High resolution climatology
- towards climate change services

Creating climate quality global datasets for studying trends, variability and extremes

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Historical instrumental records are essential for climate monitoring and climate research, yet the data are riddled with issues of quality and inhomogeneity. This leaves uncertainty surrounding any conclusions drawn from the data. It is essential that data are quality controlled and homogenised. Furthermore, this must be done in an objective, reproducible and globally consistent manner that enables quantification of uncertainty. The Met Office Hadley Centre is pursuing the quality control and homogenisation of 6000+ stations sub-daily synoptic near-surface temperature data. The data focus mainly on temperature and dewpoint temperature but also include sea level pressure, wind speed and cloud cover. Quality control efforts address many known issues with observational data in an automated manner including outliers and spikes (individual and clusters), repeated values, wet-bulb reservoir drying/freezing and frequently occurring values to name a few. Homogenisation is still work in progress but makes use of 'pseudo-data' to validate breakpoint detection and adjustment methods. An bootstrap approach will be used on application of homogenisation covering a wide spread of decision parameters with which to estimate uncertainties. This paper details an automated quality control system and presents efforts to date to homogenise these data.