

**APPLICATION OF GEOSTATISTICS ON WATER QUALITY DATA
FROM THE DEDURU OYA BASIN**

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Geological processes and anthropogenic activities contribute to the temporal and spatial variation of hydro-chemical parameters within the natural environment. These parameters are mostly non-stationary and can be geostatistically analyzed to identify their distribution and to forecast their variations. We aim at finding how statistically generated values for missing data points will simulate with the original data by considering a total and a selected subset. Representative hydrochemical data from 80 tube wells and a subset of 45 were selected from the Kurunegala district for the geostatistical analysis using Geostatistical Environmental Assessment Software (GEOEAS). Initially, variable Electrical Conductivity (EC) was statistically characterized and basic statistics such as mean, median, standard deviation, variance, co-variance, skewness and kurtosis were obtained. Subsequently variogram analysis was done in the Omni, 60° and 135° directions while maintaining the tolerance at 22.5. The range values are almost same in above directions, so that the geometrical anisotropy is not complex. Kriging and contouring have been applied to the original set and a selected subset to observe the variations in the outcome of the distribution of EC. It is clear that with some modifications, limited data points could be used in order to obtain the general distribution of the selected parameter. Further research is planned to get observations on the variations in other water quality parameters from the Deduru Oya Basin.