

TIES07 Regional Meeting : Climate change and its environmental effects: monitoring, measuring, and predicting (<http://www.stat.washington.edu/peter/TIES%20NA07.html>)

**Canadian Agriculture, Climate Change and Extreme Weather:
Developing a credible database of gridded long-term
nationwide daily agroclimatic data**

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Abstract

The use of daily climate data in agriculture has increased considerably over the past two decades as a result of the rapid development of information technology and the need to assess risk of future extreme weather due to climate change. Such events have the potential to impact agricultural production and environmental sustainability affecting soil, air and water resources.

This presentation will provide an overview of a project lead by the National Agro-climate Information Service (NAIS) of AAFC-PFRA in Climate Change in collaboration with the National Land and Water Service (NLWIS). With partners including Natural Resources Canada, Environment Canada, the University of Alberta and the U.S. National Centre for Atmospheric Research, this project aims to build a credible database of gridded long-term nationwide daily agroclimate data. The database will be expandable to include decision-support software tools for decision-makers and scientists in managing climate risks in the agriculture industry. The results of this project are intended for use by a wide range of end users concerned with agricultural management, planning, and policy. Users will be provided with an assessment of changing probabilities in precipitation and rainfall required to plan adapt infrastructure, crop breeding, and policy issues in agriculture over a horizon of 20 to 30 years. Particular emphasis is being placed on risks from seasonal and extreme climatic events.

We will present our work in comparing, verifying and validating several spatial interpolation models (ANUSPLIN, HYBRID, US-DAYMET) for gridding daily historical temperature and precipitation across Canada. Results obtained from statistical verification and validation analysis at several spatial scales (10 km, regional, national) will be presented. This talk highlights the use of Geographical Information Systems and plans for integrating it within the decision-support tool for interactive mapping, and generating risk scenario forecasts.