

APPLIED MATHEMATICS SEMINAR 291

An Applied Mathematical View of Meteorology and Weather Prediction

Date: **2/28/2020**

Time: **3:00—4:20 PM**

Location: **COB1 263**

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Abstract

Numerical weather prediction (NWP) uses complex mathematical models of the atmosphere and oceans to predict the weather. This seminar will provide an overview of this research area from the perspective of applied mathematics. Then, we will discuss new approaches that are being studied for the development of a new model. Our methodology is to represent the geophysical spacetime in four dimensions in the language of tensor analysis on manifolds. Then, we formulate covariant equations of motion. Finally, we discretize these equations using the direct flux reconstruction method and an exponential integrator.

About the Speaker

Stéphane Gaudreault joined Environment and Climate Change Canada in 2003, while studying in applied mathematics. He worked on numerous projects related to air quality, wind energy and national defence. Then, he joined the Meteorological Research Division in 2008 and is currently the lead of the dynamics research team. This research team develops and maintains the dynamic core of the GEM Canadian model and undertakes research on numerical techniques for use in future cores.