Colorado Agricultural Meteorological Network, CoAgMET: Climate Data and Information for Agriculture and Water Resources

Nolan J. Doesken, State Climatologist
Colorado Climate Center
Atmospheric Science Department
Colorado State University
Fort Collins, CO

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A Brief History of CoAgMet

- USDA Agricultural Research Service Irrigation Scheduling research in the South Platte Basin, 1980s
- Colorado State University research on insect pests and diseases
- Colorado Climate Center -- expertise on climate data collection, quality control analysis, interpretation and display

CoAgMET “Cooperative”

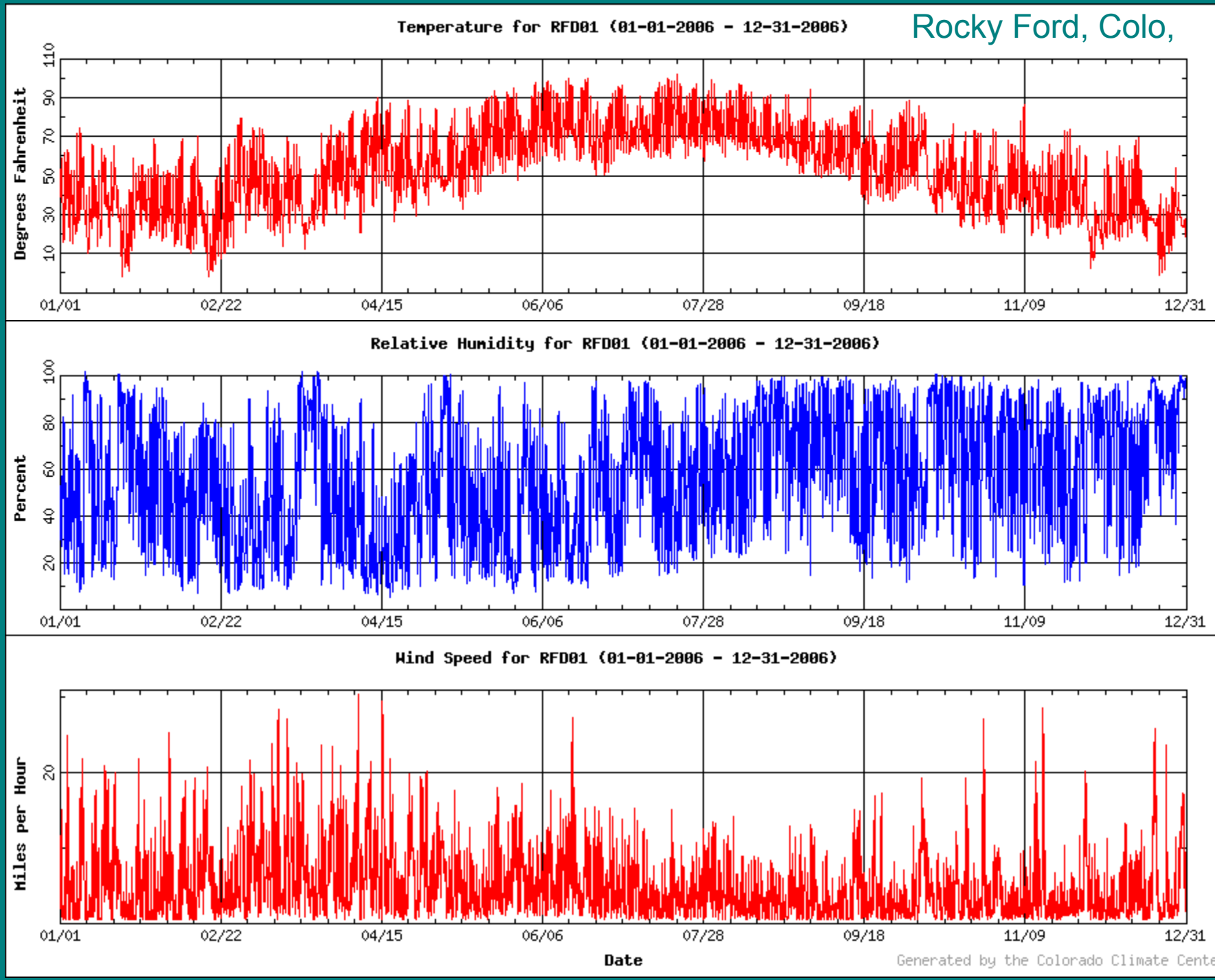
- Resources were shared (little or no exchange of funds), others partners were found, and a loose-knit “Cooperative” was formed to establish a weather station network providing real-time weather data from many irrigated agricultural areas of Colorado.
- We now have 15 years of data for a few long-term sites.

What does CoAgMet Measure?

- temperature
- humidity
- wind speed
- wind direction
- solar energy
- precipitation
- soil temperatures

- Hourly averages, daily totals and extremes, etc.

Rocky Ford, Colo,



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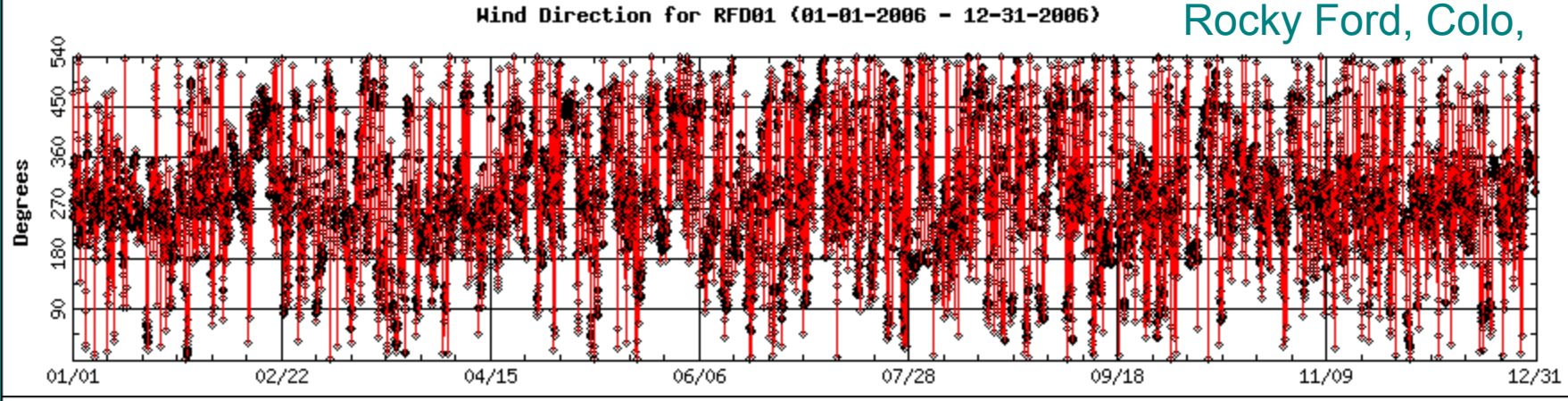
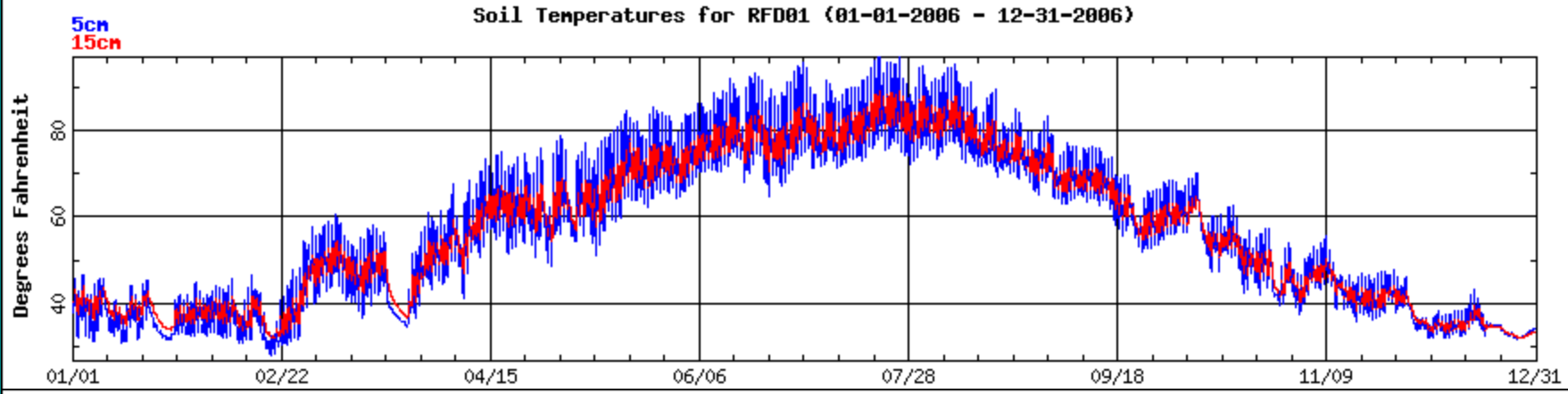
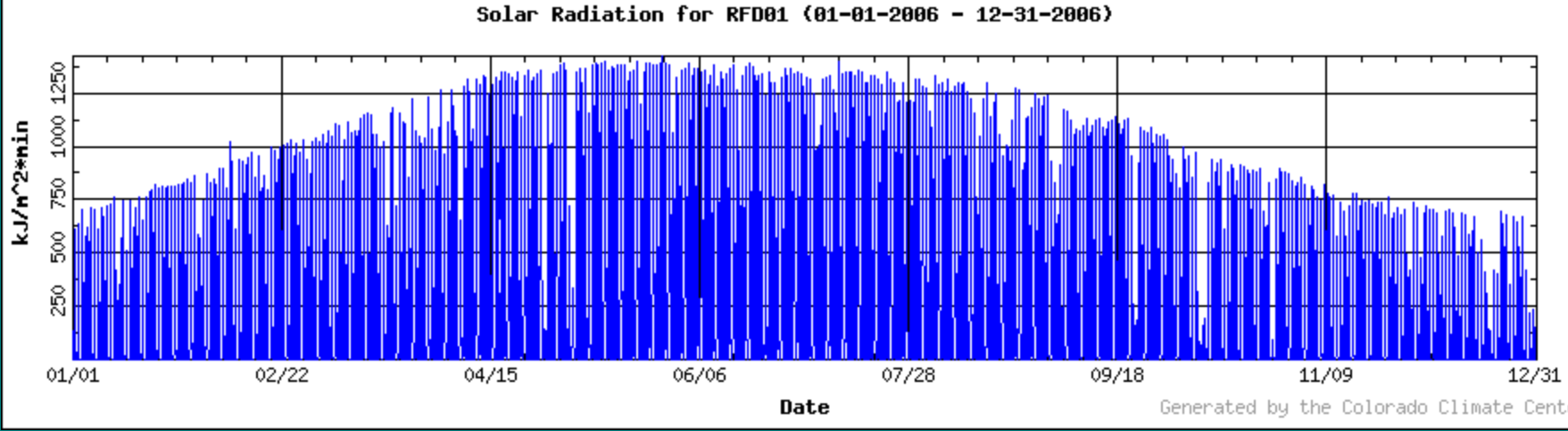
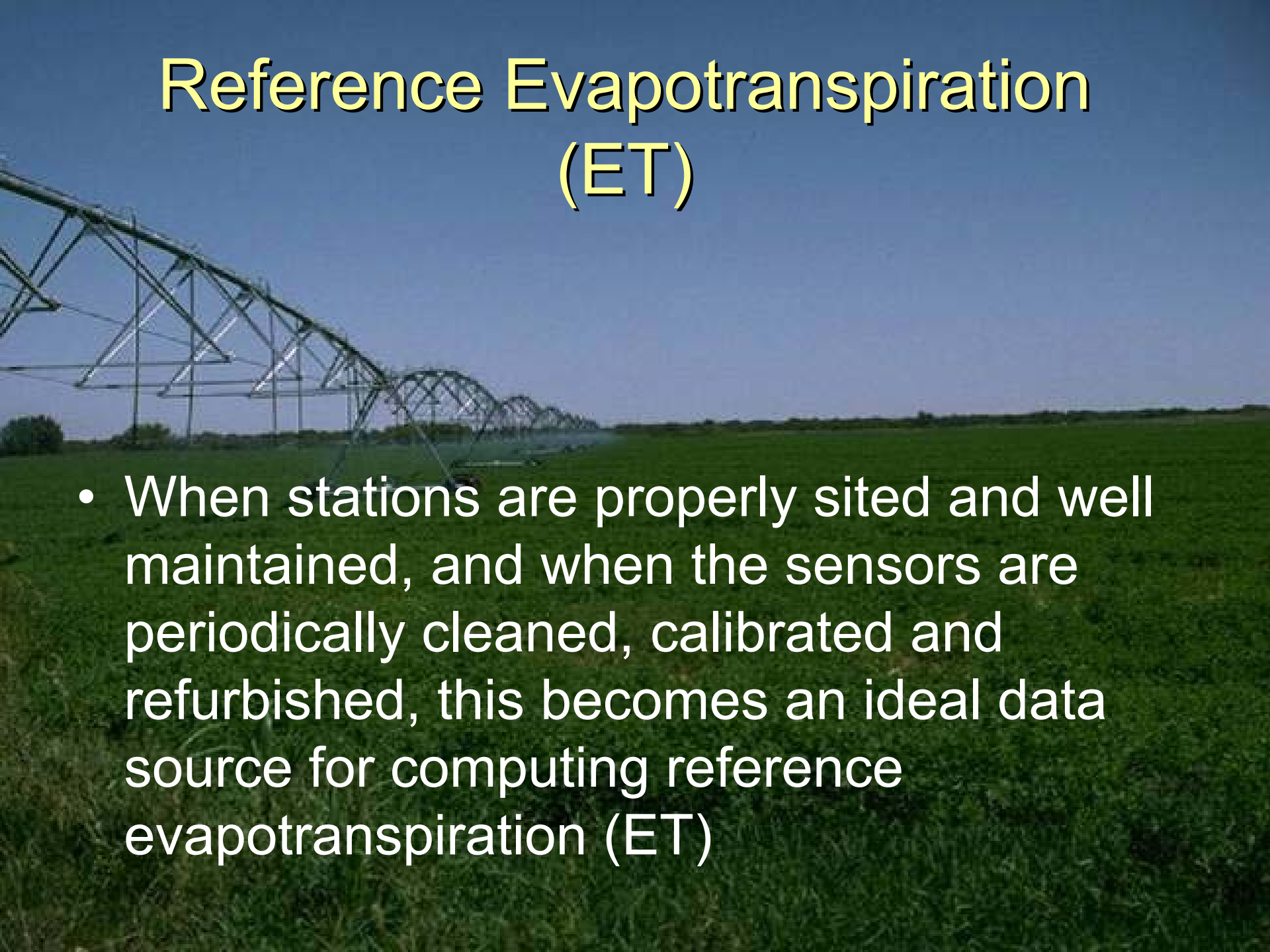






Reference Evapotranspiration (ET)



- When stations are properly sited and well maintained, and when the sensors are periodically cleaned, calibrated and refurbished, this becomes an ideal data source for computing reference evapotranspiration (ET)

Until recently, there were only 4 stations in the Arkansas Valley:

- Avondale,
- Vineland,
- Rocky Ford and
- Lamar (dryland site)

Kansas vs. Colorado

During the Kansas vs. Colorado interstate compact litigation, Arkansas Valley CoAgMet data were used by consultants for both States.

- The quality of data available for computing evapotranspiration and consumptive use was found to be fair to poor.
- The locations of the stations were found to poorly represent much of the irrigated areas of the Valley.
- We received stern criticism for providing inferior data for important water resources applications

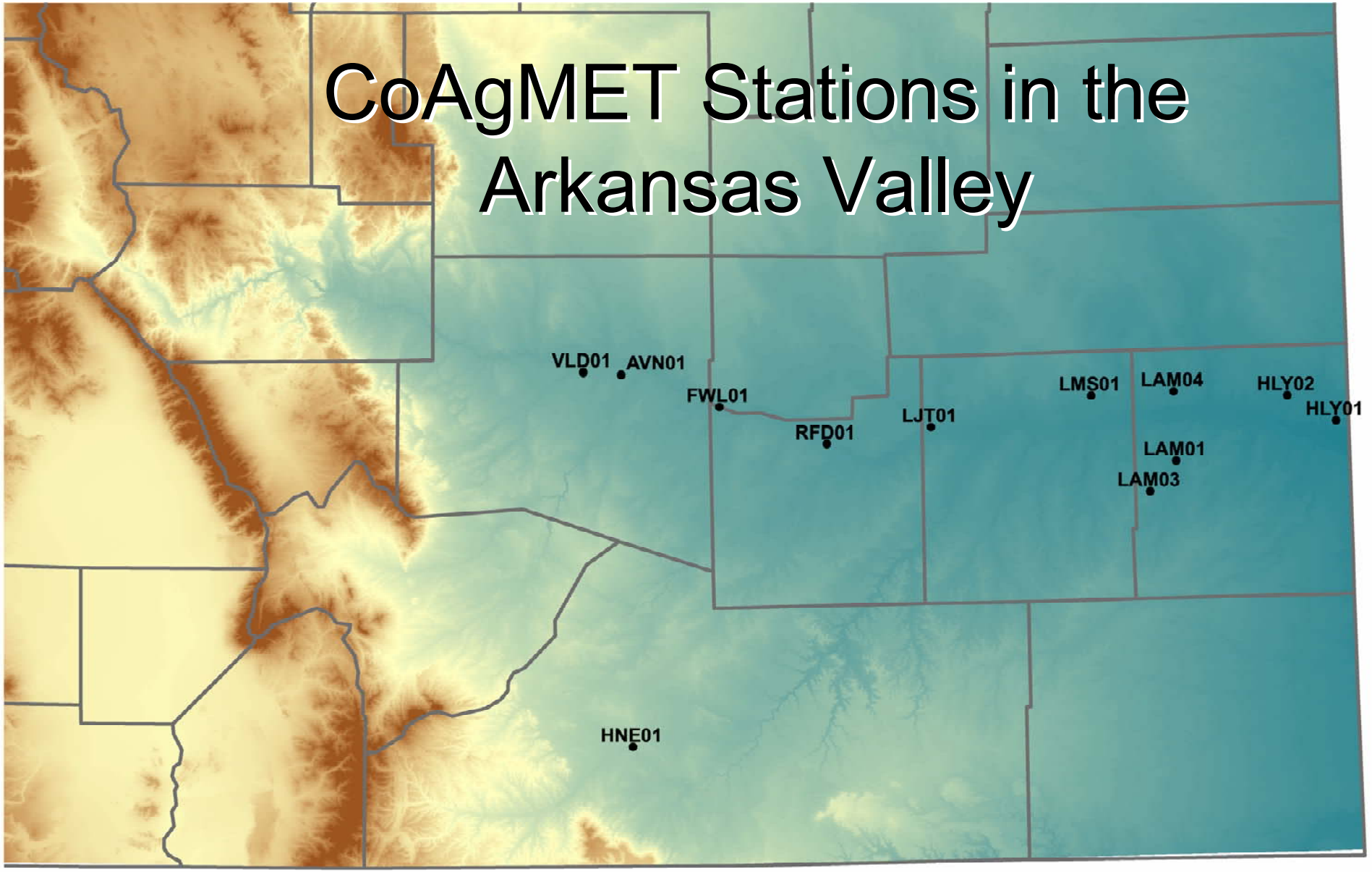
Response

- Funds were allocated FY05 to upgrade the CoAgMet network in the Lower Arkansas Valley and provide better and more representative climate data for ET monitoring.

Summary of accomplishments

- Research Associate hired (Bret Shafer)
- New sites added at
  - Fowler
  - near La Junta,
  - near Las Animas,
  - near Lamar and
  - near Holly

CoAgMET Stations in the Arkansas Valley

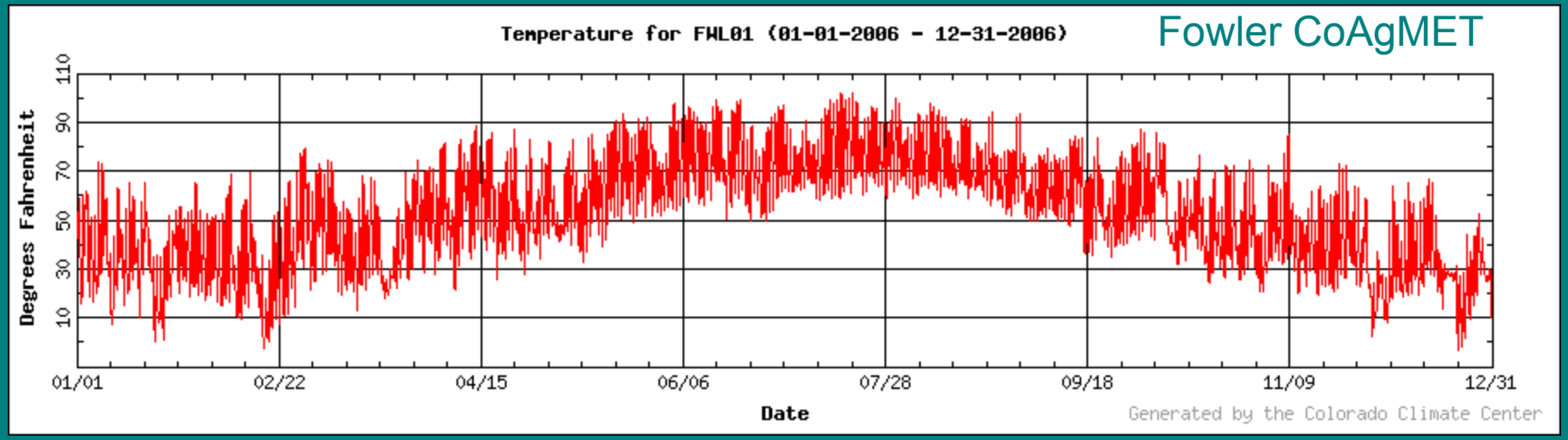


Additional accomplishments

- Sensors upgraded, refurbished and calibrated at all sites
- Attention to siting and site maintenance
- Communications upgraded to Digital Cell phones where possible
- Implemented annual maintenance cycle
- Daily quality assurance check implemented

Results

- Great improvement in data quality and data availability for ET and water management applications as well as many other climate data applications in the Arkansas Valley



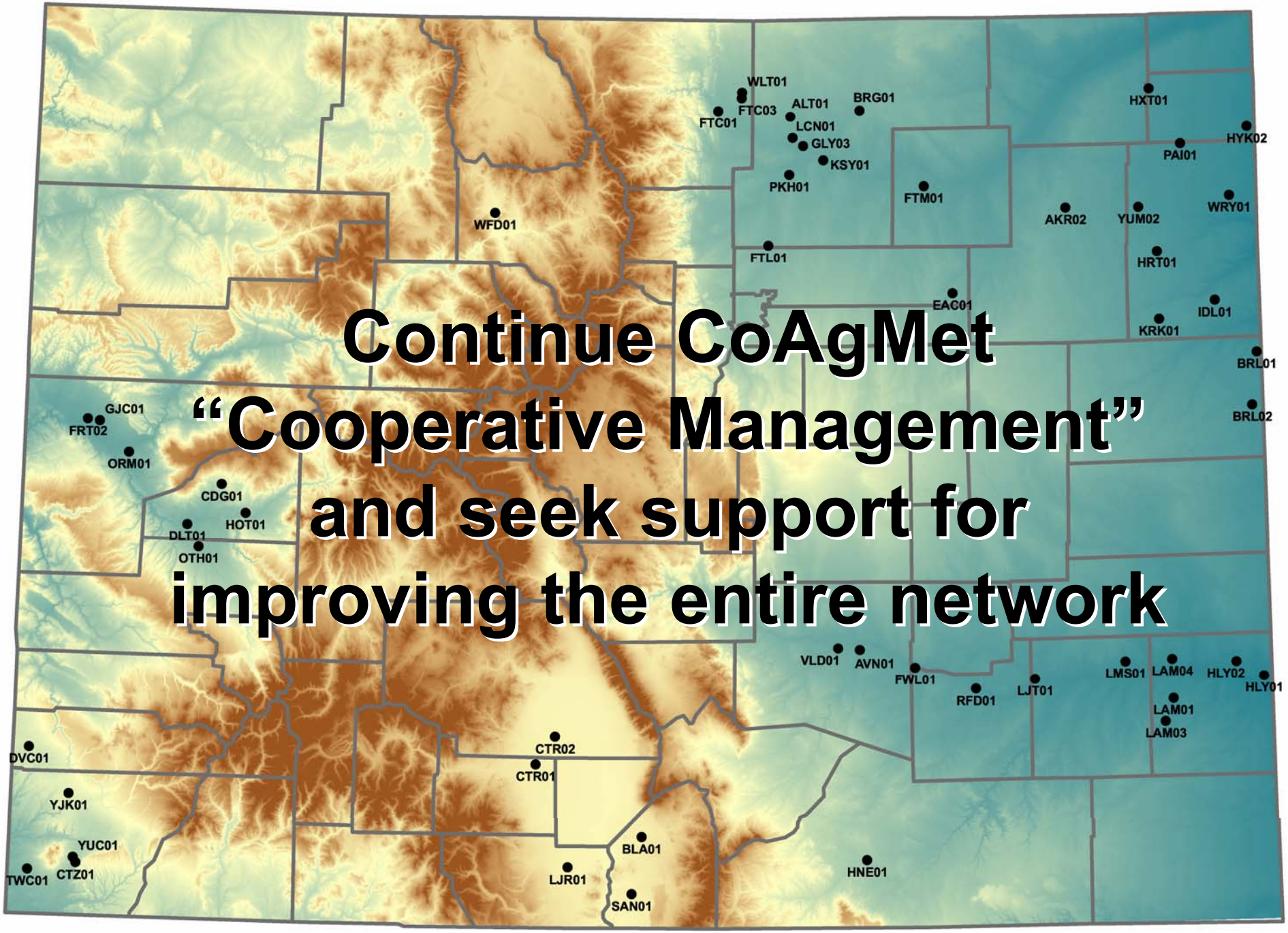
Budget Summary

CSU - CWCB IGA Attachment
Enhancement of CoAgMet Network in the ARV Budget Detail (Account 530241)

Subcode	Category / Item	Budget	Project to Date Actual	Encumbered	Budget Balance Available
Arkansas River Valley COAgMet Weather Stations					
2000	**Personnel:**	**48,001**			
2111	Admin Pro Salary		31,032	8,500	
2112	Fringe		6,278	1,734	
	Sub-total		**37,309**	**10,234**	**458**
3000	**Domestic Travel:**	**10,500**			
3010	In-state		**1,035**	**0**	
	Sub-total				**9,465**
3400	**Materials & Supplies:**	**9,000**			
3410	Digital meter, electronic equipment		436	0	
3450	Repair Parts and Supplies		1,167	0	
3560	Disposal Supplies		93	0	
3580	Agricultural Supplies		812	0	
3600	Laptop computer		2,530	0	
3810	Computer software		97	0	
	Sub-Total		**5,135**	**0**	**3,865**
4000	**Other Direct Costs**	**6,300**			
4050	Maintenance and Repair		3,516	0	
4250	Telecommunications		1,378	230	
4350	Shipping Expense		75	0	
	Sub-total		**4,968**	**230**	**1,102**
8000	**Capital Equipment**	**29,500**			
8210	New Wx stations		**11,208**	**0**	
					18,292
	Total	**103,300**	**59,655**	**10,464**	**33,181**

Proposed work remaining FY07

- Hire new technician to replace Bret
- Conduct annual spring station maintenance and sensor calibration
- Site preparation and maintenance
- Maintain manual QA/QC process
- Test and implement new automated QA/QC procedures
- Implement geospatial analysis and mapping features
- Upgrade database software
- Metadata enhancements



Continue CoAgMet "Cooperative Management" and seek support for improving the entire network

Colorado Climate Center

CoAgMET data available for downloading:

http://ccc.atmos.colostate.edu Click on “CoAgMet”

or

http://www.coagmet.com

Colorado State University
Knowledge to Go Places

Colorado Climate Center