



Projection of climate change over the Eastern Mediterranean region during first half of twenty-first century according to results of a transient RCM experiment with 25 km resolution.

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A double resolution climate change (CC) simulation experiment over the Middle East region for 1960-2060 due to anthropogenic increase in concentration of greenhouse gases is performed under the GLOWA Jordan River project. The ICTP RegCM3 model driven from the lateral boundaries by the data from global MPI-M ECHAM5/MPI-OM1 model run (scenario A1B) is adopted. The space resolutions of 50 km/14L and 25 km/18L are employed in the two 100 year runs. The differences in results of the runs give a measure of sensitivity of the simulated region's climate to main physical processes acting as well as to that of internal variability of the model. Performed in the study quantitative evaluations of the results included comparison of characteristics of the simulated current climate over the south-eastern Mediterranean region with those from the CRU dataset of the Univ. of East Anglia, as well as analysis of spatial distributions of the simulated trends of the model parameters. Quantitative determination of the CC estimates for a target area in the south-eastern Mediterranean near-coastal area is performed based on the data for a number of model produced characteristics. Simulated in the experiment CC process over the region is characterized by a notable decline in precipitation accompanied by increase in the role of convective precipitation. The trends simulated also include an increase in the near-surface air temperatures and decline in the near surface relative humidity and wind magnitude over the area of analysis. The CC process is more rapid with the simulated variations in precipitation, which appear essentially random, than with air temperatures which appear to be more dependent on effects of the larger scales. The analysis demonstrates a notable decrease in the role of the signal due to internal variability of the model with increases in the period of time averaging.

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