



Agricultural geological importance of the depth and thickness of impermeable layers on south-eastern Hungary

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For the examination of the infiltration and the direction and velocity of the groundwater flow we must determine the thickness and depth of the first impermeable level.

Impermeable layers could slow down the groundwater movement, change its direction, and could separate the aquifer layers. In certain situations they can protect deeper layers and the groundwater moving in them from contaminations. At the same time they can also close water from the roots of different plants.

We should handle every loose sediments which contains more than 60 percent of clay (all grains with size under 0,02 mm) as impermeable level.

That is very important to know the situation of the first impermeable layer to the surface. The closer the impermeable level to the surface, the more intense sealing effect occurs. Impermeable layers deeper than four meters have almost no influence on the surface conditions.

Permeability of the near surface layers is also influenced by the thickness of the impermeable layer. The best impermeable layers have a thickness more than four meters. We can represent the depth and thickness of the non-pervious sediments on the same map.

The recognition of the impermeable layers makes easier to outline polluted groundwater bodies, to figure out the moving direction of the groundwater flow and the polluted groundwater, and we can also compile infiltration sensibility maps from these data. It is also possible to make a prognosis of vulnerability to inland water and it has an influence on land dessication too. The recognition of the impermeable layers with the information of the depth and the chemical type of the groundwater can help us to decide about irrigability and about thy type of that if necessary.

The south-eastern part of the Great Hungarian Plain is very suitable for his kind of land evaluation because of its agricultural importance and because this area has more micro-lands (as the eolian dunes of the Danube-Tisza hilly region, the younger alluvial sediments of the Tisza-valley and the older alluvial sediments of the south part of the Transtisza region). At the meeting zone of the different micro-lands, there are impermeable layers with great variation in position to the surface and also in thickness.