



Comparison of temperature, precipitation and snow characteristics in two 30-year periods 1951-1980 and 1981-2010

Pavel Fasko, Marek Švec, Pavel Št'astný, and Peter Kajaba

Slovak Hydrometeorological Institute, Bratislava, Slovakia (pavol.fasko@shmu.sk)

Differences in some characteristics of temperature, precipitation totals and snow cover, for two 30-year periods 1951-1980 and 1981-2010 were examined at selected meteorological stations located in different regions of Slovakia. Stations represent lowland regions (up to 300 meters), mid-altitude regions (300 to 800 meters) and high altitude mountain regions (above 1000 m).

The analysis of highest maximum air temperature for individual days showed higher values of maxima for 1981 – 2010 period primarily during the summer months. The differences between corresponding values of two periods were relatively often higher at some stations during the winter months, but unlike the periods in summer months they were more regional in nature.

The comparison of long-term average of daily air temperature for two 30-years periods showed increase in 1981 – 2010 period. The most significant change occurred mainly in January, July and August. Warming was not significant in September – December period.

The annual regime of mean monthly precipitation amount was different in both 30-years periods in the most of the selected stations with noticeable increase in the average monthly sum in May and decline in June in 1981 – 2010 period. The only exception is the station Košice airport, where on the contrary the increase in June was registered in the 1981-2010 period. Increase of precipitation in May in the second thirty year period was probably caused by a higher number of storms in the spring months as a result of faster warming of the earth's surface and occurrence of more frequent convective precipitation.

Average number of days with a snow cover in the period 1981-2010 compared with the period 1951-1980 is significantly lower in January at meteorological stations lying at lower altitudes. This is due to the higher air temperature and a higher amount of mixed and liquid precipitation during this month. In February, small increase in the average number of days with a total snow cover was recorded on the several stations, which could be explained by a certain decrease of dry and cold periods during this month. February is becoming less typical winter month in lowlands, because the weather in this month has often more transitional nature between spring and winter.