



MINISTRY OF METEOROLOGY,  
ENERGY, INFORMATION, DISASTER  
MANAGEMENT, ENVIRONMENT,  
CLIMATE CHANGE AND  
COMMUNICATIONS (MEIDECC)  
NUKU'ALOFA, TONGA

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## 2018–2019 Tropical Cyclone Season Outlook for Tonga (30 October 2018)

### Summary

The tropical cyclone (TC) activity expected in the 2018/19 Tropical Cyclone Season to affect Tonga is likely to be average to above average. This means that there is a 75% chance of at least 2 cyclones to occur during the cyclone season. And although historical records indicate there could be a low chance of severe tropical cyclones occurring this season, citizens are advised to expect the likelihood of at least 1 severe cyclone occurring due to climate variability brought about by global warming.

Any tropical cyclones passing close to the country, associated active cloud and rain bands may occasionally affect Tonga with marked rainfall and possible flooding, including sea flooding of low-lying coastal areas.

With the expectation of tropical cyclone formation (genesis) to lie east of the Dateline, there is high chance that any tropical cyclone affecting Tonga would approach from the Northwestern and Northern sector.

About 7 to 9 named Tropical Cyclones are expected for the South West Pacific in 2018/2019 season.

This is consistent with some pre-season traditional weather indicators e.g. moderate to heavy flowering and fruiting of breadfruit.

### Analysis and Outlook for Tonga

The official 2018/19 TC Season will begin on 1st of November 2018, and will end on 30th April, 2019. It should be noted that tropical cyclones have occasionally formed outside this period e.g. Tropical Cyclone “Keli” which affected Northern Tonga in June 1997. The peak time for the occurrence of tropical cyclones in Tonga is from January to March with most events occurring in February.

International forecast guidance in the last few months indicate there is an approximate 70% chance of a weak El Niño development during the 2018/19 tropical cyclone season. Therefore, there is a moderate chance that below average rainfall conditions could be expected during the tropical cyclone season.

On record, about 2 cyclones affect Tonga during El Nino years.

Cyclones that have affected Tonga in the past where current and forecast conditions are similar to the 2018/19 Cyclone Season.

<b>Cyclone Season</b>	<b>No. of Tropical Cyclone</b>	<b>No. of Severe Tropical Cyclone</b>
1969-70	3	0
1976-77	2	0
1977-78	2	0
1979-80	4	0
1986-87	1	0
2004-05	2	0
2006-07	1	0
2009-10	3	0
<b>Average</b>	<b>2.25</b>	<b>0</b>

Table 1: Current sea surface temperatures patterns indicate the 2018/19 Tropical Cyclone season is expected to be similar to 8 other seasons in the past (1969/70, 1976/77, 1977/78, 1979/80, 1986/87, 2004/05, 2006/07, 2009/10).

## **Likely Sector Impacts during the 2018/19 Tropical Cyclone Season**

### **1. Agriculture**

There is a moderate to high risk that the agriculture sector will be affected. Particularly crops prone to high winds e.g. Banana, Papaya, Breadfruit and lower than normal summer rainfall e.g. Kava, Taro and Vegetables. Seek advice from MAFFF.

### **2. Water**

Moderate risk of water shortages could be experienced in areas dependent on rain water harvesting. Those in this category should use water wisely.

### **3. Health**

Moderate risk of water contamination related diseases occurring e.g. typhoid due to likely drier conditions.

### **4. Infrastructure**

Risk of damage to poorly constructed homes due to increased likelihood in Cat1 and Cat2 cyclone occurrence.

### **5. Tourism**

Moderate risk to Tourist numbers due to reduced number of cruise ships during cyclone season. Also likely minor to moderate risk to game fishing industry due to changes in fish behavior due to change in currents, temperature fronts and weakening trade winds.

## **6. Fisheries**

Reduced Tuna catches due to tuna migration associated with the developing El Nino could affect fisherperson livelihoods. Minor to Moderate coral bleaching or algae blooms associated with changes in sea surface temperature could expose inshore fisher folk.

## **7. Utilities**

Moderate to high risk to Communications, Water and Power utilities expected. Power distribution will be ceased when winds approach average wind speeds of 40knots.

## **8. Transport**

Moderate risk of above than normal cancellations to ferry operations due to likely increase in tropical cyclone activity.

### **Note of caution**

It should be noted that the information provided is only to be used as guidance and the given range of tropical cyclone numbers is indicative only. It is expected that the total number of tropical cyclones could be in the vicinity of the listed values, and not necessarily within the given range. The values are the most likely number of tropical cyclones based on statistical and scientific evidence, including the influences by regional and global weather and climate variability drivers and indices.

All communities should remain alert and prepared throughout the 2018/19 Tropical Cyclone Season and take heed of tropical cyclone alerts, warnings and advisories seriously whenever it is issued to reduce the effects on life and property. All communities are urged to be vigilant and follow forecast information provided by the Meteorology Department of the Ministry of MEIDECC throughout the season.

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