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Trends in extreme daily temperature - natural or anthropogenic?

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We analyse a new gridded quasi-global data set of daily land surface temperatures for changes in extreme value characteristics by fitting stationary and time varying extreme value distributions over the period 1950 to 2000. Large areas are found to have experienced significant (at 90% level) changes in the location parameter of the extreme temperature distribution. The majority of significant trends in location are positive (ie extremes getting warmer, typically $\sim$1.5°C), although areas of the US and China show significant negative trends. Applying a similar analysis to Hadley Centre global climate model (HadCM3) data for the same period, including natural and/or anthropogenic forcings, suggests human emission of greenhouse gasses has caused the observed change. Natural variability is seen to produce small areas of reductions in extremes over equivalent periods as observed.