



CLIMATE SUMMARY January 2018

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HIGHLIGHTS

- ◆ “Below average to average” rainfall was recorded for most stations. **Pg 1 & 2**
- ◆ January 2018 temperatures were similar to December 2017, with mean daily temperatures ranging from 22.2°C–28.0 °C. **Pg 3**
- ◆ Generally, easterlies dominated the island in January 2018. Light winds (0-km/hr) were mostly recorded with few moderate (20-30 km/hr) and strong winds (>30 km/hr). **Pg 4**
- ◆ Weak La Nina weakens in the tropical Pacific and expected to end by March 2018 **Pg 5**
- ◆ Sea surface temperature have warmed up with cooler anomalies weakening. A clear indication of the La Nina decreasing in strength. **Pg 5**

ISSUED: February 2018

Figure 1: SPCZ Position in January 2018

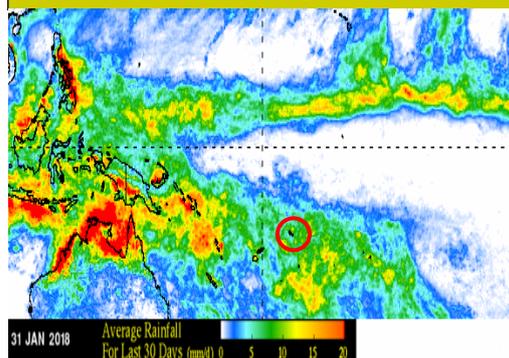
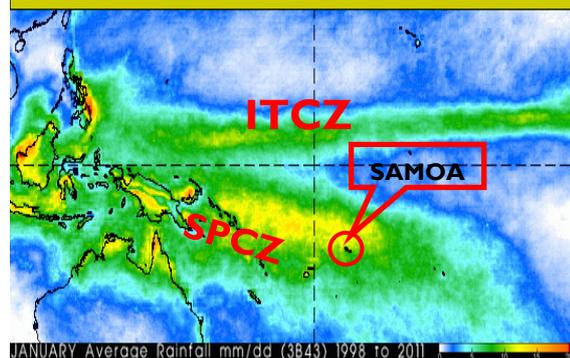


Figure 2: Normal Position of SPCZ in January



GLOBAL SCALE OBSERVATIONS

The Inter Tropical Convergence Zone (ITCZ) was weaker and was displaced north of its normal January position. The South Pacific Convergence Zone (SPCZ) was more active, however, it was disorganised and more shifted to the South West prior to its normal position. In regards to Figure 1, there was less rain activity over the Samoa Islands, which explains the rainfall status for the month of January, 2018.

LOCAL SCALE OBSERVATIONS

The Samoa Islands received “average to below Average” rainfall, with 9 stations that recorded “average”, 13 recorded “below average”, with the exception of Alafua, which recorded “above average” (Table 1, pg.2). The highest January rainfall was recorded at Afiamalu (879.5mm), with Nafanua (691.7mm) registering the second highest followed by Savalalo (609.0mm). On the other hand, Togitogiga received the least amount of rain with 246.0mm, followed by Gagaifo Lefaga of 260.6mm and Nuusuatia 274mm. Although it was the driest station, Togitogiga also recorded the highest number of rainy days of 30, followed by 29 days at Saletele and 28 days at Alafua. Matautu Falelatai received the highest one day fall of 97.6mm on the 17th of January, followed by Savalalo with 97.4mm on the 22nd and Nafanua with 93.8mm also on the 22nd. A shortwave trough associated with the South Pacific Convergence Zone (SPCZ) moving from east to west influenced the weather patterns during this time.

The disorganized of the SPCZ over Samoan Islands give reason as to why there was not much rainfall activity for the month of January 2018. However, a graphical representation of rainfall January 2017 vs January 2018 is displayed on Page 7, shows an increase in rainfall activity

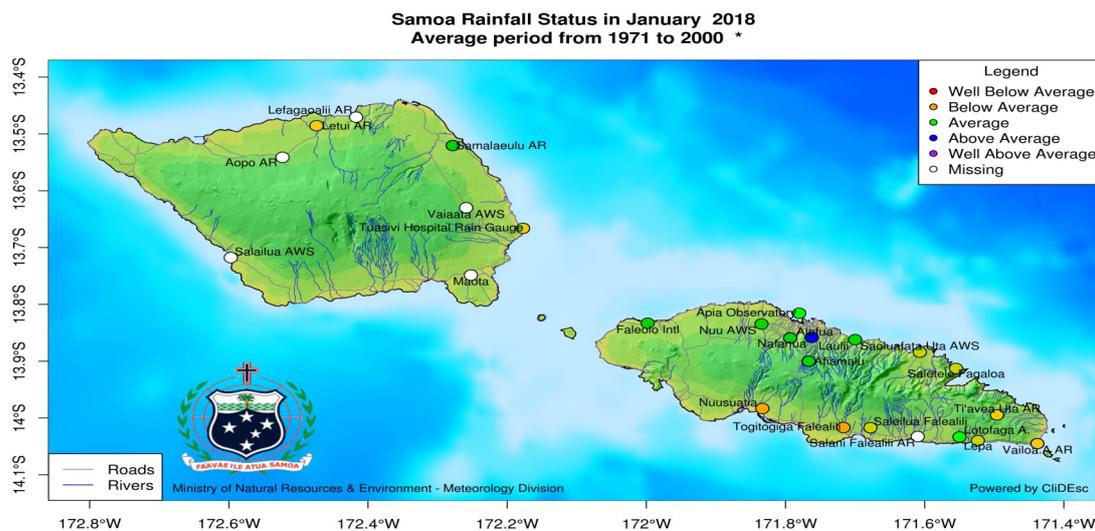
Table 1: Rainfall Statistics in January 2018

This table displays the rainfall status of all stations in the country during the month.

Stations	January Rainfall (mm)	January 30 Year Long Term Average	% of Average	1 day fall (mm)	Date	# of Rainy Days	Rainfall Status
UPOLU							
Afiamalu	879.5	744	118	89.0	9 th	29	Average
Alafua	553.3	426	129	78.6	9 th	28	Above Average
Apia	423.7	486	87	62.0	20 th	27	Average
Faleolo	277.8	345	81	47.8	21 st	21	Average
Gagaifo Lefaga	260.6	385	68	89.4	7 th	18	Below Average
Laulii	573.6	529	108	72.6	4 th	19	Average
Lepa	337.8	557	61	60.2	10 th	22	Below Average
Lotofaga	386.8	358	108	60.4	10 th	24	Average
Matautu Falelatai	419.1	744	56	97.6	17 th	24	Below Average
Nafanua	691.7	604	114	93.8	22 nd	27	Average
Nuu	351.8	426	83	36.0	10 th	25	Average
Nu'usuatia	274.0	361	76	46.8	7 th	23	Below Average
Saleilua	376.2	521	72	76.0	10 th	21	Below Average
Saletele	324.6	627	52	31.0	13 th	29	Below Average
Samalaeulu	393.2	460	85	64.4	10 th	22	Average
Saoluafata	368.0	607	61	84.4	10 th	25	Below Average
Savalalo	368.0	486	76	97.4	22 nd	26	Below Average
Tiavea	414.6	524	79	79.6	9 th	27	Below Average
Togitogiga	246.0	493	50	35.4	22 nd	30	Below Average
Vailoa Aleipata	282.6	391	72	68.8	10 th	21	Below Average
SAVAII							
Letui	458.8	704	65	81.2	3 rd	22	Below Average
Tuasivi	295.2	407	73	85.0	7 th	24	Below Average
Samalaeulu	393.2	460	85	64.4	10 th	23	Average

Figure 3: Rainfall Status Map in January 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

TEMPERATURE

Table 2: Air Temperature Statistics

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

Stations	Temperature (Degree Celsius)				
	Mean Daily Temperature (°C)	Extreme Temp Max (°C)	Date	Extreme Temp Min (°C)	Date
Afiamalu	22.2	27.9	16 th	16.4	03 rd
Alafua	26.7	33.2	02 nd	21.8	03 rd
Apia	N/A	N/A	N/A	22.5	21 st
Faleolo	28	33.7	19 th	23.0	20 th
Nuu	25	33.3	20 th	17.6	03 rd
Nafanua	N/A	N/A	N/A	19.4	28 th
Togitogiga	N/A	N/A	N/A	21.4	03 rd
N/A = Data Not Available					

The highest temperature of 33.7 °C was recorded at Faleolo station on the 19th, with Alafua with the second highest of 33.2 °C on the 02nd of January. On the contrary, Afiamalu registered the coolest night temperature of 16.4 °C on the 03rd, followed by Nuu with 17.6 °C on the same day. Clear skies recorded on January 3rd mainly contributed to the low records of minimum temperature across the stations. The mean daily temperature for January 2018 ranged from 22.2 °C–28 °C.

ATMOSPHERIC PRESSURE

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

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

Station	Highest MSL Pressure (hPa)	Date	Lowest MSL Pressure (hPa)	Date	Average MSL Pressure (hPa)
Apia	1012.6	17 th	1005.8	28 th	1009.5
Faleolo	1012.9	17 th	1005.9	28 th	1009.8

Faleolo registered the highest MSL pressure of 1012.9 hPa on the 19th, while Apia recorded the lowest MSL pressure of 1005.8 hPa. The average MSL pressure for Apia was near normal. (1009 hPa).

(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 January 2018.

Figure 4a : Apia Station

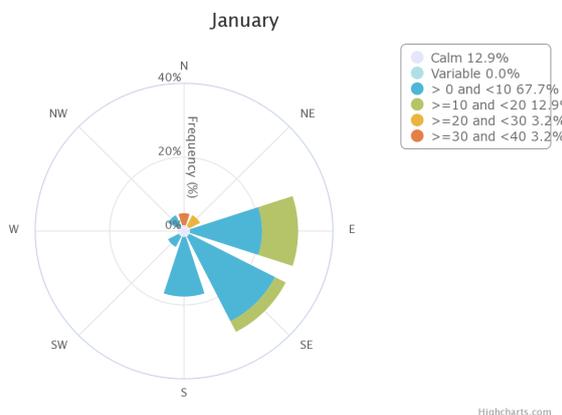
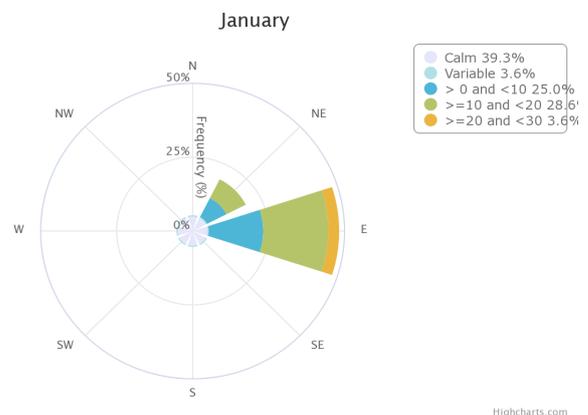


Figure 4b: Faleolo Station



For Apia station (Figure 4a), predominant East to South Easterly winds were recorded, occurring 30.7% and 30.6% respectively. Light winds (0–10 km/hr) were the prevailing wind speeds occupying 67.7%, with noticeable moderate (20 km/hr–30 km/hr) and strong winds (> 30 km/hr) travelling from the North. Faleolo station (Figure 4b) was dominated by the easterly winds with winds speed that varied from light to gentle winds. Moderate winds were also recorded.

Figure 4c : Afiamalu Station

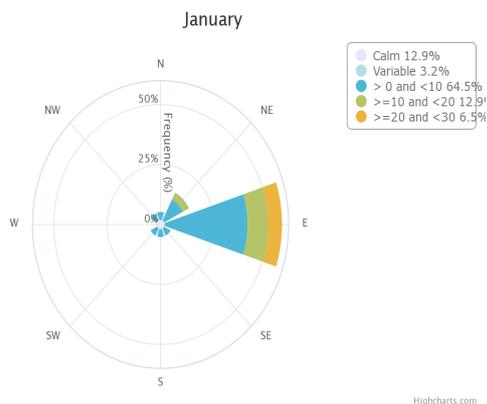
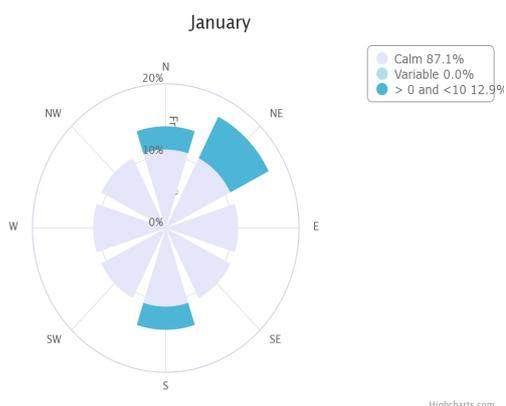


Figure 4d: Alafua Station



For Afiamalu station, Easterly winds were dominant occupying 56.5%, with prevailing Light winds (0–10 km/hr). Moreover, gentle and moderate winds were also registered for the month of January.

Calm conditions were significant for Alafua station, where it occupied 87.1% of the time. Nevertheless, North Easterly winds were still registered with 17.4% occurrence.

EL NINO SOUTHERN OSCILLATION (ENSO)

CURRENT ENSO STATUS

Weak La Nina still ongoing yet weakens as ENSO indicators retreated from La Nina conditions. Climate models are suggesting the event to subside in the southern hemisphere autumn (March–May 2018). ENSO atmospheric indicators such as trade winds and cloudiness continue to reflect La Nina. Sea surface temperature (SST) shows weakening of the warm anomalies in the western region. Southern Oscillation Index remains neutral yet weakly positive.

Atmospheric Indicator of ENSO

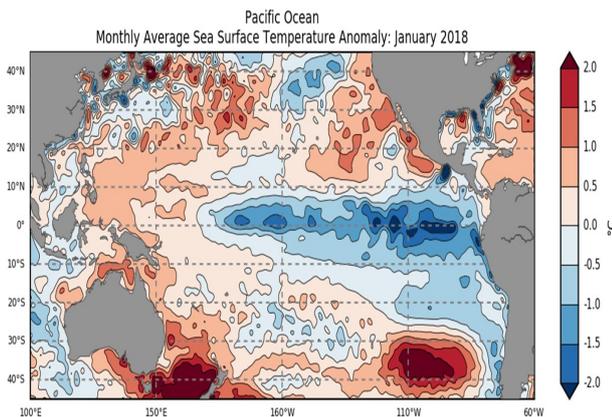
Southern Oscillation Index (SOI)

Southern Oscillation Index (SOI) value to 13th of February (30 day value) is +3, with the 90 day value of +2. These values clearly indicates that the La Nina event is nearing its end.

(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.)

Oceanic Indicator of ENSO

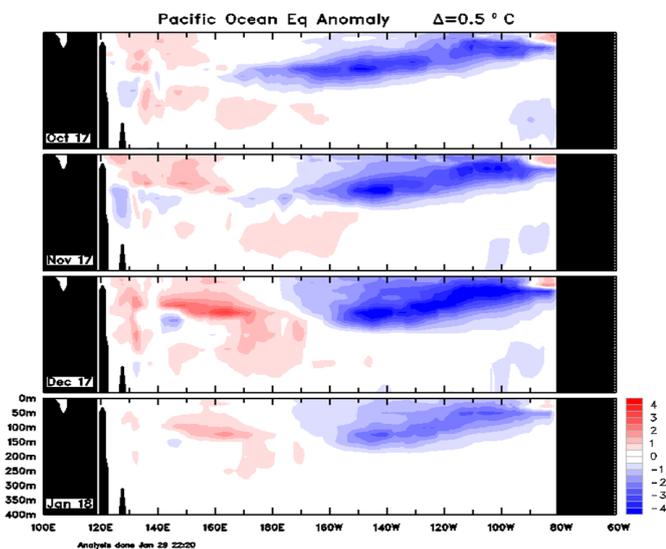
Figure 5: Sea Surface Temperature January 2018.



Sea surface temperature (SST) remain cooler than average, but have slightly warmed in the last fortnight. Warm waters were concentrated in the Eastern Pacific Ocean. South eastern Australia also experienced warm anomalies that extended through New Zealand. Cooler anomalies can be seen stretching from the Western side of South America, just over the equator.

The January value for NINO3 was $-0.8\text{ }^{\circ}\text{C}$, NINO3.4 $-0.6\text{ }^{\circ}\text{C}$, and NINO4 $-0.2\text{ }^{\circ}\text{C}$. These indices were cooler than December values.

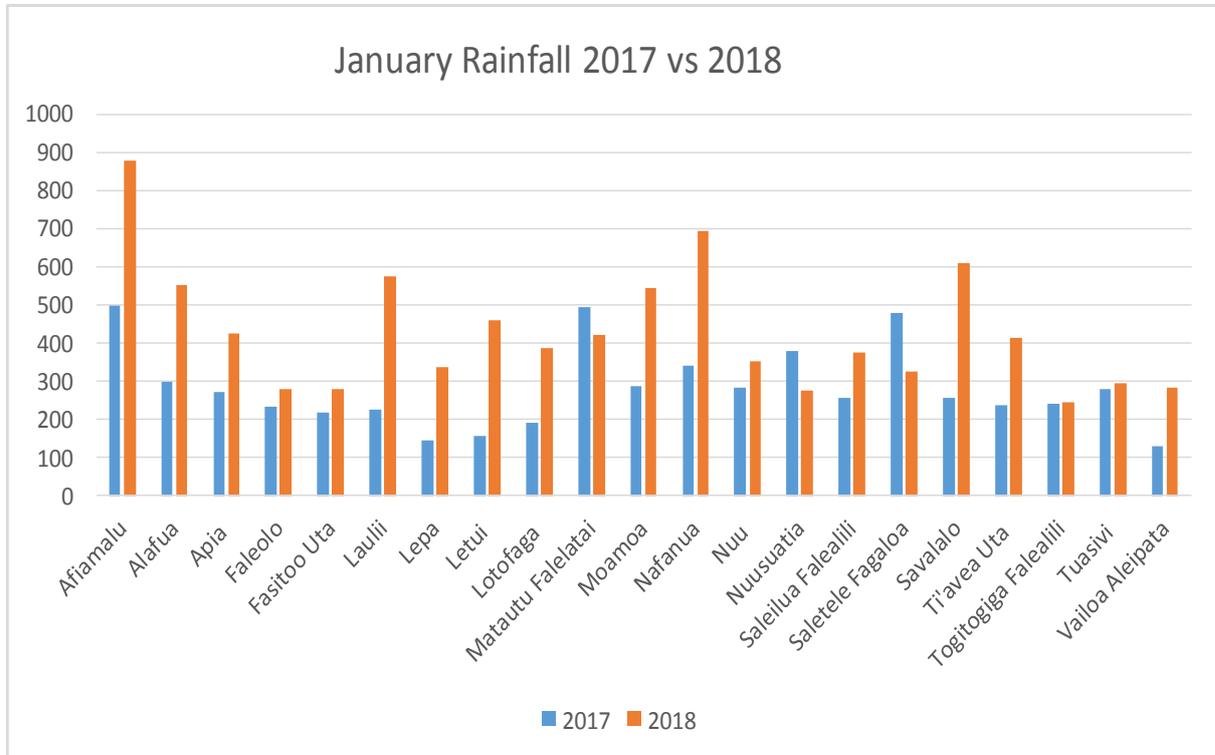
Figure 6: Sub-surface Temperature



The cooler water anomalies observed the central to the far eastern equatorial region in the last 4 months have weakened in January. A clear indication of the La Nina event weakening. Similarly, the warm anomalies in the western Pacific down to 150m depth have also weakened.

APPENDIX

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



Generally, January 2018 received more rainfall compared to January 2017, with the exception of a few stations. Afiamalu station recording a significant amount of rainfall for January 2018, compared to the previous year.