

Salinity Modelling of Ground Water in Saharanpur and Hardwar District

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ABSTRACT

The effect of salinity is one of the most important water quality considerations for agricultural waters. Generally, salinity is measured in terms of conductivity concentration. In the present study an effort is made to develop statistical models for the estimation of conductivity for pre monsoon and post monsoon seasons using routinely monitored water quality parameters of ground water wells in Saharanpur District (UP). Best subset procedure based on R and F values is used in model dissemination. It was found that alkalinity, Sulphate, Nitrate, Sodium and Calcium could be used as surrogate parameters for the prediction of conductivity. The predicted values of conductivity were compared with observed (actual) values and reasonably, good matching were obtained.

It is noticed that there is not a single model which can be used to predict the conductivity levels. The variation in conductivity not only varies from site to site but also it varies from season to season. However, it is observed that alkalinity and hardness are the parameters which can be used to predict conductivity to a great extent. Because both the alkalinity and hardness are commonly measured water quality parameters, it is suggested both of them should be used to estimate the suitability of groundwater with respect to irrigational and other beneficial water uses.

From the statistics arrived at and results/interpretation, it can be concluded that it would be necessary to have not one but two separate models (one for pre and another for post monsoon) so that the conductivity vis-a-vis salinity could be obtained (predicted) knowing other surrogate parameters like sulphate, nitrate, sodium etc.