

## **MODELLING THE TEMPORAL DYNAMICS OF SOIL MOISTURE CONTENT OF A YELLOW LATOSOL**

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Soil moisture is a key variable that control exchange of water and heat between the land surface and atmosphere. Knowledge on the dynamics of soil moisture and there management are paramount steps to improve crop production. In this study, a simple hydrological model was assessed to estimate the temporal dynamics of soil moisture content of a Yellow Latosol at Regional Agricultural Research and Development Centre in Kilinochchi.

The input parameters required for the model (Chopra model) are initial soil moisture and surface boundary flux conditions along with few easily measurable soil physical parameters. This model also predicted the soil moisture contents at different depth intervals and at different time intervals. To investigate functioning of the model, input data were obtained from available literature databases, laboratory analysis and pedo-transfer functions. Soil samples were collected at the depth of 0-15 and 15-30 cm every morning at same time for a twenty days period from each location for moisture content measurements.

Measured and predicted moisture contents of the surface soil were compared using root mean square error (RMSE) and residual error (RE) values. The result indicated that the RMSE values for modelled moisture content were within the range 0.02 to 0.08 and the RE values from 2 to 8%. When input data from three different sources were used the residual error is less than 10%, which is reported as an acceptable level of prediction accuracy. This model produced most accurate predictions when the values of input parameters from laboratory analysis were used. Hence, this model can be applied to generate temporal dynamics of soil moisture data with an acceptable accuracy for agricultural purposes.