Room for notes

HURRICANES 1

Hurricanes are gigantic tropical storms that can be hundreds of kilometres **wide**. They bring along very strong winds and a lot of rainfall. They often **cause flooding** near the coasts and cause **sea levels** to **rise**.

Hurricanes **occur** in many parts of the world. In the Pacific Ocean they are called typhoons and in Australia they are willy-willies. In the Atlantic Ocean and the Caribbean Sea, they are called hurricanes.

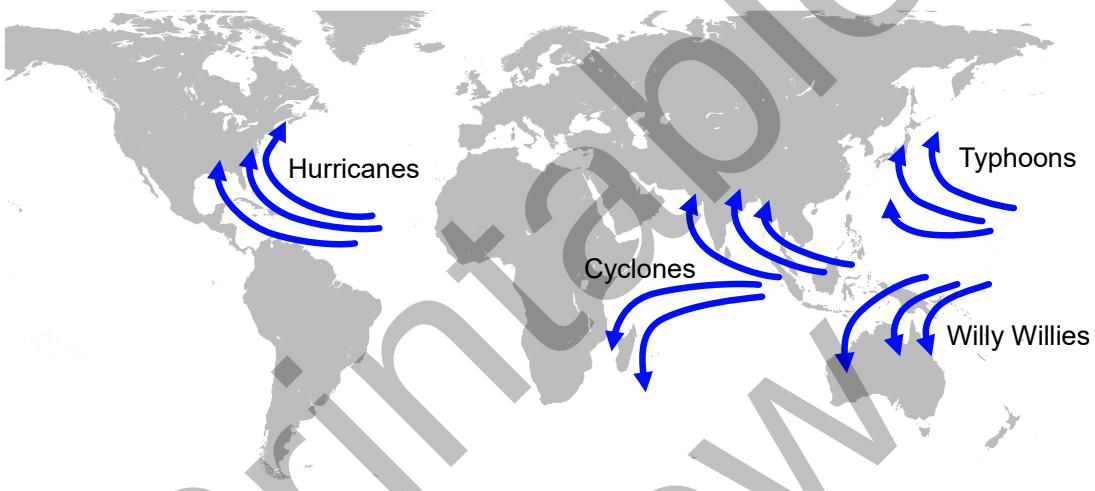


Image: Map by Crates, CC BY-SA 4.0 , via Wikimedia Commons
modified by Klaus Rosmanitz

How Hurricanes Start

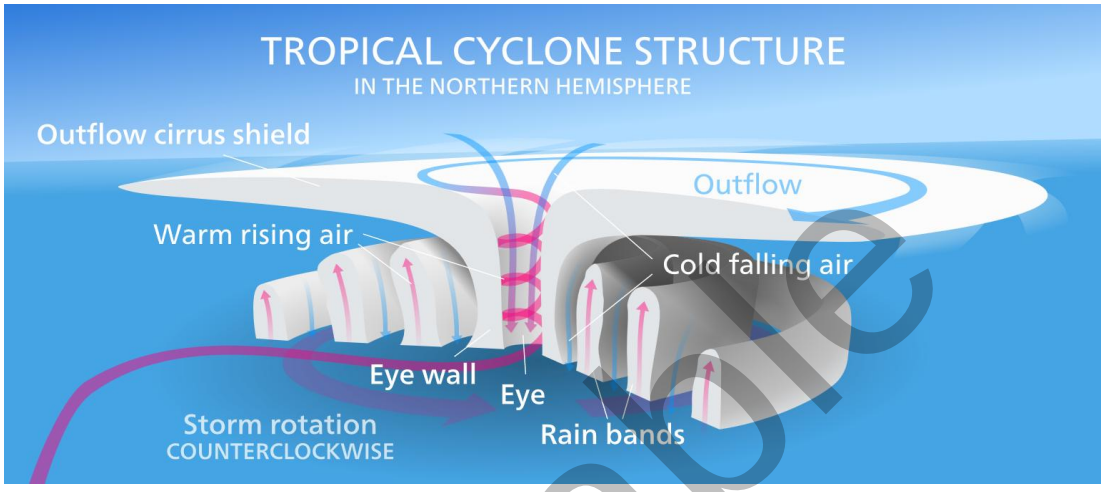
Hurricanes are born over tropical oceans, usually during late summer and early autumn. They need two things to get them started: heat and **moist** air.

During the summer the ocean **surface** heats up, and warm **moist** air starts to rise. Cool air sinks down to **replace** it. This **creates** an area of **low pressure**.

The rotation of the earth **creates** winds around the centre of such a low-pressure area. In the northern **hemisphere** the air moves **counterclockwise** , in the southern part **clockwise**. Such a system is called a cyclone.

When warm air **rises** it cools. As a result, clouds and **thunderstorms** form and it starts to rain.

All hurricanes begin as cyclones, but not all cyclones become storms or hurricanes. Some die out a few days after they start. They don't have enough energy to become a hurricane. When winds are stronger than 119 km an hour a storm **officially** becomes a hurricane.



Tropical cyclone in the northern hemisphere

Image: Kelvinsong, CC BY 3.0 , via Wikimedia Commons

Structure of a Hurricane

The centre of a hurricane is called the eye, a **calm** area with **little** rainfall. It is about 30 to 50 km wide. Inside the eye the sea can rise up to one metre because the air moves up.

The eyewall is around the eye . This is an area of **thunderstorms**, rain and the strongest winds—up to 300 km an hour.

Then come long bands of rain clouds that are **curved towards** the centre of the hurricane.

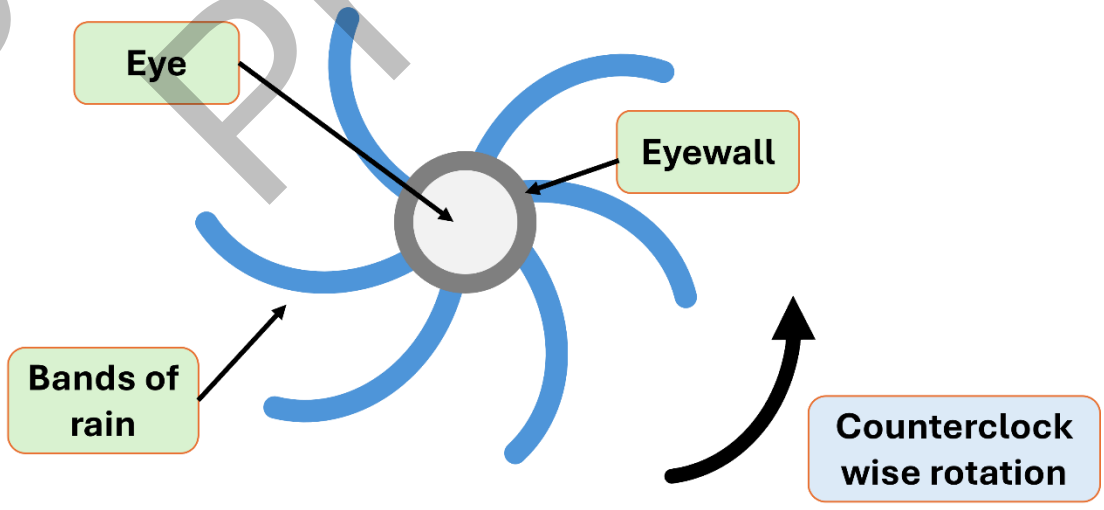


Image: Klaus Rosmanitz

How Hurricanes Move

In the northern **hemisphere** hurricanes normally move in a westward direction and then they turn north and northeast. Their **path** takes them away from the warm tropical water of the **equator**.

When hurricanes move over colder water or over land they lose a lot of their energy. They slow down and as time goes on, they **disperse** . In the southern hemisphere their path leads them to the south and southeast.

Hurricane Names

When a tropical storm forms over the Caribbean Sea it gets a name. Every year the first storm of the season is given a name that starts with the letter A, the second storm gets a name starting with B and so on.

Years ago, only women's names were used for tropical storms. Today **male** and **female** names **alternate** –for example, the first storm is named Alexandra, the second one Billy, then Catherine etc..

Each year new names are used so that you can **connect** a storm to a **certain** year.

Hurricane Categories

Category 1	119 – 153 km/h	Winds cause only small **damage** to houses and buildings.
Category 2	154 – 177 km/h	Storms can **tear** away roofs , damage doors and windows. Boats often break away from **docks**.
Category 3	178 – 209 km/h	Winds can **destroy** mobile homes. Areas lower than 1.5 metres above **sea level** may be **flooded**.
Category 4	210 – 249 km/h	Areas lower than 3 m above sea level are flooded . **Coastal** areas (up to 10 km) are **evacuated**.
Category 5	more than 249 km /h	These are the most powerful hurricanes. Places within 15 km of the coast are evacuated.

Hurricane Damage

Hurricanes can **cause** a lot of **damage**. They bring along strong winds and heavy rainfall. In 2005, Hurricane Katrina hit the Gulf Coast and **destroyed** New Orleans . Many people died and hundreds of thousands had to leave the city. When a hurricane reaches land, the winds can **knock down** small buildings, **tear off** roofs of houses and **uproot** trees. Waves produce **floods** around the **coast**. The **surface** water can rise up to 5 metres. This is called a storm surge.

Preparing For a Hurricane

Hurricanes are **causing** more and more damage throughout the Gulf Region, mainly because the population is **constantly** growing.

When a hurricane is **sighted** ,television and radio stations **broadcast** a hurricane watch. This means that a hurricane may hit the area in the following 36 hours. If the weather gets worse there is a hurricane warning, which means that a hurricane is **expected** in the area in the following 24 hours.

Many things can be done to **protect** yourself and your **property** during a hurricane:

- Keep **emergency supplies** of food and water.
- Keep a battery-powered radio ready **in case** the power goes out. Listen to the **instructions** you get.
- Keep the gas tank of your car full, **in case** you have to leave quickly.
- **Protect** your house by **nailing plywood** over the windows and doors. **Tie** down loose objects.
- Find out which roads are best to take you away from the storm.
- Leave your house as soon as you are ordered to evacuate.

Hurricane evacuation sign in New Orleans

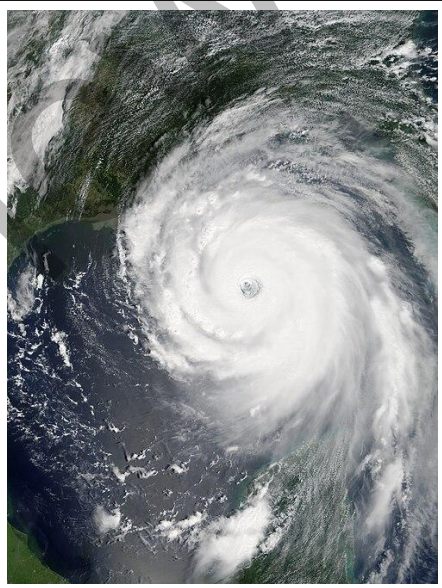
Image: Photo by Infrogmation, CC BY 2.5 , via Wikimedia Commons

Hurricane Katrina

On Monday, August 29, 2005 Hurricane Katrina hit the American coast near New Orleans. The storm had formed over the Caribbean Sea almost a week earlier. As it moved on towards the American **coastline** it grew more and more powerful. It became a Category 5 hurricane and the fourth largest storm that has ever been **recorded** in the Atlantic Ocean. Winds reached **speeds** of over 340 km an hour. Although the centre of the hurricane did not **pass** directly over New Orleans most of the city was **flooded** by the storm.

New Orleans is **located** in a really dangerous area. It lies above the Gulf of Mexico where many storms and hurricanes pass through. The Mississippi River also runs through the middle of the city. Because most of New Orleans lies below **sea level**, high **banks** of earth, called **levees**, were built around the city to **protect** it from **flooding**. Thousands of pumps have been **installed** to **drain** the water away.

Katrina brought along heavy rainfall and parts of the **levee** broke. About 80 % of the city was flooded. Shortly before the storm hit New Orleans about 20,000 people were able to **escape** to the Superdome, one of the town's largest stadiums.



Hurricane Katrina on August 28, 2005
Image: NASA, Public domain, via Wikimedia Commons

Most of the city's **population** was **evacuated** , but about one hundred thousand had to stay behind, mostly poor people and blacks who had no cars and couldn't get out. They were **trapped** in the **floods** for days without power and water.

In the days after the **disaster** chaos **spread throughout** New Orleans. People broke into shops and stole things they needed, like food and water. **Violence increased** and gun shots could be heard throughout the city. Many people were **trapped** on rooftops for days before they got any help.

The **government** and the city **authorities** were not very well prepared for such a **disaster**. There were no plans for getting people out of the city. President Bush waited for four days before he visited the region. Thousands of people died in one of the biggest **catastrophes** in American history.