



# CLIMATE SUMMARY MAY 2018

## Samoa Meteorology Division

### Ministry of Natural Resources and Environment

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#### HIGHLIGHTS

- ◆ Generally 'Below Average' rainfall was recorded for May. **Pg. 1 & 2**
- ◆ Warmest daytime temperature of 33.7°C for the month of May was registered on the 21<sup>st</sup> at Alafua station and the coolest night time temperature of 14.9°C was recorded on the 14<sup>th</sup> at Afiamalu station. **Pg. 3**
- ◆ Easterly winds were the dominant wind direction with Light winds (1-10km/hr) being the dominant wind speed. **Pg 4 & 5**
- ◆ Although in neutral range, climate models suggest a increase in Sea Surface temperature in the upcoming months, and can influence the ENSO status. **Pg 6**
- ◆ The eastward propagation of warmer than normal anomalies as observed in the last 4 months, is continuing below the Ocean surface. Cooler anomalies have weakened dramatically in the eastern equatorial region, which justifies the ending of the La Nina event earlier this year. **Pg 6**

ISSUED: JUNE 2018

Figure 1: SPCZ Position in May 2018.

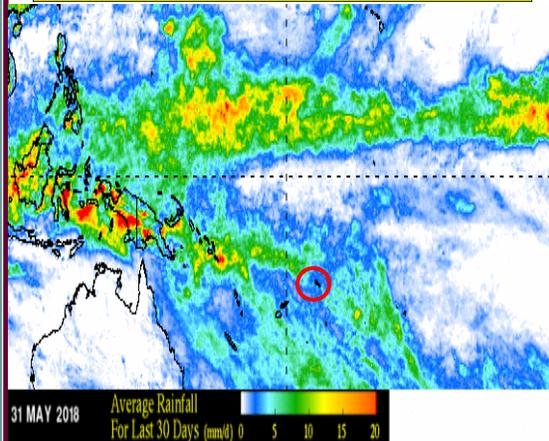
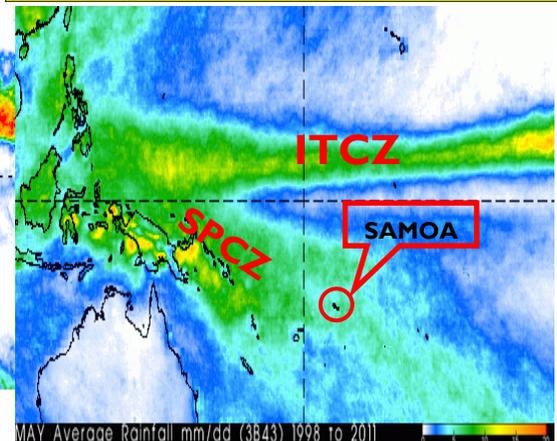


Figure 2: Normal Position of SPCZ in May.



#### GLOBAL SCALE OBSERVATIONS

The May 2018 Inter Tropical Convergence Zone was displaced north prior to it's long term average May position. It was also observed to be slightly more active. On the contrary, the South Pacific Convergence Zone (SPCZ), was seen to be disorganized and less active than normal. For Samoa, the SPCZ state for May meant not much rainfall activity was observed.

#### LOCAL SCALE OBSERVATIONS

May 2018 received moderate rainfall activity. The highest precipitation of 458.6mm was recorded at Ti'avea, Lotofaga being the second highest of 386.2mm and the third highest at Saletele of 382.1mm. On the contrary, Aopo registered the lowest rainfall for May 2018 with the second lowest recorded at Faleolo station of 382.1mm. The presence of a weak trough over the Islands on the 30<sup>th</sup> of May brought significant rainfall, where Tia'vea station registered the highest one day fall of 176.6mm, and Vailoa with the second highest of 157.2mm, both on the same day. If referred to Table 1, rainfall statistics shows 4 stations registered Above Average rainfall, 8 stations registered Average rainfall and 11 stations recorded Below Average rainfall.

A graphical representation of the comparison between rainfall activity in may 2017 and may 2018 is displayed on page 7.

Table 1: Rainfall Statistics in May 2018

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

Stations	May Rainfall (mm)	May 30 Year Long Term Average	% of Average	1 day fall (mm)	Date	# of Rainy Days	Rainfall Status
<b>UPOLU</b>							
Afiamalua	336.9	311	108	133.3	30 <sup>th</sup>	24	Average
Alafua	227.1	159	143	69.9	30 <sup>th</sup>	21	Above Average
Apia	157.7	188	84	77.1	30 <sup>th</sup>	14	Average
Faleolo	132.5	138	96	50.1	30 <sup>th</sup>	11	Average
Laulii	165.1	223	74	74.7	30 <sup>th</sup>	27	Below Average
Leauvaa	153.4	348	44	71.6	30 <sup>th</sup>	16	Below Average
Lepa	187.0	387	48	88.8	30 <sup>th</sup>	15	Below Average
Lotofaga	386.2	373	104	140.2	30 <sup>th</sup>	18	Average
Nafanua	237.0	477	50	91.0	10 <sup>th</sup>	20	Below Average
Nuu	134.2	159	84	54.4	30 <sup>th</sup>	17	Average
Nuusuatia	282.8	271	104	142.2	06 <sup>th</sup>	15	Average
Saleilua	366.2	483	76	153.4	06 <sup>th</sup>	19	Below Average
Saletele	286.1	475	60	81.4	28 <sup>th</sup>	31	Below Average
Saoluafata	244.2	390	63	103.6	30 <sup>th</sup>	24	Below Average
Tiavea	458.6	322	142	176.6	30 <sup>th</sup>	26	Above Average
Togitogiga	334.0	458	73	114.0	09 <sup>th</sup>	28	Below Average
Vailoa	320.6	239	134	157.2	30 <sup>th</sup>	25	Above Average
<b>Savaii</b>							
Aopo	102.4	200	51	33.8	30 <sup>th</sup>	17	Below Average
Falelima	140.0	191.0	73	55.2	30 <sup>th</sup>	15	Below Average
Sala'ilua	252.2	179.0	141	56.8	10 <sup>th</sup>	16	Above Average
Samalaeulu	257.2	228	113	100.4	30 <sup>th</sup>	24	Average
Tuasivi	282.2	398	71	115.6	30 <sup>th</sup>	20	Below Average
Vaiaata	366.0	412	89	113.2	30 <sup>th</sup>	26	Average

**Well Below Average**  
<40%

**Below Average**  
40%-80%

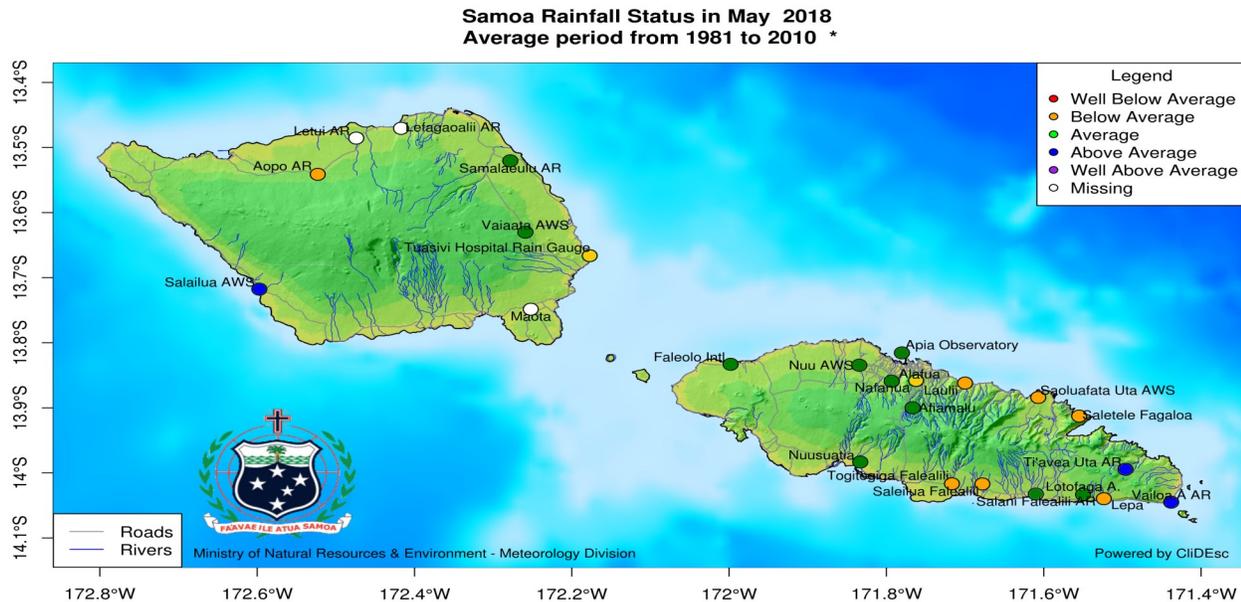
**Average**  
80%-120%

**Above Average**  
120%-160%

**Well Above Average**  
>160%

Figure 3: Rainfall Status Map in May 2018

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

Table 2: Air Temperature Statistics

This table displays the temperature statistics recorded across stations in May 2018

Stations	Temperature (Degree Celsius)				
	Mean Daily Temperature (°C)	Extreme Temp Max (°C)	Date	Extreme Temp Min(°C)	Date
Faleolo	28.0	33.6	02 <sup>nd</sup>	22.3	18 <sup>th</sup>
Afiamalua	22.6	28.6	21 <sup>st</sup>	14.9	14 <sup>th</sup>
Apia	N/A	N/A	N/A	21.0	14 <sup>th</sup>
Alafua	27.4	33.7	21 <sup>st</sup>	19.4	14 <sup>th</sup>
Togitogiga	N/A	N/A	N/A	20.5	07 <sup>th</sup>
Vaiaata	28.0	33.4	04 <sup>th</sup>	21.9	18 <sup>th</sup>
N/A = Data Not Available					

For the month of May, temperatures ranged from 22.6°C to 28.0°C. In addition, Alafua registered the warmest daytime temperature of 33.7°C on the 21<sup>st</sup> of the month. Afiamalua on the other hand recorded the coolest night time temperature of 14.9°C on the 14<sup>th</sup>, with the second coolest recorded over at Alafua station, on the same day. As stated in the weather summary, southwest winds in the mid to upper level became more established in week 3(13<sup>th</sup> to the 19<sup>th</sup>), and created drier cooler conditions, observed in Table 2.

### ATMOSPHERIC PRESSURE

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

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

Station	Highest MSL Pressure (hPa)	Date	Lowest MSL Pressure (hPa)	Date	Average MSL Pressure (hPa)
Apia	1015.5	09 <sup>th</sup>	1009.1	02 <sup>nd</sup>	1012.0
Faleolo	1015.7	09 <sup>th</sup>	1010.1	28 <sup>th</sup>	1013.2

Faleolo station registered the highest Mean Sea Level (MSL) pressure of 1015.7hPa, on the 09<sup>th</sup> of May. Moreover, the lowest MSL pressure of 1009.1hPa was recorded at Apia station on the 02<sup>nd</sup> 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 May 2018.

Figure 4a : Apia Station

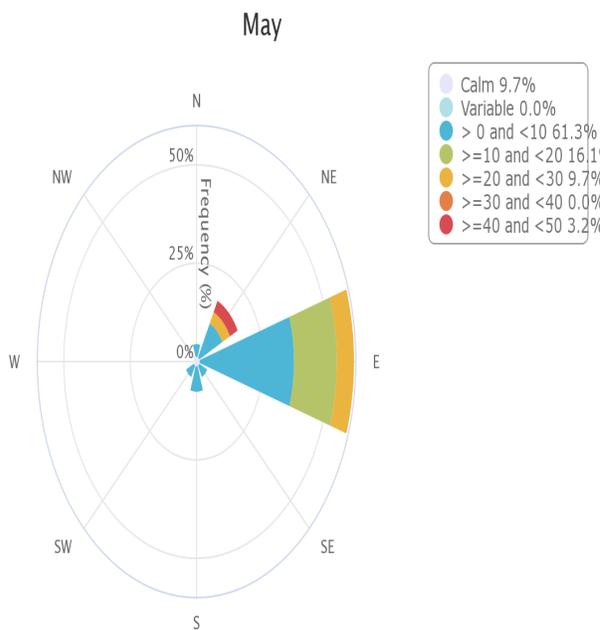
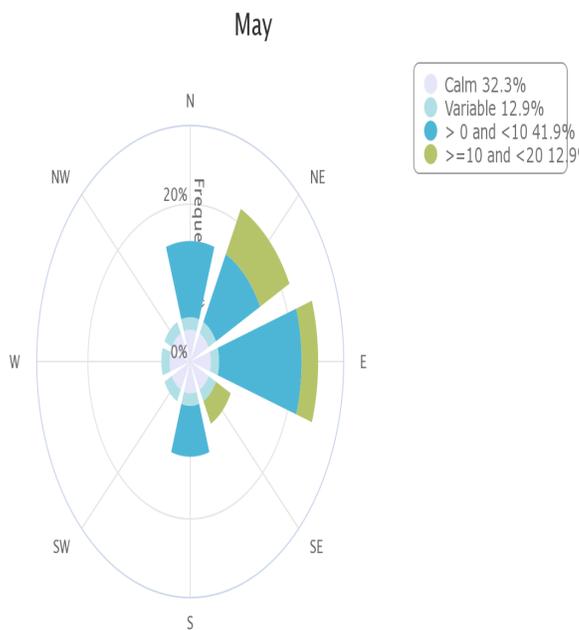


Figure 4b: Faleolo Station



Easterlies dominated Apia station (Figure 4a) for the month of May, with some northwest winds evident in May. Winds speeds of 1-10km/hr were the most occurring wind speed (61.3% occurrence). Strong winds (40-50km/hr) were also recorded at Apia station.

For Faleolo Station (Figure 2b), variable wind directions were registered with Easterly winds being the dominant. Light winds (1-10km/hr) had the highest occurrence of 41.9%.

Figure 4c : Afiamalu Station

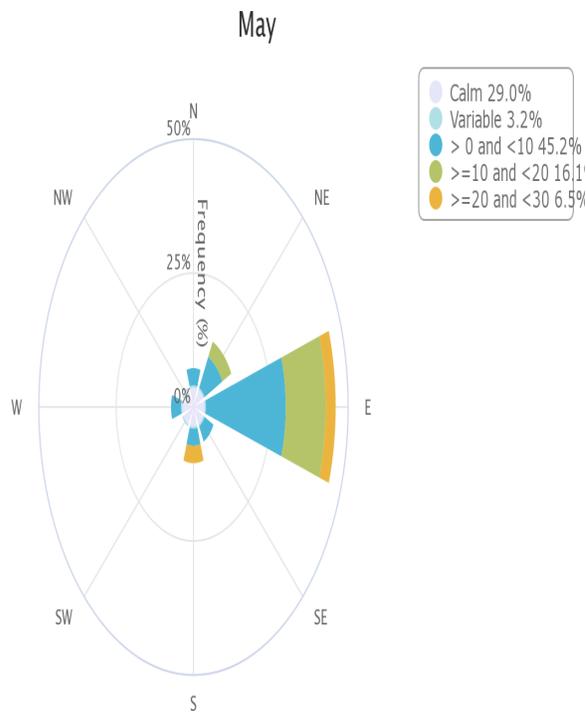
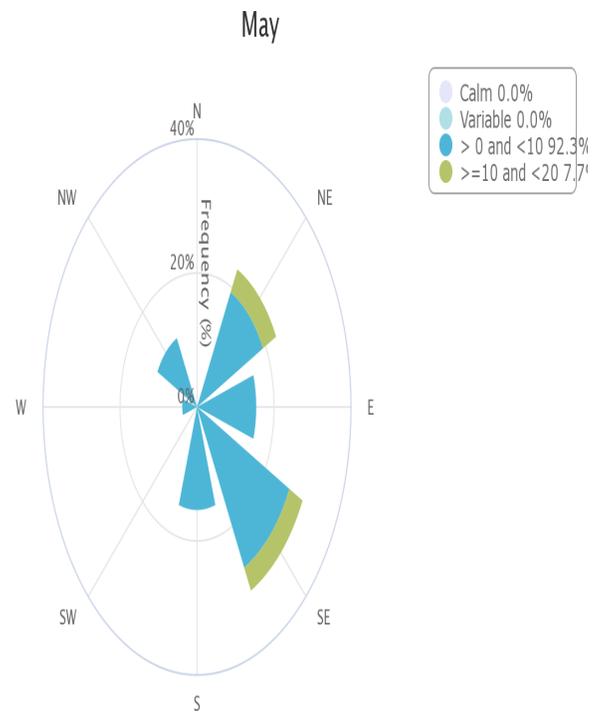


Figure 4d: Vaiaata Station



May statistics for Afiamalu station (Figure 4c) shows that the Easterlies were also the dominant wind direction, with predominant light winds (1-10km/hr) for wind speeds. Some moderate winds (21-30 km/hr) travelling from the north were also registered at Afiamalu station.

South Easterly winds were registered as the most occurring wind direction at Vaiaata station (Figure 4d). In addition, light winds (1-10km/hr) were the dominant wind speeds, with noticeable gentle winds (10-20km/hr) travelling from the North East as well.

## EL NINO SOUTHERN OSCILLATION (ENSO)

### CURRENT ENSO STATUS

The current ENSO status remains neutral, as suggested by most atmospheric and oceanic indicators. Most climate models predict the tropical Pacific Ocean will slightly warm towards August, but will continue to be in neutral levels.

### Oceanic Indicator of ENSO

Figure 5: Sea-surface Temperature

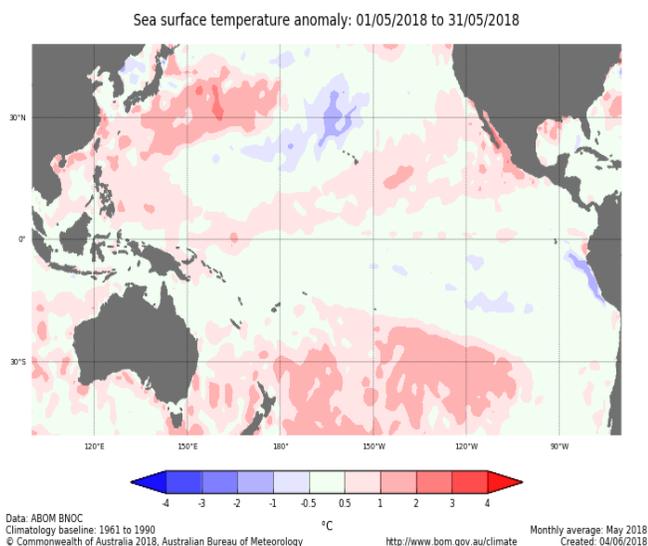
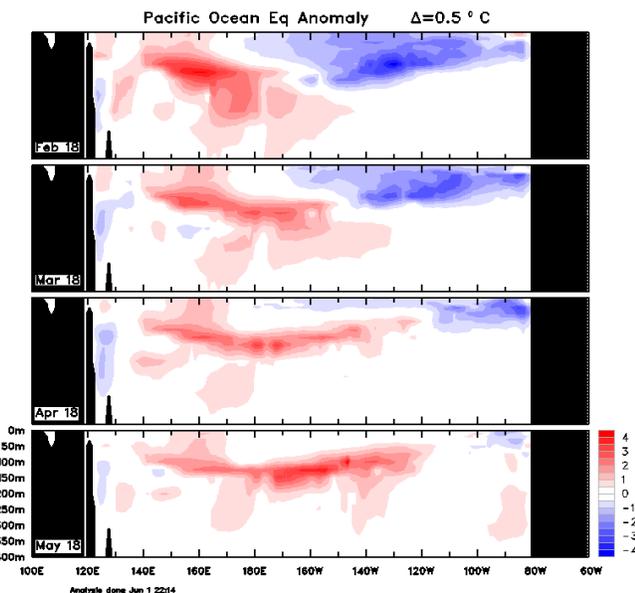


Figure 6: Sub-surface Temperature



### Atmospheric Indicator of ENSO

#### Southern Oscillation Index (SOI)

The 30 day Southern Oscillation Index (SOI) to 03<sup>rd</sup> of June was +1.7, and the 90 day SOI was +5.9. Although fluctuating, the SOI has been in neutral levels since last April.

*(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)

Across the tropical Pacific Ocean, sea surface temperatures for May were near average. Cooler anomalies have weakened in the eastern Equatorial region due to warm waters propagating from the west.

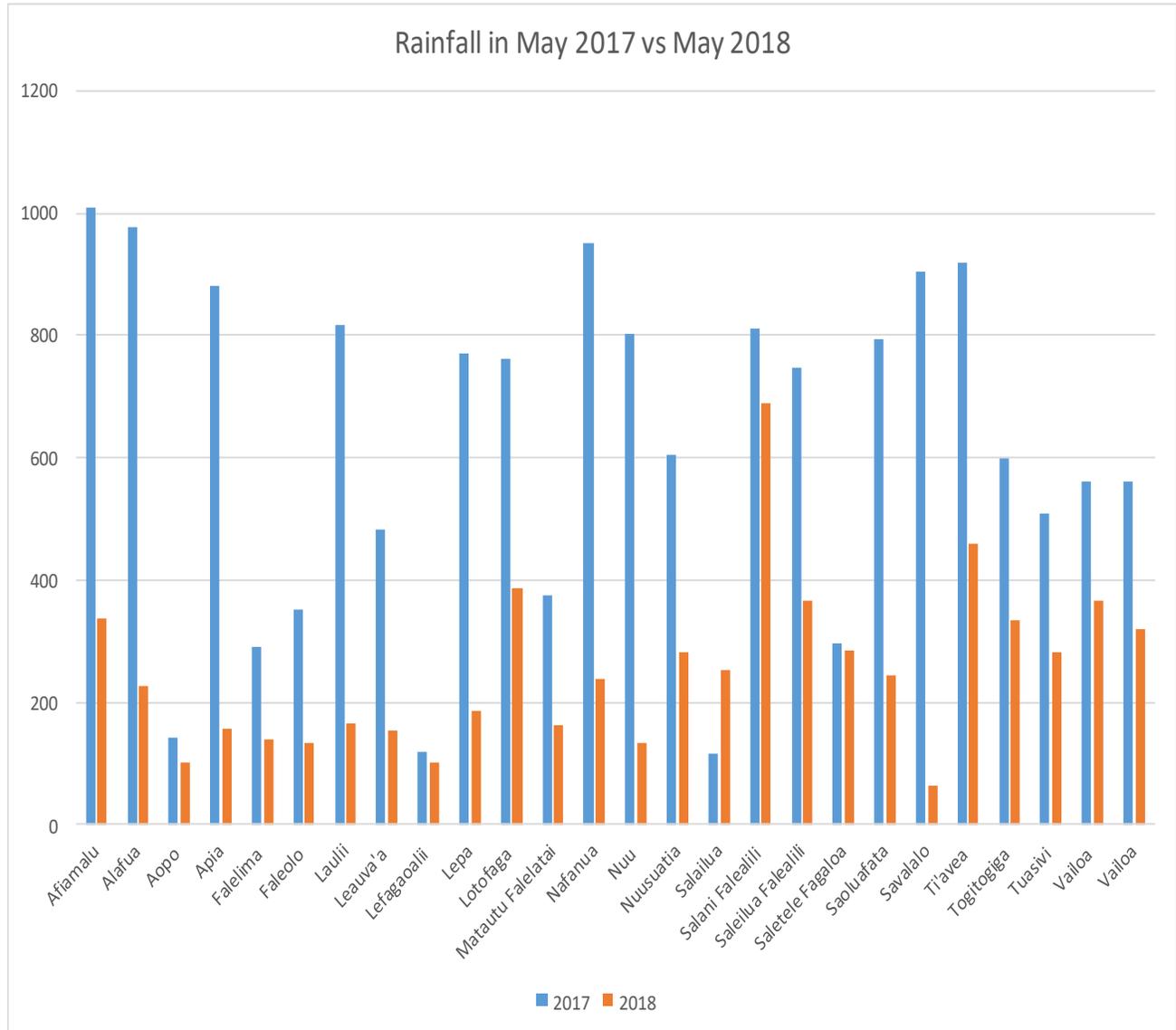
The May values for NINO 3, NINO 3.4 and NINO 4 were -0.0<sup>o</sup> C, 0.0<sup>o</sup> C and +0.2<sup>o</sup> C respectively.

#### Sub surface temperatures

The cross section showing temperatures beneath the ocean surface (Figure 6) displays the behavior of warm and cool anomalies in the past four months. The eastward propagation of warmer than average anomalies from the west tends to weaken cooler anomalies located in the 125W longitude in the east. This is a typical indication of a weak La Nina declining.

**APPENDIX**

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



There was more rainfall activity in May 2017 compared to may 2018. Easterly wind flows dominated may 2018 but could not bring as much rainfall activity as last year.