



Climate Update

Issued: 15 October 2021

Drought warning is now in force for Niuafou'ou, Niuatoputapu and Tongatapu. El Niño–Southern Oscillation (ENSO) remains at La Nina Alert.

The **Drought Warning is now in force for Niuafou'ou and Niuatoputapu**. The drought warning for Niuafou'ou and Niuatoputapu is based on the amount of rain that has fell in the past 2 weeks which has been extremely low, (refer to tables 1 & 2). Reports of water deficiency and drought conditions in the island that has shown impacts in water catchments, plantation and in most areas in the island. Also the rainfall forecast for the next 10 days is biased towards below average rainfall, refer to 10-days rainfall outlook and figure 2 below for the weekly rainfall forecast.

A Drought warning is now in force for Tongatapu is issued because rainfall for the previous 3 months is below the 25% (i.e the driest 25% of all previous 3 months). The current rainfall percentile for Nuku'alofa is 23.7%, (Refer to Table 3 & Figure 1 below) for rainfall figures.

People are advised to collect water when it rains, use water wisely and put rationing measures in place to minimize impacts of the drought in climate sensitive sectors.

Definitions:

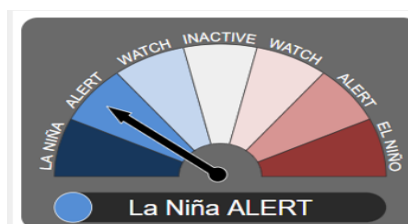
Drought: Drought is a prolonged, abnormally dry period. When the amount of available water is insufficient to meet our normal use.

Prolonged drought: To a meteorologist, a drought is a **prolonged period when precipitation is less than normal**. To a water manager, a drought is a deficiency in water supply that affects water availability and water quality. To a hydrologist, a drought is an extended period of decreased precipitation.

Rainfall deficit: A rainfall deficit is defined as a **sub medial value in a set of rainfalls which have equal durations**. When somewhere receives less rainfall than usual (average), we can say that it has a rainfall deficiency.

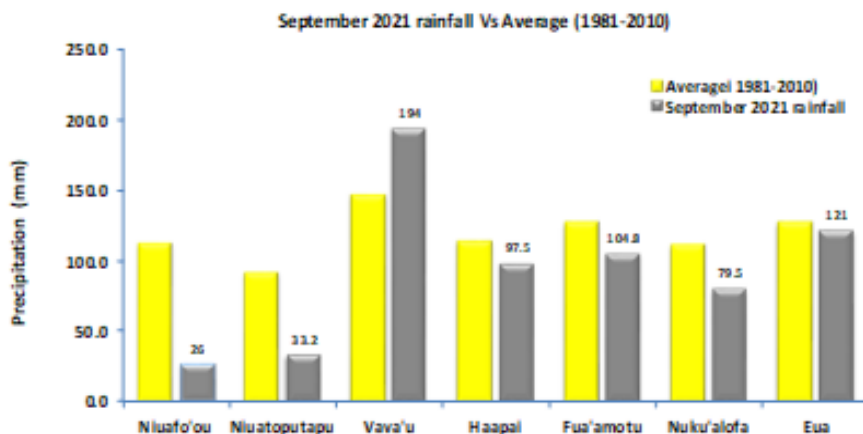
ENSO status

The ENSO Outlook has been raised to La Nina Alert. This means that while the El Niño–Southern Oscillation is currently neutral, but the chance of a La Nina forming during the coming months has increased to around 70%. Sea surface temperatures in the tropical Pacific Ocean continue to cool. Three out of seven models indicate La Nina thresholds could be met during the October to December period and persist until at least early 2022. La Nina events brings cooler than average waters to our oceans and increase the chance of above average rainfall in Tonga.



September 2021:

Above average rainfall was recorded in Vava’u, the Niuaus received extremely low rainfall and a little below average rainfall in Ha’apai, Tongatapu and ‘Eua in September, (see graph below). The mean temperature was 24.5°C which was 0.6°C warmer than average. Highest maximum temperature was 33.2°C on the 30th in Niuafo’ou and the lowest minimum temperature was 13.2°C in Hango, “Eua on the 27th.



Forecast for October to December 2021 & January –March 2022

	Oct– Dec 2021 (% chance)	Jan – Mar 2022 (% chance)
Niuafo’ou	36	38
Niuatoputapu	37	39
Vava’u	39	37
Ha’apai	39	39
Fua’amotu & ‘Eua	46	46
Nuku’alofa	43	38

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.

Advise to Rainfall Sensitive Sectors

Agriculture

Careful drought planning and actions needs to be implemented now like the following:

- Prepare enough water if it can be spared for irrigating of water dependent crops
- Apply mulching to the soil around crops to keep as much soil moisture in the ground
- Plant drought resistant crops over the next 6 months e.g. cassava and lose yam
- Discuss with your local MAFFF Extension Officer on how to safeguard your crops from drought
- Follow the 10-day rainfall forecast provided by the Me Office daily

Water

Households are advised to closely monitor and look after your water supply in the 3 to 6months. If your water supply is rainwater only consider rationing and prioritizing your water usage for drinking, cooking and WASH only, preserve water and collect as much rain water as possible by following the latest weather forecasts and reacting to forecasted rainfall events by collecting as much rain water as possible.

Health

Drought especially prolonged drought always brings with it health risks. Drinking and using contaminated water could result in illnesses such as diarrhea and typhoid. And some skin diseases could be experienced due to lack of water for proper sanitation. Consider, boiling drinking water from water catchments. For those who pump ground water for usage, please consult with the Geology Division of the Ministry of Lands and Natural Resources on proper pump and ground water management during drought situations if prolonged dry periods are experienced.

Disaster Management

Town Officers and NGOs please work closely with your communities' groups to monitor and gauge the water availability and report to NEMO or MIA any water shortages or difficulties that start to arise.

Table 2, Rainfall recorded at Niuafu'ou from 1-14 October 2021

Date	Rain	Date	Rain
1 Oct	2.0	8 Oct	Nil
2 Oct	13.5	9 Oct	Nil
3 Oct	2.0	10 Oct	Nil
4 Oct	Nil	11 Oct	7.5
5 Oct	Nil	12 Oct	Nil
6 Oct	Nil	13 Oct	Nil
7 Oct	2.0	14 Oct	Nil

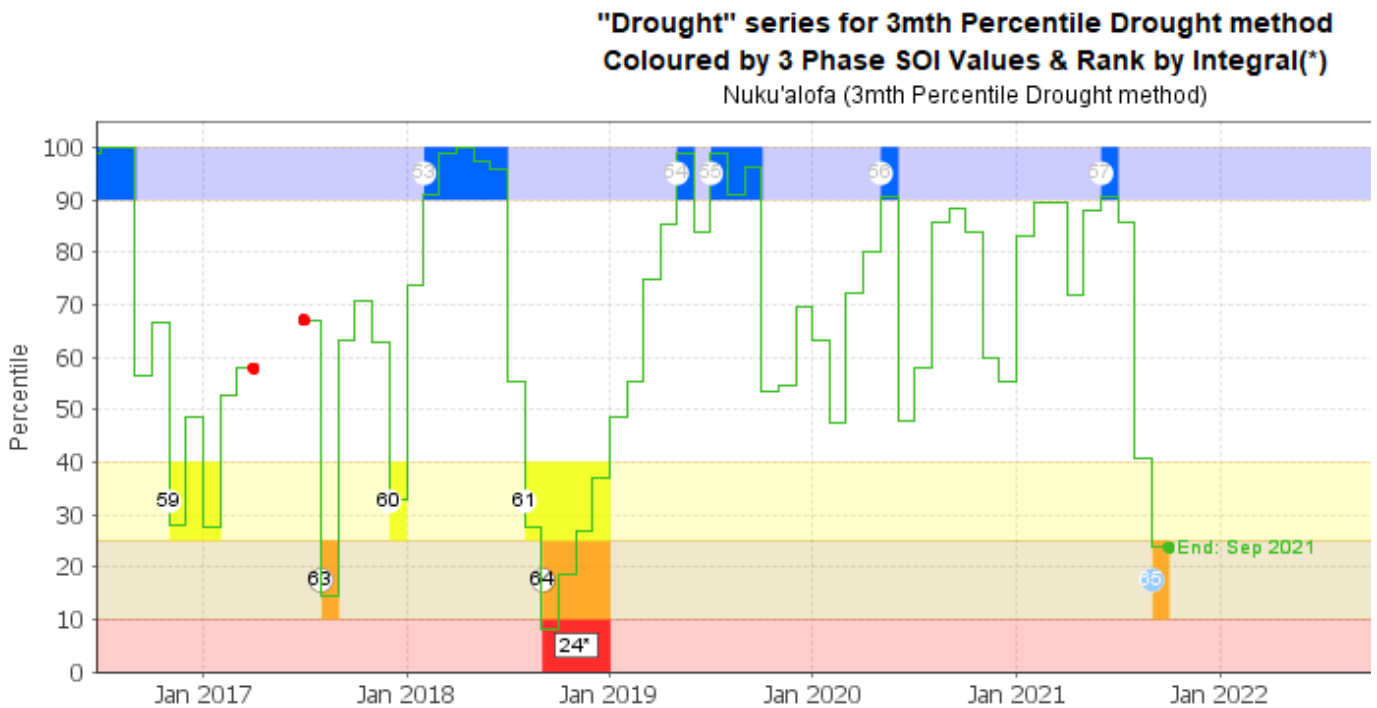
Table 1: Rainfall recorded at Niuatoputapu from 1-14 October 2021

Date	Rain	Date	Rain
1 Oct	4.5	8 Oct	Nil
2 Oct	1.5	9 Oct	Nil
3 Oct	Nil	10 Oct	Nil
4 Oct	0.5	11 Oct	9.5
5 Oct	Nil	12 Oct	Nil
6 Oct	Nil	13 Oct	Nil
7 Oct	Nil	14 Oct	Nil

Table 3. Showing rainfall from July-September 2021

Rainfall totals for July– September 2021 (mm)			
	July	August	September
<u>Niuafo'ou</u>	59.0	154.7	26.0
<u>Niuaotoputapu</u>	132.9	144.9	33.2
<u>Vava'u</u>	122.4	267.0	194.0
<u>Ha'apai</u>	54.7	141.2	97.5
<u>Fua'amotu</u>	135.1	82.0	104.8
<u>Nuku'alofa</u>	93.4	74.0	79.5
<u>'Eua</u>	127.5	109.0	121.0
Below average	Average (usual)	Above average	

Figure 1: Showing Nuku'alofa drought status at the end of September 2021. below the 25%.



10 Days Rainfall Outlook for Tonga

Issued Time: 5:00am (15th October, 2021)

Next Issue Time: 5:00pm (15th October, 2021)

Island Divisions	Friday 15 th October	Saturday 16 th October	Sunday 17 th October	Monday 18 th October	Tuesday 19 th October	Wednesday 20 th October	Thursday 21 st October	Friday 22 nd October	Saturday 23 rd October	Sunday 24 th October
Niufo'ou	80%	70%	60%	50%	40%	30%	20%	20%	10%	10%
Niuatoputapu	80%	70%	60%	50%	40%	30%	20%	20%	10%	10%
Vava'u	80%	70%	60%	50%	40%	30%	20%	20%	10%	10%
Ha'apai	80%	70%	60%	50%	40%	30%	20%	20%	10%	10%
Tongatapu	80%	70%	60%	50%	40%	30%	20%	20%	10%	10%
'Eua	80%	70%	60%	50%	40%	30%	20%	20%	10%	10%

Confidence Level

Low: 0 - 20% likelihood (or 1 chance in 10) that the event will actually happen.

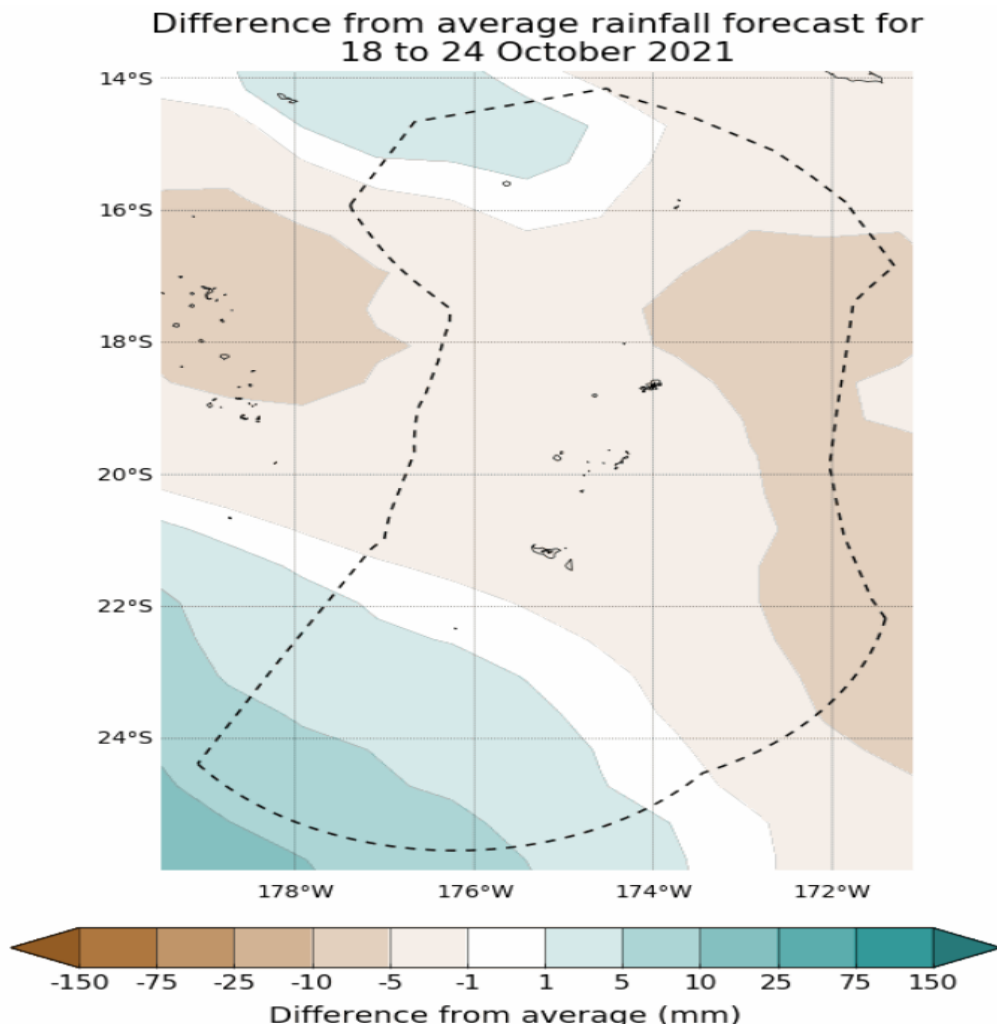
Moderate: 20 - 50% likelihood (or 2 to 5 chances in 10) that the event will actually happen.

High: 50 - 70% likelihood (or 5 to 7 chance in 10) that the event will actually happen.

Very High: 70 - 100% likelihood (or 7 to 10 chance in 10) that the event will actually happen.

	<p>Rain amount: 0 – 1.0mm (Mainly fine with little to no rain)</p> <ul style="list-style-type: none"> Water plants and crops as necessary. Carry Umbrella or Sun Screen to protect you from the Sun, and have drinking water available. Generally a Good Day for outdoor activities (e.g. Laundry, picnics, wedding ceremonies, sports activities etc...) Watch out for prolonged dry periods (red colour) for more than 14 days (drought).
	<p>Rain amount: 1.1 – 5mm (Cloudy periods with Light Showers or Light Rain: puddles form slowly)</p> <p>Impacts:</p> <ul style="list-style-type: none"> School children may need to take rain coats or umbrella with them just in case of passing showers. Down pipes and water catchments should be clean and ready to receive as much water as possible. Expect slight muddy road conditions in some low lying areas. Household outdoor activities (e.g. BBQ, Birthday Celebrations, Clean up or Tapa Making etc.) should be planned to consider that there will be periods of rain. Favourable for Outdoor gardening especially planting.
	<p>Rain amount: > 5mm (Generally Cloudy or Overcast with Rain or Heavy Showers: puddles rapidly forming and down pipes flowing freely) Impacts:</p> <ul style="list-style-type: none"> Green means listening to radio for the weather forecast for any possible heavy rain or flood warnings. Possible Flooding and school cancellations if more than 50mm. Muddy ground conditions is likely, plan accordingly (e.g. use 4 wheel drive when going to the plantation) General Public should take rain coats/umbrellas with them and spare changing clothes. Beware of elevated chances of soil erosion and run offs in slope areas. Plan for indoor activities (e.g. indoor workshops, accounting, planning, etc...) Mosquitoes could be a problem, two week after continuous periods of heavy rain.

Figure 2: Rainfall forecast from 18-24 October 2021



For more information on this media release, please do not hesitate to contact our Meteorological office at 0800638 or visit our Face book page (Tonga Meteorological Services) or by email at metstaff@met.gov.to for more information.