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COMPARISON OF METHODS OF MONITORING INFILTRATION

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ABSTRACT: Meteoric (rain and snow) water or stream infiltration is a topic of concern for the solid waste, waste management, and mineral extraction industries as well as estimates of recharge in streams and engineered recharge systems. Quantification of the depth and volume of water infiltration is often attempted through the installation of soil moisture sensors and soil potential sensors. This talk will present the results of the use of lysimeters, water content reflectometers (soil moisture), and heat dissipation sensors (soil potential) at several sites in the American Southwest. Combinations of these types of sensors have been installed in clusters so that their performance in measuring soil moisture flux can be compared. Presentation of the pros and cons of the different sensors, combinations of sensors and methods used to estimate near surface flux, tracking of wetting fronts, and deep percolation will be discussed. In some cases equilibration with existing soil moisture conditions was found to require several months after installation before in situ measurements should be considered representative of site conditions. The profiles of sensors provide more detail regarding depth of infiltration of the wetting front and timing of evaporation of stored water.

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