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Groundwater Quality Assessment using Correlation and Regression Model in Tirupathi, India

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Abstract : The groundwater is the major source of water for drinking, agricultural and industrial requirements. Groundwater is the most important natural source required for drinking to the public's around the world, particularly in rural areas. An attempt has been made in order to determine the spatial distribution of groundwater quality parameters and to study the correlation and regression method. The physical and chemical analysis results were compared to the standard guideline values as recommended by the Bureau of Indian standards for drinking and public health in order to have an indication of the present groundwater quality. According to the overall assessment of the basin, almost all the parameters analysed are above the desirable limits of standards. Using Geographic Information System, spatial distribution maps of various parameters, correlation and regression method. The spatial analysis of ground water quality patterns of the study area shows that the Total Dissolved Solids values are similar throughout the sample station. The spatial distribution map of Total hardness shows that a majority of the groundwater samples are in the permissible limit only. The correlation analysis provides an excellent device for the calculation of parameter values within realistic degree of accuracy. The subsistence of strong correlation between calcium and Magnesium, electrical conductivity and chloride is determined.

Key Words: Groundwater, physical and chemical analysis, Geographic Information System, Spatial Distribution, correlation and regression analysis.

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