



CLIMATE SUMMARY APRIL 2018

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HIGHLIGHTS

- ◆ April 2018 generally received “Well Above Average” precipitation. **Pg. 1 & 2**
- ◆ Alafua and Vaiaata both recorded the warmest day time temperature of 33.7°C, while Afiamalu registered the coolest night time temperature of 16.5° C. **Pg. 3**
- ◆ Although wind directions varied for the month of April, Easterlies were still dominant for most stations. Calm conditions were experienced for some stations, with light winds of 1-10km/hr being the most occurring wind speed. **Pg 4 & 5**
- ◆ ENSO status continues to remain neutral. However, Climate models suggest that SSTs will warm up in the next few months. **Pg 6**
- ◆ Sub surface temperatures show warmer than average anomalies developing in the Western Pacific have propagated Eastward. Cool anomalies west of South America have weakened in the past 4 months. **Pg 6**

ISSUED: MAY 2018

Figure 1: SPCZ Position in April 2018.

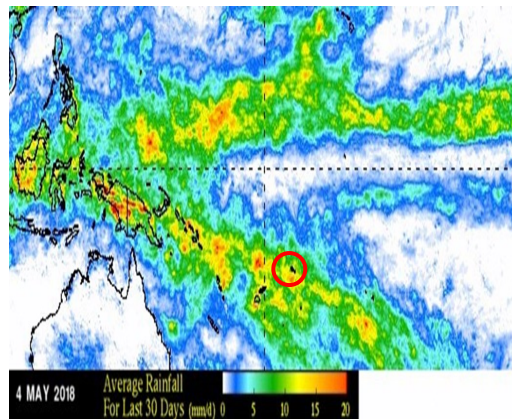
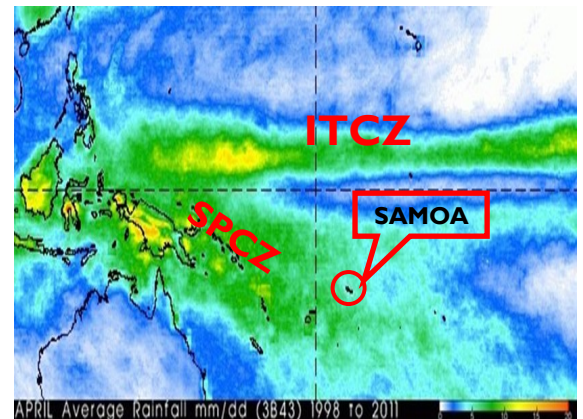


Figure 2: Normal Position of SPCZ in April.



GLOBAL SCALE OBSERVATIONS

For April, the Inter tropical Convergence Zone (ITCZ) was slightly displaced north of its normal April position. It was also observed to be more active and scattered over the northern Pacific Ocean. On the other hand, the South Pacific Convergence Zone (SPCZ), remained in its normal position, and appeared to have been active than normal, and is reflected by the rainfall status for April 2018 over Samoa.

LOCAL SCALE OBSERVATIONS

The Samoa Islands received significant downpours towards the end of the wet season. April statistics shows Afiamalu registering as the wettest station receiving 932.9mm of rain, with Lotofaga being the second wettest station, receiving 835.4mm, and the third highest recorded at Ti'avea station of 699.0mm. Additionally, Lotofaga received the highest one day fall of 257.8mm on the 16th with Togitogiga station receiving the second highest of 162.0mm on the same day. On the contrary, the lowest total monthly precipitation of 277.2mm was recorded at Tuasivi, with the second lowest of 345.6mm at Vaiaata station. A Heavy Rain Warning was issued on the 8th of April, due to an active Convergence propagating from the South. As a result, sufficient amount of rainfall was received across the islands, with parts of Apia experiencing floods, rivers such as Vaisigano to overflow and caused a landslide on the eastern part of Upolu Island. This event is reflected by Table 1, which shows that 15 stations received “Well above average” rainfall, 3 stations received “Above average” rainfall, and 2 stations registered “Average”. Figure 7 on page 7 will show a graphical representation of how rainfall in April 2017 differs from rainfall received in April 2018.

Table 1: Rainfall Statistics in April 2018

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

Stations	April Rainfall (mm)	April 30 Year Long Term Average	% of Average	1 day fall (mm)	Date	# of Rainy Days	Rainfall Status
UPOLU							
Afiamalu	923.9	312	296	131.0	28 th	28	Well Above Average
Alafua	562.0	256	220	82.9	18 th	28	Well Above Average
Apia	487.5	216	226	80.4	08 th	23	Well Above Average
Faleolo	362.9	168	216	63.6	08 th	22	Well Above Average
Laulii	462.8	237	195	116.0	18 th	14	Well Above Average
Leauvaa	539.6	208	259	91.4	08 th	27	Well Above Average
Lotofaga	835.4	285	293	257.8	16 th	28	Well Above Average
Nafanua	559.9	256	219	75.6	05 th	28	Well Above Average
Nuu	393.2	256	154	65.2	08 th	24	Above Average
Saolufata	536.8	278	193	67.0	05 th	28	Well Above Average
Savalalo	477.5	216	221	105.7	18 th	21	Well Above Average
Tiavea	699.0	264	265	111	14 th	29	Well Above Average
Togitogiga	576.8	311	185	162.0	16 th	27	Well Above Average
Vailoa	462.6	322	144	78.2	14 th	23	Above Average
Savaii							
Aopo	562.4	181	311	99.8	08 th	25	Well Above Average
Falelima	426.2	220	193	70.6	23 rd	25	Well Above Average
Sala'ilua	457.2	121	378	99.8	16 th	25	Well Above Average
Samalaeulu	392.0	227	173	60.8	08 th	27	Above Average
Tuasivi	277.2	232	119	53.8	28 th	25	Average
Vaiaata	345.6	314	110	55.6	28 th	27	Average

Well Below Average
 <40%

Below Average
 40%-80%

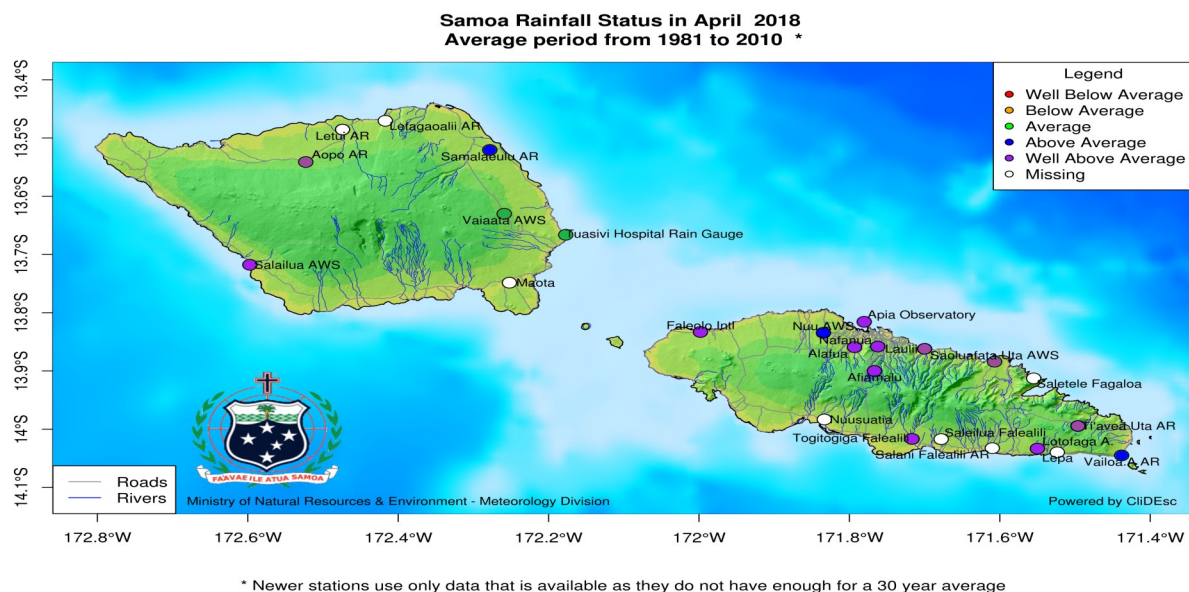
Average
 80%-120%

Above Average
 120%-160%

Well Above Average
 >160%

Figure 3: Rainfall Status Map in April 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 April 2018

Stations	Temperature (Degree Celsius)				
	Mean Daily Temperature (°C)	Extreme Temp Max (°C)	Date	Extreme Temp Min(°C)	Date
Faleolo	28.2	33.4	05 th	23.0	28 th
Afiamalua	22.6	27.5	01 st	16.5	01 st
Apia	N/A	N/A	N/A	23.0	29 th
Alafua	27.0	33.7	02 nd	22.0	29 th
Togitogiga	N/A	N/A	N/A	20.0	25 th
Vaiaata	27.7	33.7	12 th	22.4	28 th
N/A = Data Not Available					

April temperatures averaged from 22.6 °C to 28.2 °C. Moreover, the warmest daytime temperature of 33.7 °C was recorded at Alafua on the 02nd of April and Vaiaata on the 12th. On the contrary, Afiamalua recorded the coolest night time temperature of 16.5 °C on the 01st, with the second coolest temperature of 20.0 °C at Togitogiga station on the 25th of April. In the first week of April, a high pressure system dominated the island, generating easterly wind flow which accounts for clear skies, justifying extreme maximum and minimum temperatures.

ATMOSPHERIC PRESSURE

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

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

Station	Highest MSL Pressure (hPa)	Date	Lowest MSL Pressure (hPa)	Date	Average MSL Pressure (hPa)
Apia	1014.5	12 th	1006.8	11 th	1010.7
Faleolo	1013.7	12 th	1007.2	04 th	1010.4

Apia station registered the highest Mean Sea Level (MSL) pressure of 1014.5hPa, on the 12th of April. Moreover, the lowest MSL pressure of 1006.8hPa was also recorded at Apia station on the 11th of the same month. (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 April 2018.

Figure 4a : Apia Station

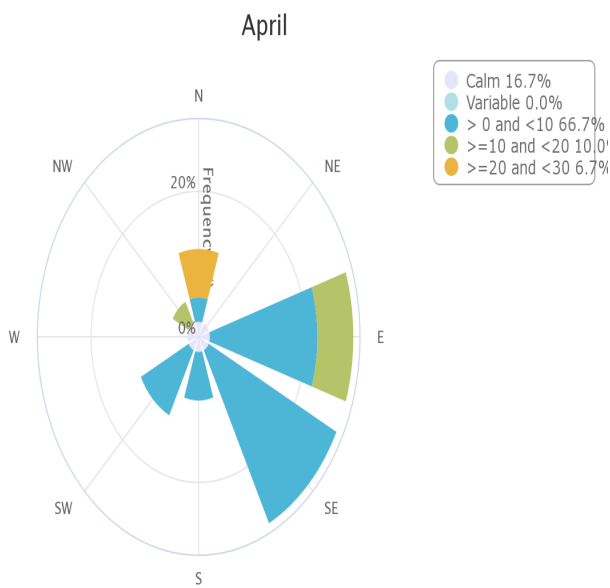
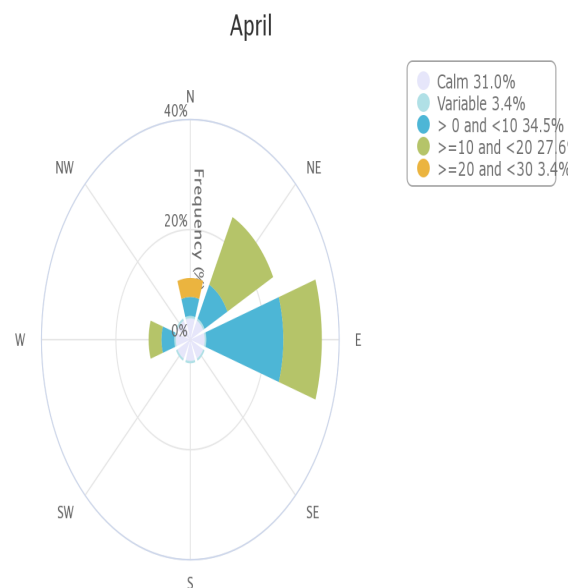


Figure 4b: Faleolo Station



April wind statistics shows that Apia station experienced East to South Easterly winds for most of the month. Light winds (1-10km/hr) were the dominant wind speed having occurred 66.7% of the time. There were also evident North gentle winds (10-20km/hr) recorded at Apia station

East to North Easterly winds were the dominant wind directions for Faleolo station. Light winds were the most occurring wind speed with some gentle winds approaching from the north.

Figure 4c : Afiamalu Station

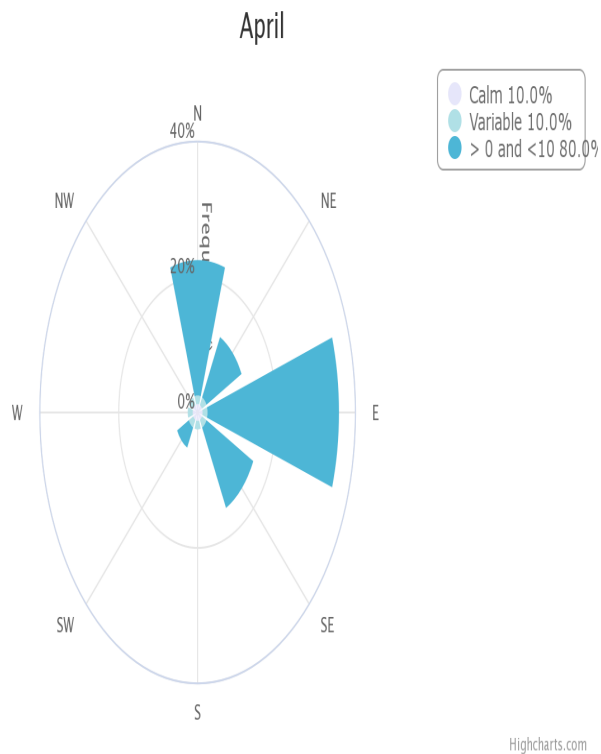
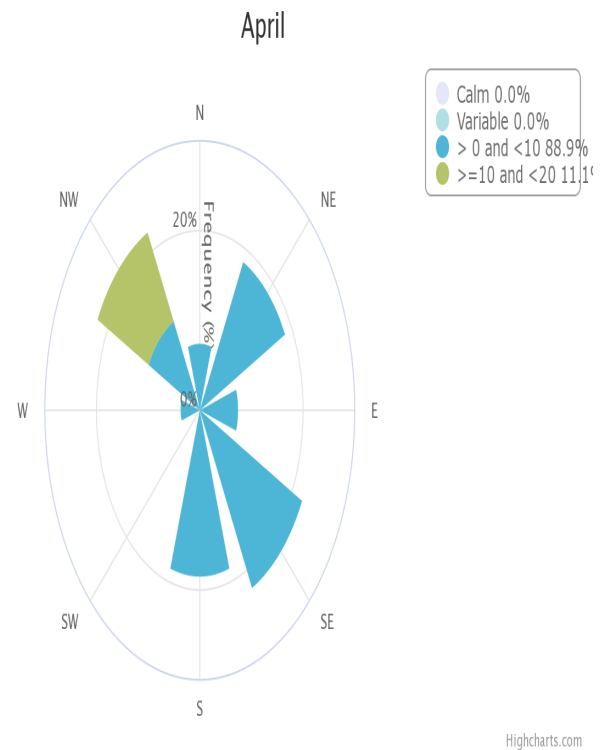


Figure 4d: Vaiaata Station



Afiamalu station registered easterly winds to be the dominant wind direction, with light winds (1-10km/hr) being the dominant wind speed. Noticeable north winds were also recorded for the month of April.

Although Vaiaata station experienced variable winds, North West and South East winds were dominant. In addition, light winds (1-10km/hr) were the dominant wind speeds, with noticeable gentle winds (10-20km/hr) travelling from the North West.

EL NINO SOUTHERN OSCILLATION (ENSO)

CURRENT ENSO STATUS

The current El Nino Southern Oscillation (ENSO) status is neutral, which means it neither leans towards El Nino nor La Nina. As suggested by International Climate models, ENSO status will remain neutral in the upcoming months.

Figure 5: Sea-surface Temperature

Oceanic Indicator of ENSO

Figure 5: Sea Surface Temperature in April 2018

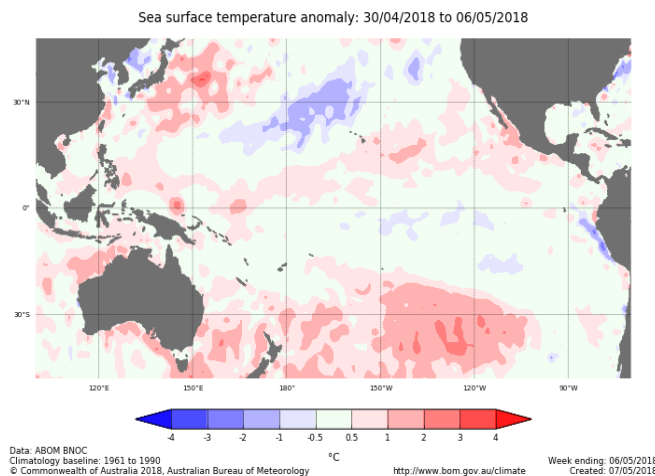
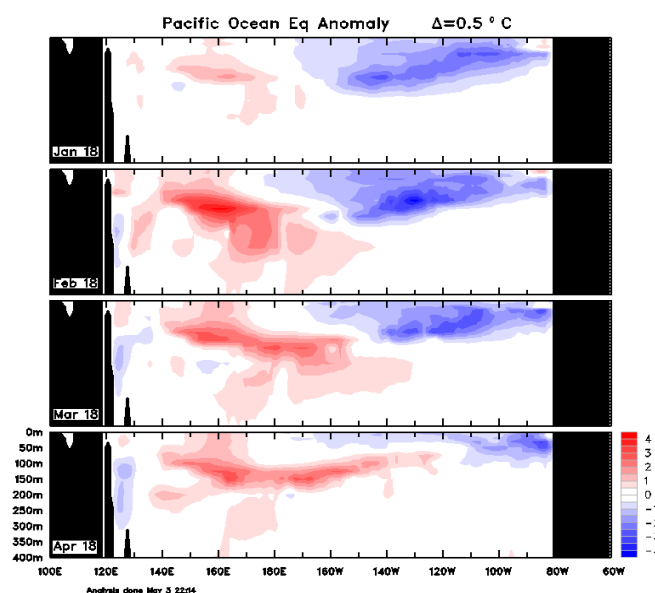


Figure 6: Sub-surface Temperature



Atmospheric Indicator of ENSO

Southern Oscillation Index (SOI)

The 30 day Southern Oscillation Index (SOI) to 06th of May was -2.6 , and the 90 day SOI was $+0.4$. Although the SOI have been fluctuating due to tropical weather systems, it has mostly been in neutral range for the year 2018.

(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.)

Sea Surface Temperatures (SSTs)

In Figure 5, Central and Eastern Tropical Pacific Ocean was observed to have cooler than average Sea Surface Temperatures for the month of April. However, warm anomalies were present in most of the South Pacific, mostly south of the 30° latitude.

The April values for NINO 3, NINO 3.4 and NINO 4 were -0.2°C , -0.3°C and $+0.1^\circ\text{C}$ respectively.

Sub surface temperatures

Central and Eastern Equatorial Pacific Ocean has warmed slowly as observed from the 4 month sequence (Figure 6). A pool of warm anomalies was located between the 140°E and 120°W longitudes. On the other hand, weak cool anomalies continue to weaken in the shallow levels of the sub surface parameters, within the Eastern Pacific Ocean. Warm anomalies propagating eastward, as seen in recent months, is a typical indication of a decaying La Nina event.

APPENDIX

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

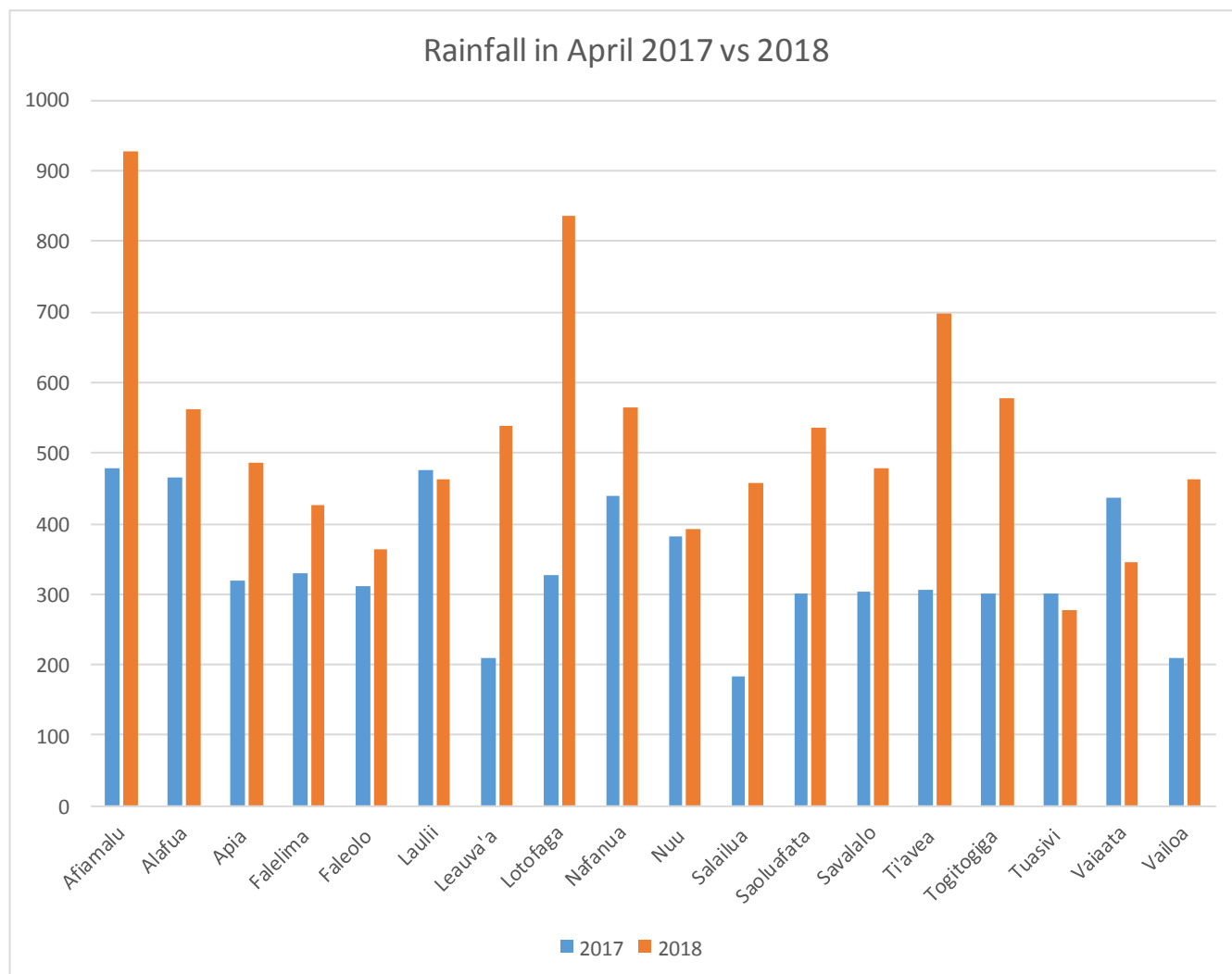


Figure 7 indicates more rainfall activity for April 2018 compared to April 2017. The positioning of the SPCZ closer to Samoa, together with localized weather patterns helped trigger heavy torrential rainfall for the month of April 2018, as observed in Figure 7.