

RECHARGE CALCULATIONS AND WATER-ROCK INTERACTION. MODELLING IN SW-HUNGARY.

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Rainfall chemical data and shallow groundwater data make it possible to calculate the rate of precipitation infiltration. At the studied region shallow groundwater occurs in Upper Pleistocene formations, in the western part of the area in drift sand, in the eastern part in loess. The samples were collected from outside (primary) and from inside (secondly) of settlements, by drilled wells, dug wells or springs. To calculate the infiltration fraction (and the water-rock interaction) the NETPATH modelling program was used. NETPATH version 2.0 is an interactive code for modelling net geochemical reactions along a flow path. As chloride is a conservative element, it was used to calculate the evaporation factor. For the whole region 3,4%, for the loess area 3,8% , and for the drift sand area 2,2% infiltration fractions were found. These data show an enormous pollution, especially on the drift sand area. Outside of settlements the rate of infiltration was 6,6%, which is almost real, showing that the pollution of groundwater is primary not connected to the agriculture, but to the pollution from inside of settlements. Considering the unpolluted samples and modelling data for NO_3 -40 mg/l result in 8,9-13,6% infiltration, which correlates with the recharges calculated on the basis of base flow measurements carried out on surrounding areas. The present-day slightly acidic meteoric waters interacting with given minerals, near CO_2 absorption and adequate recharge, generate shallow groundwater free of human influence. The calculations could be corrected with tritium isotope data.