



Effect of temporal autocorrelations on the simulation of dry spells and heat waves in high resolution ALARO-Climate/CZ RCM

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Temporal autocorrelations are rarely validated in RCMs although they are expected to be a leading factor determining frequency and duration of extreme events such as heat waves, or wet and dry spells. On the other hand, the correct simulation of precipitation occurrence autocorrelation is not a guarantee of correct simulation of dry spells.

The ALARO-Climate/CZ regional climate model (ALARO RCM) was developed in the Czech Hydrometeorological Institute in Prague from the NWP model ALADIN, which is operationally run by several meteorological services in Europe. The experiment with very fine resolution of 6 km driven by the ERA-40 reanalysis and covers a 30-year climate period (1961–1990) is validated over the territory of the Czech Republic.

The analysis of temporal autocorrelations of temperature and precipitation is conducted against gridded homogenized observed data converted into the model network. Additionally the association between seasonal autocorrelations of maximum daily temperature and precipitation occurrence and frequency and duration of heat waves and dry spells in model and observed data is evaluated.