



## SCIENCE & TECHNOLOGY

# Study Suggests Melting in Arctic Could Release Heat-trapping Gases

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A new study suggests that increased warming in Arctic areas could release huge amounts of carbon into the atmosphere.

The study centered on the **permafrost** layer beneath Arctic soil. The researchers said melting of this layer could release billions of tons of carbon into the atmosphere, with big effects on worldwide temperatures.

Permafrost is a layer of soil in the world's Arctic and Antarctic areas. It has, in some cases, remained frozen for many years. Permafrost is important to the world's climate because it is believed to store two times the amount of carbon as there is in the atmosphere.

The study was published this month in the science journal *Nature Geoscience*. Researchers examined how the top layer of this frozen soil warms during the summer. That is when plants and microorganisms come to life. The microorganisms eat plant roots and “breathe” like all living organisms, releasing carbon dioxide which is considered a heat-trapping, greenhouse gas. Scientists call this process rhizosphere priming.

The researchers say as more frozen soil warms up, more plant roots are becoming exposed to microorganisms. As a result more carbon dioxide is being released. The researchers estimated the process could add as much as 40 billion tons of carbon to the atmosphere by the year 2100.

Until now, the United Nations Environment Programme had estimated that global **emissions** of carbon gases must fall by 7.6 percent every year for the next 10 years. That is what scientists say would be needed to prevent world temperatures from rising more than 1.5 degrees Celsius –the main temperature goal of the Paris Agreement.

But the writers of the new study note that their estimates are currently "**unaccounted** for" in global emission **predictions**. "To keep warming below 1.5 or 2 °C," the authors wrote, emissions "may need to be even more **constrained**."

Researchers suggest that warming in the Arctic is worse than in other places. Studies by the United States space agency and the U.S. National Oceanic and Atmospheric Administration suggest that the past 10 years have been the hottest on record. In the Arctic, air temperatures are rising two times as fast as the global average.

I'm John Russell.

*John Russell adapted this story from a report by VOA. Mario Ritter Jr. was the editor.*

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## Words in This Story

**permafrost** – *n. technical* : a layer of soil that is always frozen in very cold regions of the world

**emission** -- *n.* something sent out or given off

**unaccounted** – *adj.* unexplained, not included in; the act of producing or sending out something (such as energy or gas) from a source

**prediction** – *n.* the action of saying something will happen; a forecast

**constrain** – *v.* to limit or restrict the scope or activity of something

