



# HURRICANES AND CLIMATE CHANGE

## Fact Sheet

HURRICANE

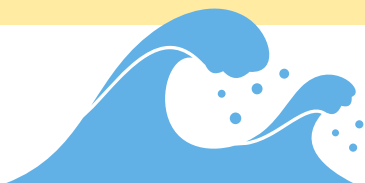
### WHAT ARE HURRICANES?

Hurricanes, also known as tropical cyclones, are immense, rotating storm systems characterized by strong winds and intense rainfall. They form over warm ocean waters in tropical and subtropical regions across the world.

## How do hurricanes form?

### WARM OCEAN WATER

Hurricanes derive their energy from warm ocean waters, typically with surface temperatures of 26.5 degrees Celsius (80 degrees Fahrenheit) or higher. Warm water provides the necessary heat and moisture to fuel the storm's development.



### MOISTURE AND CONVECTION

As the warm, moist air near the ocean's surface rises, it creates an area of low pressure. This rising air initiates a process known as convection, where air parcels continue to rise, cool, and condense, forming clouds and releasing heat, which further fuels the storm's development.

### FORMATION PROCESS

Hurricanes typically originate from tropical disturbances, such as clusters of thunderstorms, tropical waves, or easterly waves, that move off the west coast of Africa or develop in the warm waters of the Atlantic, Pacific, or Indian Oceans. As these disturbances encounter favorable conditions, including warm sea surface temperatures and low wind levels, they can organize and strengthen into tropical depressions, tropical storms, and eventually hurricanes.

## IMPACTS OF CLIMATE CHANGE ON HURRICANES



One of the many impacts of climate change is the **increase in ocean temperature**. Warmer ocean temperatures, driven by climate change, play a significant role in the intensification of hurricanes. As the Earth's atmosphere warms, the oceans absorb more heat, providing additional energy to fuel the development of storms. This increased heat energy leads to stronger and more powerful hurricanes, characterized by higher wind speeds and heavier rainfall.

Warmer waters also **contribute to greater evaporation rates**, which can further enhance the moisture content of hurricanes, intensifying their rainfall and potential for flooding. Consequently, the warming of ocean temperatures due to climate change exacerbates the destructive potential of hurricanes, posing greater risks to coastal communities and ecosystems.

### HURRICANE SEASON

Some research suggests that climate change could lead to shifts in the seasonality of hurricanes. This may result in earlier starts or later ends to the hurricane season here in the Cayman Islands, as well as changes in the geographic distribution of hurricane activity. Places that are not used to getting hurricanes made be surprised!

# When is Cayman's Hurricane Season?

Cayman's hurricane season currently runs from:



To



## How might stronger hurricanes affect us in Cayman?

### ENVIRONMENTAL IMPACT

Stronger and more intense hurricanes will lead to more damage to important ecosystems in Cayman like our coral reefs and mangroves. Both of these ecosystems act as the first line of defense for us during an extreme weather event. Damage to these ecosystems will also damage biodiversity which will take many years to recover!

### HOMES AND INFRASTRUCTURE

Stronger storms mean homes and essential infrastructure, such as hospitals, grocery stores, airports and seaports, are more likely to be damaged and close down to rebuild. This will mean we have to rely on the help of other countries for aid and work together to rebuild our island.

### VULNERABLE COMMUNITIES

Although many homes in the Cayman Islands are built to hurricane standard who are strong enough to withstand a hurricane, there are still communities on our islands not built to the same standard who are more vulnerable to flooding and being blown over in strong winds. This may result in many people being without a home after a strong hurricane!

### ECONOMIC IMPACT

Here in the Cayman Islands, we rely on things like tourism and financial services to hold up our economy. If our beautiful beaches are destroyed after a hurricane and we have limited resources like water and food to go around, it may take a while for tourists to be allowed back to our Islands. The loss of tourism income and the amount of money needing to be spent to rebuild our country could be damaging to our economy!

