



## **Longitudinal small stream flow profiles affected by tile-drainage inflow**

Z. Kulhavý, F. Doležal, M. Čmelík and L. Tlapáková

Research Institute for Soil and Water Conservation, Boženy Němcové 2625, 530 00 Pardubice, Czech Republic ([kulhavy@hydromeliorace.cz](mailto:kulhavy@hydromeliorace.cz))

Tile-drainage water makes up an important portion of total runoff in small agricultural catchments of Bohemian highlands and peneplains. The paper analyses how it relates to the total specific runoff rate under different circumstances. Longitudinal along-stream profiles of flow rates and water quality parameters in several small streams were repeatedly measured under different hydrological situations. The areas of twin experimental catchments of Dolský potok (4.78 km<sup>2</sup>, 30 % tile-drained) and Kotelský potok (3.21 km<sup>2</sup>, 56 % tile-drained) were divided into three zones (the recharge zone, the transient zone and the discharge zone) according to geomorphological criteria and field surveys. The existing tile-drainage systems were assigned to these three zones and the relative share of tile-drainage runoff in the total stream runoff under different hydrological situations was estimated, based mainly on the longitudinal profile measurements. The results are interpreted in terms of possible improvement of runoff control measures and enhancement of the capacity of landscape water retention and local water sources. The results of long-term combined measurements of surface stream and tile-drainage flow rates and water quality parameters turns to be an important background information for practical decisions.