# El Niño and its Impacts on the Republic of Palau

What is El Niño?

The El Niño – Southern Oscillation (ENSO) is a recurring climate pattern where about 3 to 7 years climate conditions over the Pacific Ocean basin change dramatically. The extremes of this oscillation are referred to as El Niño and La Niña.

Normally, strong trade winds blow from the east along the equator, ocean waters are warm and rainfall is plentiful over the western Pacific, while over the central and eastern Pacific, ocean waters are cool and conditions are dry. During an El Niño event, sea surface temperatures over the central and eastern Pacific become warmer than normal.
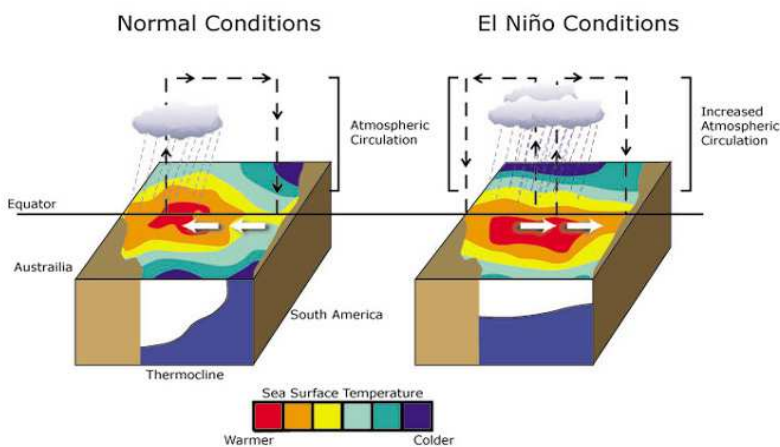
The normal easterly trade winds weaken and sometimes, the winds will switch and blow from the west to the east! The result is drier weather conditions over the Western Pacific which can impact food and water availability, like taro.
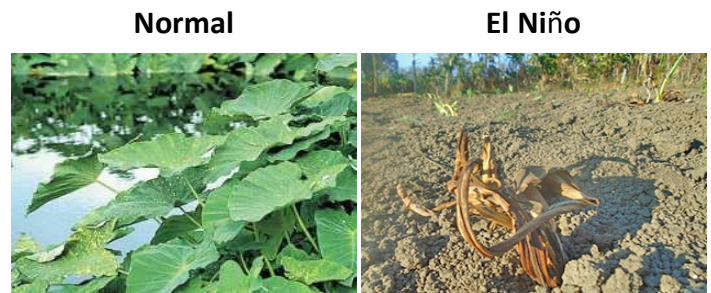
Normal   **El Niño**

Mostly, El Niño conditions linger for a year, but sometimes longer. Conditions can start as early as March and peak in December. This event is called "El Niño", Spanish for the Christ Child.

Normal   **El Niño**

Coral and algae depend on each other to survive. When stressed, algae leaves the coral and the coral is left bleached and vulnerable to disease.

Storms form closer to the islands and can increase flooding and sediment runoff from the land onto the coral reefs. This effect combined with slight sea level drops can cause coral die-offs and alter fishing habitats.

Associated with ENSO events are droughts, flash floods from severe storms, food and water shortages, and increase in health problems.

Every El Niño Differs!
The strengths and impacts of these events vary greatly making constant monitoring and awareness extremely important for decision makers to help you be prepared.
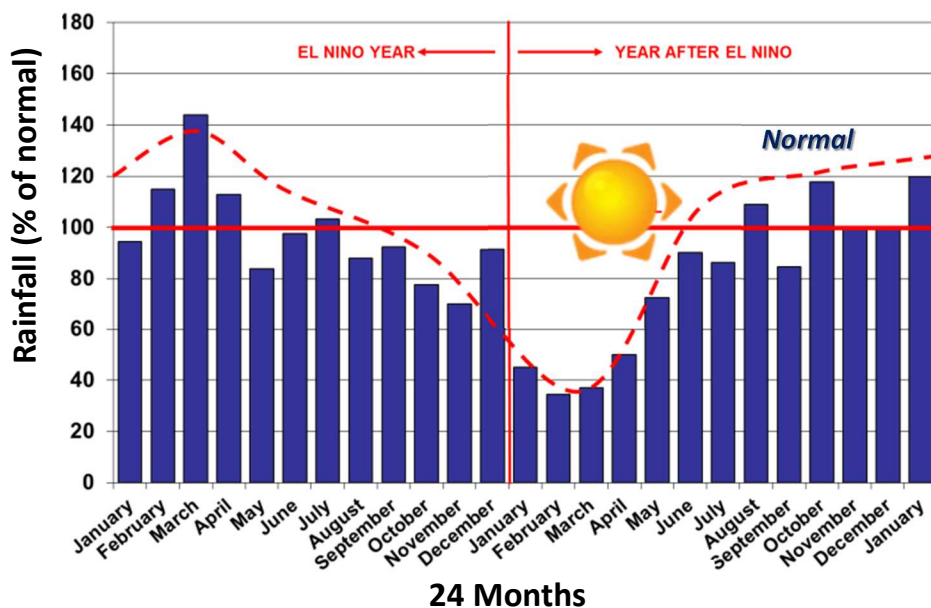
Summary for Palau

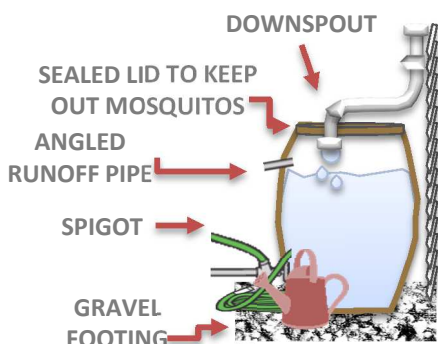|			
	⬇	**Rainfall**	Steadily decreasing; longer and drier dry-season
	⬇	**Trade-winds**	Weaker, with occasional westerly winds
	⬇	**Sea Level**	Lower at first, gradual recovery in about 1 yr
	⬇	**Ocean Conditions**	Cooler at and below the surface
	⬇	**Tropical Cyclones**	Reduce risk, storms form closer to the date line

Weather Ready: *Drought Preparedness*

- Rainfall starts to decline as early as April of the El Niño year and reaches it's largest deficits in February to March of the year following El Niño. Rainfall usually returns to normal by August of the year following El Niño but dry conditions may linger longer for some events.
- Water supply will decrease
- Farming & crops will be damaged
- Habitats for terrestrial and marine plants and animals will be stressed
- Health problems - bacteria in water and food, lack of food, and dehydration
- Wild fires risk will increase

Monthly rainfall during El Niño years for Palau

EL NINO YEAR ← → YEAR AFTER EL NINO

Normal

Rainfall (% of normal)

24 Months

Reduce water dependency & construct a rainwater catchment system *(water good for 6 weeks)*

DOWNSPOUT

SEALED LID TO KEEP OUT MOSQUITOS

ANGLED RUNOFF PIPE

SPIGOT

GRAVEL FOOTING

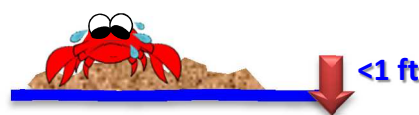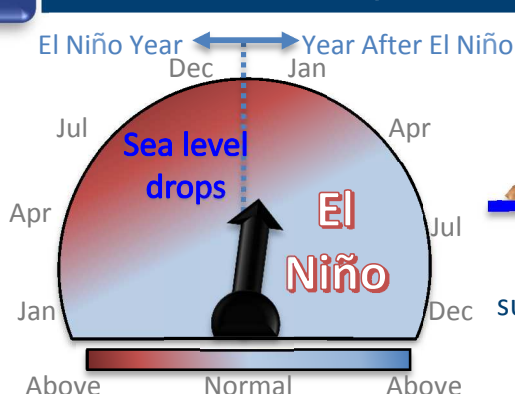## Weather Ready Tips

Credit: Raftography

Stabilize stream banks & plant less water-dependent crops

Use graywater for irrigating lawns, trees, ornamentals or food crops *(not for young and acid soil needing plants or water containing softeners)*

Weather Ready: *Sea Level Drop*

El Niño Year ← → Year After El Niño

Dec   Jan
Jul   Apr
Sea level drops
Apr   Jul
El Niño
Jan   Dec

Above   Normal   Above

Help coral reef ecosystems survive by reducing sediment and pollution run off

<1 ft

- Sea levels will drop below normal conditions by several inches up to nearly 1 foot during severely strong El Niño conditions, for over 1 year
- During a moderate El Niño, sea level conditions are less severe
- Marine organisms will be impacted - spawning & reproduction will decrease