

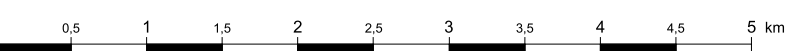
New Groundwater Formation

New Groundwater Formation (mm/year)



1. A complex model was developed and programmed at the Federal Institute of Hydrology in Berlin for the calculation of surface runoff and percolation. The calculation procedure has accessed the data bases of the Environmental Information System. Thus, first total runoff (precipitation minus evaporation), and then surface runoff and percolation were determined for approx. 25,000 individual block sections.
2. Which proportions reach percolation is primarily dependant on vegetation, soil, the extent and manner of sealing, and the degree to which impervious covered areas are connected to the sewage system.
3. On the plateaus, which are largely covered at the surface by cohesive sediments (glacial till loam), a part of the percolation water flows into various bodies of water, and is thus carried away as surface water. Only the remainder of the percolation water corresponds to groundwater formation here.
4. In areas with covered aquifers, the percolation values from Map 02.13.2 were therefore correspondingly reduced with the aid of specially calculated reduction factors, in order to arrive at values for the actual new groundwater formation. For the determination of the reduction factors, the measured runoffs of the receiving streams were compared with the calculated values of the runoffs of the corresponding catchment areas on the plateaus.
5. In areas with shallow depth to the groundwater table increased evaporation occurs due to the capillary rise of groundwater into the evaporation-affected soil zone. If real evaporation is higher than precipitation, groundwater discharge occurs.
6. For some extremely impervious covered areas, no information is available as to whether the rainwater is carried away by the sewage system. For this reason, the entire runoff occurring in these areas is certified in the maps as percolation, and counted as new groundwater formation, with the stated reductions factors factors applied. However, the degree of sealing and the amount of runoff in some cases makes it seem improbable that the water actually percolates.
7. The percolation and the surface runoff of the streets was assigned to the adjacent block sections, and incorporated into the calculation and presentation there.

Scale: 1 : 50 000



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