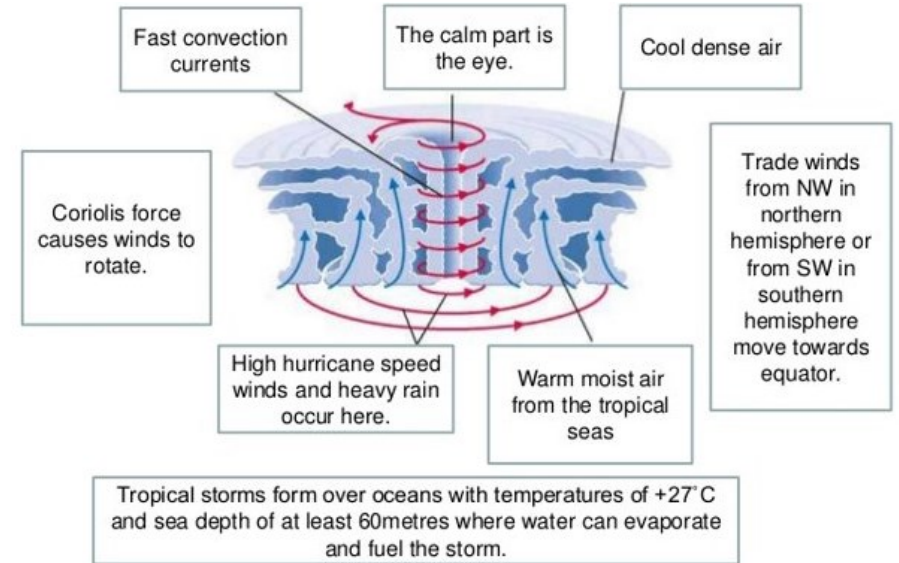


Tropical storms

How do tropical storms form?

Step one	A strong upward movement of air draws water vapour up from the warm ocean surface.
Step two	This evaporated air cools as it rises and condenses to form towering thunder clouds.
Step three	As the air condenses it releases heat which powers the storms and draws up more and more water from the ocean.
Step four	Several smaller thunderstorms join together to form a giant spinning storm. When surface winds reach an average of 120km over an hour (75 miles per hour) the storm is officially a tropical storm.
Step five	The storm now develops an eye at its centre where the air descends rapidly. The outer edge of the eye is the eyewall where most intense weather conditions (strong winds and heavy rainfall are felt).
Step six	As the storm is carried across the ocean by prevailing winds, it continues to gather strength.
Step seven	On reaching land the storm's energy supply (water vapour) is cut off. Friction with the land slows it down and begins to weaken. If the storm reaches warm seas after crossing land, it may pick up its strength.

Structure of a tropical storm



Hurricane Ida

Hurricane Ida first made landfall on the 26th August 2021 in the Cayman islands. Three days later, on the 29th August, Ida reached the state of Louisiana on the US coast.

Economic impacts (related to money)

Hurricane Ida was estimated to have cost over \$65 billion in damages.

Social impacts (linked to people)

At least 115 people were killed across the Caribbean and United States.

Environmental impacts (linked to the natural world)

Fallen trees and flooded vegetation affected animals habitats. Coastal wetlands and beaches were damaged.

Droughts

A drought is a severe shortage of water in a particular location.

The three causes of drought

Meteorological causes	Can cause an area to get less rainfall than average. Changes in global atmospheric circulation (movement in air dependent on temperature) can mean it doesn't rain much in an area. High pressure systems can block low pressure systems that bring rain.
Hydrological causes	A lack of water in stores such as rivers, lakes, reservoirs and aquifers (water stored underground naturally) can lead to drought. Areas that rely on rainfall and surface water are more likely to experience drought. Surface water quickly evaporates in warm conditions leading to increased risk of drought.
Human causes	Deforestation leads to less water being stored in the soil. Therefore, the land dries out quicker than it would if it were covered in vegetation. Trees release moisture into the atmosphere through their leaves, a process known as transpiration.

Impacts of drought

- The oldest trout farm in England says drought is threatening its future. Bilbury trout farm in the Cotswolds says it lost 25,000 fish after a lack of rainfall in the summer.
- Parts of Yorkshire experienced their driest period since records began, back over 130 years ago. Yorkshire water spent £2m building an emergency pipeline from Calderdale to Ponden reservoir in Haworth to avert a potential crisis.



Impacts of Flooding

Flooding in Pakistan 2022

- More than one-third of Pakistan is underwater due to unprecedented levels of flooding.
- Estimated that 1,265 people have been killed, with over 6000 injured.
- Total flood damage exceeds £8.7 billion and a million homes have been destroyed .

Flooding

A river floods when the water normally flowing in the channel overflows its banks and spreads out onto the surrounding land.

Causes of flooding

Prolonged rainfall	If it rains for a long time, the land around a river can become saturated (its holding as much water or moisture as can be absorbed). If there is more rainfall it cannot be absorbed so runs along the surface (known as surface run-off). If there is heavy rainfall there is less chance of it being soaked up by the soil (infiltration) so it runs off into the river. The faster the water reaches the river, the more likely it will flood. Water travelling over the surface (surface run-off) will reach a river quicker than water travelling through the ground. (through flow and groundwater flow).
Relief	A steep valley is more likely to flood than a flatter valley because the rainfall will run off into the river more quickly.
Geology—permeable rocks	Allow water to pass through pores and cracks, whereas impermeable rocks do not. If a valley is made up of impermeable rocks, there is a higher chance of flooding as there is an increase in surface run-off.
Vegetation	Trees and plants absorb water, this is known as interception. Lots of vegetation reduces flood risk. Sometimes people cut down trees (deforestation). This will increase the flood risk, as the water will not be intercepted and more will flow into the river.
Urban land use	When an area surrounding a river is built on, it increases the amount of tarmac and concrete, which are impermeable surfaces. Drains and sewers take water directly and quickly to the river which increases the flood risk.