

WEATHER AND CLIMATE

Our Earth is surrounded by a thick layer of air called the **atmosphere**. The conditions within the atmosphere keep changing from time to time.

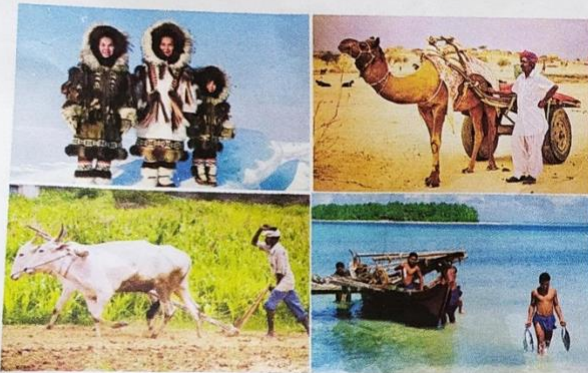
WEATHER

Weather is the condition of the atmosphere over a short period of time. Sometimes it is sunny and dry, while at other times, it may be cloudy, windy or rainy. Weather keeps on changing depending upon the temperature, wind, humidity, etc. of the place. Weather changes everyday. Sometimes it changes within a few hours.

CLIMATE

Climate is the average pattern of weather conditions in a place over a long period of time.

Different parts of the world have different climates due to various factors. The climate of a place affects the life of the people there. The food, dress, houses, occupation and the way of life of the people are all connected with the climate of the place.



The climate affects the way of life

Factors That Determine Climate

The climate of a place depends upon several factors. The major ones are:

- ▶ Distance from the Equator
- ▶ Distance from the sea
- ▶ Altitude (or height) of a place
- ▶ Direction of the wind

Distance from the Equator: In fig. 4.1, the rays of the Sun are falling over the Earth. Over the Equator, these rays fall vertically and spread over a small area. As we move from the Equator towards the poles, the rays become slanting and cover

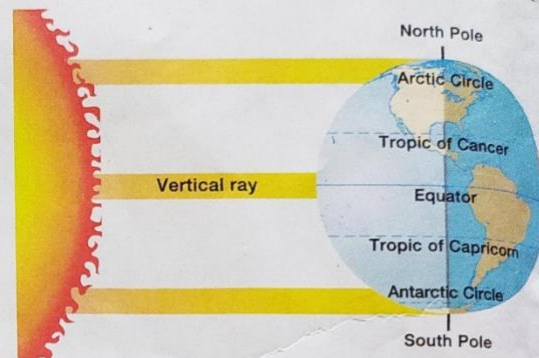


Fig. 4.1: Inclination of the Sun's rays

a larger area. Thus, the places near the Equator will be hotter than the places away from it. The two poles get so little heat that they remain frozen all year round.

Distance from the Sea: Areas lying near the sea have a moderate climate. It is neither very hot nor very cold. This is because the sea takes longer time than the land to get warm or to get cold. So the cool air blowing from the sea keeps the

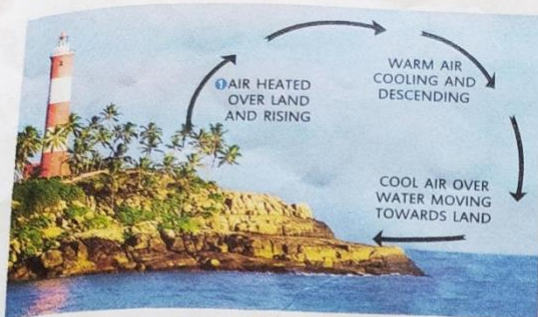


Fig. 4.2: Sea Breeze

hot land cool during the summer. In winters, the sea takes longer to cool down. So, the warm air over the sea replaces the cooler air over the land.

Altitude (or Height) of a Place: This refers to the height of the land above sea-level. The higher we go, the cooler it becomes even if we are near the Equator. The reason is that the air at high altitudes is thinner and there are fewer dust or water particles in it. Therefore air cannot absorb much heat. The air at higher places, thus, remains cooler.

Direction of the Wind: Wind is air in motion. If the wind blows from hot areas, it will increase the temperature. If it blows from cold areas, it will reduce the temperature. During summers, Delhi is very hot because of the hot and dry winds coming from the deserts of Rajasthan. Winds are also an important source of rain.



Hilly areas are cooler even in summers

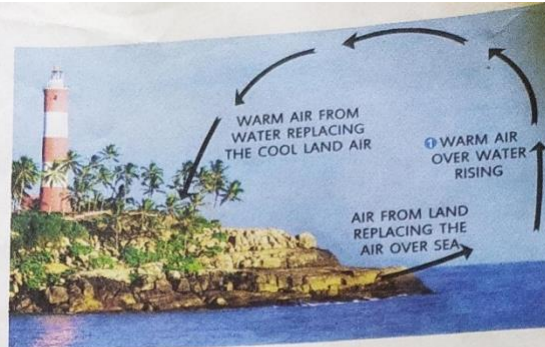


Fig. 4.3: Land Breeze

CLIMATIC REGIONS OF THE WORLD

The world is divided into three major climatic or heat zones on the basis of the amount of heat received:

1. The Tropical Zone

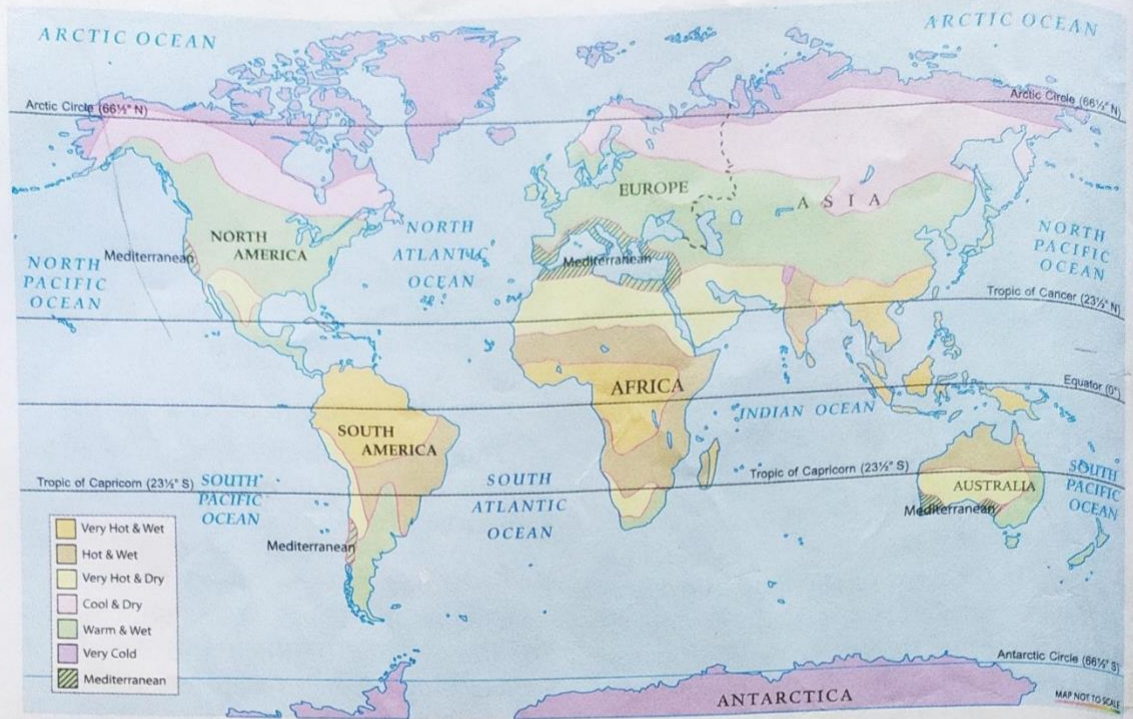
This region lies on both sides of the Equator. It lies between the Tropic of Cancer and Tropic of Capricorn. Hence, it is called the **Tropical Zone**. We have seen that places near the Equator receive the most amount of sunshine possible. So the climate of this region is hot and humid throughout the year. This region is also called the **Torrid Zone**.

There are variations in the climate even within this region. The climate in places that lie at a great height, such as in mountains, and the places near oceans are cooler. There is plenty of rainfall in some areas while some areas such as the Sahara Desert remain dry and sandy.

2. The Temperate Zone

This region lies beyond the Tropics. As the Sun does not shine directly over this region, it has a temperate climate. It is neither too hot nor too cold.

Here, too, there are variations in the climate within the region. In the countries around the **Mediterranean Sea**, summers



Map 4.1: Climatic regions of the world

are hot with little or no rain. While the eastern coasts of countries in this region receive a high rainfall in summers.

In the places which lie closer to the polar regions, such as northern Europe, northern Asia, and Canada, the winters are very cold and the summers are warm.

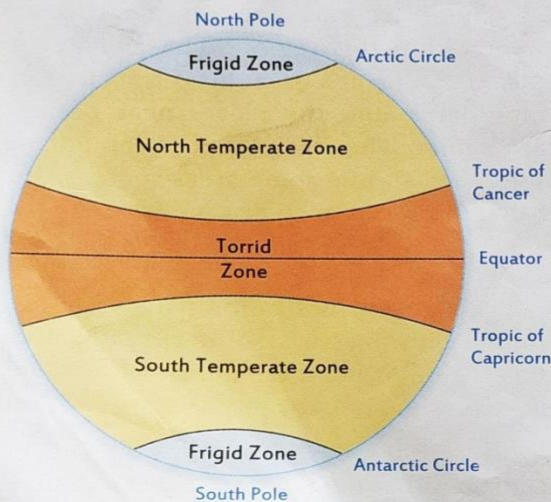


Fig. 4.4: Climatic or heat zones of the Earth

3. The Frigid Zone

The Frigid Zone lies between the Arctic Circle and the North Pole, and between the Antarctic Circle and the South Pole. This area receives very slanting and weak rays of the Sun and, therefore, remains very cold throughout the year. This region includes Antarctica and the extreme northern parts of Europe, Asia and North America. Another name for this region is the 'Polar Region'.

To understand the impact of climate on the lifestyle of people, we will study regions in different climatic zones in the next four chapters.



LET'S SUM UP

- ▶ Weather is the condition of the atmosphere over a short period of time.
- ▶ Climate is the average pattern of weather conditions of a place over a long period of time.
- ▶ Weather may change daily. But, the climate of a place remains the same year after year.
- ▶ The climate of a place depends upon many factors such as — distance from the Equator, altitude of a place, distance from the sea and direction of the wind.
- ▶ The temperature decreases as we move from the Equator towards the Poles.
- ▶ The places near the sea have a moderate climate, i.e., neither too hot nor too cold.
- ▶ The Earth is divided into three climatic zones depending upon how the Sun's rays fall upon that area. They are — Tropical Zone (hot and humid), Temperate Zone (moderate climate), Frigid Zone (very cold climate).
- ▶ The areas in the Frigid Zone remain frozen for most part of the year as it receives very slanting and weak rays of the Sun.



LET'S PRACTISE

1. Tick (✓) the correct answer:

- (a) What is the thick layer of air surrounding the Earth called?
 (i) Photosphere (ii) Exosphere (iii) Atmosphere
- (b) Where do the rays of the Sun fall vertically?
 (i) Poles (ii) Equator (iii) Tropic of Cancer
- (c) Among the following, which area will have a moderate climate?
 (i) Near the sea (ii) On the hills (iii) In the desert
- (d) What is the other name for the Tropical Zone?
 (i) Torrid Zone (ii) Tundra Zone (iii) Polar Zone
- (e) In summers, Delhi receives hot and dry winds from —
 (i) Uttar Pradesh (ii) Rajasthan (iii) Chhattisgarh

2. Fill in the blanks:

- (a) Weather is the condition of the atmosphere over a short period of time.
- (b) Climate is the average pattern of weather conditions over a long period of time.
- (c) Areas lying near the sea have a mild or moderate climate.
- (d) The Tropical Zone lies beyond the Tropics.
- (e) The Frigid Zone is commonly known as the Polar Region.
- (f) The continent of Antarctica lies in the Frigid Zone.

3. Circle the odd one out:

- | | | | |
|----------------------|------------------|---------------|-------------------|
| (a) Equator | Slanting rays | Vertical rays | Heat |
| (b) Tropical Zone | Hot and Humid | Sahara Desert | Moderate climate |
| (c) Moderate climate | Arctic Ocean | Frigid Zone | Poles |
| (d) Temperate Zone | Moderate climate | Equator | Mediterranean Sea |

4. Match the following:

- | | | |
|-------------------|---|------------------------------------|
| (a) Frigid Zone | 5 | keeps the land cool in summers |
| (b) Hill stations | 4 | changes everyday |
| (c) Climate | 2 | have thinner air |
| (d) Weather | 3 | average weather conditions |
| (e) Sea breeze | 1 | receives slanting and weak sunrays |

5. Answer the following:

- What is the difference between weather and climate?
- Why are the polar regions very cold?
- Name the three climatic zones of the Earth along with their type of climate.
- How does the distance from the Equator affect the climate of a place?
- How does the distance from the sea affect the climate of a place?

Answers keys:

Q.1

(a)(iii)Atmosphere

(b) (ii)Equator

(c) (i)Near the sea

(d) (i) Torrid zone

(e) (ii) Rajasthan

Q.2

Fill in the blanks:

(a) Short

(b) Long

(c) Sea

(d) Temperate

(e) Frigid

(f) Frigid

Q. 3

(a) Slanting rays

(b) Moderate climate

(c) Arctic Ocean

(d) Mediterranean sea

Q.4

(a) receives slanting and weak sun rays

(b) have thinner air

(c) average weather condition

(d) changes everyday

(e) keeps the place cool in summer

