



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**

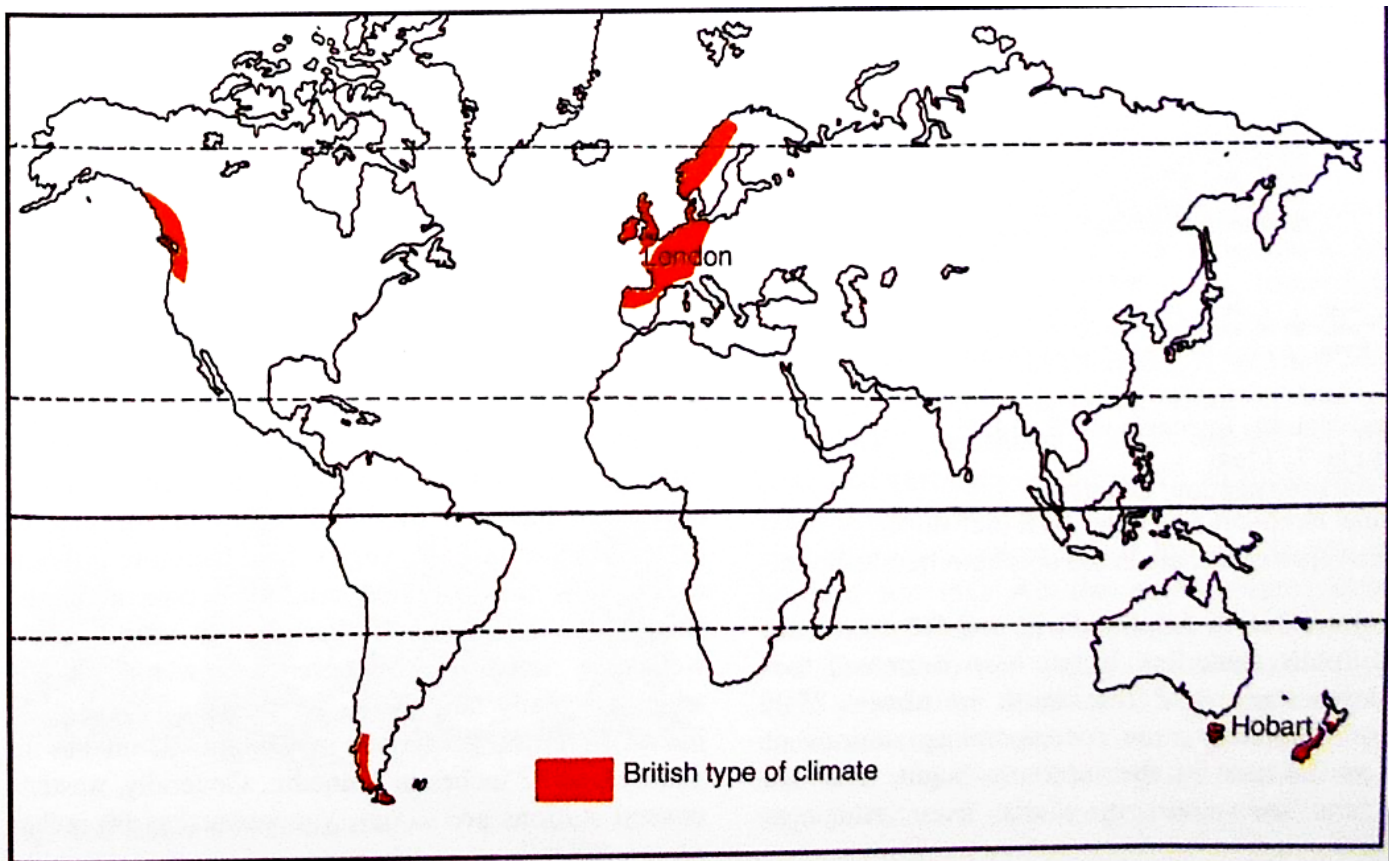
- It is most pronounced in and **around** [Britain](#).
 - Climatic belt stretches far inland into the lowlands of North-West Europe (northern and western France, Belgium, the Netherlands, Denmark, western Norway and also north-western Iberia).

- **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.



▪ 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**.

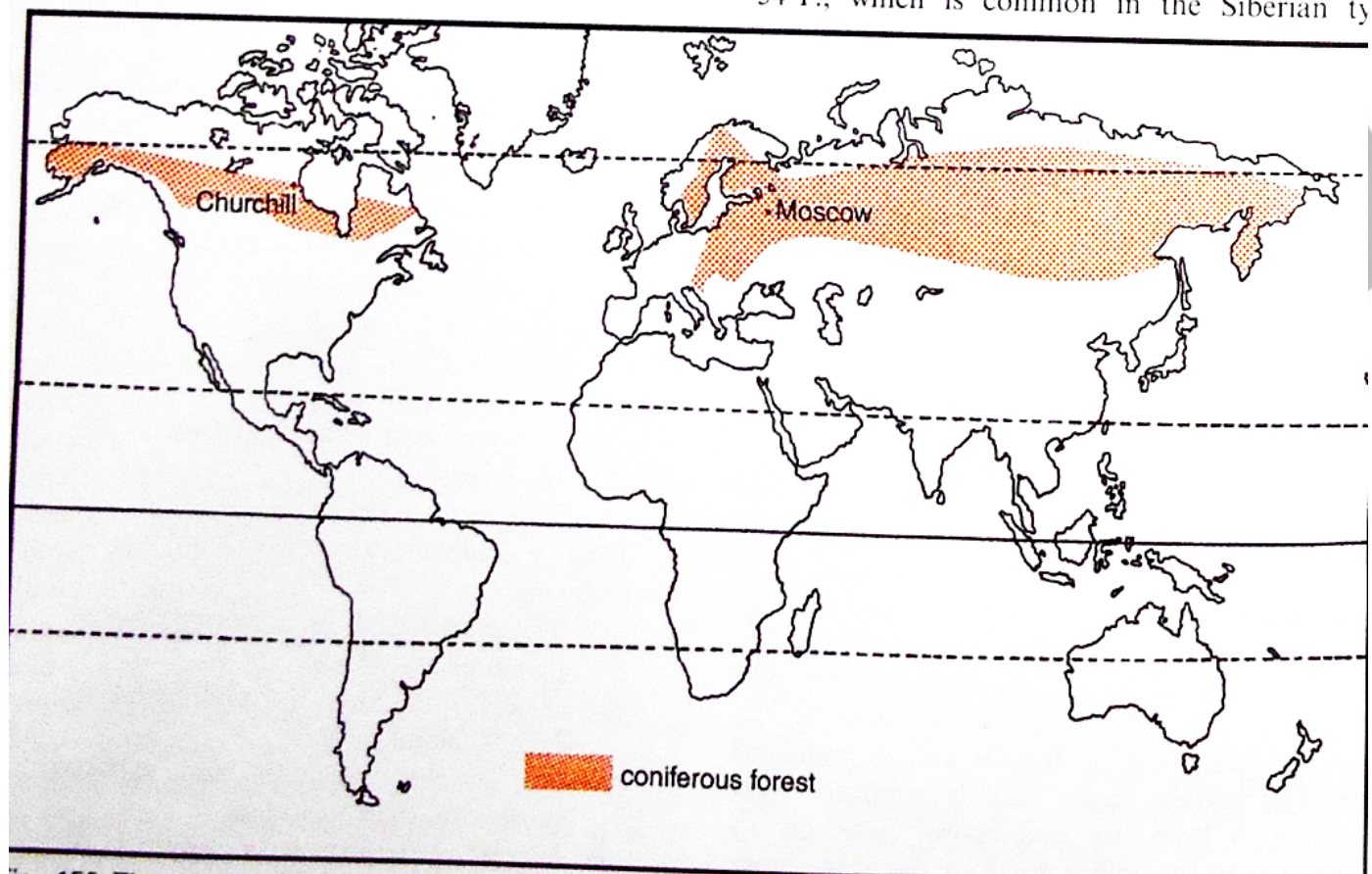
◦ **Meat industry**

- 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.



▪ 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.

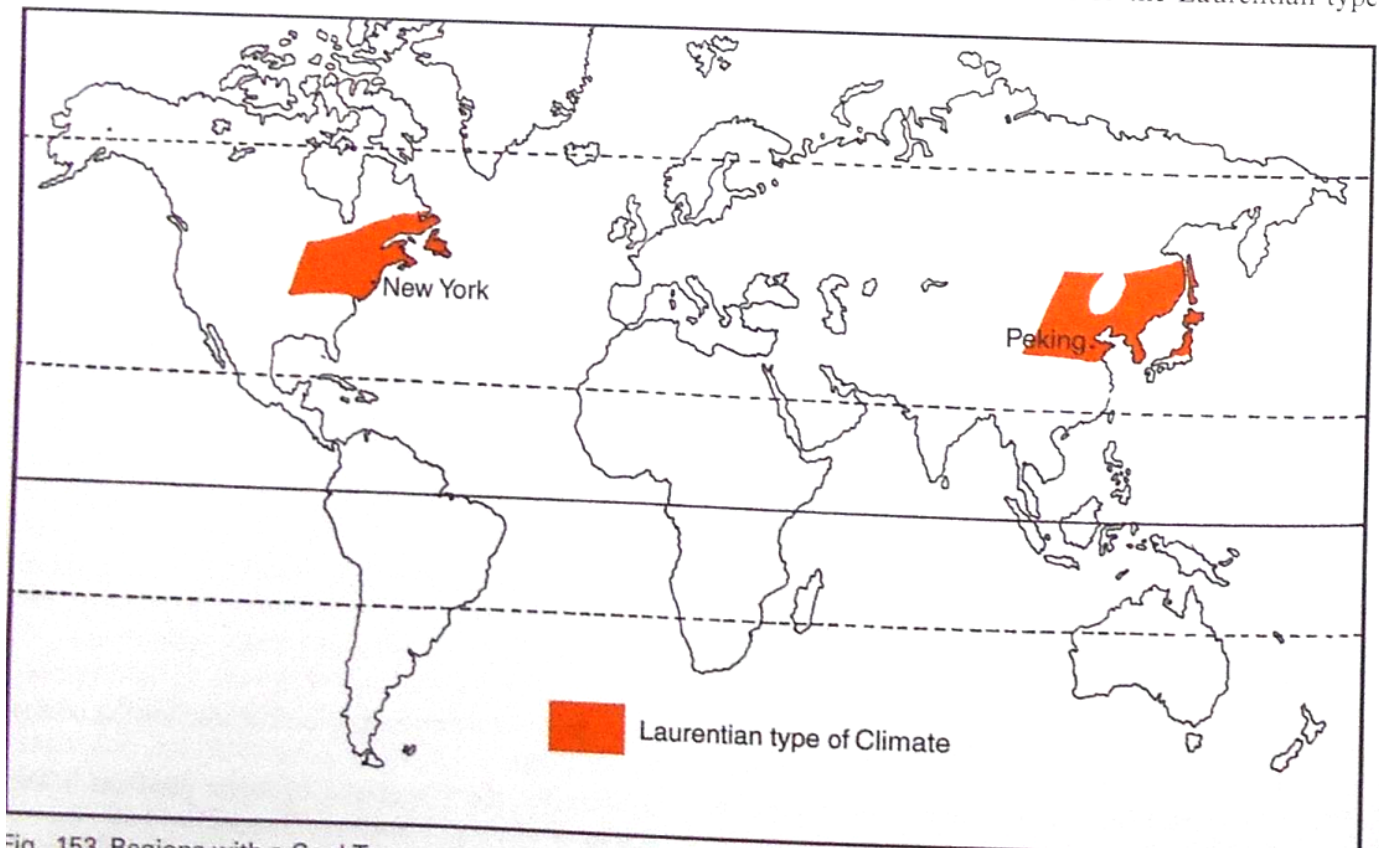
The Cool Temperate Eastern Margin (Laurentian)

▪ 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.



▪ 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 ($\sim 25^{\circ}\text{C}$).

▪ 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.

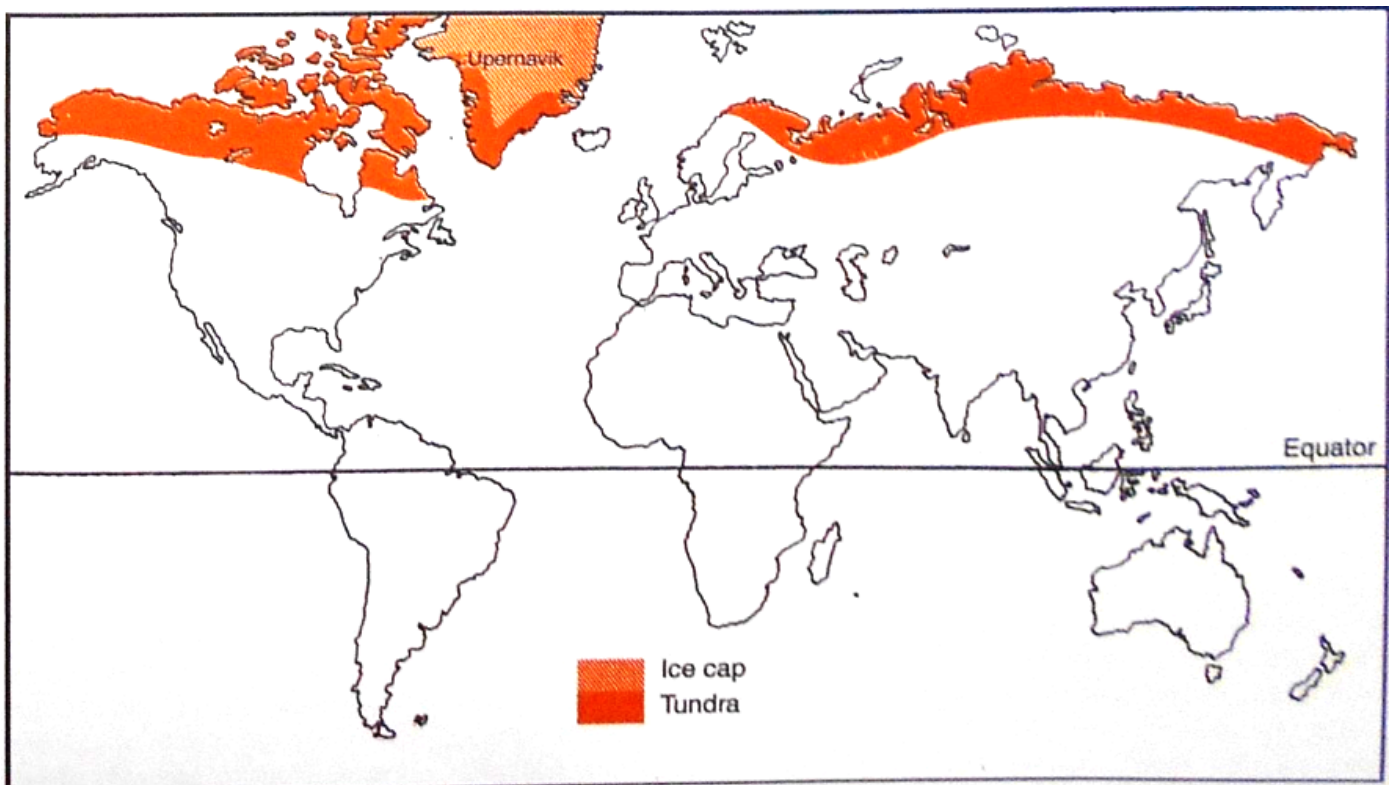
▪ **Economic Development**

- 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**.