The Climate on Mountains

The main differences in climate of mountains are temperature and moisture.

What is the climate like on mountains?

The temperature on mountains becomes colder the higher the altitude gets.

Mountains tend to have much wetter climates than the surrounding flat land.

Read on to find out more

What is the weather like on mountains?

Mountain weather conditions can change dramatically from one hour to the next. For example, in just a few minutes a thunder storm can roll in when the sky was perfectly clear, and in just a few hours the temperatures can drop from extremely hot temperatures to temperatures that are below freezing.

Why do mountains receive more rainfall?

They receive **more rainfall** than low lying areas because the temperature on top of mountains is lower than the temperature at sea level.

Winds carry moist air over the land. When air reaches the mountain, it rises because the mountains are in the way. As the air rises, it cools, and because cool air can carry less moisture than warm air, there is usually precipitation (rain).

Is the climate on mountains the same at the bottom as at the top?

No, the climate on a mountain varies depending on what **altitude** (how high) you are up a mountain. At the foothills (near the bottom) there may be a tropical climate, whilst the peaks (the very top of mountains) may be covered in ice. The uppermost level of mountains is often bare rock and snow. Tibet and the Himalayas and other mountain ranges such as the Rocky Mountains or the Andes are good examples of this.

Why do we sometimes see snow on the top of mountains?

You can often see snow on the top of mountains all year round, because the temperature at the top of mountains is lower than at the bottom. The higher the place is above sea level the colder it will be.

Some mountains reach higher than the clouds. At this altitude the extreme cold and high winds cause blizzards.

Did you know?

Mountains make it possible for snow to be found at the equator.

Why does the temperature become colder the higher up a Mountain?

Generally the climate on mountains get progressively colder with increased altitude (the higher up you go). This happens because as altitude increases, **air becomes thinner** and is **less able to absorb and retain heat**. The cooler the temperature the less evaporation there is, meaning that there is **more moisture in the air**.

Air pressure decreases with altitude. As a result of the reduced air pressure, rising air expands and cools.

What effect does the climate have on mountains?

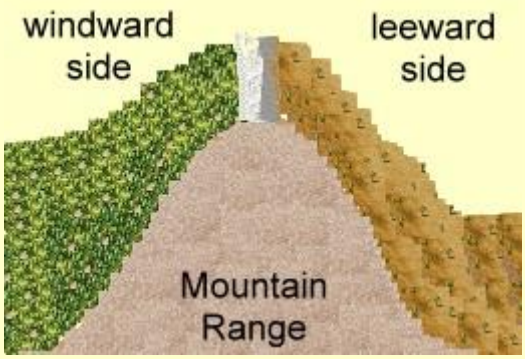
Because of the rapid changes in altitude and temperature along a mountain slope, multiple ecological zones are “stacked” upon one another sometimes ranging from dense tropical jungles to glacial ice within a few kilometres.

What effect do mountains have on surrounding land?

Mountains can affect the climate of nearby lands. In some areas, mountains block rain, so that one side of a mountain range may be rainy and the other side may be a desert.

Rain Shadow
Much of airborne moisture falls as rain on the windward side of mountains. This often means that the land on the other side of the mountain (the leeward side) gets far less rain—an effect called a "rain shadow"—which often produces a desert.

The higher the mountain, the more pronounced the rain shadow effect is and the less likely rain will fall on the leeward side.



The **Windward** is the side of a mountain that is facing into the direction that the wind is coming from.

The **Leeward** side is the wind protected side of a mountain.

Why are leeward sides of mountains drier than windward?

By the time the air gets to the leeward side of the mountain it has already lost some of its moisture. Many of the deserts of the world are formed because of the lack of moisture blocked by the mountains. The Gabi desert is located behind the Himalaya mountain range in Asia.