

Pacific Islands - Online Climate Outlook Forum (OCOF) No. 141

Country: Tonga

TABLE 1: Monthly Rainfall

Station (include data period)	Mar-2019	Apr-2019	May-2019				Rank
			Total (mm)	33%tile	67%tile	Median	
	Total (mm)	Total (mm)	Rainfall (mm)				
<i>Northern Division</i>							
Niuafu'ou (1971-2019)	351.6	225.5	373.5	136.0	205.3	151.4	46/48
Niuaotoputapu (1947-2019)	71.5	346.7	151.8	122.0	185.0	152.0	34/69
<i>Central Division</i>							
Vava'u (1947-2019)	308.9	277.8	147.1	91.0	188.2	136.0	40/73
Ha'apai (1947-2019)	170.8	148.9	117.1	64.9	136.0	90.7	47/72
<i>Southern Division</i>							
Fua'amotu (1979-2019)	358.2	170.2	175.9	65.4	161.7	99.0	30/40
Nuku'alofa (1944-2019)	451.1	293.4	172.5	68.2	138.7	92.6	59/75

TABLE 2: Three-month Rainfall for March to May 2019

Station	Three-month Total	33%tile	67%tile	Median	Rank	SCOPIIC forecast probabilities based on NINO3.4 December 18-January 19				Verification: Consistent, Near-consistent, Inconsistent?	
	Rainfall (mm)					B-N	N	A-N	LEPS		
<i>Northern Division</i>											
Niuafo'ou (1971-2019)	950.6	Above normal	640.2	797.7	758.0	41/47	32	33	35	-2	Consistent
Niuaatoputapu (1947-2019)	570.0	Below normal	589.0	741.0	638.8	21/70	31	35	34	-2	Near-consistent
<i>Central Division</i>											
Vava'u (1947-2019)	733.8	Normal	587.7	790.0	705.4	41/73	37	36	27	1	Near-consistent
Ha'apai (1947-2019)	436.8	Below normal	448.0	633.0	559.0	23/72	37	37	26	1	Near-consistent
<i>Southern Division</i>											
Fua'amotu (1979-2019)	704.3	Above normal	420.7	576.0	506.5	33/40	45	20	35	4	Inconsistent
Nuku'alofa (1944-2019)	917.0	Above normal	442.0	552.0	496.0	73/74	40	30	30	1	Inconsistent

TABLE 3: Seasonal Climate Outlooks using SCOPIC for July to September 2019

Predictor and Period used: NINO3.4 for April to May 2019

Station	Below Median (prob)	Median Rainfall (mm)	Above Median (prob)		LEPS (%) [whole numbers]	Hit-rate (%) [whole numbers]
<i>Northern Division</i>						
Niuafo'ou (1971-2019)	60	337.0	40		0	56
Niuaotoputapu (1947-2019)	52	286.0	48		-1	46
<i>Central Division</i>						
Vava'u (1947-2019)	58	342.5	42		0	55
Ha'apai (1947-2019)	71	291.6	29		9	57
<i>Southern Division</i>						
Fua'amotu (1979-2019)	58	362.0	42		-2	51
Nuku'alofa (1944-2019)	56	324.3	44		-1	52

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>							
Niuafo'ou (1971-2019)	42	257.2	24	426.4	34	0	36
Niuaotoputapu (1947-2019)	37	212.3	38	374.0	25	-1	33
<i>Central Division</i>							
Vava'u (1947-2019)	36	256.0	42	398.0	22	0	38
Ha'apai (1947-2019)	43	231.0	35	351.0	22	2	35
<i>Southern Division</i>							
Fua'amotu (1979-2019)	33	286.0	44	414.0	23	0	39
Nuku'alofa (1944-2019)	38	275.7	36	369.7	26	-1	26

TABLE 4: Seasonal Climate Outlooks using POAMA2 for July to September 2019

Station	Below Normal (prob)	33%ile Rainfall (mm)	Normal (prob)	67%ile Rainfall (mm)	Above Normal (prob)
Niuafu'ou	33	234.0	12	357.0	55
Niutoputapu	33	185.0	12	368.0	55
Vava'u	46	244.0	21	402.0	33
Ha'apai	46	217.0	21	337.0	33
Nuku'alofa	46	249.0	24	395.0	30

Summary Statements

Rainfall for May 2019:

Normal to above normal rainfall was recorded across the country.

Niuafu'ou recorded its third-highest May rainfall in its 48 years of record.

Accumulated rainfall for March to May 2019, including outlook verification:

Normal to above normal rainfall was recorded over Vava'u, Tongatapu and Niuafu'ou, while below normal rainfall was recorded in Ha'apai and Niutoputapu.

Nuku'alofa recorded its second-highest March to May rainfall in its 74 years of record.

The rainfall outlooks were 'Near-consistent' at 3 stations, 'Inconsistent' at 2 station and 'Consistent' at 1 station.

Outlooks for July to September 2019:

1. SCOPIC:

Niuafu'ou: The outlook for 'season' shows 'below normal' as the most likely outcome, with 'Above Normal' the next most likely.

Ha'apai: The outlook shows 'below normal' as the most likely outcome, with 'normal' as the next most likely. 'Above normal' is the least likely.

Niutoputapu and Nuku'alofa: The outlook for 'season' shows a near-equal likelihood of 'normal' and 'below-normal' rainfall. Above normal is the least likely.

Vava'u and Fua'amotu: The outlook shows 'normal' as the most likely outcome, with 'below normal' as the next most likely. 'Above normal' is the least likely.

2. POAMA:

Niuafu'ou and Niutoputapu: The outlook favours 'above normal' rainfall.

Central and southern divisions: The outlook shows below normal' rainfall as the most likely outcome, with above normal the next most likely. Normal is the least likely.

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

Product	Date: May 2019	Stakeholder	Total Number of Participants	Number of male	Number of female
Tonga Climate Outlook	16/05/19	Govt /Ministries General public	93	61	32
Tonga Climate Summary	16/05/19	Govt /Ministries General public	93	61	32
EAR Watch					
Monthly Climate Briefing					
Ocean Bulletin	17/05/19	Government Ministries/General public	93	61	32
Total			93	61	32