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Future circulation changes over the EURO-CORDEX domain

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The occurrence of extreme weather events and climate extremes over Europe and the Mediterranean region are believed to be associated with changes and variability in the mid-latitude atmospheric circulation. CMIP5 models exhibit a substantial decrease in mid-latitude mean storm track activity for summer under climate change for a variety of scenarios. In this work, we aim to investigate future change in summer circulation and its implication for summer temperature and precipitation extremes over Europe particularly focusing on the Southeastern Mediterranean. EURO-CORDEX regional climate projections at 0.11° grid-mesh are used to analyze future climate projections addressing climate warming targets of 1°C, 2°C and 3°C, respectively. Simple scaling with the global mean temperature change is applied to the regional climate projections for the variables in concern in order to provide robust signals not to be dependent on climate sensitivity. Our focus in this study is on monthly mean geopotential height, winds at mid- and lower-troposphere as indicators of the simulated circulation changes.