In the sky, a sort of an ocean of cold, dry air does something similar. The air circles Antarctica again and again, just like the ocean water. This circle of very cold air keeps out any warmer northern air that might venture near.

NO CAMELS, BUT STILL A DESERT

Think about what that circle of unchanging air means. First of all, the air gets very cold. But it also gets very dry. Here’s why: as the temperature drops, any moisture in the air turns to rain or snow. But the air over Antarctica lost any moisture in the air long ago. There’s simply no moisture left to lose. The result is some of the driest air on Earth.

That’s right. Antarctica isn’t only the coldest place on Earth; it’s also one of the world’s driest deserts. If you think about it, this makes a lot of sense. As the air rarely changes, the skies are almost always clear, and new snow almost never falls. Of course, the old snow (which long ago became ice) never melts. As a result, the ice on Antarctica is some of the oldest ice on the planet.

ANTARCTICA: KING OF COLD

http://beyondpenguins.nsdl.org

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Issue 4: Weather and Climate:
From Home to the Poles (June 2008)

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ANTARCTICA: KING OF COLD

And different they are. For starters, Antarctica is much colder. The average winter temperature in Antarctica is -76 degrees Fahrenheit. A “warm” summer day is around 22 degrees below zero!

Even the coldest winter night at the North Pole isn’t as cold as the sunniest summer day at the South Pole.

THE COLDER POLE

On the other hand, the South Pole is on the continent called Antarctica. Not only is the South Pole on land, it’s on very high land. While the North Pole is just a few meters above sea level, the South Pole is almost 2400 meters (about a mile and a half) high. The greater your distance from sea level, the colder the air around you becomes. (Think of the snowy tops of high mountains.) This extra height helps keep the South Pole extra cold. The colder pole extra helps keep the South Pole extra cold.

The largest animal that lives year-round in the center of the continent is a tiny insect called a midge.

The midge is around twelve millimeters (about half an inch) long, and is a tiny insect called a midge.

ANTARCTICA: KING OF COLD

GLOSSARY

CLIMATE – long-term patterns of weather
CONTINENT – a large body of land surrounded by oceans and other continents
DESERT – a very dry area
EVAPORATE – change from a liquid to a vapor or gas
FREEZE – change from a liquid to a solid
INSECT – an animal with six legs
Weather patterns make the South Pole colder too. Even though the North Pole is over ocean water, land isn’t that far away. Warmer air that gathers over Russia or Canada floats over the North Pole and warms it up.

But Antarctica is the most isolated continent on the planet. It is surrounded by the Southern Ocean. That makes a big weather difference. The ocean sloshes around Antarctica, blocking the path of warmer water from the north.

Because it is covered in ice, Antarctica is white. The ice reflects most of the sun’s light right back into space before it has a chance to heat anything. The Arctic is mostly white, too, but there are more patches of bare land or water to absorb heat from the sun.

The cold and dry climate of Antarctica makes it one of the toughest places on Earth to live. There aren’t many animals there. Marine mammals, like whales and seals, only stay for a short time. Sea birds like penguins live on the Antarctic Peninsula, where the weather isn’t quite so terrible.
Why should that be? First of all, the North Pole is over an ocean. Believe it or not, even cold ocean water holds a lot of heat. As this ocean water changes to ice, it keeps the temperature from falling too far. How? Believe it or not, freezing actually slows down dropping temperatures. As water gets colder, its temperature drops lower and lower, until it begins to freeze. Then, during freezing, the temperature stays the same. It’s as if the water said, “Whoa! No more temperature drops ‘til I’m finished freezing!” Until all the water turns to ice, the temperature of the ice and water mixture doesn’t get any lower. And there’s a lot of water at the North Pole!