



Climatic Regions of World: Part-III

For Prelims: British type climate, Siberian climate, Laurentian, Arctic or Polar Climate, Distribution, [Temperature](#), [Precipitation](#), [Natural Vegetation](#), Economy of different climatic regions of the world.

For Mains: Distribution, Significance, and Impacts of different climatic regions of the world.

The Cool Temperate Western Margin (British Type) Climate

▪ Distribution

◦ Europe

- It is most pronounced in and **around** [Britain](#).
- Climatic belt stretches far inland into the lowlands of North-West Europe (northern and western France, Belgium, the Netherlands, Denmark, western Norway and also north-western Iberia).

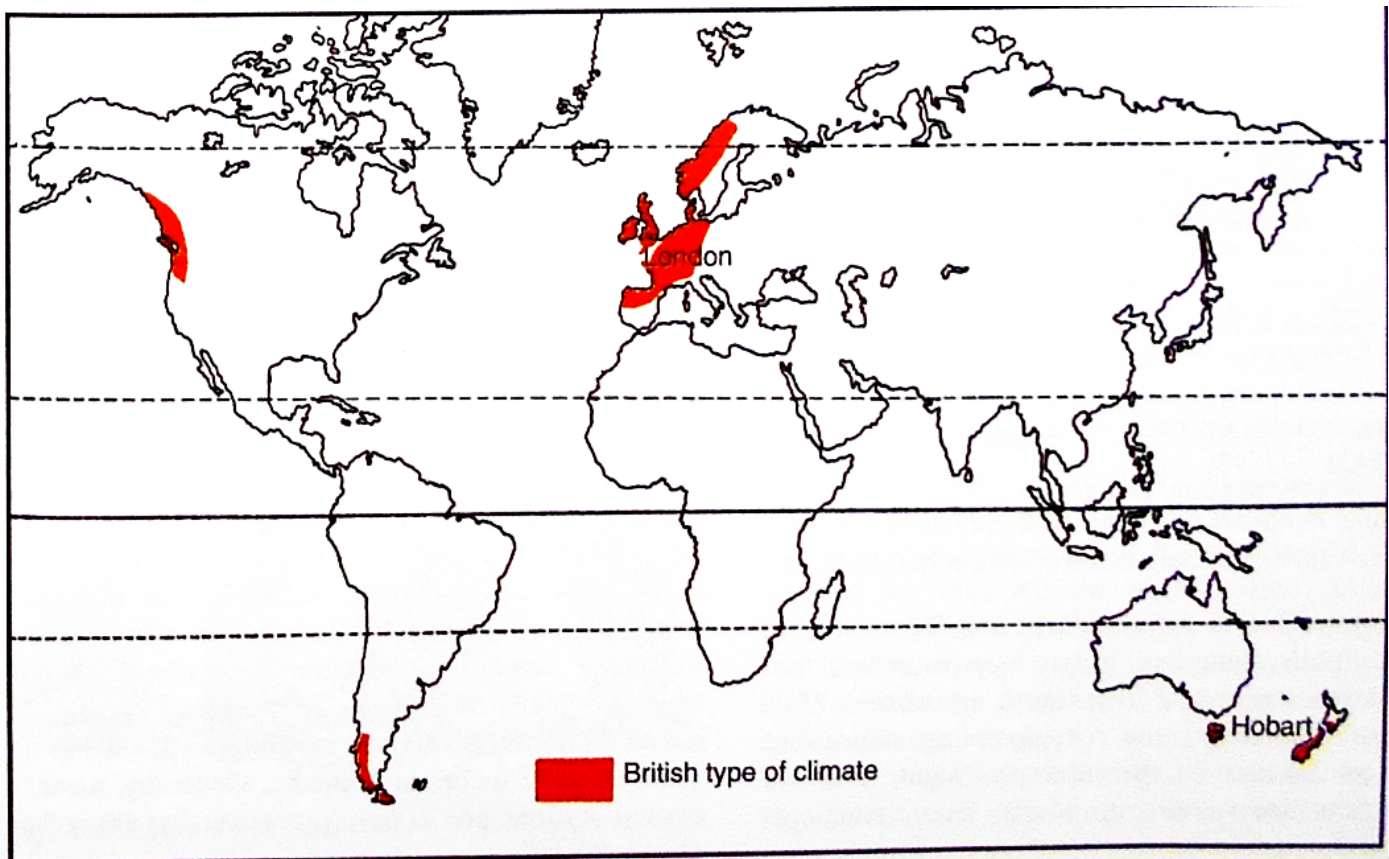
◦ North America

- It is confined mainly to the coastlands of **British Columbia**. High [Rockies](#) prevent the on-shore [Westerlies](#) from penetrating far inland.

◦ Southern Hemisphere

- The [climate](#) is experienced in southern Chile, Southern Australia, Tasmania and most parts of New Zealand.

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▪ Distinct features

- The **Westerlies** have a constant influence on the **cool temperate western margins** throughout the year.
- They are also regions with a lot of **cyclonic activity**, which is typical of Britain, so they are said to have a **British type of climate**.
- **Rainfall** is common throughout the year.
- They experience **cool, rainy winters and warm, rainy summers**.
- The **weather** is also extremely **unpredictable**.
- This climate is also called **Cool Temperate Western Margin Climate** or **North-West European Maritime Climate**.

▪ Temperature

- The mean annual temperatures are usually between **5° C and 15° C**.
- Winters are **abnormally mild**. This is because of the warming effect brought by the **warm North Atlantic Drift**.
- Sometimes, unusual cold spells are caused by the invasion of **cold polar continental air (Polar Vortex)** from the interiors.

▪ Precipitation

- The British type of climate has adequate rainfall throughout the year with a tendency towards a **slight winter maximum** (due to frontal cyclones).
- Western margins have the heaviest rainfall due to **westerlies**.
- Relief can make great differences in the annual amount. This is particularly significant in New Zealand where the western margins are subjected to heavy **orographic rainfall** whereas the eastern Canterbury plains receive comparatively less rainfall due to **rain-shadow effect**.

▪ Seasons

- As in other temperate regions there are **four distinct seasons**.
- Winter is the season of **cloudy skies, foggy and misty mornings**, and many rainy days from the passing depressions.
- Spring is the driest and the **most refreshing** season when people emerge from the depressing winter to see everything becoming green again.
- This is followed by the long, sunny summer.

- Next is the autumn with the roar of **gusty winds**; and the cycle repeats itself.
- This type of climate with its four distinct seasons is something that is conspicuously absent in the tropics.

▪ **Natural Vegetation**

- The natural vegetation of this climatic type is **deciduous forest**.
- The trees shed their leaves in the cold season (to protect themselves against the winter snow and frost).
- Shedding begins in **autumn, the 'fall' season**.
- Some of the common species include **oak, elm, ash, birch, beech, and poplar**.
- In the wetter areas grow **willows** (Light weight cricket bats are made from willows. In **India** willows are found in **Kashmir**).
- Higher up the **mountains**, the deciduous trees are generally replaced by the conifers which can survive a higher altitude, a lower temperature and poorer soils.

▪ **Economy**

◦ **Lumbering**

- Unlike the **equatorial forests**, the deciduous trees occur in **pure stands** and have greater lumbering value.
- The deciduous **hardwoods** are excellent for both **fuel and industrial purposes**.
- In Tasmania, the **temperate eucalypts** are also extensively felled for the lumbering industry.
- Higher up the mountains, **conifers (softwood)** are felled and transported to **paper and pulp industry**. They are extensively used in **cardboard making**.

◦ **Industrialization**

- The regions are **highly industrialized** with a high standard of living.
- **Ruhr region** in Germany, **Yorkshire, Manchester and Liverpool** regions in Britain are significant for wide ranging manufacturing industries.
- **Automobile industry** is the most significant. (BMW, Volkswagen, Audi, Mercedes-Benz and many other world leading car manufacturers have their headquarters in Germany).
- Industries based on **dairy products** thrive in Denmark, Netherlands and New Zealand.
- Tasmania is important for **merino wool production**. Wool produced here is exported to textile factories in England, Japan, China etc..

◦ **Agriculture**

- A wide variety of **grains, fruits, and root crops** are grown, primarily for domestic use rather than export.
- **North-West Europe**, which has some of the world's most densely populated areas, has little excess to export. Indeed, it is a **net importer of food crops**, particularly wheat.

◦ **Mixed farming**

- Farmers in north-western Europe engage in both **arable** (crop cultivation on ploughed ground) and **pastoral** (pastoral) farming (keeping animals on **grass meadows**).
- **Wheat** is the most widely produced cereal, grown nearly completely for domestic use.
- The higher-quality **barley** is sold to breweries for use in **beer production** or **whisky distillation**.
- **Cattle** are the most significant animals raised on a **mixed farm**.
- The **North Sea countries** (Britain, Denmark, and the Netherlands) are among the most sophisticated dairying countries in the world, with cattle reared in a scientific and intense manner.

◦ **Dairying**

- The temperate western margin type of climate is almost ideal for **intensive dairying**.
- Cheese is a specialized product of the **Netherlands**.
- From **Denmark and New Zealand** comes high-quality butter.
- Fresh milk is converted into various forms of **condensed or evaporated milk**, and exported around the world for **baby-feeding, confectionery, ice-cream and chocolate making**.

- **Meat industry**

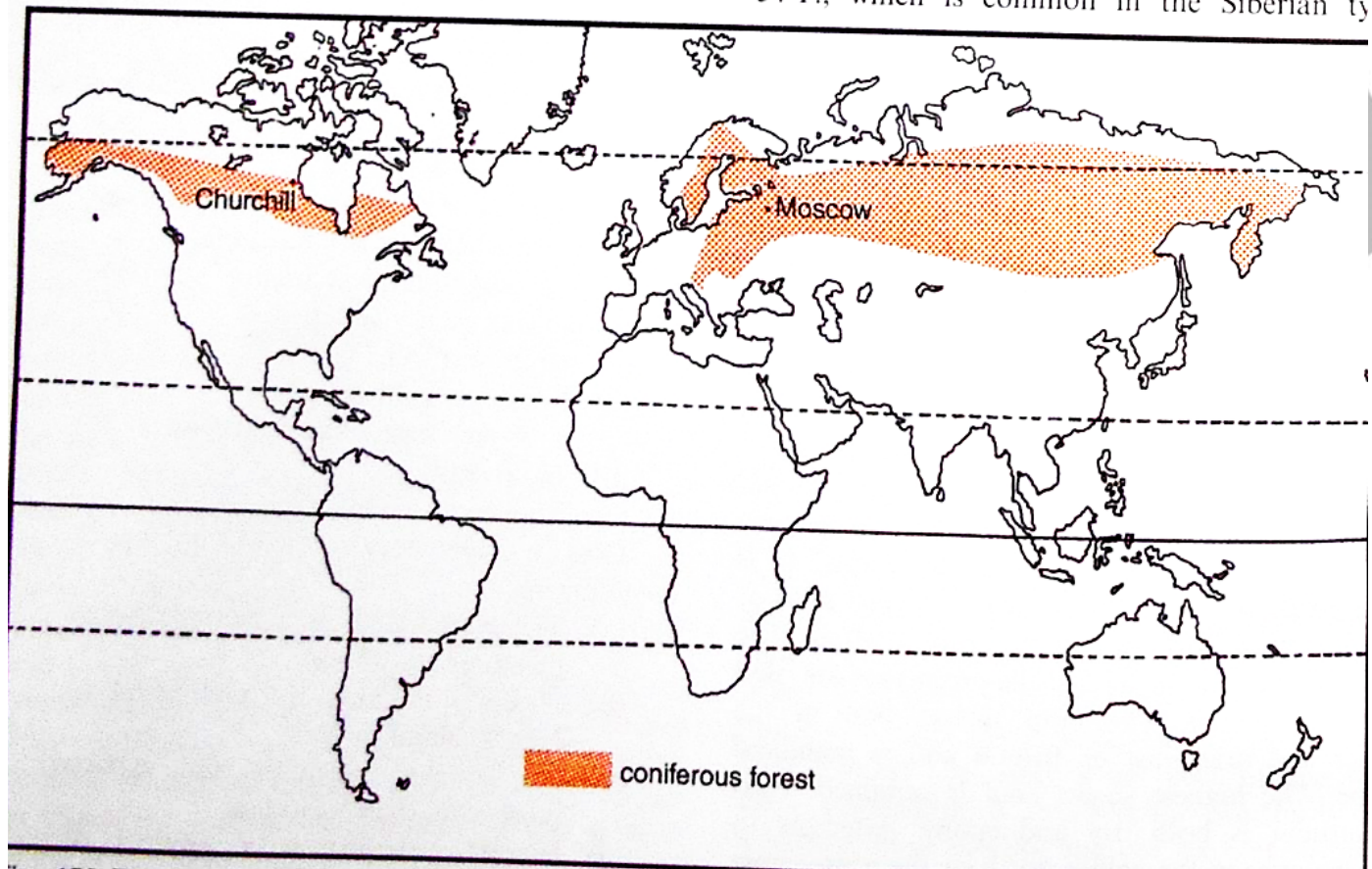
- In **Argentina or Australia**, [meat production](#) is the primary concern.
- The high rate of beef consumption in Europe necessitates large imports of **frozen and chilled beef**.
- The **pigs and poultry** act as scavengers that feed on the left-overs from root-crops and dairy processes.
- In this way, Denmark is able to export large quantities of bacon [cured meat from the back or sides of a pig] from pigs that are fed on the **skimmed milk**, a by-product of butter-making.

The Cool Temperate Continental (Siberian) Climate

- **Distribution**

- It stretches along a continuous belt across **central Canada**, some parts of **Scandinavian Europe** and most of central and **southern Russian**. (50° to 70° N)
- It is found **only in the northern hemisphere** (due to great east-west extent and absent in the southern hemisphere because of the narrowness in the high latitudes).
- It is experienced in the regions just **below the Arctic circle**.
- On its poleward side, it merges into the **Arctic tundra**.
- The climate fades into the temperate Steppe climate.

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- **Temperature**

- **Summers** are brief and warm reaching 20-25 °C whereas **winters** are long and brutally cold – always 30-40 °C below freezing.
- Annual **temperature range** of the Siberian Climate is the greatest (Almost 50-60 °C in Siberia).
- Some of the lowest temperatures in the world are recorded in **Verkhoyansk** (68°N. 113°E) where **-67 °C** was once recorded.
- All over Russia, nearly all the rivers are frozen. In normal years, the **Volga** is ice-covered for about 150 days.

- **Precipitation**

- Typical annual **precipitation** ranges from 38 cm to 63 cm.
- It is quite **well distributed** throughout the year, with a summer maxima [convictional rain in mid-summer – 15 °C to 24 °C]
- In winter the precipitation is in the **form of snow**, as mean temperatures are well below freezing all the time.
- **Natural Vegetation**
 - The predominant vegetation is **evergreen coniferous forest**.
 - The greatest single band of the coniferous forest is the **taiga** (a Russian word for coniferous forest) in Siberia.
 - In Europe the countries that have a similar type of climate and forests are Sweden and Finland.
 - In North America, the belt stretches from **Alaska across Canada into Labrador**.
 - **Softwood trees**
 - The **coniferous forest belts** of Eurasia and North America are the richest sources of **softwood**.
 - **Softwood** is used in building construction, furniture, matches, paper and pulp, rayon and other branches of the chemical industry.
 - The world's greatest softwood producers are **Russia, U.S.A., Canada** and the **Fenoscandian** countries (Finland, Norway and Sweden).
 - **Coniferous forests**
 - **Coniferous forests** are of moderate density and are more uniform. The trees in coniferous forests grow **straight and tall**.
 - Almost all conifers are evergreen. There is **no annual replacement of new leaves** as in deciduous trees.
 - The soils of the coniferous forests are poor. They are **excessively leached and very acidic**. **Humus** content is also low as the evergreen leaves barely fall and the rate of decomposition is slow.
- **Economic Development**
 - **Trapping**
 - In Canada trappers and hunters, armed with automatic rifles, reside in log cabins in the midst of the coniferous forests to track down **fur-bearing animals**.
 - **Muskrat, ermine, mink, and silver fox** are the most important **fur-bearing animals**.
 - **Lumbering**
 - The vast reserves of coniferous forests provide the basis for the **lumbering industry**.
 - **Lumberjacks**: Contract laborers called lumberjacks used to temporarily move to the forest regions to fell the trees. Now the felling is done by machines.
 - **Rivers for transportation**: The soft wood logs easily float on rivers. Hence rivers are used to transport logs to the sawmills located down the stream.
 - **Sawmilling**: Logs are processed in saw mills into timber, plywood, and other constructional woods.
 - **Paper and pulp industry**: Timber is pulped by both chemical and mechanical means to make wood pulp. Wood pulp is the raw material for paper-making and newsprint.
 - **Canada and the U.S.A.** are leading suppliers of newsprint and wood pulp respectively.
 - **As a fuel**: Very little softwood is burnt as fuel as its industrial uses are far more significant.
 - **As an industrial raw material**: In Sweden, matches form a major export item.

The Cool Temperate Eastern Margin (Laurentian)

- **Distribution**
 - It is an **intermediate type** of climate between the British Type Climate (moderate) and the Taiga Type Climate (extreme).
 - It has features of **both the maritime and the continental** climates.
 - The Laurentian type of climate is found **only in two regions** and that too only in the **northern hemisphere**.

- **North American region:** It includes eastern Canada, north-east U.S.A., and Newfoundland.
- **Asiatic region:** It includes eastern Siberia, North China, Manchuria, Korea and northern Japan.

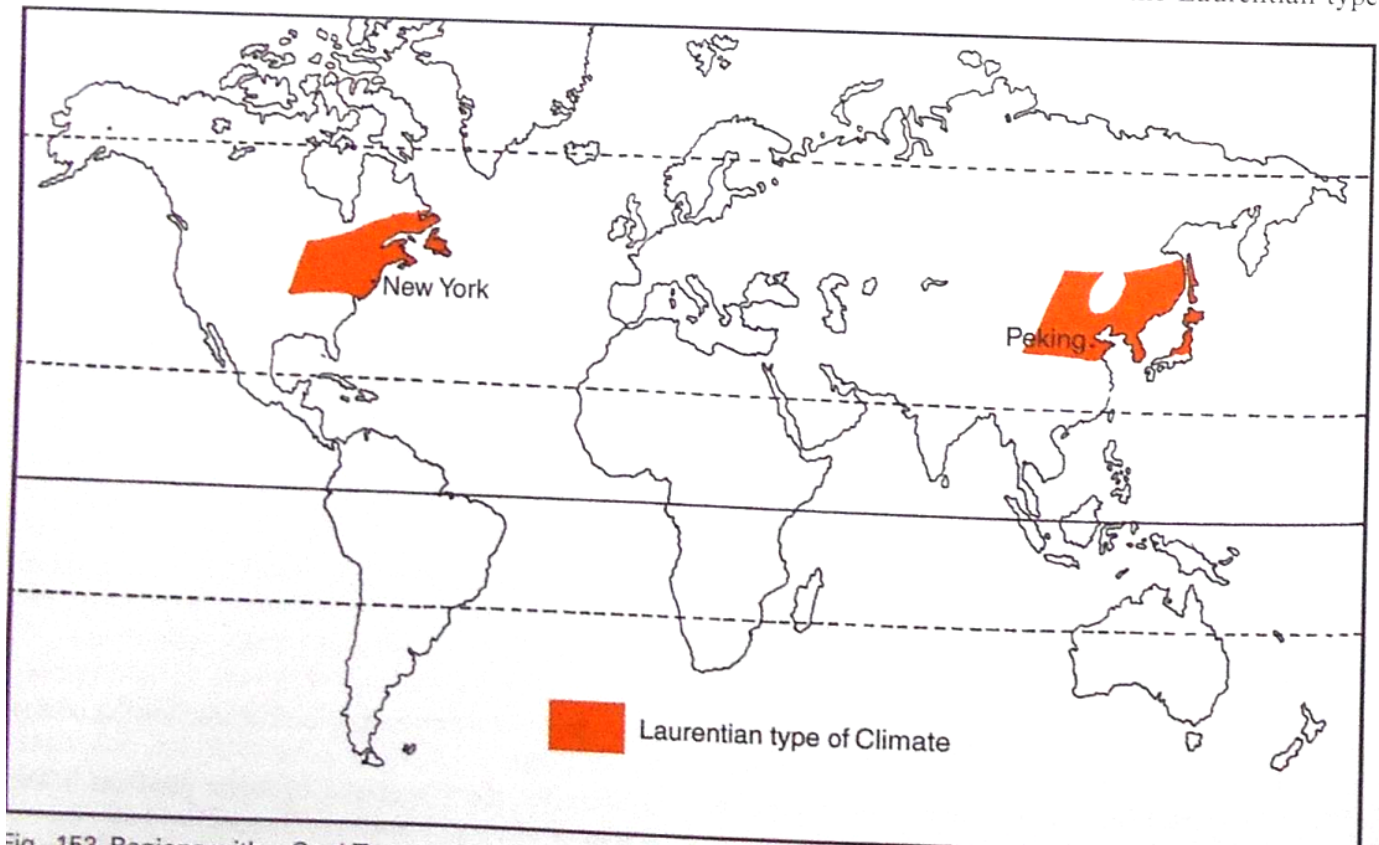


Fig. 153. Regions with Laurentian type of climate.

▪ Temperature

- It is characterized by **cold, dry winters and warm, wet summers.**
- Winter temperatures are below **freezing-point** and snowfall is quite natural.
- Summers are as warm as the tropics (~25 °C).

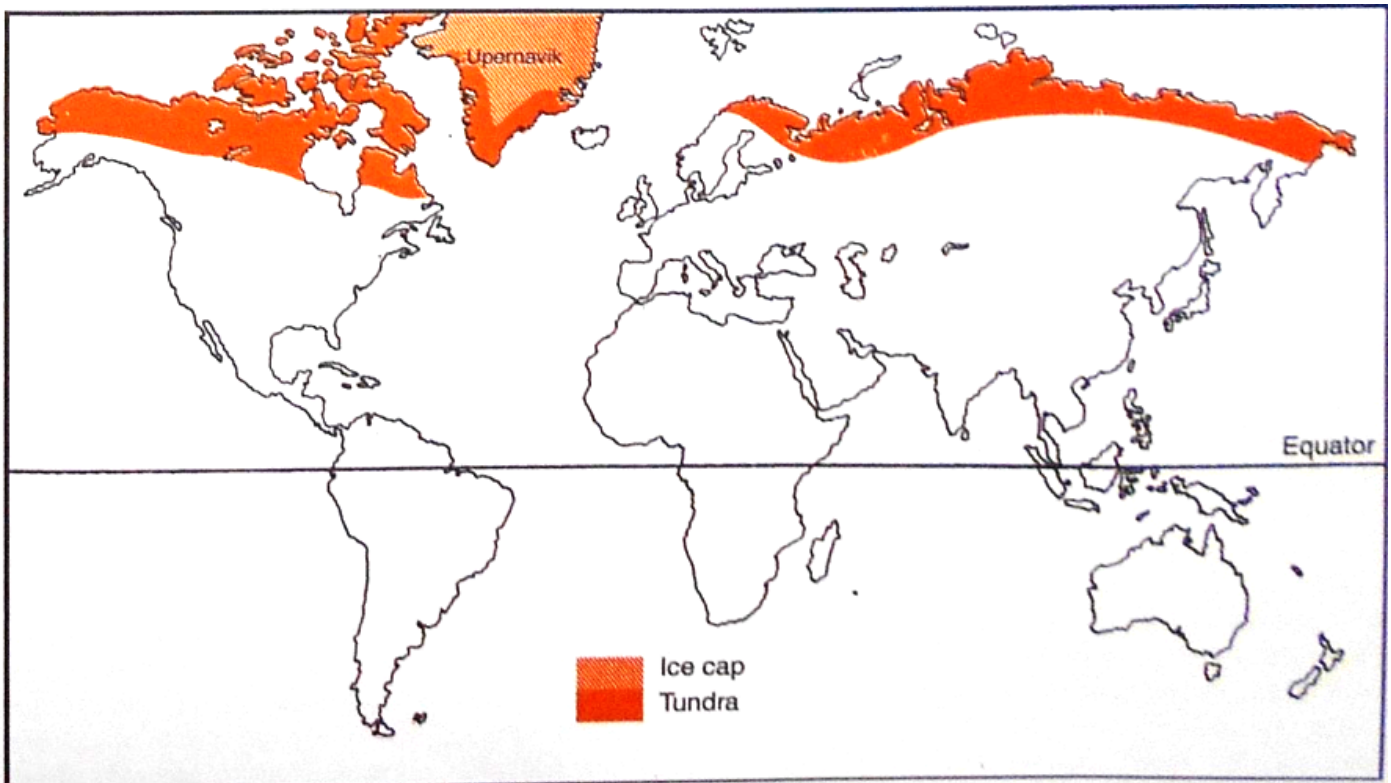
▪ Precipitation

- Rainfall occurs **throughout the year.**
- Annual rainfall ranges from 75 to 150 cm.
- **Dry Westerlies** that blow from continental interiors dominate winters.
- **North American region:**
 - Precipitation occurs all-round the year due to the influence of the **Atlantic ocean (summer) and the Great Lakes (winter).**
 - The **warm Gulf Stream** increases the moisture of **easterly winds.**
 - The prevailing **Westerlies** carry depressions over the **Great Lakes** towards eastern regions causing wet conditions in winter.
 - Convergence of the **warm Gulf Stream** and the **cold Labrador Current** near Newfoundland produces **dense mist and fog** and gives rise to much precipitation.
- **Asiatic region:**
 - Rainfall distribution of the Asiatic region is far **less uniform** when compared to the North American Region.
 - Winters are cold and very dry while summers are very warm and exceptionally wet.
 - The rainfall regime **resembles** the **tropical monsoon type** in India.
 - **Intense heating** of the mountainous interior of China in summer creates a region of extreme low pressure, and moisture-laden winds from the Pacific Ocean and the Sea of Japan blow in as the **South-East Monsoon.**
 - Thus, the Laurentian type of climate in China is often described as the **Cool Temperate Monsoon Climate.**
- **Japan:**

- The climate of Japan is modified by the meeting of **warm and cold ocean currents**.
 - The warm **Kuroshio** makes the climate of Japan less extreme.
 - The meeting zone between **warm Kuroshio** from south and **cold Oyashio** from the north produce fog and mist, making north Japan a '**second Newfoundland**'.
 - Fishing replaces agriculture as the main occupation in many of the indented coastlands.
- **Natural Vegetation**
 - The predominant vegetation is cool temperate forest.
 - The heavy rainfall, the warm summers and the damp air from fogs, all favor the growth of trees.
 - Forests tend to be **coniferous** north of the 50°N latitude.
 - **Economic Development**
 - Timber and fish are the leading export items.
 - Much of the coniferous forests of fir, spruce and larch are exploited to a great extent.
 - In the North American region, farmers are engaged in **dairy farming**.
 - The Annapolis valley in Nova Scotia is the world's most renowned region for apples.
 - **Lumbering**
 - Eastern Canada is the heart of the Canadian **timber and wood pulp industry**.
 - South of latitude 50°N., the coniferous forests give way to deciduous forests. **Oak, beech, maple and birch** are most common.
 - Almost homogeneous species of trees [pure stands], and the predominance of only a handful of species greatly enhance the commercial value of these forests.
 - **Fishing**
 - Regions around the **Grand Banks of Newfoundland** are the world's largest fishing grounds.
 - Mixing warm **Gulf Stream** and cold **Labrador currents** make the region the most productive fishing ground on earth.
 - Fish of all types and sizes **feed and breed** here and support a thriving **fishing industry**.
 - Along with Canada and the U.S.A., countries like Norway, France, Britain, Portugal, Denmark, Russia and Japan, also send fishing fleets to the **Grand Banks**.
 - **Hakodate and Kushiro** are large fishing ports with complete refrigeration facilities in Japan.
 - Another aspect of Japanese fishing is pearl culture. Pearls are harvested from **pearl oysters**.

The Arctic or Polar Climate

- **Distribution**
 - It is found in regions north of the **Arctic Circle** and south of the **Antarctic Circle**.
 - The ice-caps are confined to highlands and high latitude regions of Greenland and Antarctica.
 - In the southern hemisphere, Antarctica is the greatest single stretch of ice-cap (10,000 feet thick).
 - The lowlands - coastal strip of Greenland, the barren grounds of northern Canada and Alaska and the Arctic seaboard of Eurasia, have tundra climate.



▪ Temperature

- The tundra climate is characterized by a very low mean annual temperature.
- In mid-winter temperatures are as low as 40 - 50 °C below freezing.
- Summers are relatively warmer.
- Within the Arctic and Antarctic Circles, there are **weeks of continuous darkness**.
- Frost occurs at any time and **blizzards**, reaching a velocity of 130 miles an hour are not infrequent.

▪ Precipitation

- Precipitation is mainly in the form of **snow and sleet**.
- **Convictional rainfall** is generally absent.

▪ Natural Vegetation

- There are no trees in the **tundra**.
- Lowest forms of vegetation like **mosses, lichens** etc. are found here and there.
- Coastal lowlands support **hardy grasses and the reindeer moss** which provide the only pasturage for reindeers.
- In the brief summer, **berry-bearing bushes** and Arctic flowers bloom.
- In the summer, birds migrate north to prey on the numerous insects which emerge when the **snow thaws**.