After COP26, climate scientist says the world is on thin ice

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For Kent Moore, the excitement of making a discovery is often tinged with sadness.

That's because Moore, a professor of atmospheric physics at the University of Toronto Mississauga, focuses on the impact of climate change.

"I wish I could discover things that weren't an impact of the change in climate. But unfortunately, everywhere you look on the Earth, you're seeing these changes and most of them are happening because the climate is changing," says Moore, who is also vice-principal, research at U of T Mississauga.

After the 2021 United Nations Climate Change Conference (COP26) came to a close last week, Moore says he feels a sense of déja vu—and frustration.

"Countries have committed to certain levels at COP26, but the problem is, we've never been able to meet any of our commitments," he says. "It's a challenge. I don't think it's going to be easy to meet these targets, but if we don't... our children and grandchildren will have to deal with the consequences of our actions and that's what really saddens me."

His research is a constant reminder of the consequences of climate change.

In a study published over the summer, he and other researchers found a 3,000 square kilometer hole, or polynya, opened up for two weeks in May of 2020 in an area of the Arctic known for having the oldest and thickest ice. The findings suggest the "Last Ice Area" may be undergoing rapid changes that reduces its suitability for ice-dependent species.

"When we study the Arctic sea ice we focus on the area of ice, which is decreasing—but what we don't focus on is that it's also getting thinner," Moore says.

He and his co-authors suggest that a strong storm with anti-cyclonic winds (that rotate clockwise) caused the polynya to form—a phenomenon that may become more common as Arctic ice gets thinner due to climate change.

If nothing changes, Moore predicts that most of the ice in the Arctic will be lost in the summer by about 2050 and that the Last Ice Area will be a rare refuge for plants and animals—including polar bears—that depend on the ice for their survival.

"This Last Ice Area will be the last area where these ecosystems will be able to survive, and we're hoping this ice will persist through a period of time until we get our CO_2 emissions under control," Moore says.

Many scientists estimate that the average global temperature has increased by more than one degree Celsius in the last 150 years, leading to more frequent extreme weather events such as wildfires, droughts and heatwaves.

"Everything we're experiencing now, we will experience in the future," Moore says, "and it will be even worse than that because we aren't taking any heat out of the system now."

Climate targets set out at COP26 will make it hard to stay within the global average surface temperature increase of 1.5 C, Moore says. And if the temperature jumps just half a degree to 2 C, it will have devastating consequences.

"At 1.5 C, if we jump forward to the end of the century, there still will be some summers where there is ice in the Arctic. At 2 C, there won't be any. It will be ice-free during the summer," Moore explains. "We hear a lot about stresses on coral reefs, which are complex ecosystems, at 1.5 C, but the corals will survive. They'll be under a lot of pressure, but they'll

survive. At 2 C, they probably won't."

The difference in half a degree would also affect people. About 14 percent of the world's population will experience extreme heat in the summer with a 1.5 C increase. That number jumps to roughly 37 percent of the population at 2 C.

Moore says that, while individuals are being urged to do their part by driving electric cars and using less plastic, it's ultimately up to governments to ramp up their climate commitments to make a greater difference.

For now, he thinks many countries are making more modest promises with the intention of protecting their economies in the short term.

"I think they understand that if they really move on this file, they'll suffer a lot of political heat and they won't get much benefit from it because the benefits will be accrued in 20 to 30 years," he says. "I don't think there's the political will to do it."

He says he commends young climate activists who are pressuring their governments to make more ambitious environmental commitments.

"They're the ones that understand that it's going to be them that's going to clean up this mess. They're really frustrated, and I totally understand their frustration. I feel it too," Moore says. "These changes really are significant, and they're going to be impacting the Earth for a long, long time."

Provided by University of Toronto

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