

Abstrat

The Optimal management of water resources, and Keeping their quality, within the standard criteria, need the basic information about the range of chemical elements and their coordinate information in a specific geographical location. The appropriate zoning on the sufficiency of the statistical data as well as their local condition; which is an important step for the better management of water resources. This research investigate the spatial and temporal distribution of groundwater quality and quantity of mosian plains throught 11 years periods, using geostatistical techniques. After the evelation of best resources, data were evaluated for restoration purposes according to their accuracy and distribution; because it was observed that the data do not fit to normal distribution based on kolmogrov-Smirnov test, therefore the logarithm of the data were used. then the spherical variogram model had the best fit to the spatial distribution of the depth and all over of the quality parameters (TDS, EC, CL and pH) using the GS+ software. results showed that the best semi-variogram model is the exponential and spherical model to fit all data such as the depth and the quality parameters, it has to be mentioned that according to RMSE, ME and ASE using cross validation technic, the co-kriging was chosen as the best interpolation method among kriging, co-kriging and IDW. It was also found that there is a strong correlation between EC and TDS and their decreasing trend within the study period along the mosian plain. Assessment of the 11 years of the water table showed 2/44 meter decline related to the qualification data. The spatial quality map shows a decrease along the weast-east south-southeast pathes. In other word, the plain in east and southeast locations represents the worst quality of the water, and the it goes toward alkalinisation. This is probably due to the intensive agricultural activities in these location (weast and northwest) and the presense of salt pan in east part, also because of low quality of geological formation. Also, the iso- decline map of water table showed highest decrease in these area which overlap the dense rural area.

Keywords: Quality and Table Level Water, GIS, Interpolation, Variogram, Mosian.



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Graduate school

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The Thesis Submitted for the Degree of M. Sc

(in the Field of Watershed Management)

**Spatial Variation Investigate of the Ground Water
Quality and Quantity in the Moseian Plain, Ilam**

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October 2015