Geophysical Research Abstracts
Vol. 21, EGU2019-8222, 2019
EGU General Assembly 2019

The freezing-rain narrative or the story of climate adaptation to a high-impact hazard through climate modelling.

Dominique Paquin (1), Émile Bresson (2), Julie Thériault (3), and Médéric St-Pierre (3)

(1) Ouranos Consortium, Climate simulations and analysis, Montréal, Québec, Canada (paquin.dominique@ouranos.ca), (2) Université du Québec en Abitibi-Témiscamingue (UQAT), (3) Université du Québec à Montréal (UQAM)

Freezing rain is a natural hazard that can cause high impacts in different sectors, from hydroelectricity transportation to agriculture, and from tourism to health. The province of Québec (Canada) is one of the places in the world where historic events of freezing rain led to considerable damages that are part of the national memory.
As a frontier organization that encompasses the chain from regional climate modelling to impact and adaptation to climate change, the Ouranos Consortium is particularly sensitive to the needs of its members, who come from many different sectors, such as the government, hydroelectric companies, and cities. Many of them request information on how climate change will affect freezing rain events in the future for many years. The purpose of this presentation is to review how we have managed through the last years in dealing with freezing rain, a variable that was not available from climate simulations, and how Ouranos took the opportunity to operationalize a new version of the Canadian Regional Climate Model (CRCM5), which includes an in-line diagnostic precipitation partition scheme simulating mixed precipitation. We will discuss our experience on the scientific partnership established with the UQAM university, on difficulties in finding appropriate observations, on the evaluation of the model in recent past and the production of climate-change projections, going through the analysis of the influence of the model's horizontal resolution, and finally dealing with unrealistic requests from users to the first use of the variable in an adaptation project on wind power.