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Abstract: Significant changes in regional climates have been observed at the end of the twentieth century, taking place at unprecedented rates. These changes, in turn, lead to changes in global climate zones with pace and amplitude varying from one region to another. Algeria, a country characterized by climate conditions ranging from relatively wet to very dry (desert-like), has also experienced changes in its climate regions, notably in the country's wet region, which represents about 7% of its total surface area, but is home to 75% of its population. In this study, the pace of climate zone changes as it is defined by Koppen–Geiger was analyzed for the period from 1951 to 2098 using climate data from observation and regional climate simulations over Algeria. The ability of the CORDEX-Africa regional climate models simulations to reproduce the current observed climate zones and their shifts was first assessed. Future changes over the whole of the twenty-first century were then estimated based on two Representative Concentration Pathway (RCP4.5 and RCP8.5) scenarios. Analysis of the shift rate of climate zones from 1951 to 2005 found a gradual but significant expansion of the surface area of the desert zone at an approximate rate of $650 \pm 160 \text{ km}^2/\text{year}$ along with the abrupt shrinking, by approximately 30%, at a rate of $1086 \pm 270 \text{ km}^2/\text{year}$, of the warm temperate climate zone surface area. According to projections for the RCP8.5 scenario, the rate of expansion of desert climate will increase in the future (twenty-first century), particularly during the period from 2045 to 2098.

Key words: Climate zone shift ; Koppen–Geiger ; CORDEX-Africa simulations ; Algeria

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