

Assessment of the value of extreme weather alerts in the Netherlands

K. Kok, B. Wichers Schreur, and F. Koek
KNMI, De Bilt, Netherlands (kokc@knmi.nl)

Issuing alerts for extreme events is the outcome of a tedious appraisal between avoiding misses and limiting the number of false alarms. The actual issuance is therefore not only determined by the expected weather but by many other aspects. This includes the assessed vulnerability of the user at the particular time of day or season, the number of recently missed events or false alarms and the presumed customer's contentment (even in case of false alarms). This means that what is regarded as a 'good' forecast or alert may have little to do with the skill of the actual forecast or alert. It also means that the incentive to improve the skill of the weather forecast may be obscured by these non-meteorological effects. However, as demonstrated by Murphy, the most valuable basis for general decision strategies are probabilistic forecasts reflecting the 'true' meteorological skill of the forecasting system. Similarly, the intrinsic value of extreme weather forecasts can only be demonstrated by probabilistic verification.

In the Netherlands the Royal Netherlands Meteorological Institute (KNMI) is responsible for issuing so-called weather alerts and severe weather warnings to the general public. This is restricted to a limited number of prescribed weather conditions, and only if they affect a sufficiently large area. On the basis of NWP output and a number of post-processed products as well as observations the human forecaster has to assess the probability of the events to occur, which may lead to an alert (yes/no decision), dependent on probability threshold and an impact assessment. Emphasis in the verification lies upon the underlying probability forecasts. For many extreme events the assessment whether the event happened cannot uniquely be determined from observations and therefore is to some extent a subjective matter. The event occurrence then also must be expressed in terms of probabilities. In this presentation an outline of how this is done is given and the first verification results on the alerts and warnings of the last winter are shown.