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Spatial and Temporal Analysis of Projected Solar Irradiance Change over Turkey by Using the RegCM4.3

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In this research, we aim to make an alternative contribution to the studies about the prediction of solar power potential. As is well known, the largest contribution to the current climate change comes from the energy sector. In order to cope with global climate change, we have to reduce our greenhouse gas emissions mainly in the fossil fuel-based energy sector. Therefore, we need to place great emphasis on renewable energy resources such as wind and solar. Turkey is one of those countries, which have huge solar power potential depending on its geographical location. In this study, projected future changes for the periods of 2040 - 2070 and 2070 - 2100 in the net downward shortwave flux over Turkey with respect to the reference period (1970 - 2000) were investigated. Regional Climate Model (RegCM4.3) of ICTP (International Centre for Theoretical Physics) was used for the simulations of future and reference climate conditions. The HadGEM2 global climate model (Hadley Global Environment Model 2), which is developed by the Met Office Hadley Centre, was dynamically downscaled based on RCP4.5 and RCP8.5 emission scenarios for Turkey.

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