



Spatial mapping of daily extreme temperature in Europe and the Middle East

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In light of climate change, the recording of extreme events is becoming an increasingly important element of climate research. Of major importance is the recording of temperature extremes with high spatial resolution.

Synoptical weather stations around the world measure daily extreme temperatures. However, being point measurements they must be regionalised by means of an appropriate interpolation algorithm that considers topographical features and daily weather conditions.

Previous works have used various interpolation techniques to generate high-resolution gridded datasets of daily climate variables for Europe. For example, within the E-OBS project (Haylock et al., 2008), which produced high-resolution (25 km²) daily maps of temperature and precipitation, Kriging with external drift was chosen as interpolation algorithm.

The aim of this study is to generate a map of daily 2 m temperature extremes covering the WMO Region VI (Europe and the Middle East) with a spatial resolution of 1 km² by means of regression-Kriging combined with a digital elevation model. The quality of the algorithm is evaluated using cross validation.

Haylock, M., et al., 2008: A European daily high-resolution gridded dataset of surface temperature, precipitation and sea-level pressure, *J. Geophys. Res.*, D20119, doi: 10.1029/2008JS010201.