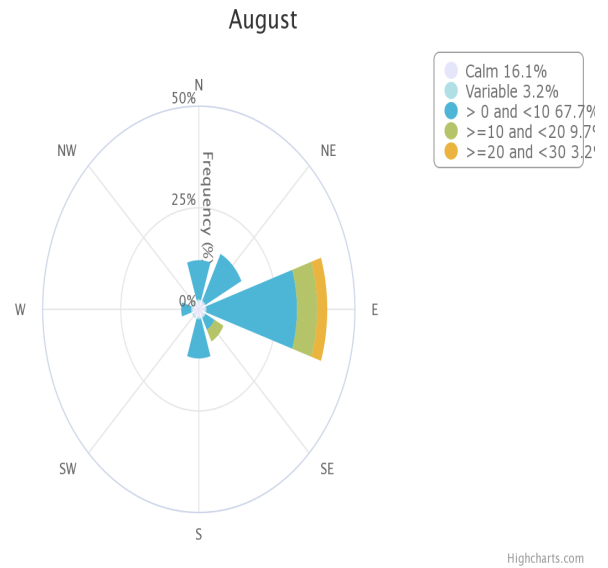


Figure 4d: Nafanua Station



Variable winds were experienced at highland station Afiamalu, with Easterly winds barely dominating. There were also Southerlies and North east winds registered. While gusts of up to 30km/hr were noticeable, Slight Breeze Winds (1-10km/hr) were still dominant throughout the month of August.

Nafanua station also recorded winds from variable directions, with easterlies, remaining dominant. Slight Breeze Winds (1-10km/hr) were the most occurring wind speeds, for said station, with some noticeable Gentle Winds (10-20km/hr) travelling from the East as well.

EL NINO SOUTHERN OSCILLATION (ENSO)

CURRENT ENSO STATUS

Models continue to suggest an El Nino occurring later on this year, although the current ENSO status is still at neutral levels. Chances of this phenomenon to occur has doubled, therefore, an El Nino watch has been in effect since last month, issued by the Bureau's ENSO Outlook.

Oceanic Indicator of ENSO

Figure 5: Sea Surface Temperature in August 2018

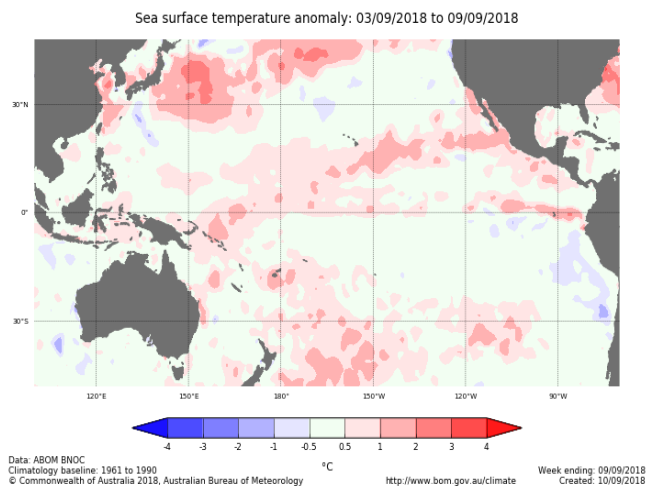
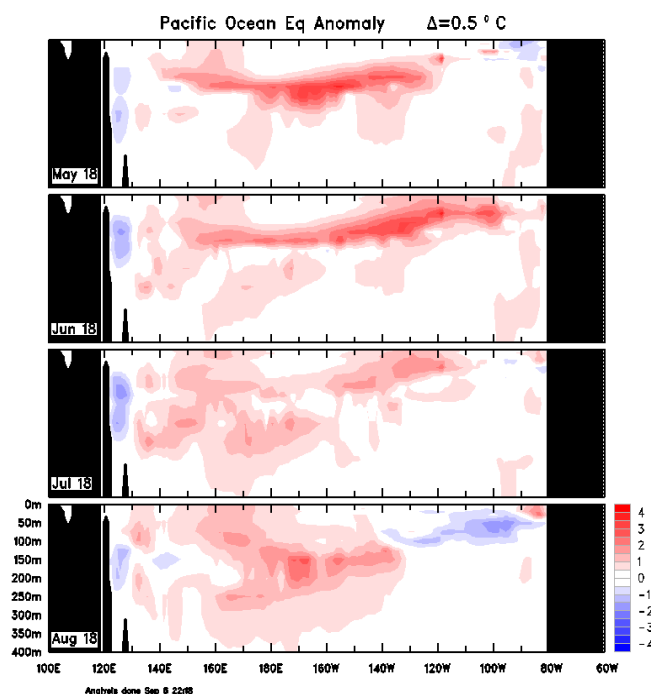


Figure 6: Sub-surface Temperature



Atmospheric Indicator of ENSO

Southern Oscillation Index (SOI)

The 30 day Southern Oscillation Index (SOI) to 9th of September was -6.2 , with the 90 day value of -4.6 . The 30 day SOI has been fluctuating around El Nino thresholds but has yet to show a consistent pattern.

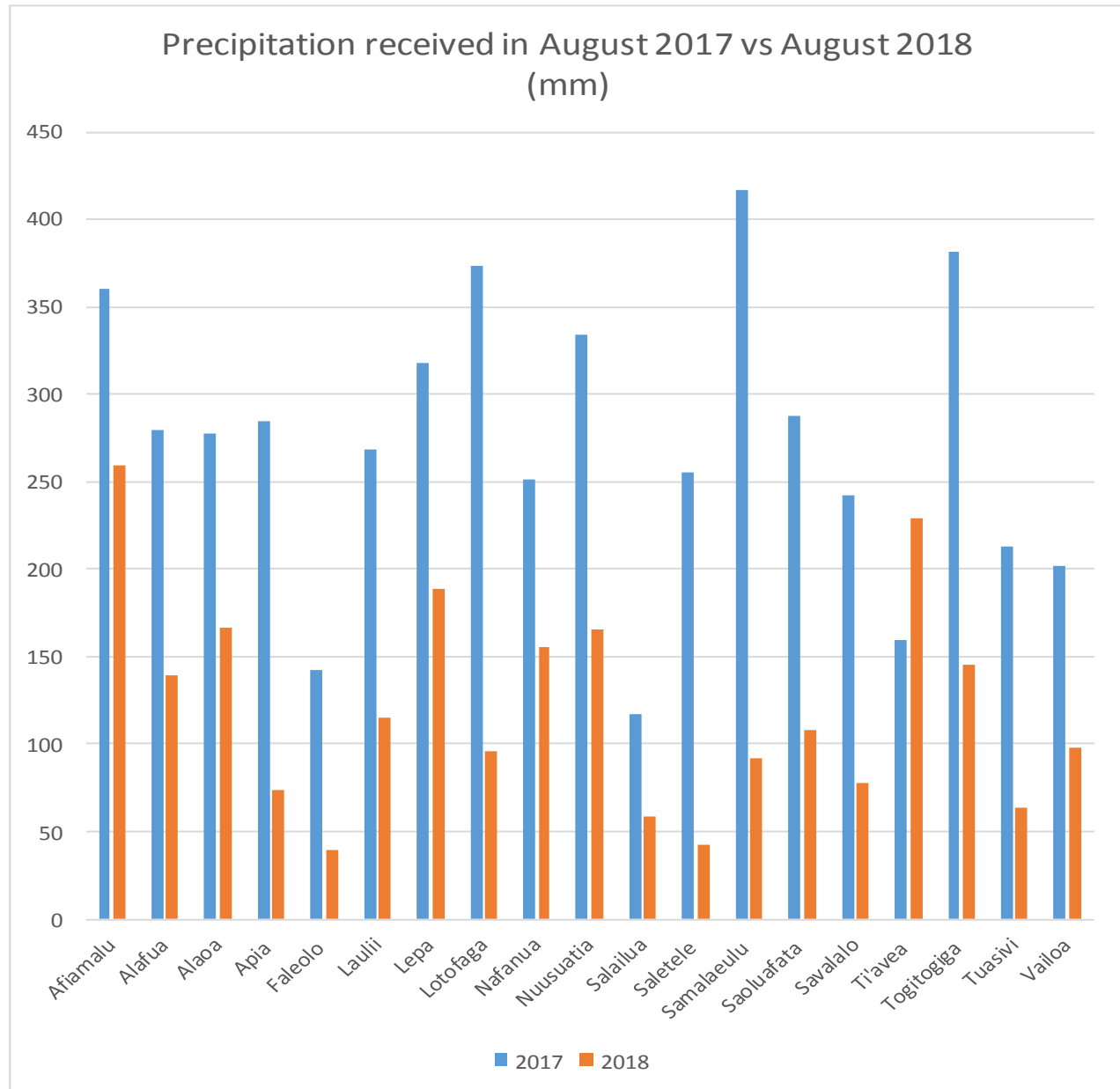
(Sustained positive values of the SOI above $+7$ indicate La Nina. Whereas sustained negative values below -7 indicate El Nino. Values within -7 and $+7$ shows neutral conditions.)

The equatorial Ocean Surface temperatures have warmed gradually this last quarter of the year, with a northward movement towards the Eastern part of America. Generally, the Pacific oceans are experiencing warmer than average anomalies, but within neutral range. In addition, the latest values for Nino indices are sustaining, with Nino 3 at $+0.2^\circ\text{C}$, Nino 3.4 at $+0.3^\circ\text{C}$ and Nino 4 at $+0.6^\circ\text{C}$.

The last couple of months showed how persistent the eastward movement of warm anomalies were. However if you refer to Figure 6, the previous month shows that the cooler anomalies have strengthened in the East equatorial region, with warmer waters retreating to the Central Pacific region. The ENSO status is still being monitored at this point.

APPENDIX

Figure 7: Graphical representation of total monthly rainfall in August 2017 vs August 2018 in all rainfall stations.



The comparison between rainfall received in August the previous year and current shows 2017 experienced wetter conditions. Figure 7 helps justify that August 2018 was indeed a dry month, as also seen in table 1, where generally across all stations, received below average rainfall.