# Effect of Water Content on Nonequilibrium Transport parameters under Saturated Flow. (S01-shukla123044-Poster)

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## Abstract:

A systematic analysis of the effect of steady state water flux (q) and water content of soil on solute transport was performed on repacked loam soil columns (< 2mm) to identify the simplest possible description that was consistent with the observations across all of the breakthrough curves (BTCs). In all 21 break through curves (BTCs) obtained from loam soil, with 10 cm column length, water content ranging from 0.44 ? 0.47 cm3cm-3 and a 2-order magnitude variation in measured pore water velocity (vm), were fitted simultaneously and global estimates of parameters i.e. dispersivity, (l) and molecular diffusion coefficient (D0) were obtained. The equilibrium CDE and nonequilibrium CDE were also fitted to the individual BTCs, with the later providing some improvements in fits (r2 > 0.93). The data indicated that a two-parameter global dispersion (D) relationship (D =l vm + D0) represents the spreading process for all 21-loam soil BTCs (r2 > 0.93). The globally fitted l was independent of vm and D remained independent of vm in the lower velocity ranges. However, a linear relationship between vm and fitted D was obtained for vm > 0.1 cmh-1.

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## Presentation Information:

Presentation Date: Monday, November 11, 2002
Presentation Time: 10:00 am-12:00 pm
Poster Board Number: 2027

**Keywords:**
Physical nonequilibrium, Pore water velocity, Dispersion coefficient, Retardation factor