



Characteristics of precipitation conditions within the area of plain agricultural catchment in northwest Poland

A. Małkosza (1) and L. Łabędzki (2)

(1) Institute of Technology and Life Sciences, West Pomeranian Research Centre in Szczecin, Poland (agnieszka_makosza@op.pl), (2) Institute of Technology and Life Sciences, Kujawsko-Pomorski Research Centre in Bydgoszcz, Poland (l.labedzki@itep.edu.pl)

Poland is located in temperate transitional climate zone characterized by high variability in weather conditions and meteorological elements, atmospheric precipitation in particular. Precipitation-free periods or repeated precipitation smaller than the average contribute to drought which has a negative impact on agriculture and causes serious economic, social and environmental problems. Drought is an atmospheric and hydrologic phenomenon which occurs periodically and in various seasons. Counteracting its negative impact effectively involves taking preventive actions such as monitoring. Drought monitoring, above all, comprises constant measurement of meteorological elements including precipitation amount, lack of which is the first indication of atmospheric drought. The Institute of Technology and Life Sciences pursues the Multiannual Programme: “Standardisation and monitoring of environmental undertakings, agricultural technology and infrastructural solutions in aid of safety and sustainable agricultural and rural development” for the period 2011-2015. Among many environmental issues, the programme emphasises monitoring, forecasting and preventing effects of drought as well as risk assessment of deficit and excess of water in rural areas.

The present paper aims at assessing precipitation conditions in small plain catchment on the basis of daily atmospheric precipitation amount from the period 1997-2010. The characteristic of precipitation was formulated with the use of standardised precipitation index SPI and relative precipitation index (RPI), among others. Values of precipitation amount was provided by two precipitation stations located on the area of Gowienica Miedwiańska river catchment – a part of balance catchment of Płonia river in northwest Poland in Odra river basin. The length of main watercourse of Gowienica Miedwiańska amounts to 15.6 km. It flows out of waterlogged area in Warnice commune. The area of the catchment is 63.65 km². SNQ in the depositional zone amounts to 0.15m³/s. The area of the catchment can be characterised as typically agricultural area with intensive crop and industrial crop cultivation, and having the most fertile and rich soil in Western Pomerania.