

## 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
<b>Northern Division</b>							
Niufo'ou	113.4	101.9	182.3	137	189.6	157	27/44
Niutoputapu	73.3	255.7	200.0	111.7	214.3	152.5	42/67
<b>Central Division</b>							
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
<b>Southern Division</b>							
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?)
<b>Northern Division</b>							
Niufo'ou	396.5	313	649	407.9	22/44	35,28,37 (-2.6)	Near consistent
Niutoputapu	529	270.7	484.3	331.6	49/67	44,30,26 (0.4)	Inconsistent
<b>Central Division</b>							
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
<b>Southern Division</b>							
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 (%)
<b>Northern Division</b>							
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
<b>Central Division</b>							
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
<b>Southern Division</b>							
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
<b>Northern Division</b>					
Niuafo'ou (1971-2016)	41	843.5	59	4.5	64.1
Niutopotapu (1947-2016)	37	727.5	63	12.4	70.5
<b>Central Division</b>					
Vava'u (1947-2016)	37	734	63	14.5	69.2
Ha'apai(1947-2016)	28	575	72	31.8	72.7
<b>Southern Division</b>					
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)
<b>Northern Division</b>					
Niuafou'ou	15.2	671	24.2	933	<b>60.6</b>
Niutopotapu	15.2	618	24.2	823	<b>60.6</b>
<b>Central Division</b>					
Vava'u	12.1	596	24.3	882	<b>63.6</b>
Ha'apai	12.1	347	24.3	618	<b>63.6</b>
<b>Southern Division</b>					
Nuku'alofa	15.2	384	9.0	642	<b>75.8</b>

### **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:  $X \geq 35$