

Pacific Islands - Online Climate Outlook Forum (OCOF) No. 155

Country: Tonga

TABLE 1: Monthly Rainfall

Station (include data period)	May-2020	Jun-2020	Jul-2020				
			Total (mm)	33%tile	67%tile	Median	Rank
	Total (mm)	Total (mm)	Rainfall (mm)				
Northern Division							
Niuafo'ou (1971-2020)	262.0	222.0	115.0	58.0	147.2	111.0	25/48
Niuaatoputapu (1947-2020)	300.7	183.7	168.6	59.0	130.0	90.0	62/74
Central Division							
Vava'u (1947-2020)	242.4	72.3	84.5	61.0	120.4	80.3	39/74
Ha'apai (1947-2020)	89.6	118.3	135.0	56.0	99.7	70.2	57/74
Fua'amotu (1979-2020)	68.0	113.7	271.8	70.0	137.0	100.8	40/41
Nuku'alofa (1944-2020)	46.0	52.0	231.5	64.0	117.0	81.0	72/76

TABLE 2: Three-month Rainfall for May to July 2020

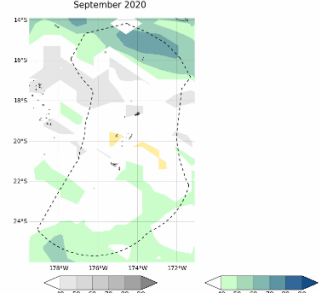
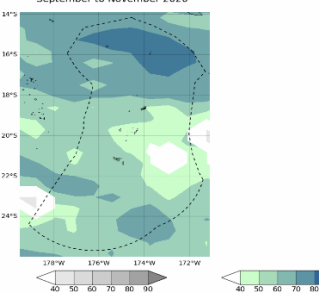
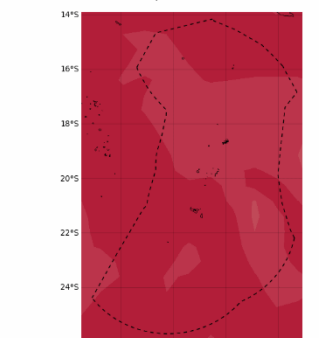
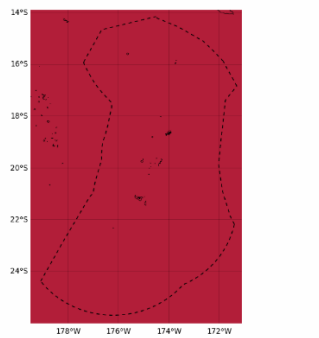
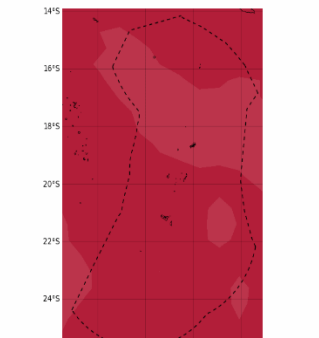
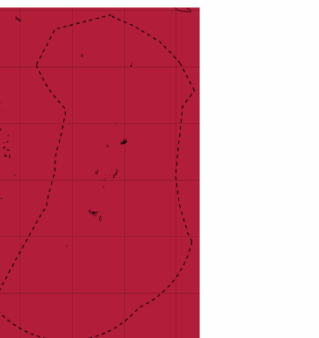
Station	Three-month Total		33%tile	67%tile	Median	Rank	SCOPIC forecast probabilities based on NINO3.4 February-March 2020				Verification: Consistent, Near- consistent, Inconsistent?
	Rainfall (mm)						B-N	N	A-N	LEPS	
Northern Division											
Niuafu'ou (1971-2020)	599.0	Above normal	362.5	472.1	429.0	38/46	35	35	30	0	Near-consistent
Niutoputapu (1947-2020)	653.0	Above normal	321.3	411.7	360.6	64/70	38	35	27	2	Inconsistent
Central Division											
Vava'u (1947-2020)	399.2	Normal	303.0	407.0	364.5	47/74	40	32	28	3	Near-consistent
Ha'apai (1947-2020)	342.9	Above normal	214.3	313.2	246.0	54/73	39	30	31	1	Inconsistent
Southern Division											
Fua'amotu (1979-2020)	453.5	Above normal	268.0	430.2	354.8	31/41	40	25	35	5	Inconsistent
Nuku'alofa (1944-2020)	329.5	Normal	239.7	343.2	298.0	45/76	43	26	31	5	Near-consistent

TABLE 3: Seasonal Climate Outlooks using SCOPIC for September to November 2020
Predictor and Period used: NINO3.4 for June to July 2020

Station	Below Median (prob)	Median Rainfall (mm)	Above Median (prob)		LEPS (%) [whole numbers]	Hit-rate (%) [whole numbers]
Northern Division						
Niuafu'ou (1971-2020)	47	561.5	53		5	52
Niutoputapu (1947-2020)	47	463.0	53		11	69
Central Division						
Vava'u (1947-2020)	46	421.5	54		20	73
Ha'apai (1947-2020)	48	295.0	52		5	57
Southern Division						
Fua'amotu (1979-2020)	45	315.0	55		5	58
Nuku'alofa (1944-2020)	47	354.4	53		16	67

Station	Below Normal (prob)	33%ile Rainfall (mm)	Normal (prob)	67%ile Rainfall (mm)	Above Normal (prob)	LEPS (%) [whole numbers]	Hit-rate (%) [whole numbers]
Northern Division							
Niufo'ou (1971-2020)	29	451.0	36	639.0	35	5	37
Niutoputapu (1947-2020)	33	394.0	34	560.0	33	10	52
Central Division							
Vava'u (1947-2020)	33	364.0	35	525.0	32	14	54
Ha'apai (1947-2020)	32	225.0	34	384.0	34	5	43
Southern Division							
Fua'amotu (1979-2020)	28	245.5	34	402.4	38	8	40
Nuku'alofa (1944-2020)	28	238.0	39	423.0	33	20	43

Monthly and Seasonal Climate Outlooks using ACCESS-S for September to November 2020

Monthly rainfall	Seasonal rainfall
<p>Tercile rainfall probabilities for September 2020</p>  <p>Below normal (%) Near normal (%) Above normal (%)</p> <p>Model: ACCESS-S1 Base period: 1990-2012 Model run: 03/08/2020 Issued: 06/08/2020</p> <p>© Commonwealth of Australia 2020, Australian Bureau of Meteorology Shapefile data extracted from: Australian Bureau of Meteorology (2020), Maritime Boundaries Geodatabase: Maritime Boundaries and Exclusive Economic Zones (2018), version 1.1. Available online at http://www.maritime.gov.au</p>	<p>Tercile rainfall probabilities for September to November 2020</p>  <p>Below normal (%) Near normal (%) Above normal (%)</p> <p>Model: ACCESS-S1 Base period: 1990-2012 Model run: 03/08/2020 Issued: 06/08/2020</p> <p>© Commonwealth of Australia 2020, Australian Bureau of Meteorology Shapefile data extracted from: Australian Bureau of Meteorology (2020), Maritime Boundaries Geodatabase: Maritime Boundaries and Exclusive Economic Zones (2018), version 1.1. Available online at http://www.maritime.gov.au</p>
Monthly Tmax	Seasonal Tmax
<p>Tercile maximum temperature probabilities for September 2020</p>  <p>Below normal (%) Near normal (%) Above normal (%)</p> <p>Model: ACCESS-S1 Base period: 1990-2012 Model run: 03/08/2020 Issued: 06/08/2020</p> <p>© Commonwealth of Australia 2020, Australian Bureau of Meteorology Shapefile data extracted from: Australian Bureau of Meteorology (2020), Maritime Boundaries Geodatabase: Maritime Boundaries and Exclusive Economic Zones (2018), version 1.1. Available online at http://www.maritime.gov.au</p>	<p>Tercile maximum temperature probabilities for September to November 2020</p>  <p>Below normal (%) Near normal (%) Above normal (%)</p> <p>Model: ACCESS-S1 Base period: 1990-2012 Model run: 03/08/2020 Issued: 06/08/2020</p> <p>© Commonwealth of Australia 2020, Australian Bureau of Meteorology Shapefile data extracted from: Australian Bureau of Meteorology (2020), Maritime Boundaries Geodatabase: Maritime Boundaries and Exclusive Economic Zones (2018), version 1.1. Available online at http://www.maritime.gov.au</p>
Monthly Tmin	Seasonal Tmin
<p>Tercile minimum temperature probabilities for September 2020</p>  <p>Below normal (%) Near normal (%) Above normal (%)</p> <p>Model: ACCESS-S1 Base period: 1990-2012 Model run: 03/08/2020 Issued: 06/08/2020</p> <p>© Commonwealth of Australia 2020, Australian Bureau of Meteorology Shapefile data extracted from: Australian Bureau of Meteorology (2020), Maritime Boundaries Geodatabase: Maritime Boundaries and Exclusive Economic Zones (2018), version 1.1. Available online at http://www.maritime.gov.au</p>	<p>Tercile minimum temperature probabilities for September to November 2020</p>  <p>Below normal (%) Near normal (%) Above normal (%)</p> <p>Model: ACCESS-S1 Base period: 1990-2012 Model run: 03/08/2020 Issued: 06/08/2020</p> <p>© Commonwealth of Australia 2020, Australian Bureau of Meteorology Shapefile data extracted from: Australian Bureau of Meteorology (2020), Maritime Boundaries Geodatabase: Maritime Boundaries and Exclusive Economic Zones (2018), version 1.1. Available online at http://www.maritime.gov.au</p>

Summary Statements

Rainfall for July 2020:

Normal rainfall was recorded in Niuafu'ou and Vava'u while above normal rainfall occurred over the rest of the group. Fua'amotu recorded its second wettest July on record.

Accumulated rainfall for May to July 2020, including outlook verification:

Rainfall was normal for Vava'u and Nuku'alofa, while above normal was recorded over the rest of country. Niuatoputapu recorded its seventh wettest May-July period on record.

The forecast issued in April was verified as Near-consistent for Niuafu'ou, Vava'u and Nuku'alofa, and Inconsistent for Niuatoputapu, Ha'apai and Fua'amotu.

Outlooks for September to November 2020:

1. SCOPIC:

The outlook for the whole country offers little guidance as the chances of above-normal, normal and below-normal are similar.

2. ACCESS-S:

Monthly rainfall:

The September outlook is patchy, with above normal indicated in the far north and far south to southeast, and little guidance for most remaining areas. Above normal rainfall is favoured at Niuatoputapu, and normal rainfall is most likely for Vava'u. The outlook offers little guidance for Niuafu'ou, Ha'apai, Tongatapu and 'Eua.

Monthly maximum and minimum temperature:

Above normal temperatures for September are favoured across the country.

Seasonal rainfall:

Above normal rainfall is favoured for September to November across the country.

Seasonal maximum and minimum temperature:

Above normal temperatures for September to November are favoured 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: July 2020	Stakeholder	Total Number of Participants	Number of male	Number of female
Climate Bulletin	03/07/2020	General public	132	66	34
EAR Watch					
Monthly Climate Briefing					
Ocean Bulletin	03/07/2020	General public	132	66	34
Total			226	132	68