

The Kentucky Climate Center: An Overview of Assets

Stuart A. Foster & Rezaul Mahmood
Kentucky Climate Center
Western Kentucky University

Kentucky Farm Bureau Water Management Working Group
April 29, 2015

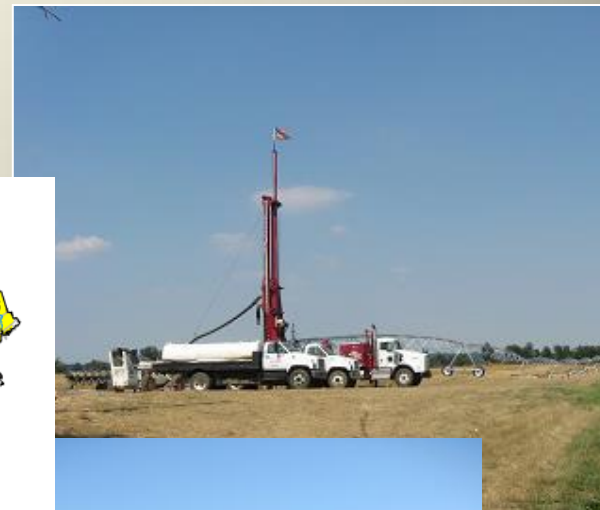
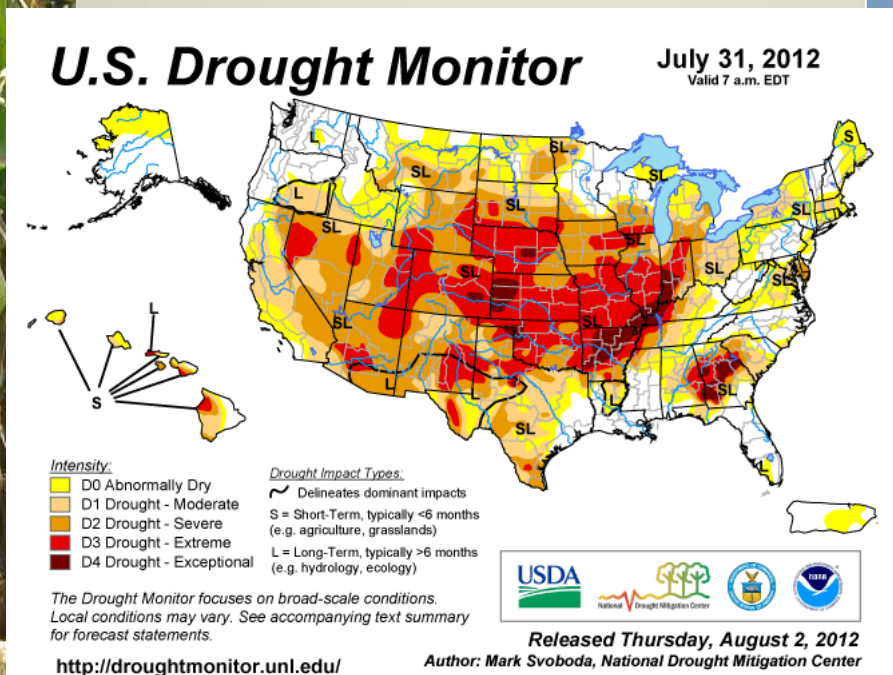
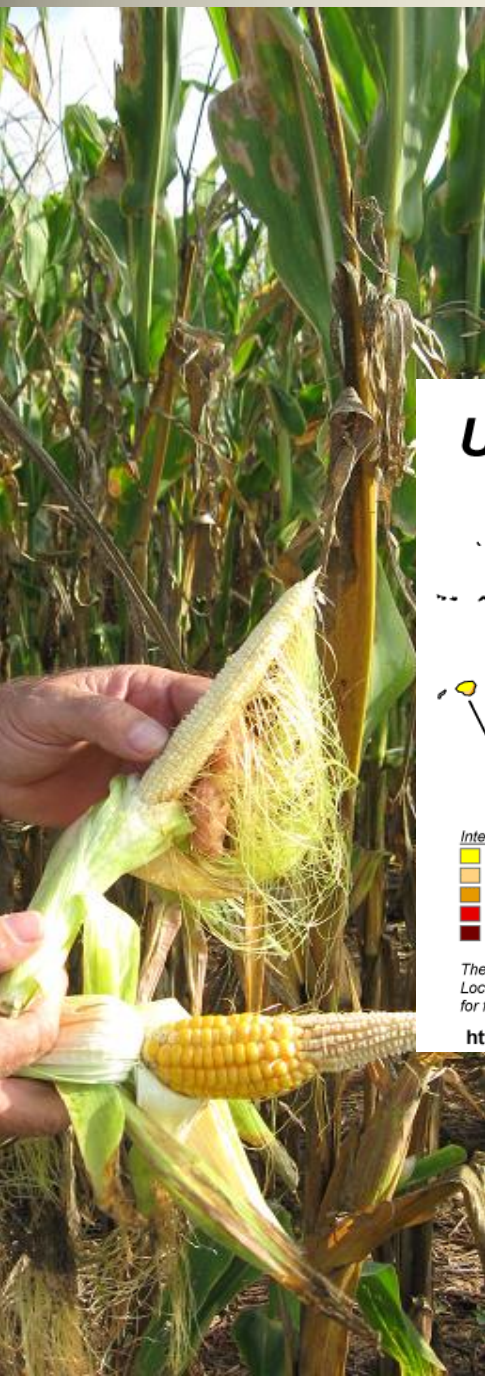


Kentucky Climate Center (KCC) Assets



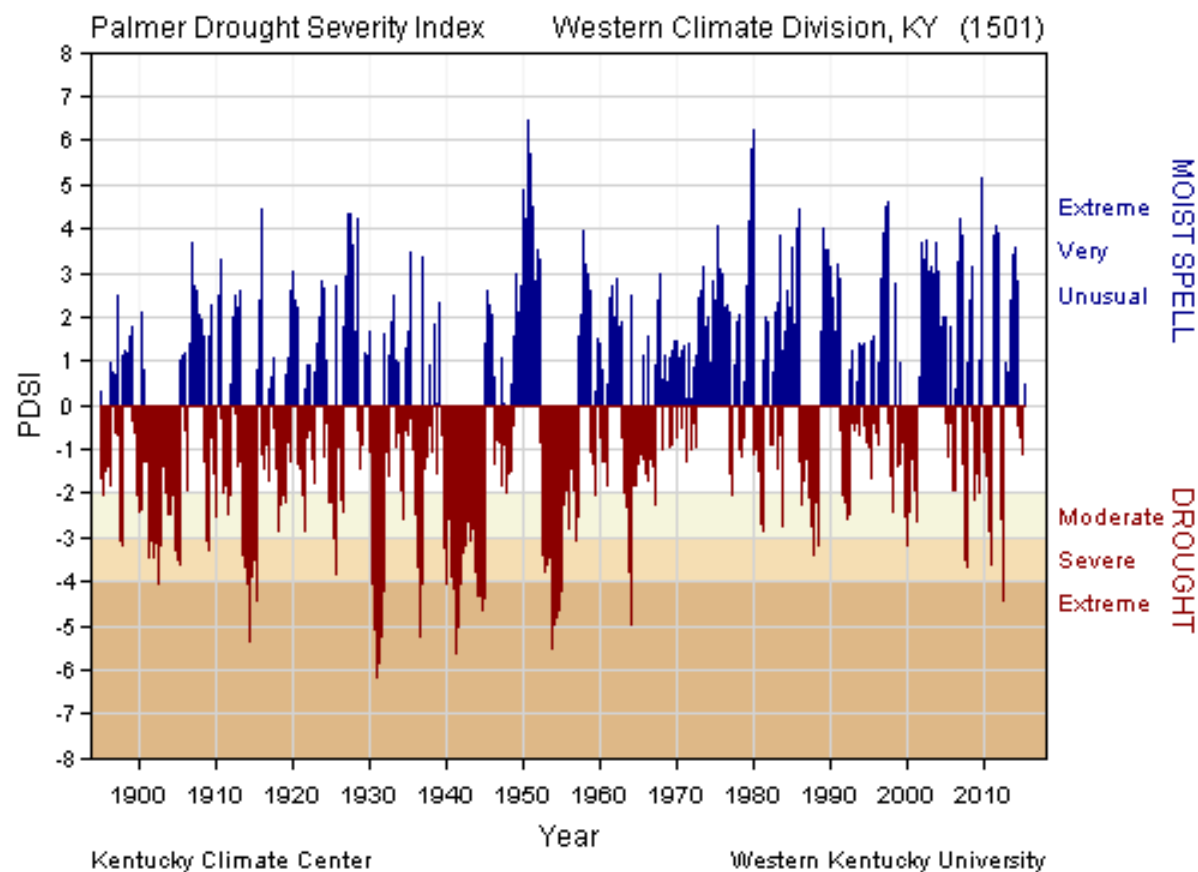
- The KCC serves as the State Climate Office for Kentucky and is affiliated with a tiered network consisting of State Climate Offices, Regional Climate Centers, and the National Centers for Environmental Information (formerly the National Climatic Data Center)
- *The Kentucky Mesonet, a statewide infrastructure for weather and climate monitoring was built and is operated by the KCC*
- *The KCC has expertise in meso-scale atmospheric modeling and weather forecasting using models that leverage WKU's High Performance Computing Cluster*
- The KCC leverages WKU's Meteorology Program, which includes 6 Ph.D. faculty and approximately 50 undergraduate students

Agriculture

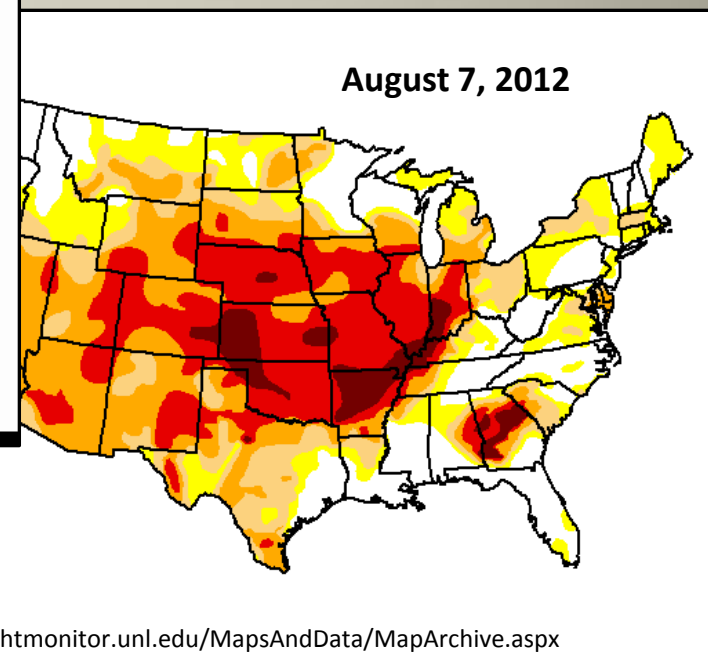
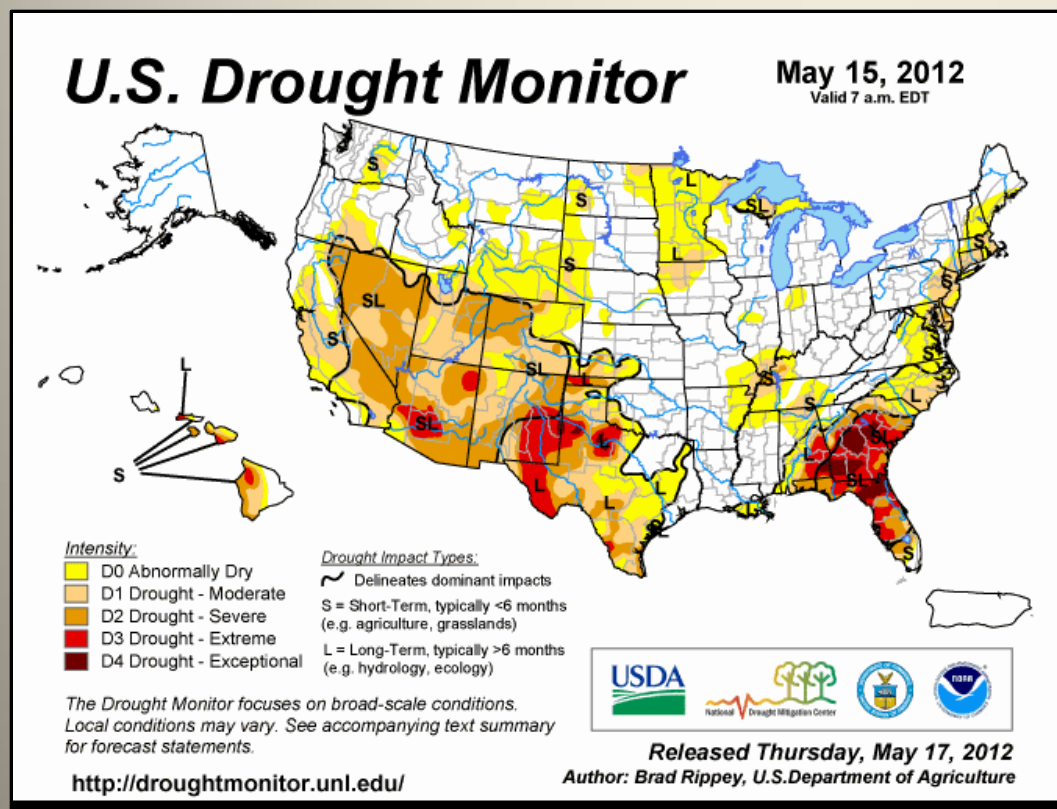


Palmer Drought Severity Index

Western Climate Division, KY

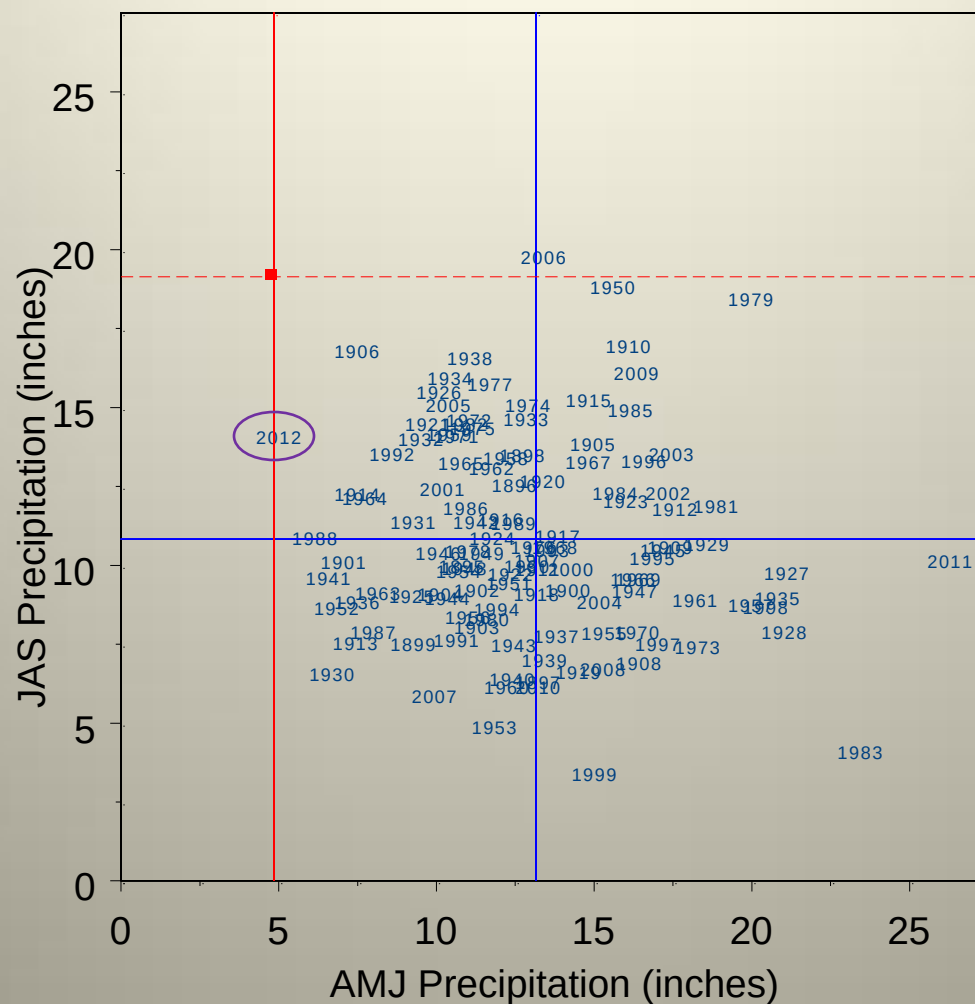


Continental Evolution of 2012 Drought



AMJ and JAS Precipitation, 1895-2011

Western Climate Division, Kentucky



Notes

Vertical blue line represents average¹ AMJ precipitation.

Horizontal blue line represents average¹ JAS precipitation.

Vertical red line represents actual 2012 AMJ precipitation.

Dashed red line represents precipitation for JAS of 2012 required to bring the combined AMJ and JAS total to the average¹.

¹ Average is defined as the arithmetic mean of the climate division values for 1895 through 2011.

Dimensions of the 2012 Drought



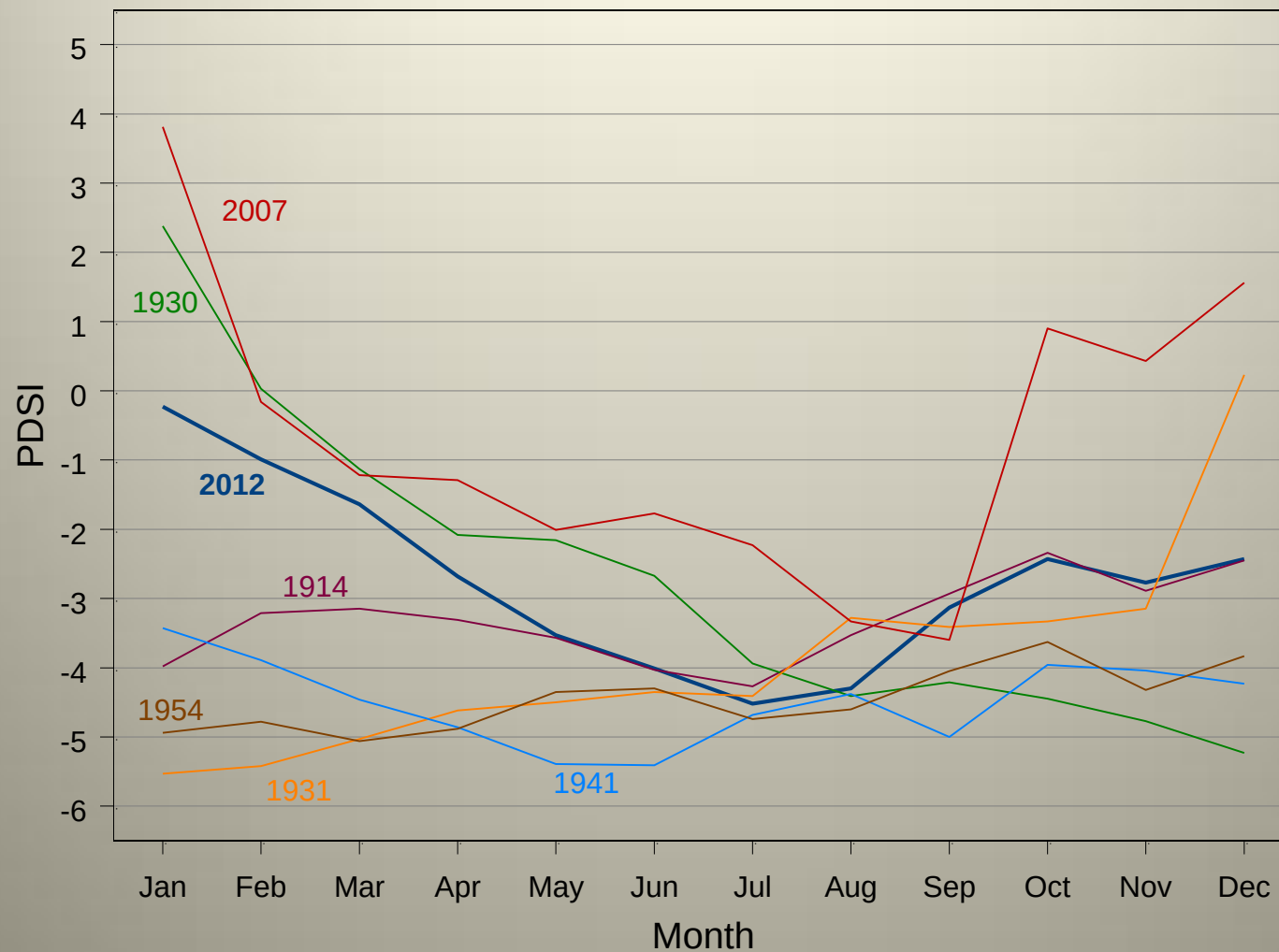
Mayfield, Graves County
July 27, 2012

Graves County

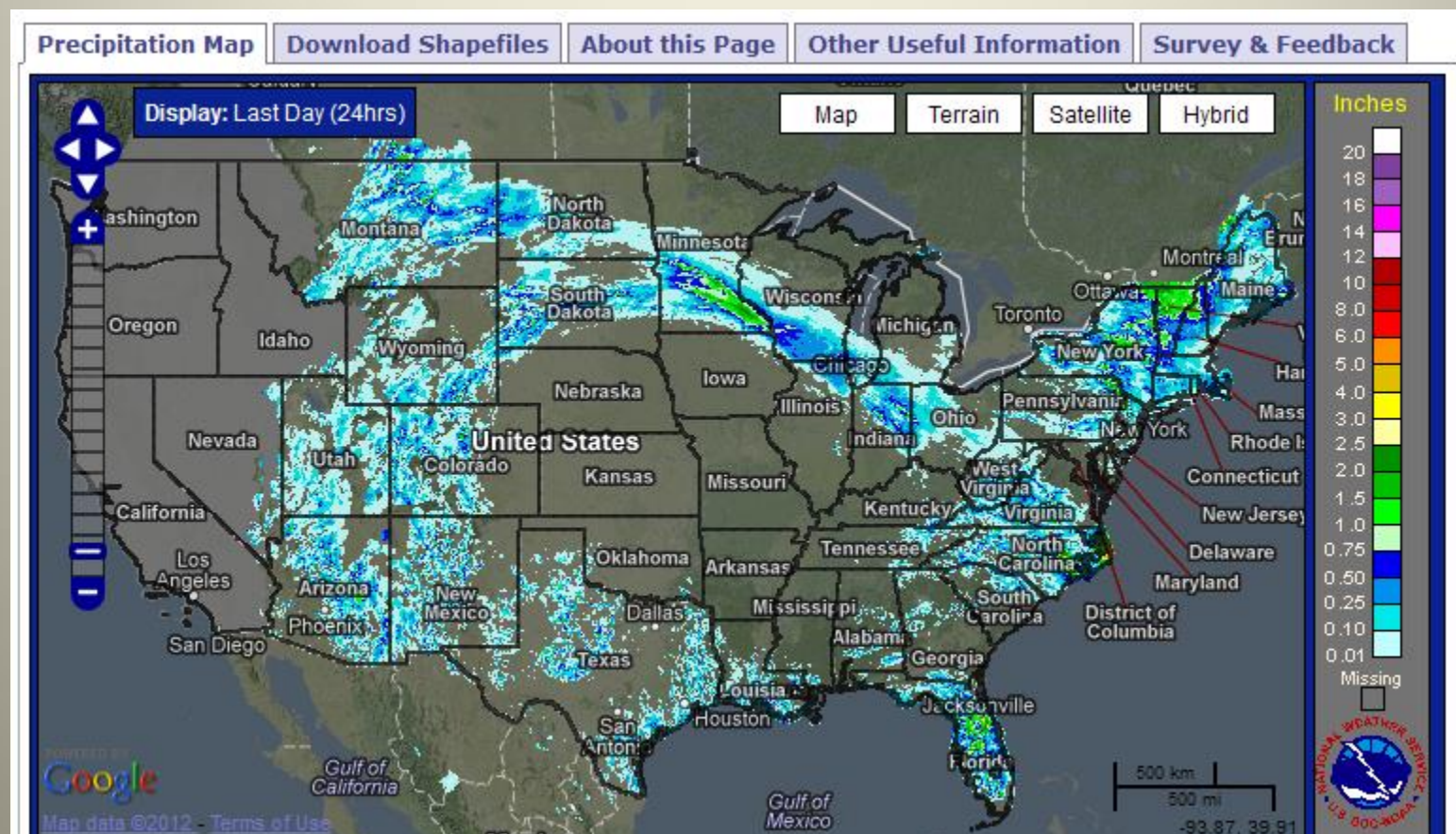
- 3.22" – Precipitation on March 8th
- 4.40" – Precipitation for the entire spring season
- 99.4° - Average high temperature from June 28th through July 8th

Historical Context for the Drought of 2012

Kentucky's Western Climate Division

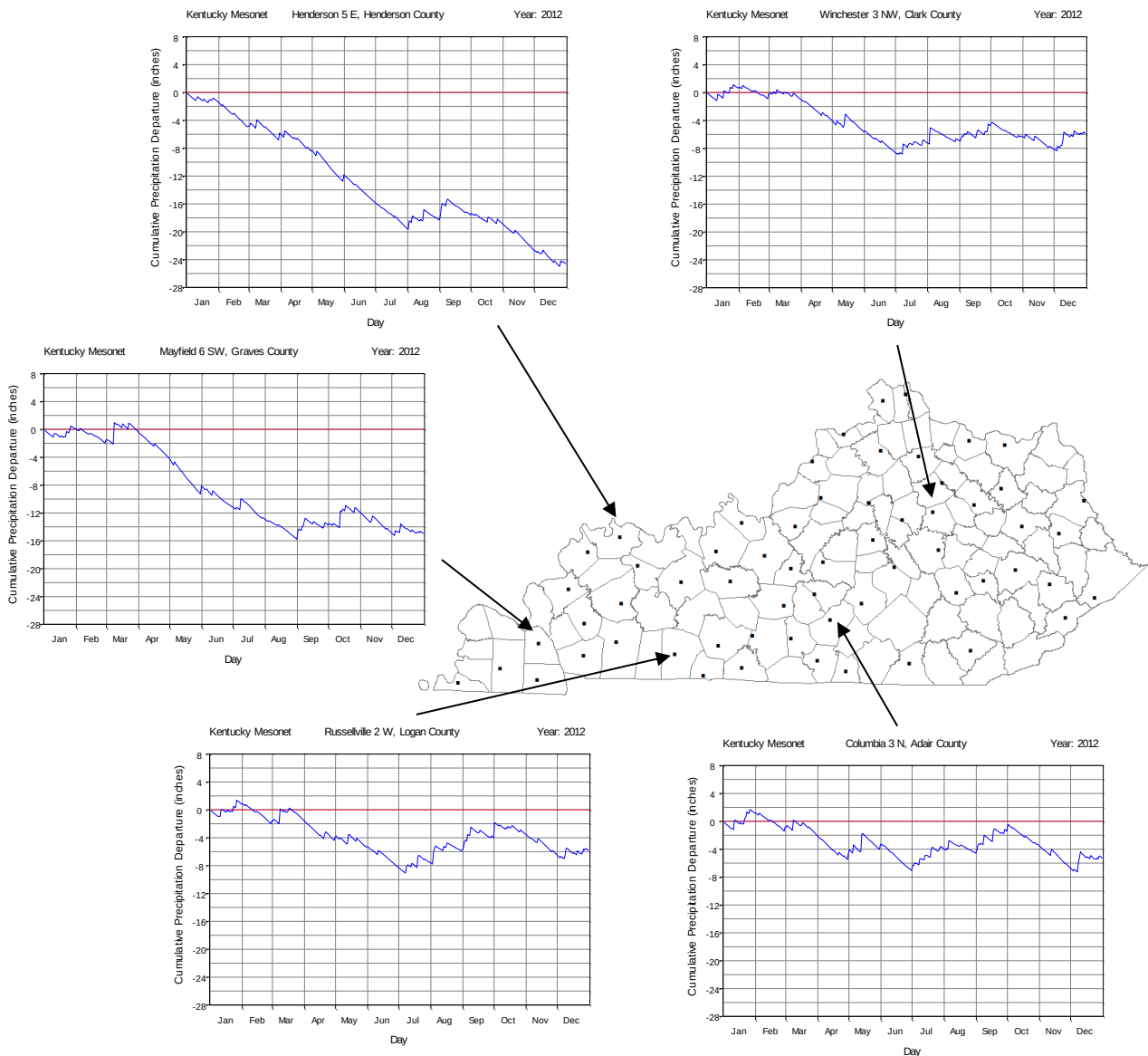


Synoptic Precipitation Pattern in Late July



July 24, 2012

Evolution of the 2012 Drought in Kentucky





Kentucky's diverse terrain creates distinct local vulnerabilities to weather and climate



Funding

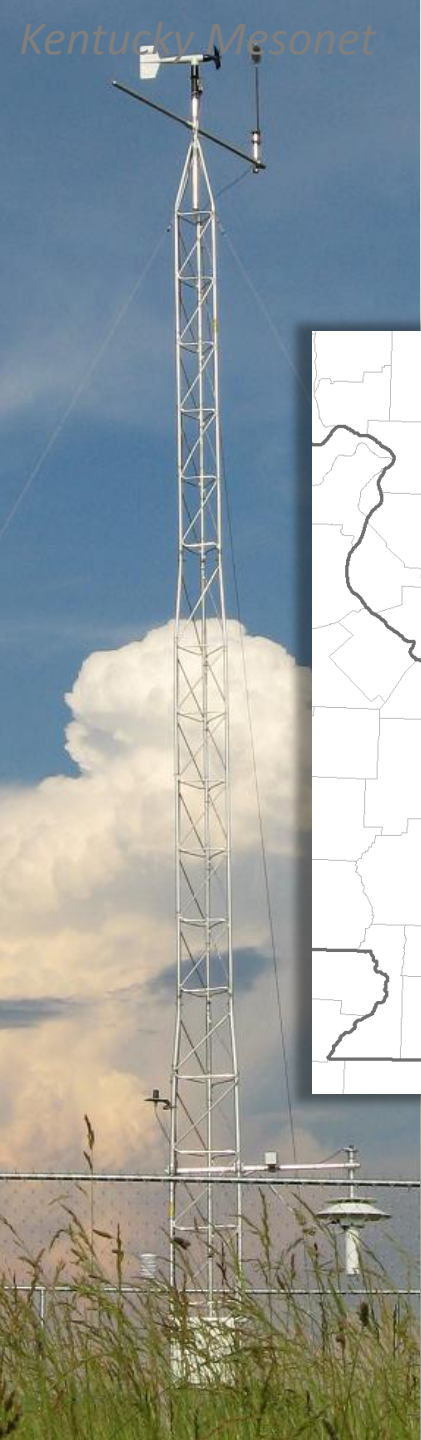


- Construction Phase
 - Approximately \$3,000,000 project funded through the National Weather Service to the Kentucky Climate Center
- Operational Phase
 - WKU
 - Federal
 - State
 - Local

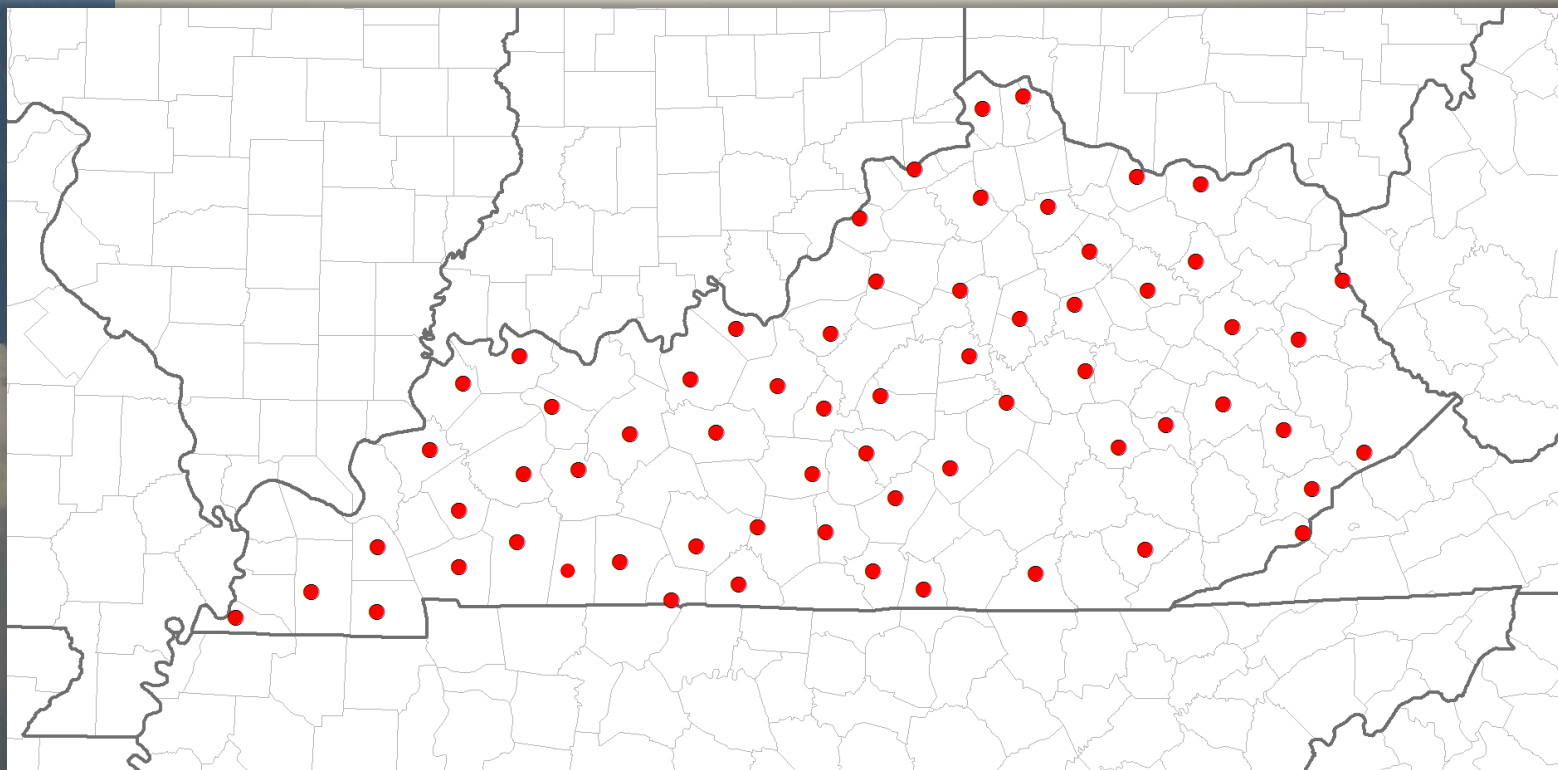
 WESTERN KENTUCKY UNIVERSITY		News Release
News & Events Media Relations News Archives Photo Gallery Echo Magazine WKU Calendars WKU Home	Kentucky Mesonet Recognized As Official Climate Data Source April 06, 2006 <i>Bowling Green, Ky.</i> – Gov. Ernie Fletcher has signed a resolution recognizing the Kentucky Mesonet as the official source of climatological observations for the state.	

Across the Commonwealth

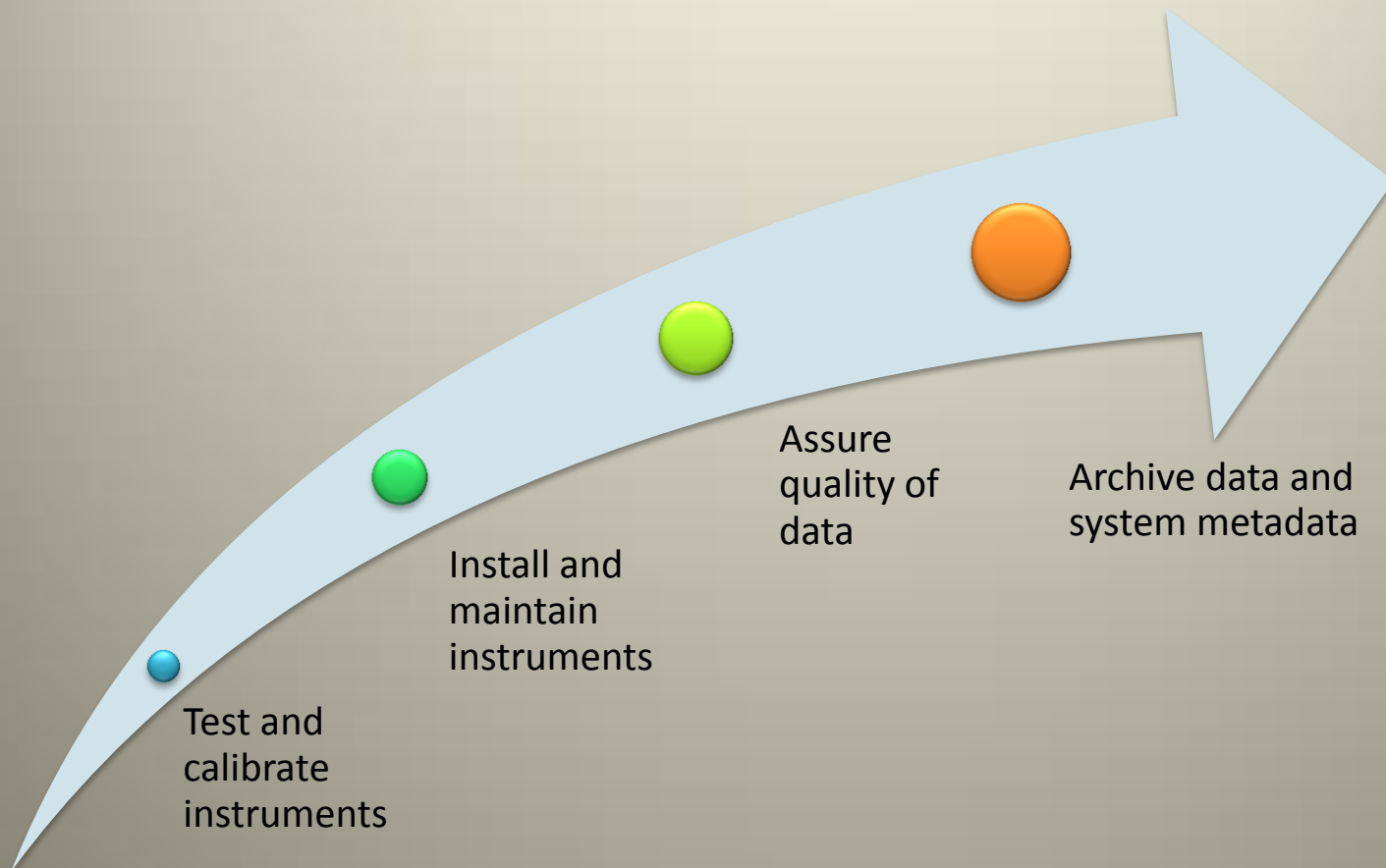




Kentucky Mesonet Coverage Map



Vertically Integrated System



High-Quality Sites for High-Quality Data

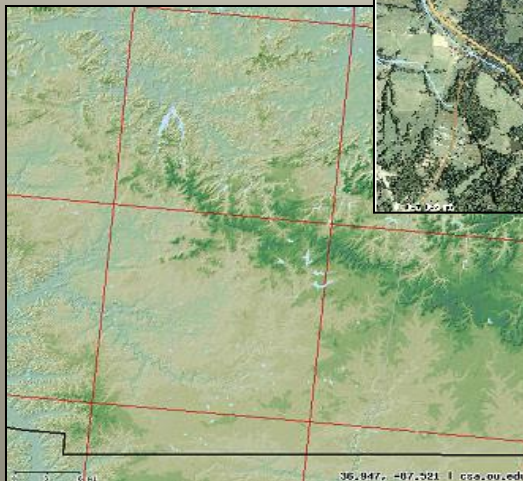
Work with local stakeholders to find the best available sites



Sites are representative of their surrounding areas

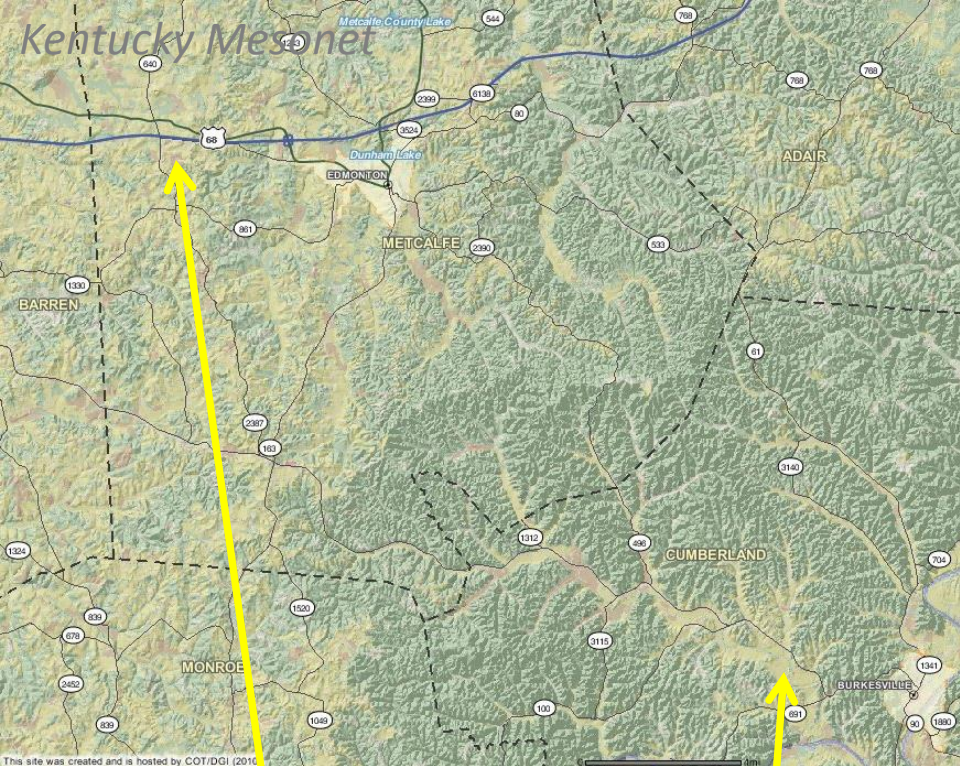
Site Selection Activities

Site selection decisions combine information from site surveys with input from NWS representatives and local officials



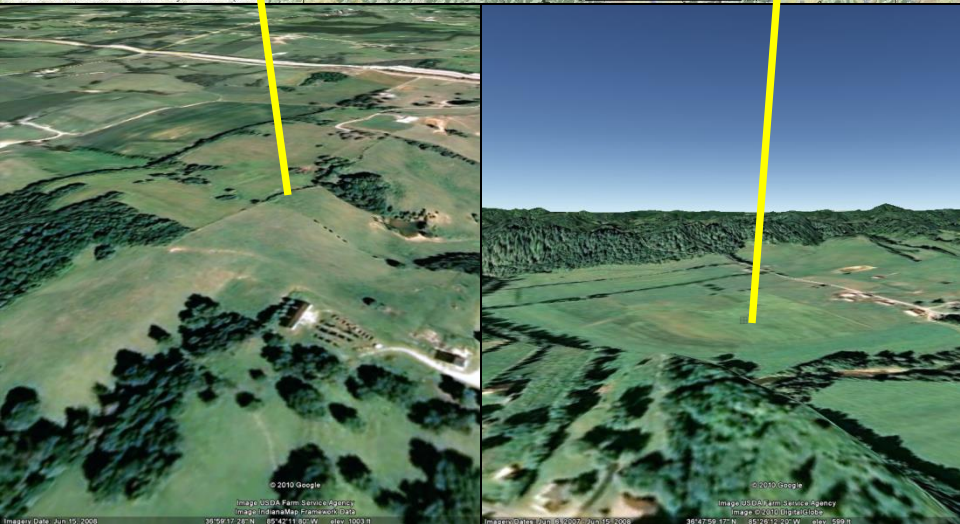
Survey Scores

Temperature	40
Precipitation	30
Wind	12
Soil	15
Total	97



Paired Sites

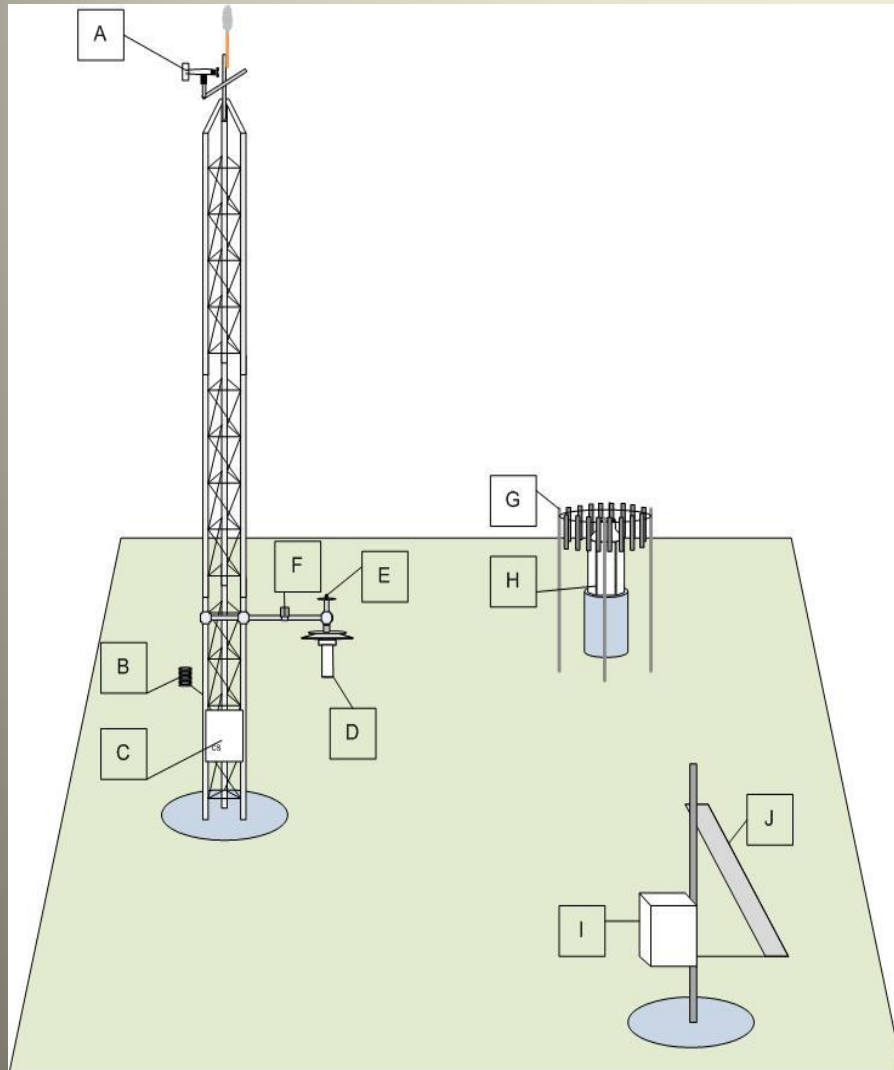
- Areas of complex topography cannot be well represented by a single site
- The most representative site may not be the nearest site
- An example is provided by the paired stations in Metcalfe County and Cumberland County



Plateau , 1003'

Valley, 554'

Layout for Solar-powered Site



- A. Wind Monitor
- B. Relative Humidity Sensor
- C. Datalogger Enclosure
- D. Temperature Sensors
- E. Pyranometer
- F. Wetness Sensor
- G. Single Albedo Shield
- H. Precipitation Gauge
- I. Battery Enclosure
- J. Solar Panel

Guy wires not shown. Drawing not to scale

Station Installation and Maintenance

- Technicians install stations and instrumentation
- Technicians make spring, summer, and winter maintenance passes
- Technicians respond to “trouble tickets” when QA processes indicate problems



Design Criteria Emphasize Quality and Reliability



Temperature



Precipitation

Sensor Package

- Air temperature
- Precipitation
- Solar radiation
- Relative humidity
- Wind speed & direction
- Soil moisture & temperature*

** selected sites*



Preparation for Soil Monitoring



- A soil scientist on site during takes soil samples in conjunction with the installation of soil probes
- Soil samples are subsequently analyzed in a laboratory to produce a detailed pedon description

Installation of Soil Probes

- The soil plot hole is excavated at 130° and 10 feet from the tower base
- A *Stevens Hydraprobe II* is installed at each of five depths: 2", 4", 8", 20", and 40"
- Probes are installed into the side of the hole to ensure placement in undisturbed soil, except the sensor at 40" is installed straight down at the bottom of the hole
- The hole is backfilled progressively as each sensor is installed and the sensor cable is manipulated near the sensor head to ensure that it will not act as a conduit for water to pool at the head of the probe



Metadata Database

Equipment History

Calibration History

Effective Time	Performed By	Calibration Location	Equipment Used	Variable	Equation
2008-04-04 16:55:00	Dana Grabowski	KYMN LAB	Fluke 7380 High Pre	TA01	0.9968X+-0.0511
2008-04-04 16:55:00	Dana Grabowski	KYMN LAB	Fluke 7380 High Pre	TA02	0.9968X+-0.0511
					0.9968X+-0.0511

User: aquilligan

KYMN

Manage Sites

Manage Equipment

Manage Sites

Add/Modify Collection Sites

Add Non-Collection Sites

Site Pass

Site Status

User: aquilligan

KYMN

Manage Sites

Manage Equipment

Move Equipment At Sites

All Sites

Russellville 2 W

Manufacturer	Model	Serial No	Vendor	Type
AirLink	Raven Edge E3214	0638149585	Campbell Scientific	Cellular Modem
Vaisala	VRG101	B45102	Vaisala	Weighing Bucket
Campbell Scientific	CR3000-Xt-SW-NB-NC	1353	Campbell Scientific	Micrologger
Thermometrics	316-125-1000CR-385-4-TL3	7	Thermometrics	PRT
Kyocera	KC125TM	058101920	Solar Craft	Solar Panel
Kyocera	KC125TM	058101359	Solar Craft	Solar Panel
R M Young Company	05103-5	WM00075165	R.M. Young	Wind Monitor
Vaisala	HMP45C	B3220026	Campbell Scientific	Temp/RH probe

^^ Move Up ^^

vv Move Down vv

Effective Time

December

16

2010

19

59

UTC

Non-Collection Site

Laboratory

Manufacturer	Model	Serial No	Vendor	Type
Thermometrics	316-125-1000CR-385-4-TL3	134	Thermometrics	PRT
R M Young Company	05103-5	WM00075175	R.M. Young	Wind Monitor
Thermometrics	316-125-1000CR-385-4-TL3	138	Thermometrics	PRT
Vaisala	HMP45C	B3230034	Campbell Scientific	Temp/RH probe
Met-One Instruments	076-B	F7077	Met-One Instruments	Aspirated Shield
Thermometrics	316-125-1000CR-385-4-TL3	9	Thermometrics	PRT
Thermometrics	316-125-1000CR-385-4-TL3	8	Thermometrics	PRT
R M Young Company	05103-5	WM00075174	R.M. Young	Wind Monitor
Apogee Instruments Inc.	PYR-P	4048	Apogee	Silicon Pyranometer
Vaisala	HMP45C	B3240065	Campbell Scientific	Temp/RH probe

01 19:34:00

03 20:04:00

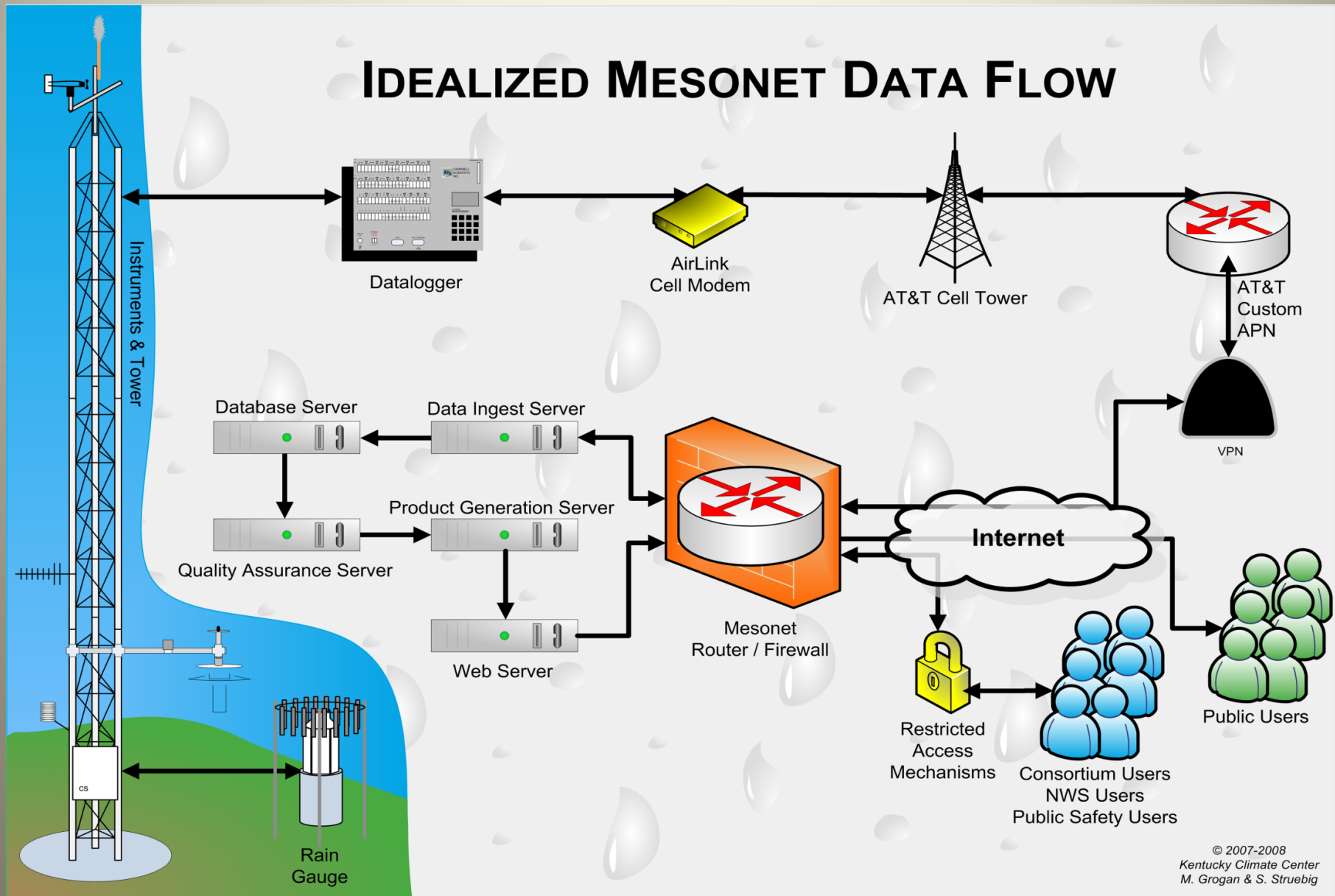
03 19:34:00

Total time in field: 911+ days

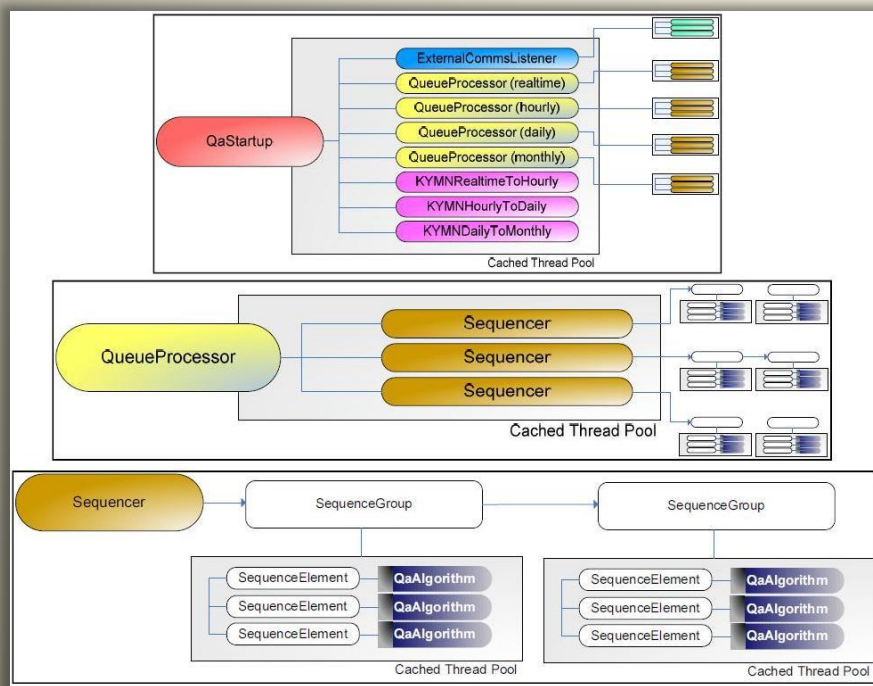
	Location
0	Bowling Green 5 S
0	Laboratory

Network Communications

IDEALIZED MESONET DATA FLOW



Quality Assurance Procedures



- Automated QA runs on five-minute data as they are collected from remote sites
- Manual QA is implemented on a daily basis to provide expert assessment of system performance

Meteorological Database

KYMN,ALBN,TBL_5min,"2010-05-01 11:15:00","2010-05-01 06:15:00 CDT","2010-05-01 05:15:00 CST",69.435,78.7,9.58,171.4,14.76,173.8,9.39,0.0000
KYMN,ALBN,TBL_5min,"2010-05-01 11:20:00","2010-05-01 06:20:00 CDT","2010-05-01 05:20:00 CST",69.603,78.4,11.68,172.0,18.70,169.7,9.23,0.0000
KYMN,ALBN,TBL_5min,"2010-05-01 11:25:00","2010-05-01 06:25:00 CDT","2010-05-01 05:25:00 CST",69.530,78.7,9.31,168.7,15.64,174.6,9.88,0.0000
KYMN,ALBN,TBL_5min,"2010-05-01 11:30:00","2010-05-01 06:30:00 CDT","2010-05-01 05:30:00 CST",69.563,78.6,9.36,173.0,15.56,179.9,11.37,0.0000
KYMN,ALBN,TBL_5min,"2010-05-01 11:35:00","2010-05-01 06:35:00 CDT","2010-05-01 05:35:00 CST",69.685,78.4,9.85,185.0,15.13,191.5,18.62,0.0000
KYMN,ALBN,TBL_5min,"2010-05-01 11:40:00","2010-05-01 06:40:00 CDT","2010-05-01 05:40:00 CST",69.819,78.4,10.14,186.0,14.54,218.8,27.18,0.0000
KYMN,ALBN,TBL_5min,"2010-05-01 11:45:00","2010-05-01 06:45:00 CDT","2010-05-01 05:45:00 CST",69.697,78.7,9.78,181.3,15.35,176.3,39.70,0.0000
KYMN,ALBN,TBL_5min,"2010-05-01 11:50:00","2010-05-01 06:50:00 CDT","2010-05-01 05:50:00 CST",69.768,78.7,11.54,180.8,16.52,178.5,54.86,0.0000
KYMN,ALBN,TBL_5min,"2010-05-01 11:55:00","2010-05-01 06:55:00 CDT","2010-05-01 05:55:00 CST",69.827,79.0,11.24,174.2,18.28,177.0,61.12,0.0000
KYMN,ALBN,TBL_5min,"2010-05-01 12:00:00","2010-05-01 07:00:00 CDT","2010-05-01 06:00:00 CST",69.823,79.1,9.94,176.7,20.47,176.5,63.76,0.0000
KYMN,ALBN,TBL_5min,"2010-05-01 12:05:00","2010-05-01 07:05:00 CDT","2010-05-01 06:05:00 CST",69.899,79.0,10.31,178.0,15.71,184.8,71.34,0.0000
KYMN,ALBN,TBL_5min,"2010-05-01 12:10:00","2010-05-01 07:10:00 CDT","2010-05-01 06:10:00 CST",69.987,78.9,9.87,183.0,16.95,172.5,76.94,0.0000
KYMN,ALBN,TBL_5min,"2010-05-01 12:15:00","2010-05-01 07:15:00 CDT","2010-05-01 06:15:00 CST",70.089,78.8,10.54,178.4,15.13,183.1,75.62,0.0000
KYMN,ALBN,TBL_5min,"2010-05-01 12:20:00","2010-05-01 07:20:00 CDT","2010-05-01 06:20:00 CST",70.190,78.6,9.82,179.5,14.25,181.6,79.74,0.0000
KYMN,ALBN,TBL_5min,"2010-05-01 12:25:00","2010-05-01 07:25:00 CDT","2010-05-01 06:25:00 CST",70.282,79.3,7.42,203.3,13.45,172.9,64.25,0.0000
KYMN,ALBN,TBL_5min,"2010-05-01 12:30:00","2010-05-01 07:30:00 CDT","2010-05-01 06:30:00 CST",69.566,79.6,5.36,219.2,9.13,182.8,23.89,0.0000
KYMN,ALBN,TBL_5min,"2010-05-01 12:35:00","2010-05-01 07:35:00 CDT","2010-05-01 06:35:00 CST",69.585,80.4,9.50,277.2,20.67,291.4,4.28,0.0000
KYMN,ALBN,TBL_5min,"2010-05-01 12:40:00","2010-05-01 07:40:00 CDT","2010-05-01 06:40:00 CST",69.523,73.0,11.54,290.8,19.89,290.5,1.98,0.0000
KYMN,ALBN,TBL_5min,"2010-05-01 12:45:00","2010-05-01 07:45:00 CDT","2010-05-01 06:45:00 CST",68.279,75.4,14.57,296.5,24.40,281.6,1.65,0.0000
KYMN,ALBN,TBL_5min,"2010-05-01 12:50:00","2010-05-01 07:50:00 CDT","2010-05-01 06:50:00 CST",68.566,75.4,14.57,296.5,24.40,281.6,1.65,0.0000
KYMN,ALBN,TBL_5min,"2010-05-01 12:55:00","2010-05-01 07:55:00 CDT","2010-05-01 06:55:00 CST",68.944,84.8,8.52,301.5,13.52,279.7,3.6,0.0000
KYMN,ALBN,TBL_5min,"2010-05-01 13:00:00","2010-05-01 08:00:00 CDT","2010-05-01 07:00:00 CST",65.321,87.3,10.70,349.7,15.78,347.9,2.14,0.0000
KYMN,ALBN,TBL_5min,"2010-05-01 13:05:00","2010-05-01 08:05:00 CDT","2010-05-01 07:05:00 CST",64.751,89.7,9.63,342.0,14.18,345.8,2.97,0.0000
KYMN,ALBN,TBL_5min,"2010-05-01 13:10:00","2010-05-01 08:10:00 CDT","2010-05-01 07:10:00 CST",64.922,92.6,8.33,342.0,14.18,345.8,2.97,0.0000
KYMN,ALBN,TBL_5min,"2010-05-01 13:15:00","2010-05-01 08:15:00 CDT","2010-05-01 07:15:00 CST",64.182,92.6,8.33,342.0,14.18,345.8,2.97,0.0000
KYMN,ALBN,TBL_5min,"2010-05-01 13:20:00","2010-05-01 08:20:00 CDT","2010-05-01 07:20:00 CST",63.670,93.6,10.51,9.4,16.00,13.1,15.98,0.0165
KYMN,ALBN,TBL_5min,"2010-05-01 13:25:00","2010-05-01 08:25:00 CDT","2010-05-01 07:25:00 CST",63.507,93.9,12.07,18.4,17.10,25.6,10.71,0.0118
KYMN,ALBN,TBL_5min,"2010-05-01 13:30:00","2010-05-01 08:30:00 CDT","2010-05-01 07:30:00 CST",63.445,93.6,10.63,22.8,16.22,20.3,11.20,0.0197
KYMN,ALBN,TBL_5min,"2010-05-01 13:35:00","2010-05-01 08:35:00 CDT","2010-05-01 07:35:00 CST",63.421,93.3,9.39,20.1,13.52,19.1,22.24,0.0000
KYMN,ALBN,TBL_5min,"2010-05-01 13:40:00","2010-05-01 08:40:00 CDT","2010-05-01 07:40:00 CST",63.525,93.1,9.76,33.4,15.78,29.3,17.30,0.0075
KYMN,ALBN,TBL_5min,"2010-05-01 13:45:00","2010-05-01 08:45:00 CDT","2010-05-01 07:45:00 CST",63.610,92.4,5.95,21.8,13.23,24.7,6.10,0.0000
KYMN,ALBN,TBL_5min,"2010-05-01 13:50:00","2010-05-01 08:50:00 CDT","2010-05-01 07:50:00 CST",63.601,92.3,4.94,333.7,11.69,352.1,3.46,0.0055
KYMN,ALBN,TBL_5min,"2010-05-01 13:55:00","2010-05-01 08:55:00 CDT","2010-05-01 07:55:00 CST",63.360,93.7,8.65,277.6,13.30,267.7,4.94,0.0000
KYMN,ALBN,TBL_5min,"2010-05-01 14:00:00","2010-05-01 09:00:00 CDT","2010-05-01 08:00:00 CST",63.031,95.5,8.67,260.5,13.52,263.5,12.52,0.0075
KYMN,ALBN,TBL_5min,"2010-05-01 14:05:00","2010-05-01 09:05:00 CDT","2010-05-01 08:05:00 CST",62.747,96.5,6.38,234.9,9.28,242.9,7.74,0.2417
KYMN,ALBN,TBL_5min,"2010-05-01 14:10:00","2010-05-01 09:10:00 CDT","2010-05-01 08:10:00 CST",62.683,96.8,3.83,199.5,7.02,221.7,7.25,0.1386
KYMN,ALBN,TBL_5min,"2010-05-01 14:15:00","2010-05-01 09:15:00 CDT","2010-05-01 08:15:00 CST",62.636,97.0,2.59,144.1,4.24,134.5,7.09,0.0622
KYMN,ALBN,TBL_5min,"2010-05-01 14:20:00","2010-05-01 09:20:00 CDT","2010-05-01 08:20:00 CST",62.559,97.2,2.78,89.4,6.43,105.1,12.19,0.0457
KYMN,ALBN,TBL_5min,"2010-05-01 14:25:00","2010-05-01 09:25:00 CDT","2010-05-01 08:25:00 CST",62.621,97.4,5.21,97.7,7.67,98.1,16.81,0.0169
KYMN,ALBN,TBL_5min,"2010-05-01 14:30:00","2010-05-01 09:30:00 CDT","2010-05-01 08:30:00 CST",62.676,97.4,5.28,97.7,6.65,87.7,22.74,0.0150
KYMN,ALBN,TBL_5min,"2010-05-01 14:35:00","2010-05-01 09:35:00 CDT","2010-05-01 08:35:00 CST",63.001,97.2,3.18,121.4,5.70,103.8,28.01,0.0126
KYMN,ALBN,TBL_5min,"2010-05-01 14:40:00","2010-05-01 09:40:00 CDT","2010-05-01 08:40:00 CST",63.127,96.7,3.38,133.0,4.17,117.5,30.98,0.0094
KYMN,ALBN,TBL_5min,"2010-05-01 14:45:00","2010-05-01 09:45:00 CDT","2010-05-01 08:45:00 CST",63.066,96.5,4.11,159.0,6.21,148.4,36.58,0.0110
KYMN,ALBN,TBL_5min,"2010-05-01 14:50:00","2010-05-01 09:50:00 CDT","2010-05-01 08:50:00 CST",62.905,96.7,4.07,147.8,5.77,121.1,35.43,0.0122
KYMN,ALBN,TBL_5min,"2010-05-01 14:55:00","2010-05-01 09:55:00 CDT","2010-05-01 08:55:00 CST",62.875,96.8,2.55,139.6,4.17,146.7,38.07,0.0138

- Observations are taken every 5 minutes
- Each station collects over 105,000 observations each year
- Each station returns over 2,730,000 data values each year



The Commonwealth's Official Source for Weather and Climate Data

[Home](#)
[About](#)
[Live Data](#)
[Summary Data](#)
[Event Tracking](#)
[Outreach](#)

Warren County, KY

Bowling Green 5 S

Dewpoint: 69°F

Humidity: 61%

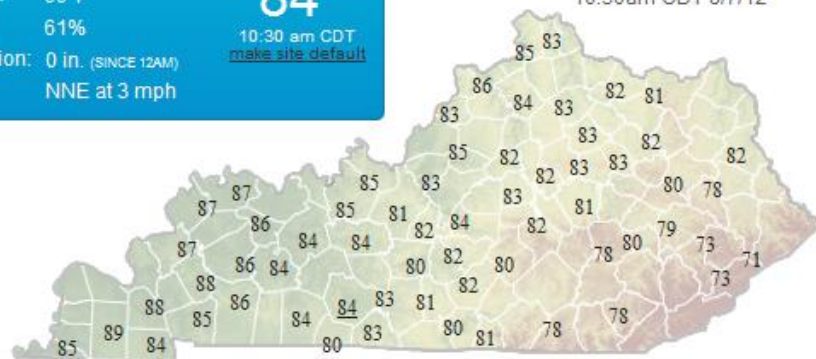
Precipitation: 0 in. (SINCE 12AM)

Wind: NNE at 3 mph

84°

10:30 am CDT
[make site default](#)

Air Temp (°F)
10:30am CDT 8/7/12



Temperature Precipitation Wind Moisture Other

(Mouse over the above text for more options)

Most Precip

Last 24 Hours

Whitesburg 2 NW: 1.32 in.

Jackson 3 SE: 0.75 in.

Barbourville 3 E: 0.26 in.

Pikeville 13 S: 0.08 in.

Stanford 4 NE: 0.05 in.

MAXT	MINT	PRCP	WIND

Site Progress

NEW

NEW



SIMPSON CO.



MUHENBERG CO.

Kentucky Mesonet News

New kymesonet.org Website

Welcome to the newest edition of the Kentucky Mesonet's website. If you would like a quick tour [click here](#). If you are experiencing any visual weirdness try clearing your browsers cache+cookies. A big thanks to everyone who took the time to help with our beta testing and providing feedback, we really appreciate your help!



Franklin County / Frankfort, KY (7 S) Mesonet Site

Western Kentucky University - Kentucky Mesonet - 1906 College Heights Blvd #31066 - Bowling Green, KY 42101 - 270.745.4567 - kymesonet@wku.edu



[report a bug](#)

Campbell County (HHTS)MAY2012Select

Monthly Climatological Summary

(5/2012)

KENTUCKY
MESONET

Station ID: HHTS

Relative Location: Alexandria 5 NW

County: Campbell County

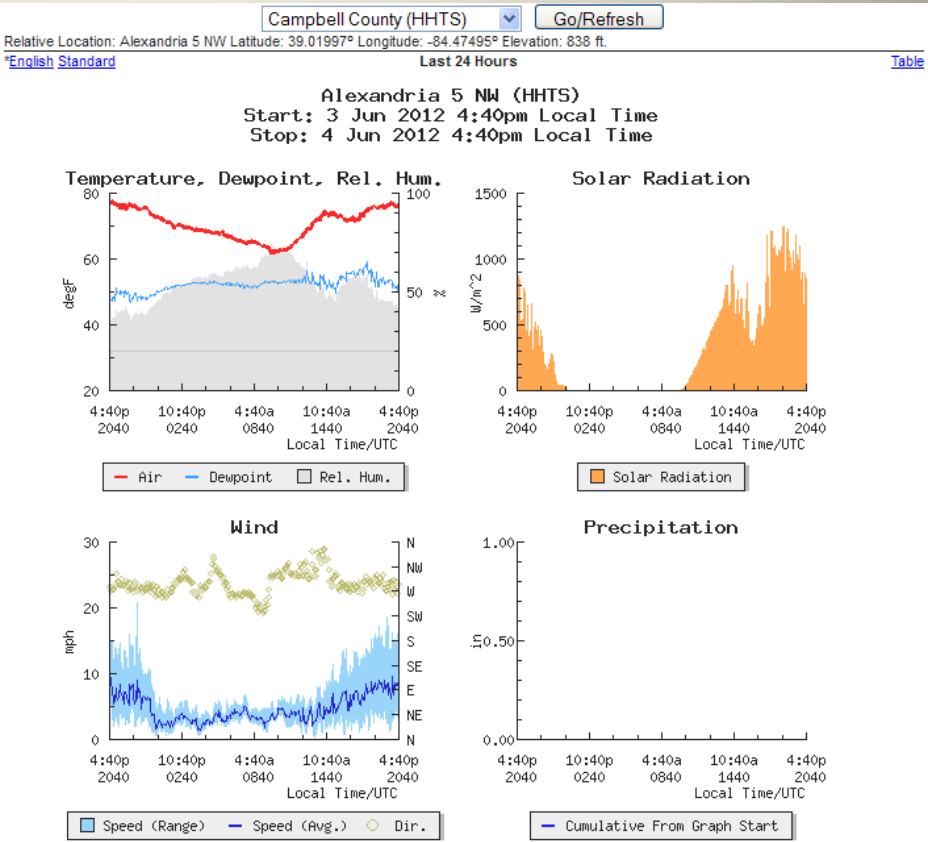
*Location: Lat: 39.02°; Lon: -84.47°

Elevation: 838 ft.

Observation Day: Eastern Standard Time

*To Nearest Hundredth

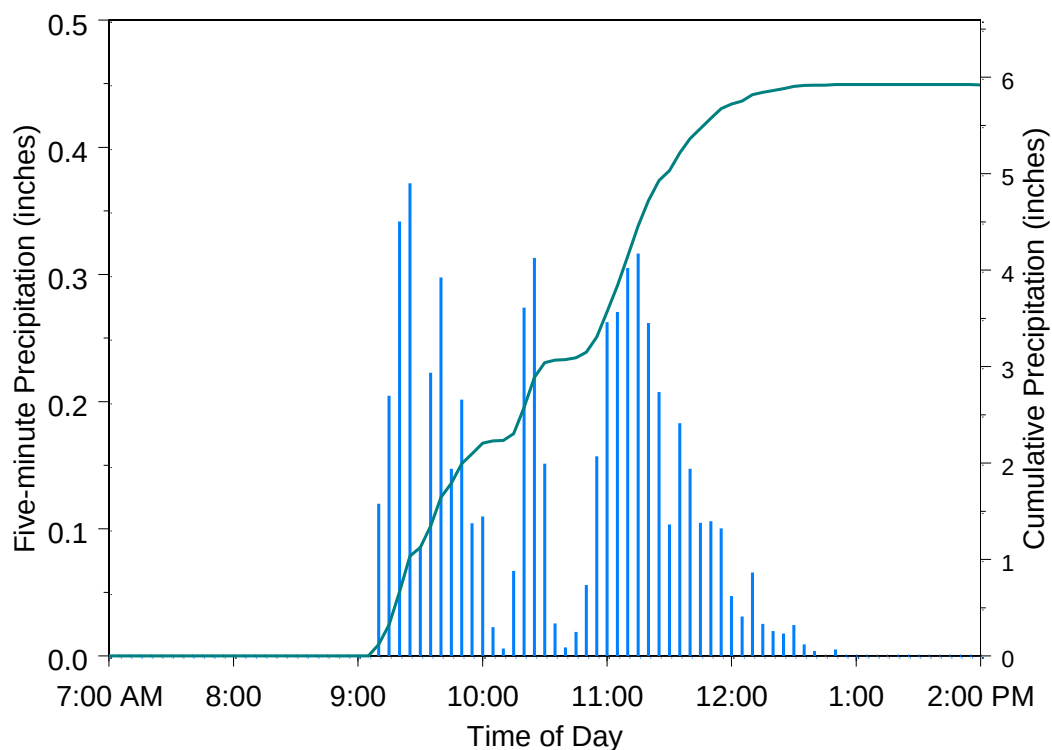
Day	Date	Temperature (°F)			Degree Days		Humidity (%)		Precip (inch)	Wind Speed (mph) and Direction				Solar (MJ/m ²)
		Max	Min	Avg	HDD	CDD	Max	Min		Res Dir	Res Spd.	Avg Spd.	Max 3-sec	
TUE	1	78.0	61.6	69.8	62.5	0	98	66	0.83	SE	1.8	3.7	22.8	17.2
WED	2	85.2	60.6	72.9	62.4	0	99	43	0.00	SSE	2.8	4.5	19.4	26.4
THU	3	83.1	64.9	74.0	63.5	0	92	49	0.00	SSE	2.7	3.7	15.1	23.9
FRI	4	80.9	64.9	72.9	64.1	0	8	93	0.02	S	1.9	2.9	13.4	17.8
SAT	5	77.3	63.9	70.6	64.2	0	6	98	0.61	N	1.5	3.0	11.8	15.6
SUN	6	81.0	58.3	69.7	60.4	0	96	42	0.00	ENE	1.3	2.6	8.5	26.2
MON	7	82.7	63.5	73.1	63.0	0	8	98	0.55	SE	2.8	4.3	21.3	23.8
TUE	8	70.7	59.3	65.0	57.0	0	0	99	0.21	WNW	3.4	4.3	15.8	17.4
WED	9	68.7	52.8	60.8	45.6	4	0	81	0.32	WNW	5.6	5.7	24.0	23.9
THU	10	66.6	45.6	56.1	39.1	9	0	83	0.00	NW	4.6	5.2	18.8	30.1
FRI	11	71.4	43.7	57.6	37.9	7	0	89	0.00	SE	2.8	3.3	12.5	31.0
SAT	12	71.4	48.4	59.9	45.7	5	0	88	0.01	SE	2.4	2.6	11.8	20.1
SUN	13	60.5	57.3	58.9	57.7	6	0	98	1.54	E	3.3	3.5	13.7	3.3
MON	14	73.1	58.1	65.6	56.7	0	1	98	0.00	NNE	3.0	4.4	15.6	21.3
TUE	15	77.9	54.4	66.1	55.1	0	1	98	0.00	SSE	1.7	2.6	11.3	27.1
WED	16	79.4	58.6	69.0	51.5	0	4	87	0.02	NNW	1.4	4.7	20.8	24.8
THU	17	70.2	52.1	61.1	35.8	4	0	60	0.00	ENE	5.5	5.7	22.0	31.9
FRI	18	77.7	49.1	63.4	44.0	2	0	79	0.00	E	1.8	2.7	9.5	31.3
SAT	19	82.6	54.2	68.4	52.0	0	3	91	0.00	E	0.9	2.0	11.3	30.5
SUN	20	83.7	60.3	72.0	55.7	0	7	89	0.00	ESE	2.1	3.0	16.7	29.4
MON	21	80.2	60.1	70.2	57.9	0	5	94	0.30	WNW	3.5	4.8	23.9	26.5
TUE	22	70.7	56.9	63.8	56.5	1	0	91	0.00	NNW	3.0	3.5	12.4	14.8
WED	23	76.0	57.1	66.5	58.2	0	2	97	0.00	ESE	0.6	2.4	9.8	18.7
THU	24	81.7	59.6	70.7	59.6	0	6	96	0.00	SE	4.9	5.1	18.5	26.5
FRI	25	86.0	65.2	75.6	62.1	0	11	77	0.00	SSE	3.7	4.2	14.8	24.9
SAT	26	88.1	68.3	78.2	65.2	0	13	92	0.00	SE	2.6	2.8	11.1	29.3
SUN	27	87.9	68.4	78.1	66.2	0	13	96	0.00	SE	2.6	2.9	10.2	27.6
MON	28	88.1	70.4	79.3	67.5	0	14	90	0.00	SSE	3.3	3.7	14.9	26.8
TUE	29	78.4	65.7	72.1	66.2	0	7	97	0.31	SW	1.2	3.6	28.1	14.7
WED	30	80.0	63.9	72.0	53.4	0	7	97	0.00	WNW	4.2	4.6	23.7	30.5
THU	31	77.9	55.4	66.6	51.2	0	2	97	0.71	E	1.6	3.9	15.7	27.4
Monthly Average		78.0	58.8	68.4			91	43		SE	0.6	3.7	16.1	
Monthly Total					38	143			5.10					740.7



Extreme Storm-Event Precipitation

Kentucky Mesonet, Hopkins County, June 24, 2013

➤ *5.92 inches of rain in less than four hours*

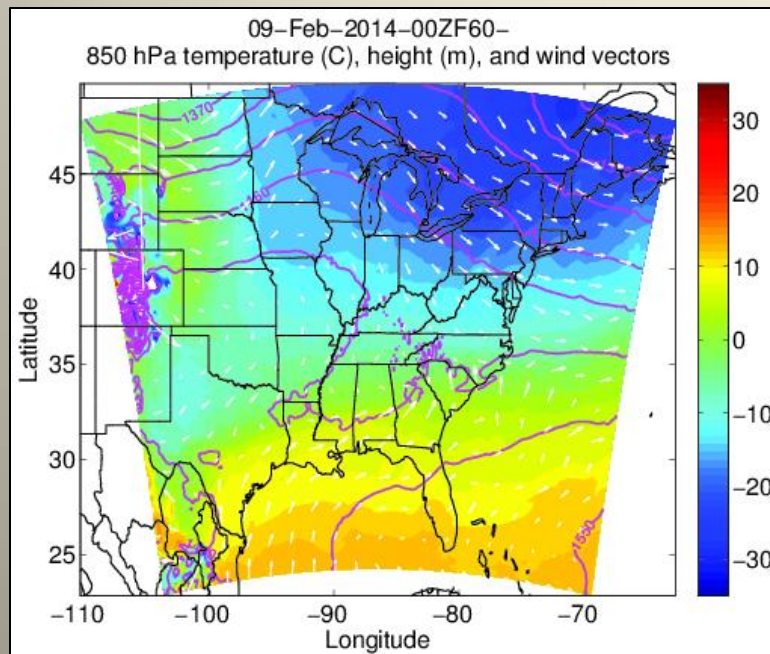


➤ Estimated as a 500-year event based on NOAA NWS Atlas 14

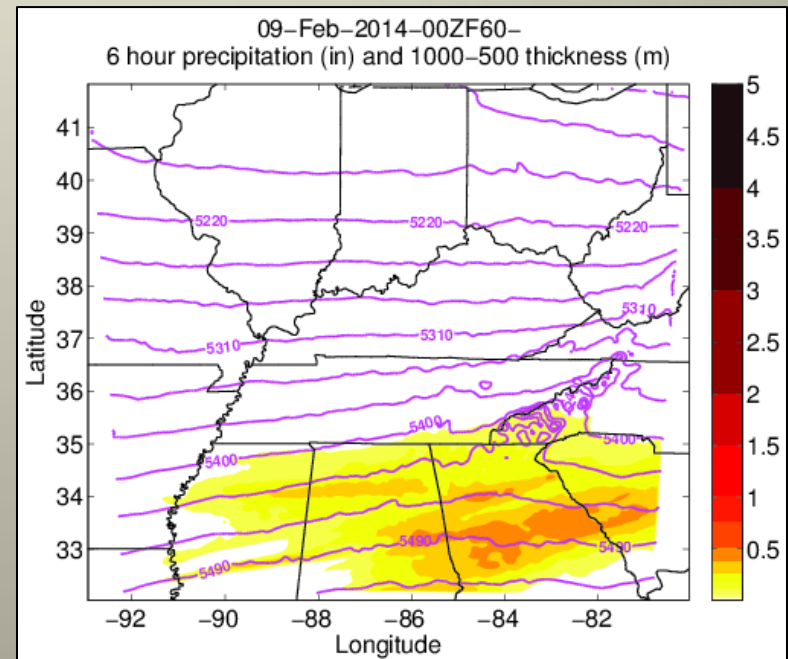
In a changing climate, extreme precipitation events are expected to become more frequent.

Weather Forecast Model Run

Experimental Product from the Kentucky Climate Center



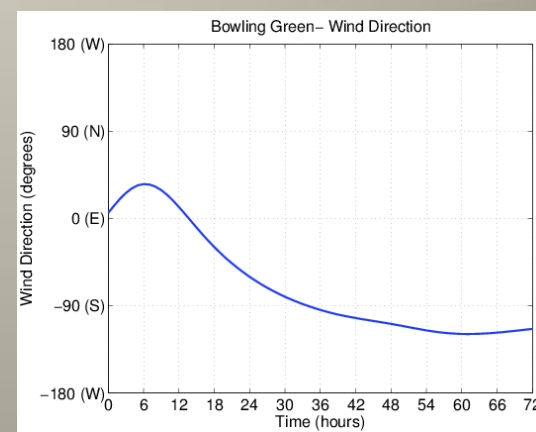
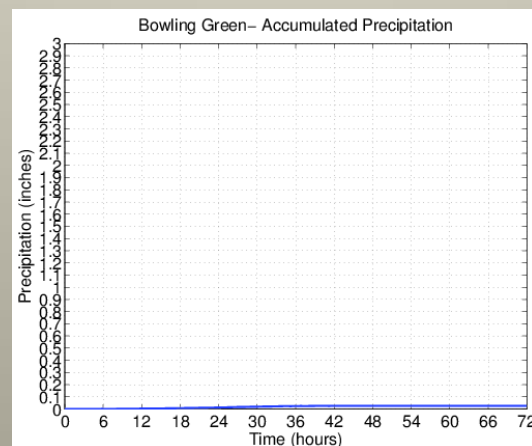
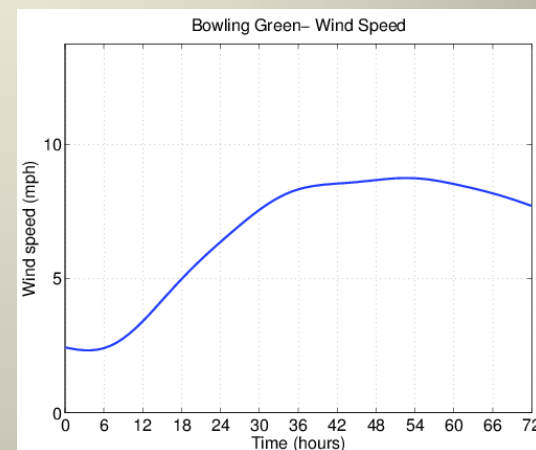
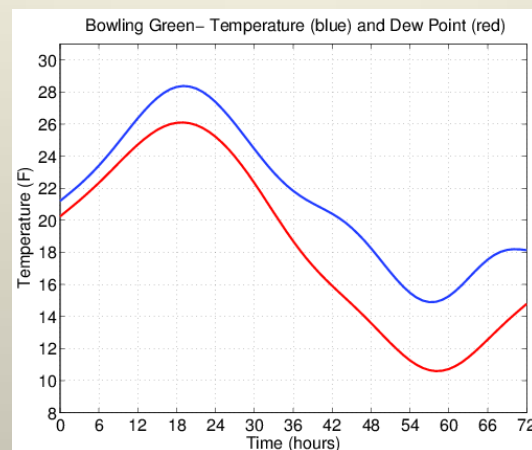
*Model initialized with observations
from the Kentucky Mesonet.*



Sample Point Forecast

Experimental Product from the Kentucky Climate Center

- Custom point forecasts with 36-hour lead time
- Model runs on WKU's High-performance Computing Cluster



Questions and Discussion

