

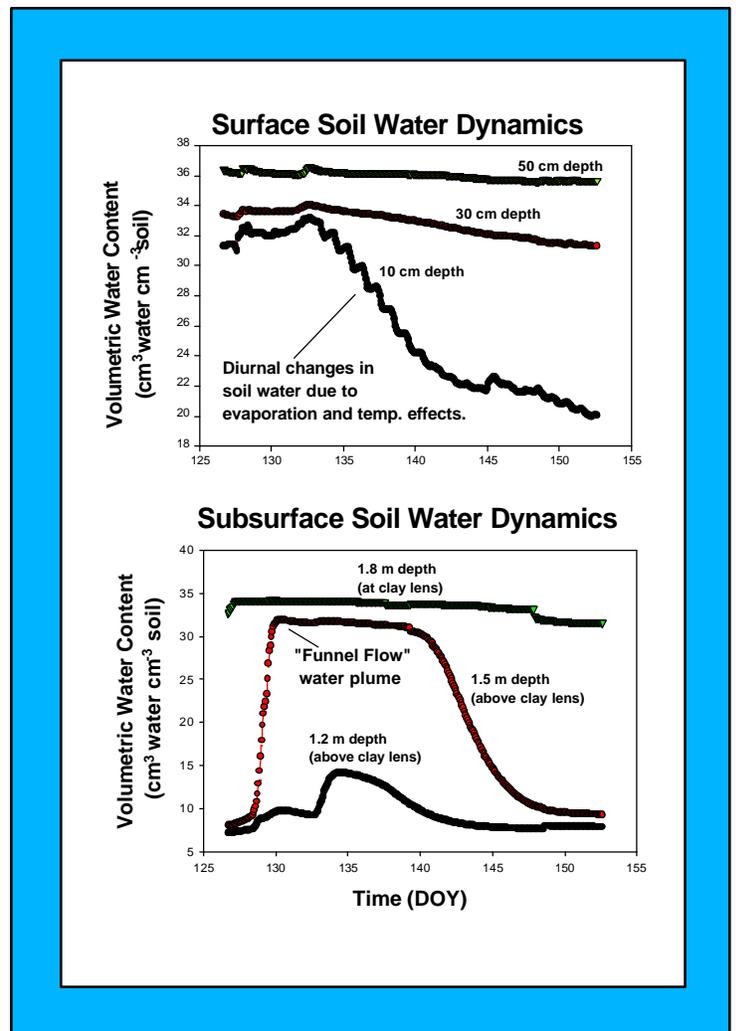
# Understanding Soil Water Dynamics

Fundamental watershed-scale hydrologic processes governing chemical transport through soil to neighboring ecosystems are so poorly understood that strategies for mitigating chemical contamination cannot be accurately formulated. The major limitation to accurately quantifying and predicting chemical transport at the watershed scale is our inability to determine soil water dynamics. With an accurate knowledge of soil water dynamics we can identify the spatial location and timing of surface and subsurface chemical losses.



On the left an OPE3 scientist is holding one of 48 soil moisture probes which has been calibrated and installed on the OPE3 site. This system generates over 36,000 measurements of soil moisture everyday giving us a "motion picture" view of surface and subsurface soil water dynamics over the entire OPE3 site.

The figure on the right is an example of the soil moisture data collected from one of the 48 soil moisture monitoring probes. In the top portion of the figure the impact of plant water uptake is clearly visible at 10 cm (diurnal variations in soil water content). In addition, the bottom portion of this figure shows water flowing sideways (along a clay lens which according to ground penetrating radar data is located at 1.54 m). With this kind of data we can better understand water and chemical transport to neighboring ecosystems as well as in determining factors that may influence crop growth and yield.



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