

Canadian ice hockey feels the heat

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The future of Canadian outdoor ice hockey – a sport synonymous with the country's culture – is being threatened by anthropogenic climate change, new research suggests.

As warmer winter temperatures restrict ice from freezing over, researchers believe the ice hockey stars of the future will have limited access to the frozen lakes and backyard rinks that have helped shape the careers of some of the greatest professional players, such as Wayne Gretzky; the Canadian considered to be the greatest of all time who started skating as a child on a rink in his backyard.

Evidence of this was seen earlier this year when the world's longest skating rink, the Rideau Canal Skateway in Ottawa, was closed due to warmer-than-usual seasonal temperatures.

Their study, published today, 5 March, in IOP Publishing's journal *Environmental Research Letters*, calculated the annual start date and length of the outdoor skating season (OSS) from historical weather data across Canada and recorded how these have changed since the 1950s in tune with global warming.

Of the 142 meteorological stations studied, the researchers, from McGill University and Concordia University, found that only a few of the weather stations showed a statistically significant trend towards earlier start dates of the OSS; however, a much larger proportion of stations showed a statistically significant decrease in the length of the skating season over the past half century.

The largest decreases in the skating season length were observed in the Prairies and Southwest regions of Canada. By extrapolating their data to predict future patterns, the researchers envisaged a complete end to outdoor skating within the next few decades in areas such as British Columbia and Southern Alberta.

Co-author Damon Matthews from Concordia University emphasizes, though, that the skating season in all regions of Southern Canada is vulnerable to continued winter warming: "There is not much akin to skating outdoors, and the creation of natural skating rinks depends on having enough cold winter days. It is hard to imagine a Canada without outdoor hockey, but I really worry that this will be a casualty of our continuing to ignore the climate problem and obstruct international efforts to decrease greenhouse gas emissions."

Using information from outdoor public ice skating rinks in various Canadian cities, the researchers created a set of weather criteria that marks the beginning, and determines the length, of the OSS.

Their definition of the beginning of the OSS is the last in a series of three days where the maximum temperature does not exceed -5°C – it takes several cold days to lay the initial ice on the rink. Subsequently, the researchers counted the number of viable rink flooding days to estimate the season's length at each of the 142 stations.

Canada appears to have taken more of a hit from global warming compared to other countries in the world: since 1950, winter temperatures in Canada have increased by more than 2.5°C , which is three times the globally-averaged warming attributed to anthropogenic global warming.

More information: Observed decreases in the Canadian outdoor skating season due to recent winter warming, Damyanov et al. 2012

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