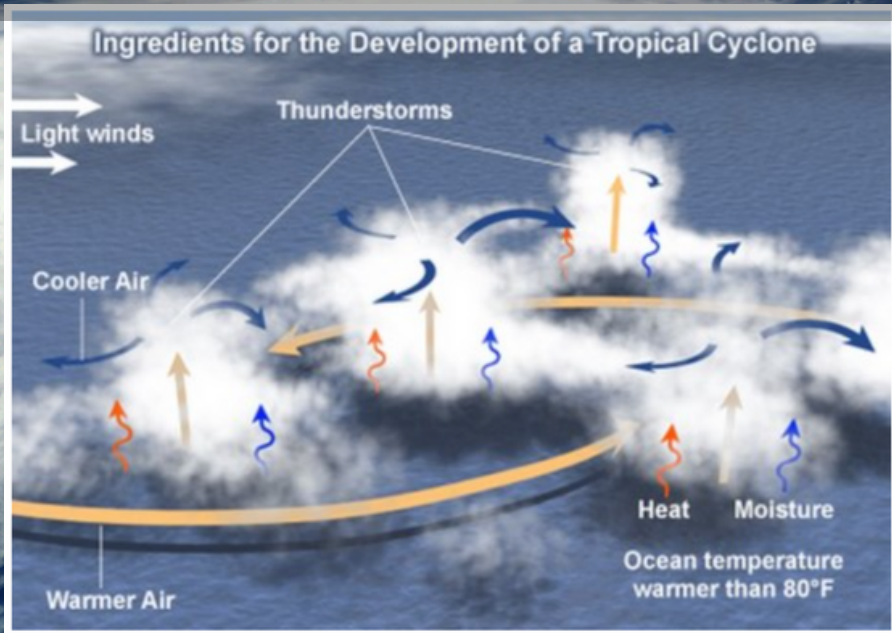


Oceanic and atmospheric factors





1

They form in late summer when the surface temperature of the ocean waters becomes above 27°C over a minimum thickness of 50 m. In addition, cyclones require low wind shear (the difference in wind speed and direction between the upper and lower levels of the atmosphere) to form and sustain.

Set 1

Forces

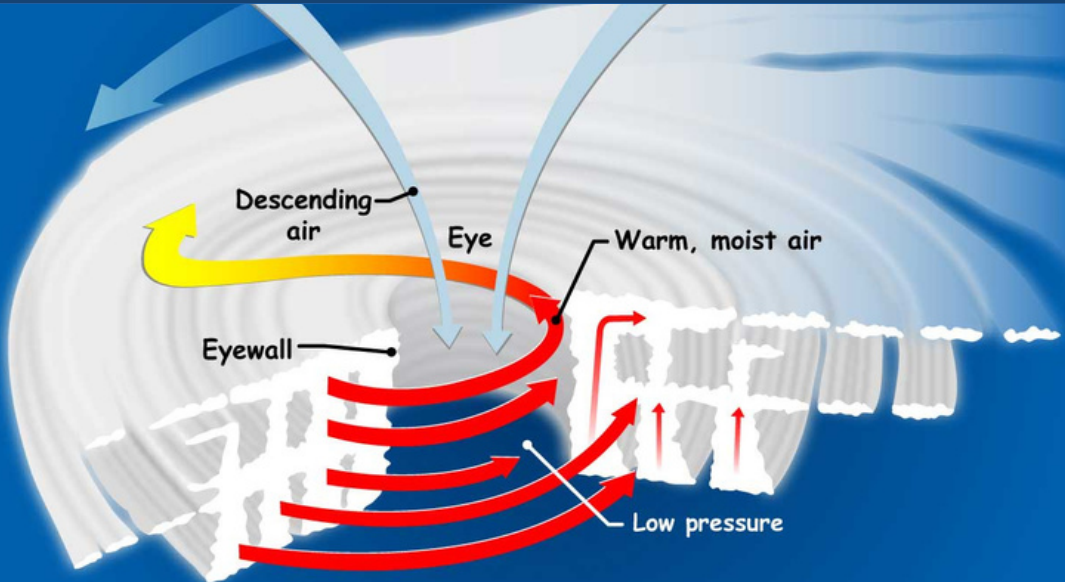
A satellite image of a large hurricane or tropical storm over the ocean. The storm is characterized by a dense, swirling cloud structure with a distinct eye in the center. The surrounding clouds are thick and white, contrasting sharply with the dark blue of the ocean. In the upper left corner, a portion of a green landmass is visible. The word "Forces" is written in a large, white, sans-serif font across the top center of the image, partially overlapping the storm's outer rings.



2

Cyclones cannot form everywhere, they must be far enough from the Equator (5° latitude, 550km) so that the Coriolis force is not zero. Thus, a balance is created between the Coriolis force (centrifugal) and the force that attracts them to the "hollow" of the depression (pressure gradient force). The winds wrap around the low pressure area. The centripetal force offsets the Coriolis force and keeps the winds spiraling.

The role of humidity and atmospheric conditions





3

A high level of humidity as well as an unstable and warm atmosphere are essential for the formation of cumulonimbus clouds. Air in low-pressure areas at the surface of the sea rises due to the suction effect. Loaded with humidity, the air cools and condenses, forming clouds. With the winds, this mass of air begins to spin and moves in a so-called 'closed' circulation on the surface, around a center of rotation.

Indirect impacts of cyclones





4

On the economic front, losses can be considerable, particularly in terms of destruction of buildings, infrastructure, disruption of transportation networks, and agriculture. Cyclones can also have impacts on public health, notably due to contamination of drinking water and epidemics of diseases such as cholera.

An aerial photograph showing a village completely inundated with brown, muddy floodwater. Several small, simple houses with various colored roofs (red, blue, grey) are partially submerged. Palm trees and other tropical vegetation are scattered throughout the flooded area. The water level is high, reaching up to the roofs of some buildings. The overall scene depicts the severe impact of a cyclone on a coastal or riverine community.

Direct impacts of cyclones



5

Cyclones are characterized by strong winds that can be destructive. Rainfall is such that it can cause landslides. They can generate storm surges leading to destructive floods, as well as tornadoes. Finally, marine ecosystems such as coral reefs can be disrupted.

Cyclones





6

Cyclones draw their energy from warm water at the surface of the ocean. They are getting stronger because of global warming.

Set 2