

Accepted Manuscript

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PII: S0169-8095(14)00148-3
DOI: doi: [10.1016/j.atmosres.2014.03.024](https://doi.org/10.1016/j.atmosres.2014.03.024)
Reference: ATMOS 3129

To appear in: *Atmospheric Research*

Received date: 9 September 2013
Revised date: 22 March 2014
Accepted date: 27 March 2014



Please cite this article as: Erfani, R., Chouinard, L., Cloutier, L., De-aggregated Hazard of Freezing Rain Events, *Atmospheric Research* (2014), doi: [10.1016/j.atmosres.2014.03.024](https://doi.org/10.1016/j.atmosres.2014.03.024)

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De-aggregated Hazard of Freezing Rain Events

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1 Introduction

Interest in the recurrence period of major freezing rain events increased with the occurrence of events such as the 1998 ice storm. The latter had a major impact on public safety in Quebec and led to a government appointed commission, the Nicolet Commission. The 1998 ice storm in Quebec was unprecedented in modern history in terms of its spatial extent, intensity, and the damage it caused (Milton, 1998; Government du Quebec, la commission scientifique et technique, 1999). Freezing rain and wind speed are the governing climatic loads for the design of electrical transmission lines, and the Hydro Quebec infrastructure was severely damaged during this event. The need for research in this area is certainly justified.

Changnon and Karl (2003) and Cortinas, Bernstein, Robbins, and Strapp (2004) analyzed data on surface observations of freezing precipitation in the United States and Canada. They studied the frequency of events in different parts of the country and their inter-annual variability. Cortinas et al. concluded that the highest median annual number of hours of freezing rain occurred in the St. Lawrence River Valley and over Newfoundland with 40 and 50 hours respectively. After analyzing the period from 1948 to 2000 in the United States, Changnon et al. also found that the average annual number of freezing rain days varied over time. Freezing rain storms occurred most frequently between 1948 and 1964, 7 per year on average, and least frequently between 1965 to 1981, 5 per year on average. Therefore long

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