EMS Annual Meeting Abstracts
Vol. 15, EMS2018-166, 2018

Verification of Relative-Extreme Events

Michael Sharpe
Met Office, Science, Exeter, United Kingdom (michael.sharpe@metoffice.gov.uk)

Growing interest in high impact weather events have inevitably led to a desire to examine the ability of weather prediction models to forecast extremes; however, such an examination is particularly difficult because, by their very nature, extreme events are rare events. This presentation outlines recent work to develop methodologies for measuring how well the probabilistic version of the site-specific forecast that appears on the Met Office web site and app (a blend of ensemble models, including the ECMWF medium range ensemble) predicts extremely hot summer days, extremely cold winter nights, very wet days and very windy events at UK synoptic sites. However, an analysis of the climatology at each of these observing stations reveals that choosing a single threshold value is inappropriate because one threshold may almost never be exceeded at some locations, yet regularly exceeded at others. Therefore, site-specific event thresholds have been obtained by choosing a percentile from the tail of each cumulative distribution function formed by the long-term local climatology of quality controlled observations at each station. Consequently, the event base rate is the same everywhere, so although a different event threshold is chosen at each station, this value is likely to cause a similar level of impact at each site. This analysis may therefore be regarded as a simple initial attempt to link weather events with impacts.
In this presentation, the skill of the post-processed, site-specific, probabilistic model is assessed for thresholds corresponding to the four most extreme days of the year at sites throughout the UK. The skill of predicting these thresholds is measured and contrasted using the Symmetric Extremal Dependency Index together with partitioned and threshold weighted versions of the Continuous Ranked Probability Skill Score.