

# INVESTIGATION OF PROJECTED CHANGES FOR NEAR FUTURE AIR TEMPERATURE AND PRECIPITATION CLIMATOLOGY OF TURKEY AND SURROUNDING REGIONS BY USING REGCM4.3.5

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In this study, projected future changes for the period of 2020 – 2050 in mean air temperature and precipitation climatology and year-to-year variability with respect to the control period of 1970 – 2000 were investigated for the domain of Turkey via regional climate model simulations. In order to investigate the projected changes in near future climate conditions, Regional Climate Model (RegCM4.3.5) of ICTP (International Centre for Theoretical Physics) was driven by three different global climate models. HadGEM2 global climate model of the Met Office Hadley Centre, MPI-ESM-MR global climate model of the Max Planck Institute for Meteorology, GFDL-ESM2M global climate model of the National Oceanic and Atmospheric Administration Geophysical Fluid Dynamics Laboratory were dynamically downscaled to 50 km for Turkey and its surrounding region. The projections were realized according to the RCP4.5 and the RCP8.5 emission scenarios of the IPCC (Intergovernmental Panel of Climate Change). According to the model results, there will be an increase between 0.5 °C and 4 °C in mean air temperatures of Turkey for the period of 2020 – 2050 with respect to the period of 1970 – 2000. This warming will be more severe in warm seasons than cold seasons. Changes varying from -0.4 mm/day to -1.2 mm/day in precipitation climatology of Turkey are expected according to the regional climate model results.