Geophysical Research Abstracts, Vol. 7, 03732, 2005
SRef-ID: 1607-7962/gra/EGU05-A-03732

The application of robust statistical and dynamical downscaling methods for the construction of scenarios of extremes in the STARDEX project

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As part of the EU-funded STARDEX project on the STAtistical and Regional dynamical Downscaling of EXtremes for European regions, recommendations are being made on the more robust statistical and dynamical downscaling methods for the construction of scenarios of temperature and precipitation extremes for the end of the 21st century. These methods have been identified using the STARDEX robustness criteria together with results from the rigorous and systematic intercomparisons and evaluations that have been undertaken in the project over the last three years. For statistical downscaling, these criteria encompass various aspects of the underlying predictor/predictand relationships, including their stability and physical meaning, together with measures of performance, including uniformity of performance across stations, regions, seasons and indices of extremes.

This presentation will focus on the work being undertaken in the closing months of the STARDEX project on summarising the changes in temperature and precipitation extremes indicated by these downscaled scenarios. Of particular concern are: the consistency of the statistically-downscaled changes; consistency with dynamically-downscaled changes; and, consistency with the underlying GCM changes. Consideration will also be given to the associated uncertainties with particular emphasis on the uncertainties due to downscaling method. Finally, the downscaled scenarios will be compared with the observed changes in indices of extremes over the last 40 years which were described in the early stages of the STARDEX project.

Further information about the STARDEX project can be found here: http://www.cru.uea.ac.uk/cru/projects/stardex/