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Deep Permafrost Layers More Climate-Resilient Than Previously Thought – Study

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The Batagaika crater first appeared in the mid-20th century and has been rapidly expanding since. **Sakha News**

Ancient layers of Siberian permafrost are more resilient to rising global temperatures than previously thought, according to a study by an international team of scientists at the University of Sussex.

Permafrost, which covers roughly 65% of Russia's territory, holds roughly twice as much carbon than is found in Earth's atmosphere, according to the U.S. National Snow and Ice Center. Experts warn that as the planet warms, these permanently frozen layers of soil will melt and release stored greenhouse gases, sparking a potentially catastrophic "feedback loop" of climate change acceleration.

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British, Russian and German scientists studied deep permafrost layers up to 650,000 years old at the Batagaika crater in Siberia, a giant megaslump measuring 50 meters deep and 0.8 kilometers wide.

These deeper layers stayed frozen throughout multiple climate shifts during the last 420,000 years, even in periods when air temperatures were at times 4-5 degrees Celsius higher than at any time in the last 11,700 years, the scientists said in the study published June 15.

The Batagaika crater first appeared in the mid-20th century and has been rapidly expanding since. While its expansion has been attributed to climate change, other human activities also play a major role in the megaslump's appearance, the study authors said.

Deforestation and off-road vehicle movement acted as a trigger at Batagaika by weakening the upper permafrost layers and setting off melting at depths otherwise resistant to climatic changes.

"Slump expansion [at the Batagaika crater] by tens of meters each year since the 1990s has caused major disturbances to vegetation, hydrology and sediment in the area," said Julian Murton, the study's lead author.

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