SHAURYA SPARTANS

FOR NDA 2, 2024 ASPIRANTS

Geography

Lecture - 18

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CHAPTER NAME

Humidity Condensation and Precipitation

TOPICS *to be covered*

1. Humidity, Condensation & Precipitation.
2.
3. Water in atmosphere
4.

Q6 Which one of the following devices is used to measure atmospheric pressure :-

A Ammeter

B Barometer

C Potentiometer

D Lactometer

Q7

The Coriolis effect is a result of :-

A. Pressure Gradient

B. Earth's axis of Inclination

C. Earth's rotation

D. Earth's Revolution

Q3 Match List-I with List-II and select the correct answer using the code given below:-

List-I (Local Wind)		List-II (Place)
A. Yamo		1. Sudan
B. Black Roller		2. France
C. Bise		3. Japan
D. Haboob		4. North America

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(A)

A	B	C	D
1	4	2	3

(B)

A	B	C	D
1	2	4	3

(C)

A	B	C	D
3	4	2	1

(D)

A	B	C	D
3	2	4	1

Q4 Consider the following statements about Roaring Forties:

1. They are strong westerly winds found in the ocean of southern hemisphere
2. The strong east to west air currents are caused by the combination of air being displaced from the equator towards the South Pole and the Earth's rotation and abundance of landmasses to serve as wind breaks

Which of the statements given above is/are correct

A 1 only

B 2 only

C Both 1 and 2

D Neither 1 nor 2

Q5 Consider the following statements:

1. The doldrums is a low-pressure area around the equator where the prevailing winds are calm
2. Chinook is a hot and dry wind that blows in winter and therefore raises the temperature in a short time.

Which of the statements given above is/are correct

A 1 only

B 2 only

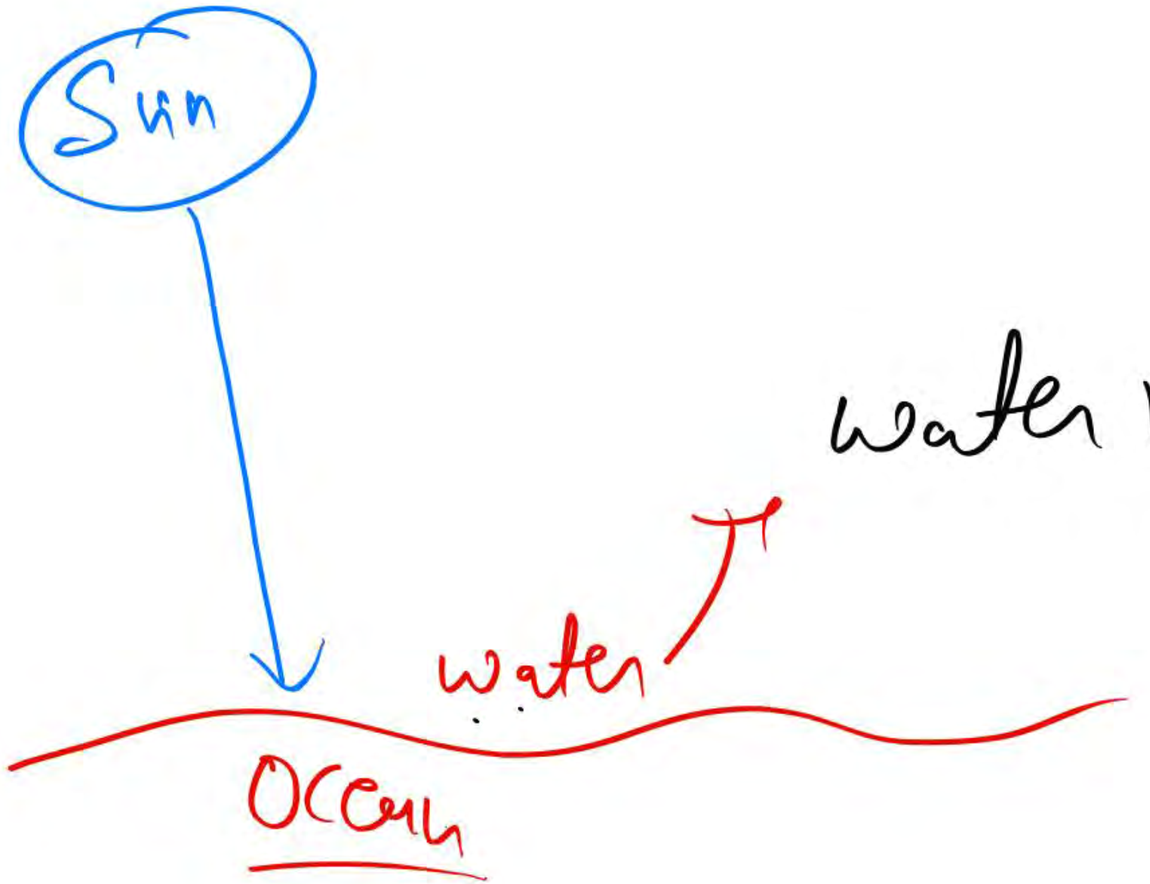
C Both 1 and 2

D Neither 1 nor 2

What is Humidity

Hygrometer

- Amount of water vapour present in air is called Humidity of that air.
- Amount of heat energy required to change the state of the substance is called as latent heat.
- The amount of water vapour present in atmosphere is 4 to 5% by volume.
- Humidity in atmosphere varies temporally and spatially.


Sun
water vapours.
water
Ocean

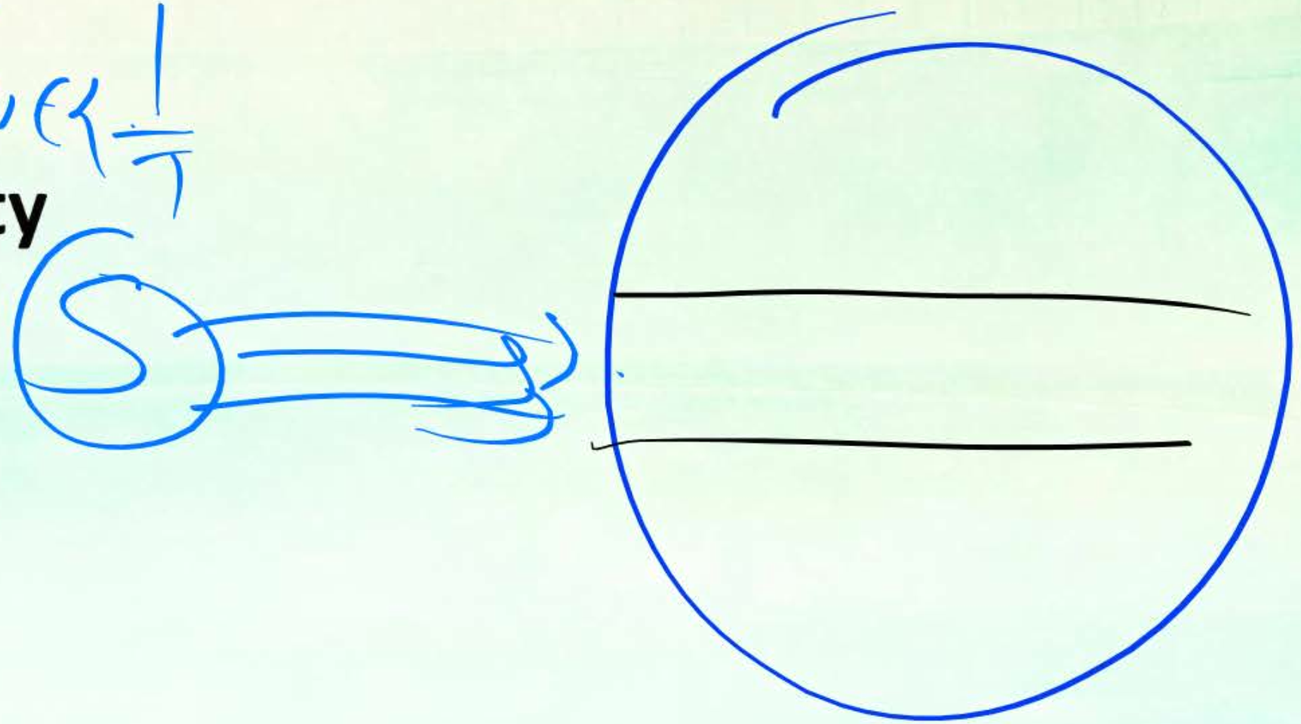
Source of Humidity

- The main source of humidity is Evaporation and Eva transportation. (Trees)
- The maximum humidity occur between 10^0 North and 10^0 South latitude.

Relative ∝ 1/T

Factors affecting Humidity

1) Temperature
2) Wind Speed ×
3) Surface Area ∝



Types of Humidity

There are 3 types of Humidity

1) Absolute Humidity

2) Specific Humidity

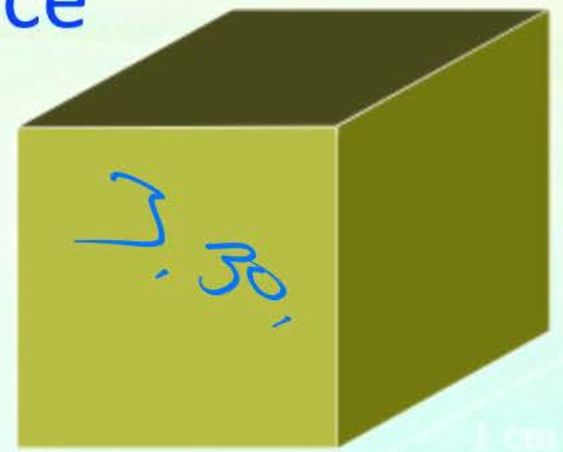
3) Relative Humidity

Absolute Humidity

The actual amount of the water vapour present in the atmosphere is known as the absolute humidity.

It is the weight of water vapour per unit volume of air and is expressed in gm/m3.

The absolute humidity differs from place to place on the surface of the earth.



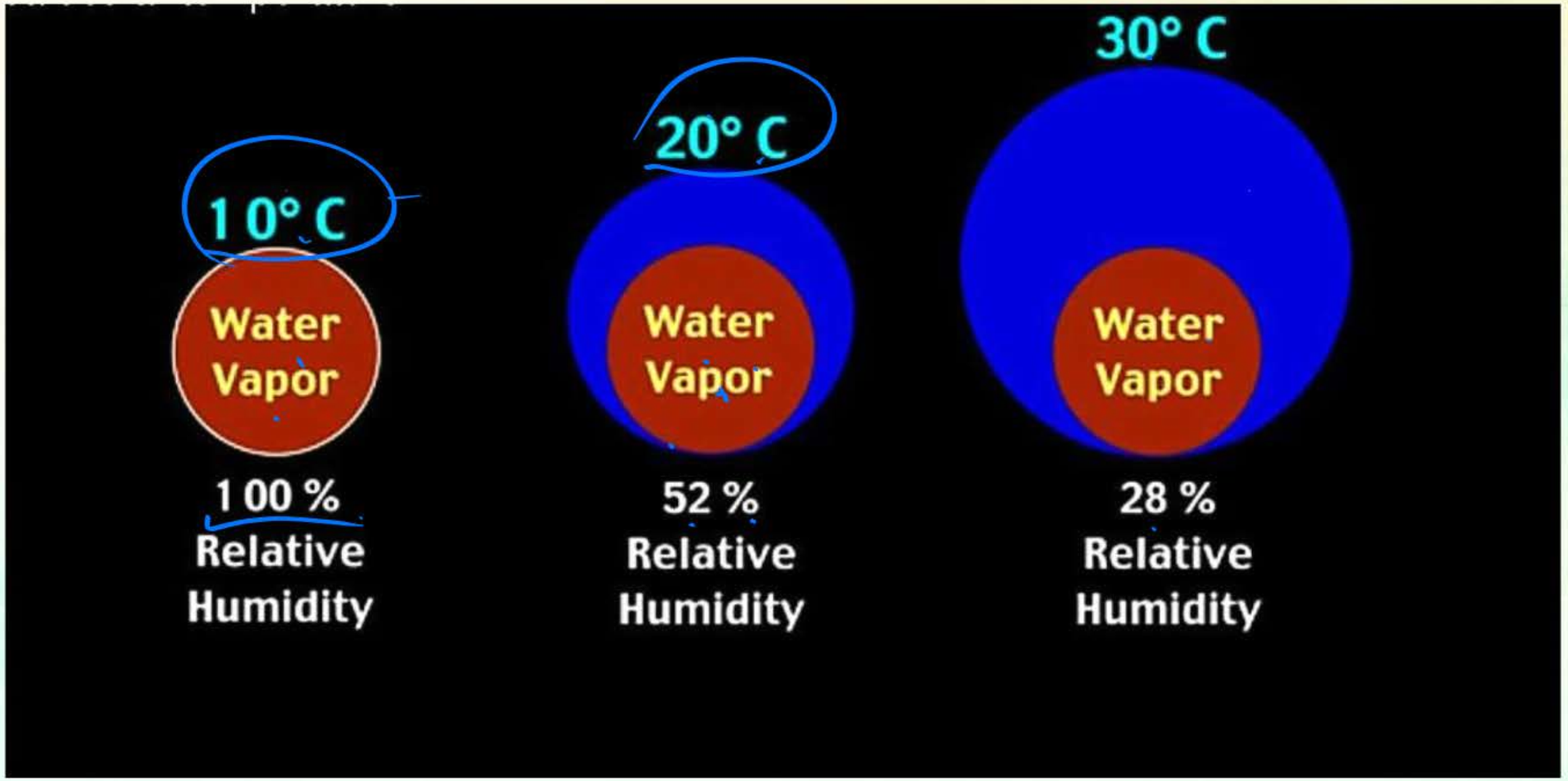
Specific Humidity

gm/kg.

- It is expressed as the weight of water vapour per unit weight of air. It is expressed in gm/ Kg.
- Since it is measured in units of weight, the specific humidity is not affected by changes in pressure or temperature.
- Absolute Humidity and Relative Humidity are Variable whereas Specific Humidity is a constant.

Relative Humidity

- Ratio of water vapour in air at a particular temp. to total amount of water vapour required to saturate the same air at same temperature.
- Relative humidity increases with increase in water vapour in air & decreases with increase in temp.
- It is greater over the oceans and least over the continents.
- Relative humidity is measured by Hygrometer
- It is generally expressed in percentage.
- When relative humidity become 100% air become saturate. After this condensation starts. Dew point occurs when Relative Humidity = 100%


10° C
Water Vapor
100 % Relative Humidity
20° C
Water Vapor
52 % Relative Humidity
30° C
Water Vapor
28 % Relative Humidity

Question

The measure of the moist in the atmosphere, which varies greatly from place to place at different times of a day, is called?

a Winds

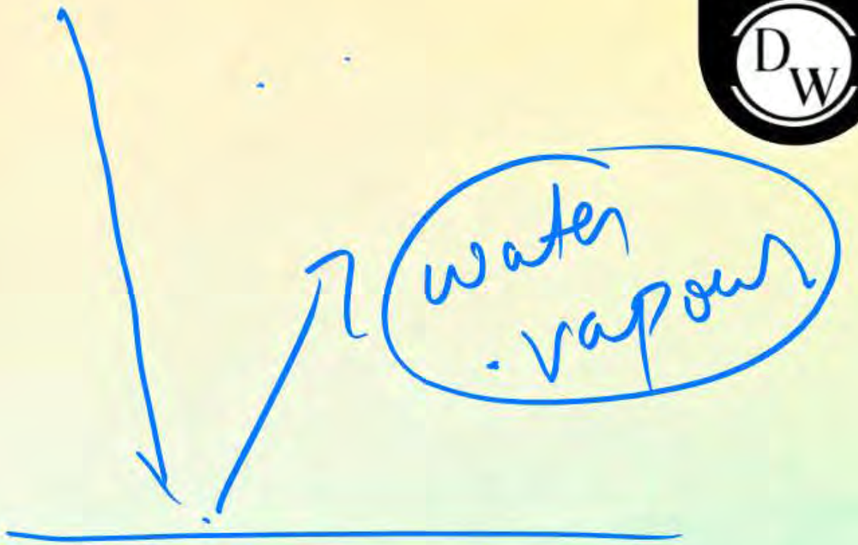
b Air Current

c Pressure

d Humidity

Condensation

- The transforming of water vapour into solid , or liquid form is called condensation.



- The process of condensation depends on

1) Temperature $\propto \frac{1}{T}$
2) Relative Humidity $\propto T$.

Process of Condensation

- As temperature falls condensation start around dust particle present in atmosphere.
- These tiny dust particle are called Hygroscopic Nuclei.
- The process of condensation results into Dew, Fog, Mist and Cloud.

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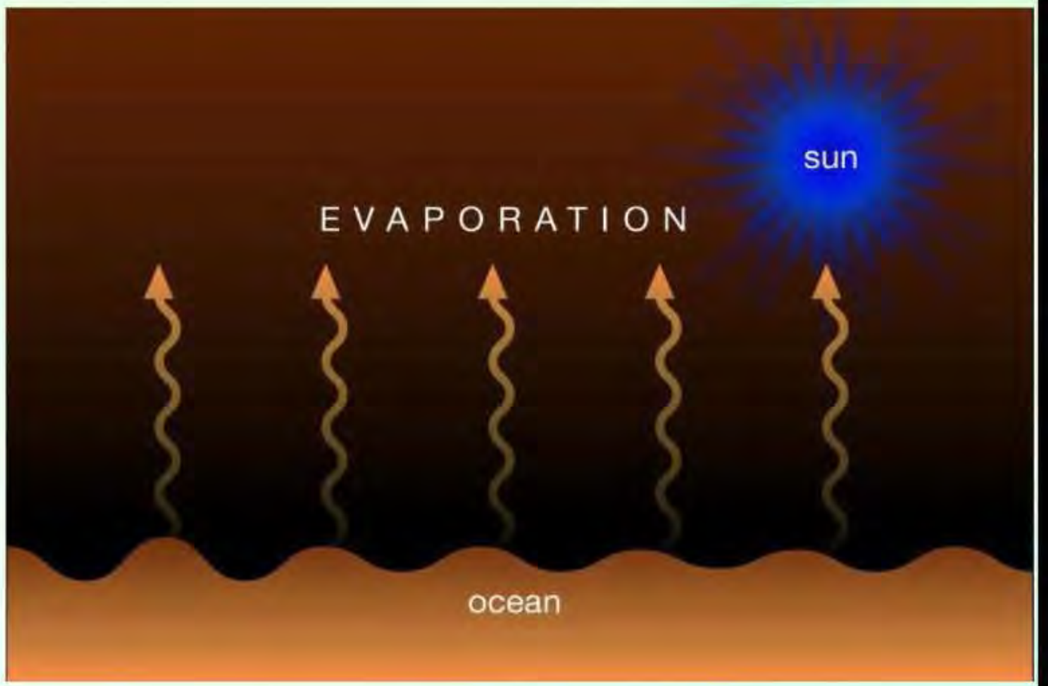
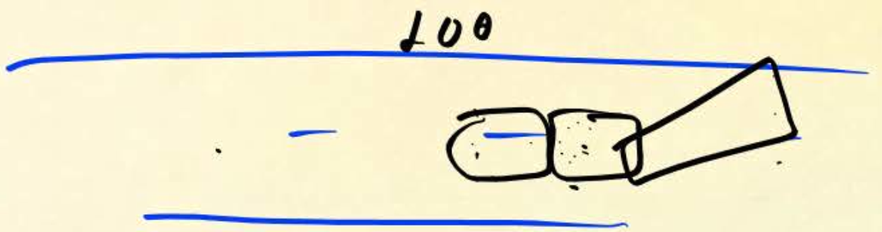


Dew

Condensation

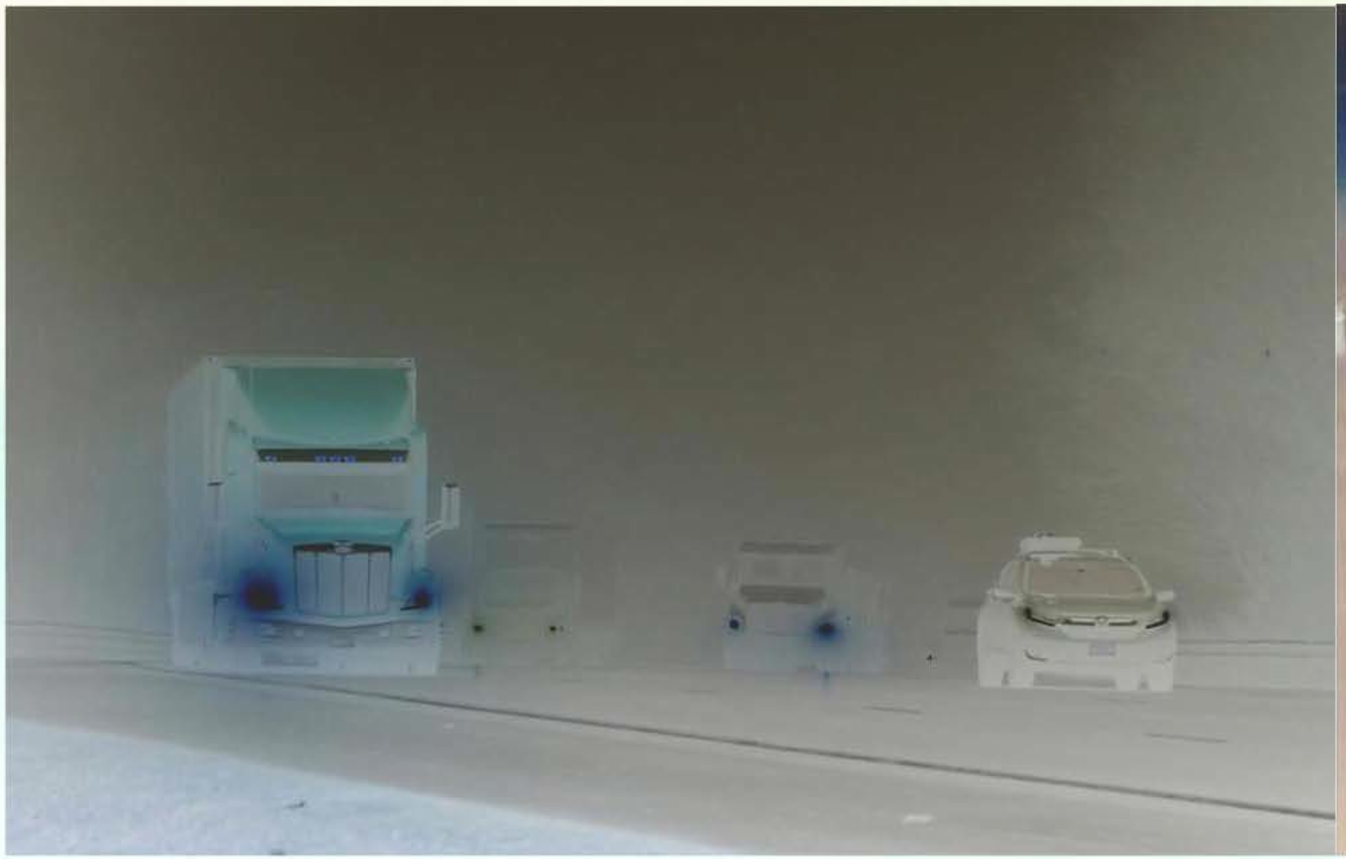
When temperature of air falls in winter water vapour starts condensing and get accumulated on leaves of plant and trees.

Fog



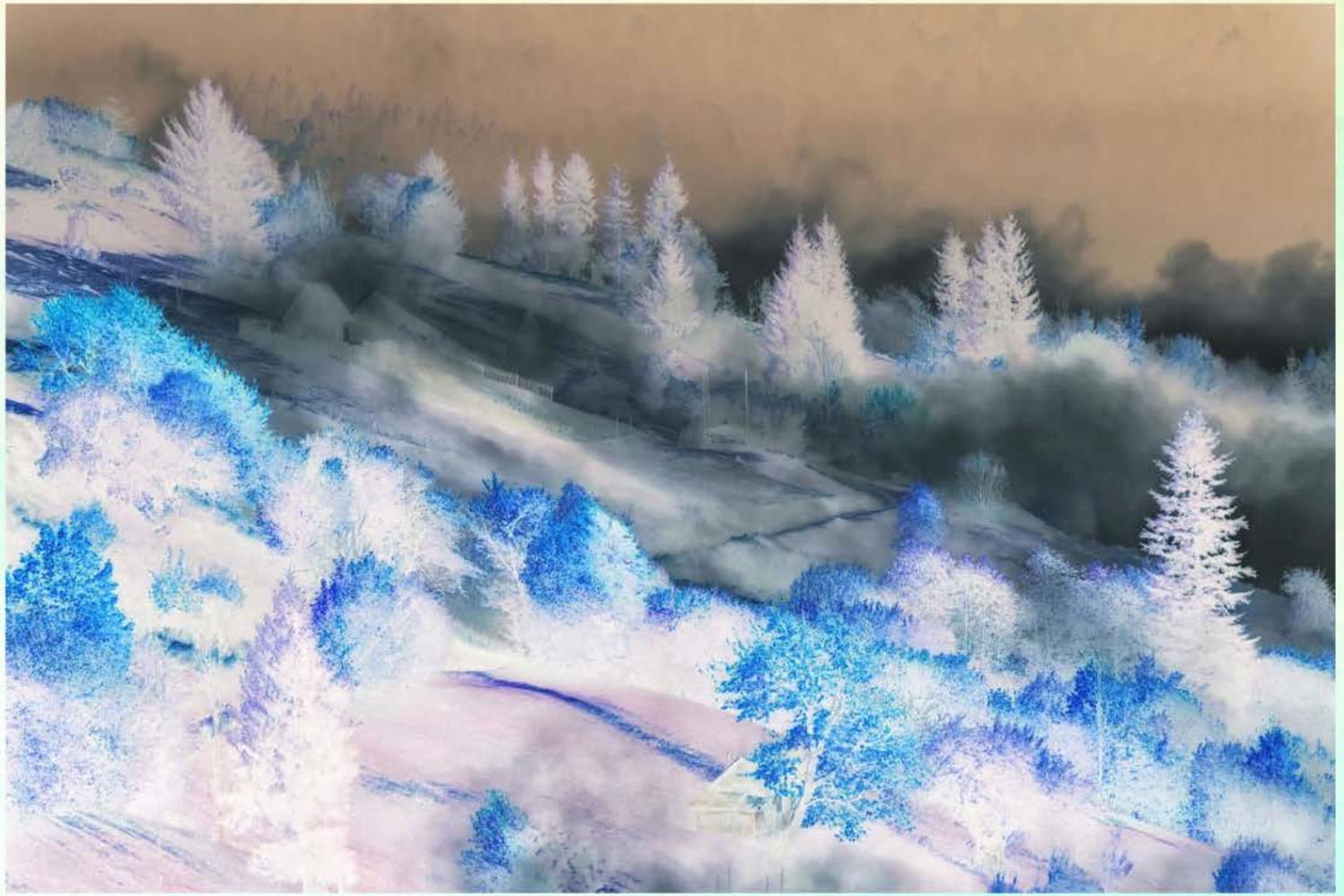
Fog consists of small microscopic water droplets which are kept in suspension in the air near the ground surface.

In case of Fog the visibility is less than 1km .



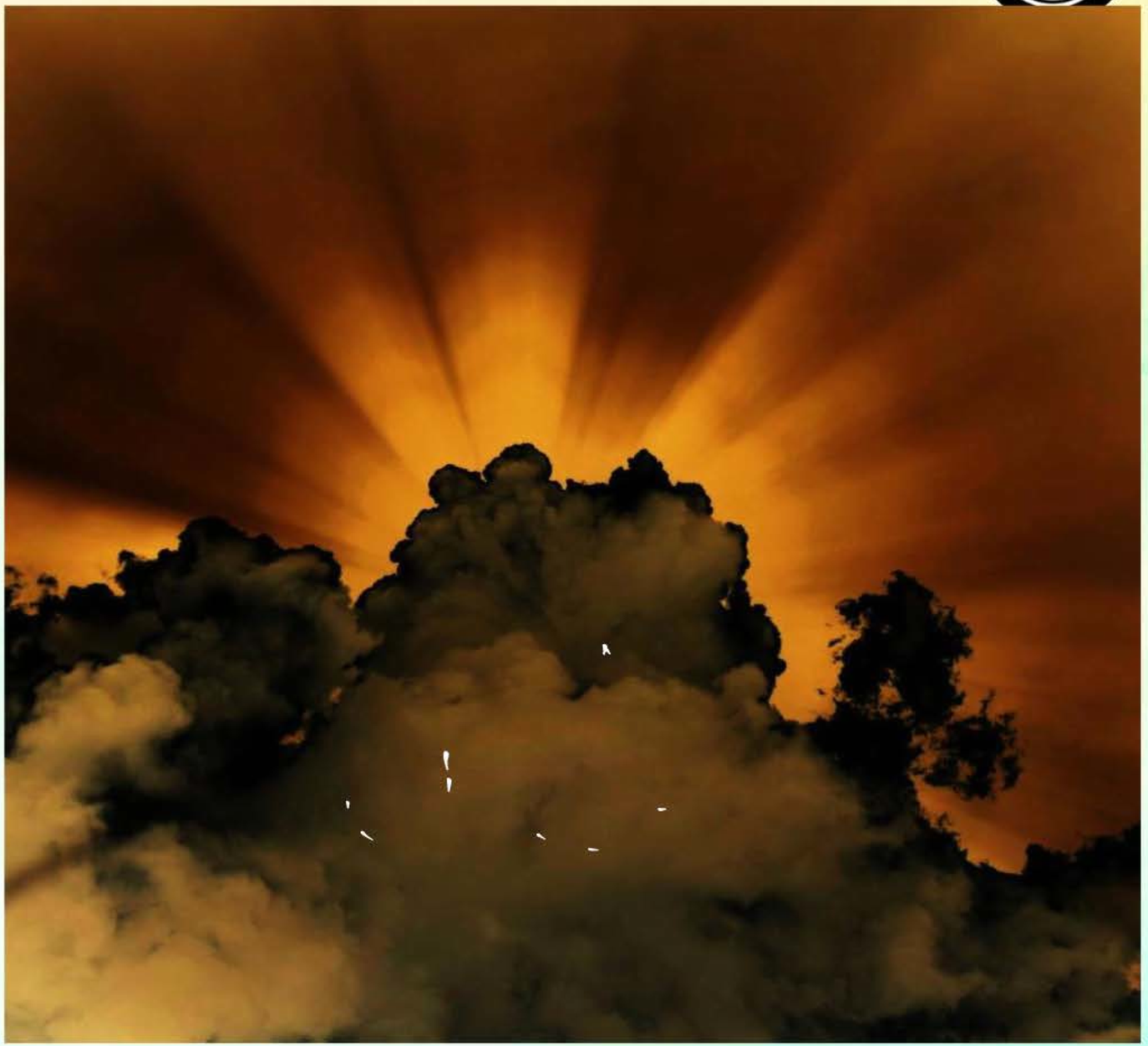
Mist

Mist is a type of fog. In case of mist, the visibility is more than 1km but less than 2km.



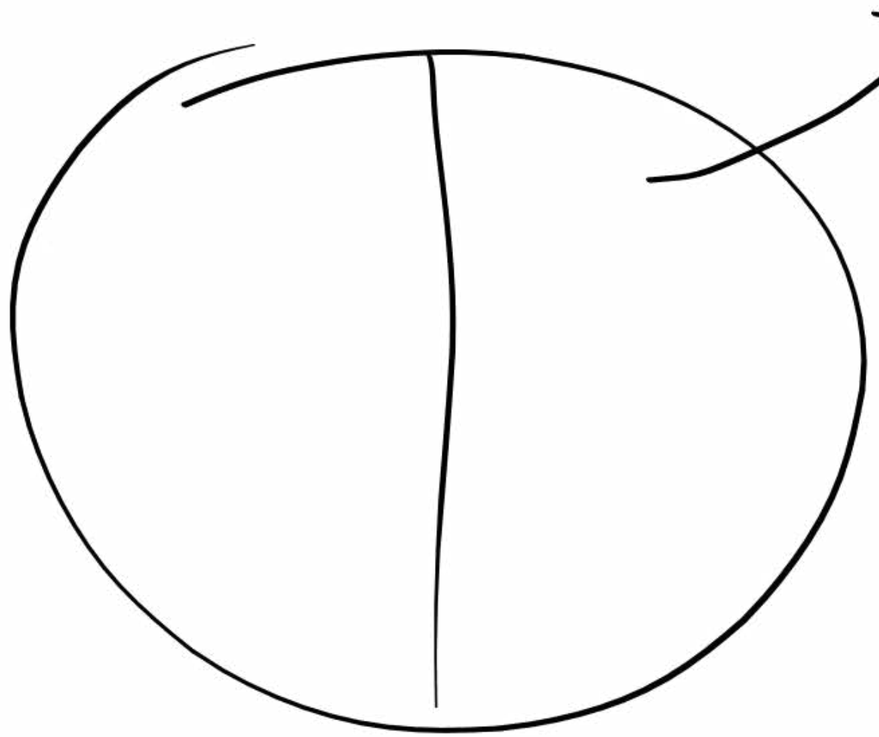
Clouds

- Clouds are defined as aggregate of innumerable tiny water droplets and ice particles, generally formed much above the ground surface.
- Clouds are formed due to condensation of water vapour around Hygroscopic Nuclei.
- Clouds plays a very significant role in Heat Budget.



Oktas

Eight 8



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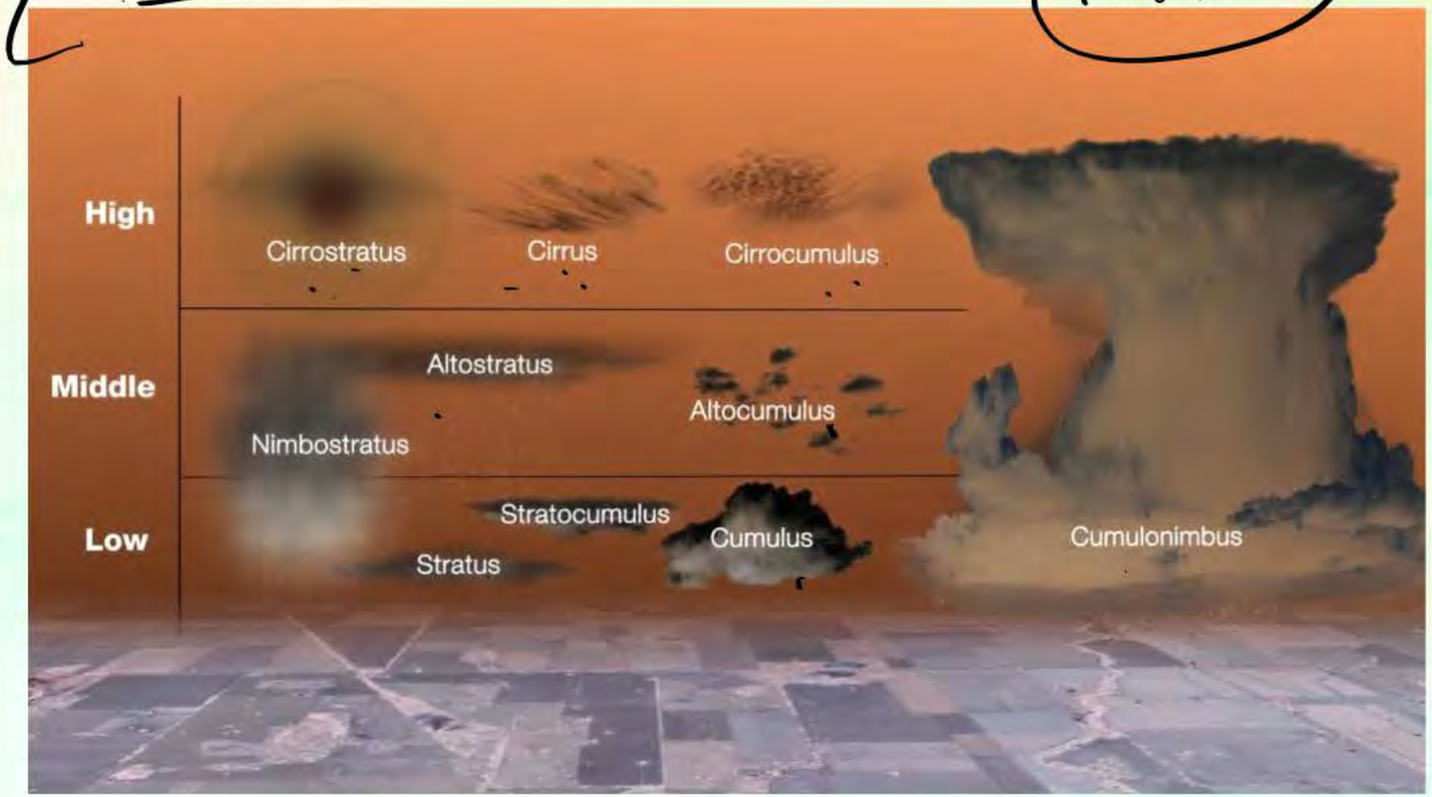
Types of Clouds

Based on height clouds are classified into 3 parts.

- High Clouds (6000-12000 m)
- Middle Clouds (2000-6000 m)
- Low Clouds (Up to 2000)



Cirrus Clouds

- High altitude cloud
- Silky in appearance
- Indication of dry weather
- Show beautiful color during Sun rise and Sun set

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