



Regional Climate Change of Europe during 1950-2010 using ARW model

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In this study the WRF ARW regional model was evaluated for simulating the regional scale features of extreme weather events related to heat, cold waves and extreme heavy rainfall events during 60 year period starting from 1950 to 2010 over Europe with 45 km horizontal resolution. The boundary conditions derived from NCEP reanalysis data are updated at every 6hour interval starting from 00 UTC of 1 January 1950. A single experiment with the convection scheme Kain-Fritsch (KF) is performed and the results are evaluated with 0.25 degree gridded minimum, maximum, mean and rainfall data sets over Europe for the above said period. These gridded datasets are prepared using the surface and upper air observational datasets available for Europe region. Similarly monthly means of temperature and rainfall fields from global model outputs available at 0.5 degree resolution is used for comparison and computed different statistical parameters.

For analysis purpose entire Europe divided in different zones based on orography and trends of each type of extreme events are developed for each zone for model results and observations. The decadal variability of surface mean temperatures and mean surface rainfall for different zones are computed and compared with both the observations and also with global model outputs. The cold waves, heat wave and extreme weather episodes are well represented by model and with good statistical significant.