



Global trends in the emergence of extreme temperatures - A quantile regression approach

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Properly describing temporal changes in the occurrence of extremely high or low temperatures has a paramount relevance for properly assessing the potential local impacts of ongoing climatic changes and estimating possible future trends. As an alternative to traditional extreme value statistics, in this work we utilize linear quantile regression to unveil long-term trends in arbitrary quantiles of the distribution of daily mean, maximum and minimum temperatures inferred from the NCEP/NCAR and ERA 40 reanalysis data sets. Our results allow identifying climatic hotspots in which extreme temperatures consistently change faster than the trend in the mean, as well as regions displaying inconsistent behavior for both data sets. In order to further validate the obtained results, a repetition of the proposed analysis for station data of surface air temperatures is outlined.