PREDICTION OF PRECIPITATION DEFICIT AND EXCESS IN BYDGOSZCZ REGION IN VIEW OF PREDICTED CLIMATE CHANGE

Abstract

The paper presents the prediction of rainfall shortage and excess in Bydgoszcz region in the growing seasons (April–September) in 2011–2050 in the perspective of climate change. Based on the predicted monthly sum of precipitations for the percentile 50%, calculated by the regional climate model RM5.1 for Poland with boundary values taken from global model ARPEGE, a decrease in the amount of rainfall during the growing season by approximately 55 mm is predicted, compared to 1971–2000 taken as a reference period. The qualification of rainfall shortage and excess was made using the standardised precipitation index (SPI). According to the predicted values of SPI, the occurrence of 38 months of rainfall excess and 40 months of rainfall deficit in the period 2011–2050 is predicted. Dry months will constitute 16% of all months, wet months – 13%, and normal months – 71%. The occurrence of 13 several-month long periods of rainfall excess and 14 such periods of drought are predicted. The longest periods of both wet and dry weather will last 5 months. So long wet periods are expected in 2020, 2022 and 2031, and drought periods in 2017–2018, 2023–2024 and from 2046 to 2049.

Key words: climate models, drought, precipitation, rainfall excess, standardized precipitation index SPI