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Specific groundwater vulnerability maps – what pesticides pose largest threat to groundwater?

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Pesticides as compounds used in large quantities worldwide pose threat to surface and groundwater quality. One of the tools used for groundwater quality protection is a groundwater vulnerability mapping. Specific groundwater vulnerability can vary depending on pesticide properties and soil cover properties unlike the intrinsic groundwater vulnerability that does not account for the properties of a contaminant and interaction between a contaminant and a soil. In order to assess the risk of pesticide leaching, specific groundwater vulnerability maps were constructed for selected pesticides based on DRASTIC methodology modified to specific hydrogeological conditions of the Czech Republic with emphasis on soil cover that plays a key role in pesticides leaching due to adsorption of pesticides on soil particles. Selection of pesticides for groundwater vulnerability mapping was based on following properties: water solubility, soil half-life and Koc. The calculation of groundwater ubiquity score was also used for determination of a leaching potential of individual pesticides. The properties of selected pesticides represent wide range of compounds from those with none leaching potential to those with very good leaching potential. Presented compound-specific groundwater vulnerability maps reflect those properties.

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