



Climate Update

November 2021—January 2022 Rainfall Outlook:
(According to the Tongan Calendar, these months are part of, Lihamu'a, Lihamui & Vaimu'a).

Issued: 26 November 2021

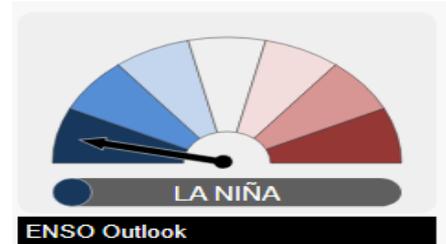
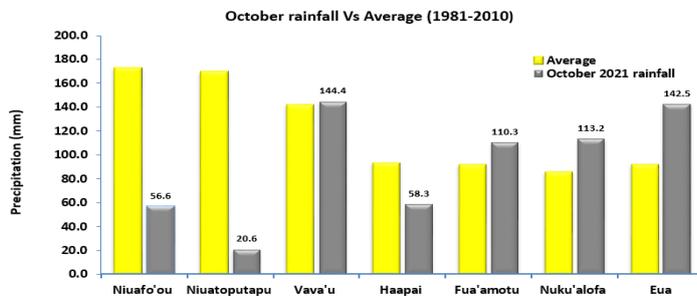
La Nina has become established in the Pacific

Climate models suggest this La Niña will be short-lived, persisting until around February or early March 2022. La Niña events increase the chance of above average rainfall across Tonga during December to February.

Recent

October 2021:

Extremely low rainfall again was received in the Niuaus, below average was also received in Ha'apai. Above average rainfall received in Tongatapu and 'Eua, and average in Vava'u (see graph below). The mean temperature was 24.7°C which was 0.2°C warmer than average. Highest maximum temperature was 33.0°C on the 30th in Niuafo'ou and the lowest minimum temperature was 12.9°C in Hango, "Eua on the 12th.



	August	September	October
Niuafo'ou	154.7	26.0	56.6
Niuaotoputapu	144.9	33.2	20.6
Vava'u	267.0	194.0	144.4
Ha'apai	141.2	97.5	58.3
Fua'amotu	82.0	104.8	110.3
Nuku'alofa	74.0	79.5	113.2
'Eua	109.0	121.0	142.5
Below average	Average (usual)	Above average	

Forecast

Rainfall Outlook for November 2021—January 2022

Rainfall is forecast to be above average across Tonga.

Rainfall outlook for February—April 2022

Rainfall is forecast to be average to above average for Tonga. Refer to Table 1.

	Nov 2021– Jan 2022 (% chance)	Feb – Apr 2022 (% chance)
Niuafo'ou	41	37
Niuaotoputapu	48	40
Vava'u	48	37
Ha'apai	47	41
Fua'amotu & 'Eua	50	44
Nuku'alofa	49	40

Table 1: Forecast for the next 3months and up to 6 months

Traditional knowledge indicators for the summer season.

- If you see bees building their nests indoors and lower near the ground in shelters or empty containers and coconuts, then it is an indication that there will be a cyclone in the season.
- When you see flowers starting to bloom especially the traditional flowers and also bananas starting to bear fruits then you know summer is coming.
- If you see plenty cockroaches in the house than usual and that they also fly, it indicates that rain is near within a few hours.
- If rain has just started and you see roosters/hens not hiding or finding shelter and Rooster continue to crow then its indication that the rain will not last long.

Note:

The wet season 2021/2022 starts from the 1st of November 2021 to the end of April 2022. It is also called the cyclone season. This is the time of the year where the temperature is warmer and rainfall is usually more than average. La Niña has been established in the tropical Pacific and we are likely to receive more than usual rainfall.

According to the present status and the outlook, it is advised to collect water when it rains and use it wisely especially the Niuaus. Public are advised to ensure that you stay alert at all times and get the latest weather forecast and warnings from the Met service. It is advisable to seek advice from relevant authorities of sensitive sectors, e.g. Agriculture, Water, Health and the National Emergency Management Office (NEMO) on the best practices to save lives and property and minimize the effects of natural disaster.

Tongan Calendar and traditional knowledge:

Parts of Lihamu'a, Lihamui & Vaimu'a. (November – January)

Lihamu'a, Lihamui & Vaimu'a, the season where farmers reap their crops and there is plenty of food. This is the beginning of the rainy season, most welcomed by farmers. Much warmer weather, with fruit trees bearing fruits.

The next Climate update will be issued second week of December 2021

Disclaimer:

This summary is prepared as soon as possible following the end of the month, once climate data is received from recording stations around Tonga. Delays in data collection, communication and processing occasionally arise. While every effort is made to verify observational data, the Tonga Meteorological Service makes no statements, representations, or warranties about the accuracy or completeness of, and you should not rely on, any information contained in this report. Despite our best efforts, TMS makes no warranties that the information in this publication is free of numerical errors. TMS disclaims all responsibility and all liability (including without limitation, liability in negligence) for all expenses, losses, damages and costs you might incur as a result of the information being inaccurate or incomplete in any way, and for any reason. This information should be used as a guidance only. For further information about this forecast should be directed to the Director of the Tonga Meteorological Service, at P.O. Box 1380, Nuku'alofa. Or email at metstaff@met.gov.to. Tel: (676) 35 123/740062 or our website; <http://www.met.gov.to> for more information.



Fakamatala fakamuimui taha ki he tu'unga e 'Ea



Fakafuofua kihe lahi e 'uha ki Novema 2021 — Sanuali 2022:
(Ngaahi mahina fakatonga: Konga 'o Lihamu'a, Lihamui & Vaimu'a)

Tukuatu: 26 Novema

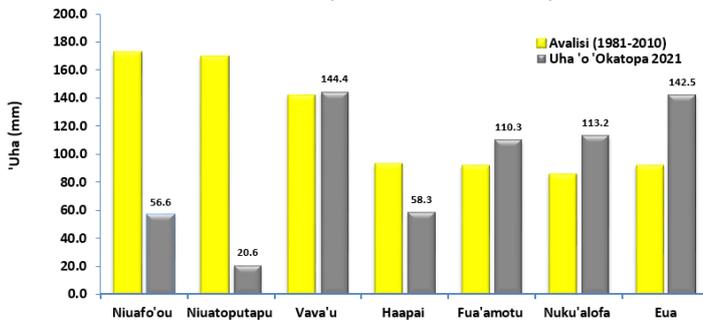
Kuo hoko 'ae faha'ita'u La Nina 'ihe 'Oseni Pasifiki.

'Okatopa 2021

Mahina kuo hili

Na'e kei ma'olalo 'aupito pe 'ae 'uha 'ihe ongo Niua pea pehe foki ki Ha'apai. Na'e ma'olunga 'ihe 'avalisi 'ae 'uha 'i Tongatapu mo 'Eua pea 'avalisi 'a Vava'u, (vakai kihe kalafi moe tepile 'i mata'u). Ko e 'avalisi e mafana e 'Ea na'e 24.7°C 'a ia na'e mafana'aki 'a e 0.2°C 'ihe 'avalisi anga maheni. Koe ma'olunga taha e mafana 'o e 'ea na'e 33.0°C 'ihe 'aho 30 'i Niuafo'ou pea koe ma'olalo taha na'e 12.9°C 'ihe 'aho 12 'i Hango, 'Eua.

'Uha 'o 'Okatopa 2021 fakahoa kihe 'Avalisi (1981-2010)



Fakafuofua kihe 'uha

Fakafuofua kihe lahi e 'uha mei Novema 2021—Sanuali 2022.

Koe fakafuofua koe 'uha 'e ma'olunga 'ihe 'avalisi 'ihe 'otu Tonga.

Fakafuofua kihe lahi e 'uha mei Fepueli—'Epeleli 2022.

Koe fakafuofua 'e 'i he 'avalisi pe ma'olunga 'ihe 'avalisi 'ae 'uha 'i he 'otu Tonga. (vakai kihe Tepile 1).

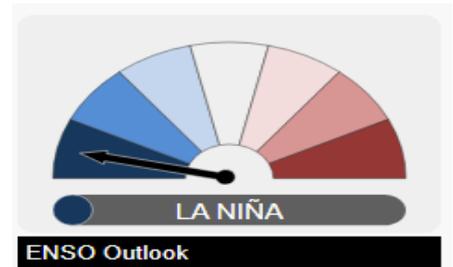
	Novema 2021—Sanuali 2022 (% 'oe faingamalie ke hoko)	Fepueli-'Epeleli 2022 (% 'oe faingamalie ke hoko)
Niuafo'ou	41	37
Niuatoputapu	48	40
Vava'u	48	37
Ha'apai	47	41
Fua'amotu & 'Eua	50	44
Nuku'alofa	49	40

Tepile 1: Fakafuofua kihe 'uha 'ihe mahina 'e 3 kihe 6 ka

Koe ngaahi faka'ilonga tu'ufonua 'ae faha'ita'u mafana.

- Koe taimi 'oku fa'u pununga ai 'ae fanga pii 'ihe ngaahi nge'esi pupuu pe ofi 'aupito kihe kelekele pehe foki ki fale pea 'oku faka'ilonga mai 'e 'iai ha matangi saikolone 'ihe faha'i ta'u saikolone koia.
- Koe taimi 'oku kamata ke matala ai e ngaahi 'akau kakala tu'ufonua 'oku faka'ilonga 'oku ha'u e mafana.
- Kapau 'e lahi e mongomonga 'i fale pea mafana e 'ea mo nau puna 'oku faka'ilonga 'oku vave ha to mai ha 'uha
- Kapau 'e to ha 'uha pea ke fakatokanga'i e moa ta'ane pe fanga moa 'oku 'ikai kenau toi pea mo nau kei 'u'ua pe pea koe faka'ilonga ia koe 'uha 'e

Fakafuofua e faha'i ta'u



	'Uha 'o 'Aokosi —'Okatopa 2021 (mm)		
	'Aokosi	Sepitema	'Okatopa
Niuafo'ou	154.7	26.0	56.6
Niuatoputapu	144.9	33.2	20.6
Vava'u	267.0	194.0	144.4
Ha'apai	141.2	97.5	58.3
Fua'amotu	82.0	104.8	110.3
Nuku'alofa	74.0	79.5	113.2
'Eua	109.0	121.0	142.5
Ma'olalo 'ihe 'avallisi	Avalisi angamaheni	Ma'olunga 'i he 'avalisi	

Ngaahi me'a ke Fakatokanga'i

Koe faha'ita'u mafana pe 'uha 'aia 'oku toe 'iloa pe koe faha'i ta'u afa 'ai na'e kamata 'ihe 'aho 1 Novema pea 'e toki 'osi ki 'Epeleli 2022. Koe faha'ita'u La Nina eni pea 'oku anga maheni 'ali ke lahi ange 'ae 'uha 'ihe 'avalisi 'i Tonga

Fakatatau kihe ngaahi fakamatala kuo tukuatu 'i 'olunga moe tu'unga lolotonga 'oe 'ea 'oku fale'i atu ai pe kihe kakai kotoape ke tanaki e vai 'uha he taimi 'oku 'uha ai tautefito ki he ongo Niua pea tokanga kihe ngaahi fale'i moe fakatokanga 'oku tuku atu. Fakapapau'i ma'u pe 'oku ma'u ae ngaahi fakamatala fakamuimuitaha meihe va'a Fakamatala 'Ea pea moe ngaahi fale'i meihe ngaahi kupu fekau'aki tautefito kihe ngaahi va'a 'oku tu'u lavea ngofua kihe fakatamaki fakae-natula o hange koe Ngoue, Mo'ui, Vai moe fakatamaki fakae-natula ke malu'i ho'o mo'ui mo ho'o koloa pea faka si'isi'i 'ae uesia moe maumau 'e ala hoko tupu meiha fakatamaki 'e hoko.

Mahina fakatonga moe 'ilo tu'u fonua:

Koe konga 'o Lihamu'a, Lihamui, Vaimu'a (Novema—Sanuali).

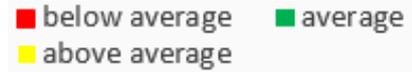
Koe faha'ita'u eni 'oku mahu he 'oku fiefia 'ae kau fa'a he koe kamata eni e faha'ita'u mafana pea lahi 'ae 'uha pea 'oku lelei kihe fua e fonua.

Fakatokanga'i ange.

Koe fakamatala ni 'oku fa'u ia 'i he 'osi pe 'ae mahina kotoa hili hano tanaki mai e fakamatala mei he ngaahi 'ofisi vakai matangi 'i he 'otu Tonga ni. Lolotonga hono fakahoko 'ehe Potungae 'a hono 'anlaiso mo fakapapau' 'ae ngaahi fakamatala kuo tanaki ke fa'u 'aki 'ae fakamatala ni, 'oku 'ikai ke fakapapau atu 'ae Potungae kihe kakato moe tonu 'ae fakamatala ni pea 'oku 'ikai ke tonu keke falala kakato kihe ngaahi fakamatala ni. Koe ngaahi fakamatala ni 'oku 'oatu pe ke tokoni ki ho'o fai tu'utu'uni. He 'ikai ke 'iai ha kaunga 'ae Potungae ki ha'o faitu'utu'uni pe ko ha mole, mau mau pe mo'ua 'e hoko tupu mei ha'o ngau'e'aki 'oe fakamatala ni. Ki ha'o toe faka'eke'eki fekau'aki moe fakamatala ni pea ke kataki 'o fetu'utaki mai ki he talekita 'oe Potungae Vakai Matangi 'i he metstaff@met.gov.to pe koe puha 1380 pe koe telefoni: (676)35123, 7400062 ki ha toe fakaliki.

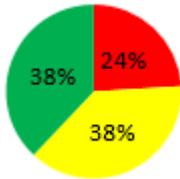
Another way of presenting the

Rainfall outlook November 2021– January 2022



Niuafu'ou:

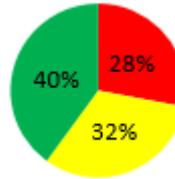
The forecast is biased towards "above-normal" to "normal" Rainfall conditions for November through to the end of January for Niuafu'ou. The probability of "above-normal" conditions occurring is 38% and the probability of "normal" conditions occurring is 38%. The chance of "below-normal" Rainfall occurring is least likely at 24%.



Note:
"Below-normal" Rainfall for the November to January period at Niuafu'ou includes Rainfall less than 700.7mm. "Above-normal" Rainfall is that which is greater than 980.7mm. "Normal" Rainfall lies between 700.7 and 980.7mm.

Niuatoputapu:

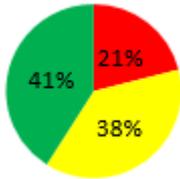
The forecast is biased towards "above-normal" Rainfall conditions for November through to the end of January for Niuatoputapu, with a forecast probability of 40%. The chance of "below-normal" Rainfall occurring is 28% while the chance of "normal" Rainfall is 32%.



Note:
"Below-normal" Rainfall for the November to January period at Niuatoputapu includes Rainfall less than 623.4mm. "Above-normal" Rainfall is that which is greater than 862.0mm. "Normal" Rainfall lies between 623.4 and 862.0mm.

Vava'u:

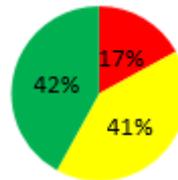
The forecast is biased towards "above-normal" to "normal" Rainfall conditions for November through to the end of January for Vava'u. The probability of "above-normal" conditions occurring is 41% and the probability of "normal" conditions occurring is 38%. The chance of "below-normal" Rainfall occurring is least likely at 21%.



Note:
"Below-normal" Rainfall for the November to January period at Vava'u includes Rainfall less than 465.3mm. "Above-normal" Rainfall is that which is greater than 813.0mm. "Normal" Rainfall lies between 465.3 and 813.0mm.

Ha'apai:

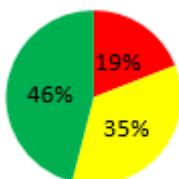
The forecast is biased towards "above-normal" to "normal" Rainfall conditions for November through to the end of January for Ha'apai. The probability of "above-normal" conditions occurring is 42% and the probability of "normal" conditions occurring is 41%. The chance of "below-normal" Rainfall occurring is least likely at 17%.



Note:
"Below-normal" Rainfall for the November to January period at Ha'apai includes Rainfall less than 311.9mm. "Above-normal" Rainfall is that which is greater than 570.9mm. "Normal" Rainfall lies between 311.9 and 570.9mm.

Fua'amotu & 'Eua

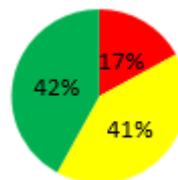
The forecast is biased towards "above-normal" Rainfall conditions for November through to the end of January for Fua'amotu, with a forecast probability of 46%. The chance of "below-normal" Rainfall occurring is 19% while the chance of "normal" Rainfall is 35%.



Note:
"Below-normal" Rainfall for the November to January period at Fua'amotu includes Rainfall less than 392.1mm. "Above-normal" Rainfall is that which is greater than 620.7mm. "Normal" Rainfall lies between 392.1 and 620.7mm.

Nuku'alofa:

The forecast is biased towards "above-normal" to "normal" Rainfall conditions for November through to the end of January for Nuku'alofa. The probability of "above-normal" conditions occurring is 42% and the probability of "normal" conditions occurring is 41%. The chance of "below-normal" Rainfall occurring is least likely at 17%.



Note:
"Below-normal" Rainfall for the November to January period at Nuku'alofa includes Rainfall less than 325.3mm. "Above-normal" Rainfall is that which is greater than 570.7mm. "Normal" Rainfall lies between 325.3 and 570.7mm.

Rainfall summary and Forecast verification for August – October 2021

Island Station (Year record start—present)	August– October 2021				Rank	August– October 2021 Forecast probabilities (%)			Verification: Correct, Near correct, Incorrect
	Observed rainfall (mm)		Rainfall Forecast range (mm)			Below average	Average	Above average	
Niuafō'ou (1971-2021)	237.3	Below Normal	331.0	479.7	8/49	33	35	32	Near-correct
Niuaotoputapu (1947-2021)	198.7	Below Normal	284.0	515.4	12/72	31	34	35	Near-correct
Vava'u (1947- 2021)	605.4	Above Normal	332.7	474.6	67/75	33	33	34	Near-correct
Ha'apai (1947- 2021)	297.0	Normal	238.7	355.0	38/75	31	34	35	Correct
Fua'amotu (1980-2021)	297.1	Normal	280.0	407.6	17/42	34	33	33	Correct
Nuku'alofa (1944-2021)	266.7	Below Normal	274.9	399.8	26/77	33	32	35	Near-correct