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Evaluation of artificial intelligence models in classification of groundwater quality in Fars province based on WQI index

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A substantial part of the country is facing with limitation of water resources and Improper use of water resources pollution in this resource will lead to crises and environmental disasters. Growing trend development of the country, increasing of industrial centers, the excessive use of manure and toxins in agriculture, effluent discharge of wastes to water resources, drainage of agriculture and waste water of hospitals , houses and the quality and quantity of water resources limited and valuable drastically threatened. Of increasing demand for quality, Increases the costs of excess water supply water And control of withsuitable Contamination of water resources control Necessity by taking the nation's Limitation water resources the water resources management of Various aspect is faced with serious challenges. Therefore qualititative evaluation the quality of water resources is necessary. Also province fars is not of exception. A province like Fars, located in Semi-arid part of the country wich is one of the main poles of Agriculture should be considered, Evaluate this resource, In terms of quantity and quality, For better efficiency, Account comes as a necessity. the one hand Require the withdraw water from this reserves And the other hand their relative limitations, And also the presence of minerals and salts in the them the importance of reviews shows this reserves. In this research a qualitative evaluation of groundwater fars province performed using PNN and SVM models based on WQI index been paid. The results show that the quality of groundwater in the most parts of the province is suitable. Low amounts of RMSE, cumulative error and CRM, The high coefficient of determination each model the proper functioning shows ability of both models in predicting water quality the values for the model SVM is 0/1848, 1/00542, 0/0041, 0/9798 and also for model PNN is 0/1210, 0/7371, 0/0025, 0/9913. The low value of RMSE and CRM, The high coefficient of determination A higher coefficient of determination of probabilistic neural network model shows higher accuracy than support vector machines are probabilistic.

Key words: PNN, SVM, Fars Province, the quality of groundwater.