

Sustainability in the City and Beyond

Concordia University

March 19-21, 2019

Daily weather variability and ice conditions: How do weather and climate affect outdoor skating and hockey in Montréal?

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Changes to the outdoor skating season (OSS) due to climate change have been observed using estimates of the weather conditions needed for outdoor rinks as a proxy for rink availability. However, research on the actual weather conditions needed for outdoor rinks to exist in a skatable condition is limited. In this study, we used historical weather data and daily reports on outdoor rinks in Montréal to identify which daily and multi-day temperature variable can best act as an indicator of outdoor ice rink availability. We found that the mean of the preceding six day maximum temperature was the best predictor of skating availability. Using a logistic regression model developed from the observed rink data and historical six-day maximum temperature data, we predicted future OSS conditions for the island of Montréal based off of general circulation model (GCM) projections gathered from the MarkSim Weather Generator. Results from this study will contribute to developing a more precise criterion of the weather conditions needed for outdoor rinks to be and remain skatable. With a precise criterion, weather conditions will be able to serve as a more accurate proxy for rink availability, thus facilitating a more precise understanding of how the OSS has changed historically and will be affected by climate change. A thorough understanding of the effects of climate change on the OSS will allow for mitigation and, given the cultural importance of outdoor skating and hockey in Canada, could be a valuable tool for climate change education.



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