

Calculating ET and Crop Coefficients for the South Platte Using a Surface Energy Balance Model (ReSET)

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Abstract. Remote sensing algorithms are currently being used to estimate regional surface fluxes (e.g. evapotranspiration (ET)). Many of these surface energy balance models use information derived from satellite imagery such as Landsat, AVHRR, ASTER, and MODIS to estimate ET. The remote sensing approach to estimating ET provides advantages over traditional methods. One of the most important advantages is that it can provide regional estimates of actual ET. Most conventional methods are based on point measurements, limiting their ability to capture the spatial variability of ET. Another advantage of remote sensing/surface energy balance ET models are able to estimate the actual crop ET as a residual of the energy balance without the need of using reference crop ET and crop coefficients. This presentation will focus on the use of an energy balance model developed by the authors (Remote Sensing of ET – RESET) that uses an enhanced procedure to deal with the spatial and temporal variability of ET. ET estimates from several years of data for the South Platte will be presented as well as results of ongoing research to develop alfalfa and corn crop coefficient derived using the ReSET model.

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