



Changing amounts or spatio-temporal distribution? The study of precipitation trends and the occurrence of extreme precipitation events in the region of Southern Moravia (SE part of the Czech Republic) in the period 1961-2013

Marie Doleželová

Czech Hydrometeorological Institute, Regional Office Brno

Access to water resources plays essential role in today's world. The society at certain place and time is always adapted to given amount of water available from precipitation and to its specific distribution in time. Any disturbance and deviation from such common 'scheme' can be felt as a problem. While spatial variability of precipitation is not so well-marked in the Czech Republic (CR), people are more sensitive to the changes of the variability in time. Moreover, some regions tend to be more dry than the others in the last few decades. Thus the discrepancies in spatial distribution emerge and spatial variability increases as well. An example of such region is southern Moravia - a traditional agricultural region located in the southeastern part of the CR where climate is more continental (higher temperatures and lower precipitation amounts) compared to the western part of the CR. The paper focuses on the analysis of trends in precipitation sums at selected sites belonging to the Czech Hydrometeorological Institute (CHMI) measuring network in southern Moravia during the period 1961-2013. Attention is also paid to the changes in temporal variability and to the occurrence of extreme precipitation events. Both low and high precipitation extremes are included. Low extremes are described via the phenomenon of 'dry periods' (DP), i.e. consecutive days with daily precipitation amount lower than certain limit value. The limit value is set in several ways in order to represent well water demands of plants. Basic statistics and trends of maximum length of DPs are computed. Water conditions in the days preceding the DPs are considered as well. Extremely high daily amounts and rainfall intensities are analysed with the help of data measured by automatic rain gauges introduced into the CHMI's monitoring network in the early 1990s. All the extreme events are linked to the synoptic situation.