

CHAPTER

20

Natural Regions of the World

Syllabus

Natural Regions of the World: Location, area, climate, natural vegetation and human adaptation.

Equatorial region, Tropical grasslands, Tropical Deserts, Tropical Monsoon, Mediterranean, Temperate grasslands, Taiga and Tundra.

A **Natural Region** refers to a part of the Earth's surface which has a comparatively high degree of uniformity of structure, surface form and climate within it. Therefore, every natural region is a homogeneous unit in which the climatic conditions, soil, natural vegetation and human activities are uniform. However, slight variations are present within each climatic region, though these variations are more pronounced between different climatic regions. For example, uniformly hot and rainy conditions are prevalent throughout the year in the region on either side of the Equator. However, despite this uniformity, minor variations in temperature and rainfall are found within the Equatorial region. But the conditions are quite different in the adjoining Savanna region which has greater variation in temperature and receives moderate rainfall. Thus, the world is divided into a number of major regions whose physical features, rock structure, soils, climate and resultant products and human activities are similar over large areas.

Climatic Classification of Natural Regions

The basic factor on the basis of which the world is divided into major natural regions is *climate*.

The climate influences soil, flora and fauna and the vegetation of the region. The climatic regions are also named after the vegetation type prevalent there. The vegetation depends not only on the total annual rainfall, but also on its relation to temperature, and on its distribution. In high latitudes evaporation is less than in low latitudes. Hence, less rainfall is needed to keep the subsoil moist than in tropical regions.

Every natural region has a combination of climatic elements different from others. The classification of the combinations of these elements is known as *climatic classification*. Each type has some common characteristics. The climatic zones are based on the following factors:

- (i) The temperature, pressure, winds and humidity conditions so human response under different climatic types is different.
- (ii) Landforms differ in different climatic regions.
- (iii) Climatic conditions influence the weathering of rocks. Hence, soils too vary considerably.
- (iv) Vegetation and wildlife greatly vary from one climate type to another.
- (v) Water run-off in rivers and streams differ considerably.
- (vi) Cropping seasons and methods vary in different climatic conditions.

Human response shows broad relationship with climatic conditions. The relation between climate and human activities is striking in regions where the primary activities like agriculture, animal husbandry and forestry are dominant.

These activities are governed directly by the climatic conditions. For example, each climatic type is suitable for the cultivation of certain crops, as the crops can tolerate some range of temperature and need a certain minimum water supply. Thus, the major natural regions are named after the climate or vegetation type.

Based on the climatic classification, the major natural regions of the world are discussed below.

EQUATORIAL REGION

Location

The Equatorial Region extends between 0-10° north and south of Equator.

Area

It is found in:

- **Asia:** Indonesia, Papua New Guinea, Malaysia, and the southern part of the Philippines.
- **South America:** The coastal lowlands between the Guiana and Brazilian Highlands, Amazon basin and coastal Columbia.
- **Africa:** Zaire basin, and the Guinea coast in West Africa.

Climate

The climate in the Equatorial Region is characterised by heavy rainfall and constant high temperatures throughout the year. This region lies in the Torrid belt. At and near the Equator, the Sun's rays have a high angle of incidence which varies between 66½° and 90° during the year. The days and nights are almost of equal duration throughout the year.

Temperature: The temperature in this region ranges between 25°C and 30°C during the year. The mornings are pleasant and sunny. The temperature then begins to rise. In the afternoon, the sky is overcast with clouds. It prevents heat from being radiated back to the atmosphere. Therefore, temperature at the ground remains high. The nights are cool and the sky remains clear at night.

Rainfall: The Equatorial rainfall is of the convectional type throughout the year. It ranges between 175 to 250 cm. This is due to the vertical rays of the Sun, intense heating of land and radiation of heat into the atmosphere. Some of the mountainous areas like those in Indonesia, and in Africa receive orographic or relief type of rainfall.

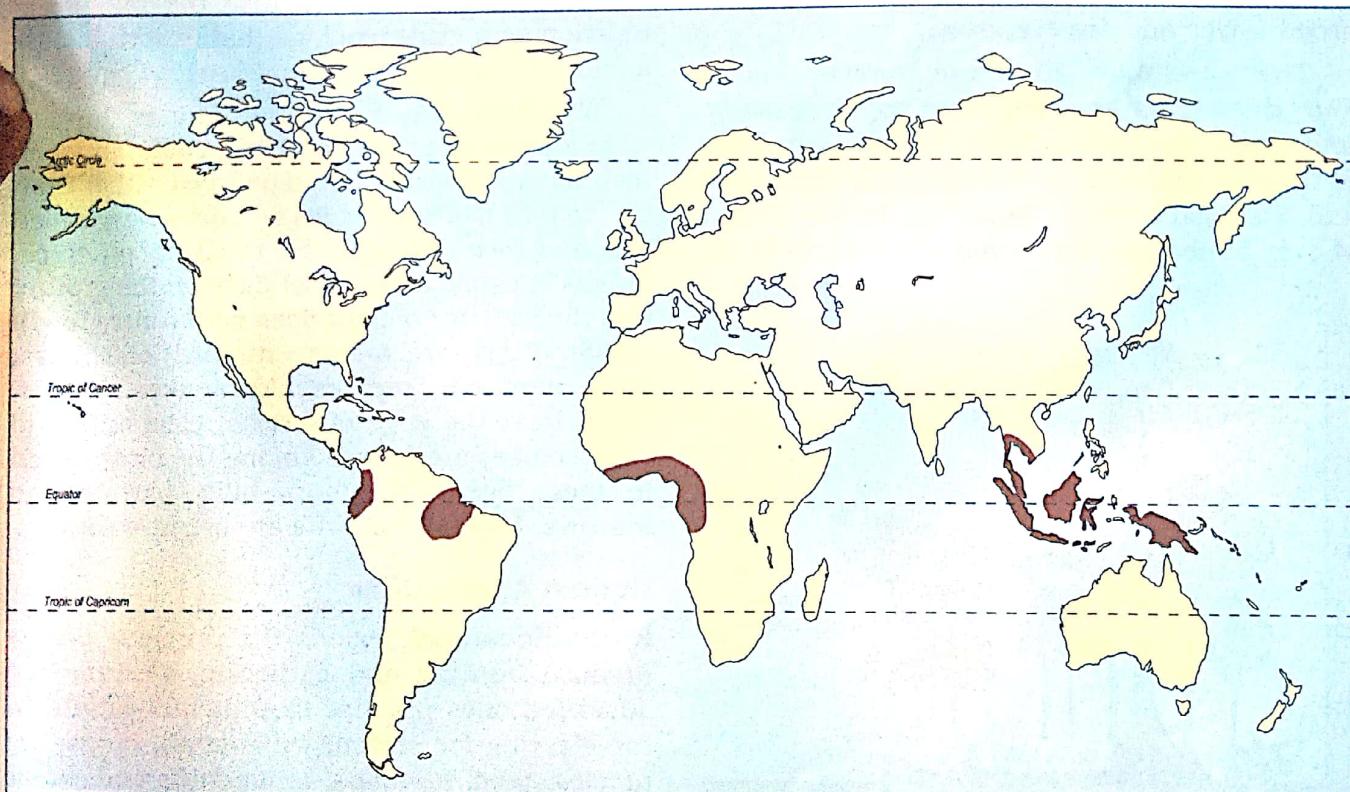


Fig. 20.1. Regions with Equatorial Climate

The temperature and rainfall are also modified by the relief. For example, Mount Kilimanjaro, the highest mountain peak in Africa, despite being close to the Equator, has peaks covered with snow throughout the year. East Africa, because of its high elevation, has considerably lower mean temperature and rainfall.

In the plains, torrential rainfall occurs regularly in the afternoon between 12 noon and 3 p.m. The amount of rainfall decreases with increase in distance from the Equator. Rainfall is maximum at the equinoxes in March and September.

Seasons: There is no winter or a dry season. Due to the small differences in temperature, the region has a hot and wet season throughout the year.

Natural Vegetation

The Equatorial region has a dense forest cover known as *Tropical Rainforest or Selvas* in the Amazon Basin. The rainforests occupy low altitude areas near the Equator in South America especially in the Amazon Lowlands, Central and West Africa, in the Indo-Malay peninsula, and the New Guinea region. These forests are thick and luxuriant. The trees have broad leaves and are evergreen.

The vegetation in these forests shows four distinct layers—*emergent layer, canopy, understorey* and *forest floor*. The *emergent layer* at the edge of the forest has trees like the kapok and mahogany which reach up to the height of over 50 metres. The *canopy* is the top layer,

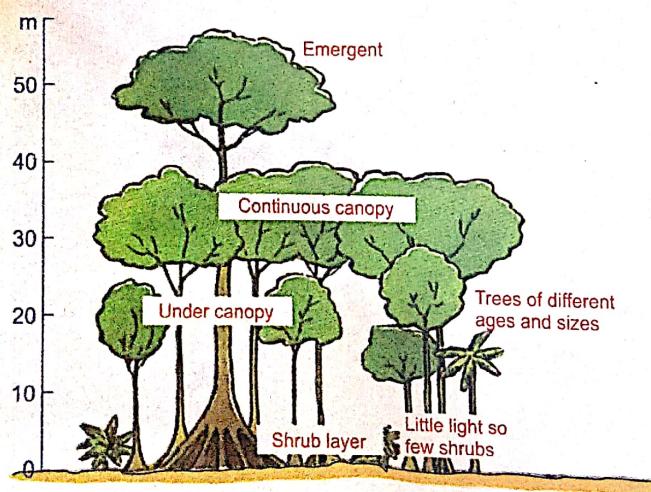


Fig. 20.2. Equatorial Plants



Fig. 20.3. Aerial view of Rainforests in Brazil

formed by the crowns of trees which grow close together. The canopy blocks out sunshine and wind. The next layer is the *understorey*. Since the light is blocked by canopy the plants have larger leaves to maximise the light to be absorbed. The *bottom layer* or the forest floor has ferns and shrubs as well as climbers.

The main trees of rainforests include *ebony, mahogany, cinchona, green heart, rosewood, and rubber*.

The equatorial region because of the presence of the dense Tropical Rainforest is called the 'Lungs of the World'. This is because the rainforests function as a giant machine that absorb a large amount of carbon dioxide and produce oxygen.

Wildlife: The Equatorial forests have a wide variety of animal species. Some animals, including snakes are found on trees rather than on the ground. Such types of animals are called *arboreal* meaning adapted to living on trees. This is because it is almost dark on the ground and the absence of light does not favour growth of life. There are a large number of lemurs, apes, monkeys, reptiles like snakes, lizards, frogs. Near the edge of forests, elephants and rhinoceroses are found. Among the birds found in these forests are horn bills, parrots and macaws. Most of the birds are bright-coloured.

Human Adaptations

In the Equatorial regions the primitive people practise hunting and gathering, whereas the advanced ones practise shifting cultivation. In the clearing for shifting cultivation, crops like *tapioca, yam, bananas, groundnuts and maize* are grown.

Many plantations have been established in the Equatorial regions, especially in Java, Sumatra, Malaysia, West Africa and Central America. The most outstanding of these plantations are *natural rubber* and *cocoa*. Malaysia and Indonesia are the leading producers of natural rubber in the world, accounting for more than a third of the world production. Cocoa is most extensively cultivated in West Africa; Ghana and Nigeria being the important producers.

Other crops grown in the Equatorial regions include *bananas*, *coconuts*, *coffee*, *cinchona*, *sugar*, *spices*, *sago*, *tea*, *tobacco* and *pineapples*.

TROPICAL GRASSLANDS

Location

Tropical Grasslands, also known as *Savannas*, are grassland biome located in semi-arid to semi-humid climate regions of subtropical and tropical latitudes. They lie roughly between 7° to 20° north and south of the Equator.

Area

Savannas of one sort or another cover almost half the surface of Africa (about five million square

miles, generally Central Africa) and large areas of Australia, South America and Central America.

- **South America:** There are two distinct regions of Savanna, north and south of the Equator, namely the *Llanos* of the Orinoco Basin and the *Campos* of the Brazilian Highlands.
- **Africa:** Sudan, Senegal, Chad, Cameroon, Ghana, Guinea, Mali, Niger, Togo, Kenya, Tanzania, Angola, Uganda, Zaire, Zambia, Zimbabwe, Malawi and Mozambique.
- **Australia:** Northern Territory and Queensland.

Climate

Temperature: The climate of the region is characterised by hot, wet summers and cool dry winters. Since the regions lie within the Tropics, there is great heat in summer with 13 to 14 hours of sunshine and low humidity. The average monthly temperature during the dry season lies between 22°C and 37°C. The highest temperature does not coincide with the period of the highest Sun but occurs just before the onset of the rainy season. For instance, the hottest months in Sudan are April and May and

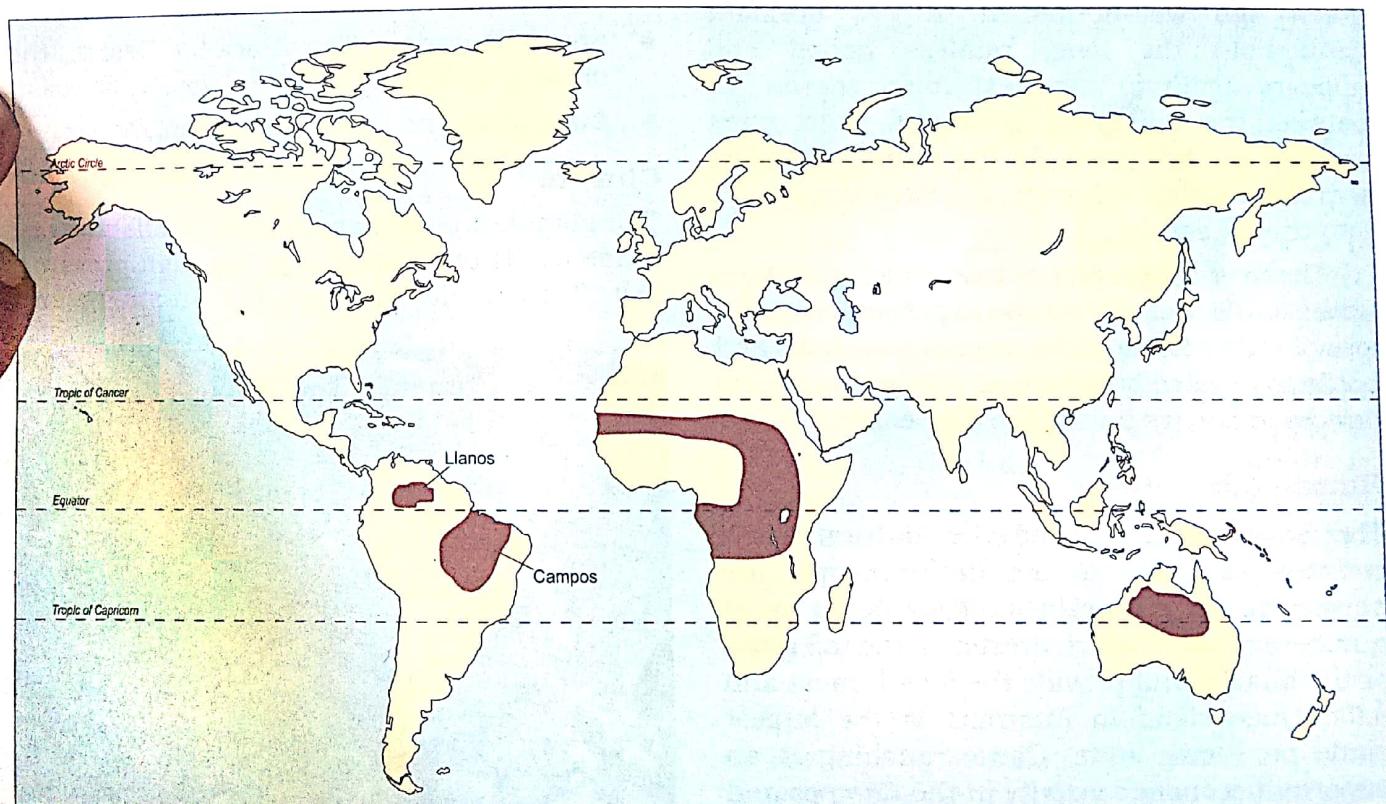


Fig. 20.4. Tropical Grasslands

October in Salisbury (Australia). There occurs a distinct drop in temperature during the rainy season, due to the overcast sky and the cooler atmosphere. Days are hot and during the hot season, noon temperatures of over 38°C are quite frequent. However, when night falls, the clear sky which promotes intense heating during the day also causes rapid radiation in the night. Temperatures drop to well below 10°C.

Rainfall: The annual rainfall is less than that of the Tropical Monsoon climate and the length of the wet and dry seasons also differs from area to area.

Seasons: In the northern hemisphere, the hot, rainy season begins in May and lasts till September. The rest of the year is cool and dry. In the southern hemisphere, the rainy season is from October to March.

Natural Vegetation

The Savanna landscape is characterised by tall grasses and short trees. The grass is coarse and grows to the height of 3 to 6 feet at maturity. It has long roots which go deep down in search of water.

During the rainy season, the grass appears green and well-nourished. It lies dormant throughout the long, rainless period and appears again in the next rainy season. In between the tall grass, scattered short trees and low bushes grow. As the rainfall becomes scarce towards the deserts, the Savanna merges into thorny scrub.

The trees are deciduous trees which shed their leaves in the cool, dry season to prevent excessive loss of water. Some of the trees like baobabs and bottle trees have broad trunk with water-storing devices to survive during the dry season.

Human Adaptations

The Savannas are called the 'natural cattle country' as many of the native people are herdsmen or pastoralists. They keep large numbers of cattle which are fed on the tall grass or the bushes and provide them with meat and milk. Queensland in Australia is the largest cattle producing state. Cattle ranching is an important economic activity in the *Campos* and *Llanos* grasslands of South America.

The Savannas have immense potential for plantation agriculture like cotton, cane sugar, coffee, oil palm, groundnuts and tropical fruits. This is because of 30 inches of annual rainfall and lack of severe cold. In West Africa, the main crops are groundnuts, oil, palm and cocoa. There are large plantations of sugarcane, cotton and tobacco.

TROPICAL DESERTS

Location

Between 15° to 30° North and South Latitudes are the Tropical Deserts and are so known because this latitude zone mostly falls in the tropical zone. They lie to the west of the landmass.

Area

- **Africa:** The Sahara desert (the largest in the world) in North Africa, the Kalahari desert in South-West Africa and the Namib desert in Namibia and South-west Angola.
- **Asia:** The Arabian desert and the Thar desert.
- **North America:** The desert extends from Mexico into USA and is called by different names, like *Mohave*, *Sonoran*, *Californian* and *Mexican* Deserts.
- **South America:** The Atacama Desert, the driest of all deserts lies along the Pacific coast.
- **Australia:** The Great Australian Desert.

Climate

This climate type is characterised by offshore dry Trade winds originating from the high pressure belt. Tropical deserts have hot summers and

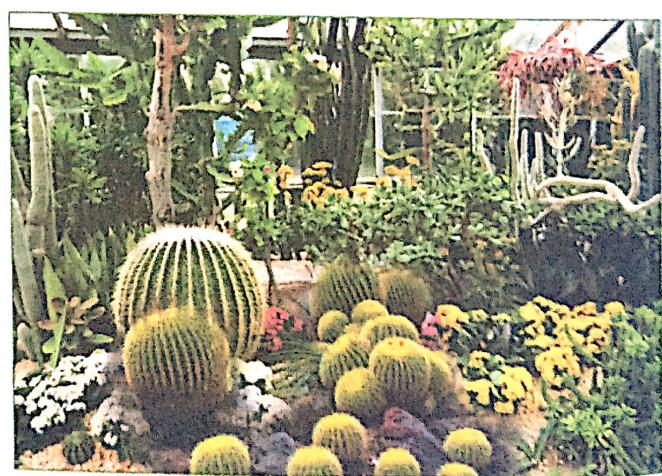


Fig. 20.5. Cactus

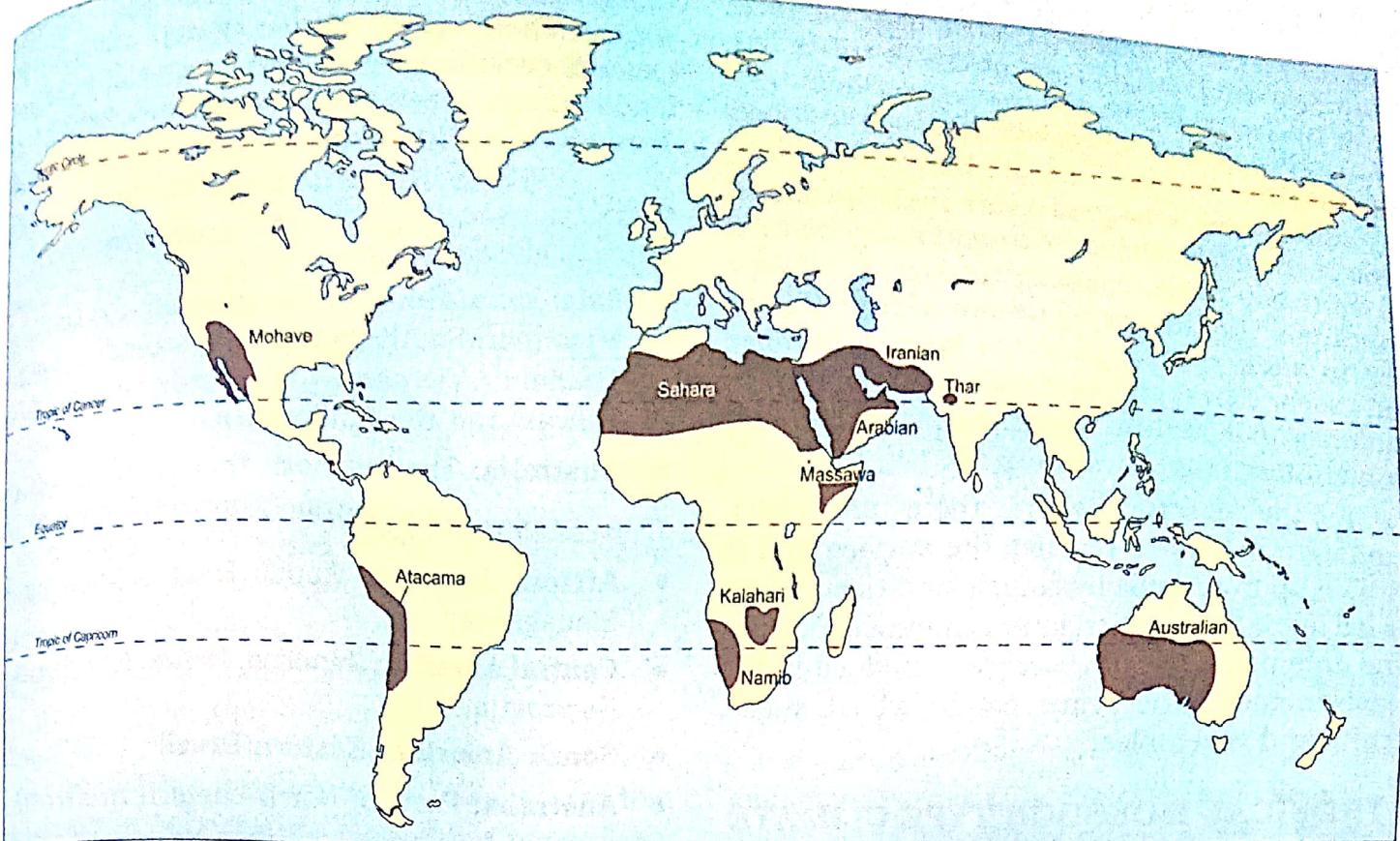


Fig. 20.6. Tropical Desert Regions

cool winters. World's highest temperatures are recorded in these areas.

Temperature: Summer temperatures may range from 30°C to 45°C. Some areas may record a maximum of 58°C temperature during peak summer. The hottest month has a mean temperature of 30°C. Land heats and cools quickly and the absence of vegetation creates extremes of temperature. The winter temperature may be less than 20°C. Sometimes there may be frost at night.

Rainfall: There are a few areas in the deserts with no rainfall at all. Generally hot deserts have less than 25 cm annual rainfall. Since these deserts are located on the western margins of continents, Trade Winds that blow in the region shed their moisture in the eastern margins of continents. They become dry by the time these winds reach the western side. Cold ocean currents help in formation of deserts as they do not cause rain, mist and fog and lower the temperature.

Seasons: In the interior parts there are generally two seasons—winter and summer. In coastal areas, there may be a short rainy season between summer and winter. Hot, dry winds like the *Mistral*, *Bora* and *Sirocco* bring pleasant weather conditions and may affect the seasons.

Natural Vegetation

In this region the rainfall is scanty and dry. Trade Winds do not help to support vegetation cover. At some places thorny shrubs like cactus and prickly pear are found. Plants which are adapted to arid condition are known as *xerophytic plants*. They are almost leafless and store water in their stems. Some plants have leathery leaves, others have thorns and still some have a repugnant smell as a means of protection against animal grazing. Thorny cacti is often cited as a typical desert plant. Near water courses, date palms are found.

Wildlife: Even in this harsh environment, one can find lifeforms like lizards, squirrels, snakes, rats, foxes and mice. To escape heat, burrowing animals dig holes in the ground. Some animals which wander in the desert but live near the edges include jackals, foxes, hyenas and antelopes. People use camels to travel through deserts.

Human Adaptations

In the harsh, inhospitable conditions in the deserts, the inhabitants have to struggle against an environment deficient in water,

food and other means of livelihood. Some of the desert inhabitants are primitive tribes like the Bushmen of the Kalahari and Bindibu of Australia. They are nomadic hunters and food gatherers.

Crops cannot be grown without irrigation in the deserts. The water for irrigation is obtained from rivers, dams, oasis, or through a network of canals. The life-giving waters of river Nile in Egypt allow the Egyptians to raise a number of crops. They cultivate rice and cotton in summer, followed by wheat, barley, beans and other minor crops in winters.

In the deserts, where there are oasis, underground water reaches the surface and is drawn up from wells by camels or mules. Water is led to the fields by irrigation channels. Besides the date palm, the other crops cultivated in the oasis include barley, cane, cotton, wheat, sugar, fruits and vegetables.

TROPICAL MONSOON TYPE CLIMATE

Location

The *Tropical Monsoon* type of climate is found in Southern Asia with onshore wet monsoons in

the summer and offshore dry monsoons in the winter. The *Tropical Marine* type of climate is experienced along the eastern coasts of tropical lands which receive steady rainfall from the *Trade Winds* all the time.

Area

Tropical Monsoon Type

- **Asia:** India, Pakistan, Bangladesh, Sri Lanka, Myanmar, Southern China, Cambodia, Laos, Thailand, Vietnam, the islands of Hainan, Taiwan and the Philippines.

- **Australia:** The northern tip of Australia.

Tropical Marine Type

- **Africa:** Parts of South-East Africa and Madagascar.
- **Central America:** Jamaica, Belize, Honduras, Nicaragua,
- **South America:** Eastern Brazil.
- **Australia:** Parts of North-eastern Australia.

Climate

The *Tropical Monsoon* type of climate is regarded as a sub-region of the tropical and

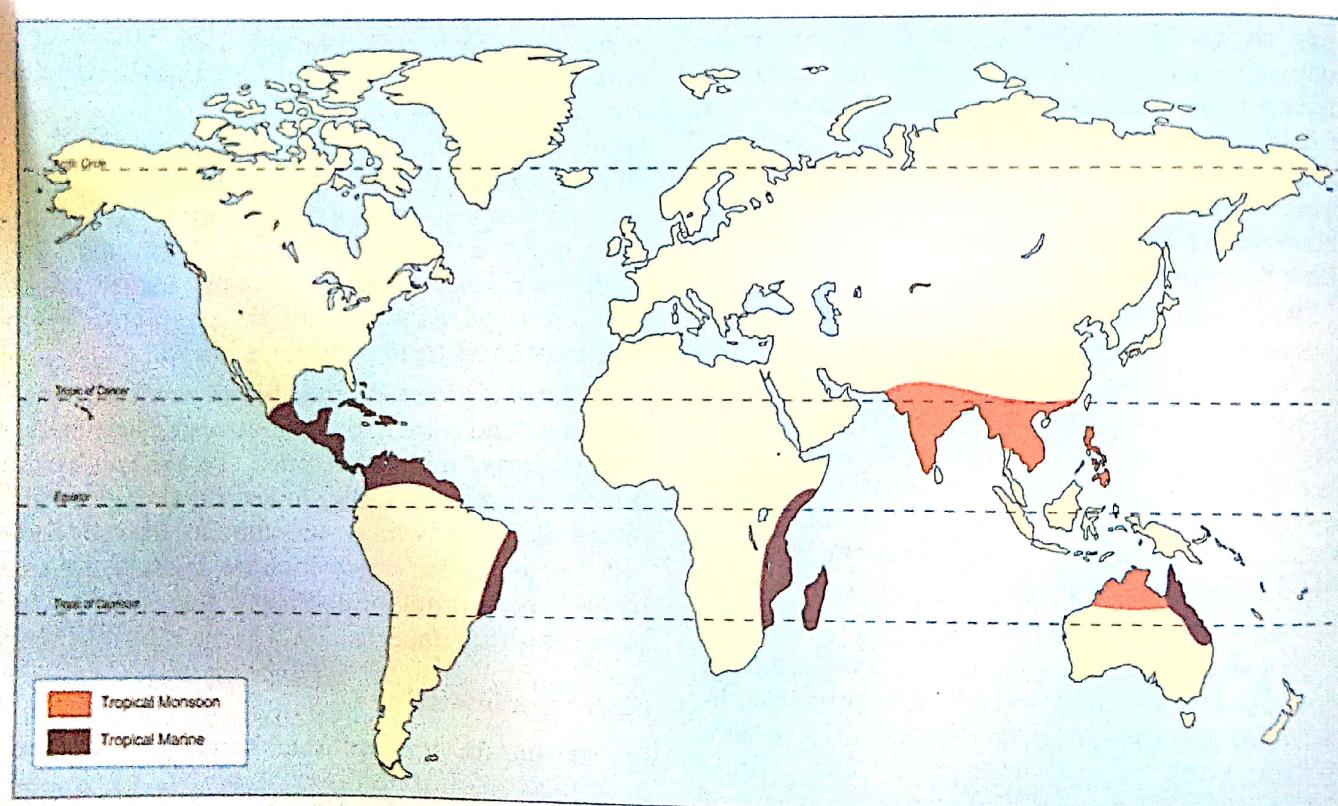


Fig. 20.7. Regions with Tropical Monsoon Type Climate

of sub-tropical humid and dry climatic region. It has hot summers and cool winters with a distinct rainy season. In the areas with *Tropical Marine* type climate, the onshore Trade Winds influence the climate all the year round and lead to more evenly distributed rainfall.

Temperature: The summer temperature varies between 27°C to 30°C in the coastal areas and 35°C to 38°C in the interior. The winter temperature is between 5°C and 18°C in the interior and between 22°C and 25°C in the coastal areas. There are cyclonic disturbances and the monsoon is also not regular. The Monsoon depends on rainfall instead of temperature. At the end of the monsoon, when the seasonal winds begin to withdraw, there are often violent storms.

Rainfall: Summer rain provides a refreshing contrast from the dry conditions in winter. The Trade Winds in winter are offshore winds. They blow from land to sea. In India, due to the Himalayan barrier, they move in the North-East direction. They pick-up moisture over the Bay of Bengal and cause winter rainfall over much of the Coromandel coast. Many other factors, like cyclones in winter, influence rainfall. The rainfall, therefore, is not uniform in this region. The annual amount of rainfall varies from 75 to 200 cms. Cherrapunji in Meghalaya receives over 1200 cm rainfall. Mawsynram near Cherrapunji has recorded heaviest rain in the world. In the areas with *Tropical Marine* type of climate, rainfall is caused by the Trade Winds and also due to intense heating during the day in summer.

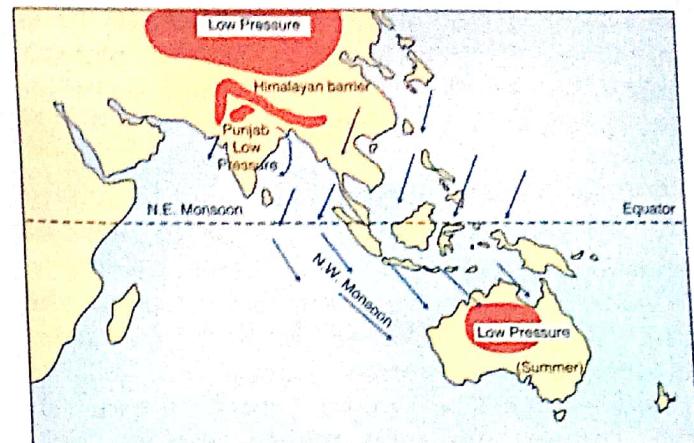


Fig. 20.9. Winter North-East Monsoon Winds

Seasons: In regions like the Indian sub-continent which have a true Tropical Monsoon Climate, three distinct seasons can be distinguished— (i) The hot dry season from March to May; (ii) The rainy season from June to September; and (iii) The cool, dry season from October to February. The main cause for seasonal climate is the differential rate of heating of land and sea. In the areas with *Tropical Marine* type of climate there are two main seasons the wet season and the dry season. The wettest months are January, February, March and April. There is no month without rainfall.

Natural Vegetation

This region is characterised by a wide variety of vegetation types. Many of the islands and coastal areas have *Tropical Evergreen Rainforests*. This vegetation type differs marginally from the Equatorial Rainforest vegetation. The trees are tall above 60 metres in height. During the summer rains, there is a luxuriant growth of climbers, epiphytes, ferns and bamboos. Common species of trees include *rosewood*, *ebony*, *sisam* and *bamboo*. Some of the trees have broad leaves to give out excess moisture and to receive more sunlight. Islands in the Indian Ocean, the slopes of the Western Ghats, western parts of Maharashtra, Kerala and Tamil Nadu in India have forests.

Areas where rainfall is not experienced throughout the year have a marked dry season and here, *Tropical Monsoon Deciduous Forests* are found. During the dry period, these trees shed their leaves for 6 to 8 weeks to preserve moisture. *Teak*, *sal*, *sandalwood* and *mohua*

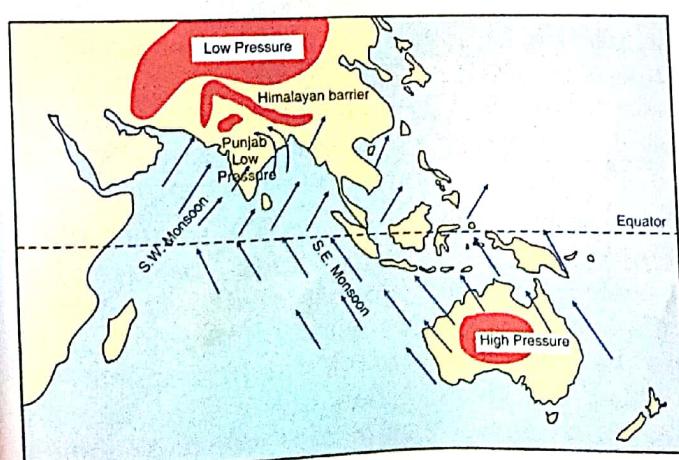


Fig. 20.8. Summer South-West Monsoon Winds

are found in 150–200 cm rainfall areas. These areas include western side of Deccan plateau, North-Eastern Part of Deccan Plateau and some areas in Southern China.

Human Adaptations

Agriculture is the main occupation of the majority of people in the Tropical Monsoon region. Crops are grown on small farms in the plains and terraced hills. Tropical agriculture is dependent on natural rainfall and a large labour force. The major crops grown in the Tropical Monsoon regions include rice, wheat, maize, millet, sorghum, gram and beans. A number of cash crops like sugarcane, cotton, tea and coffee are also grown.

MEDITERRANEAN REGION

Location

The Mediterranean Region is so called because the largest stretch of area here lies along the margins of the Mediterranean Sea. The regions having similarities with the Mediterranean region are located on the western margins of continents in the latitudinal belt

between 30° to 45° North and South latitudes. Therefore, these regions are known by the common name of the Mediterranean region of the world.

Area

- **Europe:** The margins of South Portugal, Bulgaria, France, Greece, Italy, Romania, Serbia and Montenegro (formerly Yugoslavia) and Spain.
- **Asia:** Israel, Lebanon, Syria and parts of coastal Turkey.
- **North America:** The coastal California around San Francisco.
- **South America:** Central Chile.
- **Africa:** The coastal area of Algeria, Morocco, Tunisia, Libya and the region around Cape Town in South Africa.
- **Australia:** South-west area around Perth and southern Australia around Adelaide.

Climate

As the Mediterranean region lies between the Tropical Deserts on the Equatorward side and

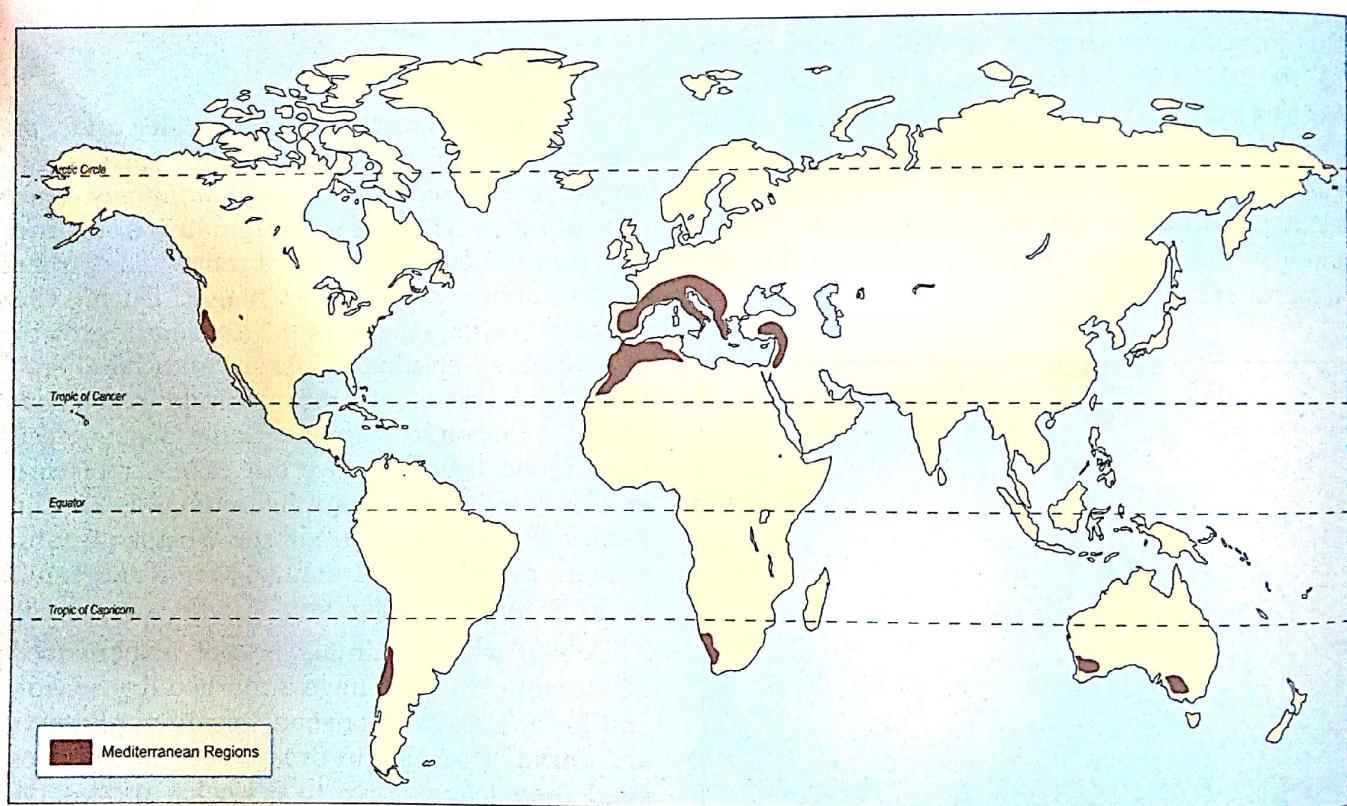


Fig. 20.10. Regions with Mediterranean Climate.

Cool Temperate West Margin region on the Poleward side, it shares the summer drought conditions of the deserts at lower latitudes and rain in winter. Therefore, this climate region is also known *Subtropical Winter Rain Zone* or the *Warm Temperate West Margin Climate*.

Temperature: Mean summer temperatures range between 20°C and 28°C. In the hottest month the temperature may touch a maximum of 30°C. Areas close to the oceans experience a lower temperature. In winter, mean January temperature may be from 6° to 10°C. The temperature at night, in winter, may fall below 0°C, owing to the destruction of forests in the region. In the Mediterranean region, considerable East-West extent of the sea allows the westerly influence of winds to penetrate deep into the Afro-Asian landmass. On account of the local conditions and indented coastline, many local variations of the winds are produced. The *Westerlies* and the *temperate cyclones* travel from west to east and bring rainfall in decreasing order. In addition, cold Polar winds in winter are also sometimes drawn into the circulation of depressions like *Mistral* in the Rhone valley and *Bora* in the northern Adriatic Sea region. They cause great devastation. Southern winds like *Sirocco* in North Africa are hot and dry. These winds are known as *Khamsin* in Egypt. They cause considerable damage to crops. These patterns of weather also occur in Cape Town in Africa, California, Oregon in USA and Central Chile.

Rainfall: The rainfall in the Mediterranean region is experienced mostly in winter. The annual average rainfall varies between 35 cm to 75 cm. Rainfall is more on the Poleward sides of the region. The effect of this moderate rainfall is marked. The pleasant climate and bright sunny weather, specially in winter, is most favoured by tourists who flock in great numbers to the region.

Seasons: The deciduous type of vegetation and abundance of flowering plants indicate that there are four climate seasons—Winter, Spring, Summer and Autumn (or Fall). The Mediterranean climate is well-defined; so the seasons are also well defined. The unique quality of winter rain allows plants to adjust their growth with seasons. In spring, plants



Fig. 20.11. Hemlock Mediterranean Landscape

flower, in autumn the leaves fall almost in a rhythmic order.

Natural Vegetation

The vegetation here is of deciduous type. It is adapted to withstand a long period of summer drought. So the trees in this region have long roots and thick barks to retain moisture in the dry summer months. Short stature, moisture retentive trees grow here especially citrus fruits. Conditions favourable for vegetation are — higher intensity of light, moderate amount of precipitation and longer growing season. The dominant trees in the Mediterranean region of Europe include *oak*, *laurel*, *cork*, *oleander*, *beech* and *ash*. All these are evergreen trees. Olive is the most common tree. Eucalyptus, introduced from Australia, is also now commonly found. In Europe, most of the natural vegetation has been replaced by cultivated plants like orange, lemon and laurel.

The North American Mediterranean region is still rich in flora. There are more dominant species of the *chestnut*, *maple* and *hemlock*. The forests of California are famous for the *redwood trees*. There are also a large number of undergrowth plants such as the blue bell.

Towards the Polar regions and in highlands, coniferous evergreen trees are found. Cedar, pine, fir and cypress are the common varieties.

The climatic conditions in the Mediterranean region favour growth of bushes instead of grasses on the outer edge of forests. Most of the bushes are sweet smelling and scattered in clumps. Common species of bushes are lavender, rosemary, myrtle, and laurel.

Human Adaptations

Due to warm, bright summers and cool, moist winters a wide variety of crops are cultivated in the Mediterranean Region. This region is particularly famous for orchard farming where a wide variety of citrus fruits like oranges, limes, lemons and grapefruit are grown. In fact, the Mediterranean regions accounts for 70 per cent of the world's export of citrus fruits. Besides citrus fruits, the other important fruits cultivated in the Mediterranean region are olives, grapes, walnuts, hazelnuts and almonds.

The other crops grown in the Mediterranean regions include wheat, barley, rice, cotton and tobacco.

TEMPERATE GRASSLANDS

The continental or the Steppe-Prairie type of climatic region is under the influence of the circulation of the Westerly Wind Belt for most of the year.

Location

The Temperate grasslands occupy the interior of the continents in the mid-latitude zone of

40° to 55° North and South. These grasslands occupy vast areas in the Northern Hemisphere where their east-west extension is broader. In the Southern Hemisphere, the grasslands are small in extent.

Area

- **Europe:** A narrow belt lying to the north of Black Sea and Caspian Sea and a small area in Hungarian plains known as the *Puszta*.
- **Asia:** Manchurian plains, Northwest China and Western Siberia.
- **North America:** A part of USA and Canada situated between the Great Lakes and the Rockies known as the *Prairies*.
- **South America:** In parts of Argentina and Uruguay known as the *Pampas*.
- **South Africa:** The grasslands are situated on the plateau which is on the leeward side of Drakensberg Mountains known as *Velds*.
- **Australia:** The grasslands are known as *Downs* in the Murray-Darling basin.

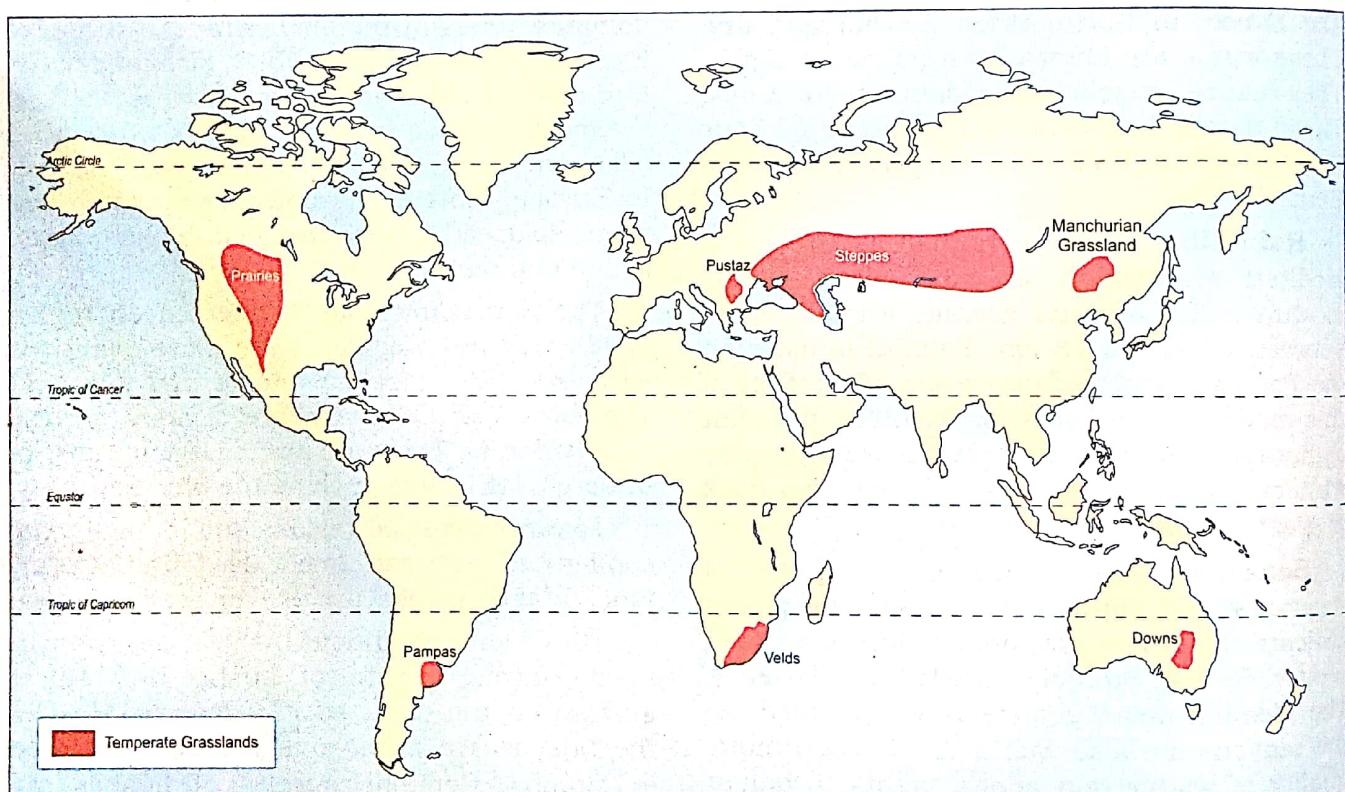


Fig. 20.12. Temperate Grasslands

Climate

Temperature: Summer temperature varies between 15°C to 25°C and is influenced by several factors. In the hottest month the maximum temperature during the day time may exceed 30°C. One may contrast the temperature pattern of the cool temperate *continental* with that of the cool temperate *oceanic*, or Calgary in Canada with Osaka in Japan.

Temperature of the hottest month, Calgary (July) = 16.4°C

Temperature of the hottest month Osaka, Japan (Aug.) = 27.6°C.

Temperature of the coldest month Calgary (January) = -10.0°C

Temperature of the coldest month Osaka, Japan (January) = 4.4°C

It is not the annual range or the diurnal range that matters but the greatest variety of weather characteristic of temperate latitudes. This rarely happens in tropical and subtropical zones.

From the above example it is seen that in winter, temperature in the continental region goes considerably below 0°C. In the continental or oceanic region, duration of sunshine in summer is only a few hours. The annual range of temperature varies between 18°C to 26°C (as in the case of Calgary). In the Southern

Table: Temperate grasslands are known by different names in different continents.

Continents	Name of Grassland
1. Euro-Asia	Steppes
2. Hungary	Puszta
3. Africa	Velds
4. North America	Prairies
5. South America	Pampas
6. Australia	Downs

Hemisphere winters are less severe owing to the moderating effect of oceans.

Rainfall: There are variations in rainfall owing to the influence of Westerly winds in the Northern Hemisphere and, ocean currents and maritime influence play a major role in Southern Hemisphere. There are great variations in rainfall. It varies between as low as 20 cm to 60 cm. The rainfall is convectional type accompanied by lightning and thunder. In the Calgary region of Canada where January temperature is -10°C, rain with melting snow is experienced in winter. In North America, local winds like *Chinook* bring about a sudden increase in temperature for a few days. The snow cover thus melts away.



Fig. 20.13. Prairie Landscape

Natural Vegetation

On account of low rainfall, both coarse and tall grass as well as short and soft grass is the characteristic vegetation of the continental Steppe climate type.

The Temperate grasslands or Steppes differ from the Tropical Savannas in the sense that they are practically treeless and the grasses are much shorter. This is because of scanty rainfall, long droughts and severe winters.

The herbivorous animals who feed on grass are found in large numbers. Common herbivores include bison in the North American prairie. Other animals include antelopes, wild asses and horses. The Kangaroo is found in Australian grasslands. The carnivores are mostly rodents and reptiles.

Human Adaptations

The Temperate grasslands are known as the '*granaries of the world*'. They are ideal for extensive wheat cultivation and produce the greatest quantity of wheat per capita amongst the world's wheat-growing nations where

irrigation is available. Cotton and maize are also grown.

THE TAIGA REGION

The Taiga region is also known as the *Cool Temperate Continental type* or *Siberian Type*.

Location

This region lies between 55° and 70° in the Northern Hemisphere. Towards the poles, it merges into the Arctic Tundra of Canada and Eurasia at around the Arctic Circle.

Due to the strong oceanic influence, the severity of the winter and coniferous forest are found only on the mountainous uplands of southern Chile, New Zealand, Tasmania and south-east Australia.

Area

- Europe:** Finland, northern part of Russia, Sweden and parts of Norway.
- North America:** Southern Canada, southern Alaska.
- Asia:** Northern Siberia, Sakhalin islands.

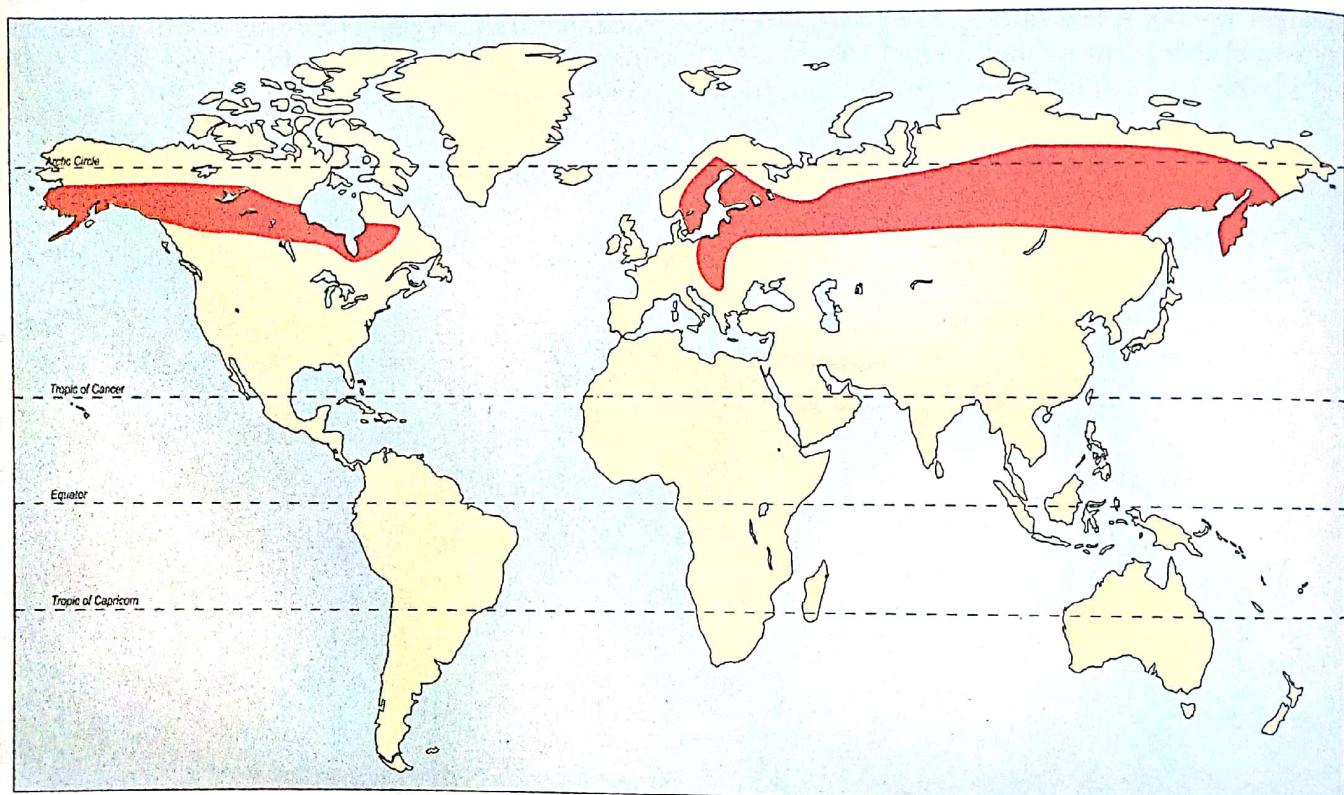


Fig. 20.14. Taiga Region

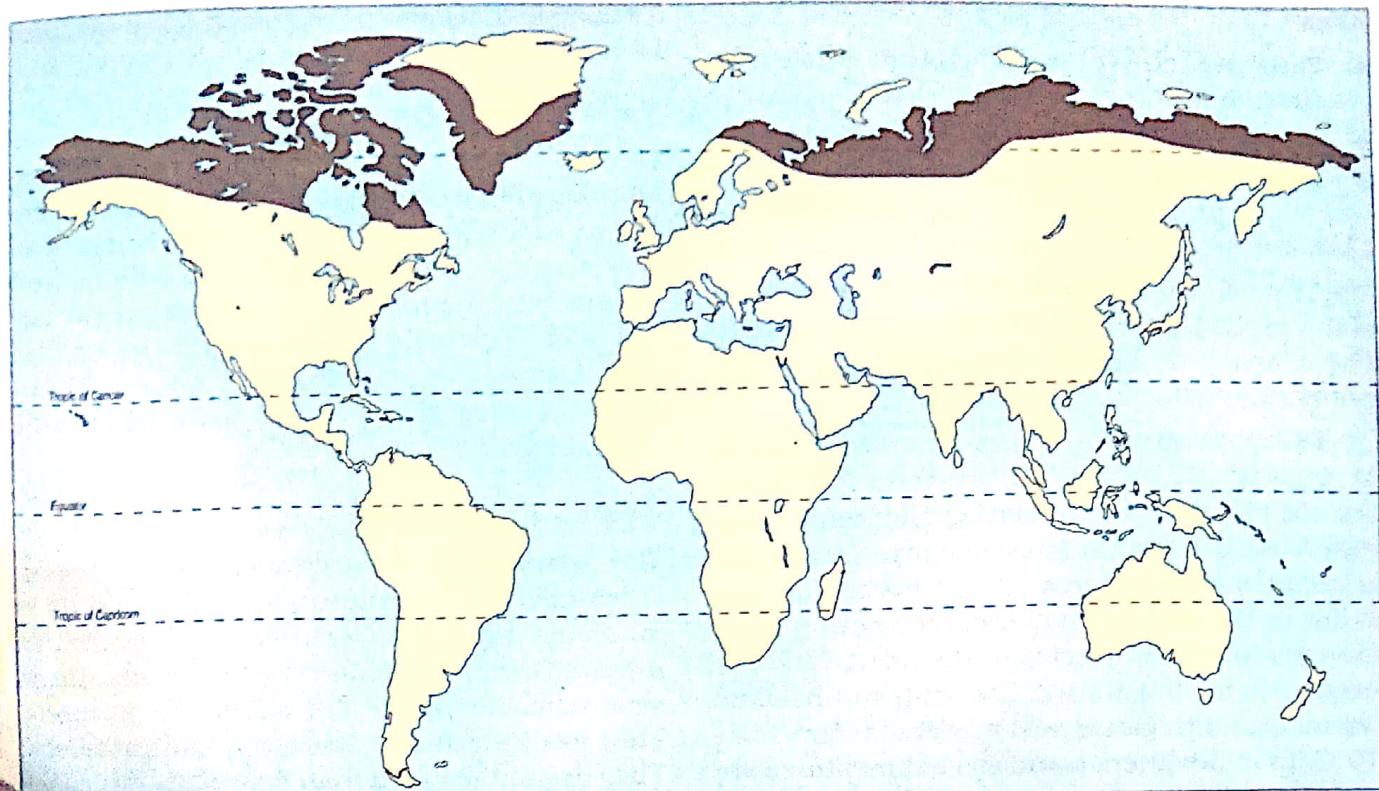


Fig. 20.15. Tundra Region

Climate

The Siberian type of climate is experienced only in the Northern Hemisphere. This is because of the narrowness of the southern continents in the high latitudes.

Temperature: The Siberian type of climate is marked by severe winters of long duration and a cool brief summer lasting only 3 to 4 months. Heavy snowfall occurs during the winter. Frost occurs as early as August; and by September, lakes and ponds become frozen.

Rainfall: The rainfall varies from 25 to 100 cm. It is well distributed throughout the year, with a maximum in summer. In winter, the precipitation is in the form of snow, as mean temperatures are well below freezing point. Cold polar anticyclones called the *Blizzards* in Canada and *Burans* in Europe and Asia blow away vast masses of snow and spread it over large areas.

Natural Vegetation

The main vegetation of the Siberian type of climate includes *evergreen coniferous forests*. These forests are found in a continuous belt across North America, Europe and Asia. The

coniferous forests of Eurasia and North America are the richest sources of softwood which is used in furniture making, building construction, paper and pulp industries. The major trees of the coniferous forests are *pine, fir, spruce, cedar* and *hemlock*.

Human Adaptations

The Taiga region is sparsely populated. Here farming does not constitute an important economic activity as the land remains covered with snow during the long, cold winter season. Only in the sheltered valley and the lands bordering the Steppes some crops like barley, oats, rye, potatoes and beetroots are grown.

THE TUNDRA

The Tundra type of climate is also known as the *Arctic or Polar Type*. In fact, Tundra is the name of vegetation type characteristic of the region. The word 'Tundra' has been derived from a Russian word which means a flat treeless plain.

Location

This region lies roughly beyond 65° North on the northern side of the Taiga region.

Area

- **Europe:** Greenland, Iceland, Northern Scandinavia.
- **North America:** Northern Canada, Alaska.
- **Asia:** Siberia.

Climate

The Tundra type of climate is found mainly north of the Arctic Circle in the Northern Hemisphere. The climate is characterised by long-severe winters and cool, brief summers.

Temperature: The region is marked by weeks of continuous darkness. At the North Pole, there are six months without daylight in winter. The region has low annual range of temperature. This is because temperatures remain low as the Sun is low in the sky and much of the warmth of its faint rays is either reflected by the ground snow or used up in melting the ice. The temperature in the warmest month (June) seldom rises to more than 10°C. In mid-winters (January) temperatures are as low as -37°C.

Rainfall: Due to low rate of evaporation and lack of moisture in the air, no convectional rainfall occurs. It is cyclonic in form. Most of the rain falls in summer. In coastal areas, where cyclones are strongly felt, most of the rain falls in winter. Here it exceeds the normal limit of

12 inches. In winter, precipitation takes the form of snow which does not melt due to severe cold.

Natural Vegetation

Due to extremely harsh climatic conditions, only few plants can survive in the Tundra. There are no trees in the Tundra region because of very short growing season of three months and the warmest month having 10°C temperature. The most common type of natural vegetation includes mosses, lichens and sedges. Some hardy grasses grow in the more favourable coastal lowlands.

Human Adaptations

The permanently snow-covered Tundra region is too cold for the cultivation of any crop. It is inhabited by a few semi-nomadic people. In Alaska, Greenland and northern Canada, these semi-nomadic people are called the *Eskimos*. They live as hunters, fishermen and gatherers. They derive their food from fish, seals, walruses and polar bears. They hunt reindeer and other animals which provide them with milk, meat, fat, skins and bones. They also rear fur-bearing animals on a commercial scale.

However, in the southern part of the Tundra region, new variety of wheat which has short maturing period is being cultivated.

EXERCISES

I. Choose the correct option:

1. A part of Earth's surface which has a comparatively high degree of uniformity of structure, surface form and climate within it:
(a) Earth Region (b) Surface Region (c) Climate Region (d) Natural Region
2. The basic factor on the basis of which the world is divided into major natural regions is:
(a) temperature (b) area (c) water (d) climate
3. In different natural regions human activities differs when there is dominance of:
(a) agriculture (b) animal husbandry (c) forestry (d) all of the above.
4. Which of the following is true for the Equatorial region?
(a) Temperature ranges from 25°C to 30°C
(b) Rainfall is orographic
(c) Crops like cotton are cultivated
(d) It lies in the temperate zone.
5. Equatorial forests : Broad-leaved evergreen trees :: _____ : deciduous trees
(a) Tropical grasslands (b) Tropical monsoon forests
(c) Mediterranean forests (d) Temperate grasslands

6. The top layer formed by the crowns of trees which grow close together:
 (a) understorey (b) canopy (c) emergent layer (d) forest floor
7. Equatorial Region : Lungs of the World :: _____ : Granaries of the World
 (a) Savannas (b) Pampas (c) Steppes (d) Tundra
8. Which amongst the following is also called the 'natural cattle country'?
 (a) Tropical Deserts (b) Tropical Rainforests
 (c) Tropical Grasslands (d) Mediterranean Region
9. Plants which are adapted to arid condition:
 (a) Arid Plants (b) Adapted Plants
 (c) Xerophytic Plants (d) Xerophytic Plants
10. Which amongst the following is not one of the Tropical Marine Type Area?
 (a) Honduras (b) Thailand (c) Eastern Brazil (d) Jamaica
11. Which amongst the following is the most common tree found in the Mediterranean Region?
 (a) Oak (b) Laurel (c) Cork (d) Olive
12. Steppes : Euro-asia :: Downs : _____
 (a) South America (b) Australia
 (c) Mediterranean region (d) Savannas
13. Which amongst the following is also known as the 'Cool Temperate Continental type' or 'Siberian Type'?
 (a) Taiga Region (b) Mediterranean Region
 (c) Tropical Deserts (d) Temperate Grasslands
14. The Tundra type of climate is also known as the:
 (a) Antarctic Type (b) Polar Type (c) Tundra Type (d) Plain Type
15. In mid-winters (January) temperature in the Tundra is as low as:
 (a) 0 degrees (b) -15 degrees (c) -10 degrees (d) -37 degrees

II. Short Answer Questions

- Define the term 'natural region'.
- Name any four natural regions of the world.
- Briefly state the relationship between climate and human activities.
- State the location of the Equatorial Region.
- What is the latitudinal extent of the Monsoon climate?
- Name the two dominant type of vegetation of the Equatorial region.
- State the location of the Tropical Desert Climate type.
- What are xerophytic plants?
- What local conditions produce variation in the Mediterranean Type of climate?
- State the rainfall pattern in the Mediterranean climate.
- What type of vegetation is found in the Mediterranean region?
- Name six Temperate Grasslands of the world.
- Why there are no trees in the Steppe type climate region?
- Why is the climate in the Mediterranean region so called?

III. Structured Questions

- (a) Explain how is a natural region a homogenous unit.

- (b) State any two common characteristics on which different climate zones are based.
- (c) Give a reason for each of the following:
- There is a uniformly high temperature in the Equatorial region.
 - Though Mt. Kilimanjaro is located close to the Equator, yet its peaks remain covered with snow throughout the year.
 - The Equatorial region is also called the 'Lungs of the World'.
- (d) Discuss briefly the type of natural vegetation found in the Tropical Rainforests.
2. (a) State the location and extent of Tropical Grasslands.
- (b) Name the two distinct regions of 'Savanna' in South America.
- (c) Give a geographical reason for each of the following:
- Deciduous trees shed their leaves in the dry season.
 - The Savannas are called the 'natural cattle country'.
 - Tropical grasslands have great potential for the cultivation of plantation crops.
- (d) Give a brief account of rainforests together with their location and types of trees.
3. (a) State the location of Tropical deserts. Name the two primitive tribes which inhabit the Tropical Deserts.
- (b) Describe briefly the Tropical Monsoon type of climate.
- (c) Give a reason for each of the following:
- In the Tropical Desert climate region, Trade Winds are dry.
 - In the Indian subcontinent, there are three distinct seasons.
 - Agriculture is the chief occupation in the monsoon region.
- (d) State the chief characteristics of the Mediterranean type of climate.
4. (a) How are the Temperate Grasslands different from the Tropical Savannas?
- (b) State the locational extent of the Taiga and Tundra region.
- (c) Give a geographical reason for each of the following:
- In the Mediterranean region of Europe, winds blow deep inside the land.
 - The Taiga region is sparsely populated.
 - There are no trees in the Tundra Region.
- (d) What type of climate is found in the north-western part of Europe? State briefly the human response to this type of climate.

IV. Thinking Skills

- What do you think is the advantage of dividing the world into natural regions? Give reasons to support your answer.
- In which natural region of the world is India located? Which characteristic features of this type of natural region are found in India?

V. Map Work/Project Work

On an outline map of the world, show the Monsoon, and Tropical Hot Desert climate. Shade and label the map.



