



## **Verification of a NWP model using a block bootstrapping method**

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Researchers have become more aware of the fact that parameter estimation error and data dependency play a crucial role in test statistic limiting distributions, a role which had hitherto been ignored to a large extent. When the verification period is a valid representation of your verification population and each event is independent and part of the same distribution then bootstrapping your verification sampling period is equivalent to estimating your verification population. This procedure is based on drawing observations with replacement. Unfortunately, meteorological data is spatially and temporally correlated which forces the use of bootstrapping in blocks to capture the dependence structure of neighboring observations. The width of the confidence interval provides an estimate of the uncertainty inherent in the process of population sampling.

This poster will present recent results based on the bootstrapping technique with confidence intervals performed in the verification package for surface weather variables at the Canadian Meteorological Research Branch. The goal is to develop a verification package that provides credible guidance in determining when proposed model changes have a significant impact. An example comparing the current operational numerical model against a new proposed model for the Canadian Meteorological Center in Canada will be given.