



Occurrence of floods in Slovakia in the last decade

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After the period of decreased precipitation activity, the increase of high daily precipitation totals has occurred in the middle of ninetieth of 20 century. The series of important floods has followed. The most significant were flash floods in 1998 (Malá Svinka catchment), 1999 (Krupinica catchment) or 2001 (Strbský creek catchment), but flash flood activity was recorded in 1995, 1999, 2002, 2003 and 2004, too. Flash flood in Malá Svinka catchment caused the death by drowning of 50 people in the swollen river.

The analysis of hydrological and meteorological situation showed, the heavy rain centre which caused the flood hit the entire top of the catchment area, where more than 100 mm per 1.5 hour fell in the area about 15 km². The expressive terrain tracks showed the high intensity of torrential rain. In addition, the flyshoid structures and high slopes, which create this catchment, contributed to huge impacts of this flash flood. The assumed peak flow from the struck catchment reached the values with probability of occurrence about $p=0.001$ (once per 1000 years). The specific runoff, the mean value of which in Slovakia is 7.6 l.s-1.km-2, in that time reached more than 7.0 m3.s-1.km-2. The estimated intensity of rain in the given time interval belongs to the historically highest in Slovakia. The flood and its consequences were originated by coincidence severe adverse circumstances: non pervious subsoil, relatively high saturation of river basin, small basin storage, extremely unfavourable localization of heavy rain centre and unprepared catchment area and inhabitants to such hydrological phenomenon were the main of them.

The flash floods in Strbský creek catchment and in Krupinica catchment had very similar hydrological parameters as the flash flood in Malá Svinka catchment described above. The huge regional floods were in 1997 (Morava, Váh and Dunajec rivers), 1999 and 2000 (Bodrog river), 2002 (Danube river), and 2004 (Ondava river). The hydrological parameters of these regional floods did not reach so catastrophic values

as mentioned flash floods, but the touched area was relatively extensive. The worst situation, from the point of view of flood impacts on social and economical sectors, during these regional floods was in neighbouring countries (1997 - Czech Republic, Poland, 1999 Hungary, Ukraine, 2002 - Austria, Czech Republic).

In this period the catastrophic droughts in 2000 and 2003 were occurred.

The climate change impacts are discussed in connection with these both phenomena.