Antarctica: Key Physical Features

According to size, Antarctica is the fifth largest continent of our planet. The continent is almost double the size of Australia!

How thick is the ice on Antarctica?
Antarctica is an ice-covered continent surrounded by the Southern Ocean. One of the most fascinating things about Antarctica is that it is, in fact, a landmass. However, in parts of Antarctica, the land itself is far underneath indeed. On average, the ice is 1.9 km. The inland ice-sheet has a thickness of up to 4 km.

A thick layer of ice covers almost all of the continent's land, often referred to as the Antarctic Ice Sheet. But this isn't a single sheet of ice, it is two major areas of ice which are different in their physical characteristics: the East and West Antarctic Ice Sheets. The East Antarctic Ice Sheet is both larger and thicker than the West Antarctic Ice Sheet, as well as being much older.

Where is Antarctica?
Most of Antarctica is south of the Antarctic Circle, with the exception of parts of the East Antarctic coastline and the Antarctic Peninsula. The geographic South Pole is located more than 767 miles from the coast on a plateau 2,800 metres above sea level. But, the geographical South Pole is not in the centre of the continent! A greater part of the Antarctic is in the Eastern Hemisphere. The West Antarctic Ice Sheet occupies a smaller area of land within the Western Hemisphere (with the Weddell Sea on one side and the Ross Sea on the other). The Transantarctic Mountains extend across the continent forming a physical boundary between East Antarctica and West Antarctica.



Antarctica landmark – HUGE mountains!
A huge mountain chain called "The Transantarctic Mountains" divides the Antarctic continent into eastern and western regions. The series of mountains is one of the longest in the world, and extends over 2,000 miles. A good portion of these mountains are buried beneath Antarctica's ice and snow, but many of the peaks are steep enough to be snow-free. Antarctica has the highest average elevation of all continents. Most of the continent is higher than 3,000 meters above sea level. The highest mountain in Antarctica, Mount Vinson, is part of the Ellsworth Mountains located in the western area of the continent. Mount Vinson reaches 4892m above sea level – a little higher than Mont Blanc in the European Alps!


View of the Sentinel range of Ellsworth Mountains with Mt Vinson

Polar Desert

Antarctica is the coldest continent of our planet. The coldest air temperature ever measured in Antarctica was -89.2°C at Vostok Station in 1983. Along the Antarctic coast, the average temperature is -10°C. The coastline has the warmest climate of the continent. It comes as no surprise that Antarctica is coldest continent given its geographical position; yet it may at first seem surprising that it is also the driest of the seven continents. Despite being covered in snow and ice, the mean annual precipitation is very low and so the climate can be described as a polar desert. It is an icy desert with very little rainfall throughout the year.

Hidden lakes in Antarctica



Antarctica has a secret lake - many secret lakes, in fact. Scientists have drilled far beneath the thick glacial ice atop Antarctica to find liquid lakes below. The spectacular hidden lakes are just one of many features of Antarctica. The most exciting part: these lakes are absolutely teeming with microscopic life. Scientists can use water samples to learn about how these miniscule creatures survive in such a harsh environment. This could even give researchers an idea for how life might survive on other planets, such as below the ice found on Mars.

Volcanic activity beneath Antarctica's ice



There are plenty of extinct volcanoes in Antarctica, but there are two active ones, as well. One of these is at Deception Island, and it's an incredibly interesting and rare type of volcano. Located far beneath Antarctica's ice, it actually has subglacial eruptions, which means that all of Deception's activity happens below the surface of the ice. Antarctica's other active volcano, Mount Erebus, is picture perfect. It's the continent's most active volcano, and it looks like a science experiment brought to life. Mount Erebus is one of the only volcanoes on earth with a constant molten lava lake in its crater.

Katabatic wind

Antarctica's geography and climate means it gets a special kind of wind called katabatic. These are winds that are formed when air moves down a slope. In Antarctica, the mountain range paired against large, flat expanses makes for a dramatic wind combination. Some of the highest wind speeds in history have been recorded on the southern continent - in fact, the world record for wind speed is tied between Antarctica's Dumont d'Urville station and Mount Washington, New Hampshire, both of which have experienced winds of 320 kilometres per hour.

Antarctica is abundant in natural resources

Most of the planet's freshwater sits in Antarctica's ice. This ice-covered continent actually contains the vast majority of Earth's freshwater (about 70%). This is one of the many reasons the ice cap is such a precious resource - as that ice melts in Antarctica, it mixes into the saltwater surrounding it. Desalination, or the process of removing freshwater from saltwater, is notoriously tricky to do on a large scale, which means it's vital to keep that freshwater separate and safe.



Dry Valleys

Dry Valleys are another intriguing type of landscape found in Antarctica. These are found in high altitude areas where snow and rain do not fall. Good examples can be found in the Victoria Land region near the McMurdo research station.

Antarctica: Key Human Features

Antarctica does not and has never had an indigenous population (there are no native human Antarcticans). The continent was once a part of a larger land mass called Gondwana that settled over the south pole and split from Australasia and South America long before humans evolved. There haven't been any land bridges to Antarctica for around 35 million years, it has been an isolated island for all this time.

Antarctica was already too isolated by distance, climate and the storminess of its seas for people to discover. It wasn't until 1820 when human technology and navigation was sophisticated enough to allow anyone to sail far enough south to even see Antarctica for the first time. In 1899, the first people did set foot on Antarctica and there wasn't anyone already there.

The people who travel to or live in Antarctica fall into two main groups: those who live and work on scientific research stations or tourists. No-one lives in Antarctica indefinitely in the way that they do in the rest of the world. It has no towns or cities and no permanent residents.

The only place people stay is at the scientific bases. These vary in size, but typically have 50 people there in the summer (from October/November to March/April) and around 15-20 people in the winter. There are around 66 scientific bases in Antarctica, of which about 37 are occupied year round, the remainder are open during the summer and closed down for winter. There are about 4,000 people through the summer months and about 1,000 in winter each year on the whole of Antarctica. There are 18 countries who regularly send scientists and researchers to the various stations on the continent. The most and biggest stations are held by the USA, Russia, Chile, Argentina and Australia. The largest research station is McMurdo station, which is an research centre. There more than 1,000 scientists work on various research projects during summertime.