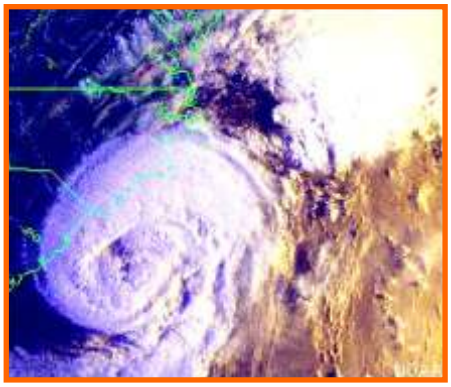


What is a Hurricane?

A "hurricane" is the most severe category of the meteorological phenomenon known as the "tropical cyclone".

Tropical cyclones are low-pressure systems that have thunderstorm activity and rotate anticlockwise.

They originate in the tropics where warm ocean water helps their development.

Hurricane Glossary

Tropical Storm:
Tropical cyclone with winds of 39 to 74 mph.

Tropical Wave:
A kink or bend in the normally straight flow of surface air in the tropics which forms a low pressure trough, or pressure boundary, showers and thunderstorms. Can develop into a tropical cyclone.

Tropical Cyclone:
A low-pressure weather system in which the central core is warmer than the surrounding atmosphere. The term "tropical cyclone" is also used in the Indian Ocean and around the Coral Sea off northeastern Australia to describe storms called "hurricanes" and "typhoons" in other areas.

Tropical Depression:
A tropical cyclone with maximum sustained winds near the surface of less than 39 mph.

Hurricane:
A tropical cyclone with winds of 74 mph or more. Normally applied to such storms in the Atlantic Basin and the Pacific Ocean east of the International Date Line.

Tropical Storm Alert:
Tropical storm conditions (34-73 mph) are expected within 48 hours.

Tropical Storm Watch:
Tropical storm conditions (34-73 mph) are expected within 36 hours.

Tropical Storm Warning:
Tropical storm conditions (34-73 mph) are expected within 24 hours.

Tropical Storm All Clear:
This means that the storm has left the area, but caution should prevail.

Storm Surge:
The dome of water that builds up as a hurricane moves over water. As the water comes ashore with the storm, it causes flooding that is usually a hurricane's biggest killer.

Eye:
The low pressure centre of a tropical cyclone. Winds are normally calm and sometimes the sky clears.

Eye Wall:
The ring of thunderstorms that surrounds a storm's eye. The heaviest rain, strongest winds and worst turbulence are normally in the eye wall.

Knot:
A measure of speed. It is one nautical mile per hour. Never refer to "knots per hour" unless you want to describe acceleration. A nautical mile is one minute of one degree of longitude and is slightly longer than the ordinary, or statute, mile used in the US. To convert nautical miles to miles or knots to miles per hour, multiply by 1.15. To convert miles to nautical miles or mile per hour to knots, divide by 1.15.

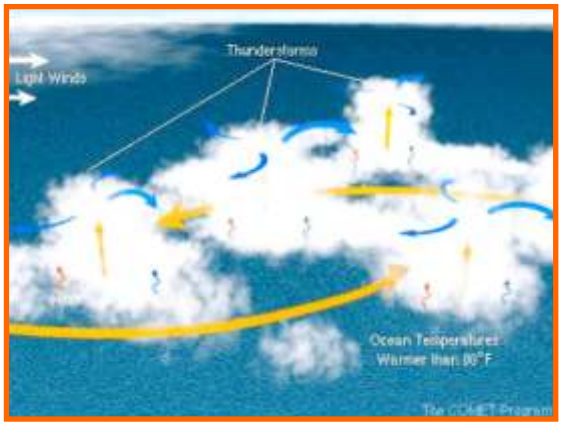
Millibar:
A metric measurement of air pressure.

Barometric Pressure:
Defined as atmospheric pressure, i.e., the force exerted on a surface of unit area caused by the weight of the air column above, normally at 1013.2 millibars at sea level. It indicates the presence and movement of weather patterns and affects many physical measurements.

North Atlantic Basin (sometimes called the Atlantic Basin):
The Atlantic Ocean north of the equator, the Caribbean Sea, and the Gulf of Mexico.

Hurricane Formation

Hurricane season is the period between 1 June and 30 November. At this time, conditions are most favourable for formation because a tropical cyclone and its growth into a hurricane requires:



A pre-existing weather disturbance with thunderstorms

Ocean temperatures at least 80°F to a depth of about 150 feet

Winds that are relatively light throughout the depth of the atmosphere (low wind shear)

Heat and energy for the storm are gathered by the disturbance through contact with warm ocean waters. The winds near the ocean surface spiral into the disturbance's low-pressure area. The warm ocean waters add moisture and heat to the air, which rises. Bands of thunderstorms form, and the storm's cloud tops rise higher into the atmosphere. If the winds at these high levels remain relatively light (little or no wind shear), the storm can remain intact and continue to strengthen.

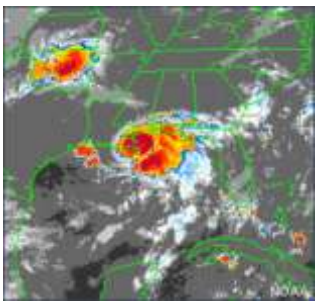
Tropical storms and hurricanes weaken when their sources of heat and moisture are cut off (as happens when they move over land) or when they encounter strong wind shear.

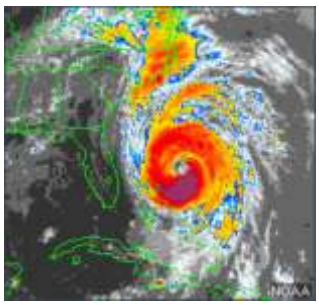
However, a weakening hurricane can re-intensify if it moves into a more favorable region, and the remnants of a hurricane that has already made land fall can still cause considerable damage.

Hurricane Anatomy

Typical hurricanes are about 300 miles wide although they can vary considerably in size, as shown in the two satellite images below.

Size is not necessarily an indication of hurricane intensity. Hurricane Andrew (1992), the most devastating hurricane of the 20th century, was a relatively small hurricane.





The hurricane's structure includes the eye, the eye wall, and the rain bands. The eye at a hurricane's centre is a relatively calm, clear area approximately 20-40 miles across. The eye wall surrounds the eye and is composed of dense clouds that contain the highest winds in the storm. The storm's outer rain bands (often with hurricane- or tropical storm-force winds) are made up of dense bands of thunderstorms that extend out as little as 50 miles from the storm in small hurricanes to as much as 300 miles in large ones.

Hurricane-force winds (more than 74 mph) can extend from the centre outward to about 25 miles in a small hurricane and to more than 150 miles for a large one. Tropical storm-force winds (between 39 and 74 mph) can reach distances as far as 300 miles from the center of a large hurricane.

Do not focus on the eye or the forecast track - hurricanes are immense systems that can move in complex patterns that are difficult to predict. Be prepared for changes in size, intensity, speed, and direction.

Frequently, the right side of a hurricane is the most dangerous in terms of storm surge, winds, and tornadoes. The speed of the general atmospheric flow in which the hurricane is embedded (for example 30 mph) is added to the average hurricane wind speed (for example 100 mph) on the right side. This increase in wind speed (to 130 mph in the example) increases the danger in areas impacted by the right side of the storm. NHC forecasts take this effect into account in their official wind estimates.

Hurricane Dangers

Danger: Storm Surge | Wave Action | Wind | Rain

Because they are small and low-lying, the Cayman Islands face great danger from high, crashing waves, and rising sea level (storm surge) during a hurricane. These, along with the strong winds and driving rain, often cause sudden, severe flooding, and can quickly weaken the foundations and walls of buildings, especially those near the shore. Flying debris thrown in by the waves or wind can become deadly missiles, both to people and to buildings which are not hurricane resistant. If you live on or near the waterfront, or in a flood prone area, plan to leave if a hurricane threatens.

What to Expect from a Storm or Hurricane
Storms are classified according to their wind speed. Each system behaves in its own peculiar way, but you can generally expect the damage listed below for each type of storm.

Saffir/Simpson Hurricane Scale

CAT	Winds	Effects	Surge
1	74-95mph (64-82kt)	No real damage to building structures. Damage primarily to unanchored mobile homes, shrubbery, and trees. Also, some coastal flooding and minor pier damage.	◄ 4-5 ft
2	96-110mph (83-95kt)	Some roofing material, door, and window damage. Considerable damage to vegetation, mobile homes, etc. Flooding damages piers and small craft in unprotected moorings may break their moorings.	◄ 6-8 ft
3	111-130mph (96-113kt)	Some structural damage to small residences and utility buildings, with a minor amount of curtainwall failures. Mobile homes are destroyed. Flooding near the coast destroys smaller structures with larger structures damaged by floating debris. Terrain may be flooded well inland.	◄ 9-12 ft
4	131-155mph (114-135kt)	More extensive curtainwall failures with some complete roof structure failure on small residences. Major erosion of beach areas. Terrain may be flooded well inland.	◄ 13-18 ft
5	155mph+ (135+kt)	Complete roof failure on many residences and industrial buildings. Some complete building failures with small utility buildings blown over or away. Flooding causes major damage to lower floors of all structures near the shoreline. Massive evacuation of residential areas may be required.	◄ 18 ft +

This is general information and Cayman will not necessarily experience similar conditions. The Saffir-Simpson information on surge is approximate data; surge is a complex issue with many contributing variables. For example, in the case of Cayman, the slope of the continental shelf is steep and this would generally decrease the Safir-Simpson surge heights to lower levels than the published standards.