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CLIMATIC WATER BALANCE IN POLAND
IN THE LIGHT OF THE PRESENT DAY CLIMATE CHANGE

Key words: climatic water balance, Poland, present day climate change, temperature

Summary

The aim of this study was to estimate changes in thermal resources and climatic water balance in Poland in two standard climate periods recommended by the World Meteorological Organization (WMO): 1971–2000, and 1981–2010. These periods were characterized by changes in thermal conditions and by a lack of clear precipitation tendencies. The thermal resources were determined by means of temperature sums, climatic water balance was calculated as a difference between the total precipitation and evaporation and potential evaporation was determined by means of the Thornthwaite method. The thermal and water resources were calculated for the time period from June to August, in other words, for this part of the vegetation season, in which vegetation processes are most intense and water needs are greatest for the vast majority of agricultural crops. Four thermal regions and three regions characterizing water conditions were allocated. It was found that the very warm areas, with temperature sums in the range of 1600–1650°C, increased from 10 to 48% of the country area, and the dry zone with water balance values from –90 to –120 mm increased from 34 to 52%. A characteristic feature was the disappearance of the cool regions with temperature sums of <1500°C in the period 1981–2010 in comparison with the years 1971–2000. The area of the very warm and, at the same time, dry regions increased six times from 5% in 1971–2000 to 30% in the years 1981 to 2010.