Geography of India – Part 4

TYPES OF CLIMATES

1. Tropical Rain Forest Climate

- Also called equatorial type of climate or Selvas.
- 5° – 10° of equator, nights and days equal.
- Average monthly temperature is 24° – 27°c, annual range least. Diurnal range of temperature far greater than the annual range. Here night is the winter.
- Called 'Belt of Calm' or Doldrums.
- Convectional rainfall. Annual rainfall is 250 cm.
- Broad-leaved evergreen dense forests. Trees are gregarious and there is competition for sunlight. Have more species of plants and animals than in all others combined.
- In Amazon basin, Congo basin, Indonesia.

2. Tropical Monsoon Climate

- Complete seasonal reversal of winds.
- Rainfall seasonal (generally in summers). Due to this vegetation is deciduous.
- Approx. 200 cm of rainfall.
- Occurs in Western Guinea coast of Africa, South-Eastern Asia, Northern Australia, some parts of Amazon valley and West Indies.

3. Tropical Grasslands/Savanna Climate

- Average annual temperature is 23°c. Annual rainfall is about 150 cm. Area- Africa, East and Central South America.
- Bounded by tropical rain forest climate towards the equator and dry climate towards the poles, the Savannah type is characteristic of grasslands in tropical and subtropical latitudes. Grasslands are dotted with scattered trees and bushes that can survive the drought season.

- Rainfall in summer owing to convectional ascent of air. Distinct dry season in winter. Trees with longer roots, fire-resistant.

4. Tropical-Subtropical hot Desert

- Situated in the trade wind belt. Occupy the western margins of continents. The area includes North America – Colorado Desert, Mexican Desert; Africa-Sahara, Kalahari, Namib Desert; S W.Asia-Arabian, Iranian, Thar Desert; S.America-Atacama; Australia-Great Australian Desert.
- Average annual temperature is 38° c; annual summer temperature is 40° c, annual winter temperature is 15° c. average annual rainfall is about 25-40 cm. Greatest diurnal temperature.
- Highest insolation, as there is no clouds cover to scatter the insolation.
- Vegetation is xerophytic.

5. Middle Latitude Desert Climate

- Found between 35°-50° N and S.
- **Area**: Tarim, Gobi, Russian Turkistan and C. Iran. In Southern Hemisphere, only in Patagonia.
- Unlike the hot deserts, they have very cold winters because of their interior location.

6. Tropical and Subtropical Steppes

- Transition belt between hot deserts and humid climates. Occupy pole-ward margins of the tropical and subtropical deserts.
- Average annual temperature is 21° c.
- Semi-arid climate characterized by abundance of shrubs and grasses.
- Known by different names:
    - Prairies – North America
    - Pampas – South America
    - Veldt – South Africa
    - Downs – Australia
    - Steppes – Eurasia
    - Canterbury – New Zealand
    - Postaz – Hungary
    - Manchurian – Russia

7. Mediterranean Climate

- In the western coast of continents between 30°-45° N & S; Around the Mediterranean Sea, in South Europe, North Africa, California coast, Central Chile, Cape of Good Hope and South East Australia.
- Characterized by dry summer and humid winter. Off-shore trade winds blow in summer; they are dry and give no rainfall. Cyclonic rainfall in winter.
- Average annual temperature is 16° c. average winter temperature, 10° c, summer 25°c annual rainfall is 40-60 cm.
- Olives, grapevine and citrus family fruits are the chief products of these regions which are also known for grain farming.

8. China Type Climate

- Average annual temperature is 19° c, annual rainfall 120 cm.
- In the eastern coasts of continents between 25°- 45° N & S. Areas- China, South East USA, South Brazil, Eastern Argentina, South East Africa, South East Australia, South Japan. It is the eastern counterpart of the Mediterranean type.
- Characteristics-Hot summers and mild winters. Rainfall throughout the year.

9. West European Type Climate

- On the western side of continents between 40°-65° N & S. Areas- North West Europe including British Isles, West coat of Canada, South Chile, Southern New Zealand.
- Summers are moderate to cool (15°-18°); winters mild (2°-10°). Average annual temperature is 10° c.
- Annual Rainfall: 75-100 cm. No dry season as the westerly winds blow from the ocean throughout the year. Rainfall is mostly of cyclonic origin.

10. Cool East Coast Climate

- The Corn Belt of US has this type of climate; that is why it is known as 'Corn-Belt' climate.
- Average summer temp is 21°-24°c; it is long, warm and humid.
- Winter temp average-4° to 1.7° for a period of 3-5 months.

11. Continental Type Climate

- Coldest winter month average -12° to -6.7°c.
- Hottest summer months average 18°c to 21°c.
- In the interior parts of big continents.

12. Taiga Climate

- Taiga means snow forests or coniferous forests; needle shaped leaves, composed of evergreen spruce, fir and pine. Extends in two large belts in east-west direction from Alaska to Newfoundland in North America and from Norway to Kamchatka Peninsula in Eurasia.
- Cool and short summers (around 10°c) and very cold and long winters (below 0°c).
- Annual range of temperature highest. (In Verkhoyansk, Jan temp is -50°, annual range being 64°c)
- Total annual precipitation below 50 cm.
- These forests are the most important source of softwood and fur bearing animals.

13. Tundra Climate

- Summers are warm enough to melt the thin snow cover or small water bodies, with the result that land is water soaked and marshes, swamps are common.
- Precipitation less than 30 cm.
- Blizzards blow.
- Lichens and mosses common.

14. Highland Climate

- Experienced in the mountainous regions.
- Determined by elevation, shape of the highland, exposure to winds and location.
- Here winds are much stronger than at low levels.
- Vegetation varies as we move up.

IMPORTANT DESERTS OF THE WORLD

- Sahara – N. Africa (Includes the Libyan and the Nubian Desert)
- Australian – Australia (Includes Gibson, Simpson, Victorian, Great Sandy)
- Arabian – Arab Countries (Includes Rub'al Khali & An-Nafad of S. Arabia and Dast-e-Lut & Dast-e-Kavir of Iran)
- Kalahari – Africa (mainly in Botswana)
- Gobi – Mongolia
- Atacama – Central Chile
- Patagonian – Argentina
- Nabib – Namibia
- TaklaMakan – Sinkiang, China

- Karakum – Turkmenistan
- Sonoran – Arizona and California (USA)
- Thar – India

Isopleth

- Lines drawn on map along which the value of a particular phenomenon is uniform.

Some Important Isopleths are:

Isopleth	Reactions
Isobars	Equal pressure
Isobaths	Equal depth in sea
Isobronts	Thunder-storm at the same time
Isohaline	Salinity
Isohels	Sunshine
Isohyets	Rainfall
Isohypse (or Contour Lines)	elevation above sea-level
Isonif	Snow
Isotherms	Temperature
Isoneph	Cloudiness
Isodapan	Equal transportation cost distance
Isocline	Slope

CORAL REEFS IN INDIA

- Corals are a kind of calcareous rocks chiefly made of the skeletons of minute sea organisms called 'polyps'. They are formed due to accumulation and compaction of skeletons of these lime secreting organisms.
- Corals are found mainly in the tropical oceans and seas because they require high mean annual temperature ranging around 20° c. They cannot survive at a greater depth than 60-77m below sea level. Muddy or very saline water is injurious for their growth.
- The coral reefs are classified on the basis of nature, shape and mode of occurrence into the following three:
    1. **Fringing Reef**: Coral reefs that develop along the continental margins or along the islands are called fringing reefs. The seaward slope is steep and vertical while the landward slope is gentle. Sometimes there is a lagoon or

shallow channel between the fringing reef and the land. Such reefs are found near Rameshwaram in the Gulf of Mannar.

2. **Barrier Reef**: They are the largest, most extensive, highest and widest reefs of all. They are formed off the coastal platforms and parallel to them. There is an extensive but shallow lagoon between the coastal land and the barrier reef. The Great Barrier Reef of Australia is the largest barrier reef in the world.
3. **Atoll**: A reef of narrow growing corals of horse shoe shape and crowned with palm trees is called an atoll. It is generally formed around an island or in an elliptical form on a submarine platform. There is a lagoon in the middle of the coral ring. E.g. Fiji Atoll.

EARTH TIDES

Refer to the phenomenon of regular rise and fall of the sea water. Though both sun and moon exert gravitational force on earth, resulting in the production of tides, the moon, by nature of its closeness to the earth, has greater control over the timings of the tidal rises and falls.

The interval between two tides is 12 hrs and 26 minutes.

Spring Tide

When the sun, moon and the earth are in a straight line, the gravitational force is at its greatest because tide producing forces of both sun and moon complement each other and they pull together. This produces tides of unusually great range, called the spring tide.

These occur about twice a month: at new moon when the sun and the moon are in conjugation and at full moon when they are in opposition.

Neap Tide

Lowest magnitude as the tide producing forces of sun and moon act opposite to each other, as they form a triangle.

This happens during phases of first and third quarter, i.e., at half moon, the sun's tide producing force tends to balance the tide producing force of the moon., resulting in tides of unusually small range known as neap tides

INTERNAL STRUCTURE OF EARTH

The Crust of Earth

- It is the outermost and the thinnest layer of the earth's surface, about 8 to 40 km thick. The crust varies greatly in thickness and composition – as small as 5 km thick in some places beneath the oceans, while under some mountain ranges it extends up to 70 km in depth.
- The crust is made up of two layers- an upper lighter layer called the Sial (Silicate + Aluminium) and a lower density layer called Sima (Silicate + Magnesium).
- The average density of this layer is 3 gm/cc.

The Mantle of Earth

- This layer extends up to a depth of 2900 km.
- **Mantle is made up of 2 parts**: Upper Mantle or Asthenosphere (up to about 500 km) and Lower Mantle. Asthenosphere is in a semi-molten plastic state, and it is thought that this enables the lithosphere to move about it. Within the asthenosphere, the velocity of seismic waves is considerably reduced (Called 'Low Velocity Zone').
- The line of separation between the mantle and the crust is known as Mohoviricic Discontinuity.

The Core of Earth

- Beyond a depth of 2900 km lies the core of the earth.
- The outer core is 2100 km thick and is in molten form due to excessive heat out there. Inner core is 1370 km thick and is in plastic form due to the combined factors of excessive heat and pressure. It is made up of iron and nickel (Nife) and is responsible for earth's magnetism. This layer has the maximum specific gravity.
- The temperatures in the earth's core lie between 2200°c and 2750°c.
- The line of separation between the mantle and the core is called Gutenberg-Wiechert Discontinuity.

Note:

Temperature Inside the Earth: In the first 100 km, 12° increase per km. In the next 300 km, 2° increase per km. After that it is 1° increase per km.

Composition of Earth

- Made up of over 100 elements.
- The following 8 are important:

Oxygen	46.5%
Silicon	27.72%
Aluminium	8.13%
Iron	5 01%
Calcium	3.63%
Sodium	2.85%
Potassium	2.62%
Magnesium	2.09%
Magnesium	2.09%

ROCKS OF EARTH

Any aggregate of material particles that forms part of the earth's crust is called a rock.

There are 3 major types of rock types :

Igneous Rocks

Formed by the solidification of molten magma from the interior of the earth.

Most abundant of the three types of rocks (95%).

They do not occur in layers. Most of them are crystalline and do not contain fossils.

All other types of rocks originate from these rocks, thus called Primary rocks.

They are classified on several grounds as mentioned below:

1. On the basis of mode of occurrence

- **Intrusive Igneous Rocks**: They are formed by the solidification of magma beneath the earth's surface. They are further divided into plutonic and hypabyssal igneous rocks. Plutonic rocks cool deep beneath the earth. E.g., Granite. Hypabyssal rocks cool just beneath the earth's surface. E.g., Batholith, laccolith, phacolith, sills, dykes, etc.
- **Extrusive Igneous Rocks**: They are formed due to cooling and solidification of hot and molten lava at the earth's surface. E.g., Basalt, gabbro, etc

2. On the basis of Silica Content

- Acidic igneous rocks having more silica. E.g. Granite.
- Basic igneous rocks having less silica. E.g. Gabbro.

Sedimentary Rocks

- Made up of weathered remains of igneous rocks. Also contains fossils of plants and animals.
- Comprise only about 5% of the earth's crust but cover about 75% of the total land surface.
- The layers of sedimentary rocks hold all reserve of coal, oil and natural gas.
- Also known as Stratified Rocks because of the layers.
- Sedimentary rocks fall into three main groups:

1. **Mechanically Formed**: These are called clastic sedimentary rocks; the sediments are largely derived from pre-existing rocks that have been broken down and then transported by water, wind or ice to form rocks.
2. **Organically Formed Rocks**: These rocks are derived from remains of plants (e.g. peat, lignite, bituminous coal), or animals (e.g., chalk and coral).
3. **Chemically Formed**: E.g., Gypsum, salt rock, etc.

Metamorphic Rocks

- Sometimes igneous or sedimentary rocks metamorphize or change due to great 'pressure, intense temperature or the action of water and chemical activity.
- Examples of metamorphic rocks formed from different rocks are:

Metamorphic Rock	Made From
Slate	Shale and mudstone
Quartzite	Sandstone
Gneiss	Aranite
Marble	Limestone, dolomite or chalk
Schist	Shale
Anthracite	Coal

EARTHQUAKES

Tremors or vibrations of earth's surface produced by internal forces.

The point of origin of earthquake is called Seismic focus. Most of the earthquakes originate at the depth of 50-100 km inside the earth

The point on the earth's surface vertically above the earth's surface is called Epicentre.

The passage of earthquake waves is recorded by Seismograph.

The magnitude of waves is measured on Richter's scale. For measurement of the intensity of the earthquake (damage caused), the Modified Mercalli Intensity Scale is used.

Types of Waves Earthquakes

1. **Primary Waves (P-Waves)**: Travel from the point of happening by the displacement of surrounding particles. They are transmitted through solids, liquids and gases. Travels fastest.
2. **Secondary Waves (S-Waves)**: Travels through solids only. Thus they cannot pass through core.
3. **Surface Waves or Long Waves (L-Waves)**: Travels on earth's surface and causes maximum destruction. They are recorded after the P and S waves.

Distribution of Earthquakes

- Around the Pacific Ocean along a belt of volcanoes known as the Ring of Fire. 68 per cent of the volcanoes are experienced in this region.
- From the middle of Asia (Himalayas, Caspian Sea) through the Mediterranean Sea to West Indies. 21 per cent earthquakes are experienced in the region.
- Mid-Atlantic ridge belt which accounts for 11 per cent of the earthquakes.

Earth Volcanoes

A volcano is a vent or opening usually circular in form through which heated materials consisting of gases, water, liquid lava and fragments of rocks are ejected from the highly heated interiors to he surface of the earth.

Volcanic eruptions are closely associated with several interconnected processes such as

- The gradual increase in temperature with increasing depth at a rate of 1°c per 32 m due to heat generated by degeneration of radioactive elements inside the earth
- Origin of magma because of lowering of melting point caused by reduction in pressure of overlying rocks due to fractures caused by splitting of plates
- Origin of gases and water – vapour due to heating of water
- Ascent of magma due to pressure from gases and vapour
- Occurrence of volcanic eruptions. These eruptions are closely associated with plate boundaries.

Classification of Volcanoes

Volcanoes are classified under different schemes:

1. Classification on the basis of Periodicity of Eruptions:

- **Active Volcano**: Volcano which erupt periodically. E.g. Maona Loa in Hawaii, Etna in Sicily, Vesuvius in Italy, Stromboli in Mediterranean Sea, etc.
- **Dormant Volcano**: Volcano which has been quiescent for a long time but in which there is a possibility of eruption. E.g. Fujiyama in Japan, Krakatoa in Indonesia, Barren island Volcano in Andamans, etc.

2. Classification on the basis of Mode of Eruption

- **Central Eruption Type or Explosive Type**: E.g. Hawaiian type, Strombolian type, Volcanian type, Pelean type, Vesuvius type, etc.
- **Fissure Eruption or Quiet Eruption Type**: Large quantities of lava quietly flow up from fissures and spread out over the surrounding areas. Successive lava flow results in the growth of a lava plateau. E.g. Deccan Plateau, etc.

Distribution of Volcanoes in the World

- About 15% of world's active volcanoes are found along the **"Constructive or Divergent"** plate margins, whereas 80% volcanoes are associated with the **"Destructive or Convergent"** plate boundaries.
    1. The Circum – Pacific belt or the 'Ring of Fire'. It extends across the Kamchatka Peninsula, Kurile Islands, the Islands of Japan, Philippines, New Guinea, New Zealand and the Soloman Islands. It also passes through the Antarctica and the western coast of America.
    2. The Mid – Continent belt includes volcanoes of Alpine mountain chain, the Mediterranean Sea and the fault zone of eastern Africa. E.g. Stromboli, Vesuvius, Etna, Kilimanjaro, etc.
    3. The Mid – Atlantic belt in which the volcanoes are fissure eruption type. E.g. Iceland, Canary Islands, Cape Verde, Azores, etc.

EARTH MOUNTAINS

Types of Mountains

Fold Mountains of the World

They are formed when the rocks of the crust of the earth folded under stress, mainly by forces of compression (as a result of series of earthquakes).

E.g. – All big mountain systems: Himalayas, Alps, Andes, Rockies, Atlas, etc.

On the basis of age, fold mountains are grouped into: Young / New Fold Mountains

Came into existence after the continental drift. E.g. Himalayas, Andes, Rockies, Alps. Himalayas are regarded the youngest mountains in the world.

Old Mountains

They belong to pre-drift era, then subjected to denudation and uplift; many faults were formed; occur as relict mountains today. E.g. Pennines (Europe), Appalachians (US), Aravallis (India).

Block Mountains of the World

These are formed when great blocks of earth's crust may be raised or lowered. During the uplift of structural mountains, sometimes magma flows upwards into the crust.

On its cooling and hardening beneath the surface, it contracts and the overlying rock may crack into large blocks moving up or down. An intense folding of rocks is generally followed by faulting of strata due to horizontal forces of tension.

The land between the two parallel faults either raises forming Block Mountains or Horsts, or subsides into a depression termed as Rift Valley or Graben.
Eg: Narmada, Tapti and Damodar valley in India, the Vosges in France and Black forest in Germany (through which Rhine River flows).

Volcanic Mountains of the World

Formed as a result of volcanic eruption & the outflow of lava (through crater, the opening). Also called Mountains of Accumulation. Have a gentle slope.
E.g: Cotopaxi in Andes, Vesuvius and Etna in Italy, Fujiyama in Japan, Mauna Loa and Kilauea (Most active volcano) in Hawaii, Ojos del Salado in Argentina / Chile (Highest active volcano), Popocatepeti in Mexico, Raineer of Washington, Stromboli in Mediterranean (called Lighthouse of the Mediterranean), Mirapi and Krakatao in Indonesia, etc.

Relict Mountains
Sometimes, the mountains are carved out as a result of erosion of plateaus & high planes by various agents of erosion. E.g., Highlands of Scotland, Sierras of Spain, Catskill mountains of New York and Nilgiri, Parasnath, Girnar, Rajmahal of India.

MAJOR MOUNTAIN RANGES

Andes	**South America**	**6,960**
Himalayas-Karakoram-Hindukush	South Central Asia	8,850
Rockies	North America	4,401
Great Dividing Range	East Australia	2,228
Western Ghats	Western India	2,637
Caucasus	Europe, Asia	5,642
Alaska	USA	6,194
Alps	Europe	4,808
Apennines	Europe	2,912
Ural	Asia	1,895
Pennines	Europe	893
Pyrenees	Europe	3,404

Appalachian	North America	2,040

EARTH WEATHERING AND EROSION

Earth Weathering

Weathering refers to the disintegration and decomposition of rocks. It involves no transportation of the broken material. Thus, weathering involves simply the breaking or crumbling down of the rocks in situ.

Three Types of Earth Weathering:

Mechanical or Physical Weathering

In this, the rocks are broken down into progressively smaller segments and the chemical composition of the rocks remains unchanged. It is prominent in hot and dry/moist climatic regions because of high diurnal range of temperature.

This type of weathering takes place in different ways:

Frost Action Weathering: In cold climatic region, where water fills the pores, cracks and crevices in rocks and freezes, it expands and exerts a bursting pressure. Thus, the rocks are ruptured and fragmented.

Thermal Expansion and Contraction Weathering: In the area of hot deserts, the tremendous diurnal range of temperature brings the expansion and contraction of the surface rocks, leading to their disintegration into smaller pieces.

Exfoliation Weathering: This is the expansion by unloading process. Unloading occurs when large igneous bodies are exposed through the erosional removal of overlying rocks and the subsequent reduction in pressure.

On being exposed to the surface they expand slightly in volume. This leads to breaking of thick shells like an onion's layers from the parent mass just lying below.

Chemical Weathering

It changes the basic properties of the rocks. Since most of the chemical changes occur in the presence of water, this type of weathering is more potent in hot and humid regions.

Principal processes of chemical weathering are:

Solution Weathering: Here the rocks are completely dissolved. It leads to the evolution of Karst Topography where the water dissolves the rock structure of limestone, salt, gypsum, chalk, etc.

Oxidation Weathering: The presence of dissolved oxygen in water, when comes in contact with mineral surface, leads to oxidation (esp. in rocks containing iron).

Hydration Weathering: Most of the rock forming minerals absorbs water. This not only increases their volume but also produces chemical changes resulting in the formation of new minerals which are softer and more voluminous.

Carbonation Weathering: Water combining with Carbon dioxide produces carbonic acid which dissolves several elements of minerals and the rock is weakened and broken into pieces.

Biological Weathering

Plants and animals also contribute to weathering through various activities. Man is perhaps, the most important agent of weathering today. Cultivation, mining and transportation are some of the activities of man leading to weathering of rocks.

Plants also contribute to weathering as the penetration of roots into rocks loosens the joints. Decaying organic matter combines with rain-water and acts as a mild acid on the rocks, thus helping in weathering.

Earth Erosion

Erosion means wearing down of the earth's surface. It involves removal of rock material from higher areas.

As it involves transportation of rocks, erosion is performed by mobile agents such as streams, glaciers, winds, waves and the underground water.

Each agent of erosion tends to erode rocks from the higher areas and tends to deposit the eroded and transported matter elsewhere, usually in the lower areas, thus transforming die uneven surface of the earth into an even surface. The erosional and depositional activity results in the formation of a variety of land form features.

EARTH ATMOSPHERE

The atmosphere is a mixture of a layer of gases enveloping the earth, held to it by gravitational force. Almost all the atmosphere (97 per cent) lies within 29 km of the earth's surface.

Beyond about 100 km, recent data from satellites suggest that the lightest gases separate out, forming several concentric layers around the earth. The innermost of these is the nitrogen layer (between 100-200 km); then comes oxygen (200-1100 km); helium (1100-3500) and then hydrogen only, to which there is really no clearly defined upper limit.

Up to about 50 km the atmosphere is composed of:

- Nitrogen – 78 09%
- Oxygen – 20 95%
- Argon – 0.93%
- Carbon dioxide – 0.03%
- (Others are Neon, Helium, Ozone, Hydrogen etc.,)

Water vapour, besides being the immediate cause of condensation and precipitation, absorbs the insolation coming from the sun, reducing the amount reaching the earth's surface.

Carbon dioxide is important for absorption of heat from the sun as well as from the earth. A high concentration of carbon dioxide leads to Greenhouse Effect.

Dust particles scatter and diffuse insolation and also act as hygroscopic nuclei for condensation (for the formation of clouds).

Layers of ATMOSPHERE

Atmosphere Troposphere

- Layer nearest to earth's surface. Thickness varies from 8 km at the poles to 16 km at the equator.
- All weather phenomenons occur here.
- Densest of all and contains water vapour, moisture and dust.

- Dust particles present in this layer hold the water vapour and contribute to the occurrence of twilight and the red colours of sunlight and sunset.
- In this, at every 165 m there is a drop of 1°c (or 6.4°c per km). This is called Normal Lapse Rate of Temperature.
- Tropopause separates troposphere from stratosphere.

Atmosphere Stratosphere

- Extends from 16 km to 50 km ht. The temperature ceases to fall with the increase of height in this layer.
- Little weather is generated here as there is very little water vapour and virtually no dust present.
- Stratosphere provides ideal conditions for flying large airplanes.
- Contains ozone (25-30 km from earth's surface), region being called Ozonosphere. It absorbs the ultra-violet rays from the sun. This layer has a comparatively higher temperature due to the absorption of ultra-violet radiation from the sun (temperature increases as we go up).

Atmosphere Mesosphere

- Up to a height of about 80 km.
- In this, the temp decreases with height and falls to about -100°c at 80 km ht.

Atmosphere Ionosphere

- Extends to about 500-600 km.
- Called so as it contains electrically charged particles (ions) that reflect the radio waves back to the earth thus making radio communication possible.
- Also protects earth from harmful radiation. This causes increase in temperature with height in this layer.
- It also protects earth from falling meteorites, as most of them burn out in this region.

Exosphere

- Here the earth's gravity is extremely weak.
- Upper limit quite uncertain.
- The outer part is called Magnetosphere.

- The ionized particles increase in frequency with increasing heights. There are 2 belts in the upper atmosphere having a high concentration of ionized particles. They are known as Van Allen's Radiation Belts. The inner belt lies about 2600 km from the earth's surface, while the outer lies at about 13,000 to 19,000 km from it. These belts represent concentrations of highly charged particles, protons and electrons from the sun, trapped within lines of force of the earth's external magnetic field– the Magnetosphere.
- The final boundary between the earth and the outer space is called 'Magnetopause'.

Note:

The auroras are produced by the charged particles from the sun captured by earth's magnetic field at heights of about 100 km. it is a luminous phenomenon seen in the sky at night in high latitudes.

It may be visible as arcs of light or as coloured curtains, streamers or rays. Auroras occur most frequently during the intense periods of the 11-year sunspot cycle.

In the Northern Hemisphere, they are called aurora borealis and in the Southern Hemisphere as aurora australis

EARTH PRESSURE AND WINDS

Air moving in a particular direction is called wind. The principal cause of winds is difference in pressure. Air always moves from areas of high pressure to those with low pressure. The slope of the pressure from high to low is known as Pressure Gradient and the direction of this direction decides the direction of winds

Wind velocity is directly related to the steepness of the pressure gradient.

In addition, the direction of winds is affected by the Coriolis Force, which is caused by the rotation of the earth. Under the influence of this effect, winds are deflected to their right in the Northern Hemisphere and to their left in the Southern Hemisphere.

This is referred to as Parrel's Law. Coriolis force is absent at the equator and increases towards the poles. Due to this, the winds, which would blow at right angles to the isobars under the pressure gradient, blow obliquely to them.

Global Pressure Belts

Equatorial Low Pressure Belt (or Doldrums)

- From 5°N to 5°S.
- Tremendous heat, thus warm air rises creating low pressure. Also, the centrifugal force is very high at the equator, where the velocity of rotation is high. Hence, the air masses tend to be thrown out, resulting in low pressure.
- Wind speed low, that's why called Doldrums (Belt of Calm).

Tropical High Pressure Belt (or Horse Latitudes)

- From 30° to 35° N and S.
- Apart from 2 months, usually high temperature.
- Here the pressure is high, although high temperature, because here pressure depends on the rotation and movement of air (as winds from Doldrums belt rises up and accumulate here. Also winds from Sub-Polar Low Pressure Belt accumulate here).

Sub-Polar Low Pressure Belt

- From 60° to 65°N and S
- Here the low pressure is created because of intense high pressure at the poles.

Winds and Their Types

- **3 broad categories are:**
  1. **Regular Winds/Prevailing Winds/Planetary Winds**: (E.g.: Trade winds, Westerlies and Polar Easterlies).
  2. **Periodical Winds (which blow seasonally)**: Monsoons

Trade Winds

- Trade in German means Track. To blow trade means to blow steadily in the same direction and in a constant course'.
- These are steady currents of air blowing from the sub-tropical high pressure belts towards the equatorial low pressure areas (doldrums). Under the influence of the Coriolis force they blow from the north-east in the northern hemisphere and from the south-east in the southern hemisphere.

Westerlies

- Blows from subtropical high pressure to sub-polar low pressure belt.
- In the northern hemisphere, land masses cause considerable disruption in the westerly wind belt. But between 40° and 60° S lies the almost unbroken ocean belt. Westerlies are strong and persistent here, giving rise to mariner's expressions- 'Roaring Forties', Furious Fifties' and 'Shrieking Sixties'.

Polar Easterlies

- Move from high pressure poles to sub-polar low pressure areas.
- These are deflected by the Earth's rotation to become east winds, or the polar easterlies.

LOCAL WINDS

Land and Sea Breeze	They are experienced in coastal areas. Due to differential heating, the atmospheric pressure over the land mass is lower than over the neighboring sea during the day. Therefore, winds blow from sea to land (sea breeze). At night the air pressure over land is higher due to a lower temperature than over the adjacent ocean and the wind starts blowing from land to sea (land breeze). Land breeze is not as strong as sea breeze.
Chinook	Hot, dry wind in Rockies, also called 'snow eater'.
Foehn	Hot, dry wind in the Alps.
Khamsin	Hot, dry wind in Egypt.
Sirocco	Hot, moist wind from Sahara to Mediterranean Sea.
Solano	Hot, moist wind for Sahara towards Iberian Peninsula.
Harmattan	Hot, dry wind blowing outwards from the interior of West Africa, also called 'Guinea Doctor'.
Bora	Cold, dry wind blowing outwards from Hungary to the north of Italy (near AdriaticSea).
Mistral	Very cold wind, which blows down from the Alps over France.
Punas	Cold, dry wind blowing down towards the western side of Andes.
Blizzard	Very cold winds in Tundra region.
Brickfielder	Hot wind in Australia.
Purga	Cold wind in Russian tundra.
Levanter	Cold wind in Spain.
Norwester	Hot wind in New Zealand.
Santa Ana	Hot wind in Southern California in USA.

CYCLONES IN WORLD

It is a system of very low pressure in the center surrounded by increasingly high pressure outwards.

In this, the winds blows in a circular manner in Anticlockwise direction in Northern Hemisphere. Clockwise direction in Southern Hemisphere.

In the temperate region, they occur due to the coming close and imperfect mixing of two masses of air of contrasting temperature and humidity conditions. Cycles of this type are also known as Wave Cyclones or Temperate Cyclones.

On the other hand, in the tropical regions, they occur due to intense heating up of air in some regions causing very low pressure in these

These are known as:

- Cyclones – in the Indian Ocean
- Hurricanes – in the Caribbean Islands
- Typhoons – in the China Sea
- Willy-Willies – in the North West Australia
- Tornadoes – in coastal US.
- Twisters – in Mississippi Valley, USA

Tornadoes are very strong tropical cyclones of a smaller size. They are especially feared in the Mississippi Valley in US and here they are called Twisters. They differ from cyclones in that they generally develop over land. They are more destructive than cyclones as the speed of winds is very high, exceeding 320 km per hour.

Anticyclones

- They are opposite to cyclones in all respects. They are the centers of high pressure with gentle outward flow of air.
- The air circulation is clockwise in the northern hemisphere and anticlockwise in the southern hemisphere.
- Weather associated with an anticyclone is fair weather.

EARTH CLOUDS

Earth Clouds are masses of minute water droplets and / or ice crystals formed by the condensation of water vapour and held in suspension in the atmosphere. Condensation, which results from cooling, usually takes place around nuclei such as dust, smoke particles and salt. Such particles are called condensation nuclei.

Earth Clouds are of different types and they can be classified on the basis of their form and altitude.

On the basis of form, there are two major groups:

1. Stratiform or layered types, and
2. Cumuliform or massive types.

Stratiform Clouds

- These clouds, which are fairly thin and blanket like, are sub-divided into three main categories on the basis of altitude.
- High Clouds (mean ht 5-13 km)
    1. **Cirrus Clouds:** Indicates fair weather.
    2. **Cirrocumulus Clouds:** Forms the mackerel sky.
    3. **Cirrostratus Clouds:** Produces a halo around sun and moon.
- Middle Clouds (mean ht 2-7 km)
    - **Altocumulus Clouds:** Indicate fine weather.
    - **Alto-stratus Clouds:** Associated with development of bad weather.
- Low (mean ht up to 2 km)
    1. **Stratus Clouds:** Brigs dull weather, usually accompanied with a drizzle.
    2. **Nimbostratus Clouds:** If rain or snow is falling from a stratus cloud, it is called nimbostratus.
    3. **Stratocumulus Clouds:** Indicators of fair or clearing weather.

Cumulus Clouds

- They are massive clouds having a vertical extent from 1,500 to 9,000 m. They resemble the head of a cauliflower. When these clouds are sunlit, they are brilliantly white and are called 'wool-clouds'. They occur mainly in summer and are produced by convection.

- **Cumulonimbus Clouds**: Under different weather conditions, a cumulus cloud may develop into cumulonimbus, the thunderstorm cloud mass of enormous size which brings heavy rainfall, thunder and lightning and gusty winds.

Precipitation Clouds

- It refers to falling of water, snow or hail from the clouds and results when condensation is occurring rapidly within a cloud.
- The most common form of precipitation is rain and it is formed when many cloud droplets coalesce into drops too large to remain suspended in the air. Rainfall occurs when the dew point of air is above the freezing point.
- Sometimes the raindrops freeze before reaching the ground and precipitation occurs in the form of ice pellets, called sleet.
- Snow is produced when condensation takes place at a temperature below freezing point, so that the minute crystals (spicules) of ice form directly from the water vapour.
- Hail consists of masses of ice with a layered structure. It occurs when there are very strong updrafts in the clouds carrying raindrops up to a high altitude, causing them to freeze. Hail stone is a rounded lump of ice having concentric layers.

Conditions for Precipitation

- There are three possible ways by which precipitation is produced

Convectional Precipitation

- It is caused by heating of moist air in the lower layers of atmosphere which rises, expands, and is cooled adiabatically to its dew point. Convection rain is often accompanied by lightening and thunder. It occurs in regions near the equator in the afternoon as a result of the constant high temperature and high humidity.

Orographic Precipitation

- In this, precipitation is caused by moisture-laden air being forced to rise over a relief barrier (mountain ranges). As the air rises in the windward side, it is cooled at the adiabatic rate. If sufficiently cooled, precipitation results; when the air descends on the leeward side, it gets warmed and dry, having no source from which to draw up moisture. A belt of dry climate, often called a rain shadow, may exist on the leeward side.

Cyclonic frontal Precipitation

- When the air is caused to rise upwards due to cyclonic circulation, the resulting precipitation id said to be of the cyclonic type

EARTH OCEAN CURRENTS

Actual transportation of water from one part of ocean to another. Because of differences in density, salinity, temperature of ocean waters, rotation of earth, shape of coastline and the prevailing winds.Currents circulate in clockwise direction in Northern Hemisphere and in anti-clockwise direction in Southern Hemisphere.

CURRENTS IN PACIFIC OCEAN

a. North-Equatorial Current (Warm): Flows across from east to west, i.e., from North America it reaches the Philippines.

b. Kuroshio Current (Warm): N. Eq. current along the Philippines, Taiwan & Japan coast form this current. From the S.E. Japan the current, under the influence of prevailing westerlies, flows right across the ocean.

c. After reaching the west coast of N. America, it bifurcates into 2 branches :

Alasca Current (Warm): Along the coast of British Columbia & Alasca.
ii. California Current (Cold): It moves southward along the coast of California

d. Oyashio Current (Cold): Flows along the east coast of Kamchatka peninsula.

e. Okhotsk Current (Cold): Comes from the N. Pole & merges with the Oyashio current.

f. East Australian Current (Warm): Flows from east to west in S. Pacific Ocean.

g. Peru Current (Cold): Cold current near the west coast of S. America.

Currents of Atlantic Ocean

a. Guinea Current (Warm): Flows off the W. African coast (hot).b. Florida Current (Warm): Along the coast of US up to the cape Hatterus.

c. Gulf Stream (Warm): Beyond the Cape Hatterus up to the Grand Banks of New Found Land, florida current is known as Gulf Stream. From the Grand Banks the Gulf Stream moves eastward across the Atlantic as the Atlantic Drift.

d. Atlantic Drift divides into 2 branches:

i . Norwagian Current: The main current passes along the Norway coast & enters the Arctic Ocean.

ii . Canary Current: The south branch of N. Atlantic drift flows near Spain by this name.

e. 2 Cold Currents: The East Greenland Current & the Labrador Current flows from the Arctic Ocean into the Atlantic Ocean.The Labrader Current meets the Gulf Stream. The influence of these 2 currents produces the famous fogs around New Found Land. [Most busy fishing ground of the world].

Brazil Current (Warm): Flows along the S. American coast from North to South

g. **Benguela Current (Cold)**: Cold current from S. to N near the 'Cape of Good Hope',

h. **Falkland Current (Cold)**: Cold flowing along the S.E. coast of S. America from S. to N. (meets the Brazil current)

Currents of the Indian Ocean

- The currents in the N. Indian Ocean differ entirely from the general pattern of circulation. They change their direction from season to season in response to the seasonal rhythm of the monsoons.
- In winters the N. Equatorial current & the S. Equatorial current flows from East to West.
- **Mozambique Current**: Warm current flowing through the Mozambique Channel.
- **Agulhas Current**: Warm current at the South-East coast of Africa

WORLD CONTINENTS

Asia, Africa, North America, South America, Europe, Australia and Antarctica are the seven continents of the world.

These seven continents were believed to be part of Pangaea which was a single landmass around 250 million years ago.

Due to the tectonic movement, the landmass broke up and the component continents separated and moved away to its present position. All these took around 1 million years to complete.

Pangaea was surrounded by a sea, the Panthalassa.

The continents of the world map will give you information about the geographical positions of the continents as well as their political divisions

The Continents of the World,

World Continents: Some Facts

Continents	Biggest Country	Highest Peak	Longest River
Asia	China	Mt. Everest (8850 m)	Yangtze Kiang
Africa	Sudan	Mt. Kilimanjaro (5895 m)	Nile
North America	Canada	Mt. Mckinley (6194 m) Mississippi	Missouri
South America	Brazil	Mt. Aconcagua (6960 m)	Amazon
Europe	Russia	Mt. Elbrus (5642 m)	Ob
Australia	Australia	Mt. Coscuisco (2228 m)	Darling
Antarctica	-	Vinson Massif (5140 m)	-

SEVEN CONTINENTS OF THE WORLD

Name	Area in sq.km	Approx. % of the world's land
Asia	44,493,000	29.6
Africa	30,293,000	20.2
North America	24,454,000	16.3
South America	17,838,000	11.9
Antarctica	13,975,000	9.3
Europe	10,245,000	6.7
Oceania	8,945,000	6.0

MAJOR RIVERS

River	Origin	Falls in	Length
Nile	Victoria lake	Mediterranean Sea	6,650
Amazon	Andes (Peru)	Atlantic Ocean	6,428
Yangtze	Tibetan Kiang Plateau	China Sea	6,300
Mississippi Missouri	Itaska lake (USA)	Gulf of Mexico (USA)	6,275
Yenisei	Tannu-Ola Mts	Arctic Ocean	5,539
Huang Ho	Kunlun Mts	Gulf of Chibli	5,464
Ob	Altai Mts., Russia	Gulf of Ob	5,410
Congo	Lualaba & Luapula rivers	Atlantic Ocean	4,700
Amur	Northeast China	Sea of Okhotsk	4,444
Lena	Baikal Mts	Laptev Sea	4,400
Mekong	Tibetan.Highlands	South China Sea	4,350
Mackenzie	Great Slave Lake	Beaufort Sea	4,241
Niger	Guinea	Gulf of Guinea	4,200

MAJOR LAKES

Largest Lake	**Caspian Sea**
Highest lake	Lake Titicaca in Bolivia
Largest saline water lake	Caspian Sea
Deepest lake	Lake Baikal in Siberia
Largest fresh water lake	Lake Superior
India's largest lake	Chilka lake in Orissa

IMPORTANT LAKES OF THE WORLD

Lake	Location	Area (Sq.Km)
Caspian	Russia and CIS	371000
Superior	Canada and USA	82414
Victoria	Tanzania (Africa)	69485
Huron	Canada and USA	59596
Michigan	USA	58016
Tanganyika	Africa	32892
Baikal	Russia (CIS)	31502
Great Bear	Canada	31080
Malawi	Malawi (Tanzania)	30044
Great Slave	Canada	28438

Note:

- More than 60% of the world's lakes are in Canada; this is because of the deranged drainage system that dominates the country.
- Finland is known as "The land of Thousand Lakes".
- The US State of Minnesota is known as 'The Land of Ten Thousand Lakes'.
- The world's lowest lake is the Dead Sea, bordering Israel, Jordan at 395 m below sea level.
- Lake Huron has the longest lake coastline in the world: about 2980 km, excluding the coastline of its many inner islands.

OCEANS OF THE WORLS

Names	Area (Sq.Km)	Greatest Depth
Pacific	166,240000	Mariana Trench
Atlantic	86,560000	Puerto Rico Trench
Indian	73430000	Java Trench
Arctic	13230000	-

Major Gulfs of the World

Names	Area (Sq. Km)
Gulf of Mexico	15,44,000
Gulf of St. Lawrence	2,37,000
Gulf of Hudson	12,33,000
Gulf of California	1,62,000
Arabian Gulf	2,38,000
English Channel	89,900

PRINCIPAL PLATEAUS OF THE WORLD

Plateau	Situation
Tibetan Plateau	Between Himalayas and Quinloo Mountains
Deccan Plateau	Southern India
Arabian Plateau	South - West Asia
Plateau of Brazil	Central - Eastern South America
Plateau of Mexico	Mexico
Plateau of Colombia	USA
Plateau of Madagascar	Madagascar

Plateau of Alaska	North - West North America
Plateau of Bolivia	Andes Mountain
Great Basin Plateau	South of Colombia Plateau, USA
Colorado Plateau	South of Great Basin Plateau, USA

MAJOR PENINSULAS OF THE WORLD

Peninsulas	Areas (Sq. Km)
Arabia	32,50,000
Labrador	13,00,000
Southern India	20,72,000
Scandinavia	8,00,000
Alaska	15,00,000
Iberian	584,000

IMPORTANT STRAITS OF THE WORLD

Straits	Water Bodies joined	Area
Bab-al-Mandeb	Red Sea & Arabian Sea	Arabia & Africa
Bering	Arctic Ocean & Bering Sea	Alaska & Asia
Bosphorus	Black Sea & Marmara Sea	Turkey
Dover	North Sea & Atlantic Ocean	England & Europe
Florida	Gulf of Mexico & Atlantic Ocean	Florida & Bahamas Islands
Gibralter	Mediterranean Sea & Atlantic Ocean	Spain & Africa
Malacca	Java Sea & Bay of Bengal	India & Indonesia
Palk	Bay of Bengal & Indian Ocean	India & Sri Lanka
Magellan	South Pacific & South Atlantic Ocean	Chile
Sunda	Java Sea & Indian Ocean	Indonesia

WORLD'S GEOGRAPHICAL SURNAMES

Surname	Name
Bengal's Sorrow	Damodar River
Blue Mountains	Nilgiri Hills
City of Sky-scrapers	New York
City of Seven Hills	Rome
City of Dreaming Spires	Oxford
City of Palaces	Kolkata
City of Golden Gate	San Francisco

Gity of Magnificent Buildings	Washington D.C
City of Eternal Springs	Quito (S. America)
China's Sorrow	Hwang Ho
Emerald Isle	Ireland
Eternal City	Rome
Empire City	New York
Forbidden City	Lhasa (Tibet)
Garden City	Chicago
Gate of Tears	Strait of Bab-el-Mandeb
Gateway of India	Mumbai
Gift of the Nile	Egypt
Granite City	Aberdeen (Scotland)
Hermit Kingdom	Korea
Herring Pond	Atlantic Ocean
Holy Land	Jerusalem
Island Continent	Australia
Island of Cloves	Zanzibar
Isle of Pearls	Bahrein (Persian Gulf)
Key to the Mediterranean	Gibralter
Land of Cakes	Scotland
Land of Golden Fleece	Australia
Land of Maple Leaf	Canada
Land of Morning Calm	Korea
Land of Midnight Sun	Norway
Land of the Thousand Lakes	Finland
Land of the Thunderbolt	Bhutan
Land of White Elephant	Thailand
Land of Five Rivers	Punjab
Land of Thousand Elephants	Laos
Land of Rising Sun	Japan
Loneliest Island	Tristan De Gunha (Mid-Atlantic)
Manchester of Japan	Osaka
Pillars of Hercules	Strait of Gibraltar
Pearl of the Antilles	Cuba
Playground of Europe	Switzerland
Quaker City	Philadelphia
Queen of the Adriatic	Venice

Roof of the World	The Pamirs, Central Asia
Rose Pink City	Jaipur
Sugar bowl of the world	Cuba
Venice of the North	Stockholm
Windty City	Chicago
Whiteman's grave	Guinea Coast of Africa
Yellow River	Huang Ho (China)

FAMOUS TRIBES OF THE WORLD

Abhors	People of Mongolian blood living between Assam and Eastern tribes
Afridis	Tribes residing in the North-west Frontier (Pakistan)
Bantus	Negroes living in the Central and South Africa
Boers	The Dutch settlers of South Africa
Cossacks	People living in the southern and eastern frontiers of Russia
Eskimos	Inhabitants of Greenland and of Arctic regions
Flemings	A term used for the people of Belgium
Hamites	Inhabitants of North-West Africa
Khirgiz	People Living in Central Asia
Kurds	Tribes living in Kurdistan (Iraq)
Magyars	Inhabitants of Hungary
Maoris	Inhabitants of New Zealand
Negroes	Mostly found in Africa
Pygmies	Short sized people found in Congo basin in Africa
Red Indians	Original inhabitants of North America
Semites	Caucasian people of ancient times
Zulus	People of South Africa living in certain part of Natal

FAMOUS SITES IN THE WORLD

Site	Location
Bastille Prison	Paris
Brandenburg Gate	Berlin
Big Ben	London
Broadway	New York
Buckingham Palace	London
Colosseum	Rome
Downing Street	London

Eiffel Tower	Paris
Empire State Building	New York
Fleet Street	London
Grand Canyon	Arizona (U.S.A)
Harley Street	London
Hyde Park	London
India House	London
Jodrell Bank	Manchester (U.K)
Kaaba	Mecca (Saudi Arabia)
Kremlin	Moscow (Russia)
Leaning Tower	Pisa (Italy)
Louvre	Paris
Merdeca Palace	Djakarta
Oval	London
Pentagon	Washington D.C
Porcelain Tower	Nanking
Potala	Lhasa
Red Square	Moscow
Pyramids	Egypt
Scotland Yard	London
Shiwe Dragon Pagoda	Yangoon
Sphinx	Egypt
Statue of Liberty	New York
Vatican City	Rome
Wall Street	New York
Wailing Wall	Jerusalem
Wambley	London
White Hall	London
White House	Washington D.C

BIGGEST, HIGHEST, LARGEST, LONGEST IN THE WORLD

Tallest Animal in the World	Giraffe
Largest Archipelago in the World	Indonesia
Fastest Bird in the World	Swift
Largest Bird in the World	Ostrich

Smallest Bird in the World	Humming Bird
Longest Railway Bridge in the World	Huey P. Long Bridge, Louisiana (U.S.A)
Tallest Building in the world	Burj Dubai, UAE
Canal, Longest Irrigational	The Kalakumsky Canal
Longest Canal in the World	Suez Canal
Highest Capital in the World	La Paz (Bolivia)
Biggest City in Area in the World	Mount Isa (Australia)
Largest City in Population in the World	Tokyo
Costliest City in the World	Tokyo
Highest City in the World	Van Chuan (China)
Largest Continent in the World	Asia
Smallest Continent in the World	Australia
Biggest Country in the World by Area	Russia
Largest Country in the World by Population	China
Largest Country in the World by Electorate	India
Largest Creature in the World	Blue whale
Largest Delta in the World	Sunderban (Bangladesh & India)
Largest Desert in the World	Sahara (Africa)
Largest Desert in Asia	Gobi
Largest Dam in the World	Grand Coulee Dam (U.S.A)
Dam Highest in the World	Hoover Dam (U.S.A)
Diamond Largest in the World	The Cullinan
Largest Dome in the World	Astrodome, in Housten (U.S.A)
Largest Epic in the World	Mahabharat
Largest Irrigation Scheme in the World	Lloyd Barrage, Sukkhur (Pakistan)
Largest Island in the World	Greenland
Largest Sea in the World	Mediterranean Sea
Deepest Lake in the World	Baikal (Siberia)
Largest Lake (Artificial) in the World	Lake Mead (Boulder Dam)
Highest Lake in the World	Titicaca (Bolivia)
Largest Lake (Fresh water) in the World	Superior
Largest Lake (Salt water) in the World	Caspian
Largest Library in the World	United States Library of Congress, Washington D.C
Highest Mountain Peak in the World	Everest (Nepal)
Longest Mountain Range in the World	Andes (S. America)

Largest Museum in the World	British Museum, London
Largest Ocean in the World	Pacific
Biggest Palace in the World	Vatican (Italy)
Largest Park in the World	Yellow Stone National Park (U.S.A)
Largest Peninsula in the World	Arabia
Coldest Place (Habitated) in the World	Verkhoyansk (Siberia)
Dryest Place in the World	Iqique (in Atacama Desert, Chile)
Hottest Place in the World	Azizia (Libya, Africa)
Rainiest Place in the World	Mausinram (Meghalaya, India)
Biggest Planet in the World	Jupiter
Brightest Planet in the World	Venus
Smallest Planet in the World	Mercury
Highest Plateau in the World	Pamir (Tibet)
Longest Platform in the World	Kharagpur (India)
Longest Railway in the World	Trans - Siberian railway
Largest Railway Station in the World	Grand Central Terminal, Chicago (U.S.A)
Longest River in the World	Nile (Africa)
Largest River in the World	Amazon (S. America)
Largest Sea-bird in the World	Albatross
Brightest Star in the World	Sirius
Tallest Statue in the World	Statue of Motherland, Volgograd (Russia)
Largest Telescope Radio in the World	New Mexico (U.S.A)
World's Tramway first in the World	New York
Longest Tunnel (Railway) in the World	Tanna (Japan)
Longest Tunnel (road) in the World	Mont Blanc Tunnel between France and Italy
Highest Volcano	Ojos del Salado (Andes, Ecuador)
Most Volcano Active in the World	Maunaloa (Hawaii - U.S.A)
Longest Wall in the World	Great Wall of China
Highest Waterfall in the World	Angel (Venezuela)
Lowest Water body in the World	Dead Sea
Largest Zoo in the World	Kruger National Park, South Africa

Visit our Website

www.amkresourceinfo.com

---------JOIN US by CLICK here---------

ANDROID APP ON Google Play
JOIN OUR GROUP ON Facebook
Join our WhatsApp Group
Join our Telegram Channel

Important Links in our Website

A M K – Free E Resources

http://amkresourceinfo.com/free-e-resources/

Daily Newspapers : http://amkresourceinfo.com/daily-newspapers/

Job Notifications : http://amkresourceinfo.com/job-notifications/

E Books : http://amkresourceinfo.com/e-books-2/

E Magazines : http://amkresourceinfo.com/e-magazines-2/

Online Buy Books : http://amkresourceinfo.com/online-buy-books/

Free Exam Study Materials

RRB – Group D : http://amkresourceinfo.com/rrb-group-d/

And many more.....

Keep visiting for more updates