

Ice near North Pole is melting, making craters, mudslides and tilting trees

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Scientist Sergey Zimov (right) demonstrates the emission of methane trapped under the ice of a Siberian lake near the town of Chersky, Russia, Oct. 23, 2010. In the last five years, as the Earth has warmed, the permafrost has thawed more rapidly, accelerating the release of methane gas. Photo: AP Photo/Arthur Max

Our whole planet is warming, but the Arctic is warming much faster. The area near the North Pole is getting hotter twice as fast as the rest of the planet.

The Arctic is mostly covered with ice called permafrost. Today, the permafrost is melting. Scientists are discovering strange things: ice that burns, slow-moving mudslides, tilting trees, and mysterious craters.

Craters have been found in Russia. These bowl-shaped holes in the ground are deep and wide. Scientists are not sure what caused them. Methane gas was trapped underground for hundreds of years. Scientists think that when ice melted, the methane burst out.

The melting ice is causing huge changes in the Arctic. Some of the changes may lead to even more warming.

Craters can become lakes. Lakes warm the land around them because their water traps heat from the sun.

Fire Over The Ice

Lakes and the land nearby are home to microbes. Microbes are tiny organisms like bacteria. They eat dead plants that have thawed and change them into methane gas. An area with a lot of methane gas can be lit on fire. Flames can dance on the ice.

Along with craters, scientists have seen trees leaning over. As Arctic ice melts, hard soil becomes mud. The trees begin to lean.

Whole forests are now leaning to one side. They are nicknamed “drunken trees.”

The mud can also damage roads and buildings after they sink into the mud.

On steep ground, the melting ice causes slumps. The slumps are like slow-moving mudslides. Some slumps are huge and are a serious problem. These “megaslumps” are moving through the land and show no signs of stopping.

One enormous slump in Russia has been growing since the 1970s, says scientist Guido Grosse.

More Greenhouse Gas

Maybe the biggest worry in the Arctic is a sudden release of methane gas.

Methane traps heat in our atmosphere and causes the earth to warm. It is a greenhouse gas. Methane traps eight times more heat than carbon dioxide (CO₂), the most common greenhouse gas.

The thawing in the Arctic will also release carbon dioxide. The more greenhouse gases the Arctic releases, the faster it will warm. Humans also cause CO₂ by burning fossil fuels like oil, coal and gas.

The thawing will also uncover dead plants. Microbes will eat the plants. Then they will release CO₂, which may cause even more warming.

The permafrost can never refreeze, says scientist Kevin Schaefer. Thawing could go on for hundreds of years.

Scientists Are Worried

Twice as much carbon lies below the Arctic soil as there is in the atmosphere. As carbon gets released, it could raise the Earth's temperature.

In the past, scientists thought the Arctic would thaw slowly. Now they are not so sure.

Signs of thawing like the slumps are happening faster than expected.

It is difficult to know how quickly the Arctic will thaw. The meltdown could speed up and happen in decades. It could slow down and thaw over centuries.

Scientists say Arctic thawing needs more study. Because of the huge area and tough conditions, that has been difficult.

Scientists do know one thing: humans have hurt the Arctic.

"The faster you burn fossil fuels, the faster the Arctic is going to warm," Schaefer said.

Quiz

- 1 According to the article, what is permafrost?
 - (A) The area surrounding the craters.
 - (B) Ice that covers most of the Arctic.
 - (C) The melting of ice in the Arctic.
 - (D) Craters that have been formed in the Arctic.

- 2 The melting of ice causes all of the following EXCEPT:
 - (A) heating up of nearby lakes
 - (B) flames dancing on the ice
 - (C) slow-moving mud slides
 - (D) tilting of trees

- 3 Why are scientists finding it difficult to study thawing?
 - (A) The ice is melting at a fast rate.
 - (B) The weather conditions are tough.
 - (C) The melting of ice is a continuous process.
 - (D) They don't have enough resources to conduct the study.

- 4 Select the paragraph from the section "More Greenhouse Gas" that discusses two of the greenhouse gases.