Measuring Recharge with a Water-Flux Meter. (S01-gee101949-Poster)

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Abstract:

Water-flux measurements are needed to assess water and chemical transport in soils. At the Department of Energy's Hanford Site near Richland, Washington, we use water-flux meters to measure recharge rates from non-irrigated and irrigated land surfaces. Recharge from bare surfaces is directly correlated with surface texture (% fines). Coarse soils (<5% fines) recharge more than 50 mm/yr (>30% of the annual precipitation) while fine soils (>40% fines) recharge less than 1 mm/yr. Recharge from irrigated land is more complex. A treeline shelterbelt, irrigated by drip emitters, was planted in the spring of 2001. We established a monitoring network consisting of water-content reflectometers, tensiometers and a water-flux meter placed 3 m below land surface. Initial drainage rates, observed in summer of 2002, suggested that yearling trees were removing less than half of the irrigation water. Water-flux monitoring should prove useful for future irrigation control. This work is sponsored by the U. S. Department of Energy under contract DE-AC06-76RL01830 and in cooperation with CH2M Hill Hanford Group.

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Presentation Information:

Presentation Date: Monday, November 11, 2002

Presentation Time: 10:00 am-12:00 pm
Poster Board Number: 2132

Keywords:
drainage, tipping bucket, divergence , self-calibration