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Assessment of contamination potential of nitrate-N in natural recharging aquifers of the Choushui River alluvial fan, Taiwan: Development and prediction of a modified GIS-based DRASTIC model

C.-P. Liang (1), C.-W. Lin (2), C.-S. Jang (3), and J.-S. Chen (4)

(1) Fooyin University, Department of Environmental Engineering and Science, Ta-liao, Kaohsiung, Taiwan (sc048@mail.fy.edu.tw), (2) Graduate Institute of Applied Geology, National Central University, Jhongli, Taoyuan, Taiwan, (3) Department of Leisure and Recreation Management, Kainan University, Luzhu, Taoyuan, Taiwan, (4) Graduate Institute of Applied Geology, National Central University, Jhongli, Taoyuan, Taiwan

Groundwater is one of the most important water resources. Monitoring data of groundwater quality revealed that many aquifers in natural recharging zones of Taiwan present serious nitrate-N pollution due to agricultural activities. This study uses DRASTIC model and GIS to assess the contamination potential of nitrate-N in the aquifer of the Choushui River alluvial fan, Taiwan. Additionally, this study also develops a modified DRASTIC model which adopts discriminant analysis to adjust factor weightings. The modified DRASTIC model can substantially enhance the prediction and revise some drawbacks in the original DRASTIC model. Moreover, the modified DRASTIC model can apply to use in Taiwan. The analyzed results provide government administrator with suggestive strategies against nitrate-N pollution in agricultural regions.