



Dynamics of stream water quality during snowmelt and flash flood events in a small agricultural catchment

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Surface water quality samples (focused mainly on nitrate concentrations) in relation to discharges were analyzed during the snowmelt and several high water events in a small agricultural catchment (7.1 km²) in the Bohemo-Moravian Highland between the years 2005 - 2006. Discharges were recorded continuously by ultrasound probes (with 10minute time interval), water quality was analysed from the samples taken by an automatic ISCO sampler with 2hour time interval.

Two diverse curve types were observed for the relation of nitrate concentrations and discharges:

1. anticlockwise loop – nitrate concentrations are moderately increasing (or stagnate in some case) with the increasing discharge till the runoff culmination, then the runoff decreases and the nitrate concentrations are increasing;
2. clockwise loop – nitrate concentrations are moderately decreasing with the increasing discharge, concentration can moderately increase during the culmination and then concentrations are increasing after the culmination (owing to lower water runoff, i. e. lower dilution of concentrations).

The analyse of the spring snow melting 2006 shows also the possible relationship between the speed of the rising limb of the flood wave and mainly of the falling limb of each single wave. In the case of convex curve of the wave, i. e. moderate rising and falling limb, the concentrations in the relation to the discharge are characterised with

an anticlockwise loop. In the case of concave curve of the flood wave, i. e. fast rising and falling limb, the manner of the characterised loop is clockwise. However, each single loop can change from one another to the other.

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