SSBCrack EXAMS

NDA-CDS 2 2024

GK

LIVE

CLIMATOLOGY

RUBY MA'AM

06 June 2024 Live Classes Schedule

8:00AM	06 JUNE 2024 DAILY CURRENT AFFAIRS	RUBY MA'AM
9:00AM	06 JUNE 2024 DAILY DEFENCE UPDATES	DIVYANSHU SIR

SSB INTERVIEW LIVE CLASSES

9:00AM	OVERVIEW OF PPDT & PRACTICE	ANURADHA MA'AM

AFCAT 2 2024 LIVE CLASSES

2:30PM	STATIC GK - RAMSAR & LAKES IN INDIA	DIVYANSHU SIR
4:00PM	MATHS - ALGEBRA - CLASS 1	NAVJYOTI SIR
5:30PM	ENGLISH - IDIOMS & PHRASES - CLASS 3	ANURADHA MA'AM

NDA 2 2024 LIVE CLASSES

11:30AM	GK - CLIMATOLOGY	RUBY MA'AM
2:30PM	GS - BIOLOGY MCQ - CLASS 8	SHIVANGI MA'AM
5:30PM	ENGLISH - IDIOMS & PHRASES - CLASS 3	ANURADHA MA'AM
6:30PM	MATHS -PERMUTATION & COMBINATION - CLASS 1	NAVJYOTI SIR

CDS 2 2024 LIVE CLASSES

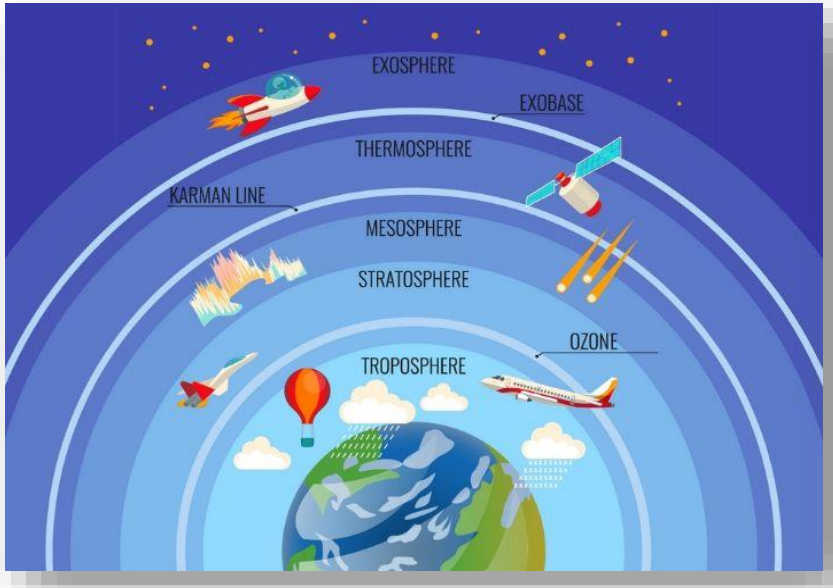
11:30AM	GK - CLIMATOLOGY	RUBY MA'AM
2:30PM	GS - BIOLOGY MCQ - CLASS 8	SHIVANGI MA'AM
4:00PM	MATHS - ALGEBRA - CLASS 1	NAVJYOTI SIR
5:30PM	ENGLISH - IDIOMS & PHRASES - CLASS 3	ANURADHA MA'AM

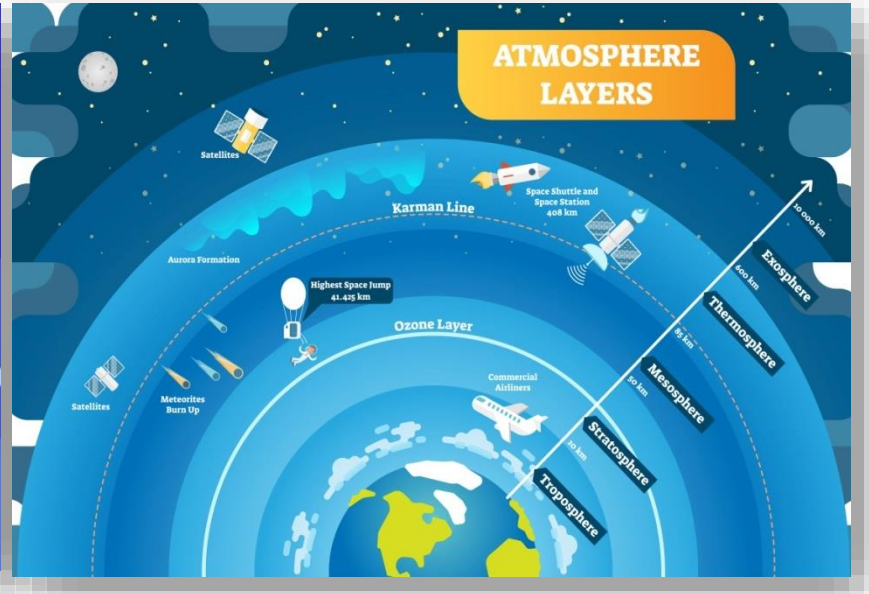
WHAT WILL WE STUDY?

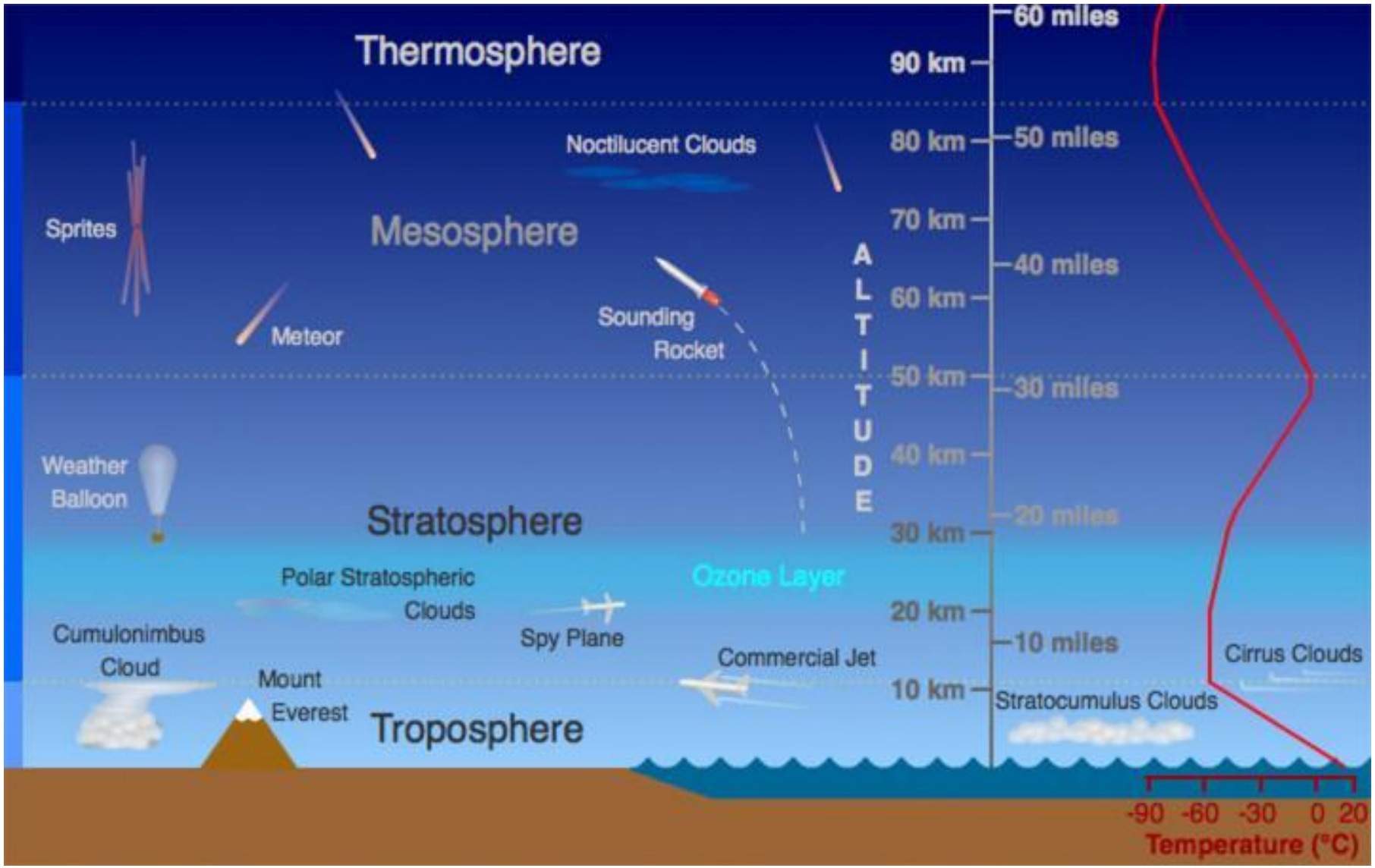
- Atmosphere- Structure, Composition
- Pressure belts
- Wind System
- Clouds and Types of Rainfall
- Cyclones and Anti- Cyclone

Atmosphere

It Is A **Thick Gaseous Envelope Surrounding The Earth** From All Sides And **Attached To Earth** Through The **Force Of Gravitation**. It Extends To About **1000 Km** From The **Surface Of The Earth**, But **99% Of The Total Mass** Of The **Atmosphere** Is Found Within **32 Km.**





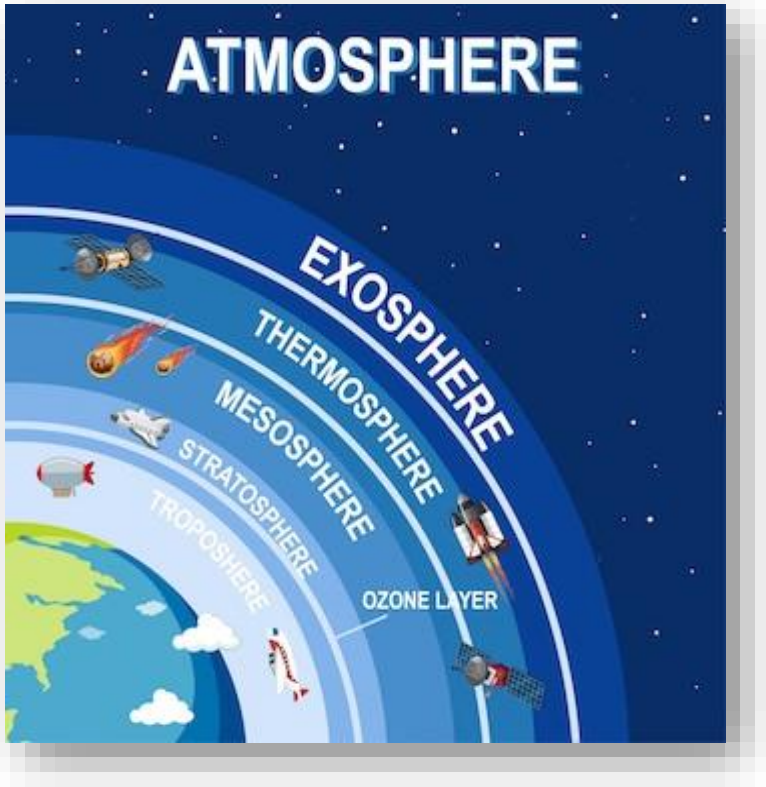

Thermosphere
Noctilucent Clouds
Sprites
Mesosphere
Meteor
Sounding Rocket
Weather Balloon
Stratosphere
Polar Stratospheric Clouds
Ozone Layer
Spy Plane
Cumulonimbus Cloud
Commercial Jet
Mount Everest
Troposphere
ALTITUDE
90 km
80 km
70 km
60 km
50 km
40 km
30 km
20 km
10 km
60 miles
50 miles
40 miles
30 miles
20 miles
10 miles
Cirrus Clouds
Stratocumulus Clouds
-90 -60 -30 0 20
Temperature (°C)

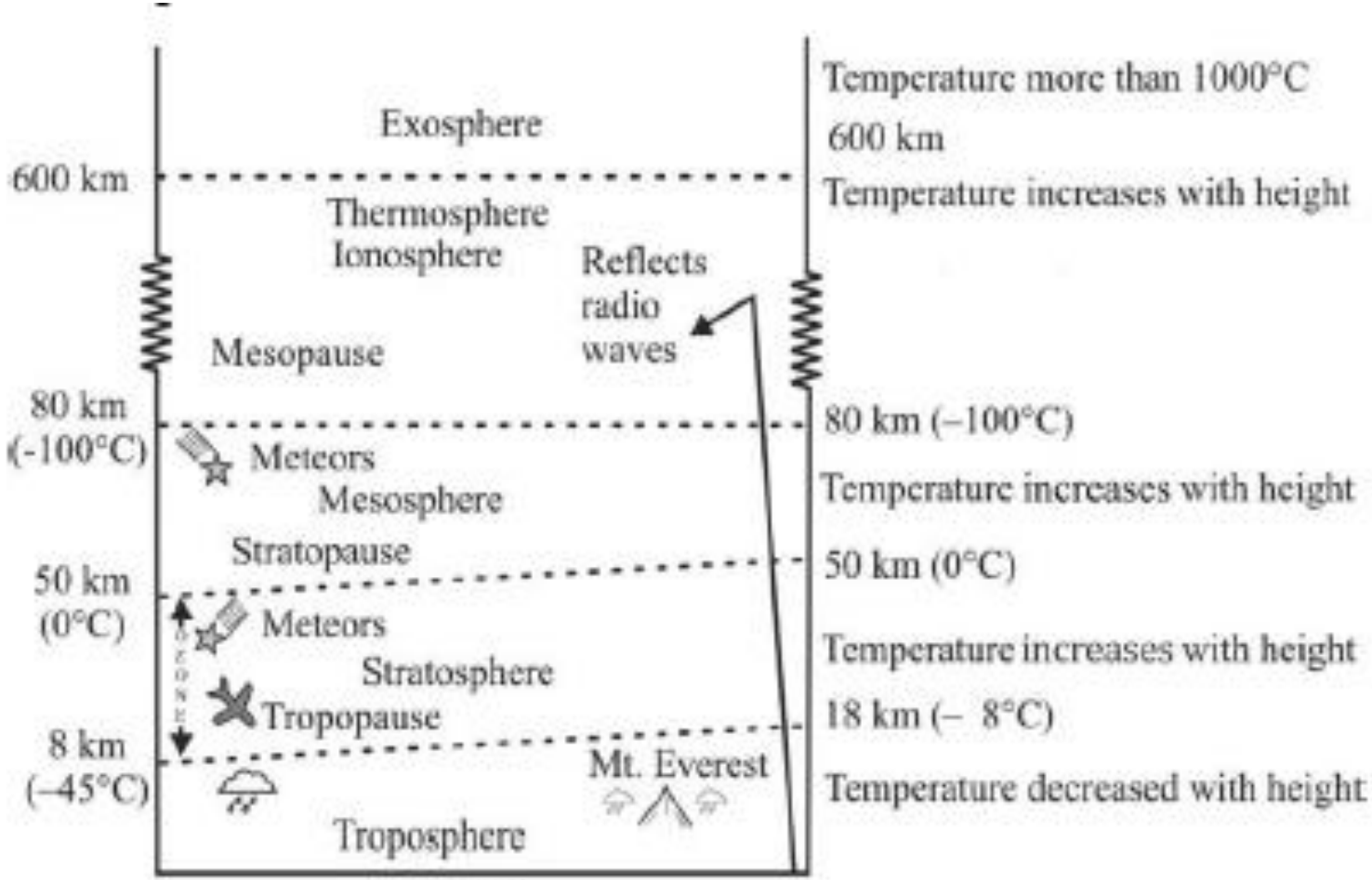
Atmosphere

It Acts As A **Filter** Because It **Absorbs The Various Unwanted Radiation**. It Is The **Source Of Various Gases.**

Proportion of gases in Atmosphere

S.NO.	Gases	%
1.	Nitrogen	78
2.	Oxygen	21
3.	Argon	0.93
4.	CO_2	0.03
5.	Neon	0.0018
6.	Helium	0.0005
7.	Ozone	0.0006
8.	Hydrogen	0.00005

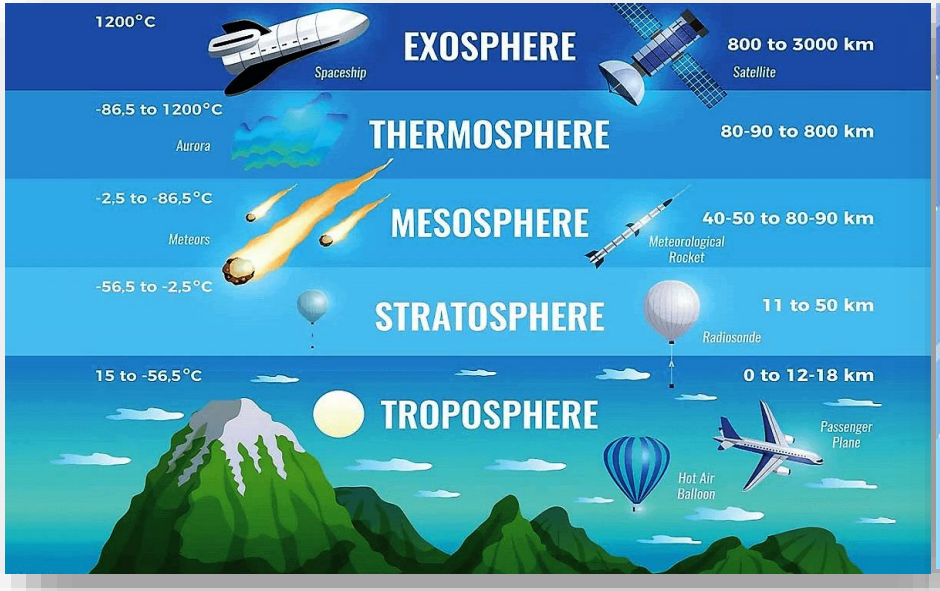


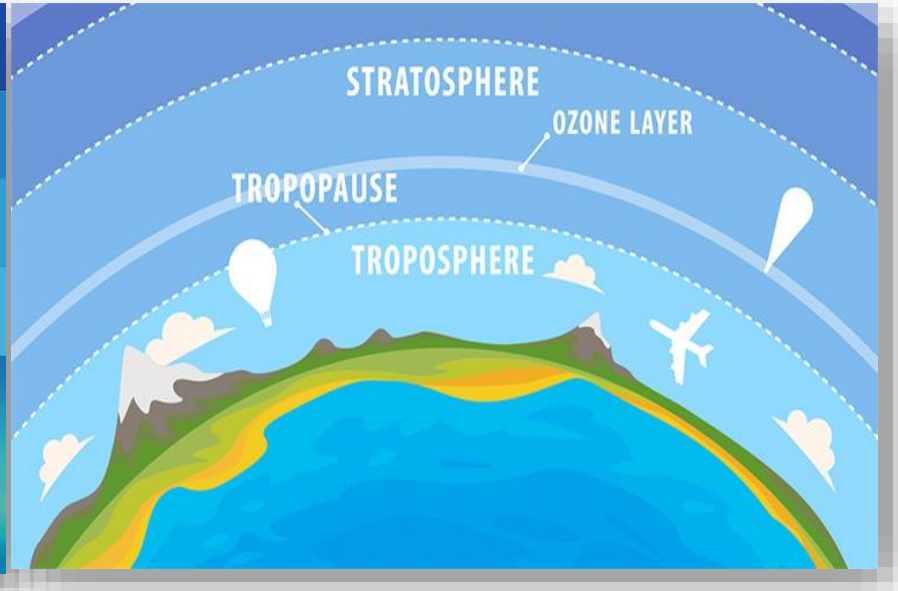


Structure of the Atmosphere

Troposphere

The **First Layer Of Atmosphere From The Earth Surface** Is Known As **Troposphere**. It Is At The **Height Of 12 Km From The Earth Surface.** Here **Temperature Decreases** At The **Rate Of 6.5°C Per Km** With The **Increase In Height.** This Is Called **Normal Lapse Rate (165MTS = 1°C)** .

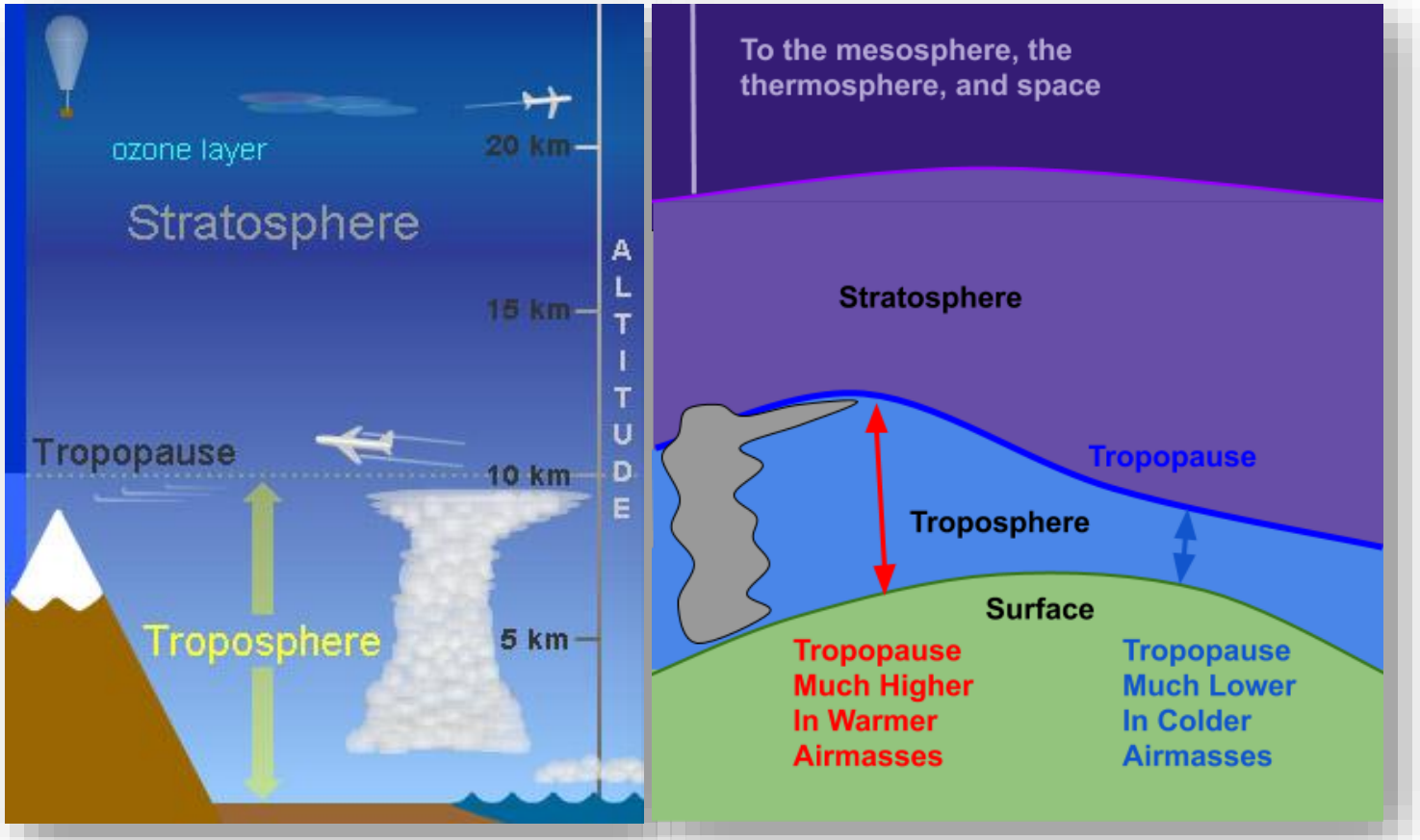




Tropopause

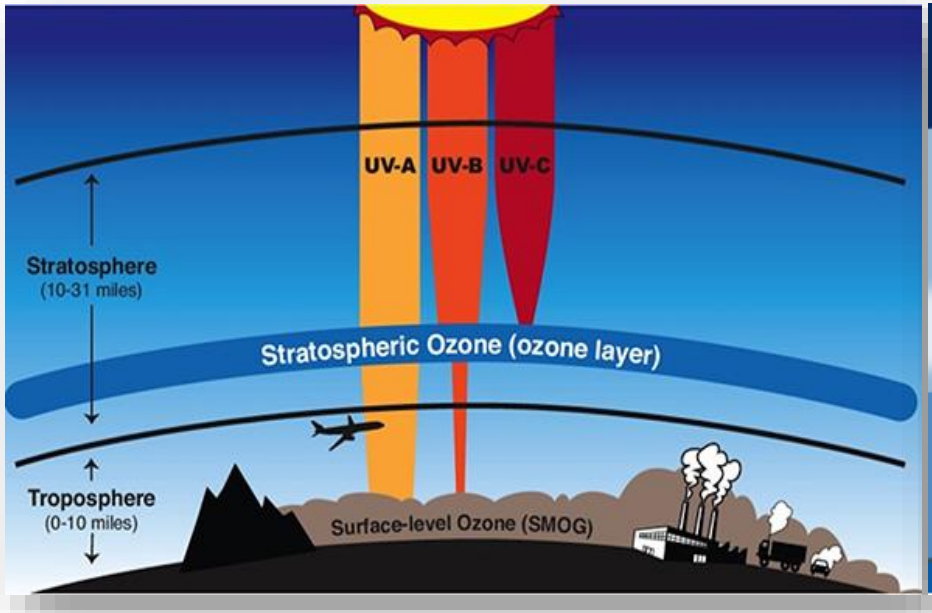
The **Transition Layer Separating Troposphere** From **Stratosphere** Is Known As

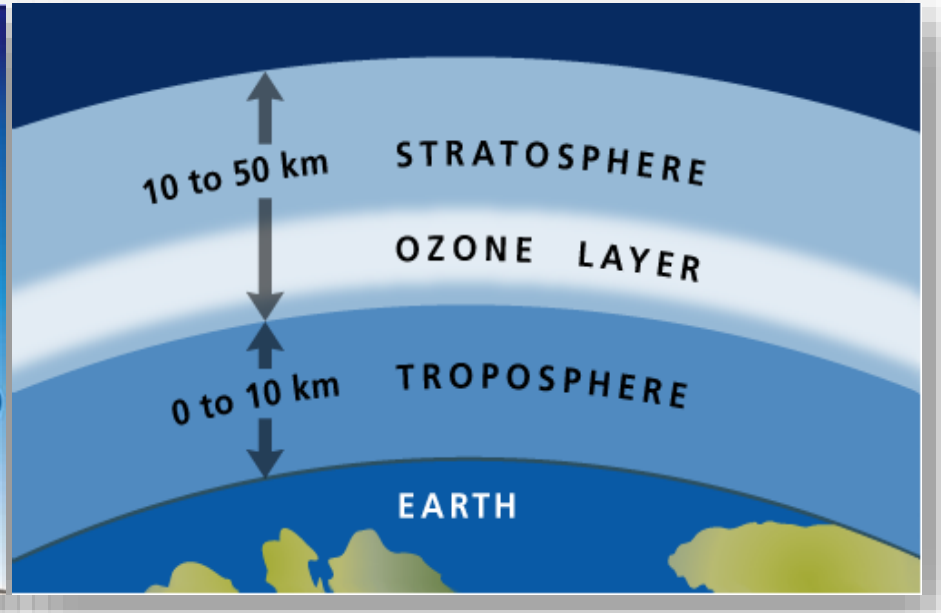
Tropopause Which Is **Between 16 Km At Equator** To **8 Km At Pole.**



Stratosphere

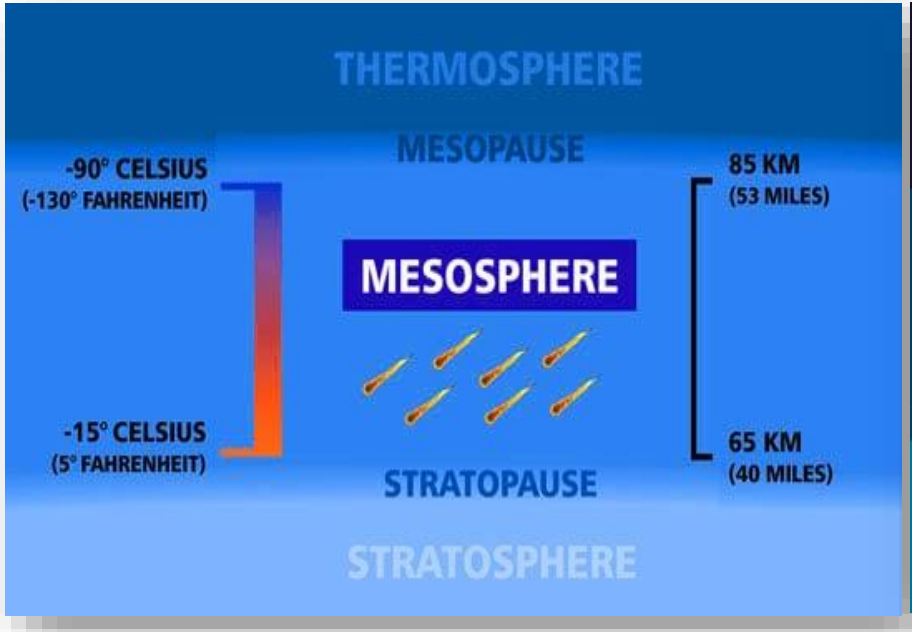
The **Layer Which Extends From 18 To 50 Km Above The Earth Surface** Is Called As **Stratosphere**. In This Layer **Temperature Increases As Altitude Increases** Due The **Ultra Violet Rays**. **Ozone** Forms To Be The **Outer Limit** For This Layer. **Turbulence Free Zone** Is Ideal For **Flying Of Jet Aircrafts.**

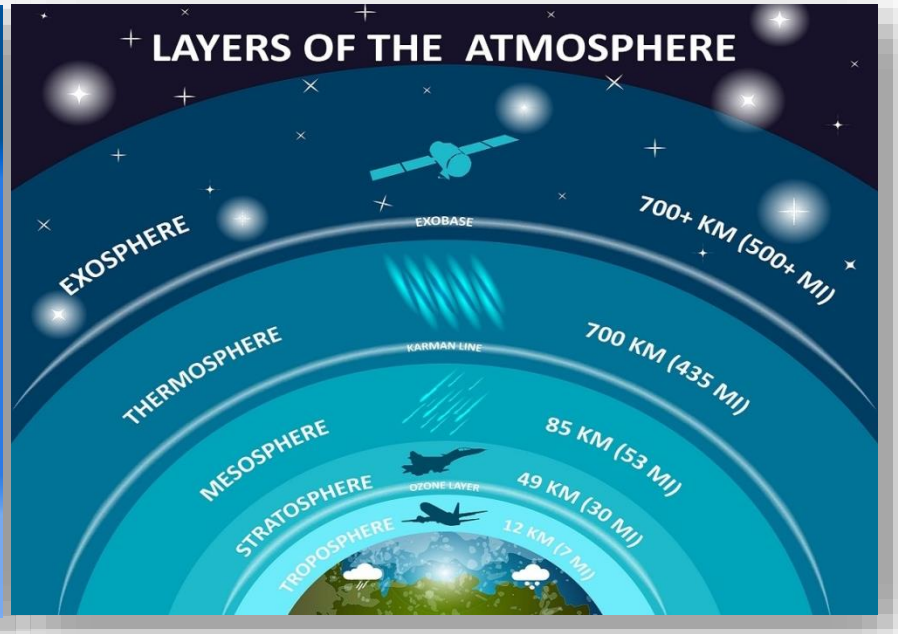


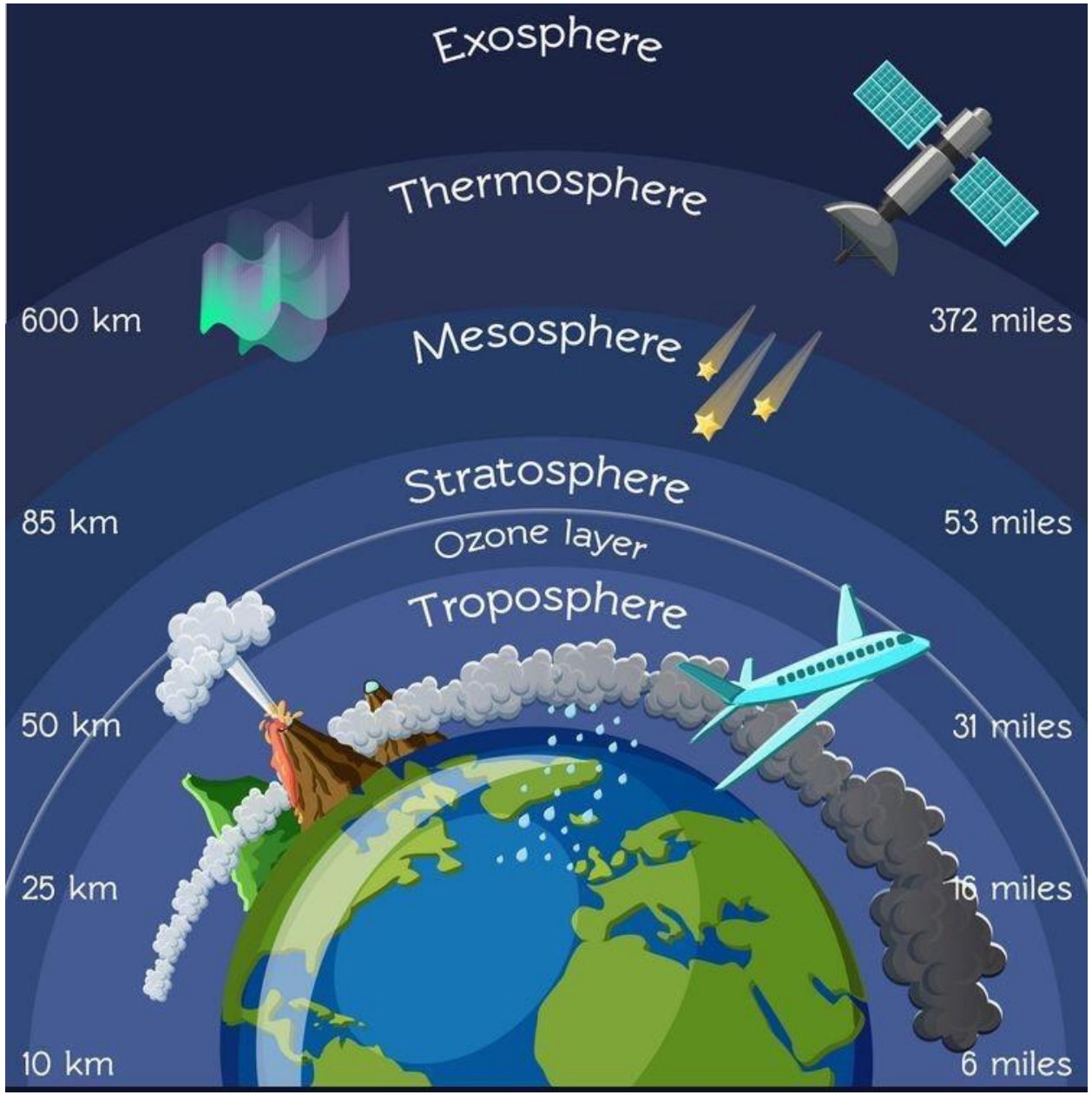


Mesosphere

Mesosphere Lies From **50 To 80 Km Above The Ground Level** With The **Temperature Below 100°C At 80 Km**. Even **Pressure Drops To 1 Mb At 50 Km** To **0.01 Mb At 90 Km**. **Mesopause** Are The **Upper Transitional Layer Separating Mesosphere** From **Ionosphere.** It Is The Zone Of **Meteorites Activities**.



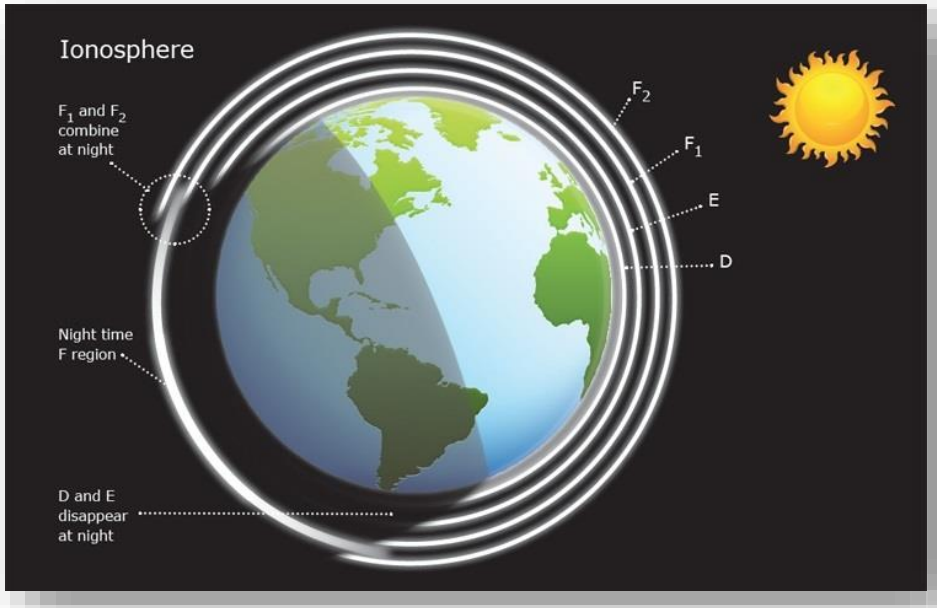



Exosphere
Thermosphere
600 km
372 miles
Mesosphere
Stratosphere
85 km
53 miles
Ozone layer
Troposphere
50 km
31 miles
25 km
16 miles
10 km
6 miles

Ionosphere

The Layer Between Mesosphere And Thermosphere Is Known As **Ionosphere.**

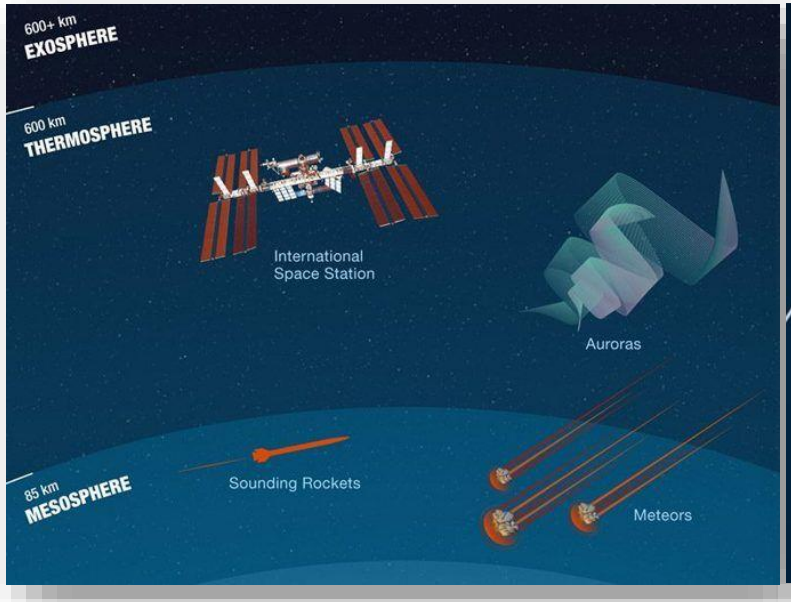
Aurora Austrialis And **Aurora Borealis** Occur Due To **Penetration Of Ionizing Particles** In This **Layer. Temperature Rises** With **Increasing Height** Here Owing To The **Absorption Of UV Radiation** By **Atomic Oxygen**.

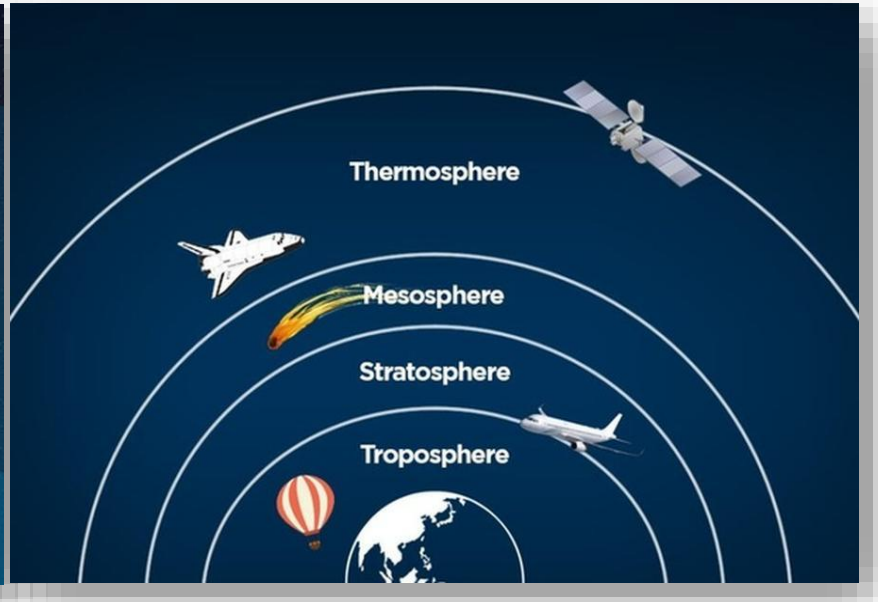


Thermosphere

The **Thermosphere** Is The **Second Highest Layer** Of **Earth's Atmosphere** Just Above **Mesopause**. It Forms **Lower Boundary Of Exosphere** Known As **Exobase.**

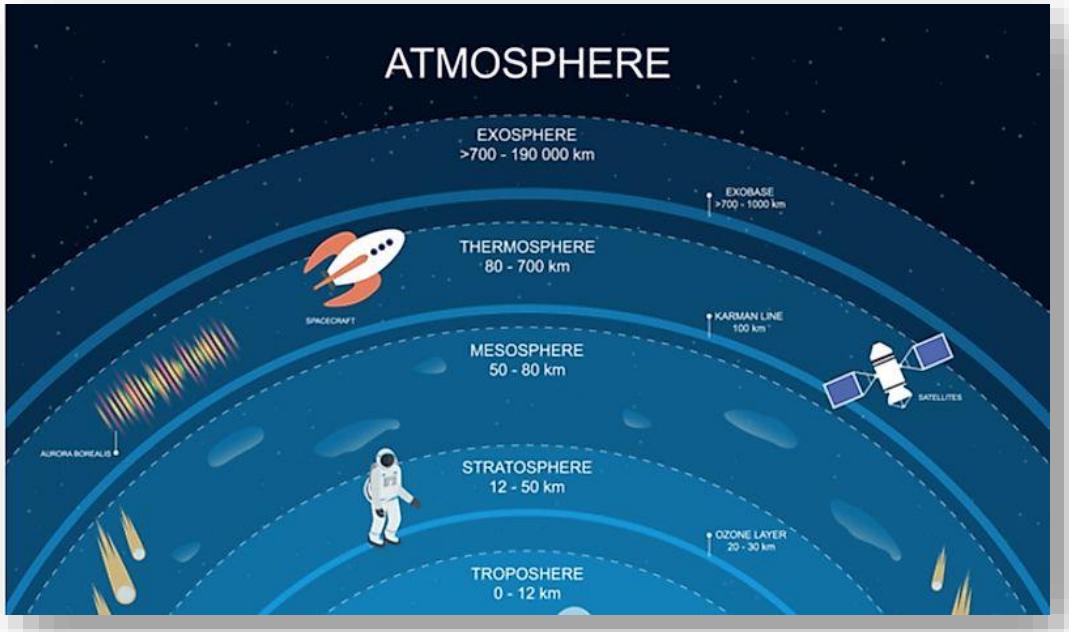
Gradual Increase Of Temperature Is Witnessed With Height Reaching Up To **1500°c (2700°f).**

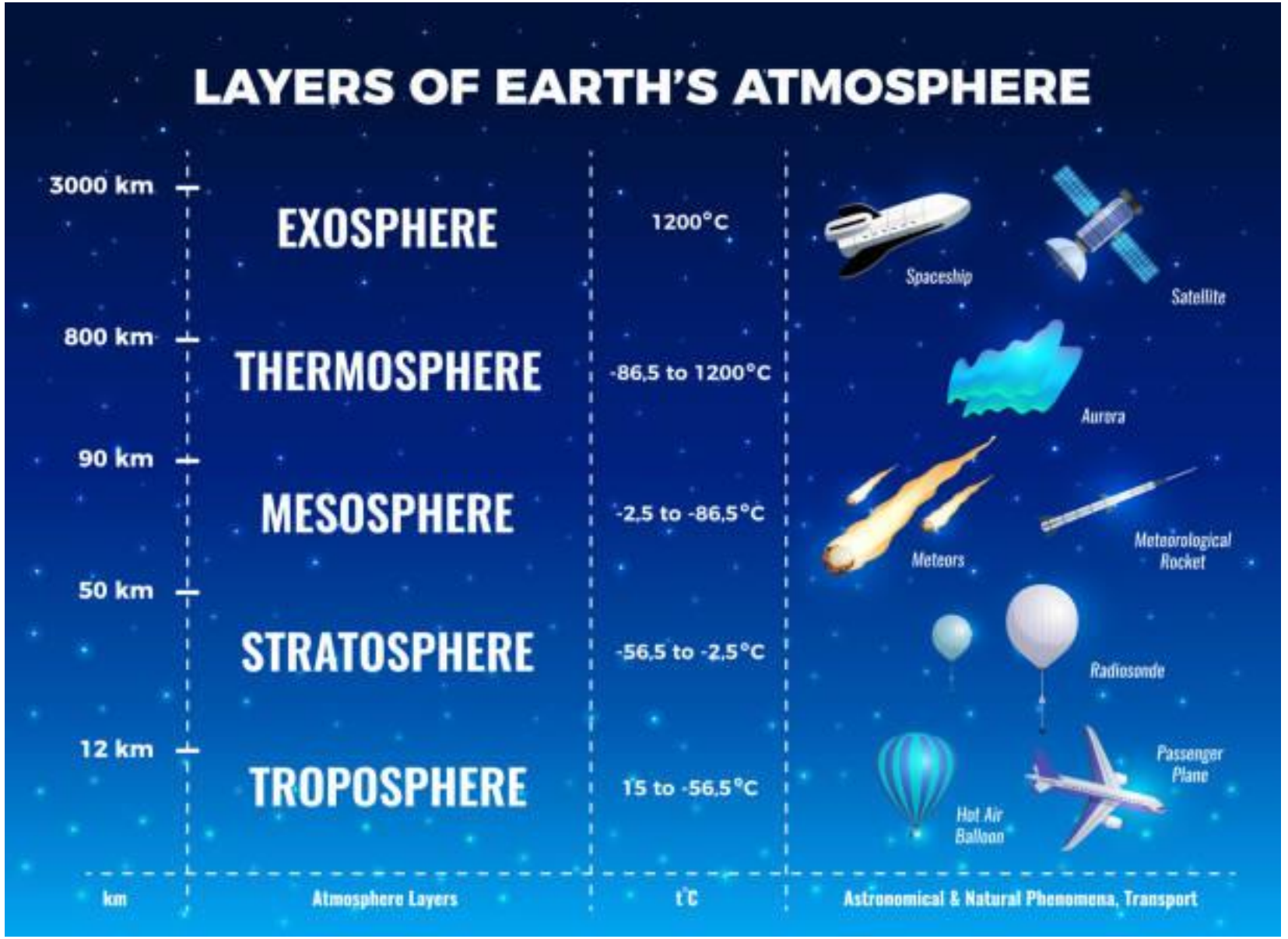




Exoshpere

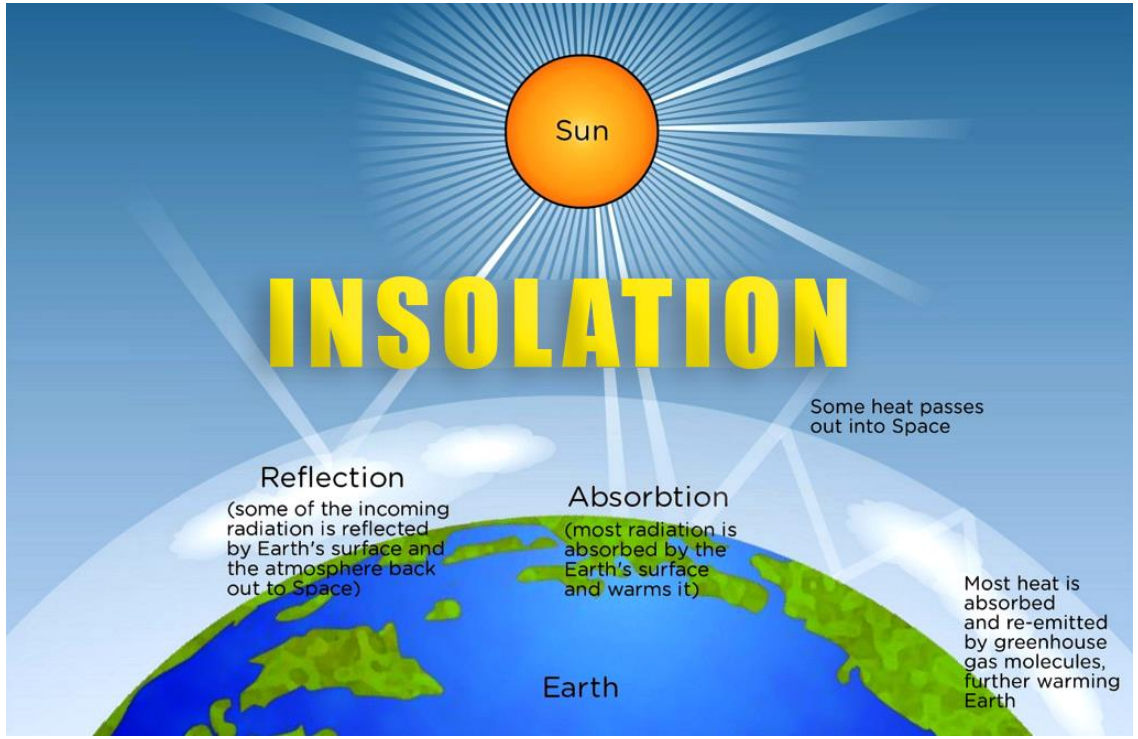
Outer Most Layer Extending Between Of **700 Km To 10000 Km**. Gases Like **Nitrogen, Oxygen And Carbon Dioxide Are Found**. **No Meteorological Phenomenon Is Possible**. Sometimes **Aurora Borialis** And **Aurora Austrialis Occur** Overlapping Into The **Thermosphere.**




LAYERS OF EARTH'S ATMOSPHERE
3000 km
EXOSPHERE
1200°C
800 km
THERMOSPHERE
-86,5 to 1200°C
90 km
MESOSPHERE
-2,5 to -86,5°C
50 km
STRATOSPHERE
-56,5 to -2,5°C
12 km
TROPOSPHERE
15 to -56,5°C
Spaceship
Satellite
Aurora
Meteors
Meteorological Rocket
Radiosonde
Passenger Plane
Hot Air Balloon
km
Atmosphere Layers
t°C
Astronomical & Natural Phenomena, Transport

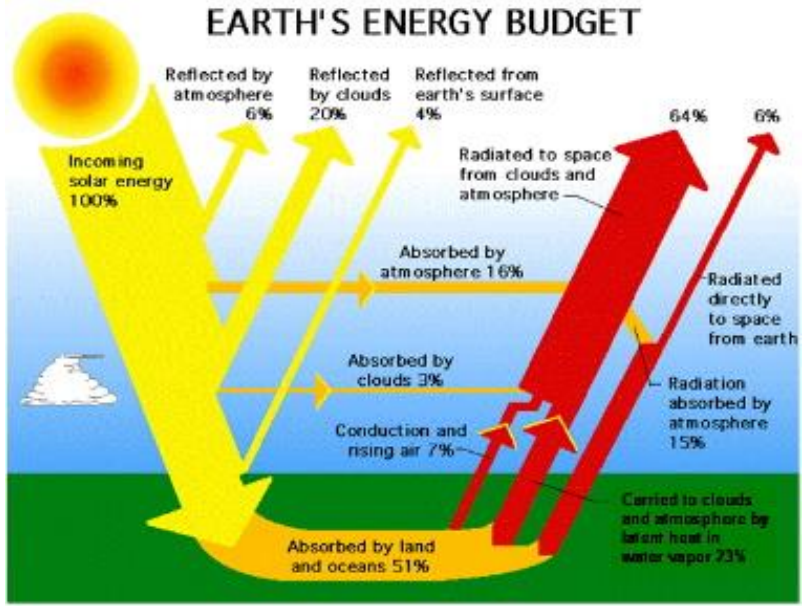
Insolation (Incoming Solar Radiation)

Insolation Is **Solar Energy Received On The Earth**. The **Sun Emits Radiation** Continuously In The Form Of **Short Wave And Ultraviolet Radiation**. This Radiation Has To Pass The **Atmosphere Before It Reaches The Earth.**



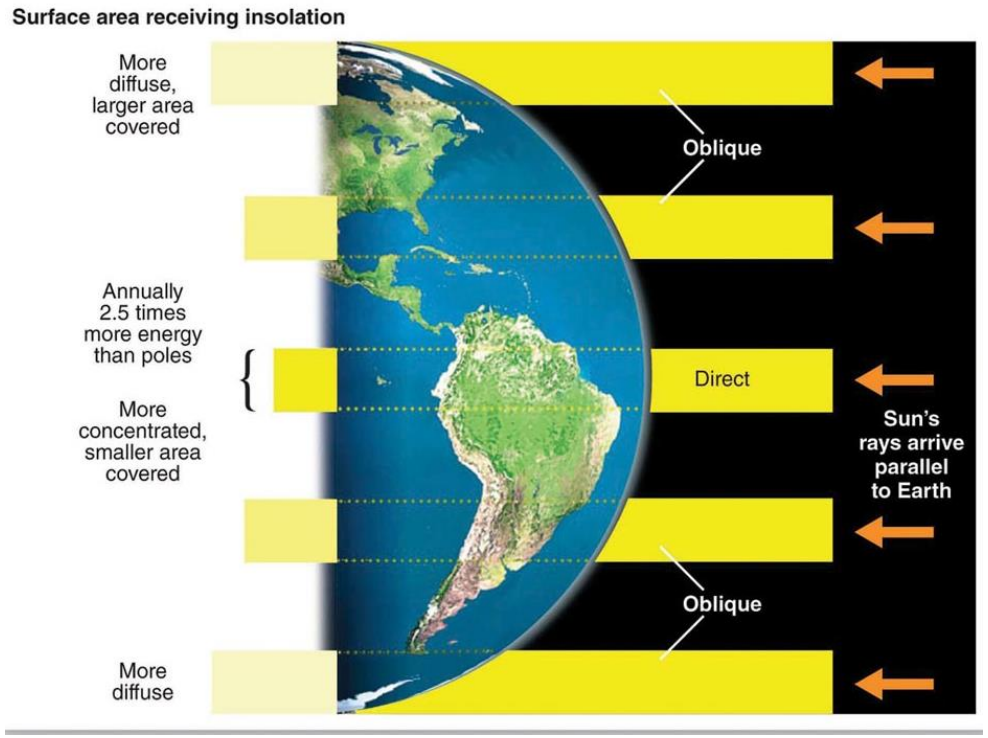
Insolation

The **Sun** Is **Primary Source Of Energy On Earth**. It **Enters Earth's Atmosphere** In The Form Of **Short Waves**. This Is Known As **Incoming Insolation Solar Radiation**. The **Earth Receives Solar Radiation** At The Rate Of **1.94 Calories Per Cm2/M.**



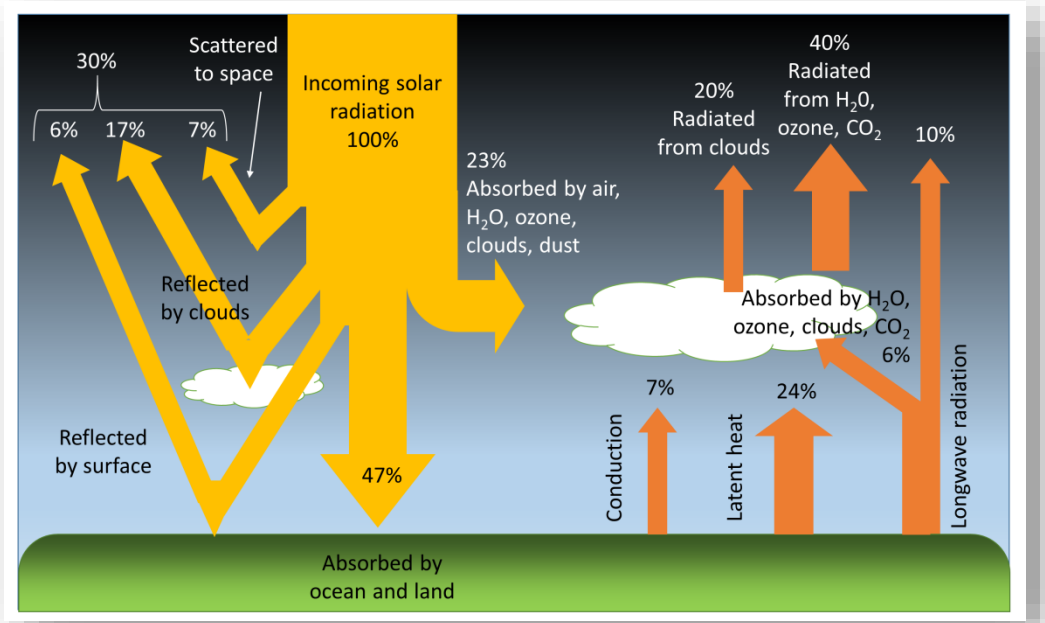
Insolation

The **Amount Of Solar Radiation** Received By **Earth** Is Affected By **Four Factors** i.e. **Rotation Of Earth, Distance From Sun, Atmosphere And Length Of The Day.**

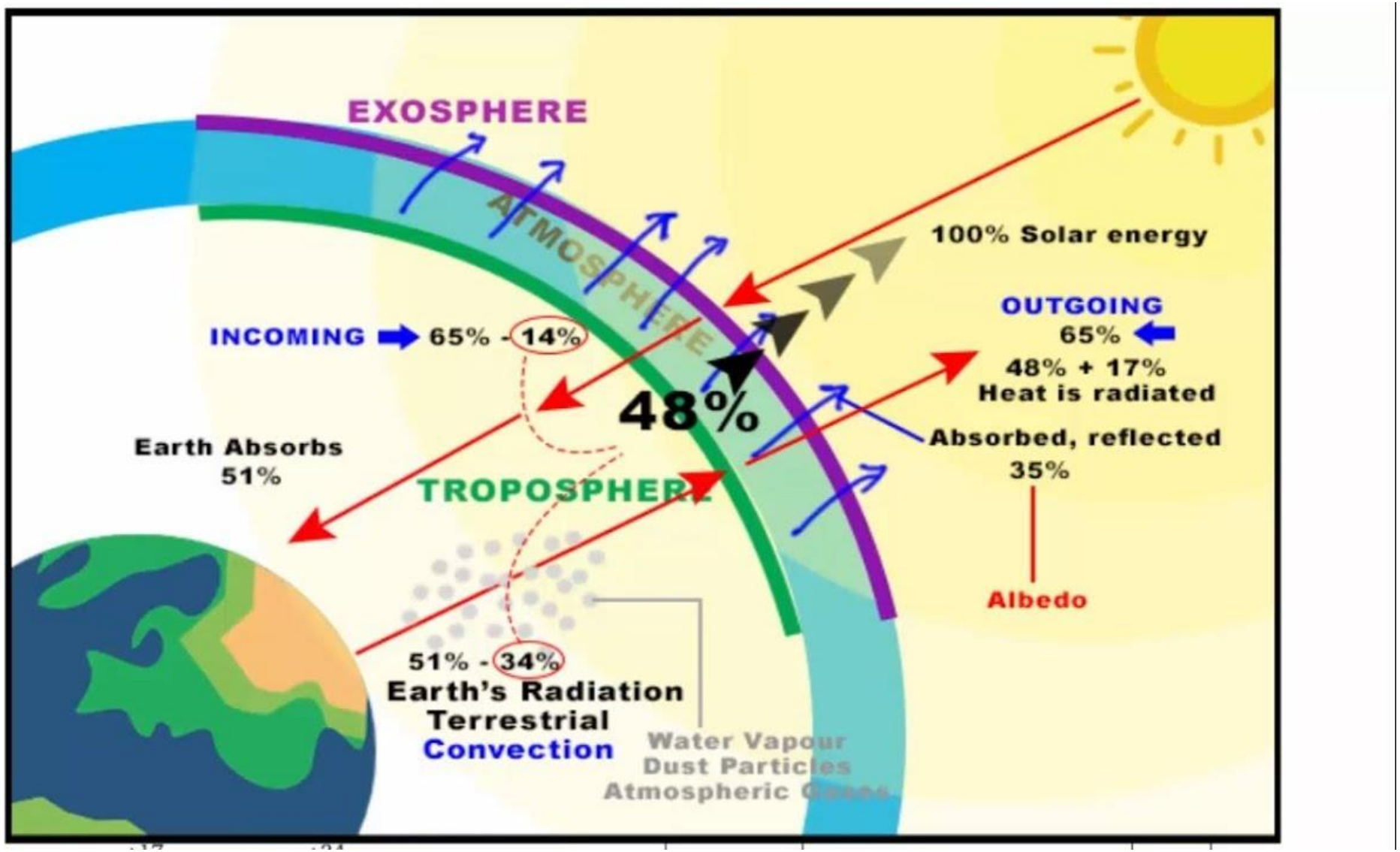


Heat Budget

When **Earth Balances** The **Incoming Solar Radiation** With The **Outgoing Terrestrial Radiation. The Energy** Received **If Not Returned Back To The Space** In The Form Of **Long Waves** Would **Increase The Temperature Of The Earth Surface**. This **Balancing Of Heat Affects** The **Amount Of Insolation Absorbed.**

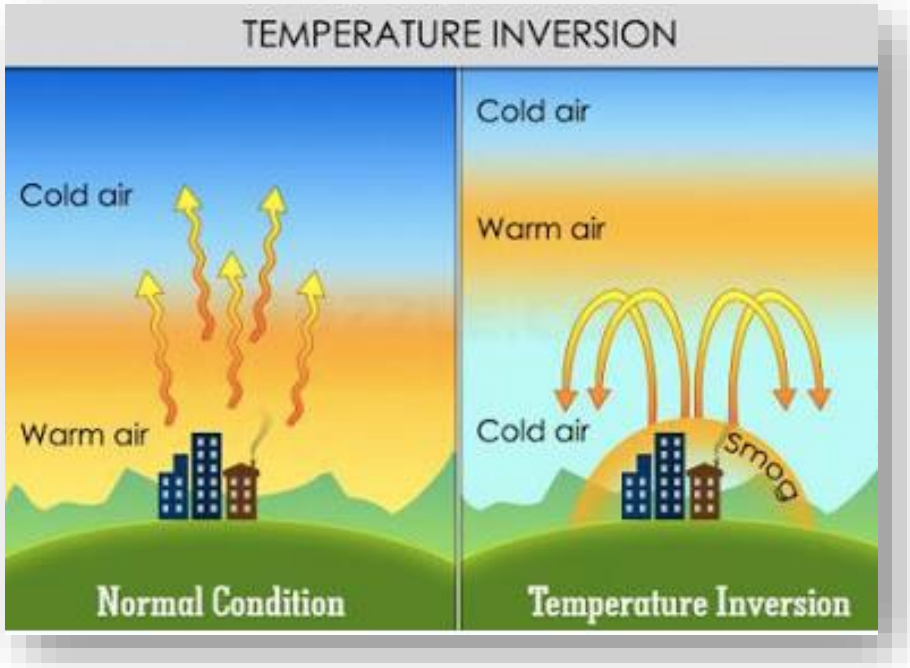


Heat Budget


EXOSPHERE
ATMOSPHERE
100% Solar energy
INCOMING
65% - 14%
OUTGOING
65%
48% + 17%
Heat is radiated
48%
Absorbed, reflected
35%
Earth Absorbs
51%
TROPOSPHERE
Albedo
51% - 34%
Earth's Radiation
Terrestrial
Convection
Water Vapour
Dust Particles
Atmospheric

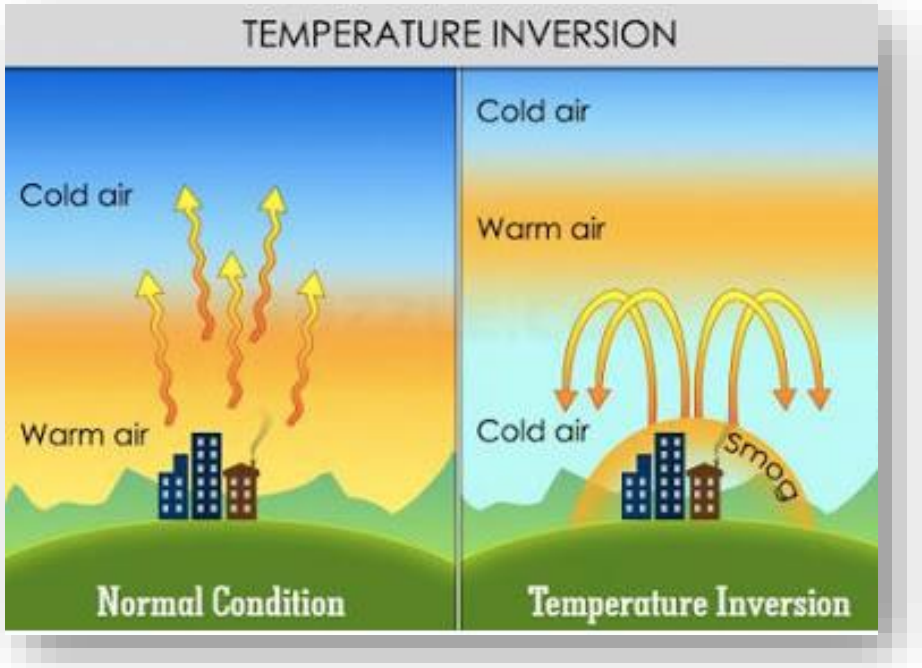
Inversion Of Temperatures

A Condition Where **Temperature Increases** With **Increasing Height Of The Atmosphere**. The **5 Causes Of Inversion Of Temperature** Are **Radiation, Drainage, Frontal, Advection, Subsidence**. General Tendency **To Decrease In Temperature** With **Increasing Latitude** Is Known As **‘Temperature Gradient’.**



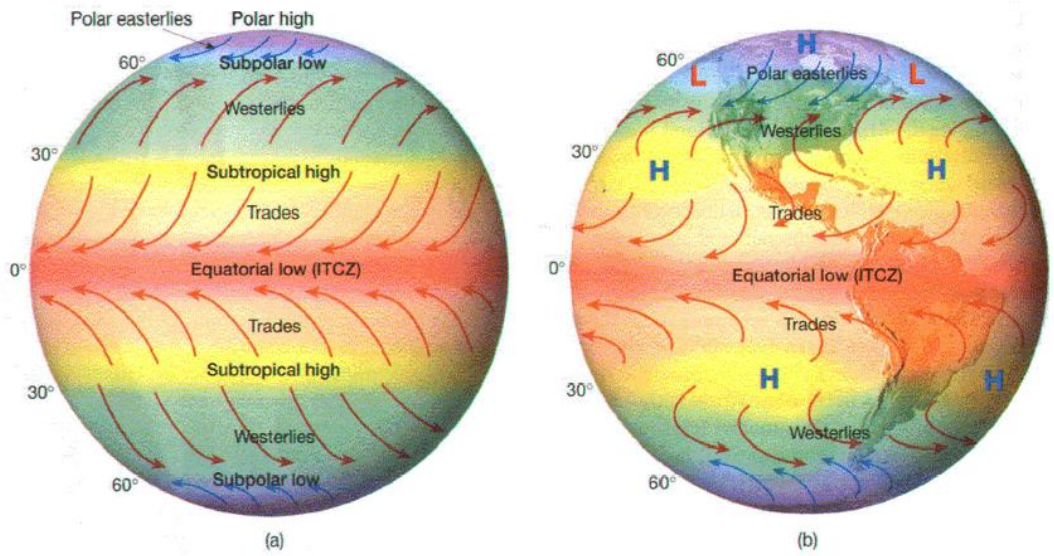
Inversion Of Temperatures

Not Only The Temperature But Even Its **Nature With Latitude Changes**. The **Rate Of Change Of Temperature Is Comparatively Low** Between **Tropics.** The **Gradient Is High At The Poles**. **Isotherms: The Line Which Join Places** Having Equal Temperature Is Called **'Isotherms'.**



Equatorial Low Pressure Belt

The Region Situated **Between 5° N To 5°S** Is Known As **Equatorial Low Pressure Belt**. This Belt Gets **Longer Duration Of Sunshine** And **Sun's Ray Falls** At A **Straight Angle On Earth Surface**. **Intense Heat** Is Received By The Earth Surface Causing **Thermal Induced Atmosphere**.



Equatorial Low Pressure Belt

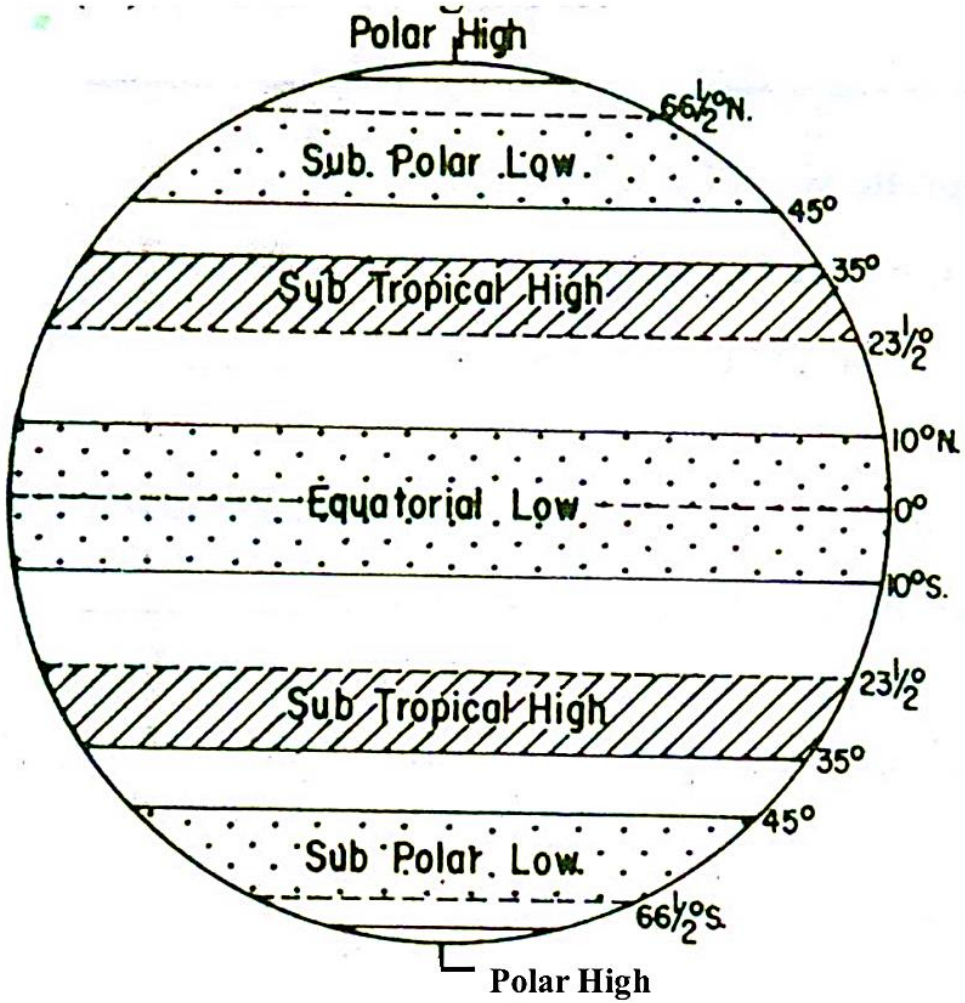
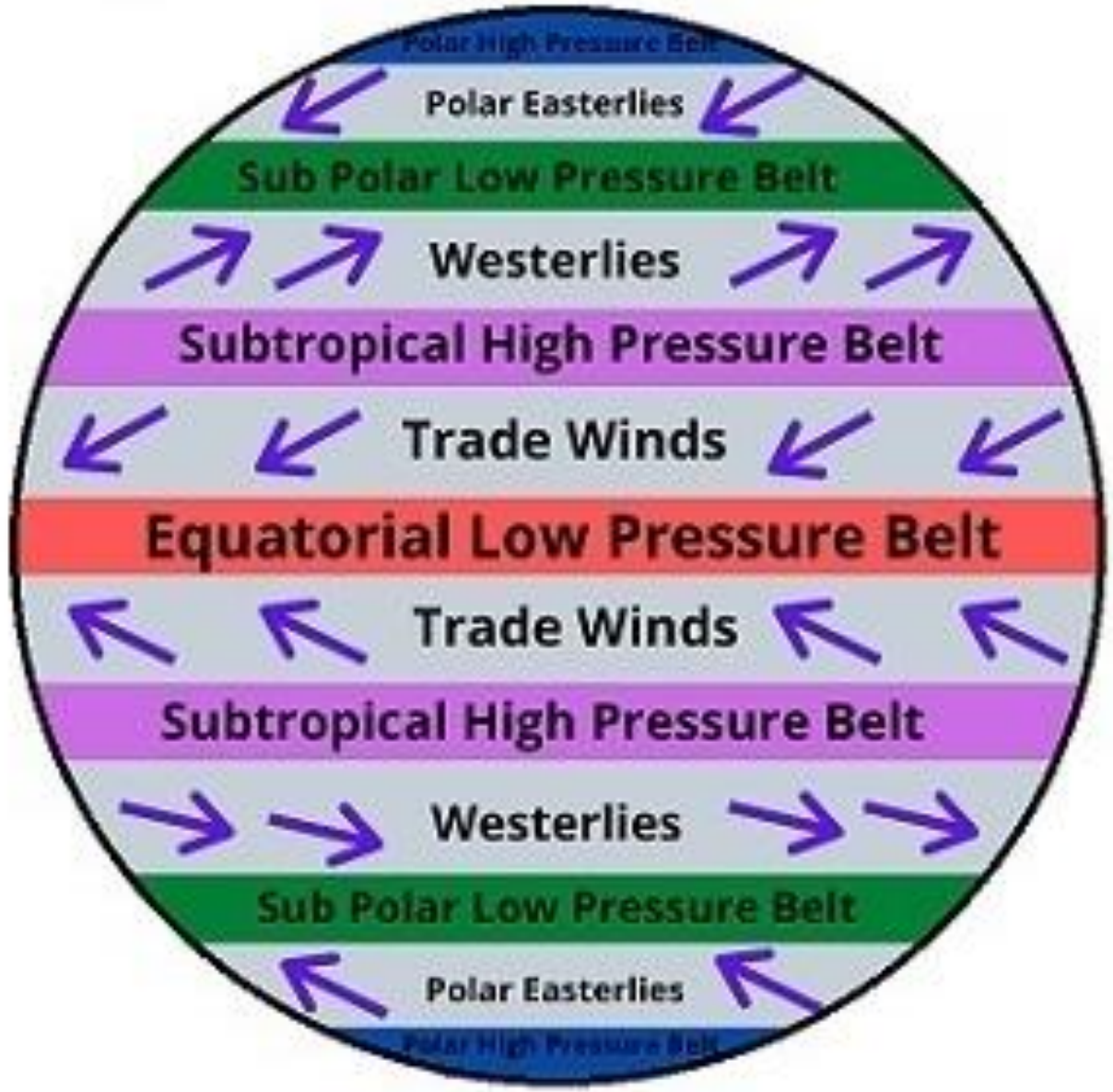
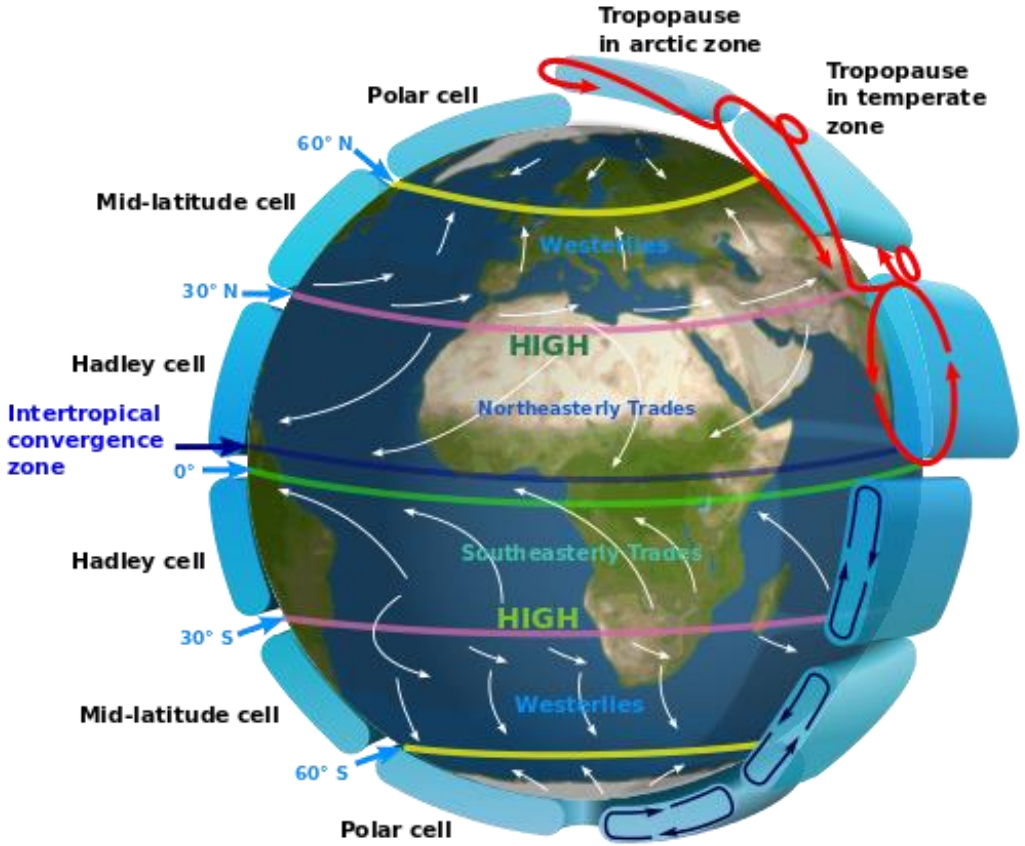


Fig. Pressure Belts


Polar High Pressure Belt
Polar Easterlies
Sub Polar Low Pressure Belt
Westerlies
Subtropical High Pressure Belt
Trade Winds
Equatorial Low Pressure Belt
Trade Winds
Subtropical High Pressure Belt
Westerlies
Sub Polar Low Pressure Belt
Polar Easterlies
Polar High Pressure Belt

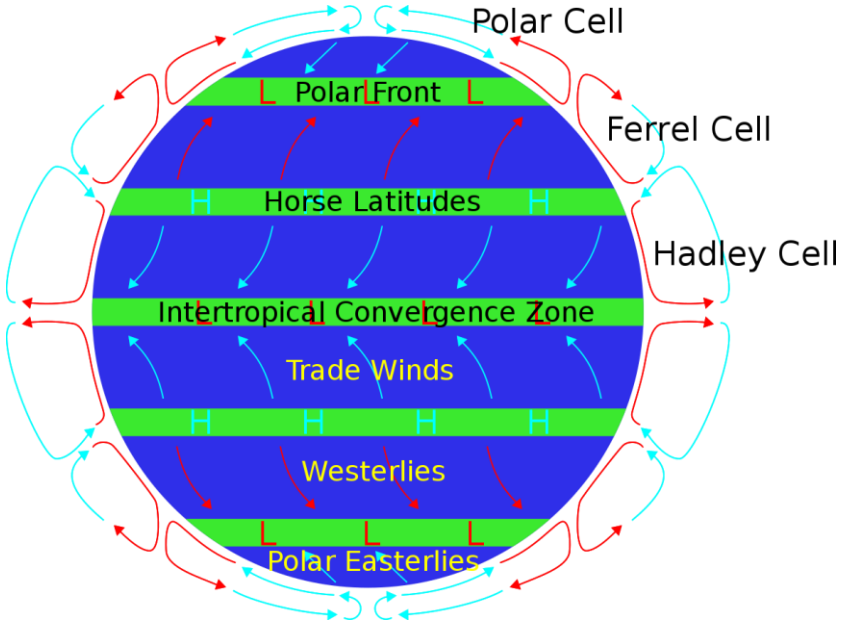
Equatorial Low Pressure Belt

It Is Also A **Convergence Zone Of Northeast** And **South-east Trade Winds**. The Area Is **Calm With No Wind Movement,** Thus Known As Belt Of **Calm** Or **Doldrums.**



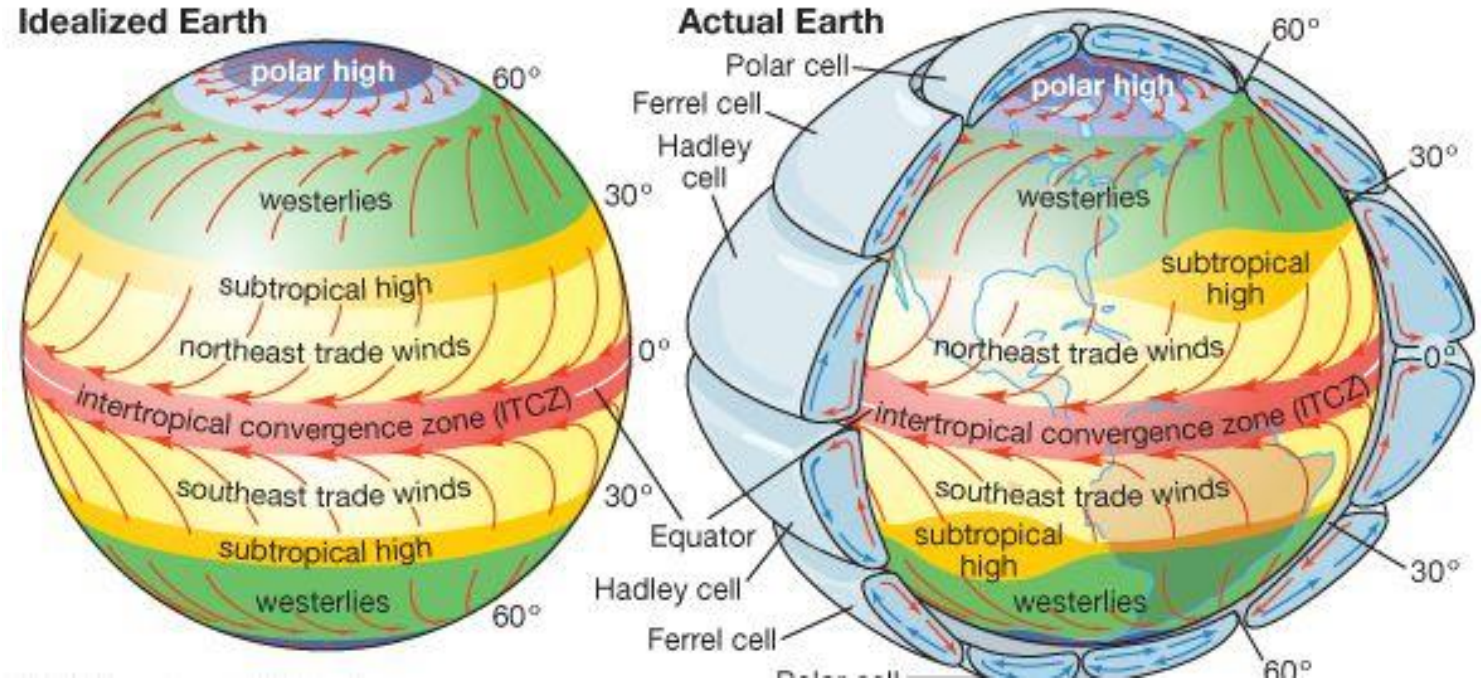
Sub-Tropical High Pressure

The **Sub Tropical High Pressure Belt** Extends **Between 25° To 35°** In **Both The Hemisphere.** Here The **Convergence Of Winds** At **Higher Altitude** Above This Zone Results In The **Subsidence Of Air From Higher Altitudes. Descent Of Wind Results** In Concentration Of Their **Volume** And Causes **High Pressure.**



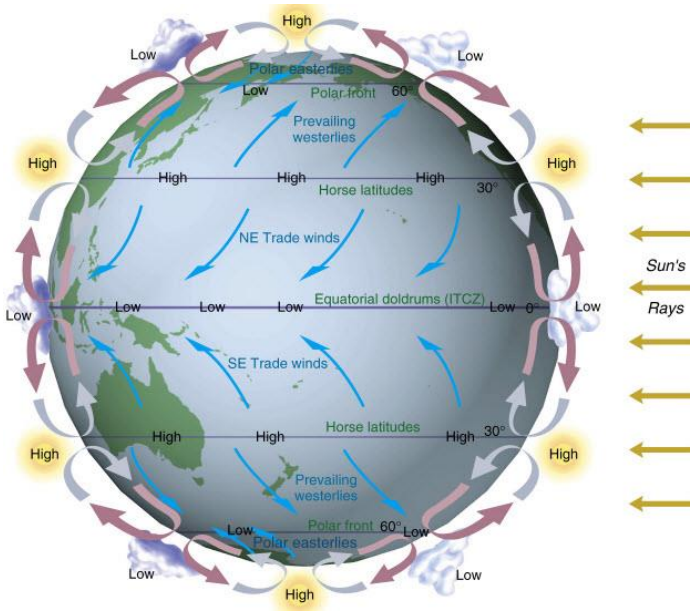
Sub-Tropical High Pressure

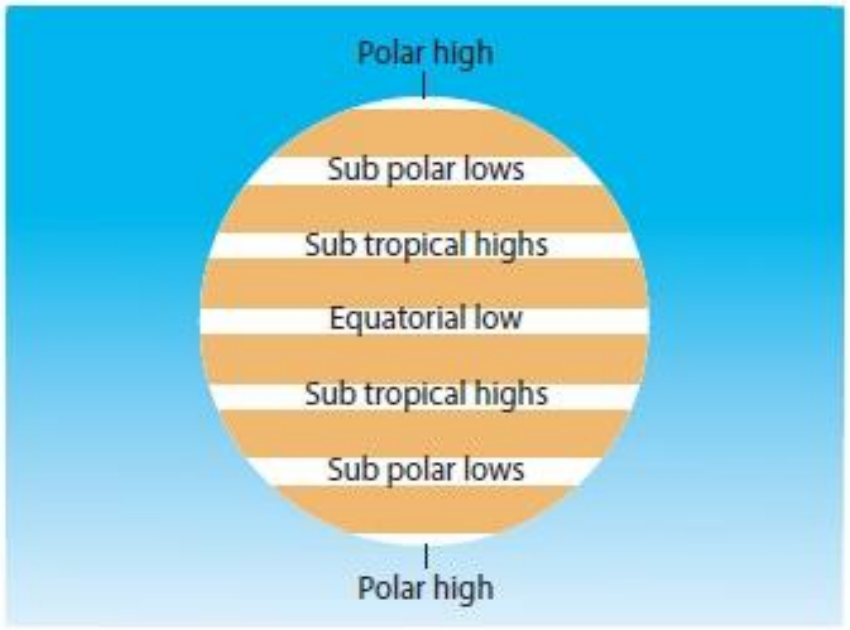
It Is **Not Thermally Induced**, But Dynamically Induced As It Owes Its Origin To The **Rotation Of The Earth** And **Sinking And Settling Down Of Winds**. This Zone Of **High Pressure** Is Also Called **Horse Latitude.**



Sub Polar Low Pressure Belt

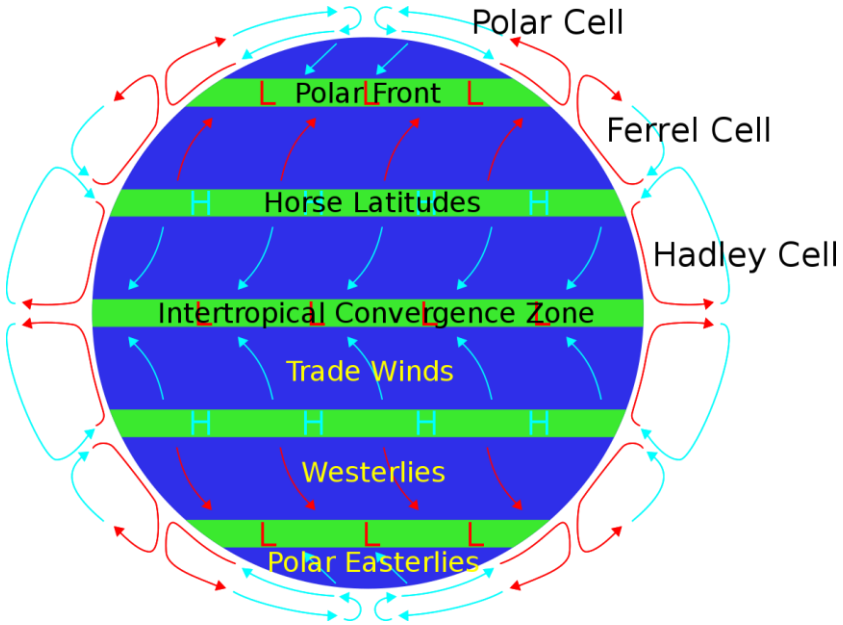
The Zone Is Situated **Between 60° To 65°** In **Both The Hemisphere**. It Is **More Developed And Regular** In **Southern Hemisphere** Than In **Northern Hemisphere** Because Of The **Over Dominance Of Water** (Ocean) In The **Southern Hemisphere.**





Sub Polar Low Pressure Belt

The **Low Pressure Belt Does Not Appear** To Be **Thermally Induced** Because There Is **Low Temperature Throughout The Year** And There Should Have Been **High Pressure Belt** Instead Of **Low Pressure Belt**. Thus It Is **Dynamically Induced.**

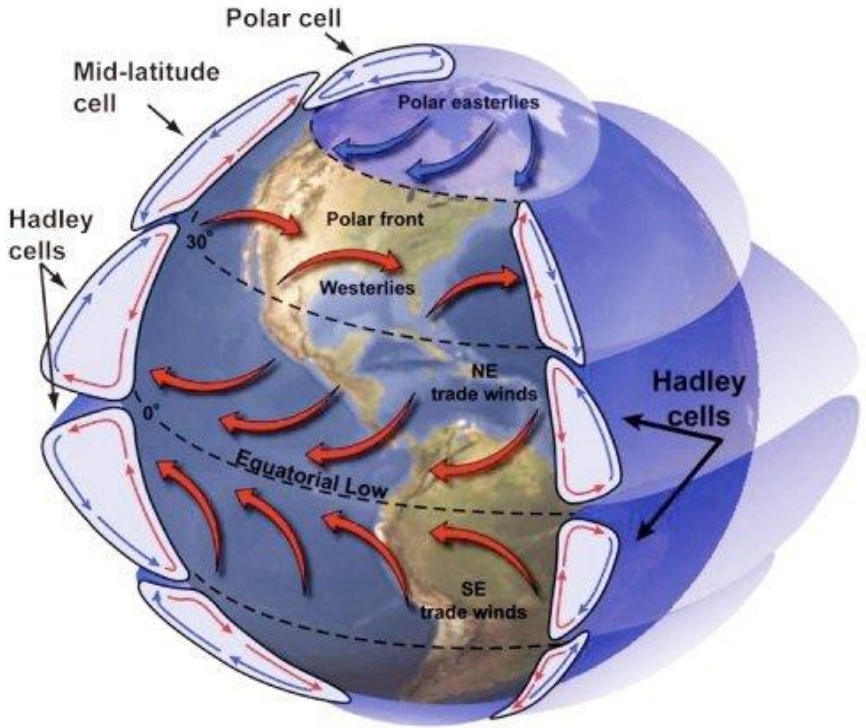


Polar High Pressure Zone

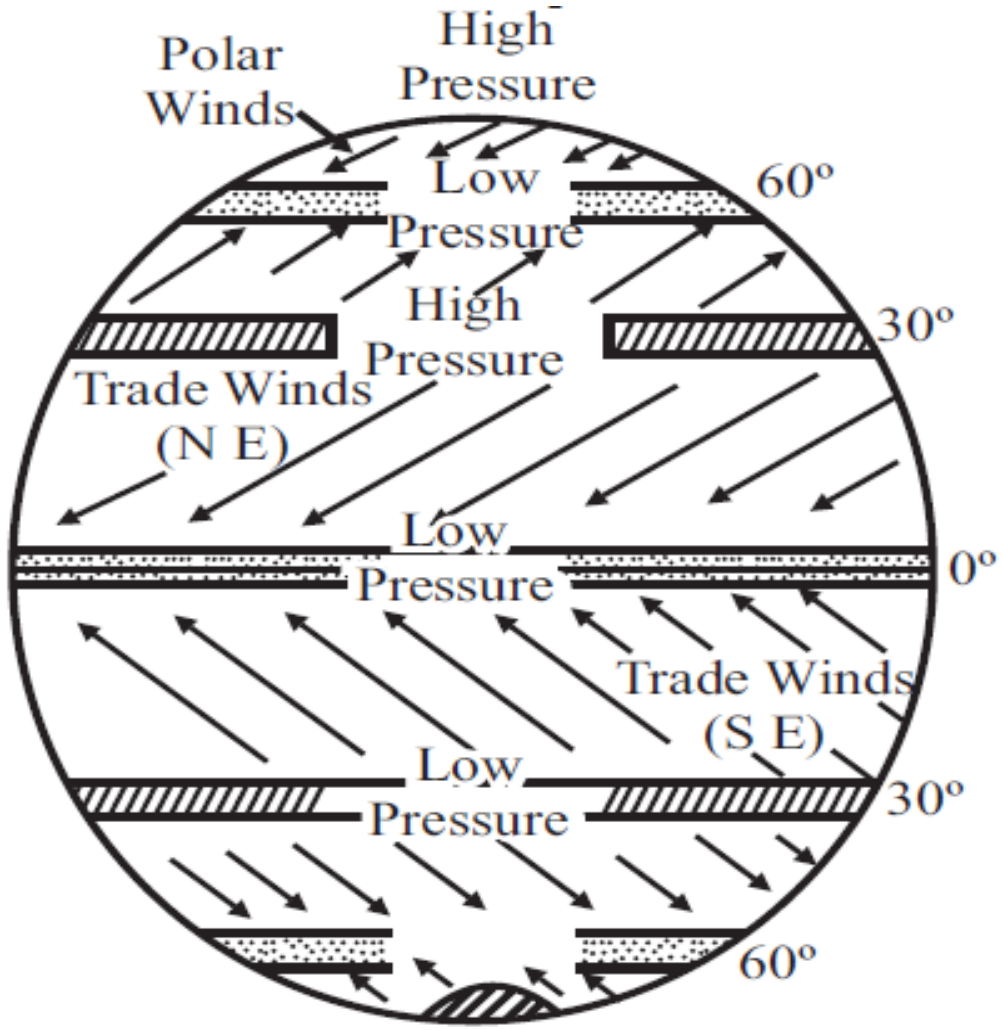
The **Polar High Pressure** Zone Is Situated **Near The Pole**. The Zone Is Originated

Due To **Thermally Induced Factor** As Very **Low Temperature** Is Solely

Responsible For The **Creation Of A High Pressure Zone** Over The **Polar Areas.**



Major Pressure Belts

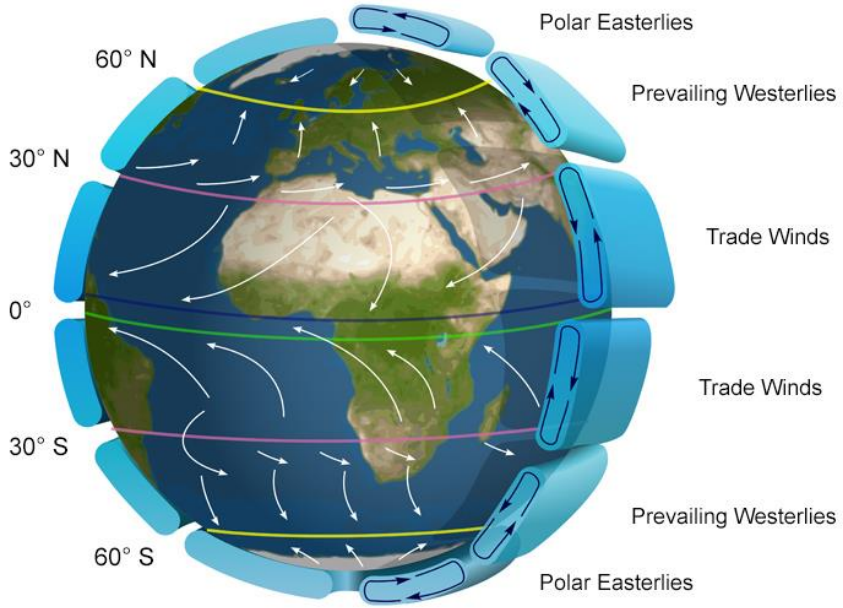


Wind Belts

Wind Can Be Defined As The **Movement Of Large Volume Of Gases** From **High Pressure Area To Low Pressure Area**. There Are **Two Types Of Winds:**

1) Permanent/Prevailing Winds (Blow Throughout The Year)

2) Seasonal Wind (Blow In Particular Period Of The Year)



Permanent/Planetary/Prevailing Winds

Types	Sub Types	Characteristics
Tropical Winds	**Doldrum (5º N - 5ºS) Equatorial westerlies (15ºN – 35ºN)**	• It is called as "**equatorial calms**" because wind has no motion and cumulonimbus cloud are formed bring daily rainfall. • It is not continuous belt. Equatorial fronts are formed and equatorial westerlies blow there. It is associated with strong atmospheric disturbances or cyclonic storm.
	Trade Winds	• A wind flowing from subtropical high pressure to equatorial low pressure belt is termed as Trade Winds. It moves in north east and south east in north and south hemisphere respectively.
Sub Tropical Wind	**Westerlies (35º-65ºN and S)**	Blowing from subtropical high pressure belt **(30º - 35ºN and S)** to the sub polar low pressure belt **(60º - 65ºN and S)** is called Westerlies. In the northern hemisphere these wind blow from south west to north east and in southern hemisphere from north west to south east. **40ºS to 50ºS-Roaring Forties, 50ºS to 60ºS- Furious Fifties** and **60ºS onwards – Shriecking Sixties** are its name.
Polar Wind		• A low pressure zone is created in between 600 to 650 in both the hemisphere due to the dynamic factor of the earth. • It blows from north easterly and south easterly in northern and southern hemisphere respectively.

Local Winds

Winds	Nature	Region
Fohn	Warm	Alps
Chinook (snow eater)	Warm	Rockies
Kalbaisakhi	Warm	North India
Berg	Warm	S. Africa
Zonda	Warm	Andes
Loo	Warm	Indian subcontinent
Santa Ana	Warm	Coastal Southern California
Southerly	Cold	New South Wales
Khamsin	Warm	Egypt
Harmattan (Doctor)	Warm	Guinea Coast Eastern part of Sahara
Mistral	Cold	S.E. France
Samun	Warm	Iran
Purga	Cold	Russia
Levanter	Cold	France
Pampero	Cold	S. America
Norwester	Warm, dry	New Zealand

Local Winds


Blizzard
Chinook
Santa Ana
Pampero
Zonda
Bora
Karaburan
Buran
Mistral
Fohn
Sirocco
Loo
Khamsin
Harmattan
Bursters

Some Important Winds

Winds	Region
Levante	It blows in western Mediterranean, near the **Strait of Gibraltar**. It is called as the Viento de Levante or the Levanter and even **Solano**. It blows moderately or strongly bringing rain and damp smell to the region.
Norte	The Norte is a strong and cold northeasterly wind which blows in **Mexico** along the **Gulf of Mexico**. It results from an outbreak of cold air from the north.
Etesian	Etesians blow as winds of northeasterly to northerly direction over Northern Aegean Sea while, in the southern Aegean along with the Cretan and the Carpathian Sea, they blow as northern westerlies.
Helm	Generally seen in Columbia and England these strong north-easterly wind blows down the south –west slope of the Cross Fell escarpment.
Buran/ Purga	Extremely cold wind full of ice and snow blowing across Russia and eastern Asia. In tundra region, it is also known as Purga. In Alaska this severe north-easterly wind is known as Burga, bringing snow and ice pellets.
Brick-fielder	It is a hot and dry summer wind blowing in coastal regions of South **Australian desert**. Blows strongly, for several days at a time, along with dust, and parching all vegetation. In one sense it is a healthy wind, as it destroys many harmful germs due to its heat.

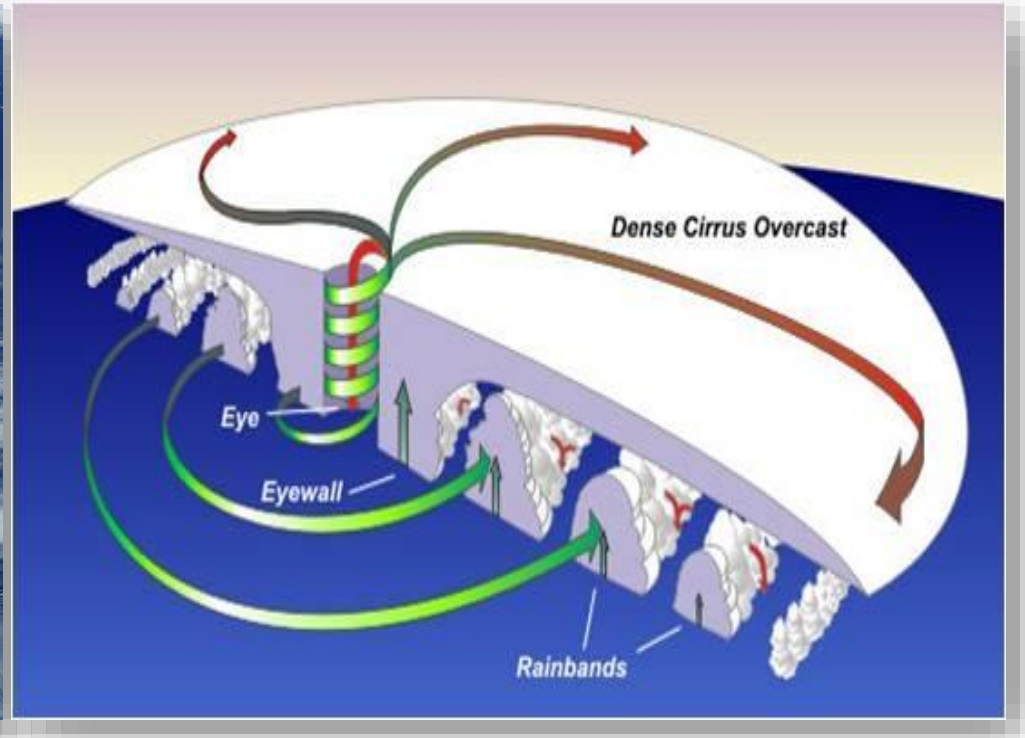
Subtypes	Seasonal Winds Characteristics
Monsoon	• It blows from the south west in summer and from north east in winter. It is consistent and bi-directional regular flow of wind over a year. It is thermally induced complex air circulation where all layers of air circulation that is surface, middle and upper layer are involved.

Cyclones

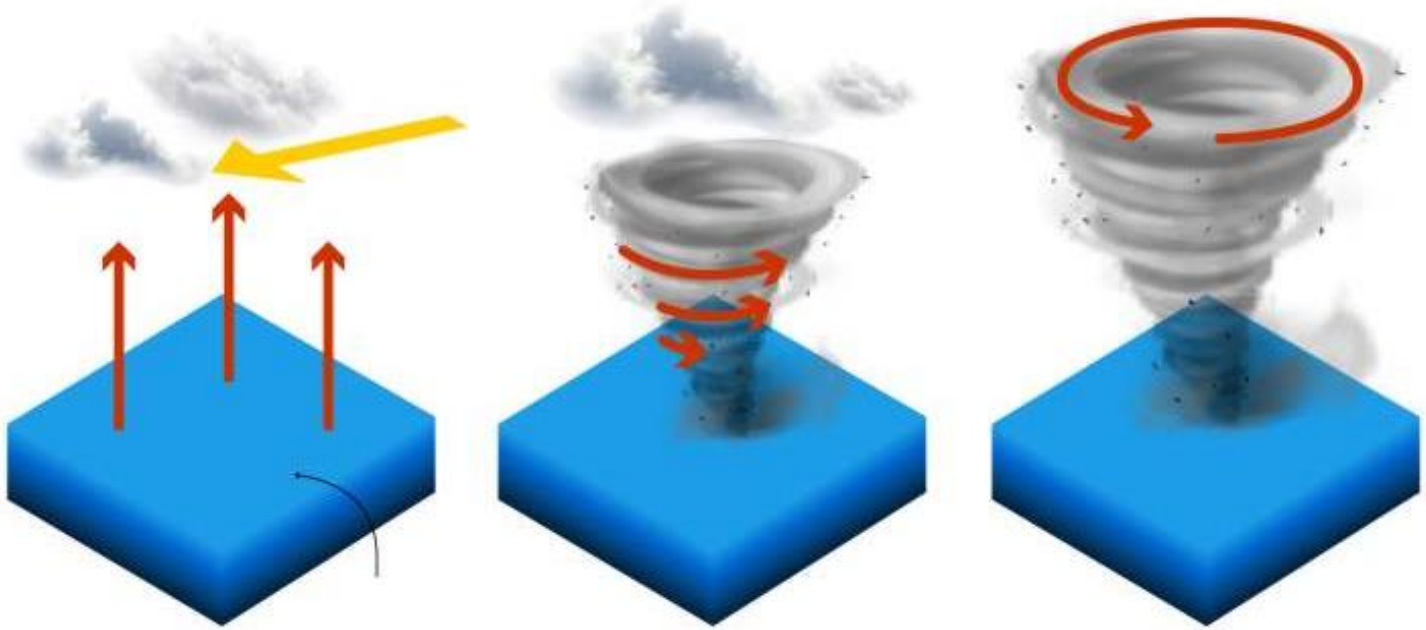
Cyclones Are The **Centres Of Low Pressure** Surrounded By **Closed Isobars**

Having **Increasing Pressure Outward** And **Closed Air Circulation** From **Outside**

Towards The **Central Low Pressure.**



As warm air rises from Equatorial ocean waters, an area of lower air pressure is formed. As this cycle gains momentum and strength, it begins to swirl, creating a tropical cyclone, which can also be called a hurricane or a typhoon.



26˚C

When ocean temperature rise above 26C, water evaporates and collides with cold air forming clouds

A column is created by the low pressure in the centre known as the eye of the storm

When the wind speeds reach 119km/h (74 mph), the storm becomes a tropical cyclone, which can also be called a hurricane or a typhoon, depending on where it happens.

Cyclones

1. **Air Blows Inward** In **Clockwise Direction** In The **Southern Hemisphere.**

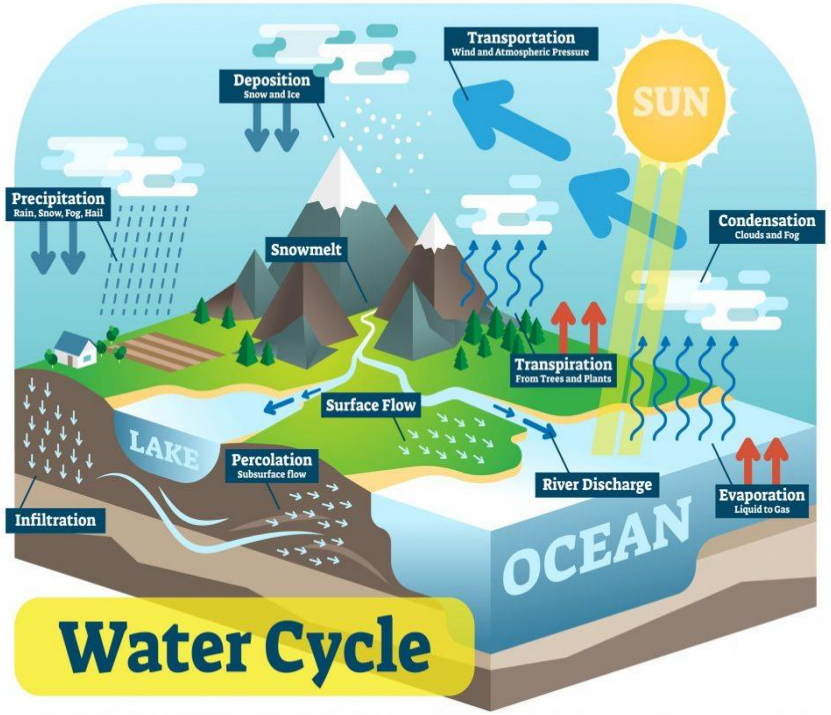
2. **Air Blows Inward** In **Anti-clockwise Direction** In **The Northern Hemisphere**.

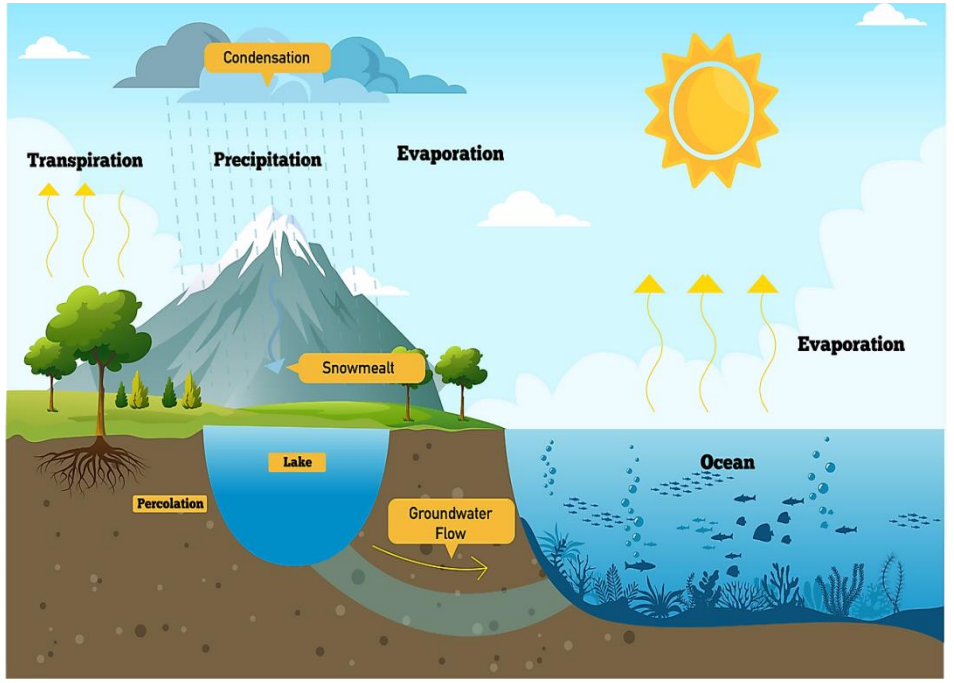
3. On The Basis Of **Place Of Origin.**

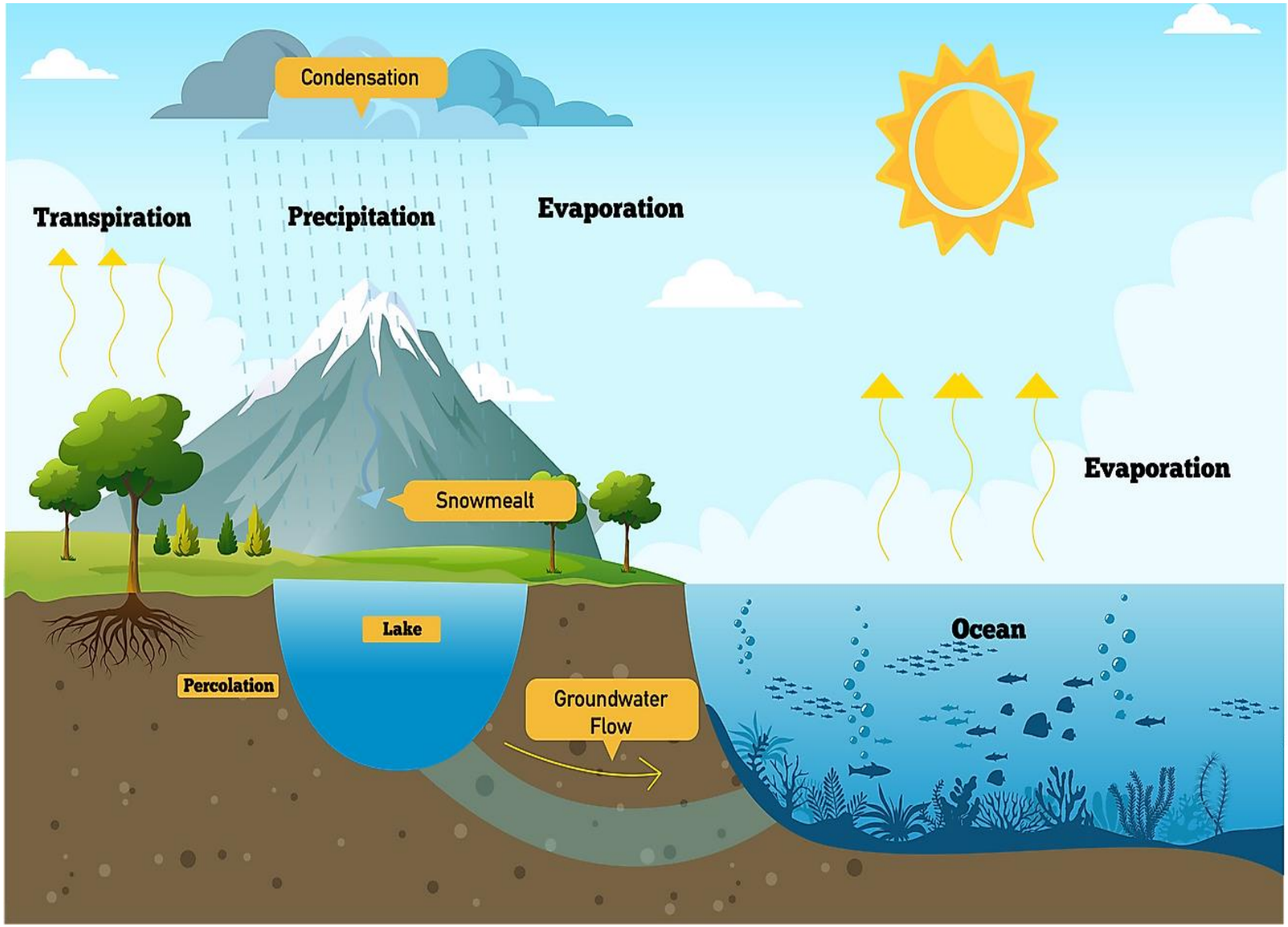
Cyclone		Region
1.	Tropical Cyclones	Indian Ocean
2.	Typhoons	China Sea
3.	Hurricanes	Caribbean Sea
4.	Willy Willies	Northern Australia
5.	Tornadoes	USA

Precipitation

Condensation Of Atmospheric Water Vapour That **Falls Under The Gravity** Is Called As **Precipitation**. This Could Be In The Form Of **Rain, Snow Or Hail Etc.** Its Form Depends On The **Temperature At Which Water Vapour Condenses.**

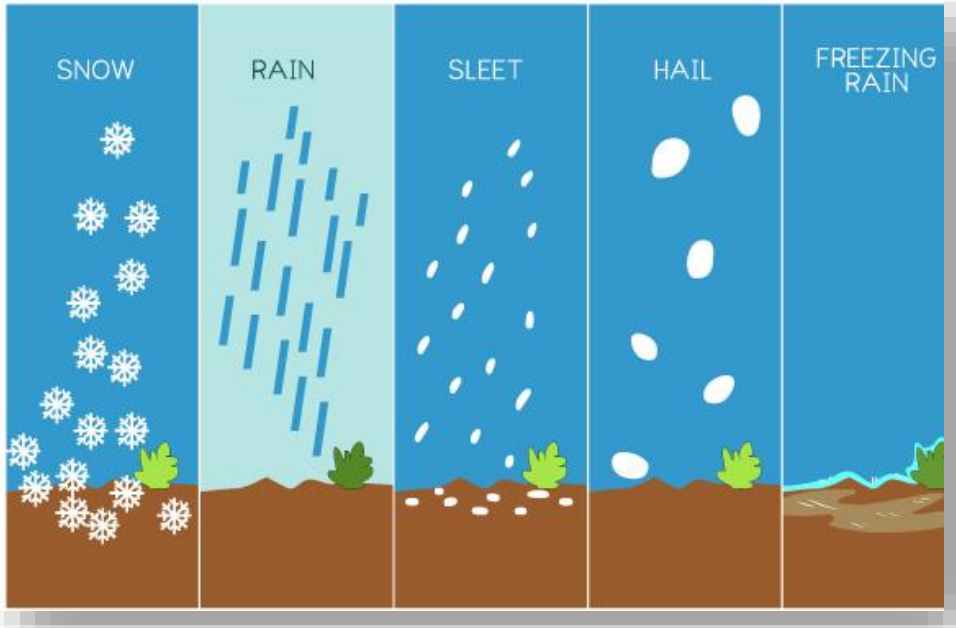





Condensation
Transpiration
Precipitation
Evaporation
Evaporation
Snowmealt
Lake
Ocean
Percolation
Groundwater
Flow

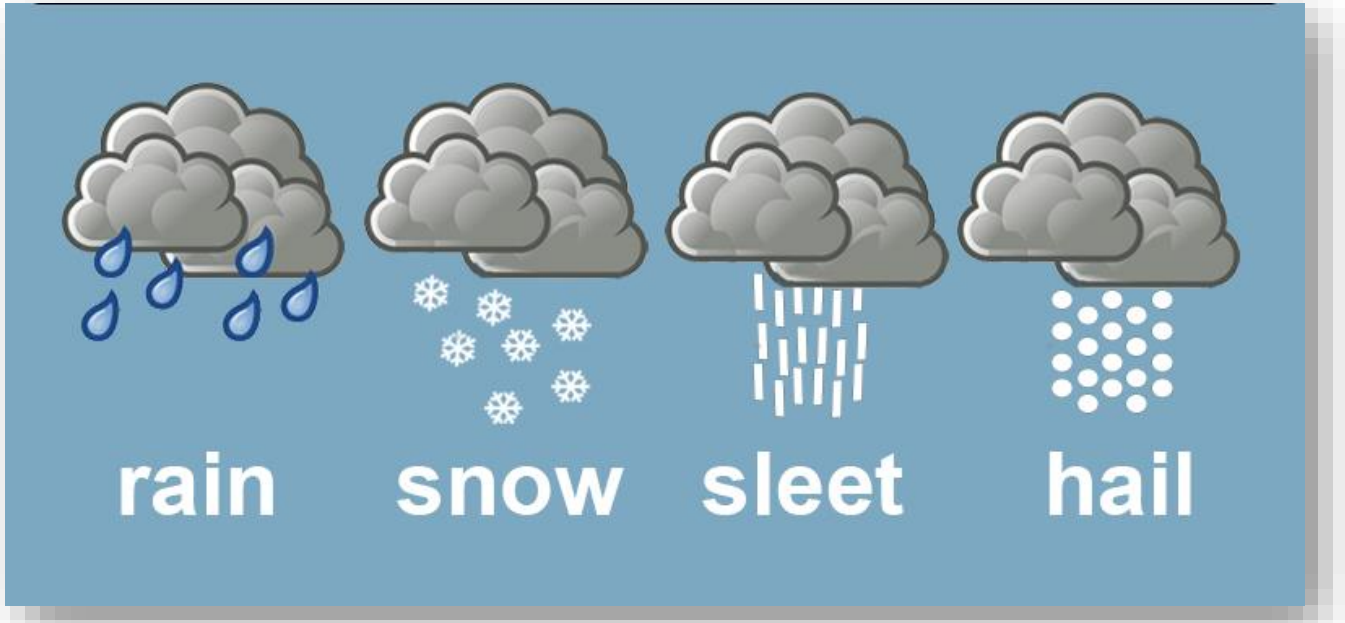
Forms Of Precipitation

Hail: It Is A Form Of **Solid Precipitation** Consisting Of **Large Pellets Or Spheres Of Ice Balls** With The **Diameter Varying Between 5 To 50 Mm**. The **Falling Of Hail** On The **Ground Surface** Is Called **Hailstorm**. It Is Destructive As It **Destroys Agricultural Crops** And Claim **Human And Animal Lives.**



Forms Of Precipitation

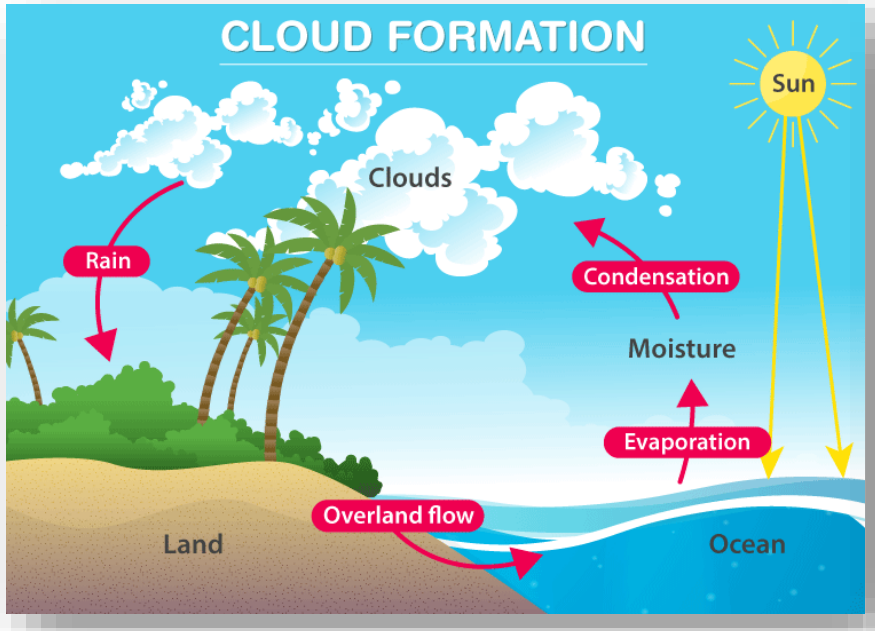
Snowfall: It Is The Fall Of **Large Snowflakes From Clouds** On The **Ground Surface.** The **Dew Point Should Be Below Freezing Point** For **Receiving Snowfall**. It Is A Result Of **Sublimation. Sleet:** It Is A **Mixture** Of **Snow And Rain.** It Is A **Small Pellets Formed** By **Freezing Of Raindrops** Or **Melting Snowflakes.**

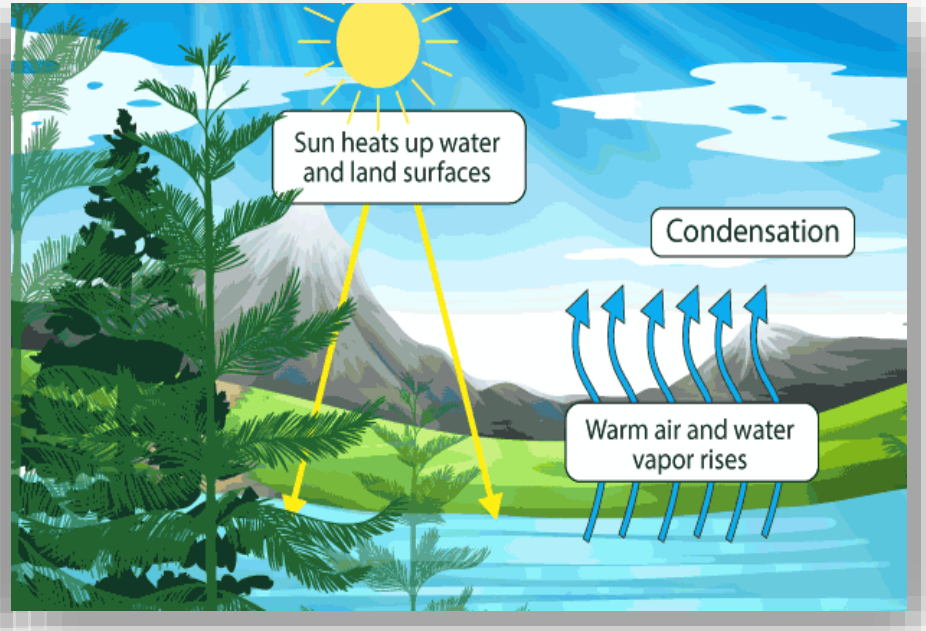


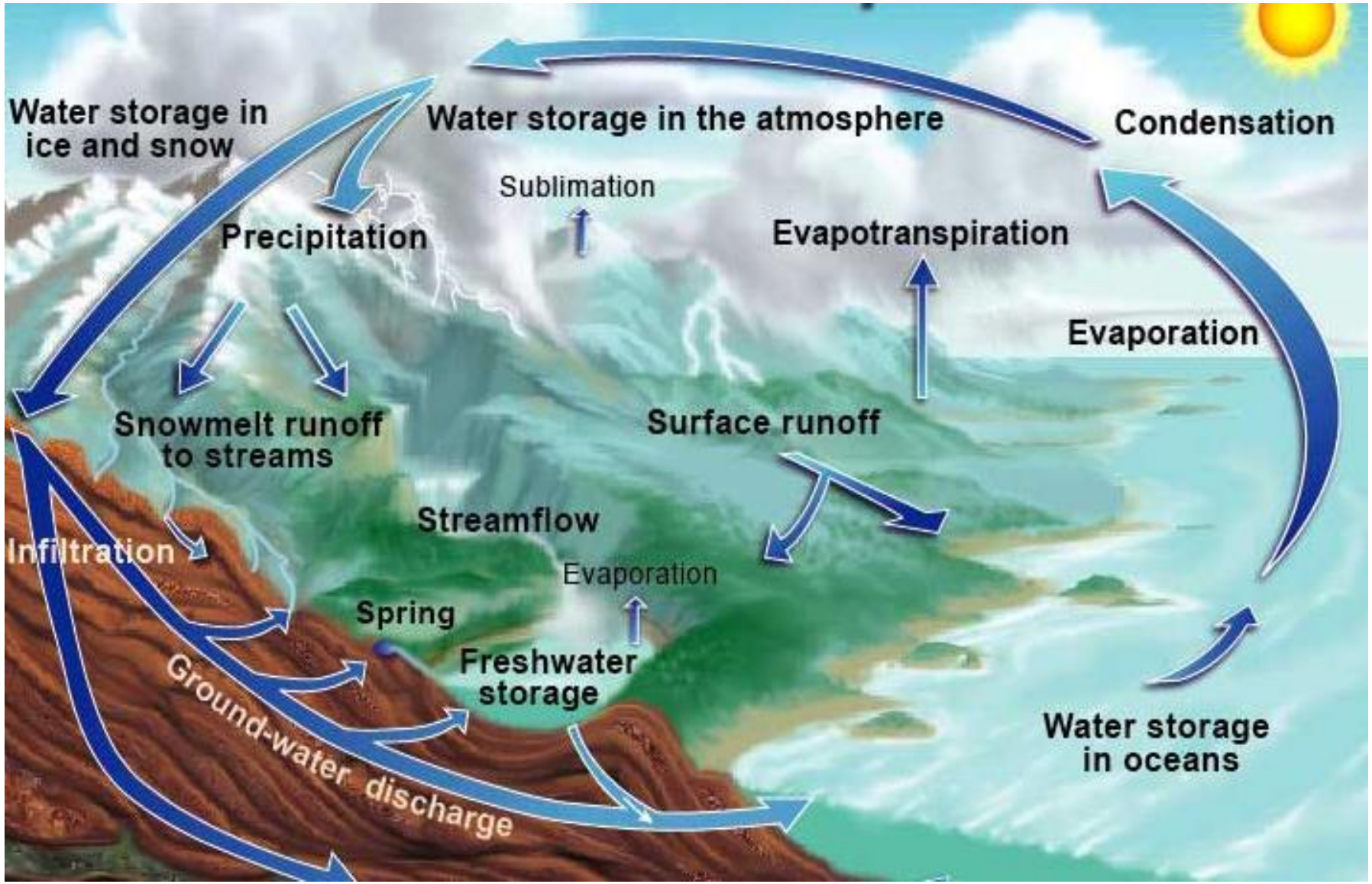
Rainfall

It Is A Process Wherein **Warm Air Ascends, Saturates And Condenses**.

Adiabatic Cooling Takes Place When The **Relative Humidity Becomes 100 Per Cent**. The **Condensation Of Water Vapour** Takes Place Where Large **Hygroscopic Nuclei (Salt And Dust) Is Formed**. It Is Called **Cloud Droplets Shade**



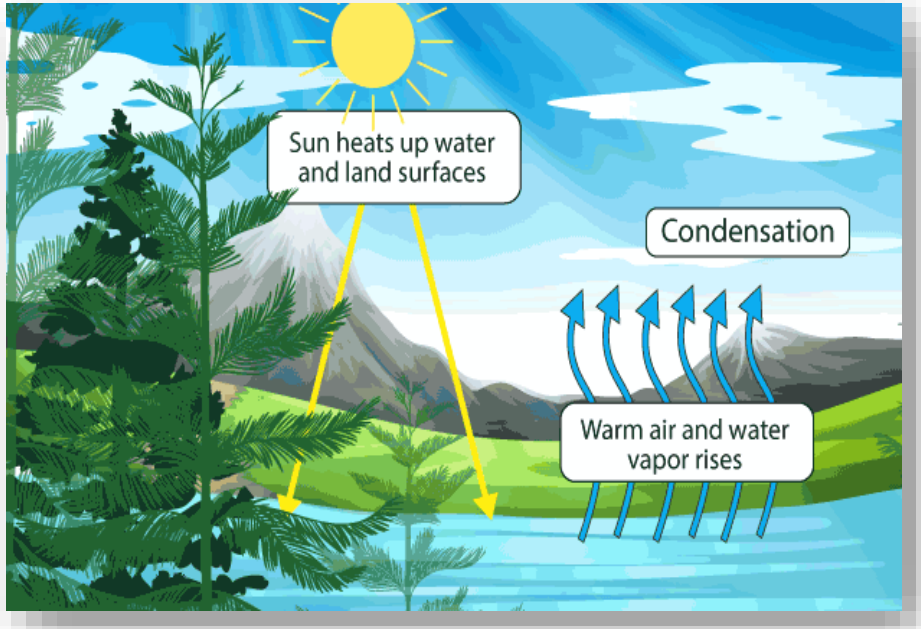



Water storage in ice and snow
Water storage in the atmosphere
Condensation
Sublimation
Precipitation
Evapotranspiration
Evaporation
Snowmelt runoff to streams
Surface runoff
Streamflow
Infiltration
Evaporation
Spring
Freshwater storage
Ground-water discharge
Water storage in oceans

Rainfall

Rainfall Occurs When **Cloud Droplets Change To Raindrops** Which Involves **Two Processes:**

1. The **Warm And Moist Air Ascends** To Such A Height That The **Process Of Condensation Begins Below Freezing Point.**



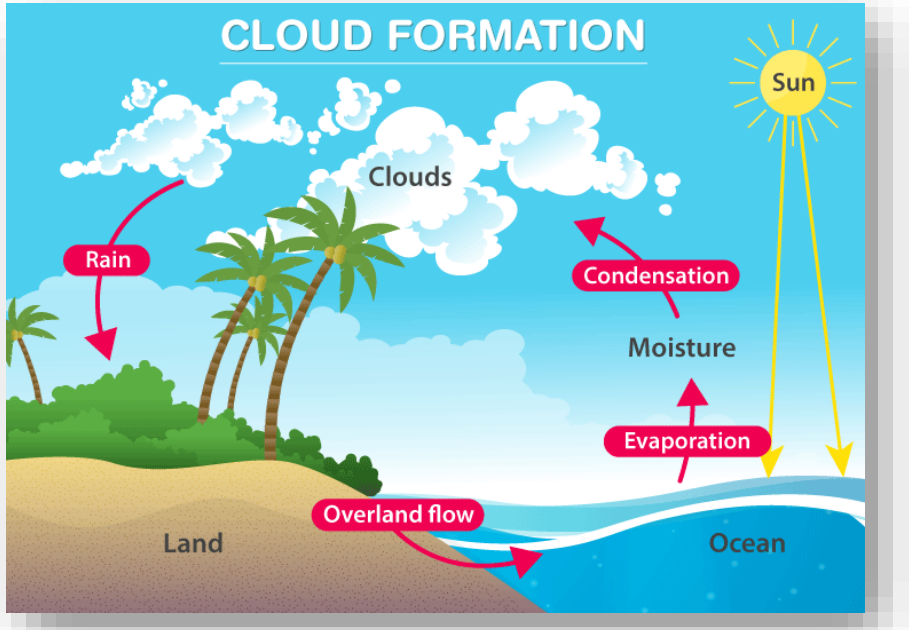
Rainfall

Both The **Water Droplets** And **Ice Droplets Are Formed**. The **Condensation**

Takes Place As The **Water Droplets Evaporates Around Ice Droplets** Due To

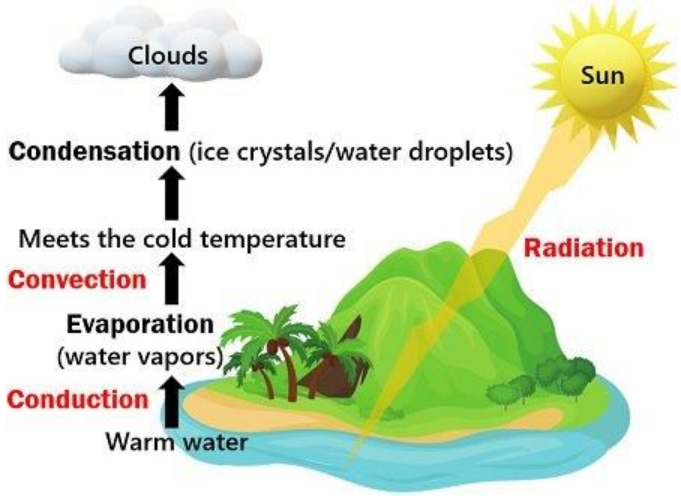
Difference In Vapour Pressure. These **Ice Droplets** Become **Large And Fall**

When Finally They Are Not Able To Be Held Back In The Condensed Ice droplets.



Rainfall

2. The **Suspended Cloud Droplets** In The Cloud Are Of **Varying Sizes**. They **Collide Among Themselves** At **Different Rate** As Their **Size Varies**. **They Combine** To Form A **Large Droplet**. Several **Cloud Droplets Are Coalesced** To Form **Raindrops**. When **Cloud Droplets Are Large Enough** That They Are **Unable To Hold** By Ascending Air They Begin To **Fall**.



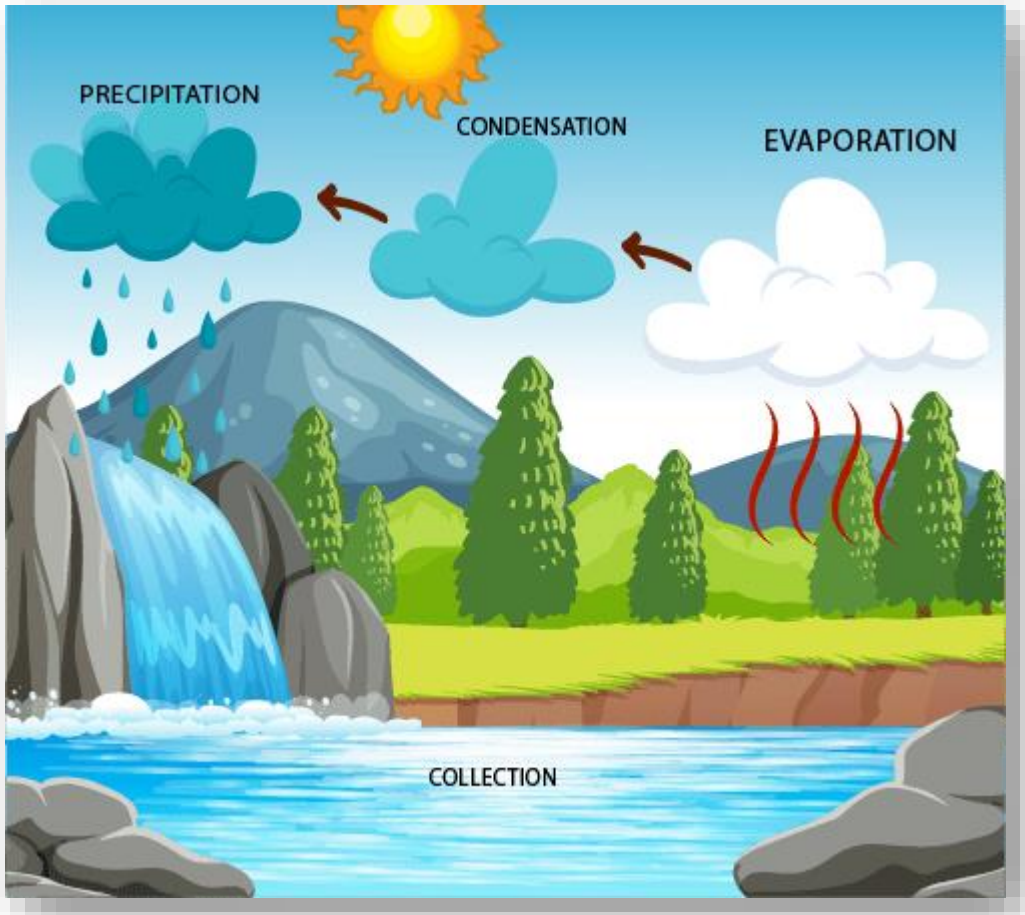
Types Of Rainfall

Rainfall Can Be Classified Into **Three Types:**

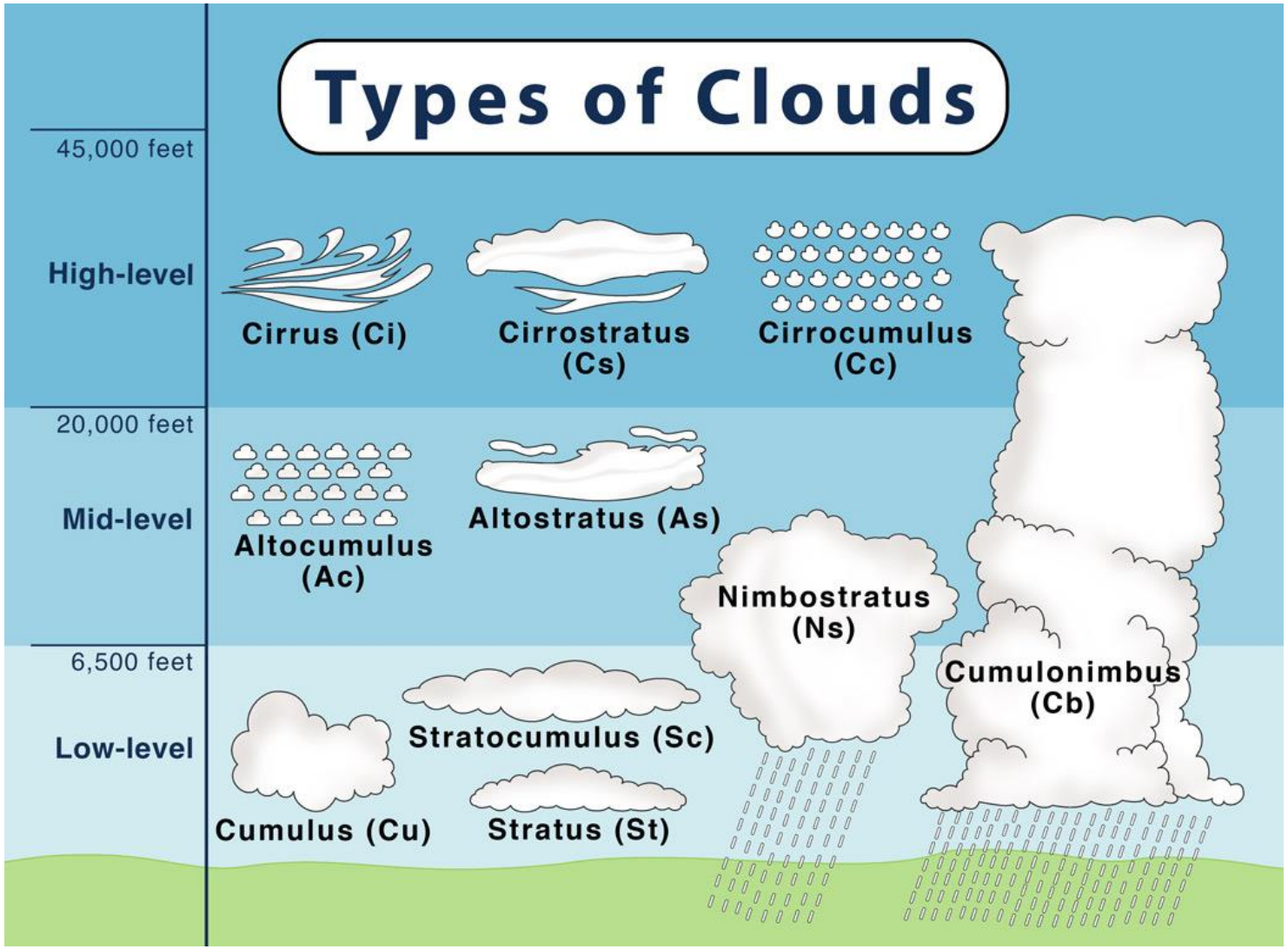
1. Convectional Rainfall

2. Orographic Rainfall

3. Cyclonic Or Frontal Rainfall



Types Of Clouds



Q. Which Of The Following Seas/Gulfs Are Connected By The Suez Canal?

(A) The Mediterranean Sea And The Red Sea

(B) Gulf Of Oman And The Red Sea

(C) The Mediterranean Sea And The Gulf Of Oman

(D) Persian Gulf And The Arabian Sea

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- **Explanation:**

- The **Suez Canal** Is An **Artificial Sea-level Waterway** In **Egypt,** It Connects The **Mediterranean Sea** And The **Red Sea.**

Q. Which Of The Following Seas Are Enclosed?

1. Andaman Sea
2. Aral Sea
3. Sea Of Azov
4. Bering Sea

Select The Correct Answer Using The Codes Given Below

(A) 1 And 2
(C) 2 And3
(B) 3 And 4
(D) 1 And 4

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Select The Correct Answer Using The Codes Given Below

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(B) 3 And 4

(D) 1 And 4

- **Explanation:**
- **Sea Of Azov** Is A Sea In **South-eastern Europe**.
- **Aral Sea** Lying Between **Kazakhstan In The North And Uzbekistan In The South.**

Q. Which One Of The Following Is The Correct Sequence Of The Following Topographical Features Found From Upper To Lower Course Of A River?

(A) Ox-Bow Lake-Rapids-Estuary

(B) Rapids-Estuary-Ox-bow Lake

(C) Rapids-Ox-Bow Lake-Estuary

(D) Estuary-Ox-Bow Lake-Rapids

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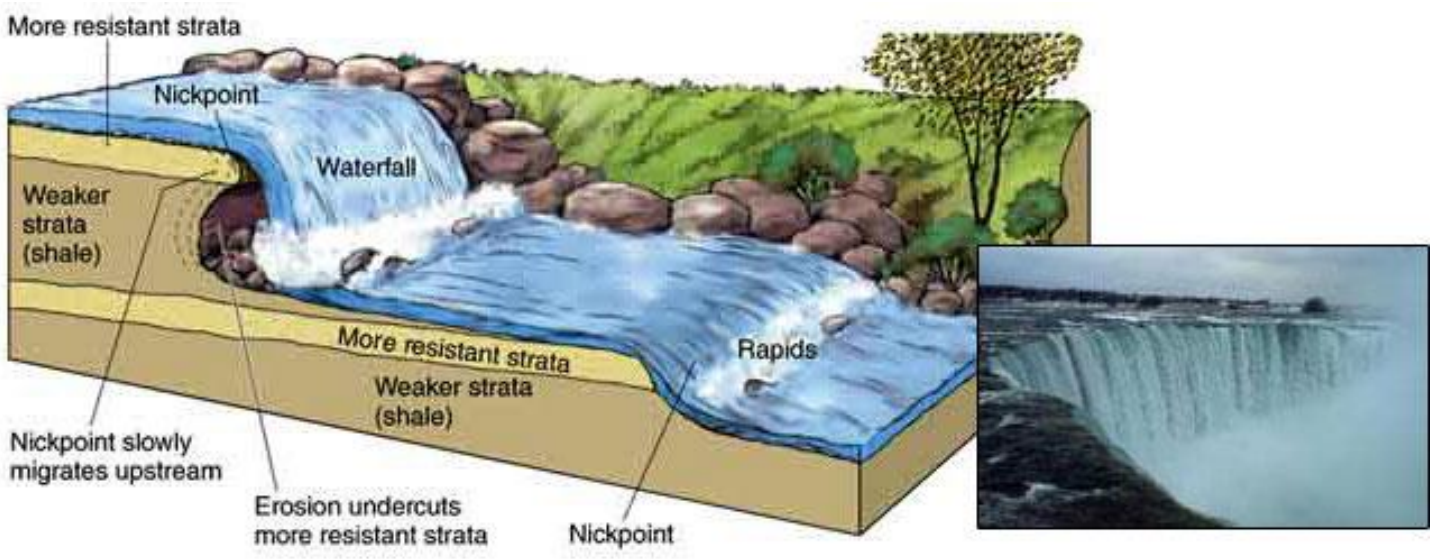
- **Explanation:**

- **Rapids**: Sections Of A River Where The **River Bed Has A Relatively Steep Gradient,** Causing An **Increase In Water Velocity And Turbulence.**

- **Ox-bow Lake**: A **U-shaped Body Of Water** That Forms When A Wide **Meander From The Main Stem Of A River Is Cut Off.**

- **Explanation:**

- **Estuary:** Body Of Water Formed Where **Freshwater From Rivers And Streams Flows Into The Ocean**, Mixing With The Seawater.



Q. Which One Among The Following Sequences Of Water Bodies, From Lower To Higher Salinity Concentration, Is Correct?

(A) Gulf Of California- Baltic Sea- Red Sea- Arctic Sea

(B) Baltic Sea- Arctic Sea- Gulf Of California- Red Sea

(C) Red Sea- Gulf Of California- Arctic Sea- Baltic Sea

(D) Arctic Sea- Gulf Of California- Baltic Sea- Red Sea

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Q. Which One Among The Following Is A Cold Ocean Current?

(A) Canary Current

(B) Brazil Current

(C) Gulf Stream

(D) Kuroshio Current

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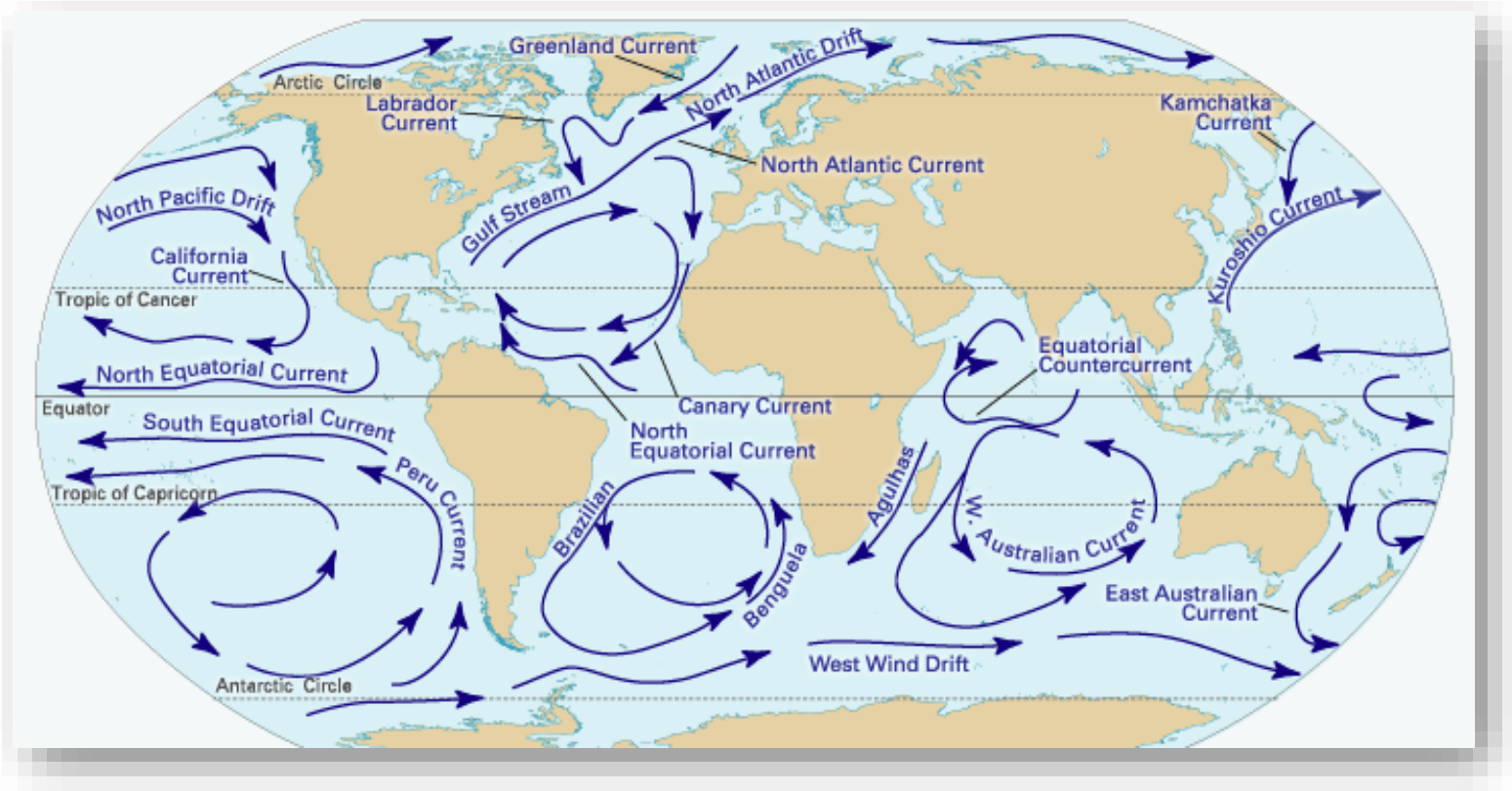

Q. Which One Of The Following Bays Has The Highest Tides In The World?

(A) Bay Of Bengal

(B) Hudson Bay

(C) Bay Of Fundy

(D) Bay Of Khambat

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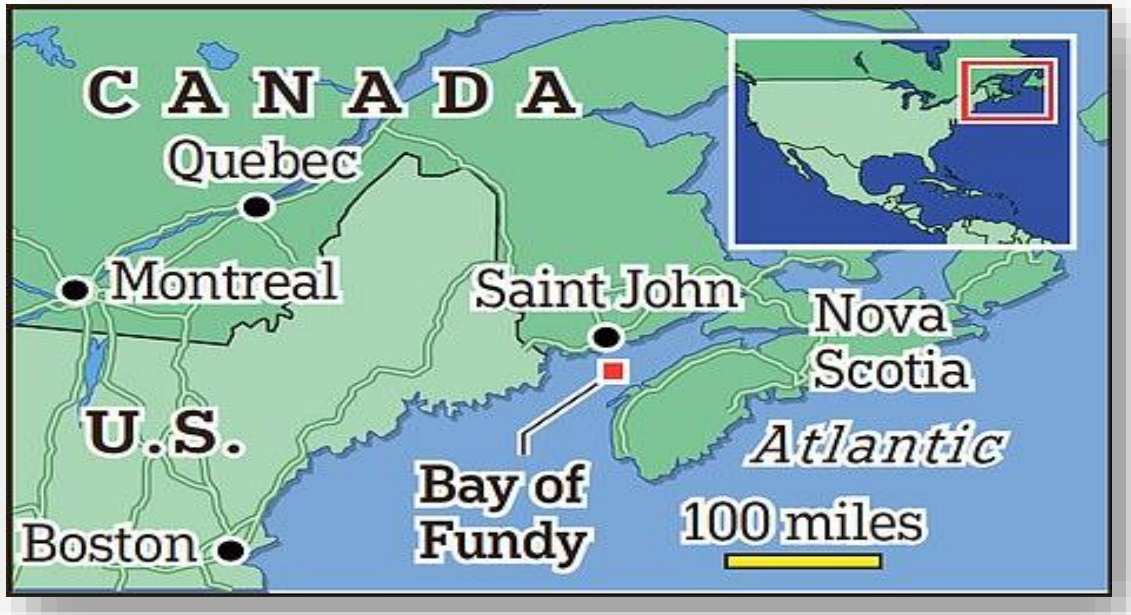

Q. Which Of The Following Seas Has The Highest Average Salinity?

(A) Black Sea

(B) Yellow Sea

(C) Mediterranean Sea

(D) Dead Sea

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Q. Which One Of The Following Oceanic Currents Is Not Associated With The Pacific Ocean?

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(B) Curoshio

(C) California

(D) Humboldt

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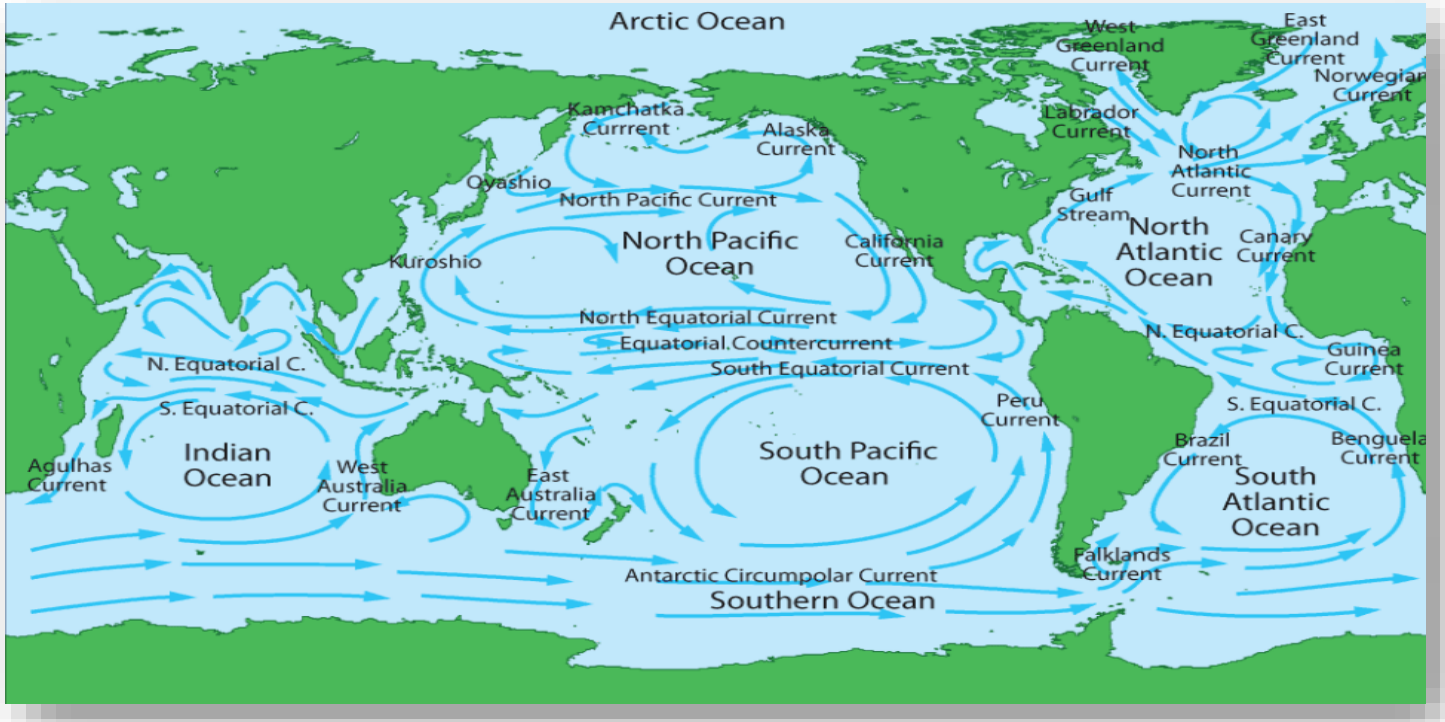

Q.The Correct Sequence Of The Following Seas From West To East Is

(A) Black Sea, Mediterranean Sea, Caspian Sea, Aral Sea

(B) Caspian Sea, Mediterranean Sea, Black Sea, Aral Sea

(C) Mediterranean Sea, Black Sea, Caspian Sea, Aral Sea

(D) Black Sea, Mediterranean Sea, Aral Sea, Caspian Sea

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(C) Mediterranean Sea, Black Sea, Caspian Sea, Aral Sea

(D) Black Sea, Mediterranean Sea, Aral Sea, Caspian Sea

- **Explanation :**

Q. Which one of the following is the major constituent of biogas ?

(a) Carbon dioxide

(b) Nitrous oxide

(c) Methane

(d) Oxygen

Q. Which one of the following is the major constituent of biogas ?

(a) Carbon dioxide

(b) Nitrous oxide

(c) Methane

(d) Oxygen

ANSWER: C

Biogas is usually made up of around 50-70% methane (CH_4) and 25-45% carbon dioxide (CO_2), with other gases such as hydrogen (H_2), hydrogen sulphide (H_2S), water vapor (H_2O), nitrogen (N_2), oxygen (O_2), ammonia (NH_3) making up the rest.

Q. Which one of the following is a non-metallic mineral ?

(a) Iron

(b) Mica

(c) Copper

(d) Bauxite

Q. Which one of the following is a non-metallic mineral ?

(a) Iron

(b) Mica

(c) Copper

(d) Bauxite

ANSWER: B

Nonmetallic minerals are, for example, sand, gravel, limestone, clay, and marble. Such materials lack metallic characteristics like good electric and thermic conductivity, luster, rigor, and malleability.

Q. Which one of the following is a Rabi crop in the Northern States of India ?

(a) Rice

(b) Bajra

(c) Barley

(d) Ragi

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(a) Rice

(b) Bajra

(c) Barley

(d) Ragi

ANSWER: C

Those that are sown around the Retreating Monsoon and Northeast monsoon season, which begins by October are called rabi or winter crops. Major Rabi crops are wheat, gram, peas, barley, etc. A warm climate is required for seed germination and a cold climate for the growth of crops.

Q. The rivers of North-West Europe are good examples of

(a) parallel pattern of drainage.

(b) radial pattern of drainage.

(c) barbed pattern of drainage.

(d) trellis pattern of drainage.

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(a) parallel pattern of drainage.

(b) radial pattern of drainage.

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ANSWER: A

Q. Which one of the following ocean currents is a cold current ?

(a) South Atlantic Drift

(b) Mozambique Current

(c) East Australian Current

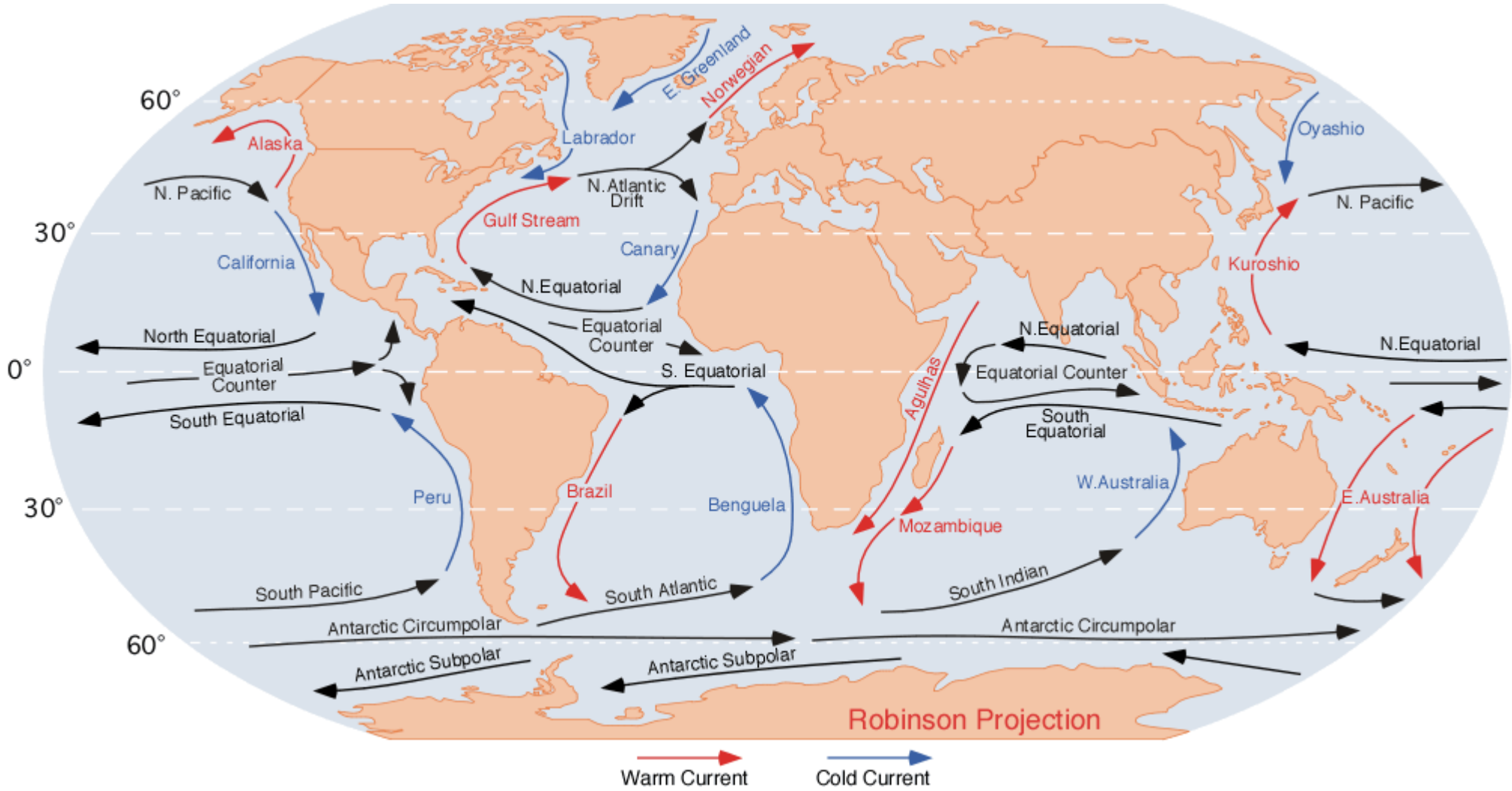
(d) Caribbean Current

Q. Which one of the following ocean currents is a cold current ?

(a) South Atlantic Drift
(b) Mozambique Current
(c) East Australian Current
(d) Caribbean Current

ANSWER: A

The South Atlantic Current is an eastward ocean current, fed by the Brazil Current. It is a cold current.


60°
30°
0°
30°
60°
Alaska
N. Pacific
California
North Equatorial
Equatorial Counter
South Equatorial
Peru
South Pacific
Antarctic Circumpolar
Antarctic Subpolar
Labrador
E. Greenland
Norwegian
N.Atlantic Drift
Gulf Stream
Canary
N.Equatorial
Equatorial Counter
S. Equatorial
Brazil
South Atlantic
Benguela
Aguihas
Mozambique
South Indian
Antarctic Circumpolar
Antarctic Subpolar
Oyashio
N. Pacific
Kuroshio
N.Equatorial
N.Equatorial
Equatorial Counter
South Equatorial
W.Australia
E.Australia
Robinson Projection
Warm Current
Cold Current

Q. Paradeep Port is located on the delta of river

(a) Rihand

(b) Ganga

(c) Mahanadi

(d) Baitarani

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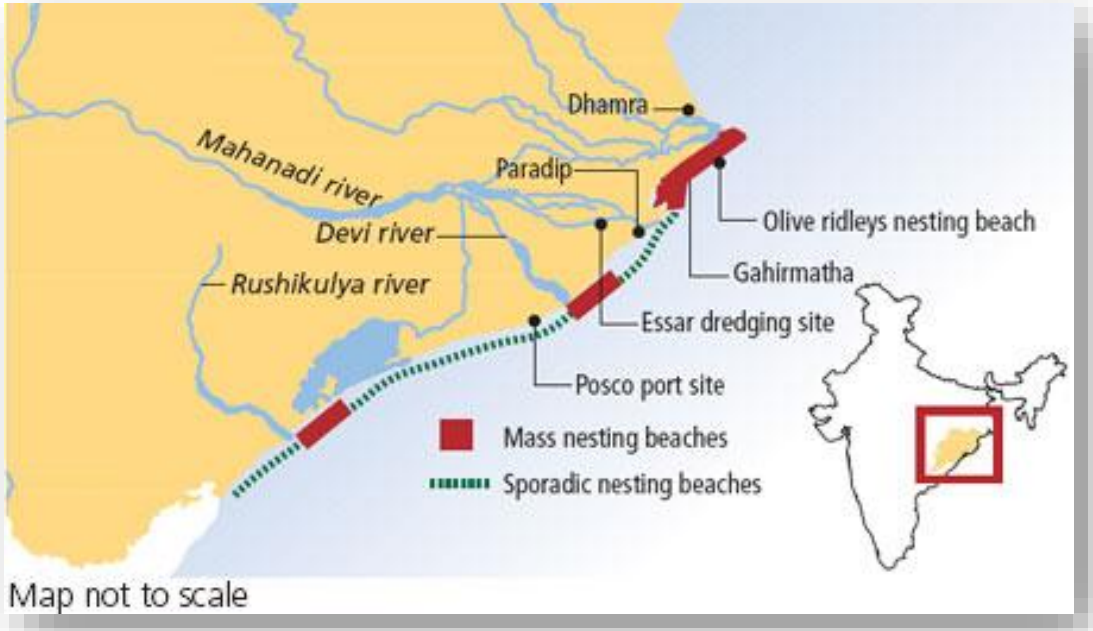

ANSWER: C

Paradip, town and major port, east-central Odisha (Orissa) state, eastern India. It is situated on the Bay of Bengal on the delta of the Mahanadi River at the mouth of one of its branches.

Q. Which one of the following hypothesis/theory explains the origin of the universe ?

(a) Nebular hypothesis

(b) Binary theory

(c) Big Bang theory

(d) Planetesimal hypothesis

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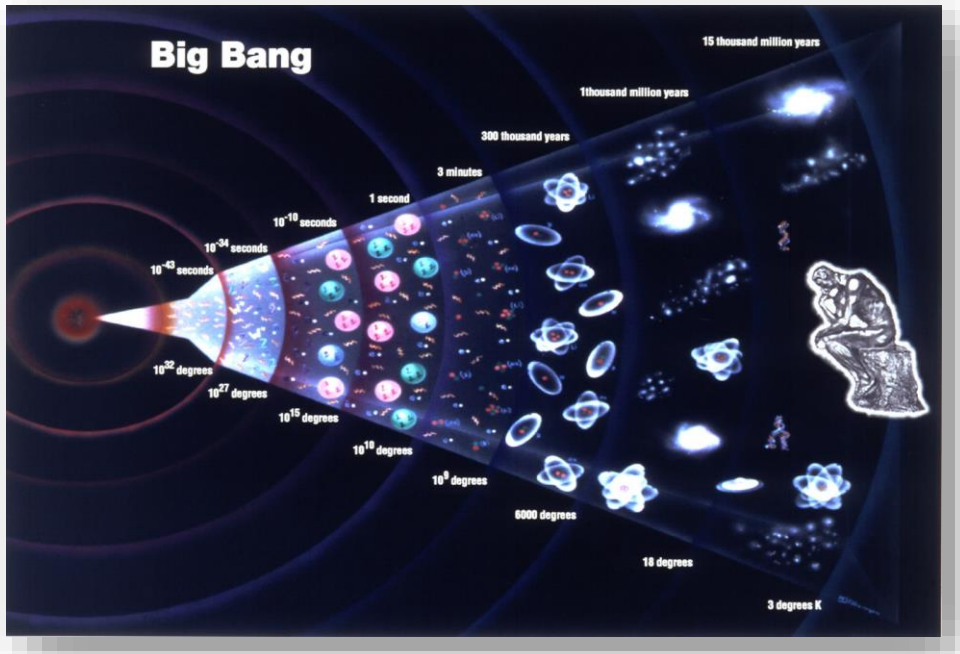

ANSWER: C

The Big Bang hypothesis states that all of the current and past matter in the Universe came into existence at the same time, roughly 13.8 billion years ago. At this time, all matter was compacted into a very small ball with infinite density and intense heat called Singularity. Suddenly, the Singularity began expanding, and the universe as we know it began.

Q. Which one of the following land territories of Indonesia is ***not*** touched by the Equator ?

(a) Sumatra

(b) Sulawesi

(c) Java

(d) Kalimantan

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(a) Sumatra
(b) Sulawesi
(c) Java
(d) Kalimantan

ANSWER: C

The Java island of Indonesia is not touched by the Equator. It is located in the Malay Archipelago and is a major economic region of Indonesia.


Arctic Ocean
© WorldAtlas.com
Arctic Circle
66°30'N
Asia
Europe
Caspian Sea
Black Sea
Aral Sea
Med. Sea
Middle East
N
Tropic of Cancer
23°5'N
Red Sea
Arabian Sea
Bay of Bengal
Pacific Ocean
Gulf of Aden
Equator
Africa
Oceania
0°
Indian Ocean
Indonesia
23°5'S
Tropic of Capricorn
1500 mi
1500 km
Australia

Q. Which one of the following sedimentary rocks is organically formed ?

(a) Shale

(b) Chert

(c) Halite

(d) Chalk

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(a) Shale
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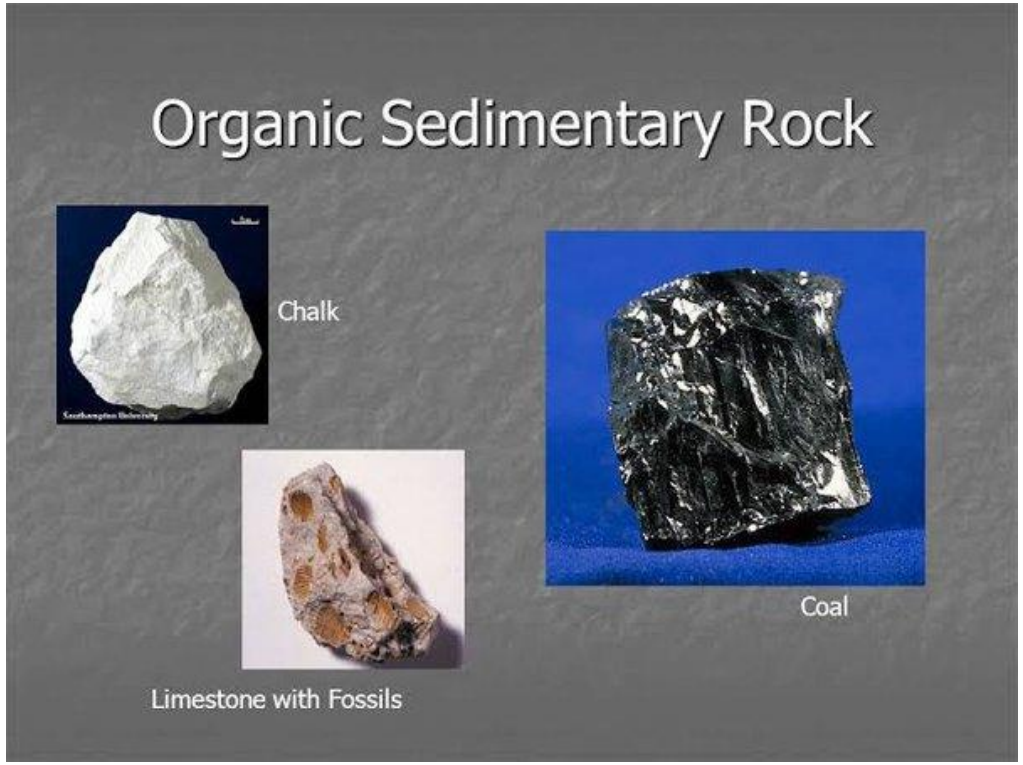
(c) Halite
(d) Chalk



ANSWER: D

Chalk is an organically formed sedimentary rock.

There are three major types of sedimentary rocks; Chemical Sedimentary Rocks, Clastic Sedimentary Rocks, and Organic Sedimentary Rocks.

Q. According to the Köppen climatic classification, the letter code Cfa denotes

(a) Tropical wet climate.

(b) Humid subtropical climate.

(c) Tundra climate.

(d) Tropical wet and dry climate.

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ANSWER: B

Cfa denotes Humid Subtropical Climate according to Koppen's climatic classification. The Humid Subtropical Climate occurs on the eastern coasts of the continent, which is usually in the 20s and 30s degree latitude. Tropical Wet Climate is denoted by Af and precipitation in this type of climate occurs all year-round.

Climatic Types According to Koeppen

Group	*Type*	*Letter Code*	*Characteristics*
A-Tropical Humid Climate	Tropical wet	Af	No dry season
	Tropical monsoon	Am	Monsoonal, short dry season
	Tropical wet and dry	Aw	Winter dry season
B-Dry Climate	Subtropical steppe	BSh	Low-latitude semi arid or dry
	Subtropical desert	BWh	Low-latitude arid or dry
	Mid-latitude steppe	BSk	Mid-latitude semi arid or dry
	Mid-latitude desert	BWk	Mid-latitude arid or dry
C-Warm temperate (Mid-latitude) Climates	Humid subtropical	Cfa	No dry season, warm summer
	Mediterranean	Cs	Dry hot summer
	Marine west coast	Cfb	No dry season, warm and cool summer
D-Cold Snow-forest Climates	Humid continental	Df	No dry season, severe winter
	Subarctic	Dw	Winter dry and very severe
E-Cold Climates	Tundra	ET	No true summer
	Polar ice cap	EF	Perennial ice
H-Highland	Highland	H	Highland with snow cover

Q. In which one of the following folds is the axial plane found to be virtually horizontal ?

(a) Isoclinal

(b) Anticlinal

(c) Recumbent

(d) Monoclinal

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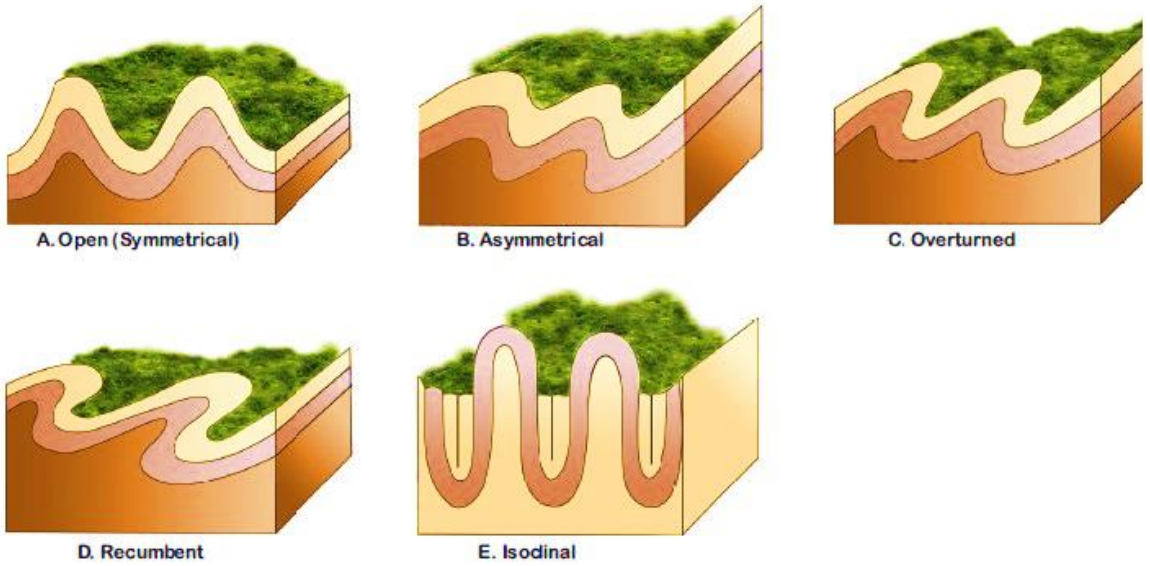

ANSWER: C

The recumbent fold has a vertically horizontal axial plane. Fold is an undulation or wave in stratified rocks belonging to the Earth's crust. Isoclinal is when the fold limbs are parallel to each other and parallel to the axial plane. Monoclinal has two horizontally inclined limbs connected by a shorter limb.