

Melting Arctic ice cap at record

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With Arctic ice cap at record low this summer, University of Calgary geography professor John Yackel predicts serious consequences for the planet.

Think of the poor hamster on the treadmill. Steadily picking up speed and caught up by the momentum, unable to stop until it is overwhelmed and sent tumbling, crashing out of control inside the spinning wheel.

That's the analogy John Yackel, head of the Department of Geography, makes when he considers the annual summer ice melt in the Arctic, which he's been closely monitoring for the past 15 years, documenting the ice cover as it has steadily shrunk in the wake of Arctic and global warming.

Last week marked the unofficial peak, or the end of the summer ice melt, with [ice levels more dramatically diminished](#) than at any time since satellite monitoring began 33 years ago.

The previous record low for [Arctic sea ice](#) extent was set on September 18, 2007 with a 4.17 million [square kilometer](#) ice cap. That was shattered this year by the end of August when it had melted to below 4 million square kilometers. "This the smallest minimum ice extent we've ever had, and not just in the satellite record, but probably in the last million years," says Yackel, a sea ice geophysicist and [climatologist](#). From the patterns he has observed, this year's extreme melt could be the beginning of a frightening trend.

Yackel and the university-based Cryosphere Climate Research Group use [satellite technology](#) to research the physical properties of Arctic ice.

As recently as the 1980s, most of the ice in the Arctic Ocean was "multi-year ice" – thick ice that would remain throughout the summer. At that time the split between multi-year ice and seasonal ice – ice that would melt away in the summer – was about 80 per cent multi-year and 20 per cent seasonal. "In the last 20 years we've almost gotten

to the point where we've reversed that ratio and that's significant because the seasonal ice is so much thinner than the multi-year ice and it will melt easily come summer," Yackel says.

Yackel predicts the ice extent that covers the Arctic Ocean "is likely to be gone in the summers within the next 20 to 25 years, if not sooner."

The depleting ice cover in the [Arctic Ocean](#) would have serious ramifications for the planet. Arctic ice acts as a reflector of sunlight, helping regulate the Earth's temperature, cooling the climate. "When there's no longer that sea [ice](#) below the air mass and it's just open ocean, that's when more moisture off the ocean's surface gets into the atmosphere and the water vapor in the atmosphere makes for more violent storms," says Yackel. "We can also expect to see an increase in storm frequency and storm intensity for most of the world's populated places as the Arctic and Earth continues to warm."

Provided by University of Calgary

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