

Pacific Islands - Online Climate Outlook Forum (OCOF) No. 110

Country Name: Tonga

TABLE 1: Monthly Rainfall

Station (include data period)	October 2016						
	August 2016 Total	September 2016 Total	October 2016 Total	33%tile Rainfall (mm)	67%tile Rainfall (mm)	Median Rainfall (mm)	Ranking
Northern Division							
Niuafo'ou	113.4	101.9	182.3	137	189.6	157	27/44
Niuaotoputapu	73.3	255.7	200.0	111.7	214.3	152.5	42/67
Central Division							
Vava'u	304.3	11.9	253.6	94	172	135.6	59/70
Ha'apai	147.9	38.5	129.5	56.7	121	94.5	51/70
Southern Division							
Nuku'alofa	306.7	9.0	72.2	53.7	129.3	89	32/72
Fua'amotu	297.2	11.9	137.3	46.5	109	72.6	31/37

TABLE 2: Three-monthly Rainfall August to October 2016

[Please note that the data used in this verification should be sourced from table 3 of OCOF #106]

Station	Three-month Total	33%tile Rainfall (mm)	67%tile Rainfall (mm)	Median Rainfall (mm)	Ranking	Forecast probs.* (include LEPS)	Verification* (Consistent, Near-consistent, Inconsistent?)
Northern Division							
Niuafo'ou	396.5	313	649	407.9	22/44	35,28,37 (-2.6)	Near consistent
Niuaotoputapu	529	270.7	484.3	331.6	49/67	44,30,26 (0.4)	Inconsistent
Central Division							
Vava'u	569.8	308.7	467.9	386	61/70	37,34,29,(-1.1)	Inconsistent
Ha'apai	315.9	235.3	358	276.4	38/70	43,40,17 (5.7)	Near consistent
Southern Division							
Nuku'alofa	387.9	263.8	395.3	341	44/72	38,42,20 (2.4)	Consistent
Fua'amotu	446.4	278	399.7	342	27/37	32,33,35 (-3.1)	Consistent

Predictors and Period used for July to August 2016 Outlooks (refer to OCOF #106):

Period: *below normal/normal/above normal

* Forecast is consistent when observed and predicted (tercile with the highest probability) categories coincide (are in the same tercile).

Forecast is near-consistent when observed and predicted (tercile with the highest probability) differ by only one category (i.e. terciles 1 and 2 or terciles 2 and 3).

Forecast is inconsistent when observed and predicted (tercile with the highest probability) differ by two categories (i.e. terciles 1 and 3).

**TABLE 3: Seasonal Climate Outlooks using SCOPIC for
December 2016 to February 2017-Tercile Method**

Predictors and Period used: NINO 3.4 (September - October 2016)

Station	Below Normal (prob)	33%ile rainfall (mm)	Normal (prob)	66%ile rainfall (mm)	Above Normal (prob)	LEPS (%)	Hit-rate (%)
Northern Division							
Niuafo'ou (1971-2016)	20	715.7	41	950.3	39	3.4	38.5
Niutopotapu (1947-2016)	12	626	44	887	44	19.2	60.7
Central Division							
Vava'u (1947-2016)	21	611.7	32	885.5	47	21.2	53.8
Ha'apai (1947-2016)	14	433	40	675.3	46	21.8	54.5
Southern Division							
Nuku'alofoa(1944-2016)	17	439.3	34	729.7	49	25	56.1
Fua'amotu(1980-2016)	15	412	28	788.3	57	20.8	50

**TABLE 3: Seasonal Climate Outlooks using SCOPIC for
December 2016 to February 2017**

Predictors and Period used: NINO 3.4 September – October 2016

Station	Below Median (prob)	Median Rainfall (mm)	Above Median (prob)	LEPS	Hit-rate
Northern Division					
Niuafo'ou (1971-2016)	41	843.5	59	4.5	64.1
Niutopotapu (1947-2016)	37	727.5	63	12.4	70.5
Central Division					
Vava'u (1947-2016)	37	734	63	14.5	69.2
Ha'apai(1947-2016)	28	575	72	31.8	72.7
Southern Division					
Nuku'alofoa(1944-2016)	29	545.5	71	29.5	69.7
Fua'amotu (1980-2016)	19	556.6	81	33.6	72.2

**TABLE 4: Seasonal Climate Outlooks using POAMA2 for
November 2016 to January 2017**

Station	Lower Tercile (prob)	33%ile rainfall (mm)	Middle Tercile (prob)	66%ile rainfall (mm)	Upper Tercile (prob)
Northern Division					
Niuafou'ou	15.2	671	24.2	933	60.6
Niutopotapu	15.2	618	24.2	823	60.6
Central Division					
Vava'u	12.1	596	24.3	882	63.6
Ha'apai	12.1	347	24.3	618	63.6
Southern Division					
Nuku'alofa	15.2	384	9.0	642	75.8

Summary Statements

Rainfall for October 2016:

Northern division: Normal

Central division: Above normal

Southern division: Normal to Above normal

Accumulated rainfall for August to October

2016, including outlook verification:

Northern division: Normal rainfall in Niuafou'ou and above normal in Niutopotapu. Forecast was near consistent for Niuafou'ou and Inconsistent for Niutopotapu.

Central division: Above normal rainfall in Vava'u, and normal in Ha'apai. Forecast was Inconsistent for Vava'u and near consistent for Ha'apai.

Southern division: Normal rainfall in Nuku'alofa and above normal in Fua'amotu. Forecast was consistent.

Outlooks for December 2016 to February 2017:

1. SCOPIC:

Northern division: There is an equal likelihood of normal and above normal rainfall at Niuafou'ou and Niutopotapu. Confidence is Exceptional

Central division:

The seasonal rainfall outlook favours above normal with normal rainfall the next most likely. Confidence is Exceptional.

Southern division: The seasonal rainfall outlook favours above normal with normal the next most likely. Confidence is Exceptional.

2. POAMA:

POAMA seasonal outlook for all stations for December 2016 to February 2017 shows above normal rainfall is favoured across Tonga.

NB: The X LEPS % score has been categorised as follows:

Very Low: $X < 0.0$

Low: $0 \leq X < 5$

Moderate $5 \leq X < 10$

Good: $10 \leq X < 15$

High: $15 \leq X < 25$

Very High: $25 \leq X < 35$

Exceptional: $X \geq 35$