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Remote Sensing for Crop Water Use Management: Present Status and Challenges.

*Wednesday, November 4, 2009: 11:00 AM .
Convention Center, Spirit of Pittsburgh Ballroom BC, Third Floor*

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Evapotranspiration (ET) is an essential component of the water balance and a major consumptive use of irrigation water and precipitation on cropland. Remote sensing based agrometeorological models are presently most suited for estimating crop water use at both field and regional scales. Numerous ET models have been developed in the last three decades to make use of visible, near-infrared (NIR), shortwave infrared (SWIR), and most importantly, thermal data acquired by sensors on airborne and satellite platforms. Remote sensing based models have the potential to accurately estimate regional ET; however, there are numerous opportunities to further improve them. The spatial and temporal resolution of currently available remote sensing data from the existing set of earth-observing satellite platforms are insufficient to be used in the estimation of spatially distributed ET for on-farm irrigation scheduling purposes, especially at the field scale (~10 to 200 ha). This will be constrained further if the thermal sensors on future Landsat satellites are abandoned. Research opportunities exist to improve the spatial and temporal resolution of ET by developing algorithms to sharpen or enhance the spatial resolution of surface temperature data derived from satellites with lower resolutions like ASTER/MODIS thermal images using same/other-sensor high-resolution visible, NIR, and SWIR images. Two large-scale, multi-institutional research experiments — "Bushland Evapotranspiration and Agricultural Remote Sensing Experiment (BEAREX07 & 08) — were conducted at the USDA-ARS Conservation and Productions Research Laboratory located at Bushland, Texas during the 2007 and 2008 cropping seasons to further examine these possibilities.

See more of: [Symposium--Crops and Their Response to Water Management: I](#)

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