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Sensitivity Analyses of historical CMIP5 simulations for heatwaves occurred in Turkey

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Heatwave is an extreme weather event that affects human comfort and living organisms adversely due to excessive temperatures continuing for long periods of time accompanied by high humidity conditions. Depending on the severity of the event or the vulnerability, it can cause loss of lives. In this study, heatwave events occurred in Turkey between 1965-2014 are determined by using the ground based observations data obtained from Turkish State Meteorological Service and they are analysed in terms of both duration and magnitude including their trends. The performance of historical CMIP5 simulations in capturing these events are also examined by using both global circulations models (GCM) and regional climate models (RCM). Results of RCMs from CORDEX project for Mediterranean domain are compared to the corresponding observations which covers the 1971-2005 period. Similarly, realizations of GCMs are discussed comparing to both observations and RCMs. In conclusion, results generally indicate that probability density functions of RCMs might be considered more representative than those of GCMs depending on the magnitude of the event, as expected.