

## 7. Polar (Arctic or Antarctic) climate

### Distribution

North part of Alaska, Canada (Victoria Island, Queen Elisabeth Island), Greenland, Svalbard, and north Siberia (Novaya Zemlya, Severnaya zemlya). From N+S *polar circle* to the poles. *Polar timberlines* = the northern or southern latitude beyond which trees do not grow.

### Climate

*Coldest areas on the Earth* <=> small amount of insolation (solar radiation) => *tundra* = very windy and frosty weather, snowstorms in Arctic and Antarctica

- *Temperature:*
  - long winters (10 months) reaches -50°C, very short summer 6°-10°C (approx. 80 days)
- *Precipitation:*
  - humid areas, but no liquid water because of very low temps. => *ice and snow*

### Soils

*Permafrost* = permanently frozen, impermeable (sub)surface. *Pingoes* (landforms) created by ice-up of a groundwater, inside pingo is *ice lens*. Similar are *polygonal soils*.

*Gleys* = waterlogged soils on flatter and *podzols* on steeper slopes. Both with poor fertility.

### Hydrology

Snow, snow, snowy land... No rivers, just river estuaries often frozen.

### Fauna and Flora

Poor diversity. Migration of animals (e.g. bucks caribou = 1000 km or migrant birds).

- *Fauna:*
  - falcon, polar rabbit (changing its fur, brown in summer, white in winter), very similar masking/camouflage to polar fox, buck caribou, lot of mosquitoes during summer
  - in the coldest areas = seal (seadog), morse (sea-cow), jig, polar bear (Arctic), penguin (Antarctic)
- *Flora:*
  - mainly grass in summer and few species in winter (dwarfed willow/salix)
  - in Arctic and Antarctica = eternal (never-ending) ice, mainly moss.

### Population and settlements

None or very small/thin population density. Mostly Eskimos. Siberian nations and languages.

### Agriculture and Industry

No agro. Exploitation of raw materials, e.g. crude oil, natural gas (Alaska, Siberia).

### Environmental problems

thinning of ozone layer (Antarctica), global warming => ice/iceberg/glacier melting

### **Keywords:**

polar timberlines, insolation, tundra, snowstorm, permafrost, impermeable layer, waterlogged soil, pingo, polygonal soils, global warming, iceberg/glacier melting, ozone layer, animal migration, falcon, polar fox/rabbit, Eskimo, moss.