EMS Annual Meeting Abstracts
Vol. 10, EMS2013-219, 2013
13th EMS / 11th ECAM

An index for the verification of timeliness and accuracy of Canadian weather warnings

L. Wilson

Associate Scientist Emeritus, Environment Canada, Dorval, Canada (lawrence.wilson@ec.gc.ca)

The Meteorological Service of Canada has recently implemented a new method for assessment of the quality of its weather warnings, as part of a broader initiative of the Department of the Environment for regular reporting to Canadians on the quality of its services. The new methodology consists of an index with a range of 0 to 10 which is sensitive to both the accuracy of the warning and its timeliness. These two attributes function in the opposite sense as indicators of forecast goodness: Forecasts which are issued with shorter (longer) lead time would tend to be more (less) accurate, but might be less (more) useful to users.

The new metric, called Weather Warning Index (WWI), is a modified form of the extreme dependency index (EDI). The EDI is used to evaluate accuracy, then the score is modified to take into account the forecast lead time, defined as the length of time between the forecast and the onset of the event. The lead time component was constructed to ensure a balance between the two opposite effects, so that the forecaster wouldn't be able to play the score by deliberately issuing forecasts with too much lead time, for example. The index is applied to several severe weather types, then composited into a single number using a weighted average according to the frequency of occurrence of the different types.

The presentation will focus on the design of the new index and its attributes, illustrated with results from four years of severe weather forecasts and observations from across Canada. Issues associated with the data collection and their impact on the index will also be discussed.