

# Climates

Climate is the average weather of a large region over 30-35 yrs.

## Factors affecting climate:

**Latitude** is the distance from the equator. It is described using angles.

### Equator:

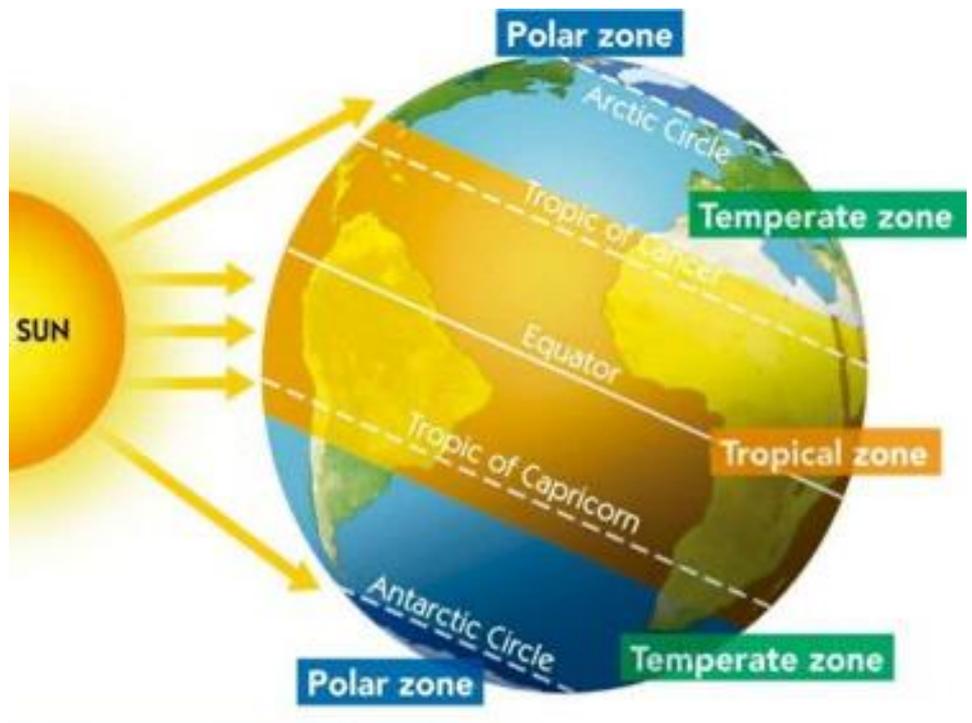
- Places near the equator receive the most heat. This is because the sun shines directly overhead.
- The rays of sun have less distance to travel before they reach the surface, so the temperatures are hotter here. 2.
- Places near the poles receive less heat, as the sun shines at an angle.
- The sun's energy is spread more thinly over a wider area compared to the equator.

### Away from equator:

- Places near the poles receive less heat, as the sun shines at an angle.
- The sun's energy is spread more thinly over a wider area compared to the equator.

### Poles:

- At the poles, the sun's energy has to pass through more atmosphere.
- This means more of its energy is lost before it reaches the surface.



## DISTANCE FROM SEAS AND OCEANS

- Land heats up quickly in the summer.
- Land cools quickly in the winter.
- The sea heats up slowly in the summer.
- The sea cools slowly in the winter.
- This means places near the sea are cooler in the summer, than places inland.
- This means places near the sea are warmer in winter, than places inland.

- Temperature range is the difference between the highest and lowest temperature.  
E.g: Corks temperature range is 8 degrees.

**EXAMPLE:**

❑ Cork and Warsaw should have the same climate because they both lie on the same line of latitude.

❑ However, because Cork is located near the sea (maritime climate), it has a smaller temperature range, 8 degrees.

❑ Warsaw’s (continental climate) temperature range is 23 degrees.

**PREVAILING WINDS**

- The prevailing wind is the most common wind blowing over a region.
- Winds are named after the direction the blow from.
- Ireland’s prevailing wind is south-westerly.
- Large masses of moving air.
- These air masses influence the temperature and precipitation of the area they blow over

<b>Northerly winds:</b>	High latitudes Near the poles Cold Usually dry winds
<b>South- westerly winds:</b>	From over the Atlantic Cool in the summer Warmer in the winter Temperate conditions Warm winds absorb moisture as they pass over the Atlantic, so they bring rain
<b>Easterly wind:</b>	From over Europe Warm in the summer Cold in the winter Usually dry winds Blow over land, so no moisture
<b>Southerly wind:</b>	Lower latitudes (near the equator) Warm Bring precipitation because they cool down and lose moisture when they move from lower to higher latitudes.

## Factors Affecting Local Climate:

### Aspect

- Aspect: The direction in which a slope faces
- South-facing slopes are warmer than north-facing slopes, because the sun rises in the east.
- North-facing slopes also get cold north-easterly winds.

### Altitude

- Altitude is the height of a place above sea level.
- Higher the altitude, colder a place would be.
- The air gets thinner as you go higher, so it is less able to hold heat.
- Areas at high altitude are also windier, so the temperature is even colder. This is called the wind-chill factor.
- You can see the effect of this on vegetation. The tops of some mountains are often too cold to allow plants to grow.

### Seasons

- The earth's axis is tilted at an angle of approximately 23 degrees.

## Natural regions and world climate

A natural region is an area of the world that has its own unique characteristics that make it different to other areas.

These characteristics include:

- Climate
- Natural vegetation
- Wildlife
- Human activities
- Natural vegetation is the cover of plants and trees that grow in an area before it is changed by human interference.

## Hot Climates of the World

□ Most hot climates are found between latitudes 30°N and 30°S. They include hot desert climates, equatorial climates and savanna climates.

Countries	Nigeria, parts of Brazil & Peru and Indonesia.
Temperature	32C
Precipitation	Generally every afternoon because of high humidity, 2000mm
Vegetation	Rain forests, jungles, mahogany, teak, cherry trees
Wildlife	Parrots, snakes, monkeys and butterflies

### **Equatorial Climates**

Countries	Sahara Desert, the Kalahari Desert, the Arabian Desert and the Australian Outback
Temperature	Day: 30C- 50C
Precipitation	250mm- 100mm
Wildlife	Camels, desert fox, rattle, tarantulas, vultures
Vegetation	Cactus, palm, yucca

### **Hot Desert Climates**

Countries	northern parts of Australia, Madagascar, Mali, Venezuela, parts of Brazil
Temperature	25–35°C all year round
Precipitation	very dry with an average annual total of over 800mm
Wildlife	scattered trees and grassland
Vegetation	Herds of cattle, lions, cheetahs and giraffes

### **Savanna Climates**

# Desertification

- Desertification means turning land into desert. It occurs when desert conditions spread into areas that were once fertile.
- The areas most affected by desertification are those at the edge of existing deserts. The Sahel for example, a region at the southern edge of the Sahara Desert.

## Causes of Desertification

1. Climate change
  - Rainfall is unreliable
  - Higher temperatures
  - Severe droughts
  - Rivers dried up
2. Human factors
  - Overgrazing of the land
  - No fertilisers

## Results of Desertification

- Hundreds of thousands of people have died as a result of famine.
- Millions of people were forced to migrate in search of food or aid. Many of these still live in refugee camps.
- Many people moved into urban areas, leading to the growth of slums.
- Millions of animals have died.
- Vast areas of land are now unable to support agriculture.
- Towns and villages have been swallowed up by the advancing sands.

## Solutions to Desertification

- Slow down soil erosion by planting trees as shelter belts.
- Bind the soil particles by planting grasses that are resistant to droughts.
- Dig deeper wells to find water for **irrigation**.
- Introduce new breeds of animals to produce more milk, but with smaller herds.

## Temperate Climates of the World

□ Most temperate climates are found in the mid- latitudes. They include warm temperate oceanic climates and cool temperate oceanic climates.

Countries	Chile, Ireland, Norway, New Zealand and the United Kingdom
Temperature	Summers: 15–17°C Winters: 4–6°C
Precipitation	700 and 2,000mm. The weather is cloudy and changeable
Vegetation	deciduous forests, oak, ash, elm and willow trees

### **Cool temperate oceanic Climates**

Countries	Southwestern California, central Chile, southwest South Africa, southwest and southeast Australia, regions around the Mediterranean Sea, Italy, Spain and Greece
Temperature	Summer average around 30°C and 7–11°C in Winter
Precipitation	400 and 700mm.
Vegetation	Evergreen woodland which include cypress, cedar and olive trees. Overgrazing has damaged the scant vegetation and the soil has been exposed to erosion by sudden downpours of rain.

### **Warm temperate oceanic climates**

## Cold climates of the world

□ The cold climates of the world are found mainly in the northern hemisphere because, apart from Antarctica, there is no matching landmass in the southern hemisphere. They include tundra climates and boreal climates.

Countries	northern Alaska, Canada and Russia as well as Lapland in Finland, Greenland and Iceland
Temperature	Summers (Short and dry): 5°C Winters (Long and cold): -24°C.
Precipitation	250mm
Vegetation	very little vegetation due to the extreme cold. heathers, mosses and lichens.
Wildlife	Snow leopards and polar bears

### **Tundra Climates**

Countries	southern Alaska, central Canada, most of Sweden, Finland and central Russia
Temperature	Summers (short but unlike tundra climates, they are rather mild because they have long hours of daylight): 10-15°C. Winters (long and cold but slightly warmer than tundra climates) -13°C
Precipitation	400mm
Vegetation	evergreen forests called taiga which have coniferous trees
Wildlife	Minks, bears, wolves and eagles

### **Boreal climates**