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Permafrost Melting a Growing Climate Threat

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SINGAPORE

- The amount of carbon locked away in frozen soils in the far Northern Hemisphere is double previous estimates and rapid melting could accelerate global warming, a study released on Wednesday says.

Large

areas of northern Russia, Canada, Nordic countries and the U.S. state of Alaska have deep layers of frozen soil near the surface called permafrost.

Global

warming has already triggered rapid melting of the permafrost in some areas, releasing powerful greenhouse gases carbon dioxide and methane.

As

the world gets warmer, more of these gases are predicted to be released and could trigger a tipping point in which huge amounts of the gases flood the atmosphere, rapidly driving up temperatures, scientists say.

"Massive

amounts of carbon stored in frozen soils at high latitudes are increasingly vulnerable to exposure to the atmosphere," said Pep Canadell, executive director of the Global Carbon Project at Australia's state-funded Commonwealth Scientific and Industrial Research Organization.

"The research shows that the amount of carbon stored in soils surrounding the North Pole has been hugely underestimated."

The study is published in the latest issue of Global Biogeochemical Cycle.

Canadell

said a four-year study of the latest research on permafrost, data from new drilling projects as well as the release of previously unpublished data from the Russian Academy of Sciences had led to a rethink of carbon levels.

"Projections

show that almost all near-surface permafrost will disappear by the end of this century exposing large carbon stores to decomposition and release of greenhouse gases," he said in a statement.

He

said if only 10 per cent of the permafrost melted, this could lead to the release of an additional 80 parts per million of carbon dioxide equivalent into the atmosphere. This would equate to about 0.7 degrees Celsius of global warming.

According

to the U.N. Climate Panel, average temperatures have already risen by about 0.7 deg C since the late nineteenth century and are forecast to rise another 1.8 to 4 deg C by 2100, Scientists say a rapidly warming planet will trigger more intense storms and droughts, rising seas and melting ice caps.

Canadell

said that on a recent trip to northern China, the permafrost at its southern limit had all but disappeared over the past 20 years.

Locals

had told him the permafrost was once 20 cm below the surface and now it was several meters down, he told Reuters from Canberra, Australia.

In the statement, he said computer models showed global warming could trigger an irreversible process of thawing.

For

example, heat generated from increased microbial activity in the soil could lead to sustained and long-term emissions of carbon dioxide and methane.

In addition, lakes formed as permafrost thaws would draw heat to deeper layers and bring methane trapped in pockets below to the surface.