

Seasonal rainfall Outlook : March to May 2019

Samoa Meteorology Division (SMD)

Ministry of Natural Resources and Environment



[www.facebook.com/Samoa Meteorological Services](http://www.facebook.com/Samoa_Meteorological_Services)



www.samet.gov.ws



(685) 20855/20856



Summary Statements

Issued: February

- While the ENSO status remains neutral, the cooling of SSTs has decreased the likelihood of an El Nino event to occur from 70% as issued in the last couple of months to 50% chance. Therefore, an El Nino Watch is in place for the next couple of months. (Pg 2)
- Models suggest an 'average to above average' rainfall conditions for the three month period of March to May 2019. (Pg 1)
- In the next six months, 'average to below average' rainfall is expected (June to August). (Pg 2)
- The last three months generally received "average" rainfall, which was consistent with the forecast for most of the stations. The wettest station was registered at Afiamalu station, having received 1918.2mm. These wet conditions are reflected in table 3 (Pg 3).
- December was the wettest month of the three monthly period November 2018 to January 2019. (Pg 4)

Table 1: Three (3) months rainfall outlook : March to May 2019 period

*These outlooks are generated from the statistical model—SCOPIIC. International guidance from climate models such as IRI, METPI, ECMWF, APCC, POAMA, and others were also incorporated in these forecasts. Note : stations with * used POAMA to generate their rainfall predictions.*

The prediction for the upcoming 3 months is expected to receive 'average to above average' rainfall.

Location	Rainfall Prediction	Below Average (mm)	Average (mm)	Above Average (mm)
Afiamalu	Average to Above Average	<1022	1022-1300	>1300
Afulilo*	Average to Above Average	<795	795-1108	>1108
Alafua	Average to Above Average	<593	593-824	>824
Aopo*	Average to Above Average	<795	795-1108	>1108
Apia	Average to Above Average	<665	665-846	>846
Faleolo	Average to Above Average	<492	492-627	>627
Fasitoo*	Average to Above Average	<795	795-1108	>1108
Fiaga*	Average to Above Average	<795	795-1108	>1108
Laulii	Average to Above Average	<786	786-1182	>1182
Leauvaa*	Average to Above Average	<795	795-1108	>1108
Letui*	Average	<795	795-1108	>1108
Lepa*	Average	<795	795-1108	>1108
Lotofaga	Average	<777	777-1078	>1078
Maota*	Average	<795	795-1108	>1108
Nafanua	Average to Above Average	<820	820-1024	>1024
Neiafu*	Average	<795	795-1108	>1108
Nuusuatia*	Average	<795	795-1108	>1108
Salailua*	Average	<795	795-1108	>1108
Salani*	Average	<795	795-1108	>1108
Saleilua*	Average	<795	795-1108	>1108
Saoluafata*	Average to Above Average	<795	795-1108	>1108
Savalalo*	Average	<795	795-1108	>1108
Tiavea	Average to Above Average	<815	815-1087	>1087
Togitogiga	Average to Above Average	<795	795-1108	>1108
Tuasivi*	Average to Above Average	<795	795-1108	>1108
Vaiaata*	Average to Above Average	<795	795-1108	>1108

Table 2: 6 months Rainfall Outlook— June to August 2019 period

These outlooks are based upon the period December to January 2019 (Southern Oscillation Index (SOI) values)

“Average to Below Average” is anticipated for the six monthly period.

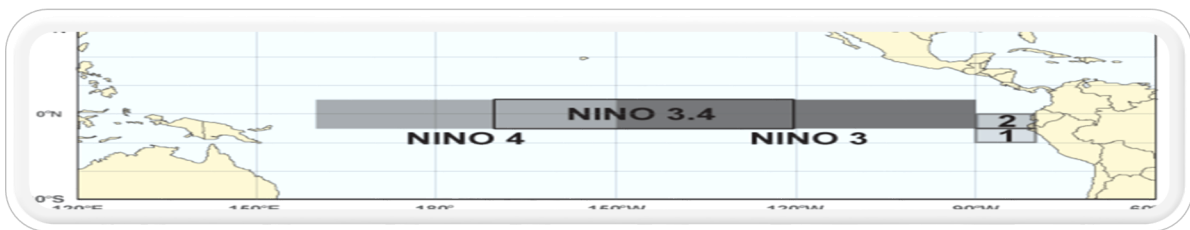
Region	Rainfall Prediction	Below Average (mm)	Average (mm)	Above Average (mm)
Afiamalua	Average to Below Average	<508	508-669	>669
Alafua	Average to Below Average	<227	227-427	>427
Apia	Average to Below Average	<253	253-410	>410
Faleolo	Average to Below Average	<208	208-348	>348
Laulii	Average to Below Average	<324	324-472	>472
Nafanua	Average to Below Average	<297	297-498	>498
Tiavea	Average to Below Average	<725	725-1075	>1075

El Nino Southern Oscillation (ENSO) Outlook

CURRENT SITUATION OF ENSO

After exceeding El Nino thresholds in the later parts of 2018, the Sea Surface Temperatures (SSTs) have been observed to cool in recent weeks, but still warmer than average. Therefore, the ENSO status is currently at neutral, with a decreasing likelihood of an El Nino to occur. Moreover, warmer than average sub surface temperatures persist in the Central and western equatorial region. In saying this, values for NINO3 were +0.5 °C, NINO3.4 +0.5 °C, and NINO4 +0.7 °C. On the other hand, atmospheric indicators such as the Southern Oscillation Index (SOI), trade winds and cloudiness all continue to remain neutral, making an El Nino event (which needs to be coupled) difficult to develop.

Figure 1. Nino Indices



ENSO OUTLOOK

Models have mixed predictions with most forecasting the SSTs to sustain warm but neutral levels. Several other models also indicate a surge in warm SSTs in February. The ENSO outlook therefore suggests a 50% chance of an El Nino event to occur late in the season.

Figure 2. Model Outlooks for Nino 3.4

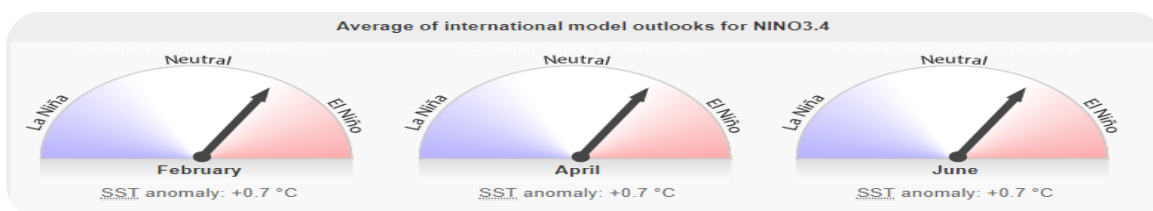


Table 3: Issued Forecast Verification for Three Monthly Rainfall (November 2018 to January 2019)

This table shows the verification of the forecast for the last 3 months. This was the rainfall forecast that was issued in October 2018 for the period of November 2018 to January 2019. These outlooks were generated using SOI values of August to September 2018.

(N.B : The stations with complete set of data throughout out the three monthly period are used for this analysis).

Climate Stations	Three Monthly Total Rainfall (mm)	Long Term Average (mm)	Three Monthly Rainfall Status	Rainfall Prediction for November 2018 to January 2019	Verification of Forecast
Afiamalu	1918.2	1744	Average	Average	Consistent
Alafua	965.4	1141	Average	Average to Below Average	Consistent
Aopo	1692.4	1333	Above Average	Average	Near Consistent
Apia	858.6	1101	Below Average	Average to Below Average	Consistent
Faleolo	810.9	759	Average	Average to Below Average	Consistent
Laulii	1173.3	1320	Average	Average to Below Average	Consistent
Leauvaa	886.2	1587	Below Average	Average to Below Average	Consistent
Lepa	1287.3	1624	Below Average	Average	Near Consistent
Nafanua	1065.2	1294	Average	Average	Consistent
Nuusuatia	1574.2	1025	Above Average	Average	Near Consistent
Saleilua	1305.6	1496	Average	Average	Consistent
Saoluafata	1279.6	1397	Average	Average to Below Average	Consistent
Ti'avea Uta	1697.0	1299	Above Average	Average	Near Consistent
Tuasivi	931.8	923	Average	Average to Below Average	Consistent
Vaiaata	1496.4	1798	Average	Average	Consistent
Vailoa.A	775.9	981	Below Average	Average	Near Consistent

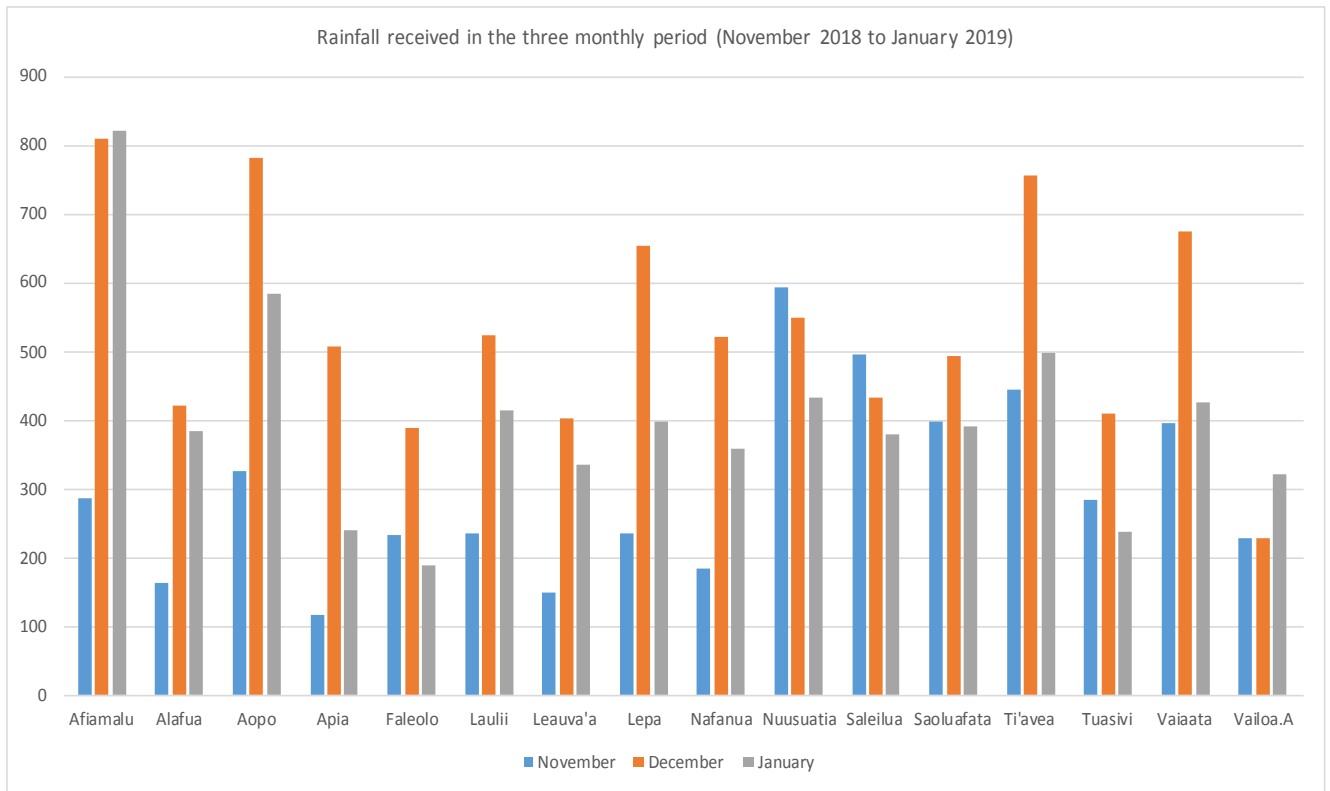
Rainfall statuses are defined as they deviate from normal (in percentage) as shown in this key :

Well Below Average < 40%	Below Average 40% - 80%	Average 80% - 120%	Above Average 120% - 160%	Well Above Average > 160%
-----------------------------	----------------------------	-----------------------	------------------------------	------------------------------

The first three months of the wet season provided sufficient rainfall for the group, with most stations accumulating rainfall over 1000mm. Table 3 shows that the highest rainfall of 1918.2mm was recorded at Afiamalu followed by Ti'avea, having received 1697.0mm. Although wet conditions was observed, table 3 shows that 4 stations registered 'below average' rainfall. Most stations recorded 'average' rainfall, with 'above average' registered at Aopo, Nuusuatia ad Tiavea station. In addition, the outlook for the three month period of November 2018 to January 2019 generally shows it to be consistent with the observed rain received within this period. Moreover, December was the wettest month as shown by Figure 1.

APPENDIX

Figure 2: Accumulated Total Rainfall from November 2018 to January 2019 period.



Observations show wet conditions for the first half of the wet season. Referring to Figure 2, most of the stations received rainfall above 300mm. A series of low pressure systems and the persisting easterly wind flow provided sufficient rainfall. It was also observed that a tropical depression that was positioned south west of Samoa caused unstable weather for the month of January, which later on developed into a Tropical Cyclone Mona.