Improving Wetland Evapotranspiration Estimates by Relating Specific Yield to Soil Properties. (S10-jawitz162132-Oral)

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Abstract:

Diurnal water table fluctuations are commonly used to calculate evapotranspiration (ET) in wetlands using a three-parameter formula first described by White (1932). Two of the parameters in the White equation are determined from the transient water table profile while the third, specific yield, is taken to be a constant soil property. Specific yield, however, is a function of the vadose zone moisture profile and can differ significantly from maximum values in near-surface water table scenarios - a condition common in wetlands. Here, an ET equation is presented where the dependence of specific yield on depth to water table and soil physical properties is preserved. Sample cases are presented that illustrate the overestimation of ET when the variability of specific yield is inadequately accounted for in the White equation. The new ET relation is also applied to field measurements of water table fluctuations in marsh and cypress dome wetlands in South Florida to obtain improved ET estimates.

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Presentation Information:

Presentation Date: Tuesday, November 12, 2002
Presentation Time: 9:15 am

Keywords:

wetland evapotranspiration, moisture release curve, diurnal water table fluctuation