



The Polar Climate Zones



How cold is it in the polar climate?

Polar areas are the coldest of all the major climate zones. The Sun is hardly ever high enough in the sky to cause the plentiful ice to melt, with temperatures rarely rising above freezing (0°C). During the long polar nights temperatures can fall to extremely low values. The coldest natural temperature ever recorded was at Vostock in the Antarctic, which has a polar climate, where an incredible -88°C (-126°F) was measured at a Soviet research station. Even during the warmest months of the year the average temperature does not rise above 10°C. As if this was not enough, there are often hurricane-force winds that cause blizzards. A blizzard is when strong winds pick up snow and blow it through the air.

How much precipitation do polar areas get?

Polar climates tend to be dry. This is because the air is cold and lacks moisture (water), which stops the formation of clouds, and therefore prevents rainfall or snowfall. Some polar regions receive less than 10 inches (250 millimetres) of precipitation each year, and can be as dry as the hot deserts.

Where on the Earth do you find the polar climate zones?

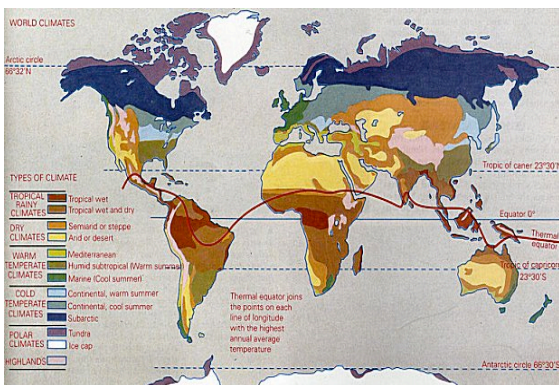


Fig. 2: Map of the globe that shows climate zones

The Polar Regions are found near the North Pole and South Pole, between 60° and 90° latitude. The area that surrounds the South Pole is known as Antarctica, while the area that surrounds the North Pole is the Arctic Circle. The Antarctic is a landmass (a continent in its own right) but one that is buried in ice, sometimes miles deep. It is the coldest place on Earth. The Arctic is slightly warmer than Antarctica, but unlike Antarctica it has no land. Instead the Arctic is a sea of ice, most of which never melts. Greenland, North America and Siberia (in Northern Russia) are the nearest concrete land to the Arctic. On the map the polar areas are white or purple.

Surely nobody lives in polar areas?

Surprisingly despite the extreme conditions some people have made their homes in polar areas. The traditional inhabitants of the Arctic region are the Eskimos, or Inuit, who have survived by adapting to their harsh environment. Modern technology and clothing has made life somewhat easier for them. In contrast, apart from scientists in lonely research stations, no humans live in Antarctica. The challenge posed by the harsh environment has inspired explorers. One such group of explorers who died in 1912 trying to get to the South Pole was Captain Scott and his companions.



Fig. 3: An Eskimo

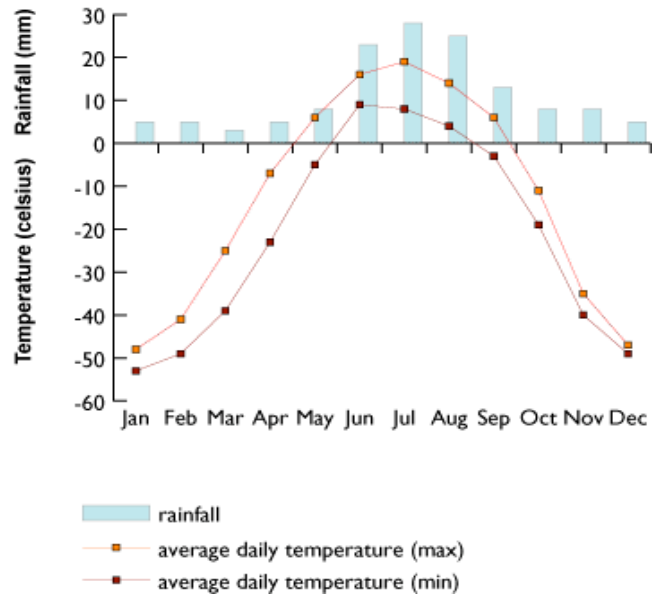


Fig. 1: Climate in an average polar area

What impact do people have on polar areas?

Although very few people live in the Polar Regions, people still have a huge impact on them. Global warming caused by polluting gases, such as methane from cattle and carbon dioxide from burning fossil fuels like coal, oil and gas is causing the overall average global temperature to rise. The higher temperatures melt glaciers (huge bits of ice), which raises sea levels and thus increases flooding. The melting of ice also destroys the habitat of animals like the polar bear. An animal's habitat is the name for the place where it lives.



Fig. 4: A melting glacier

So do many animals live in the Polar Regions?



Fig. 5: A Caribou

Unsurprisingly not many animals have chosen to make the Polar Regions their home. In Antarctica one animal that does survive is the emperor penguin, which keeps its eggs warm by holding them between its feet and covering them with a flap of fur. In the Arctic the summer brings a brief flourishing of small shrubs and plants, and in comparison to the Antarctic, wildlife is plentiful. Caribou take advantage of the plants that grow in the brief spring and summer. Animals such as polar bears and the beautiful arctic fox also seem to thrive in the conditions, while migrating birds pay visits in summer to feed on the plant life.

What sorts of seasons are there in polar areas?

Polar areas do not have four clear seasons of equal length like we do in Britain. Both the North Pole and the South Pole have long dark winters with no sun at all, and long summers when they are transformed in the 'Land of the Midnight Sun' and the sun never sets! The Polar Regions remain relatively cold all year round, even in summer. However, there are some places in the polar zones where the snow and ice melts during the warmest part of the year. The northern coasts of Canada and Alaska and the southern tip of South America are examples of these places.



Fig. 6: The sun moving through the sky during an Arctic summer

Summary

Polar areas, which are found near the poles, are the coldest places on Earth and receive very little precipitation. The harshness of the environment means few people or animals live in the Polar Regions, although some have managed to survive by adapting. Despite this people all over the world have an impact on these areas because of pollution from their activities.

References and sources

Text

http://www.bbc.co.uk/weather/features/weatherbasics/zones_polar.shtml

http://www.ace.mmu.ac.uk/eae/Climate/Older/Polar_Climate.html

Images

Fig. 1: Climate in an average polar area

http://www.bbc.co.uk/weather/world/city_guides/results.shtml?tt=TT004630

Fig. 2: Map of the globe that shows climate zones

<http://www.meteorologyclimate.com/Climate.htm>

Fig. 3: An Eskimo

<http://invisiblecollege weblog.leidenuniv.nl/2007/03/15/canada-s-inuit-visit-the-hague>

Fig. 4: A melting glacier

http://www.eohandbook.com/eohb2008/casestudy_thaw.html

Fig. 5: A Caribou

<http://www.treehugger.com/files/2009/04/canada-caribou-herds-dying-off-threatened.php>

Fig. 6: The sun moving through the sky during an Arctic summer

<http://www.belchfire.net/index.php?automodule=downloads&showfile=4255>

Date

T: understand a report on polar climates

- 1) Find and copy a subtitle e.g. 'So do many animals live in the Polar Regions'?
- 2) What is the coldest natural temperature ever recorded?
- 3) What latitudes are the Polar Regions found at?
- 4) Name two places that have a polar climate.
- 5) What are the traditional inhabitants of the Arctic called?
- 6) When did Captain Scott die?
- 7) Name two animals that live in polar areas.
- 8) Why might the writer have used photos right at the top of the report?
- 9) Why has the writer used subheadings?
- 10) Why has the writer used questions for the subheadings?
- 11) Why has the writer included diagrams in the report?
- 12) Why do you think people still fly, drive and eat beef when they know that these things cause pollution?

Date

T: understand a report on temperate climates

- 1) Any subtitle.
- 2) The coldest natural temperature ever recorded is -88°C (-126°F).
- 3) The Polar Regions are found between 60° and 90° latitude.
- 4) Two places that have a polar climate are the North Pole and the South Pole.
- 5) The traditional inhabitants of the Arctic are called Eskimos or Inuit.
- 6) Captain Scott died in 1912 trying to get to the South Pole.
- 7) Two animals that live in polar areas are the Penguin / Caribou / Polar bear / Arctic Fox (not migrating birds).
- 8) The writer have used photos right at the top of the report to make it look nice / tell you what a polar climate looks like.
- 9) The writer used subheadings to organise the text and / or so that you can find information quickly
- 10) The writer used questions for the subheadings because he wants you to be interested in the answer / make you think about the answer to the question.
- 11) The writer included diagrams in the report to show you the temperature / rainfall or climate zones (not nswers related to photos e.g. the eskimo).
- 12) I think people still fly, drive and eat beef when they know that these things cause pollution because they enjoy those things / they are selfish / they don't know they cause pollution.