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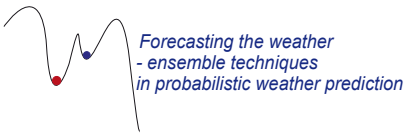

Influence of NAO, SCA, EA/WR, POL circulation patterns on monthly mean maximum temperature in Poland

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An increasing interest in climate and its contemporary changes has been seen recently. The connections between different elements of climate also have been taken into account. The atmospheric circulation and its influence on climate in different regions of the Earth play a vital role in nowadays research. The aim of this study is to account for the influence of four teleconnection patterns on monthly mean maximum temperature in Poland. The 56-year time series (1951-2006) from 18 meteorological stations, located in Poland, were used as well as monthly values of North Atlantic Oscillation (NAO), Scandinavian Pattern (SCA), East Atlantic / Western Russia Pattern (EA/WR) and Polar Eurasian Pattern (POL). The simple and multiple linear regression coefficients were calculated for the regression models describing how each of the above circulation patterns and all of them simultaneously explain the variability of maximum temperature. Moreover few "difference measures" were computed – root mean square error (RMSE), systematic error (MSEs), unsystematic error (MSEu), "index of agreement" (d). Results have shown that not only the NAO teleconnection pattern is vital to monthly average maximum temperature in Poland. Moreover, the SCA and POL are also important factors of observed maximum temperature variations. The strongest combined influence of considered teleconnection patterns has been found in winter and summer while in the transitional seasons it has been considerably weaker.