



Issues Surrounding the Gridding of Surface Observations

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The UK Met Office has been generating gridded datasets of surface climate observations on a routine basis for over a decade. During this time we have created an archive containing nearly 100,000 grids, covering over 40 different variables and stretching back over 100 years. The entire archive has been developed using the same basic method i.e. inverse-distance weighted interpolation of either anomalies or regression residuals.

This presentation will describe some of the specific issues that we have identified in our gridded data, including: bulls-eyes caused by a changing station network; apparent trends caused by changes in the explanatory variables used in the regression analysis; marked differences in interpolation skill for different variables; biases in station data that only show up in aggregates of many grids; the influence of smoothing when interpolating anomaly values.

These issues have an impact on the quality and homogeneity of the gridded data we are producing, and they have implications for users with regard to how the data may be employed. Some possible approaches for tackling these issues and how to communicate them to users will be proposed. This is also aimed at contributing to wider discussion of these topics, and the challenges they pose for operational climate monitoring activities.