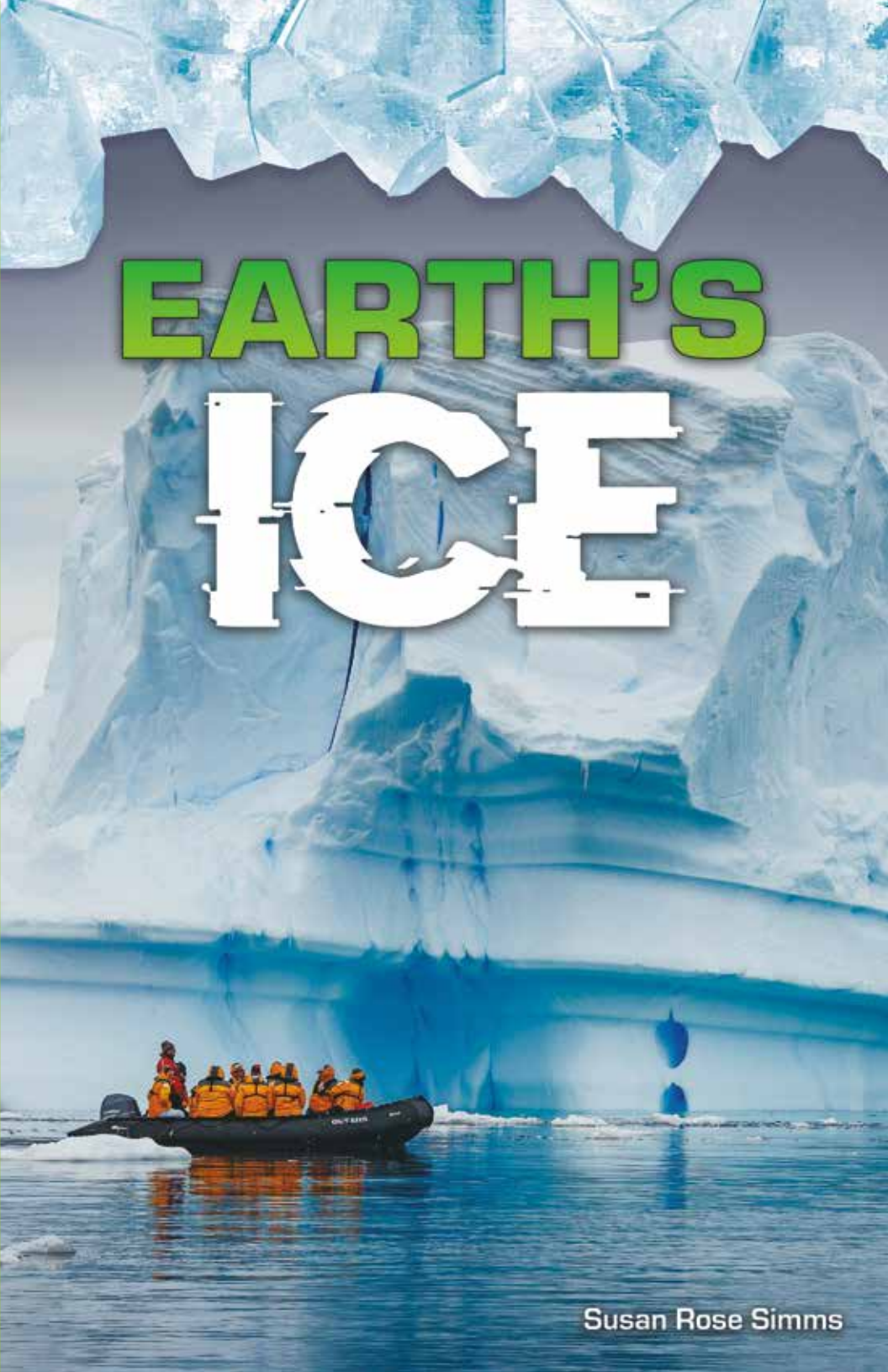
EARTH'S
ICE
Susan Rose Simms

# EARTH'S ICE

Susan Rose Simms

high noon books

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CHAPTER 1

# WHAT IS THE CRYOSPHERE?

Our planet has some areas that are very cold. The cold in these places freezes water into ice and snow. In fact, one-tenth of Earth's surface is covered with ice. This includes five types of ice formations.

1) Ice at the North and South Poles is called **polar ice**.

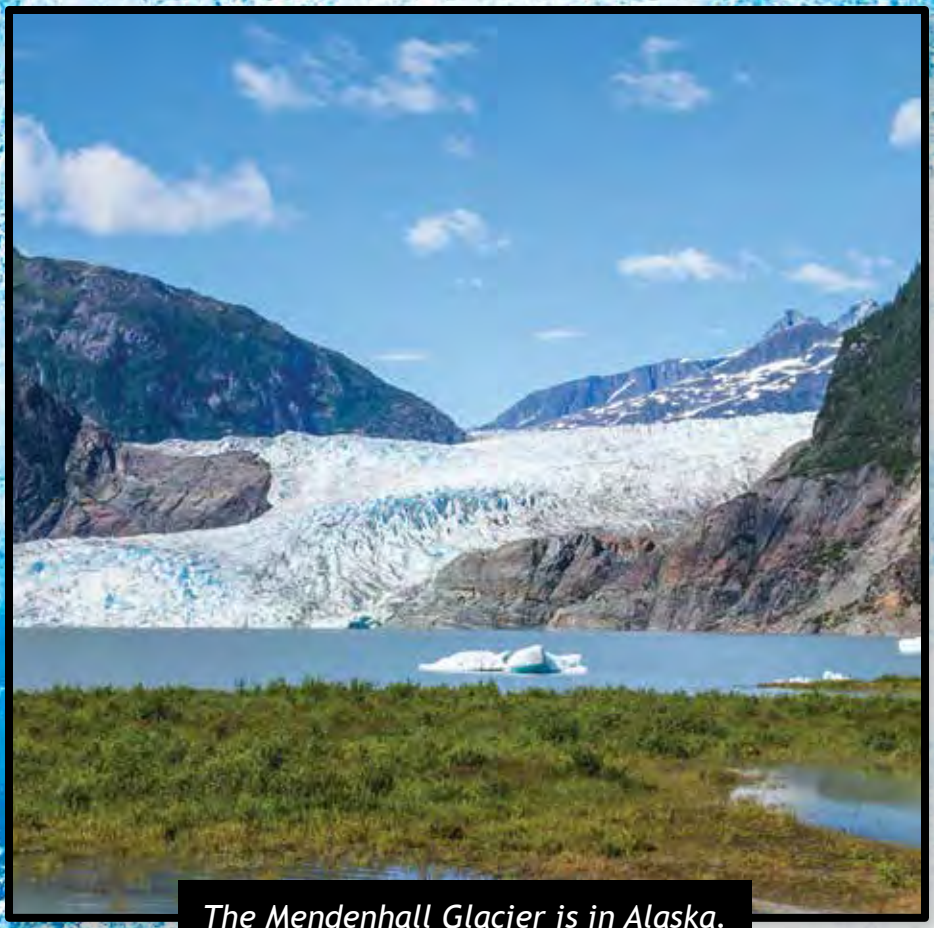
2) There are thick rivers of ice called **alpine glaciers** (GLAY•shurs).

3) There are sheets of ice over flat land called **continental glaciers**.

4) In the sea, there are big, floating blocks of ice called **icebergs**.

5) On land, there is frozen ground called **permafrost**.

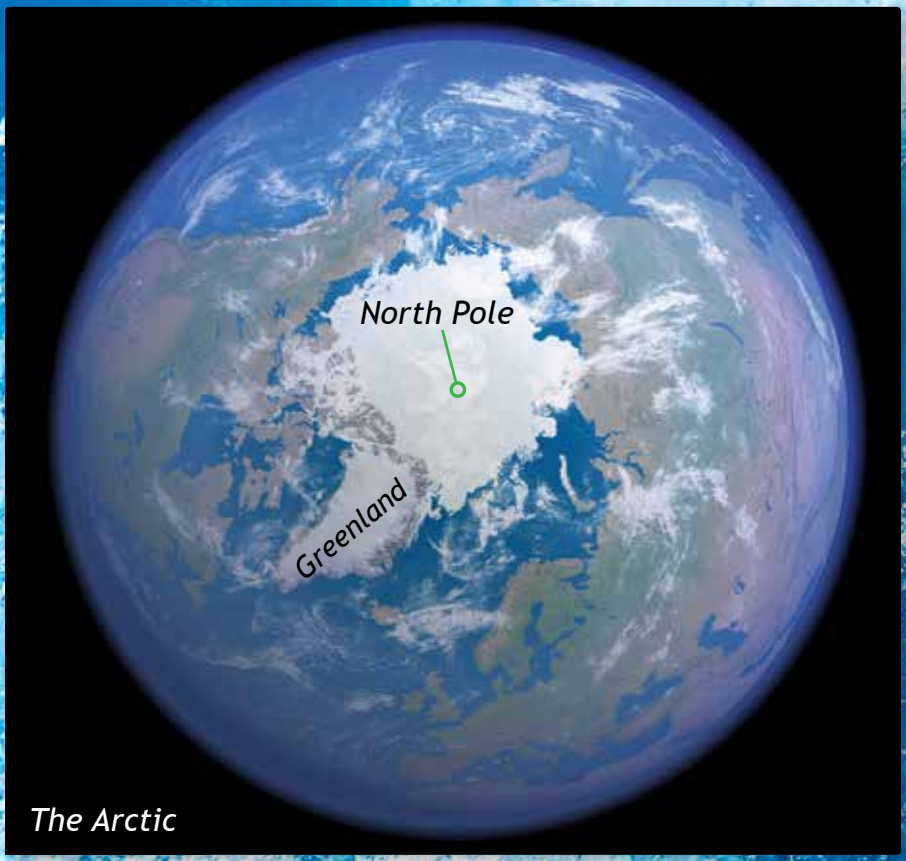
*An iceberg floats in the Arctic.*



*The Mendenhall Glacier is in Alaska.*

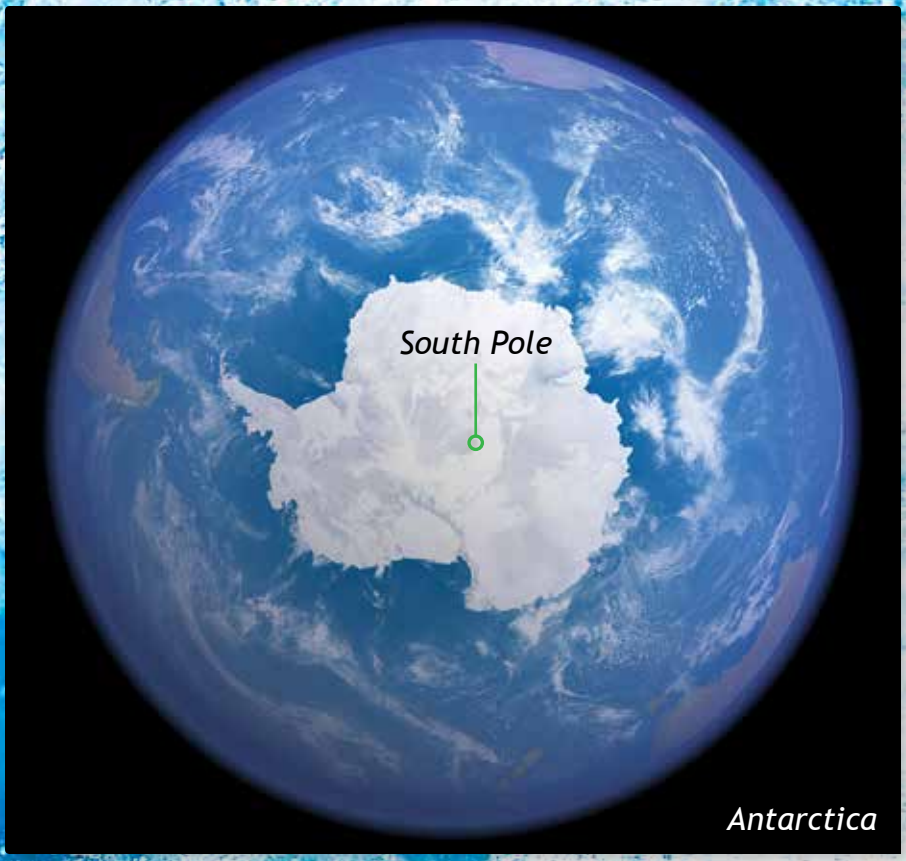
All this ice together is called the **cryosphere** (KRY•oh•sfeer). The Arctic and Antarctic make up most of the cryosphere.

The Arctic is the area around the North Pole. Most of Greenland is in the Arctic. Sheets of snow and ice cover Greenland.




*The Arctic*

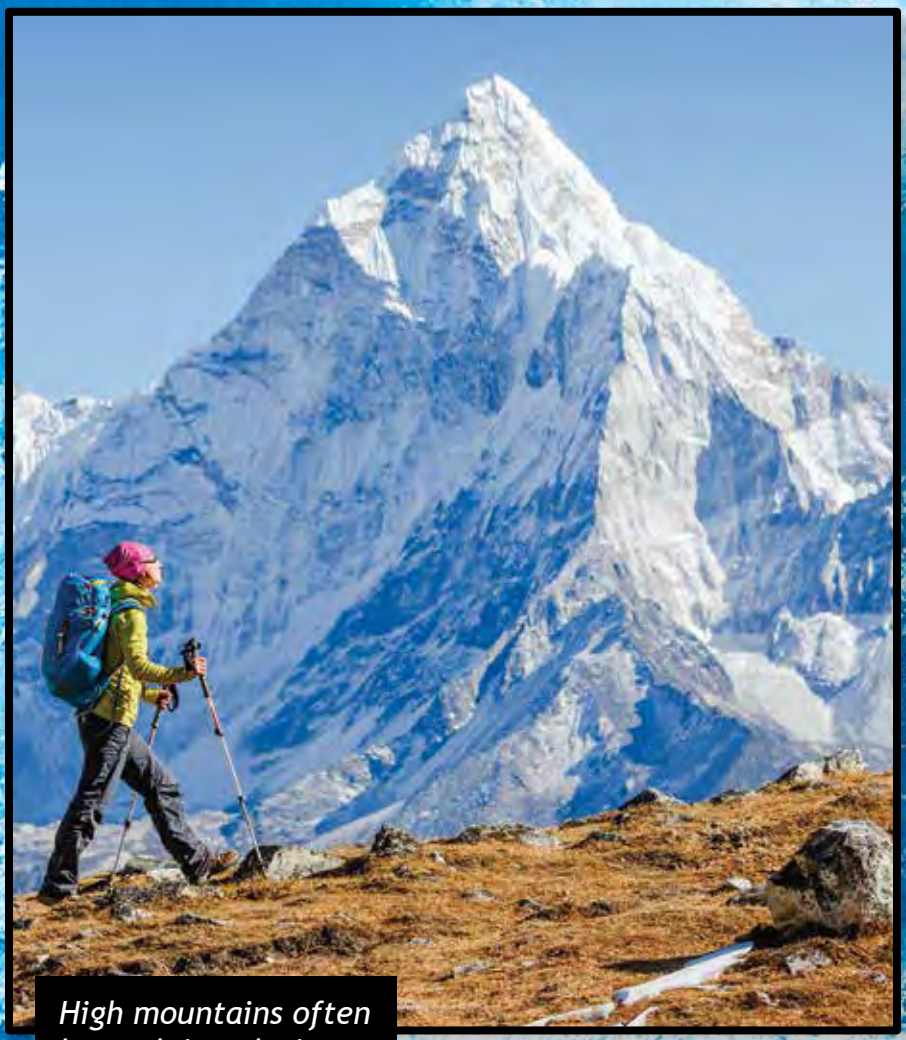
*The ice at the North Pole covers the sea.*



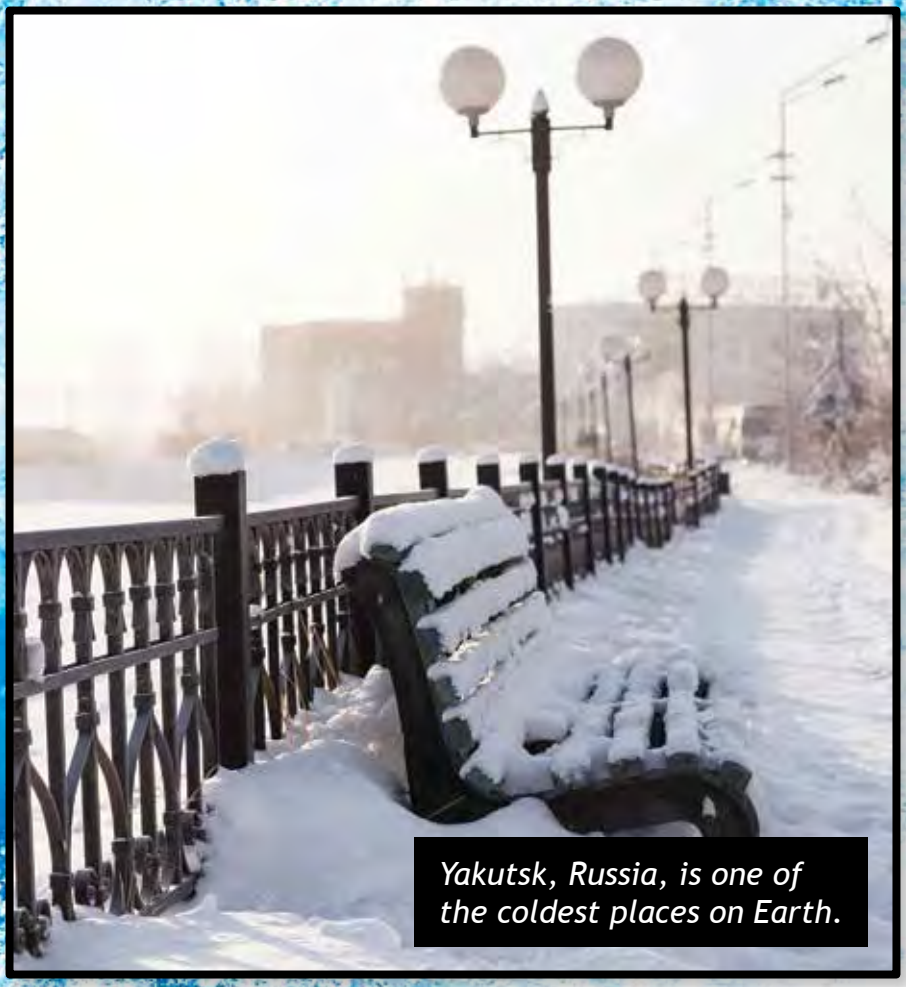

*The South Pole is on the continent of Antarctica.*

The Antarctic is the area around the South Pole. The lowest temperature on Earth was recorded there: −128.6°F at Vostok Research Station. Water freezes at 32°F.

Some high mountains are also part of the cryosphere. These mountains can be found all over the world.



*High mountains often have alpine glaciers.*



*Yakutsk, Russia, is one of the coldest places on Earth.*

Russia has the world's coldest places other than the South Pole. The city of Yakutsk (ya•KOOTSK) recorded the lowest temperature outside of Antarctica. It was –96°F.

All this ice affects the world's water. Almost 70 percent of Earth's fresh water is stored in glaciers and **ice caps**. Ice caps are thick layers of ice. They cover the North and South Poles.

## FROZEN FACT

In Yakutsk in 2013, a photographer's camera froze within 15 minutes. He said it was just as well, because his fingers were numb by that time!

*Pieces break off glaciers as the glaciers melt.*

The cryosphere also affects how warm Earth is. Snow and ice keep Earth from getting too hot. They reflect, or bounce back, sunlight into space.

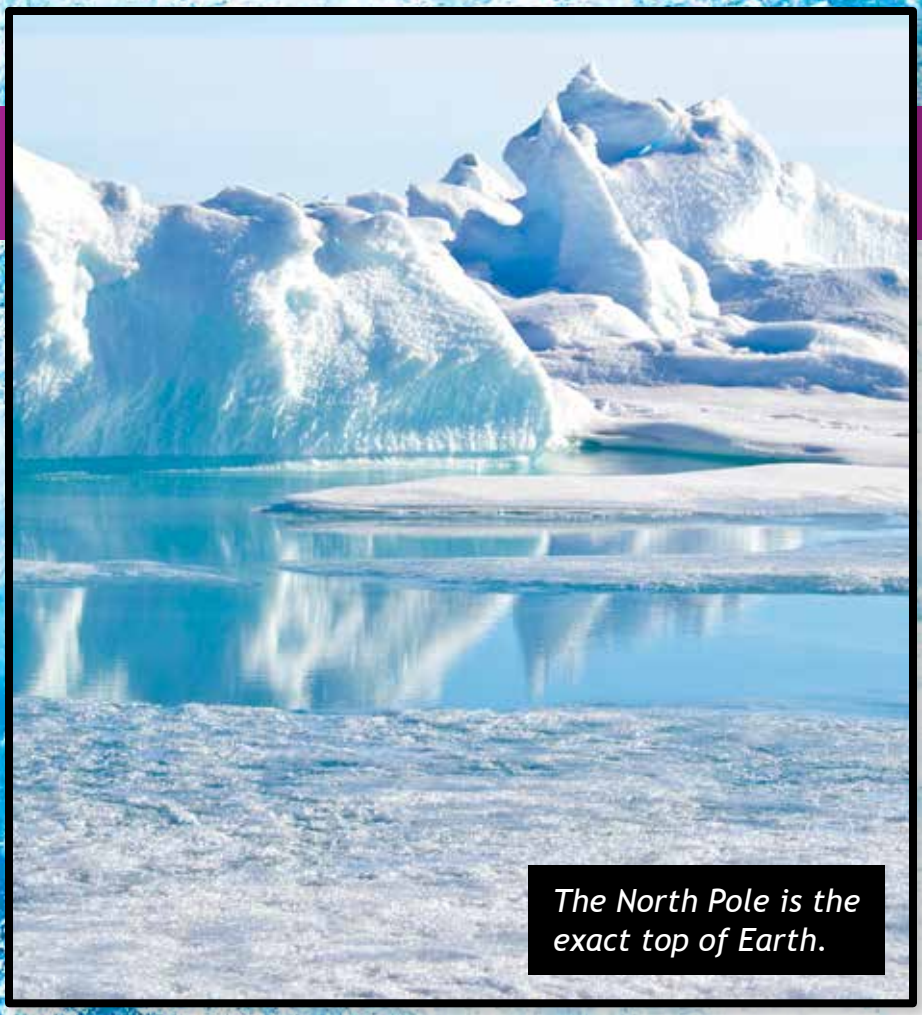
When there's less snow and ice, the sunlight isn't reflected. It warms up the land. This leads to warmer temperatures, which cause more snow and ice to melt.

CHAPTER 2

# POLAR ICE

Together, the Arctic and Antarctica make up the polar regions. The North and South Poles are the coldest areas in the world. They don't get direct sun.

*Polar bears live in the Arctic.*



*The North Pole is the exact top of Earth.*

The North Pole is the most northern point on Earth. There is ice but no land. There is only ocean.

The ocean is mostly covered by **sea ice**. The sea ice is always moving.

At the South Pole, there *is* land. The land is Antarctica, which is a continent. The land is almost completely covered in ice and snow.

*This ship, called an icebreaker, is made to cut through sea ice.*

*Sea ice floats on the ocean.*

There are a few kinds of ice in these places. First, there is the polar ice.

Then there is **glacial** (GLAY•shul) **ice**. Glacial ice forms on land. It is made up of freshwater snow packed tightly over many years.

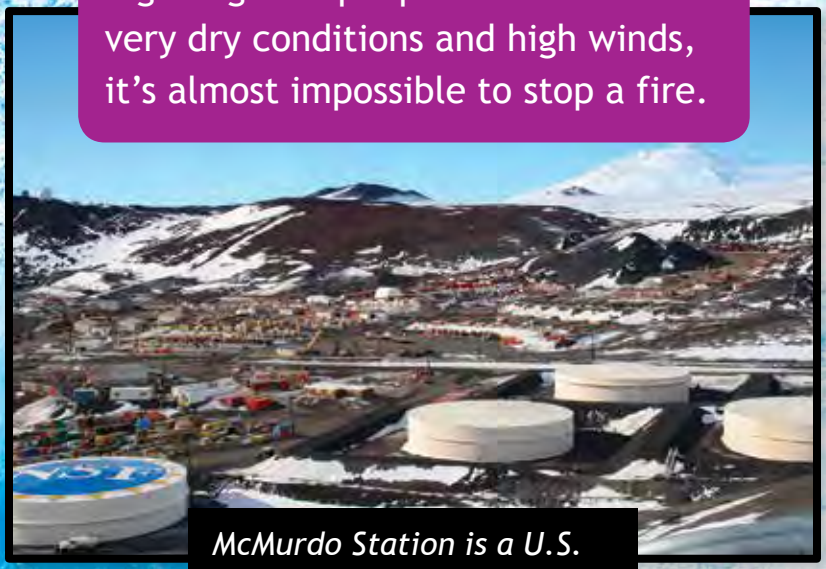
There is also sea ice. It is frozen ocean water. Most of the Arctic Ocean is sea ice.

All the snow and ice makes it hard to travel to the poles. Explorers first reached the North Pole in 1908 or 1909. Roald Amundsen (ROO•ul AH•mun•sun) reached the South Pole in 1911.

*Roald Amundsen explored both the North and South Poles.*

## FROZEN FACT

In Antarctica, fires in buildings are a big danger to people. Because of the very dry conditions and high winds, it's almost impossible to stop a fire.



*McMurdo Station is a U.S. research post in Antarctica.*

Scientists (SYE•en•tists) want to study the weather and the ice at the poles. There are many research stations at the South Pole. The first one was built in 1898.

Now, between 50 and 200 scientists at the South Pole study snow, the air, and the climate. They also study glaciers, the ocean, and the animals there.

Animals that live at the poles have ways to fight the cold. A polar bear's fur sheds water. Arctic hares, foxes, and ground squirrels have thick fur.

Many animals have extra body fat. This helps them stay warm.

*An arctic fox will curl up into a ball to save heat.*

*The polar bear's thick fur sheds water.*