



The influence of the North Atlantic Oscillation on temperature and precipitation across Poland

M. Szwed

Research Centre for Agricultural and Forest Environment of the Polish Academy of Sciences, Poznan, Poland (mszwed@man.poznan.pl)

The North Atlantic Oscillation (NAO) is one of the most prominent teleconnection patterns of variability in the North Hemisphere climate. It plays a significant role in the determination of temperature and precipitation over most of Europe, among others, Poland.

Several studies have established the general links between the NAO and temperature and precipitation in Europe. Polish literature presents primarily the results of different researches on the connection of the NAO with the air temperature. This study will help to understand the influence of the NAO phenomena on the Polish climate in more details. The regions in Poland with the strongest temperature or precipitation response to the NAO will be identified.

The main calculations will be based on monthly values of temperature and precipitation in the 50-year period of 1956-2005 for a dozen or so stations across Poland. Additionally, the extreme (maximum and minimum) values of observed data will be used – yet only for shorter time series. Data on the NAO index come from the University of East Anglia for the same 50-year period.

The relationship between the NAO index and temperature and precipitation will be described by the correlation coefficients. The precipitation and temperature anomalies in Poland during positive and negative NAO phase (for NAO index greater than +1 or less than -1) will be studied as well. In order to do this the Standardized Precipitation Index and Standardized Temperature Anomaly at monthly scale will be used. All the studies will be conducted for the seasonal as well as for the monthly time scales.