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Daily Evapotranspiration Estimates by Scaling Instantaneous Latent Heat Flux Derived From a Two-Source Model.

*Tuesday, November 3, 2009: 11:00 AM
Convention Center, Room 326, Third Floor*

Paul D. Colaizzi¹, W.P. Kustas², Steve Evett³, Terry A. Howell³ and Prasanna H. Gowda³, (1)USDA-ARS, Conservation and Production Res. Lab., Bushland, TX
(2)USDA-ARS Hydrology & Remote Sens. Lab, USDA-ARS, Beltsville, MD
(3)Conservation and Production Research Laboratory, USDA-ARS, Bushland, TX

Radiometric brightness temperature can be used in energy balance models that estimate sensible and latent heat fluxes of the land surface. However, brightness temperature is usually available only at one time of day when acquired from aircraft, fine-scale satellite platforms, or infrared thermometers aboard center pivot sprinkler systems. Therefore, a scaling method must be used to estimate daily evapotranspiration (ET) based on a one-time-of-day estimate of instantaneous latent heat flux. We compared three methods for scaling instantaneous latent heat flux estimated from a two-source (soil + vegetation) energy balance model to daily ET, against measured data by four large weighing lysimeters in Bushland, Texas. The scaling methods included the commonly used evaporative fraction and two versions of the Penman-Monteith equation (Standardized American Society of Civil Engineers method and a recursive method where surface temperature was estimated by iteration). Estimates of daily ET were compared to those measured by weighing lysimeters for various crops, and differences in the performance of scaling methods were evaluated and discussed.

See more of: Remote Sensing at Multiple Scales: The Bushland Evapotranspiration and Agricultural Remote Sensing Experiment, 2008

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677 South Segoe Rd | Madison, WI 53711 | 608-273-8080 | Fax 608-273-2021