

Pacific Islands - Online Climate Outlook Forum (OCOF) No. 148

Country: Tonga

TABLE 1: Monthly Rainfall

Station (include data period)	Oct-2019	Nov-2019	Dec-2019				Rank
			Total (mm)	33%tile	67%tile	Median	
	Total (mm)	Total (mm)	Rainfall (mm)				
<b>Northern Division</b>							
Niuafu'ou (1971-2019)	199.5	119.0	173.0	228.0	363.0	287.2	9/47
Niuatoputapu (1947-2019)	202.1	109.2	265.7	186.0	287.0	245.5	40/68
<b>Central Division</b>							
Vava'u (1947-2019)	187.0	79.1	158.2	125.5	265.7	172.0	34/73
Ha'apai (1947-2019)	38.0	56.9	158.6	66.0	161.9	124.0	48/73
<b>Southern Division</b>							
Fua'amotu (1979-2019)	146.9	72.2	245.7	131.3	191.5	157.0	34/40
Nuku'alofa (1944-2019)							

**TABLE 2: Three-month Rainfall for October to December 2019**

Station	Three-month Total		33%tile	67%tile	Median	Rank	SCOPIC forecast probabilities based on NINO3.4 July-August 2019				Verification: Consistent, Near-consistent, Inconsistent?
	Rainfall (mm)						B-N	N	A-N	LEPS	
<i>Northern Division</i>											
Niuafu'ou (1971-2019)	491.5	Below normal	649.3	855.9	715.0	8/45	35	35	30	1	Near-consistent
Niuaotupapu (1947-2019)	577.0	Normal	535.0	746.0	640.0	29/68	40	36	24	6	Near-consistent
<i>Central Division</i>											
Vava'u (1947-2019)	424.3	Normal	381.3	614.8	546.0	29/73	44	40	16	20	Near-consistent
Ha'apai (1947-2019)	253.5	Normal	253.3	431.7	354.0	25/73	44	39	17	18	Near-consistent
<i>Southern Division</i>											
Fua'amotu (1979-2019)	464.8	Above normal	298.5	439.4	369.0	31/40	40	35	25	26	Inconsistent
Nuku'alofa (1944-2019)			289.4	418.3	346.6		51	33	16	30	

**TABLE 3: Seasonal Climate Outlooks using SCOPIC for February to April 2020**

Predictor and Period used: NINO3.4 for November to December 2019

Station	Below Median (prob)	Median Rainfall (mm)	Above Median (prob)		LEPS (%) [whole numbers]	Hit-rate (%) [whole numbers]
<i>Northern Division</i>						
Niuafu'ou (1971-2019)	55	888.4	45		2	55
Niuatoputapu (1947-2019)	54	774.0	46		1	56
<i>Central Division</i>						
Vava'u (1947-2019)	54	826.2	46		1	58
Ha'apai (1947-2019)	59	652.8	41		4	55
<i>Southern Division</i>						
Fua'amotu (1979-2019)	57	521.5	43		7	68
Nuku'alofa (1944-2019)	53	622.0	47		0	53

Station	Below Normal (prob)	33%ile Rainfall (mm)	Normal (prob)	67%ile Rainfall (mm)	Above Normal (prob)	LEPS (%) [whole numbers]	Hit-rate (%) [whole numbers]
<i>Northern Division</i>							
Niuafu'ou (1971-2019)	35	728.5	34	938.3	31	1	50
Niuatoputapu (1947-2019)	40	691.0	24	845.0	36	1	44
<i>Central Division</i>							
Vava'u (1947-2019)	39	713.0	31	915.0	30	1	39
Ha'apai (1947-2019)	40	546.0	35	714.0	25	6	42
<i>Southern Division</i>							
Fua'amotu (1979-2019)	40	469.8	36	690.8	24	9	43
Nuku'alofa (1944-2019)	36	551.7	36	714.6	28	0	31

**TABLE 4: Seasonal Climate Outlooks using POAMA2 for February to April 2020**

Station	Below Normal (prob)	33%ile Rainfall (mm)	Normal (prob)	67%ile Rainfall (mm)	Above Normal (prob)
Niuafu'ou	42	718.0	25	950.0	33
Niuatoputapu	42	667.0	25	808.0	33
Vava'u	39	679.0	31	878.0	30
Ha'apai	39	458.0	31	617.0	30
Nuku'alofa	39	420.0	25	583.0	36

## Summary Statements

### Rainfall for December 2019:

Rainfall was below normal for Niuafu'ou, normal for Niuatoputapu, Vava'u and Ha'apai, and above normal for Fua'amotu.

### Accumulated rainfall for October to December 2019, including outlook verification:

Rainfall was below normal for Niuafu'ou, above normal for Fua'amotu and normal for the rest of Tonga. Forecast was Inconsistent for Fua'amotu and Near-consistent for the rest of the Country.

### Outlooks for February to April 2020:

#### 1. SCOPIC:

Niuatoputapu, Ha'apai and Fua'amotu: The outlook for the season shows below normal is the most likely outcome. Normal is the next most likely at Ha'apai and Fua'amotu, while at Niuatoputapu below normal is the next most likely.

Niuafu'ou, Vava'u, Nuku'alofa: The outlook offers little guidance as the chances of above normal, normal and below normal are similar.

#### 2. POAMA:

For Niuafu'ou and Niuatoputapu, POAMA shows below normal as the most likely outcome followed by above normal as the next most likely.

At Nuku'alofa the outlook is mixed, with similar chances for above normal and below normal rainfall.

At Vava'u and Ha'apai POAMA offers little guidance as the chances of below normal, normal and above normal rainfall are similar.

**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:  $X \geq 35$

**Table: 5 Stakeholder Engagement- Evaluations of how effective NMS engage with stakeholders**

<b>Product</b>	<b>Date: October 2019</b>	<b>Stakeholder</b>	<b>Total Number of Participants</b>	<b>Number of male</b>	<b>Number of female</b>
Climate Bulletin					
EAR Watch					
Monthly Climate Briefing					
Ocean Bulletin					
<b>Total</b>					