

ASSESSMENT OF METEOROLOGICAL AND AGRICULTURAL DROUGHTS OCCURRENCE IN CENTRAL POLAND IN 1961–2020 AS AN ELEMENT OF THE CLIMATIC RISK TO CROP PRODUCTION

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The main goal of the work, conducted as a part of the research strategy on contemporary climate change, was to confirm the hypothesis of the increasing frequency and intensity of droughts during the period of active plant growth and development (May–August) in central Poland in 1961–2020. The prevailing rainfall conditions in this period determine the production and economic effects of agricultural output. The analysis covered a multi-annual period, including two separate climate normals: 1961–1990 and 1991–2020, and meteorological data were derived from a measuring point in the region of Bydgoszcz. The work is also aimed at detecting relationships between indicators characterizing meteorological (SPI) and agricultural (P_{Adef}) droughts. It was found that the frequency of meteorological droughts in the studied period amounts to 30.0% (severe and extreme constitute 6.7%). No significant increase in the frequency and intensity of meteorological droughts over time was observed. Crop production, in the studied region, has been conducted in conditions of rainfall deficits, however, they showed neither significant nor a specific direction of changes. Relationships between meteorological and agricultural drought indicators were significant, so the SPI can be considered an indicator of plant irrigation needs in the studied area.

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