About the Chapter

- Weather and Climate
- Distance from the equator
- Height from the sea level
- Distance from sea
- Direction of wind
- Humidity and Rain

3 Variety in Climate

Weather and Climate

The lifestyles of people in different parts of the world are different. The main reason is the climate.

As we all know, weather keeps on changing day and night. The condition of atmosphere at any particular place at a time is known as its weather. The average value of this weather for a longer duration of time is known as the climate. By climate, we know the condition of seasons, average rainfall and wind at a place.

The earth gets heat and light from the sun but it is not the same at every place and at every time. The heat from the sun remains the same but its intensity changes. Why?

In the evening and the morning, the sun's rays are slanted so they cover a large area. This area gets heated less. But at noon, the sun's rays fall directly on a smaller area, so it becomes hotter. Thus, it is less hot in morning and evening than at noon.

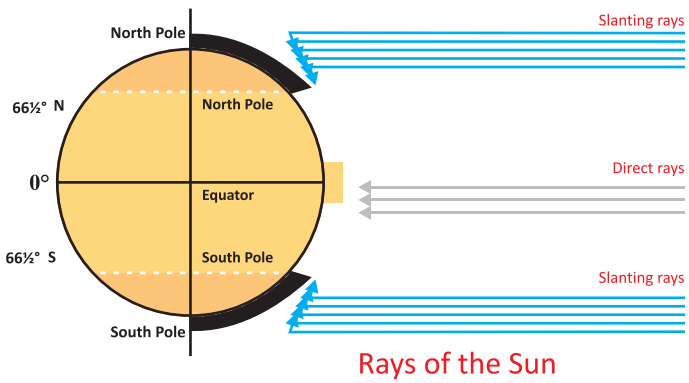
Hence, it is clear why at different places, the intensity of heat is more or less. The temperature is an important factor of climate. Thus, the different factors which affect the climate of a place are :

1. Distance from the equator
2. Height from the sea level
3. Distance from the sea
4. Directions of winds
5. Humidity and Rainfall

1. Distance from the equator

Due to the earth being round, the sun's rays fall directly on the equator. Thus, the places at equator or close to it receive more heat and become hottest.

As we move from the equator towards the poles, the sun's rays start getting slanted. Thus, the heat is spread on a larger area. So, the places close to the poles are cold.



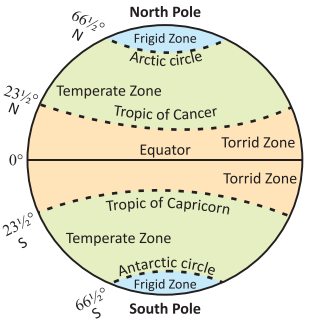
Rays of the Sun

The area falling between the Tropic of Cancer and the Tropic of Capricorn is called Torrid Zone or the Tropics.

The areas around the poles are the coldest. These are called Frigid Zones. One zone lies inside the Arctic Circle (North Pole), while the second one lies inside the Antarctic Circle (South Pole).

The area between the torrid zone and the frigid zone is neither too hot nor too cold. Thus, this area is called Temperate Zone.

Thus, it becomes clear that as one moves from the equator, the temperature gets on reducing. Thus, it is clear that distance from the equator affects the climate.



Climate Zones

2. Height from the Sea Level


Shimla

As we all know, the surface of the earth is not the same everywhere. At some place, it is plain while at others it is a plateau or mountaineous. The peaks of the mountains are covered with snow while the place at less height will be hotter. For example, Shimla and Ludhiana, in India, are at equal distance from the equator but Shimla is cooler than Ludhiana. The reason is that Shimla is in the hills much higher than the sea level while Ludhiana is in the plains less higher than the sea level.

Thus, it becomes clear that places at more height from the sea level are cooler than the places with less height.

Do You Know

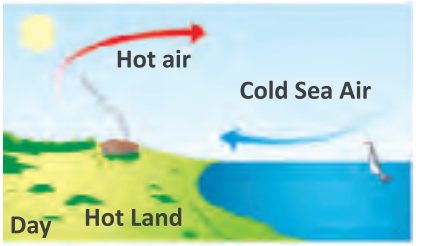
As we go up, the temperature reduces at a rate of 1°C per 165 metres.

3. Distance from the Sea

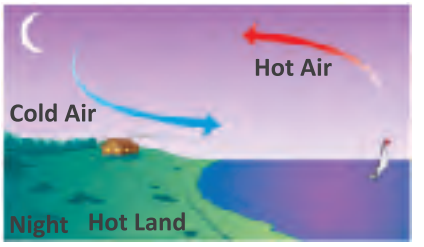
The climate of a place also depends on its distance from the sea. The place farther from the sea will be hotter in the summer and colder in its winter than the one close to the sea. Comparing Delhi and Mumbai, we find that Mumbai is less hot and cold than Delhi. This is because Mumbai is situated close to the sea while Delhi is far from it.


Beach at Mumbai

The places close to the sea have temperate climate because they are neither too hot in summer nor too cold in winter. The place far away from the sea have extreme climate because they become too hot in summer and too cold in winter.



Land air



Sea air

4. Direction of the wind

The direction of the wind also affects the climate of a place. The winds blowing into the land from the sea are loaded with water and help to bring rainfall while the wind

blowing from the land towards the sea is dry and does not bring rain.

5. Humidity and Rainfall

The presence of water vapour in the air is called humidity. The quantity of humidity or the presence of water vapour in the air affects the climate of a place. The wind blowing over the seas or the oceans increase the quantity of water in the air of a place.

The amount of rainfall over a year and its distribution at a place also affects the climate of a place. We find that places where the rainfall distribution is very extreme have more extreme conditions.

Thus, this is the reason that factors at different places being different also affect the climate.

Know This Also

- The peaks of mountains at equator are covered with snow round the year.
- Temperate climate is also called 'oceanic climate' and extreme climate is also called 'continental climate.'
- During the day, the cold winds blow towards the land while at night, these winds blow towards the sea.
- There has been no rainfall in a desert of Peru for the last 400 years.

Learnt by Now

- The condition of atmosphere at any place at a given time is called its weather while the continuation of this weather for a longer period is called climate.
- Temperature is an important factor of climate.
- The temperature reduces as one goes away from the equator towards the poles.
- Places at a much height from the sea level are cooler than the places at a lesser height.
- The climate of a place also depends on its distance from the sea.
- The direction of the wind also affects the climate of a place.

Exercise

A. Tick (✓) the correct answer : (MCQs)

1. The reason for the difference in lifestyles of people at different places is :
   (a) money ○ (b) nature ○ (c) climate ○
2. What are the areas around the poles called ?
   (a) Frigid zone ○ (b) Torrid zone ○ (c) Temperate zone ○
3. How much temperature is reduced on going higher by every 165 metres ?
   (a) 10° C ○ (b) 1° C ○ (c) 25° C ○
4. How are the winds blowing in from the sea ?
   (a) Dry ○ (b) Humid ○ (c) Hot ○

B. Answer the following questions :

1. Why is it hotter at noon than in the morning and evening ?

2. What are different factors which affect the climate ?
3. What is the difference between the temperate and extreme climates ?
4. What is the difference between weather and climate ?
5. How do the directions of the winds affect the climate ?
6. What is the torrid zone ?
7. What is the frigid zone ?
8. What is the temperate zone ?

C. Fill in the blanks :

1. _____ is an important factor of climate.
2. The areas around _____ are hotter.
3. Frigid zones lie in the Arctic circle and _____.
4. Places at a height from the _____ are cooler.
5. The quantity of water vapour in air is called _____.

D. Tick (✓) the correct statement :

1. The earth gets heat and light from the sun.
2. The sun's rays falling on the equator are slanted.
3. Height from the sea also affects the climate of a place.
4. The winds blowing in from the sea are dry.
5. The winds blowing over the seas increase humidity in air.

E. Match the following :

A	B
1. The sun's rays are direct at equator	arctic circle and antarctic circle.
2. Frigid zones lie in	are very humid.
3. Places near the sea	is called humidity.
4. Winds blowing from the sea	due to the earth being round.
5. Quantity of water in air	have temperate climate.

Creative Task

1. Watch weather news on TV and find out the maximum and minimum temperature at Delhi, Patna, Kolkata and Amritsar for a week.
2. Find out why Patna or Kanpur is hotter than Kolkata in summers.

Amazing But True

On 15 July, 2007, a 36 year old British youth, Lewis Paugh, crossed the North Pole by swimming in 19 minutes. The temperature of water here is only 1.8°C while its length is slightly over half a mile.