



## **Operational application of the ‘deterministic limit’ concept in warning provision**

**T. D. Hewson**

Met Office, Fitzroy Rd, Exeter, U.K. (tim.hewson@metoffice.gov.uk / Phone  
+44-1392-886264)

The recently developed concept of ‘deterministic limit’ provides a measure, for categorical forecasts of a pre-defined, rare, meteorological event, of the lead time beyond which forecasts concerning that event are more likely to be wrong than right. It is essentially the lead time at which, over a suitably large forecast sample, the number of hits equals the number of misses plus false alarms. Forecasts can be raw model (preferably re-calibrated) or manually produced. This presentation will illustrate, with examples, how this concept is being used to verify customer-driven forecasts of different adverse weather parameters - such as strong winds, heavy precipitation, and road temperatures - and in turn how this is assisting with refinement of the Met Office’s operational warnings systems. One problem that will be discussed is the impact that verifying area size has on the deterministic limit. This has practical relevance as the geographical areas of responsibility of local authorities, that take warnings, vary enormously. Other issues to be touched on include obtaining verifying data and errors in that data. Strategy for dealing with very rare, very high impact events will also be discussed, within the ‘deterministic limit’ framework.