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Spatial properties of storms and extreme rainfall, characterized using a UK wide 5km gridded, daily rainfall record

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This study attempts to identify the spatial qualities of extreme rainfall, by using a newly available, spatially interpolated 5km gridded, 45 year historic daily rainfall record for the UK. Maps have been derived showing contours of equal absolute rainfall amounts and contours of equal return period for each day in the 45 year period. Curves of depth vs. area and return period vs. area are created for all days. These curves are compared with the long term average curves and used to identify major storms and their spatial characteristics. The use of the return period vs. area curve aids efforts to generalise for extreme events which affect large areas of heterogeneous climatology.

In this study particular emphasis is given to identifying those parameters that could be of use for generating stochastic synthetic data which authentically reproduces spatial extremes in rainfall.