



Observed temperature and precipitation changes in Hungary with an outlook to the Carpathian region

Tamas Kovacs, Monika Lakatos, Zita Bihari, and Tamas Szentimrey

Climatology Division, Hungarian Meteorological Service, Budapest, Hungary (kovacs.t@met.hu)

Climate change challenges natural ecosystems and also human activity, and is expected to result in significant changes in temperature and precipitation in Hungary. The exact knowledge of the observed tendencies are crucial for responsible awareness.

Climate indices are used in several projects on climate change as prevailing indicators of changes in extremes. The past tendencies of temperature are presented by examining the changes in the number of summer days, frost days, warm nights and hot days. For describing the precipitation changes the number of wet days, days with heavy rainfall, simple daily intensity (precipitation sum/number of wet days) and maximum number of consecutive days are analyzed in this paper. The changes of such indices for Hungary from the beginning of the 20th century to present are illustrated and analyzed on graphs and trend maps.

With an outlook to the Carpathian region the preliminary results of the CARPATCLIM project, hold by JRC and lead by the Hungarian Meteorological Service are introduced in this study. The homogenized and interpolated database is produced in daily temporal resolution for the period 1961-2010 and in 0.1° spatial resolution for the $50^\circ\text{N} - 44^\circ\text{N}$, $17^\circ\text{E} - 27^\circ\text{E}$ area for many basic meteorological variables. The harmonized database provides relevant outcomes for climate change studies and other climatological research. Several climate indices are presented in this study for the Carpathian region as preliminary results of the investigations of the dataset.