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Evaluation of climate events that influence the ground transportation industry along the TransCanada corridor: historical trends and GCM projections

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Trucking is the most efficient and economic method of freight movement in Canada. Transporting everything from produce to building materials, the industry is one of the main employers in the country, and in 2004 contributed $14.8 billion to the Canadian economy. It is estimated that over 600 000 truck trips take place every week in Canada along the TransCanada corridor, a network that stretches across southern Canada for over 24 000 kilometres connecting major centres and border crossings. The trucking industry is highly vulnerable to meteorological disruptions which can reduce traffic volume, roadway capacity and average speed. Despite the importance of trucking in Canada, the impacts on the trucking industry due to climate change have not been explored in great depth.

This project identifies the trends in weather events along the TransCanada corridor based on the sensitivities of trucking. Historical climate data (1955-2004) from a national network were analyzed for the trends in number of yearly events for precipitation (snow, rain and freezing rain), temperature (maximum and minimum), and freeze-thaw. Climate projections from the CGCM2 and HADCM3 climate models using IS92a, A2 and B2 scenarios were used to identify potential changes for 2020 and 2050. The results were aggregated for different regions and indicate that trucking will not be consistently affected across the country; there are areas that will benefit from climate change and areas that may see more adverse impacts.