
GEOGRAPHY

# Major Domains of the Earth

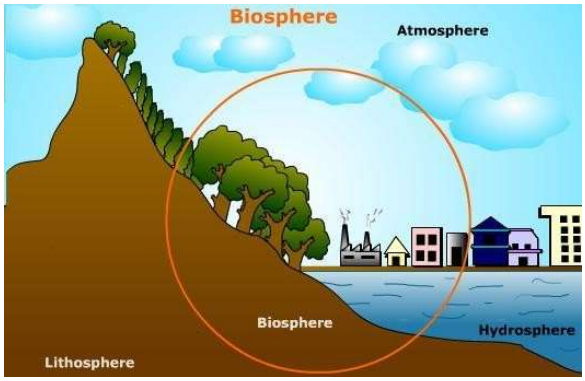
There are three main components of the environment, the **lithosphere**, the **hydrosphere** and the **atmosphere**. All the three components meet on the surface of the Earth. The other important zone is the **biosphere** where we find air, land and water together. The biosphere contains all the three forms of life.

## Lithosphere

The lithosphere is the solid portion of the Earth. It consists of the Earth's crust and thin layers of soil. The Earth's surface consists of large landmasses known as continents and ocean basins. In the lithosphere, the highest peak is Mt. Everest with a height of 8,848 m. The Mariana Trench in the Pacific Ocean is located at a greatest depth of 11,022 m.

The following table gives us the names and the physical features of the continents

| Name | Size | Main Features |
|---|---|---|
| **Asia** | Largest continent | It lies in the Eastern Hemisphere and the Tropic of Cancer passes through it. It is separated by Europe, by the Ural Mountains, in the west. Eurasia is the name given to the combined landmass of Asia and Europe. |
| **Africa** | Second largest continent | The Equator runs through the middle of this continent. Africa is the only continent through which the Tropic of Cancer, the Tropic of Capricorn and the Equator pass. The world's largest hot desert, Sahara is located here. The longest river of the World, the Nile also flows through the African continent. |
| **North America** | Third largest continent | It lies completely in the Northern and Western hemisphere. It is linked to South America by a narrow strip of land called the Isthmus of Panama. |
| **South America** | Fourth largest continent | It lies in the Southern Hemisphere. The second largest river of the world, the Amazon flows through South America. The world's longest mountain ranges, the Andes, run through it from northto south. It is surrounded by the Pacific and Atlantic oceans. |
| **Antarctica** | Fifth largest continent | It lies completely in the Southern Hemisphere. Antarctica is covered with thick sheets of ice all around the year. India has two research stations here, namely, the *Maitri*and *Dakshin Gangotri*. |
| **Europe** | Sixth largest continent | It is located to the west of Asia and the Arctic Circle passes through it. |
| **Australia** | Smallest continent | It lies completely in the Southern Hemisphere. Australia is called an island continent as it is surrounded by oceans and seas on all sides. |




The figure showing all the realms of the Earth

## Hydrosphere

The hydrosphere is a realm of the Earth which contains water in all its forms i.e., liquid (sea water), solid (ice sheets) and gas (water vapour). The Earth is known as the **blue planet** as more than 71% of the Earth is covered with water. More than 97% of the Earth's water is found in the oceans. This water is salty and not fit for human consumption. Of the remaining three percent, two percent is frozen in the form of ice sheets and only one percent is available to us in the form of freshwater.

### Oceans

Oceans form a major part of the hydrosphere and all oceans are interconnected to each other. The three main movements of ocean waters are in the form of waves, tides and ocean currents. The four major oceans are:

**The Pacific Ocean:** It is the largest ocean and covers one third of the Earth. It is circular in shape and surrounds Asia, Australia, North America and South America. The deepest part of the Earth, the Mariana Trench is located in this ocean.

**The Atlantic Ocean**: It is the second largest ocean. As the coastline of the ocean is highly irregular, many locations onthis ocean are used as ports and natural harbours. It is thebusiest ocean in the world as much of the trade is carried through its routes. It is 'S' in shape.

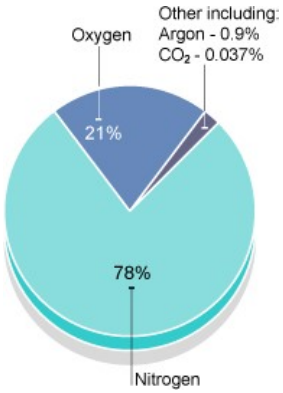
The three main movements of ocean waters are in the form of waves, tides and ocean currents

**The Indian Ocean:** This is the only ocean which is named after a country. It is triangular in shape. It surrounds Asia, Africa and Australia.

**The Arctic Ocean:** It is located within the Arctic Circle and surrounds the North Pole. The Berring strait is a narrow stretch of shallow water which connects the Arctic Ocean with the Pacific Ocean.

## Atmosphere

- The atmosphere is a thin layer of gas which surrounds the Earth. The atmosphere comprises of various gases. The atmosphere consists mainly of nitrogen (78%), oxygen (21%) and other gases like carbon dioxide, argon, heliumetc.
- Oxygen helps in the survival of all the living beings while nitrogen helpsin the growth of livingorganisms.
- Carbon dioxide keeps the planet warm by absorbing the heat reflected by the Earth. The gas also helps in the growth ofplants.
- The atmosphere extends up to a height of about 1,600 km above the surface of the Earth. It is divided into five layers based on temperatureand composition.
- The layers beginning from the surface of the Earth are the troposphere, the stratosphere, the mesosphere, the thermosphere and theexosphere.



Composition of air in the atmosphere

- The density of the atmosphere changes with height. The temperature also decreases at higheraltitudes.
- Air in the atmosphere moves from high pressure areas to low pressure areas. Moving air is knownas **wind**.

## Biosphere

The biosphere is a layer of the Earth where life exists. It is a narrow zone of contact between land, water and air. All the three realms of the Earth interact with each other in this zone. The organisms in this layer can be broadly divided into plants, animal and the human kingdom. All living organisms are dependent on each other for their survival. However, human activities are degrading the environment. Deforestation, mining, emission of liquid wastes from the industries are deteriorating the environment. Natural calamities like Earthquakes and volcanic eruptions also change the surface of the Earth. For example, parts of the Andaman and Nicobar Islands were submerged under water due to the tsunami which hit the Indian coasts in2004.

The release of carbon dioxide into the air has led to an increase in the global temperature. We need to use the resources in such a way that the ecological balance of the Earth ismaintained.