



Seasonal Rainfall Outlook: April to June 2017

Samoa Meteorology Division (SMD)

Ministry of Natural Resources and Environment

NOTICE

The Temperature Outlook will be disseminated separately from the Rainfall Outlook bulletin as a consequence of delayed availability of climate models projections being monitored by SMD.

Summary Statements

- ◆ Neutral conditions of El Niño Southern Oscillation (ENSO) remains with favorable conditions for El Niño development in late 2017. Pg 2
- ◆ Generally, “average to below average” rainfall is anticipated for Samoa through the April to June 2017 period. (Table 1)
- ◆ “Average to below average” rainfall is expected for the six (6) monthly rainfall outlook for July to September 2017. (Table 2)
- ◆ Generally, “average” low precipitation was received in December 2016 to February 2017 period. The outlook was verified to be ‘consistent’ for all stations. (Pg 5)

ISSUED: MARCH 2017

Table 1: Three (3) months rainfall outlook - April to June 2017 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.

‘Average to below average’ rainfall is predicted for the next three (3) months.

Region	Rainfall Prediction	Below Average	Average	Above Average
Afiamalu	Average to Below Average	<752mm	752mm - 952mm	>952mm
Afulilo	Average to Below Average	<486mm	486mm - 628mm	>628mm
Alafua	Average to Below Average	<385mm	385mm - 633mm	>633mm
Aopo*	Average to Below Average	<486mm	486mm - 628mm	>628mm
Apia	Average to Below Average	<455mm	455mm - 648mm	>648mm
Faleolo	Average to Below Average	<343mm	343mm - 458mm	>458mm
Fasitoo	Average to Below Average	<437mm	437mm - 644mm	>644mm
Fiaga*	Average to Below Average	<486mm	486mm - 628mm	>628mm
Laulii*	Average to Below Average	<547mm	547mm - 751mm	>751mm
Leauvaa*	Average to Below Average	<486mm	486mm - 628mm	>628mm
Letui*	Average to Below Average	<486mm	486mm - 628mm	>628mm
Lepa	Average to Below Average	<916mm	916mm - 1067mm	>1067mm
Maota	Average to Below Average	<486mm	486mm - 628mm	>628mm
Nafanua	Average to Below Average	<509mm	509mm - 735mm	>735mm
Neiafu*	Average to Below Average	<486mm	486mm - 628mm	>628mm
Nuusuatia	Average to Below Average	<718mm	718mm - 980mm	>980mm
Salailua*	Average to Below Average	<486mm	486mm - 628mm	>628mm
Salani*	Average to Below Average	<103mm	103mm - 707mm	>707mm
Samalaeulu*	Average to Below Average	<486mm	486mm - 628mm	>628mm
Saoluafata*	Average to Below Average	<486mm	486mm - 628mm	>628mm
Savalalo*	Average to Below Average	<486mm	486mm - 628mm	>628mm
Tiavea	Average to Below Average	<737mm	737mm - 1022mm	>1022mm
Togitogiga	Average to Below Average	<861mm	861mm - 1292mm	>1292mm
Tuasivi*	Average to Below Average	<486mm	486mm - 628mm	>628mm
Vaiaata*	Average to Below Average	<486mm	486mm - 628mm	>628mm

Table 2: 6 months Rainfall Outlook— July to September 2017 period

These outlooks are based upon the December 2016 to February 2017 period (Southern Oscillation Index (SOI))

Average to below average rainfall is expected for the next six (6) months.

Region	Rainfall Prediction	Below Average	Average	Above Average
Afiamalu	Average to Below Average	<476mm	476mm - 671mm	>671mm
Alafua	Average to Below Average	<148mm	148mm - 476mm	>476mm
Apia	Average to Below Average	<251mm	251mm - 423mm	>423mm
Faleolo	Average to Below Average	<208mm	208mm - 358mm	>358mm
Nafanua	Average to Below Average	<313mm	313mm - 498mm	>498mm
Lepa	Average to Below Average	<605mm	605mm - 836mm	>836mm
Togitogiga	Average to Below Average	<871mm	871mm - 1284mm	>1284mm
Tiavea	Average to Below Average	<732mm	732mm - 993mm	>993mm

El Nino Southern Oscillation (ENSO) Outlook

CURRENT SITUATION OF ENSO

The tropical Pacific is currently in 'Neutral' state - neither El Nino nor La Nina. The sea surface temperature waters are generally close to average in the equatorial central equatorial region with +1.0°C warmer water in the far eastern Pacific and +2.0°C. There is also increased warming anomalies present in western part of the Pacific and across the south of the equator. All the Nino indices region which are used to monitor migration of warm sea surface temperature have all increased since January 2017—Nino 3 increased from 0.0°C to +0.5°C, Nino 3.4 enhanced from -0.3°C to 0.0°C and Nino 4 remained at -0.1°C. Moreover, the Southern Oscillation Index (SOI) has been generally within the neutral range since mid -October 2016. The SOI 90 days value is +1.3

ENSO OUTLOOK

The climate model surveyed and monitored indicated that there is an increased warming of the Pacific Ocean which also favours the possibility of El Nino to form later this year. The SOI has also been trending downwards. Although these factors lead up to El Nino formation; the trade winds and cloudiness near the international dateline do not show any significant shift from the neutral. Climate models prediction shows a continuous and steady warming of the central tropical ocean in the coming months with prediction of El Nino threshold to reach by July 2017. However, these predictions are cautiously handled due to low accuracy of models projections at this time of the year.

(El Nino is one major driver of Samoa's rainfall and temperature. El Nino could affect the normal rainfall pattern in Samoa generally resulting in reduced rainfall or drought. Day time temperatures tend to be hotter than normal over the country. Past El Nino events have been one cause of Forest Fires in Asau (North West of Savaii island). Different parts of the country may experience varying rainfall impacts. As a consequence of this rainfall deficit, the following sectors could be severely impacted: Water, Agriculture, Health, Energy (HydroPower), Tourist (Accommodation Facilities) and Forestry.)

Table 3: Issued Forecast Verification for Three Monthly Rainfall (December 2016 to February 2017)

This table shows the verification of the forecast for the last 3 months. This was the rainfall forecast that was issued in October for the period of December 2016 to January 2017. These outlooks were generated using SOI values of July to September 2016.

Climate Stations	Three Monthly Total Rainfall (mm)	Long Term Average (mm)	Three Monthly Rainfall Status	Rainfall Prediction for December 2016 to February 2017 period	Verification of Forecast
Afiamalu	2303.6	1919	Average	Average to Above Average	Consistent
Alafua	1739.1	1280	Above average	Average to Above Average	Consistent
Apia	1374.1	1191	Average	Average to Above Average	Consistent
Faleolo	890.3	819	Average	Average to Above Average	Consistent
Laulii	1498.8	1371	Average	Average to Above Average	Consistent
Nafanua	1737.1	1500	Average	Average to Above Average	Consistent
Salani	978.4	1036	Average	Average to Above Average	Consistent
Tiavea	1124.8	1276	Average	Average to Above Average	Consistent
Togitogiga	1019.3	1246	Average	Average to Above Average	Consistent
Nuusuatia	1193.0	1018	Average	Average to Above Average	Consistent
Lepa	790.0	1439	Below average	Average to Above Average	Near consistent

Generally, 'average' precipitation recorded in December 2016 to February 2017 period with Alafua registered 'above average' and Lepa recorded 'below average' rainfall. The wettest station in these three months was Afiamalu with 2303.6mm followed by 1739.1mm at Alafua and 1737.1mm at Nafanua. Conversely, the driest station recorded 790.0mm at Lepa followed by 890.3mm at Faleolo and 978.4 mm at Salani station. December 2016 to February 2017 was anticipated to receive 'average to above average' accumulated rainfall across the country and all stations were 'consistent' with the outlook with Lepa being 'near consistent'. December 2016 and February 2017 were the wettest months of this three months period as illustrated in Figure 1 in Appendix.

Table 4: Temperature Outlook Verification— December 2016 to February 2017

This table shows the verification of the temperature forecast for the last 3 months which was issued in October 2016. These were generated using the Nino 3.4 Values of July to September 2016 period.

MAXIMUM TEMPERATURE						
Region	Below Average (°C)	Average (°C)	Above Average (°C)	Observed Mean Maximum (°C)	Temperature Prediction Issued	Verification
Apia	<30.2	30.2 - 30.6	>30.6	32.6	Below Average	Inconsistent
Afiamalu	<25.4	25.4 - 26.0	>26.0	25.7	Below Average	Near Consistent
Faleolo	<30.7	30.7 - 31.0	>31.0	31.8	Below Average	Inconsistent

MINIMUM TEMPERATURE						
Region	Below Average (°C)	Average (°C)	Above Average (°C)	Observed Mean Minimum	Temperature Prediction Issued	Verification
Apia	<23.7	23.7 - 24.3	>24.3	25.5	Below Average	Inconsistent
Afiamalu	<19.2	19.2 - 19.6	>19.6	19.6	Below Average	Near Consistent
Faleolo	<23.8	23.8 - 24.3	>24.3	25.3	Below Average	Inconsistent

APPENDIX

Figure 1: Accumulated Total Rainfall from December 2016 to February 2017 period.

