# Stochastic analysis of unsaturated flow with normal distrbution of hydraulic conductivity. (S01-huang212338-Poster)

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# Abstract:

To quantify distributions of soil hydraulic properties and their effects on water flow processes, we analyzed experimental data collected from a square field of 30 m to 30 m. The results show that the saturated hydraulic conductivity and pore-size distribution parameter are normally and log-normally distributed, respectively. And the variance of capillary tension head is a quadratic function and increases with its mean values. Based on the distributions of the soil hydraulic properties, analytical expressions of the variance of capillary tension head and the effective hydraulic conductivity in stratified soils were derived by using the stochastic method. Calculated variance values of capillary tension head using the analytical solution were compared with the field experimental data. A good agreement of the variance of capillary tension head of field soils with moderate variability.

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# **Presentation Information:**

Presentation Date: Monday, November 11, 2002 Presentation Time: 10:00 am-12:00 pm Poster Board Number: 2228

## **Keywords:**

Stochastic analysis, Unsaturated flow, Hydraulic conductvity, normal distribution