Final Report

Monitoring Weather Conditions and their Effects on Evapotranspiration rates in Northeastern Colorado with the Colorado Agricultural Meteorological Network (CoAgMet)

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June 2012

This project focused on enhancing and improving CoAgMet weather stations in the South Platte basin in order to collect high quality data needed by stakeholders in the basin to help estimate crop water demand and consumptive use (CU). This report will highlight work done on each of the tasks listed in the original scope of work submitted to the South Platte Basin Roundtable.

Task 1: Weather station site selection

In order to make the best use of these funds, cost saving measures were employed in order to allow this funding to benefit all stations in the South Platte basin. These include remote automated weather stations near: Ault, Kersey, Peckham, Lucerne, Fort Lupton, Greeley, Yuma, Wray, Holyoke, Haxtun and Paoli. These stations have been visited in both 2010 and 2011 and will continue for one more year in 2012 using alternative funding.

Task 2: CoAgMet weather station maintenance and network operations

Station maintenance included but was not limited to: exchange of temperature/humidity and pyranometer every other year (unless they were not functioning properly), replacement of wind bearings annually, annual site maintenance (i.e. trim grass, clean pyranometer and rain gage), verification of function of wind speed/direction, soil temperature, precipitation and communications as well as battery and solar panel maintenance. Some stations received new anemometer sets, soil temperature probes and precipitation gages. Maintenance records and photos are available for each of these sites from the Colorado Climate Center. All data and calculations of evapotranspiration are publicly available with graphing capabilities at http://coagmet.colostate.edu

Task 3: Long term sustainability of CoAgMet

Unfortunately, no sponsors have as yet been secured for supporting operations, maintenance and data processing for these stations going forward. However, with the help of the USDA Agricultural Research

Service, CSU Extension, CSU Experiment Station, private interests and the Colorado Division of Water Resources, we did participate in workshops in 2010 and again in March 2012 highlighting the importance and uses of CoAgMet in estimating crop water use. A growing number of organizations are now keenly aware of CoAgMet. Data from these stations are ingested and included in HydroBase – the database that drives Colorado's Decision Support Systems. These workshops generated revenue to help support the CoAgMet network and also raised visibility for the future needs of the network. A short term solution is use of severance tax funds the Climate Center received to add one more year to committed operations and maintenance. These funds are also being used to implement soil moisture monitoring at to-be-determined sites in the basin (likely dryland for drought monitoring). This grant will allow more time to secure partners in the South Platte basin.