

A MODEL FOR USE OF TRACERS IN SOIL

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In this model the unsaturated soil profile is divided into a number of layers connected in series and the mass balance equation expressed as¹

$$\text{Net accumulation} = \text{Input to the system} - \text{Output from the system} + \text{Generation inside} \\ \text{volume} - \text{Consumption inside volume.}$$

is applied successively to each layer at finite time increment. The flow through the soil profile is therefore represented by a sequence of finite inputs and the mass balance equation is solved iteratively using the computer.

SECTION D

The model is used to understand the observed tracer output and infiltration at a given depth of soil. The model calculations compare favourably with the experimental results and yield interpretation in terms of the hydrodynamic parameters of soil.

Reference

1. Przewocki, K. and Yurtsever, Y. (1974). Some conceptual mathematical models and digital simulation approach in the use of tracer in hydrological systems, *ProcP. IAEA Sym. Isotope techniques in groundwater hydrology*, 2, 425-448.