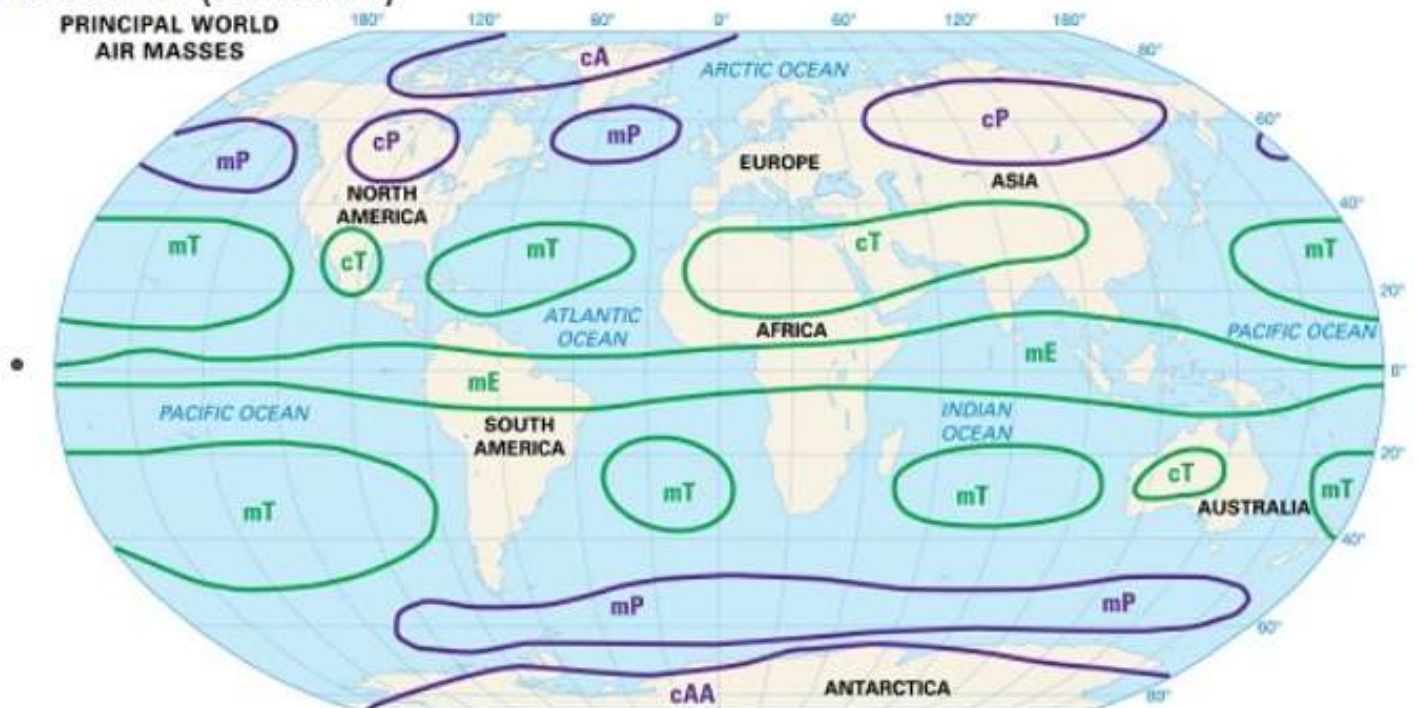


Geography Class 26

A BRIEF REVIEW OF THE PREVIOUS CLASS (09:12 AM)

- Cloud Burst
- Eg: Kedarnath (2013), Leh (2010), Mumbai (2005)
- Jet Stream-
- Strong narrow rivers of air in the upper atmosphere;
- They follow a meandering path.

AIR MASS (09:22 AM)



- Air Mass is an extensive portion of the atmosphere whose physical properties such as temperature, moisture, lapse rate, pressure, etc are homogenous horizontally and vertically for 100s of kilometers.

cP:- Continental Polar
cT:- Continental Tropical
mT:- Maritime Tropical
mE:- Maritime Equator

- **Characteristics-**

- The source area shall be large and homogenous.
- Eg: Oceans, Deserts, Continental Interior with uniformity, etc
- The temperature should be uniform horizontally with a very gradual change in the vertical direction.
- Humidity should be uniform with less variability.

- Light divergent winds

- **Types- (09:39 AM)**

- **Based on Source area-**

- Continental || Maritime

- **Based on Temperature-**

- Warm || Cold

- **Based on Pressure-**

- Stable || Unstable

- **Based on Latitude-**

- Arctic || Antarctic || Polar || Tropical || Equatorial

- **Significance of Air Mass-**

- Air Mass moving away from its source area changes the temperature and pressure conditions of the destination regions.
- Maritime Air Mass brings moisture towards continental regions increasing its humidity and causing precipitation.
- They transport heat from one region to another and help in the global distribution of temperature.
- The Dry Continental Air Masses along sub-tropical regions help in maintaining continuous arid conditions over desert areas.
- The Cold Air Masses affect the surrounding regions for long distance & causes severe cold conditions.
- The Maritime Air Masses of the Indian Ocean generally help in bringing precipitation toward India through monsoon winds.
- The interaction of warm and cold air masses in the temperate regions leads to the formation of Fronts and Temperate Cyclones.

Temperate airmass doesn't exist because this region is not stable that is why we see Temperate cyclone here.



CYCLONES (10:04 AM)

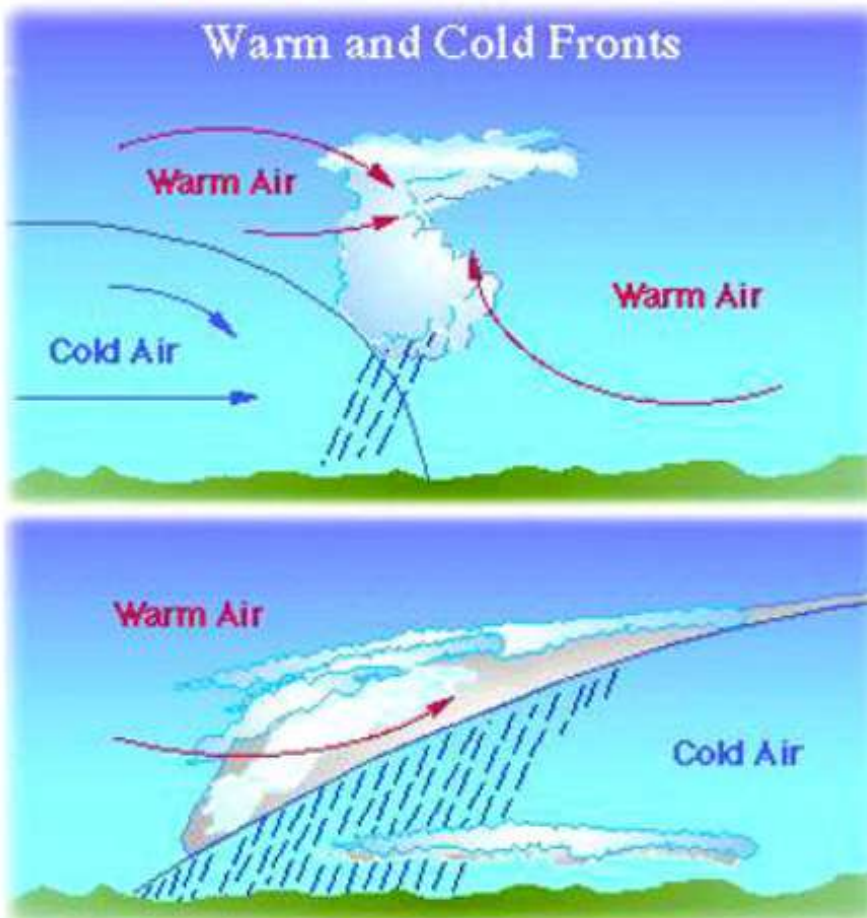
- **Front-**

- It is a narrow transition zone dividing two different contrasting air masses with differing temperature and humidity conditions.
- They are usually formed in mid-latitude or temperate regions.
- The process of formation of Fronts is called Frontogenesis.
- The process of decay of Fronts is called Frontolysis.

- **Types of Fronts- (10:20 AM)**

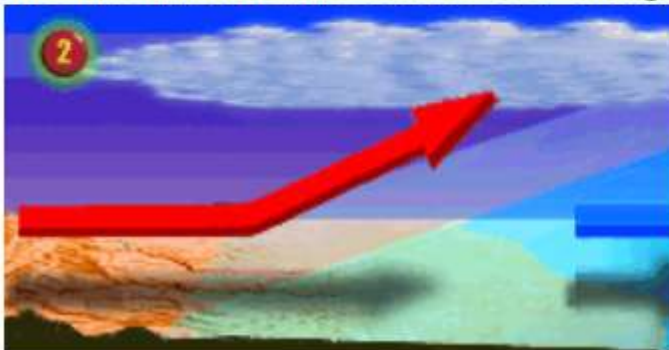
- **Stationary-**

- It is when the surface position of a Front is not changing when the two air masses are unable to push each other.
- When this Front is disturbed, it results in either a warm front or a cold front.



- **Warm Front- (10:42 AM)**

- It is the boundary between warm and cold air mass, where the warm air mass is advancing and overriding the cold air mass.
- The gradient of the front is gradual.
- It results in the slow rising of warm air over cold air.
- It causes the formation of nimbostratus clouds.
- It results in moderate rainfall over a large area.



- **Cold Front-**

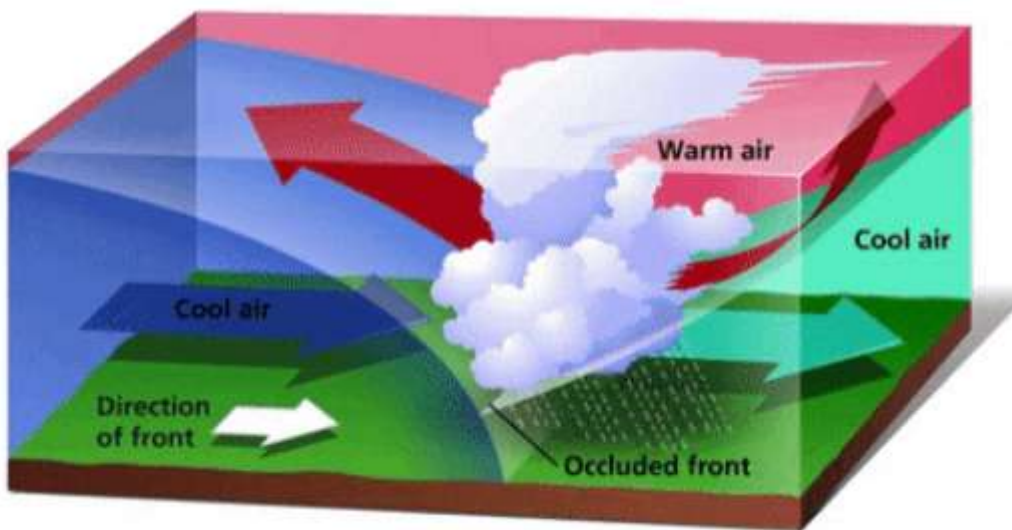
- It is the boundary between warm & cold air mass where the cold air mass is advancing and undercutting the warm air mass.
- It results in a steeper gradient along the fronts.
- It causes rapid upliftment of warm air over cold air.
- It results in the formation of cumulonimbus clouds.
- It causes heavy precipitation concentrated over a smaller region.



- **Occluded Front- (11:01 AM)**

- It is the later stage of front formation where a cold front meets with the war front.
- The interaction of two different fronts results in a compound zone with both warm and cold front characteristics.
- It causes the entire warm sector to get completely uplifted & it is no longer at the ground surface.

OCCLUDED FRONT

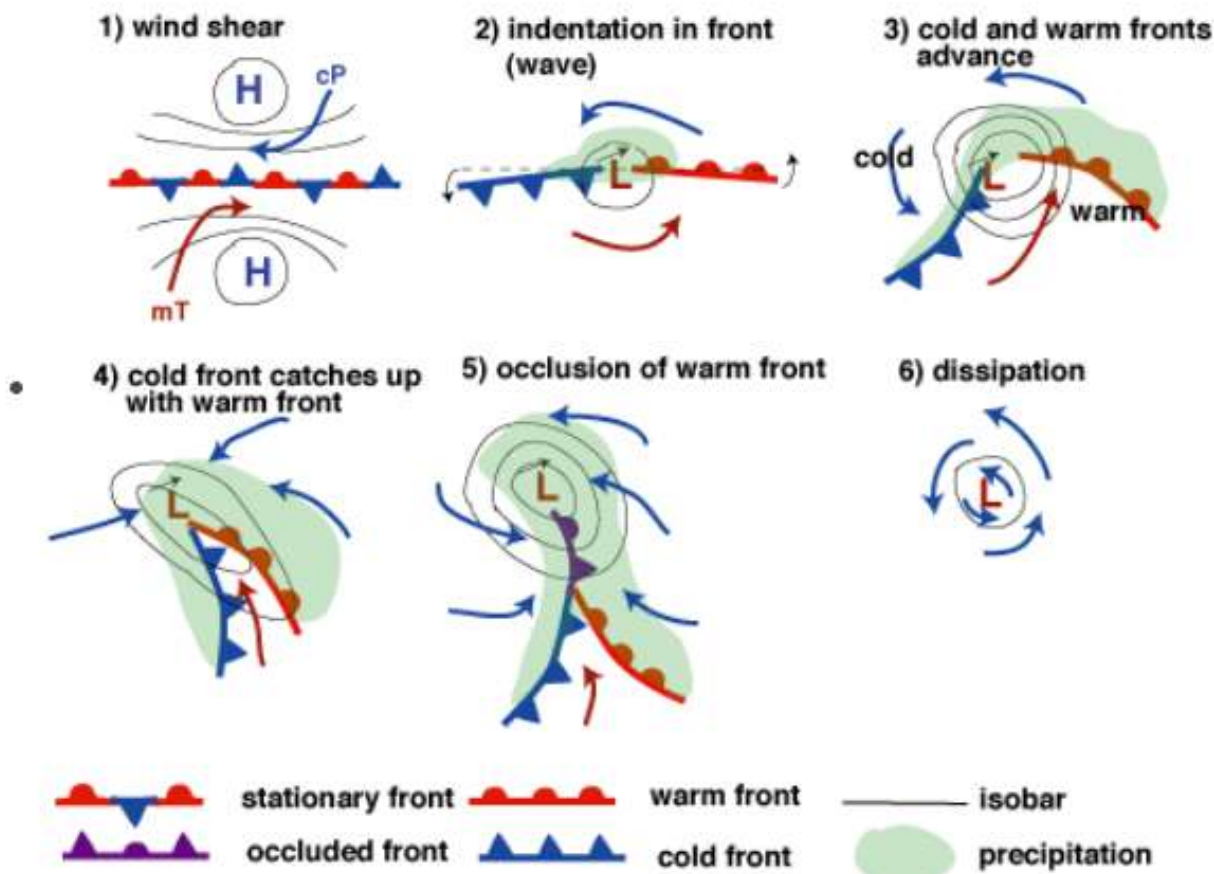


There are two types of Occluded Front -

1. Cold Occluded Front:- In this cold air of cold front is colder than warm front air mass.
2. Warm Occluded Front:- In this cold air of warm front is colder than cold front air mass.

- **Formation of a Temperate Cyclone- (11:10 AM)**
- Temperate Cyclones are called as Mid-Latitude Cyclones/Extra-Tropical Cyclones/Wave Cyclones.
- These are more prominent in the regions between 35 degrees - 65 degrees North & South.
- There are 6 stages in the development of Temperate Cyclones.

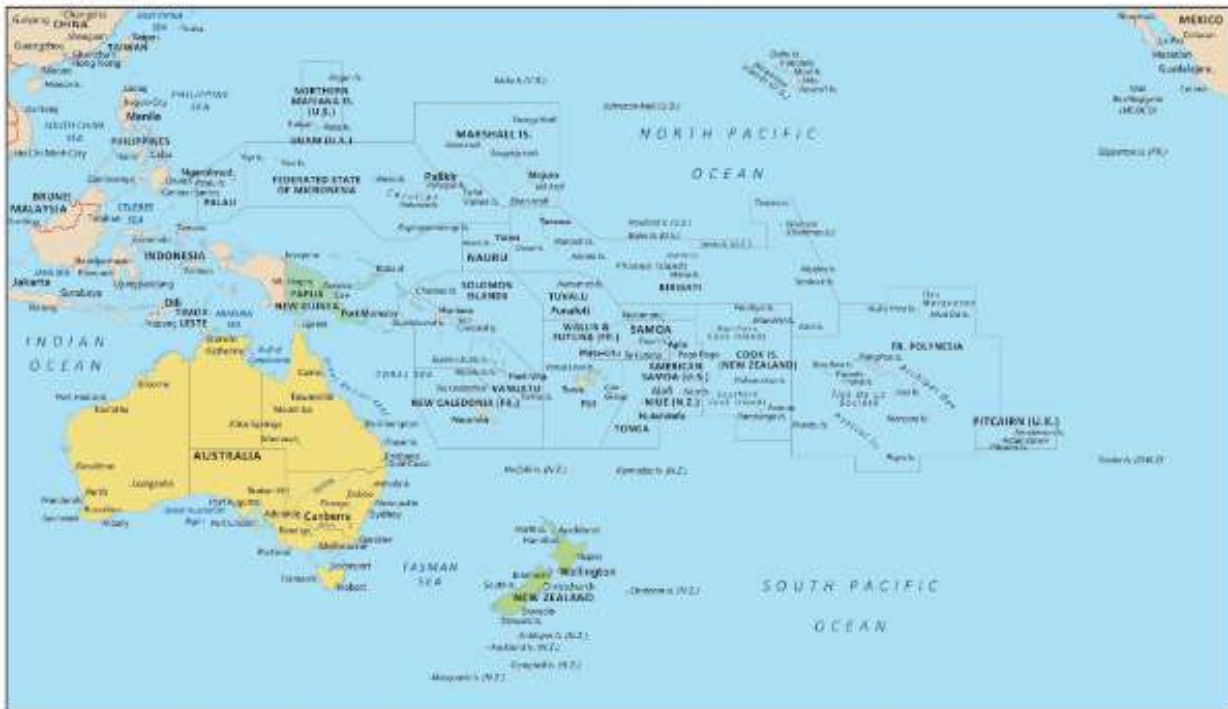
Stages of a Wave Cyclone



- 1. Convergence of two air masses with differing characteristics.
- Air masses move parallel to each other and a stationary front is formed.
- 2. Warm and Cold air masses penetrate into territories of each other forming a wave-like front.
- 3. With warm and cold fronts starting to move toward each other the warm sector is wedged between the cold sectors.
- 4. The warm sector is narrowed in extent due to the advance of the cold front.
- 5. The occlusion starts with warm air rising completely above the cold air.
- The cold front completely overtakes the warm front.
- 6. The warm sector completely disappears, the occluded front is eliminated and the Cyclone dies out.
- Jet Streams being quasi-horizontal in nature results in upper divergence in some locations.
- This upper divergence causes surface convergence that helps in bringing together the warm and cold air masses & the subsequent formation of fronts.

MAPPING (11:54 AM)

- Oceania-



- The Islands of Oceania are grouped together into 3 groups of Islands-
- Micronesia || Polynesia || Melanesia
- Micronesia- Mariana Island, Palau, etc
- Melanesia- Papua New Guinea, Fiji, etc
- Polynesia- Cook Island, Tuvalu, etc
- Highest Peak- Mt. Wilhelm
- Lowest Point- Lake Eyre
- Recent demands- Zealandia to be declared as a new continent (the region around New Zealand)

Terra:- means Land
Australis:- means South
Incognita:- means Unknown

whole meaning is Unknown Land of South

- **Antarctica- (12:04 PM)**
- White continent
- Originally called- Terra Australis Incognita
- Emperor Penguin is the only specie that has survived the cold season of Antarctica.
- 1961- Antarctic Treaty System
- Antarctica belongs to no one.
- All military activities are banned in Antarctica.

TOPICS TO BE DISCUSSED IN THE NEXT CLASS- TROPICAL CYCLONES & WORLD CLIMATIC CONDITIONS

Antarctica means Anti to Arctic and this name is coined recently.