Pacific Islands - Online Climate Outlook Forum (OCOF) No. 166

Country: Tonga

TABLE 1: Monthly Rainfall

Station (include data period)	Apr-2021	May-2021	Jun-2021				
			Total (mm)	33%tile	67%tile	Median	Rank
	Total (mm)	Total (mm)	Rainfall (mm)				
Northern Division							
Niuafo'ou (1971-2021)	100.4	466.2	294.9	71.7	152.0	112.0	43/48
Niuatoputapu (1947-2021)	113.0	212.3	109.2	67.6	168.7	91.0	42/75
Central Division							
Vava'u (1947-2021)	127.9	221.4	191.6	56.3	130.0	89.0	60/75
Ha'apai (1947-2021)	259.3	235.2	128.4	43.3	107.3	74.0	60/75
Southern Division							
Fua'amotu (1979-2021)	232.0	213.5	100.2	70.4	142.5	106.3	21/42
Nuku'alofa (1944-2021)	284.5	132.1	116.6	58.0	113.7	84.0	53/77

TABLE 2: Three-month Rainfall for April to June 2021

Station	Three-month Total		33%tile	67%tile	Median	Rank	SCOPIC forecast probabilities based on NINO3.4 January-February 2021				Verification: Consistent, Near-consistent, Inconsistent?
	Rainfall (mm)						B-N	N	A-N	LEPS	
Northern Division											
Niuafo'ou (1971-2021)	861.5	Above normal	496.5	646.0	582.0	**44/47**	**35**	31	34	-2	Inconsistent
Niuatoputapu (1947-2021)	434.5	Below normal	437.0	617.0	537.5	22/68	**35**	**35**	30	-1	Near-consistent
Central Division											
Vava'u (1947-2021)	540.9	Normal	411.3	587.7	493.0	49/75	25	33	**42**	3	Near-consistent
Ha'apai (1947-2021)	622.9	Above normal	294.3	432.4	355.0	66/74	27	33	**40**	1	Consistent
Southern Division											
Fua'amotu (1979-2021)	545.7	Above normal	305.3	511.4	452.4	31/42	15	**48**	37	6	Near-consistent
Nuku'alofa (1944-2021)	533.2	Above normal	290.8	438.0	348.2	**69/76**	18	**48**	34	3	Near-consistent

TABLE 3: Seasonal Climate Outlooks using SCOPIC for August to October 2021

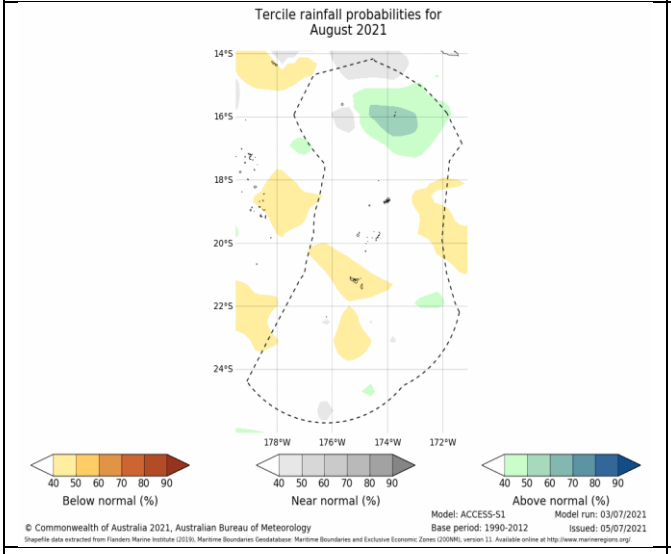
Predictor and Period used: NINO3.4 for May to June 2021

Station	Below Median (prob)	Median Rainfall (mm)	Above Median (prob)		LEPS (%) [whole numbers]	Hit-rate (%) [whole numbers]
Northern Division						
Niuafo'ou (1971-2021)	48	417.0	**52**		-1	52
Niuatoputapu (1947-2021)	47	358.5	**53**		8	68
Central Division						
Vava'u (1947-2021)	50	401.0	50		-1	55
Ha'apai (1947-2021)	46	292.7	**54**		10	58
Southern Division						
Fua'amotu (1979-2021)	**51**	359.0	49		-3	27
Nuku'alofa (1944-2021)	41	329.7	**59**		3	57

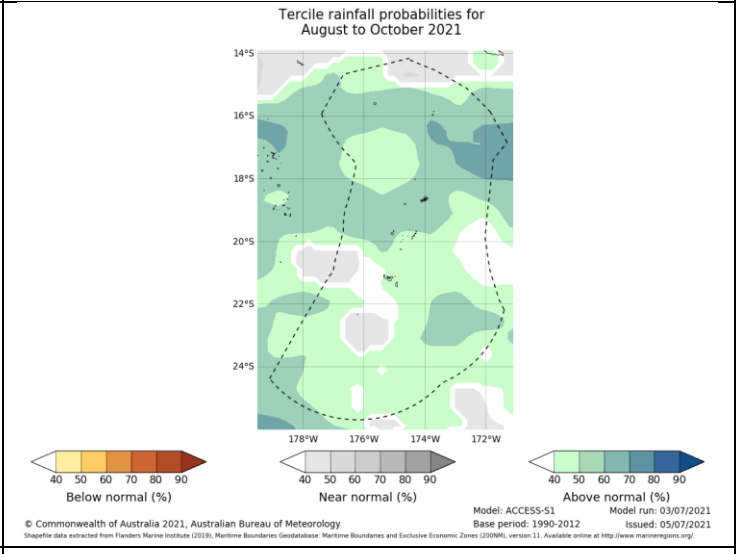
Station	Below Normal (prob)	33%ile Rainfall (mm)	Normal (prob)	67%ile Rainfall (mm)	Above Normal (prob)	LEPS (%) [whole numbers]	Hit-rate (%) [whole numbers]
Northern Division							
Niuafo'ou (1971-2021)	33	331.0	**35**	479.7	32	-2	21
Niuatoputapu (1947-2021)	31	284.0	34	515.4	**35**	2	44
Central Division							
Vava'u (1947-2021)	33	332.7	33	474.6	34	-1	30
Ha'apai (1947-2021)	27	238.7	34	427.0	**39**	3	37
Southern Division							
Fua'amotu (1979-2021)	34	280.0	33	407.6	33	-3	17
Nuku'alofa (1944-2021)	33	274.9	32	399.8	**35**	1	32

TABLE 4: Monthly and Seasonal Climate Outlooks using ACCESS-S for August to October 2021

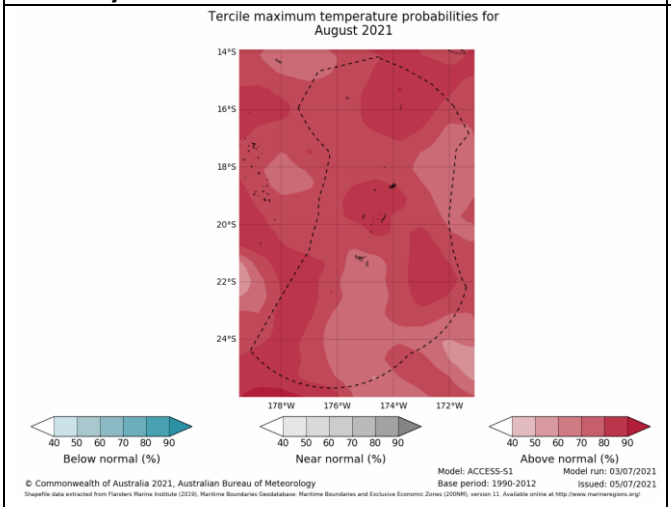
Monthly rainfall



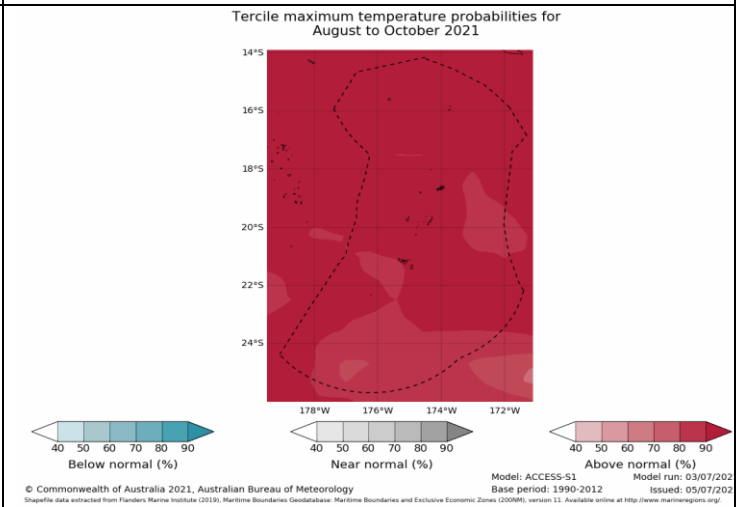
Seasonal rainfall



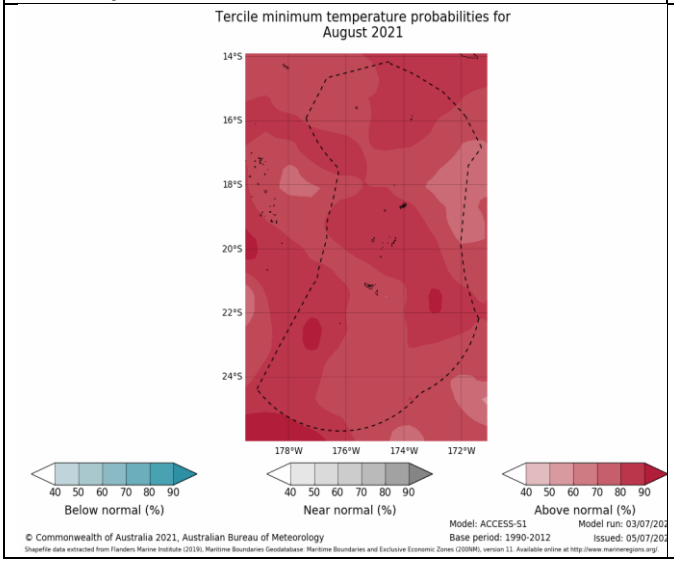
Monthly Tmax



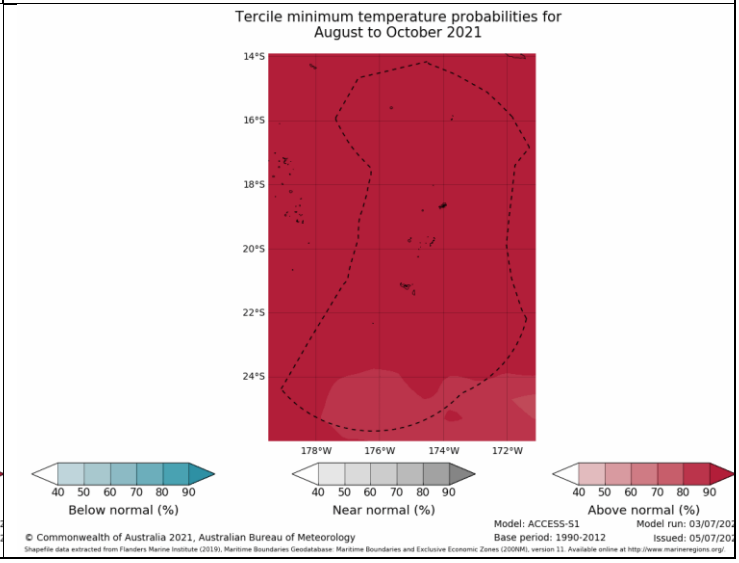
Seasonal Tmax



Monthly Tmin



Seasonal Tmin



Summary Statements

Rainfall for June 2021:

Normal rainfall was observed in Niuatoputapu and Fua'amotu while above normal rainfall was reported over the rest of Tonga.

Accumulated rainfall for April to June 2021, including outlook verification:

Below normal rainfall was recorded in Niuatoputapu, normal rainfall occurred in Vava'u, while above normal rainfall occurred in Niuafo'ou, Ha'apai, Fua'amotu and Nuku'alofa. Niuafo'ou recorded its fourth wettest and Nuku'alofa its eighth wettest April-June period on record.

The verification of the outlook issued in March was consistent at Ha'apai, near-consistent in Niuatoptapu, Vava'u, Fua'amotu and Nuku'alofa, and inconsistent at Niuafo'ou.

Outlooks for August to October 2021:

1. **SCOPIC:**
   Ha'apai: The outlook for the season shows above normal as the most likely outcome with normal the next most likely. Below normal is the least likely.

   Other stations: The outlook offers little guidance as the chances of above normal, normal and below normal rainfall are similar.

2. **ACCESS-S:**

   Monthly rainfall:

   The outlook for August shows above normal rainfall is favoured for Niuatoputapu while below normal is most likely for Ha'apai. The outlook offers little guidance for the rest of the country.

   Monthly maximum and minimum temperature:

   Above normal temperatures are favoured across the country for August 2021.

   Seasonal rainfall:

   Above normal rainfall favoured for the northern and central part of the country for August to October 2021 while above normal is the most likely outcome for islands south of the country.

   Seasonal maximum and minimum temperature:

   Above normal temperatures are favoured across the country for August and August to October 2021.

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: June 2021	Stakeholder	Total Number of Participants	Number of male	Number of female
Climate Bulletin		General public	132	66	34
EAR Watch					
Monthly Climate Briefing					
Ocean Bulletin		General public	132	66	34
		Total	**132**	**132**	**68**