



# The North Poles

We all know that Santa lives at the North Pole, but which one?

We often talk about the North Pole at the top of the Earth. But do we know which North Pole we are talking about? What is the difference between the geographic and geomagnetic North Poles, and the geomagnetic and magnetic North Poles? And just how many North Poles are there?



## The Geographic North Pole

Alternative names: The True North Pole & The Terrestrial North Pole.

The geographic North Pole is the top of the Earth – the northernmost point of the Earth's axis of rotation. All lines of longitude (the vertical lines on a map or globe that go up/down) meet there, and its latitude (the horizontal lines on a map or globe that go from side to side) is 90 degrees north.

The North Pole sits in the middle of the Arctic Ocean, on water that is almost always covered with ice. The ice is about 2-3 meters (6-10 feet) thick. The ocean at the North Pole is more than 4,000 meters (13,123 feet) deep. Because the Earth rotates on a tilted axis as it revolves around the sun, the North Pole experiences only one sunrise and one sunset every year. The North Pole is much warmer than the South Pole.

The North Pole is not part of any nation although some countries have tried to 'claim' it as their own. However, this North Pole is where Santa traditionally lives.

## Wobble Wobble – the 'instantaneous north pole'.

The Earth's axis wobbles, moving in a wonky circle as the planet rotates. This causes the exact location of the North Pole to wobble along with it. The precise location of where the lines of longitude meet at any given moment is called the "instantaneous pole".

Seth Carlo Chandler discovered our planet's wobble in 1891 and so this movement is sometimes called "The Chandler wobble".

## The Magnetic North Pole

Alternative name: The North Dip Pole

The Earth is a gigantic magnet - when your compass points north, it's pointing to the magnetic North Pole. This is the only point on the surface of the Earth in the northern hemisphere where the magnetic field points vertically (straight) down.

Amazingly, the magnetic North pole moves *each day*! It moves in a loop, ending up between 6 and 25 miles (10 to 40 kilometers) away from where it started each year. This movement is caused by magnetic changes at the center of the Earth.

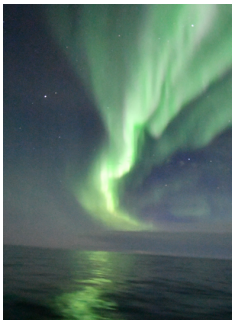


### Did you know?

If you are standing over the magnetic North Pole with a compass, the needle would dip and try to point straight down. This gives it its other name: **The North Dip Pole.**

## The Geomagnetic North Pole

Alternative name: The Northern Dipole

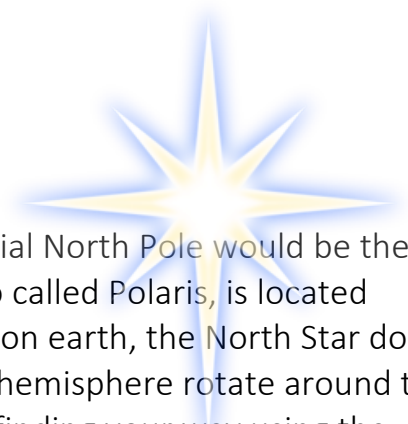


This North Pole is totally different. Its location is calculated using mathematics based on an imaginary line running through the geomagnetic center of Earth. Like the Magnetic North Pole, the Geomagnetic North Pole moves and currently lies in Northern Canada.

The most amazing Northern Lights (Aurora borealis) display happens inside an oval ring centered around the geomagnetic North Pole.

## The Celestial North Pole

If the Earth's axis carried on and on up into the sky, the celestial North Pole would be the point where the axis spears the night sky. The North Star, also called Polaris, is located almost exactly at this point in the sky. From our point of view on earth, the North Star does not appear to move, while all the other stars in the Northern hemisphere rotate around the North Star. Because of this, it is used in celestial navigation – finding your way using the stars in the sky.



**And finally... North Pole, Fairbanks, Alaska** is town that is hundreds of miles due south of the other North Poles!