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Application of Data Mining for Aquifer Environmental Assessment

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Abstract : Vulnerability maps are employed as an important solution in order to handle entrance of pollution into the aquifers. The common way to provide vulnerability map is DRASTIC. Meanwhile, application of the method is not easy to apply for any aquifer due to choosing appropriate constant values of weights and ranks. In this study, a new approach using k-means clustering is applied to make vulnerability maps. Four features of depth to groundwater, hydraulic conductivity, recharge value and vadose zone were considered at the same time as features of clustering. Five regions are recognized out of the case study represent zones with different level of vulnerability. The finding results show that clustering provides a realistic vulnerability map so that, Pearson's correlation coefficients between nitrate concentrations and clustering vulnerability is obtained 61%.

Keywords : clustering, data mining, groundwater, vulnerability assessment
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