



Seasonal Rainfall Outlook: December 2017 to February 2018

Samoa Meteorology Division (SMD)

Ministry of Natural Resources and Environment

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Summary Statements

- ◆ ENSO - Neutral remains with 50% chance of La Nina for the end of 2017. Pg 2
- ◆ 'Average' rainfall is expected for the highlands and southern region while 'average to below average' rainfall is predicted for the rest of the Samoa in the coming season. (Table 1)
- ◆ Generally, 'average' rainfall is anticipated for the six monthly rainfall outlook for March to May 2018. (Table 2) Pg 2
- ◆ Generally, 'average' rainfall was received in August to October 2017 period. October was the wettest of the 3 monthly period. The outlook was verified to be 'consistent' for all stations. (Pg 3)

Table 1: Three (3) months rainfall outlook - Dec 2017 to Feb 2018 period

These outlooks are generated from the statistical model—SCOPIG. International guidance from climate models such as IRI, METPI, ECMWF, APCC, POAMA, and others were also incorporated in these forecasts.

'Average' rainfall is expected for the highlands and southern region whereas 'average to below average' rainfall is forecast for the rest of Samoa in the coming season.

Region	Rainfall Prediction	Below Average	Average	Above Average
Afiamalu	Average	<1621mm	1621mm - 2245mm	>2245mm
Afulilo*	Average	<892mm	892mm - 1361mm	>1361mm
Alafua	Average	<320mm	320mm - 502mm	>502mm
Aopo*	Average to Below Average	<892mm	892mm - 1361mm	>1361mm
Apia	Average to Below Average	<1012mm	1012mm - 1321mm	>1321mm
Faleolo	Average to Below Average	<763mm	763mm - 917mm	>917mm
Fasitoo*	Average to Below Average	<892mm	892mm - 1361mm	>1361mm
Fiaga*	Average	<892mm	892mm - 1361mm	>1361mm
Laulii	Average to Below Average	<892mm	892mm - 1361mm	>1361mm
Leauvaa*	Average to Below Average	<892mm	892mm - 1361mm	>1361mm
Letui*	Average to Below Average	<892mm	892mm - 1361mm	>1361mm
Lepa*	Average	<288mm	288mm - 461mm	>461mm
Lotofaga	Average	<904mm	904mm - 1186mm	>1186mm
Maota*	Average	<892mm	892mm - 1361mm	>1361mm
Nafanua	Average	<393mm	393mm - 537mm	>537mm
Neiafu*	Average to Below Average	<892mm	892mm - 1361mm	>1361mm
Nuusuatia*	Average	<892mm	892mm - 1361mm	>1361mm
Salailua*	Average	<460mm	460mm - 794mm	>794mm
Salani*	Average	<124mm	124mm - 837mm	>837mm
Saleilua	Average	>1282mm	1282mm - 1363mm	>1363mm
Saoluafata*	Average	<892mm	892mm - 1361mm	>1361mm
Savalalo*	Average to Below Average	<271mm	271mm - 441mm	>441mm
Tiavea	Average	<892mm	892mm - 1361mm	>1361mm
Togitogiga	Average	<892mm	892mm - 1361mm	>1361mm
Tuasivi*	Average	<892mm	892mm - 1361mm	>1361mm
Vaiaata*	Average	<892mm	892mm - 1361mm	>1361mm

Table 2: 6 months Rainfall Outlook— March to May 2018 period

These outlooks are based upon the September to October 2017 period (Southern Oscillation Index (SOI) values)

The outlook for the upcoming season is anticipating 'average' rainfall across Samoa.

Region	Rainfall Prediction	Below Average	Average	Above Average
Afiamalu	Average	<1016mm	1016mm - 1300mm	>1300mm
Alafua	Average	<198mm	198mm - 274mm	>274mm
Apia	Average	<665mm	665mm - 842mm	>842mm
Faleolo	Average	<492mm	492mm - 623mm	>623mm
Nafanua	Average	<270mm	270mm - 340mm	>340mm

El Nino Southern Oscillation (ENSO) Outlook

CURRENT SITUATION OF ENSO

The ENSO remains 'Neutral' however, climate models are suggesting a 50% chance La Nina will form in late 2017 as the tropical ocean continue to cool. In October, the sea surface temperature (SST) anomalies were cooler than average in the eastern equatorial and far southeast Pacific ocean. The Nino Index values in September and October were identical with slightly cooler conditions re-established in early November. October values for Nino 3.4, Nino 3 and Nino 4 regions recorded -0.3, -0.4, +0.1 respectively. In terms of sub-surface water temperature the anomalies in October were similar to September however very slightly weaker in October. Large body of cool anomalies are evident at 160°W towards the far east. Other indicators of ENSO such as the trade winds, southern oscillation index (SOI) remains in neutral range but leaning towards La Nina. The 30 day SOI value as recorded on 11th November was +6 whereas the 90 day value was +8.

ENSO OUTLOOK

Climate models are forecasting sea surface temperatures in the tropical pacific to reach or exceed La Nina thresholds by November. However, in order for a La Nina event to be fully established these indicators need to be sustained for at least three consecutive months. Additionally, if a La Nina does occur this year it is likely to be weak and short lived.

Table 3: Issued Forecast Verification for Three Monthly Rainfall (August to October 2017)

This table shows the verification of the forecast for the last 3 months. This was the rainfall forecast that was issued in July 2017 for the period of August to October 2017. These outlooks were generated using SOI values of April to June 2017.

Climate Stations	Three Monthly Total Rainfall (mm)	Long Term Average (mm)	Three Monthly Rainfall Status	Rainfall Prediction for August to October 2017 period	Verification of Forecast
Afiamalu	831.4	739	Average	Average to Below Average	Consistent
Alafua	597.8	563	Average	Average to Below Average	Consistent
Apia	552.7	488	Average	Average to Below Average	Consistent
Faleolo	431.8	350	Above Average	Average to Below Average	Near consistent
Lepa	733.3	855	Average	Average to Below Average	Consistent
Letui	680.0	584	Average	Average to Below Average	Consistent
Lotofaga Aleipata	878.7	848	Average	Average to Below Average	Consistent
Nafanua	560.6	503	Average	Average to Below Average	Consistent
Nuu	491.2	563	Average	Average to Below Average	Consistent
Salani Falealili	891.6	848	Average	Average to Below Average	Consistent
Salailua	699.8	610	Average	Average to Below Average	Consistent
Saleilua Falealili	1025.7	1123	Average	Average to Below Average	Consistent
Savalalo	443.7	488	Average	Average to Below Average	Consistent
Tiavea Uta	681.4	914	Below Average	Average to Below Average	Consistent
Togitogiga	1058.4	1328	Average	Average to Below Average	Consistent
Vailoa Aleipata	522.6	510	Average	Average to Below Average	Consistent

Generally, 'average' rainfall was recorded across most of the stations. The wettest station during August to October 2017 period was Togitogiga with 1058.4mm followed by 1025.7mm recorded at Saleilua Falealili. Conversely, the driest station was Faleolo with 431.8mm. The forecast in April for August to October 2017 period anticipated an 'average to below average' rainfall and this was verified to be consistent in all stations except for Faleolo station. Significantly, the wettest month of the three monthly period as shown in Figure 1 (pg 4) was October.

APPENDIX

Figure 1: Accumulated Total Rainfall from August to October 2017 period.

