

Calculating ET Using Satellite Imagery in the Arkansas Valley of Colorado

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Abstract. Irrigated agriculture relies heavily on estimates of crop consumptive use. These estimates are used for several purposes including: developing irrigation scheduling, calculating leaching requirements, and estimating system efficiency. Many irrigated areas of the world are affected by waterlogging and salinity. These problems have a direct effect on the health of the crop and therefore an impact on the crop consumptive use. We have been collecting extensive field data in the Arkansas Valley of Colorado for soil salinity, crop yield, we have used atmometers to estimate ET as well collecting groundwater and surface water salinity. Recently we obtained Landsat TM images from 2003 for the Arkansas Valley. We have used the SEBAL methodology to process the images and have developed estimates of ET for the 2003 season. We will present the results of the work as well as comparisons of ET estimates using traditional methods (reference ET x Crop Coefficients) versus the ET estimates using the satellite images. We will also discuss what we have found on the effects of salinity on the estimates of ET.