

MSU Science Zone

No.
20



What is an ice sheet?

During winter, you can often look outside and see the ground covered in white snow. As spring arrives, the snow melts and we see green grass and new plants. Imagine, though, if the world outside were always white and snowy, every day of the year. This is true for Earth's ice sheets. Ice sheets are huge areas of permanent ice. There are only three ice sheets on Earth: the Greenland Ice Sheet, the West Antarctic Ice Sheet, and the East Antarctic Ice Sheet. The Greenland Ice Sheet covers almost all of Greenland, the largest island in the world. The two ice sheets in Antarctica cover the world's fifth largest continent—Antarctica is bigger than either Europe or Australia. Ice sheets form over hundreds of thousands of years. When snow falls in Greenland or Antarctica it does not melt and instead turns to ice. This ice builds up year after year to form the ice sheets. The East Antarctic Ice Sheet has the thickest ice in the world. Close to the center of this ice sheet, scientists measured the ice and it is about 3 miles thick!

Learn about opportunities to participate in upcoming science activities and events at MSU by visiting Montana.edu/outreach



Did you know?

Using ice cores from the East Antarctic Ice Sheet, scientists have been able to study ice that formed 800,000 years ago!

Try this!

Scientists use ice from the three ice sheets to study what the Earth was like in the past. To do this, they remove ice cores from the ice sheets. In order to find out how old the ice is, they count the layers—one layer of light and dark ice forms each year. Study the ice core on the right to answer these questions:

- 1) If the layer on top was formed in 2010, what year was the bottom layer created?
- 2) Why might some layers be thinner than others?

Once they have ice cores, scientists often study the small air bubbles that are trapped in the ice. The air in the bubbles is about the same age as the ice, so scientists use bubbles to learn about the ancient atmosphere. Get some ice cubes from your freezer and see what you can observe about air bubbles in ice. How many air bubbles are in the ice cubes? How big are the bubbles? Does ice with more air bubbles look different? Could changes in air bubbles help explain why the layers in an ice core might look different?

2010

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1) 2004 2) Some layers are thinner because not as much snow fell that year, so less snow was available to form ice.