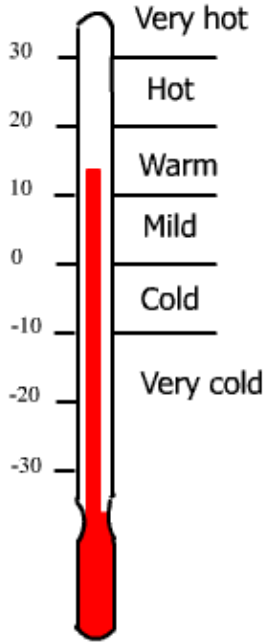


Introduction

Climate is the **average weather** conditions. Climates are worked out from weather records that have been measured over 30 years at least.

Describing Temperature (°C)



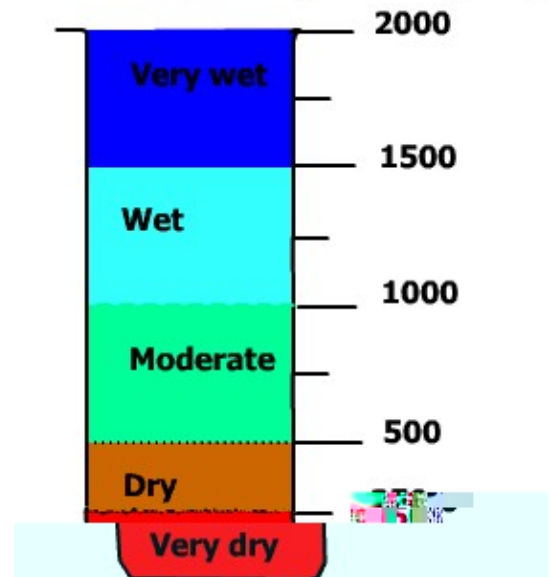
To be able to identify a climate you need to be able to describe the temperature of the hottest and coldest months and the temperature range.

The describing words for temperature are shown on the thermometer on the left. In Shetland, for example, the average July temperature is 13 C and so would be described as having a warm summer.

You also need to be able to describe the total amount of annual rainfall – that is how many millimetres fall in a year.

The pattern of rainfall is also important – for example is there a drought in the summer?

Describing Precipitation (mm)



Variations in Climate

The climate of a place is influenced by differences in **latitude**, **altitude** and **distance from the ocean**.

Climate

As a general rule the closer to the poles the colder the temperatures. So the north of Scotland will be colder than the south of England.

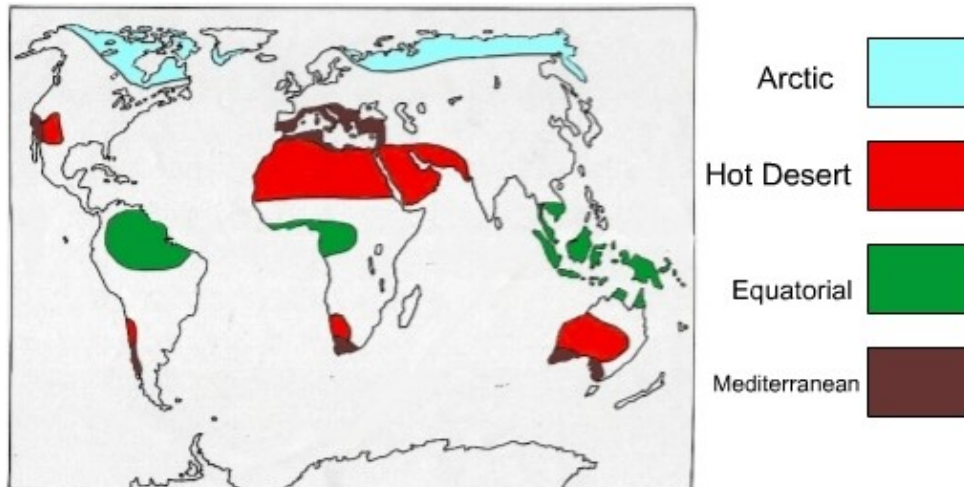
The higher above sea level also the colder the temperature. Therefore the top of Ben Nevis is colder than Fort William nearby which is on the coast.

Temperatures are more extreme for places far away from the sea. It is colder in the winter and hotter in the summer. As well as having a lower temperature range coastal locations frequently have higher rainfall totals.

In the Standard Grade there are **four climates** that you need to know

- Arctic
- Hot Desert
- Equatorial
- Mediterranean

The location of these is shown below



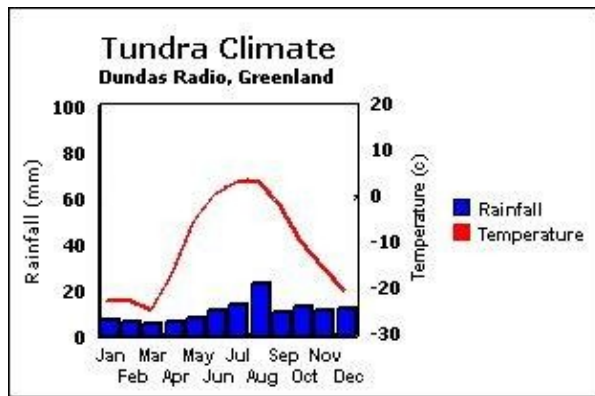
You may be asked to identify a climate type by its location on a world map.

Arctic Climate

Climate, vegetation and scenery

The Arctic climate is found in countries around the Arctic Ocean. This includes north Alaska, north Canada, coastal areas of Greenland, northern Scandinavia (Norway, Sweden and Finland) and Siberia in northern Russia. The main features of this climate are low amounts of precipitation with a summer maximum, mild summers and very cold winters. This extreme climate produces the type of scenery known as the **Tundra**.

The winters in the Tundra as well as being very cold are also very dark and north of the Arctic circle there are days when the sun does not rise. Precipitation is very low in this season as the cold temperatures reduce evaporation and the air can only hold very low amounts of water vapour.



What little snow that falls does not melt so the land is covered in snow and ice all winter. The short summers see the land covered in heather, moss and arctic flowers. The land is waterlogged, as the ground will remain frozen and so impermeable with only the top metre or so melting. The frozen ground is known as **permafrost** and the section that melts is known as the active layer. Plants do not grow high due to the strong winds and the permafrost preventing deep roots.

The Arctic and People

The extreme climate also limits how people have made use of the land. In the past the traditional inhabitants (e.g. Inuit in northern Canada, Lapps in northern Scandinavia) would have a seasonally nomadic lifestyle.

The **Inuit** would hunt in the summers often moving to where the seals and whales could be found and in the winter stay in a more permanent shelter.

Traditionally **Lapps** would follow the large reindeer herds on which they depended. These traditional ways of life have largely died out and most people stay in modern permanent housing.

Modern developments in The Arctic areas include oil production in Alaska and early warning stations which were set up to spot missile attacks between the USA and the Soviet Union. Such developments increase the rate of change for the indigenous people and have been blamed for social problems such as alcohol abuse. There are also concerns that modern developments can have a harmful affect on the environment.

Conservationists may oppose these changes, whilst others argue in their favour as it can bring good economic results, namely jobs and money.

Hot Desert Climate

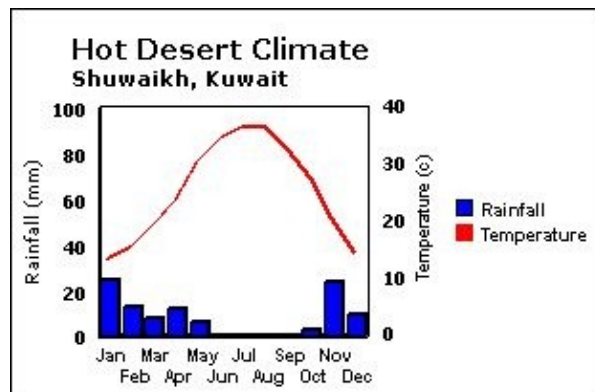
Climate, vegetation and scenery

The hot desert climate is found around the tropics of Capricorn and Cancer, usually on the west side of continents. Examples are the Thar desert in Pakistan and the Atacama desert in Chile.

This climate has hot or very hot temperatures and is very dry having less than 250mm of precipitation a year.

Climate

The vegetation of hot deserts is very sparse due to lack of rain. Some plants have **adapted** to the conditions by having long roots to search for moisture, and some plants like cacti store water.



Hot Deserts and People

The traditional way of life for groups like the Bedouin of the Sahara and Arabian deserts often involved nomadic pastoralism. This involves moving with camels and goats to find fresh pasture. The low rainfall does not allow settled farming. Other desert dwellers would live at sources of permanent water.

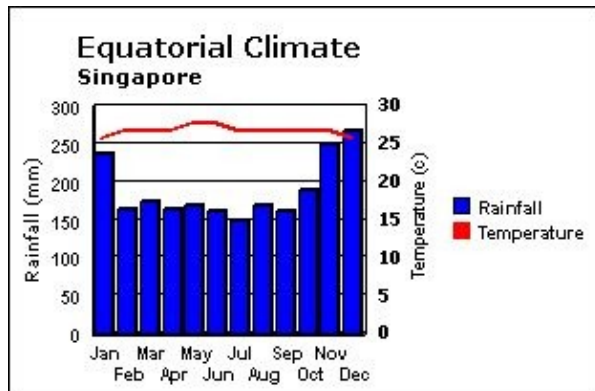
As in the Arctic lands this way of life is being followed by less people as many leave to live in cities. The exploitation of minerals such as oil and iron ore provides jobs and money in hot deserts such as Arabian and Australian, respectively. Another new development are desalination plants that provide usable water by taking salt out of seawater.

Equatorial Climate

Climate, vegetation and scenery

The temperature of the equatorial regions is hot throughout the year, with a very low temperature range usually of less than 3 degrees celsius. It is also a very wet climate with annual precipitation often more than 2000 mm. It is a simple climate type to identify, as the line on the climate graph is

almost straight.



These hot and wet conditions are ideal for the growth of plants so the vegetation is both dense and varied. Typically in Britain there would be 4 or 5 species of trees in a forest, whilst in the same area near the equator there may be about 500 species. The equatorial rainforests also have an extremely diverse fauna.

The rainforest in the equatorial regions produce very distinctive scenery. From the air it looks like a green carpet with the occasional taller tree (emergent) sticking up. There are also numerous rivers due to the heavy rainfall totals.

The Equatorial Regions and People

The traditional way of life in the equatorial rainforests depended very much on the flora and fauna of the area. A common type of farming was "shifting cultivation".



Despite appearances, the rainforest soils are not very fertile. The heavy rainfall **leaches out** the important nutrients from the soil and sometimes the whole topsoil itself can be eroded by the tropical downpours. The native people realised this and so would clear an area of forest, plant crops such as manioc and cassava, and after 3 or 4 years when the soil was losing its fertility would move on to a new patch of forest, which would be cleared and cultivated. This is a sustainable style of land use as the slow growing rainforest vegetation would get a chance to re-grow. The indigenous people would also hunt, fish and gather fruit and nuts.

Recently, there has been recent change in this area. Large areas of rainforest have been cleared to make room for cattle ranching, mining, settlements, reservoirs, roads and airstrips. The trees are cut down as timber as the tropical hardwoods are much in demand. The removal of the natural vegetation has had a number of effects. The soil, already fragile gets damaged and eroded. The climate of the area becomes drier with the loss of the vegetation acting as a "sponge" to hold on to the moisture. The soil runs off into rivers and lakes causing navigation problems.

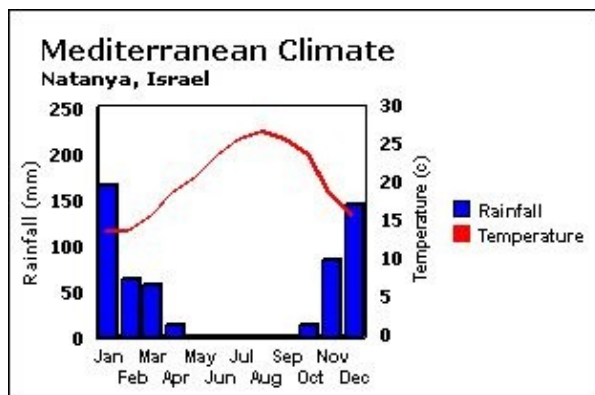
Both the burning of the trees and their reduced number increases the concentration of carbon dioxide. The extra carbon dioxide is believed to contribute to global warming, which in turn is blamed for the rise in sea level.

Mediterranean Climate

Climate and Vegetation

The areas of the world that have a mediterranean style climate are found at about 35 degrees north and south of the equator, on the western sides of continents. The distinctive feature of this climate that makes it easy to identify is the low level of rain in the summer a **summer drought**. Overall, the climate has warm winters and hot summers and a moderate amount of rainfall.

The natural vegetation of the mediterranean areas is a type of scrub forest with trees such as cork, fig and olive that has adapted to the summer drought. Much of this type of vegetation has been removed by human activity.



The Mediterranean Climate and People

Farmers have made use of the mild winters that allow crops to grow throughout the year in places with mediterranean climates. The dry summers however pose problems so many **irrigation** schemes have been developed.

The dry, hot and sunny climate has been very attractive to holidaymakers and tourism is now the main industry in areas such as Majorca and the Algarve. This in turn has led to worries about **pollution** with increased sewage and pressure on water supplies. Again there is the conflict between the wish for development with the economic benefits it brings, and the need to look after the environment.

Climate

