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HadUK-Grid. A new UK dataset of gridded climate observations

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We present HadUK-Grid, a new dataset of gridded land surface in situ climate observations for the UK produced by the Met Office Hadley Centre for Climate Science and Services. The primary purpose of these data are to facilitate monitoring of UK climate and research into climate change, impacts and adaptation. The dataset is provided under an open licence to increase the accessibility.

Observations from meteorological stations have been interpolated onto a uniform grid to provide complete and consistent coverage across the UK. The datasets cover the UK up to 1km x 1km resolution and a range of other resolutions to allow for comparison to data from climate projections and across country, administrative regions and river basins. The dataset spans the period from 1862 to present, but the start time is dependent on climate variable and temporal resolution. The grids are produced for daily, monthly, seasonal and annual timescales, as well as long term averages for a set of climatological reference periods. Variables include air temperature (maximum, minimum and mean), precipitation, sunshine, mean sea level pressure, wind speed, relative humidity, vapour pressure, days of snow lying, and days of ground frost.

This dataset replaces an existing dataset that has been made available to users since 2002 through the UK Climate Projections project (UKCIP02, UKCP09). The methods used to interpolate in situ observations to a regular grid are essentially unchanged. However the new dataset differs from the existing one in a number of key respects: higher spatial resolution, longer time series for some variables, improved consistency with regard to the selection of station observations, the use of publicly-accessible ancillary data sources, a revised calculation sequence for some variables, and improved version control. Additionally, by generating the new dataset in a single process we hope to have reduced non-climatic inhomogeneities. The result is a dataset that is more consistent, more traceable and more transparent.