

Pacific Islands - Online Climate Outlook Forum (OCOF) No. 140

Country: Tonga

TABLE 1: Monthly Rainfall

Station (include data period)	Feb-2019	Mar-2019	Apr-2019				
			Total (mm)	33%tile	67%tile	Median	Rank
	Total (mm)	Total (mm)	Rainfall (mm)				
Northern Division							
Niuafo'ou (1971-2019)	603.6	351.6	225.5	179.0	307.0	219.0	26/48
Niuaotoputapu (1947-2019)	403.5	71.5	346.7	168.5	293.0	226.0	57/59
Central Division							
Vava'u (1947-2019)	526.2	308.9	277.8	154.1	261.7	209.0	54/73
Ha'apai (1947-2019)	524.0	170.8	148.9	112.7	237.5	167.5	31/73
Southern Division							
Fua'amotu (1979-2019)	162.4	358.2	170.2	95.3	241.7	172.0	20/40
Nuku'alofa (1944-2019)	209.4	451.1	293.4	112.0	210.0	137.0	63/74

TABLE 2: Three-month Rainfall for February to April 2019

Station	Three-month Total		33%tile	67%tile	Median	Rank	SCOPIC forecast probabilities based on NINO3.4 November-December 2018				Verification: Consistent, Near- consistent, Inconsistent?
	Rainfall (mm)						B-N	N	A-N	LEPS	
Northern Division											
Niuafo'ou (1971-2019)	1180.7	Above normal	724.0	937.0	885.7	42/44	40	32	28	-1	Inconsistent
Niuaatoputapu (1947-2019)	821.7	Normal	689.5	841.7	765.0	44/67	47	21	32	2	Near-consistent
Central Division											
Vava'u (1947-2019)	1112.9	Above normal	706.0	898.3	820.6	65/73	45	30	25	3	Inconsistent
Ha'apai (1947-2019)	843.7	Above normal	545.0	708.0	652.4	59/73	46	38	16	8	Inconsistent
Southern Division											
Fua'amotu (1979-2019)	690.8	Normal	465.2	690.9	512.0	27/40	47	35	18	10	Near-consistent
Nuku'alofa (1944-2019)	953.9	Above normal	544.0	681.0	612.0	63/74	37	36	27	0	Inconsistent

TABLE 3: Seasonal Climate Outlooks using SCOPIC for June to August 2019

Predictor and Period used: NINO3.4 for March to April 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)	57	335.9	43		-2	56
Niuaatoputapu (1947-2019)	52	313.0	48		-2	38
<i>Central Division</i>						
Vava'u (1947-2019)	56	307.5	44		4	56
Ha'apai (1947-2019)	62	276.5	38		-2	57
<i>Southern Division</i>						
Fua'amotu (1979-2019)	48	349.0	52		-3	23
Nuku'alofa (1944-2019)	49	298.0	51		-2	28

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)	40	274.4	20	415.0	40	-2	28
Niuaatoputapu (1947-2019)	44	240.7	25	361.7	31	-1	43
<i>Central Division</i>							
Vava'u (1947-2019)	40	250.3	27	353.3	33	-1	30
Ha'apai (1947-2019)	35	193.7	40	308.8	25	-1	35
<i>Southern Division</i>							
Fua'amotu (1979-2019)	33	270.7	32	399.0	35	-3	31
Nuku'alofa (1944-2019)	30	238.0	35	364.7	35	-1	20

TABLE 4: Seasonal Climate Outlooks using POAMA2 for June to August 2019

Station	Below Normal (prob)	33%ile Rainfall (mm)	Normal (prob)	67%ile Rainfall (mm)	Above Normal (prob)
Niuafo'ou	52	249.0	15	417.0	33
Niuaotoputapu	52	248.0	15	363.0	33
Vava'u	61	272.0	18	344.0	21
Ha'apai	61	207.0	18	324.0	21
Nuku'alofa	61	261.0	21	402.0	18

Summary Statements

Rainfall for April 2019.

Normal to above normal rainfall was recorded across the country. Niuaotoputapu recorded its third highest April rainfall on record.

Accumulated rainfall for February to April 2019, including outlook verification:

Normal to above normal rainfall was recorded across the country.

Niuafo'ou recorded its third-highest February to April rainfall in its 44 years of record.

The rainfall outlooks were, 'Near- Consistent' at 2 sites, Niuaotoputapu and Fua'amotu , and 'Inconsistent' at 4 sites, Niuafo'ou, Central Division and Nuku'alofa.

Outlooks for June to August 2019:

1. SCOPIC:

- **Niuaotoputapu and Vava'u:** The outlook shows below normal as the most likely outcome, with above normal as the next most likely. Normal ' is the least likely."
- **Niuafo'ou:** The outlook for the 'season' is mixed, with similar chances for below-normal and above-normal rainfall.
- **Ha'apai:** The outlook shows normal as the most likely outcome, with below normal as the next most likely. Below normal ' is the least likely."
- **Fua'amotu and Nuku'alofa:** The outlook offers little guidance as the chances of above-normal, normal and below-normal are similar.

2. POAMA: The outlook favours **below normal** across the country.

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: April 2019	Stakeholder	Total Number of Participants	Number of male	Number of female
Tonga Climate Outlook	17/04/19	General public	93	61	32
Tonga Climate Summary	19/04/19	General public	93	61	32
EAR Watch					
Monthly Climate Briefing					
Ocean Bulletin	17/04/19	General public	93	61	32
Total			93	61	32