



Selected characteristics of meteorological elements and their trends since the mid-20th century in Slovakia

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Analysis of some characteristics of air temperature, air humidity, precipitation and snow cover at selected meteorological stations located in different regions of Slovakia was performed for the period 1951 to 2012. Stations represent lowland regions (up to 300 meters), mid-altitude regions (300 to 800 meters) and high altitude mountain regions (above 1000 m).

Series of highest annual maximum air temperature show obvious gradual increase from 80s of the 20th century on all selected stations and also the occurrence of new record values in the last years of the analyzed period 1951-2012. In most stations the absolute maximum air temperature for 1951 – 2012 period was recorded during July 2007, whereas the highest annual maximum temperatures were recorded predominantly during the month of August in Slovakia.

Values of annual maximum of mean daily temperature show evident upward trend and at some stations the highest mean daily temperature was recorded just in recent years (e.g. at station Sliač in 2012).

Positive trends of the lowest annual minimum temperature at selected stations in the period 1951-2012 are not so significant and it is evident that the lowest annual minimum air temperature didn't drop as low as in the past, respectively they didn't reach record values as in the 50s or 80s of the 20-th century.

Changes of minimum and maximum monthly precipitation totals during the year indicate that the number of cases with extremely low monthly total was increasing. Although frequency of occurrence of extremely high monthly precipitation totals was rather chaotic, in some recent years the observed values of monthly precipitation totals represented the absolutely highest monthly values for entire analyzed period 1951-2012. On the other hand, towards the end of this period, cases when minimum monthly precipitation totals were close to zero also became more common.

Very significant is the trend in the lowest annual relative humidity in the 1951-2012 period, particularly at city airport stations (stations Bratislava airport and Kosice airport), but also at peak stations Chopok and Lomnický štít.

Total snow cover in the valleys and lower altitudes in the late 20th and early 21st century is less stable from the end of 90s. The comparison of annual maximum depth of total snow cover and new snow cover showed similar and in some years even identical values. It was quite common that a significant snowfall especially at lower altitudes was immediately followed by quick thaw and melting of new snow cover, eliminating further accumulation of snow.