

SPATIAL VARIABILITY OF SOIL INFILTRABILITY

P. Boivin * and J. Touma **

* ORSTOM, 70-74 route d'Aulnay, 93143 Bondy, France

** ORSTOM, BP 1386 Dakar, Sénégal

SUMMARY

Reclamation of acidifying and/or salted soils southern to the sahelian zone affected by the last two decades drought needs the knowledge of their hydrologic properties and the spatial distribution of these properties.

In order to study the spatial variability of soil's saturated conductivity (Ks), one hundred and six infiltration experiments are conducted with double ring infiltrometer in an 8 ha field in lower Casamance (Senegal). Among them, forty six infiltrometers contain three internal rings of various diameters.

The Philip (1957) and Green-Ampt (1911) infiltration equations are fitted on the experimental data. The initial moisture profiles being nonuniform, and some of the soil profiles double-layered, the significance of the fitted parameters is established numerically.

The parameters A of Philip and Ks of Green-Ampt are shown to be correlated and log-normally distributed. The determined range (40m) is larger than the values commonly presented in the litterature, and no influence of the internal ring diameter was found. The results do not allow the distinction between homogeneous and stratified profiles.

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