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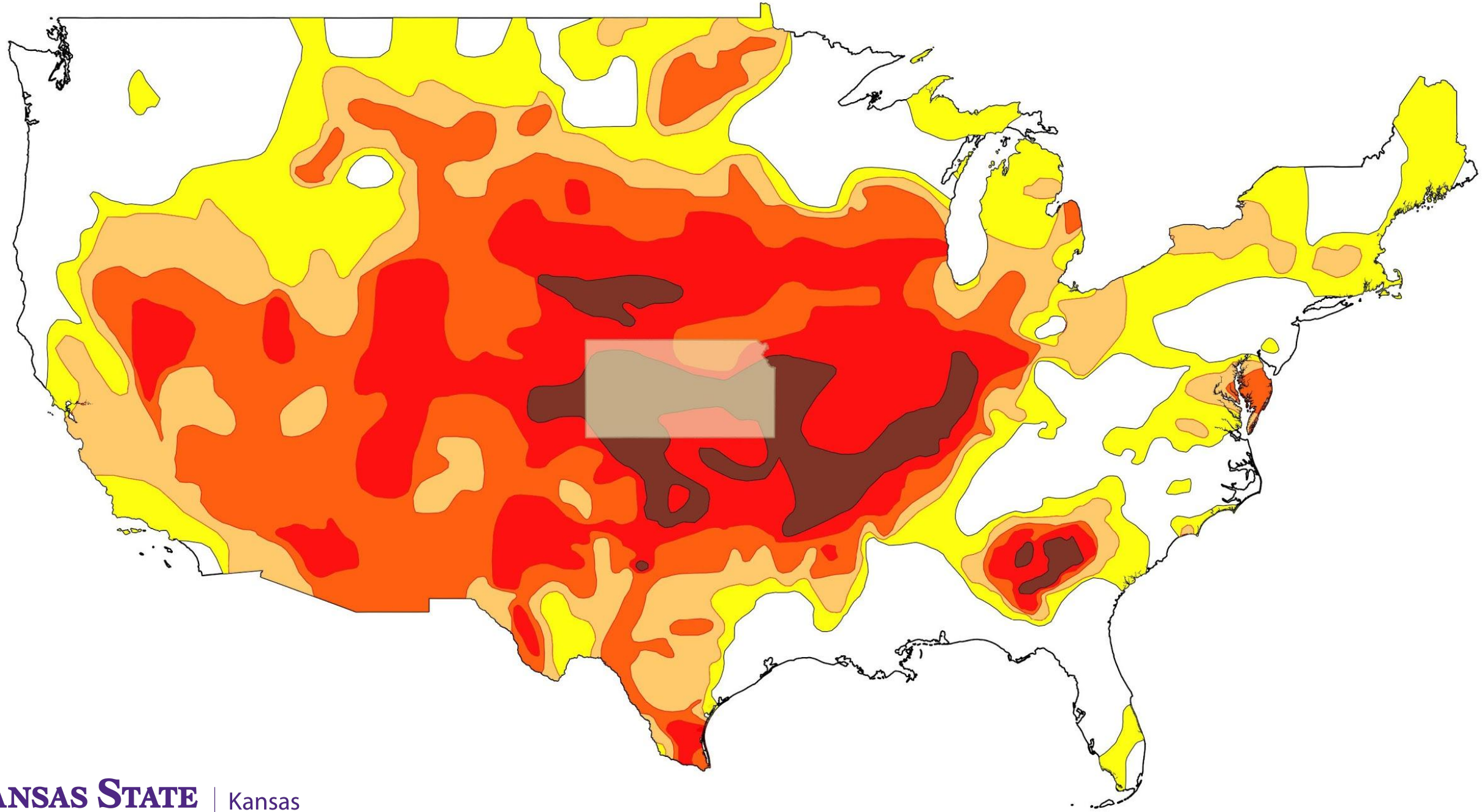
Monitoring weather with the Kansas Mesonet

Chip Redmond - Mesonet Manager
Mary Knapp - Assistant Climatologist
Andres Patrignani - Assistant Professor



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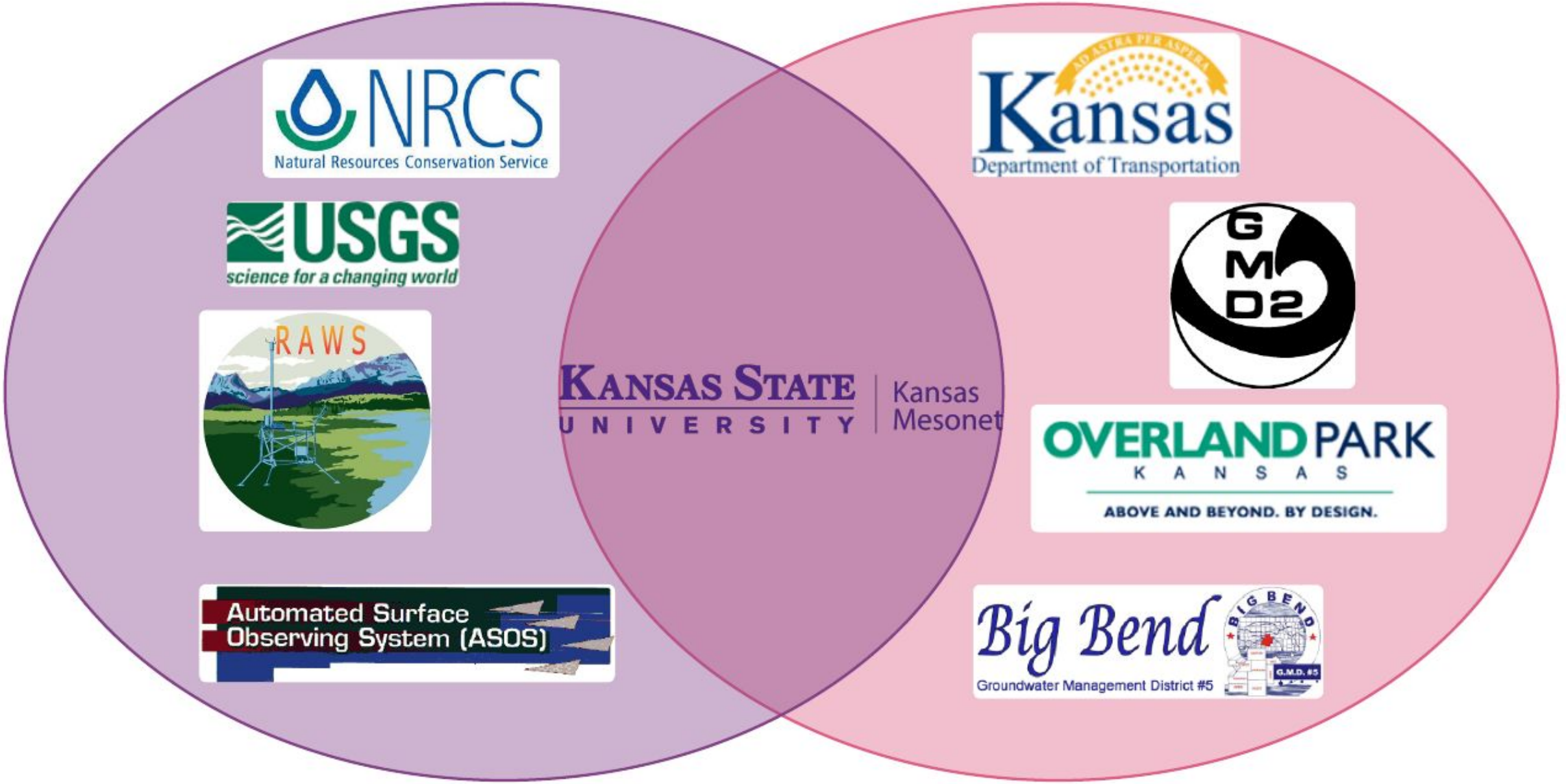
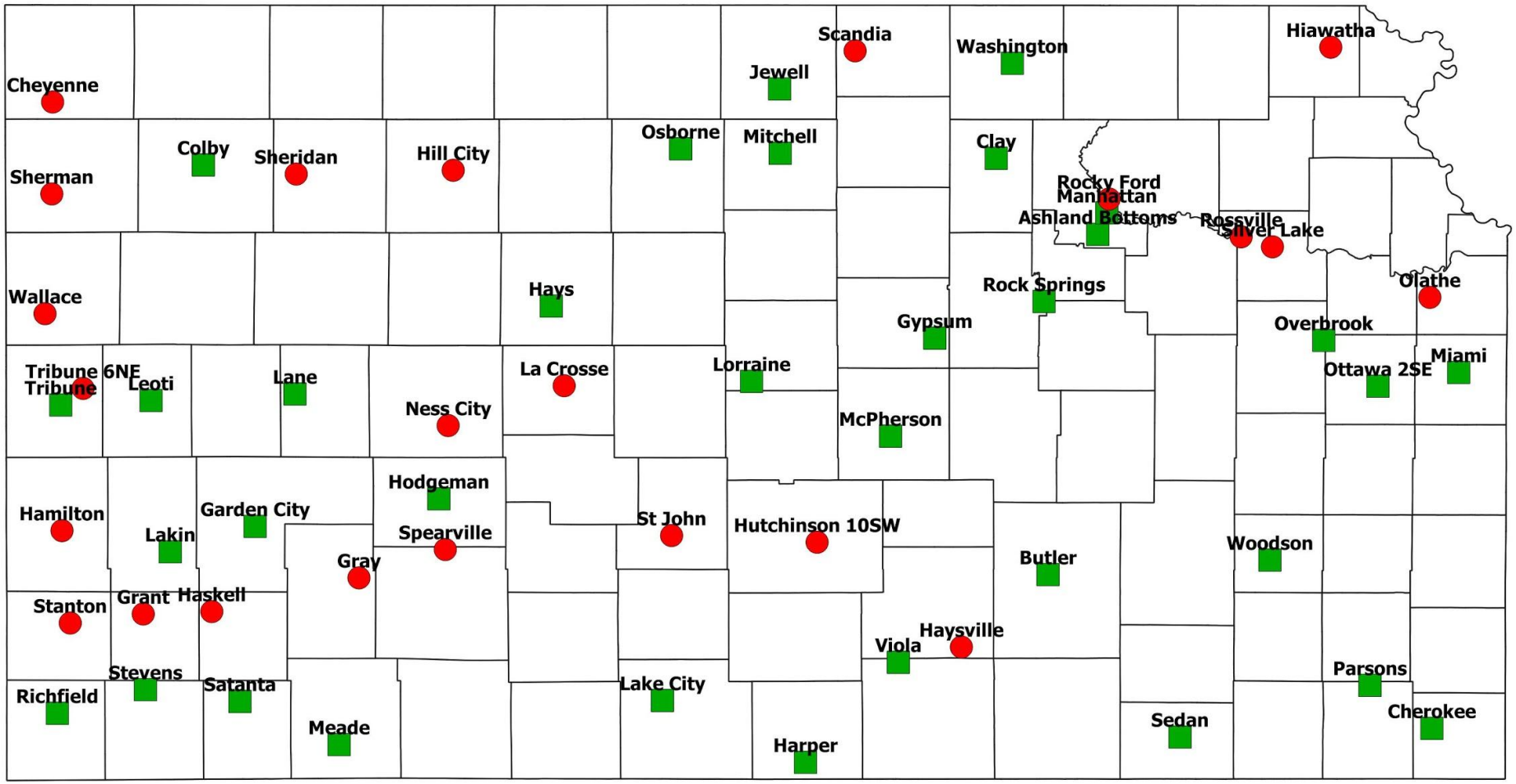

NRCS
Natural Resources Conservation Service
USGS
science for a changing world
RAWS
Automated Surface Observing System (ASOS)
KANSAS STATE UNIVERSITY
Kansas Mesonet
Kansas
Department of Transportation
GMD2
OVERLAND PARK
KANSAS
ABOVE AND BEYOND. BY DESIGN.
Big Bend
Groundwater Management District #5
BIG BEND
G.M.D. #5

2017 K-State Kansas Mesonet (9/26/17)



Station Type
- 10ft Tripod
- 30' Tower

0 50 100 miles

North

Kansas State University Weather Data Llibrary (WDL) Weather Station Mesonet
As of: 9/26/17
Created by: Christopher Redmond - WDL Manager
christopherredmond@k-state.edu
785-532-3029/785-477-6204
mesonet.k-state.edu

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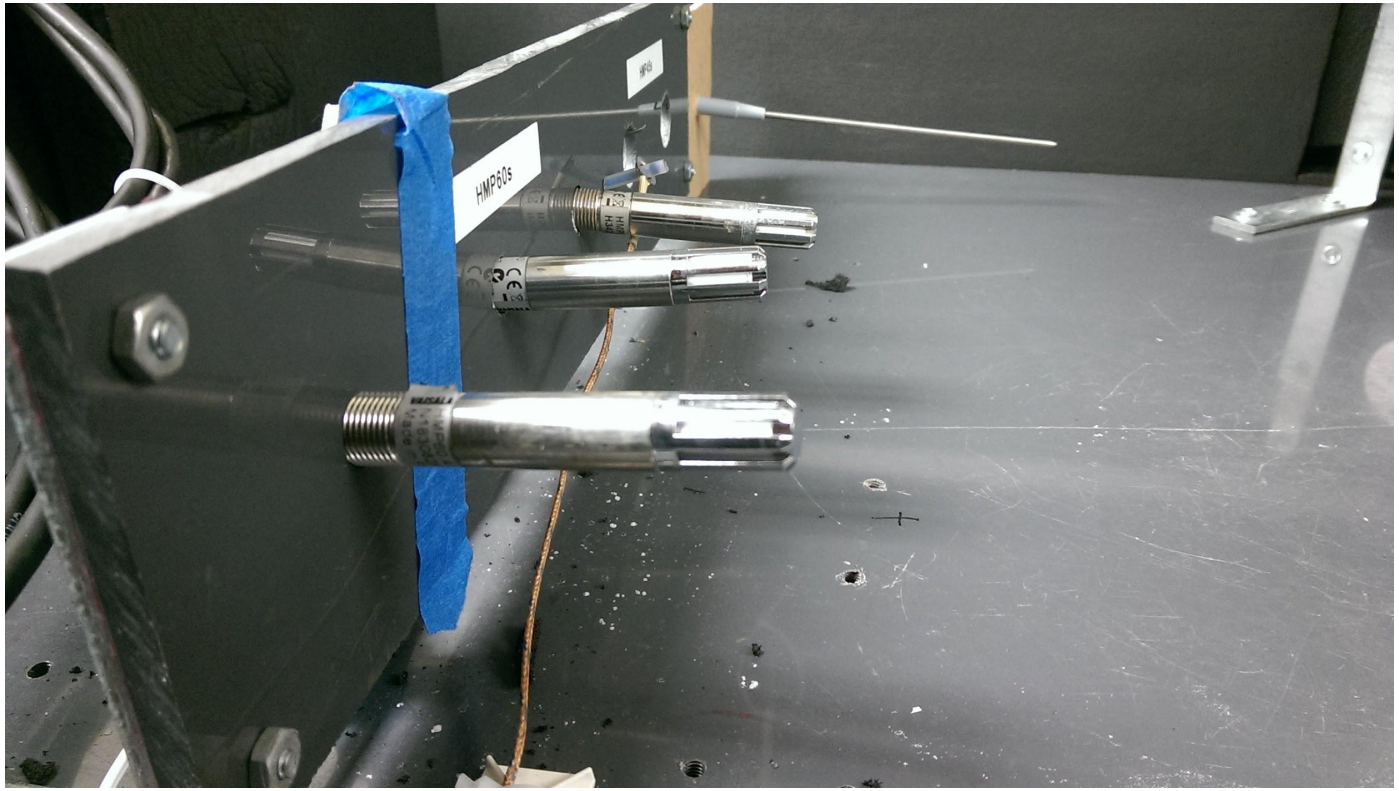

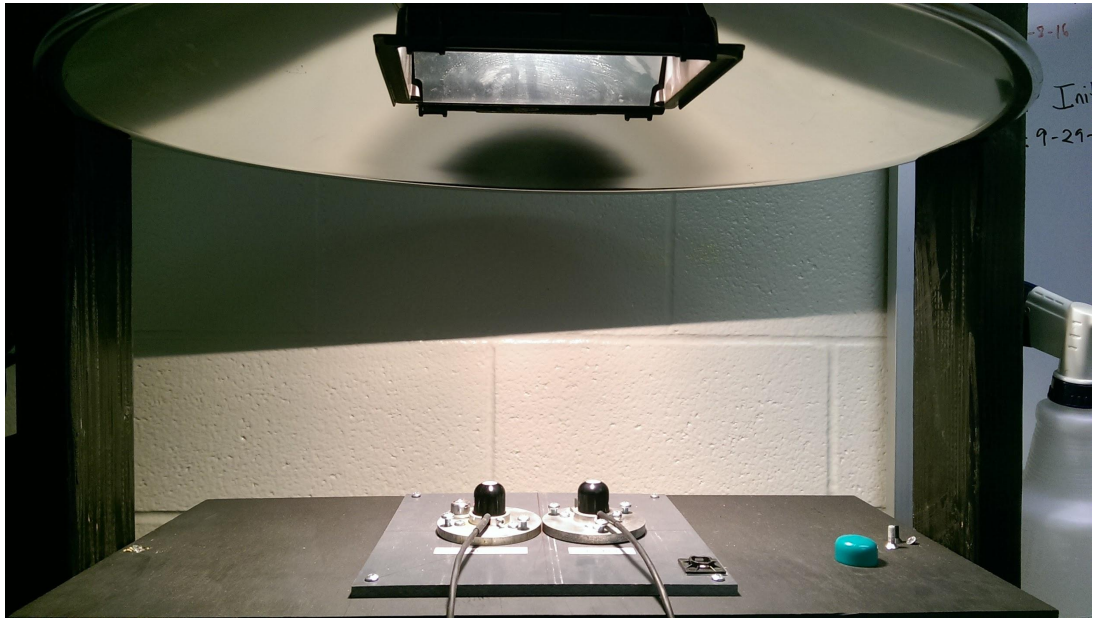

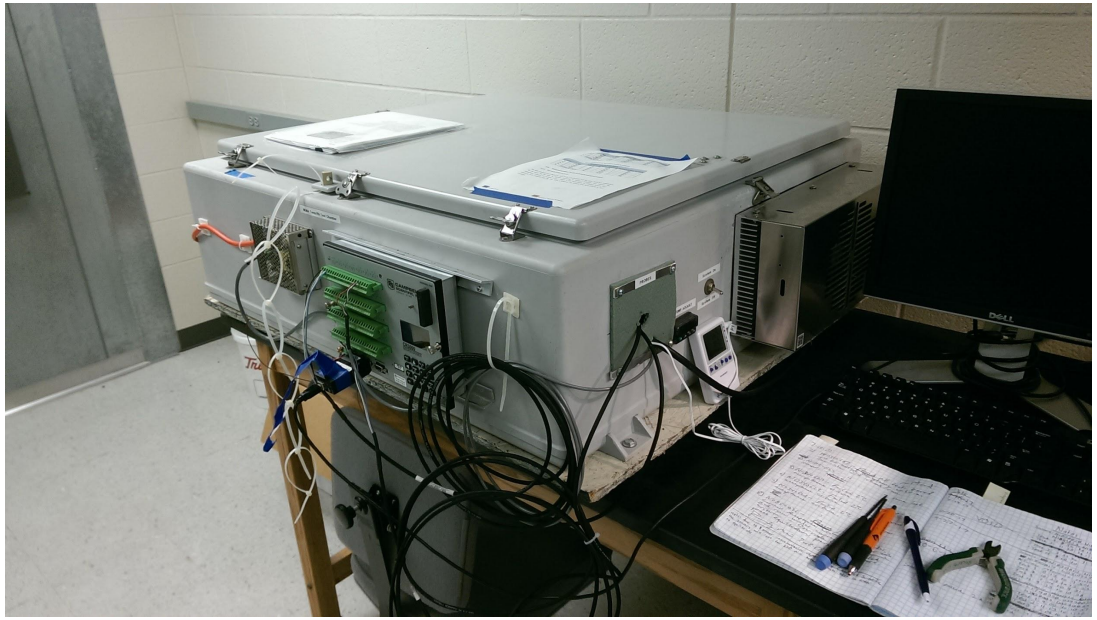

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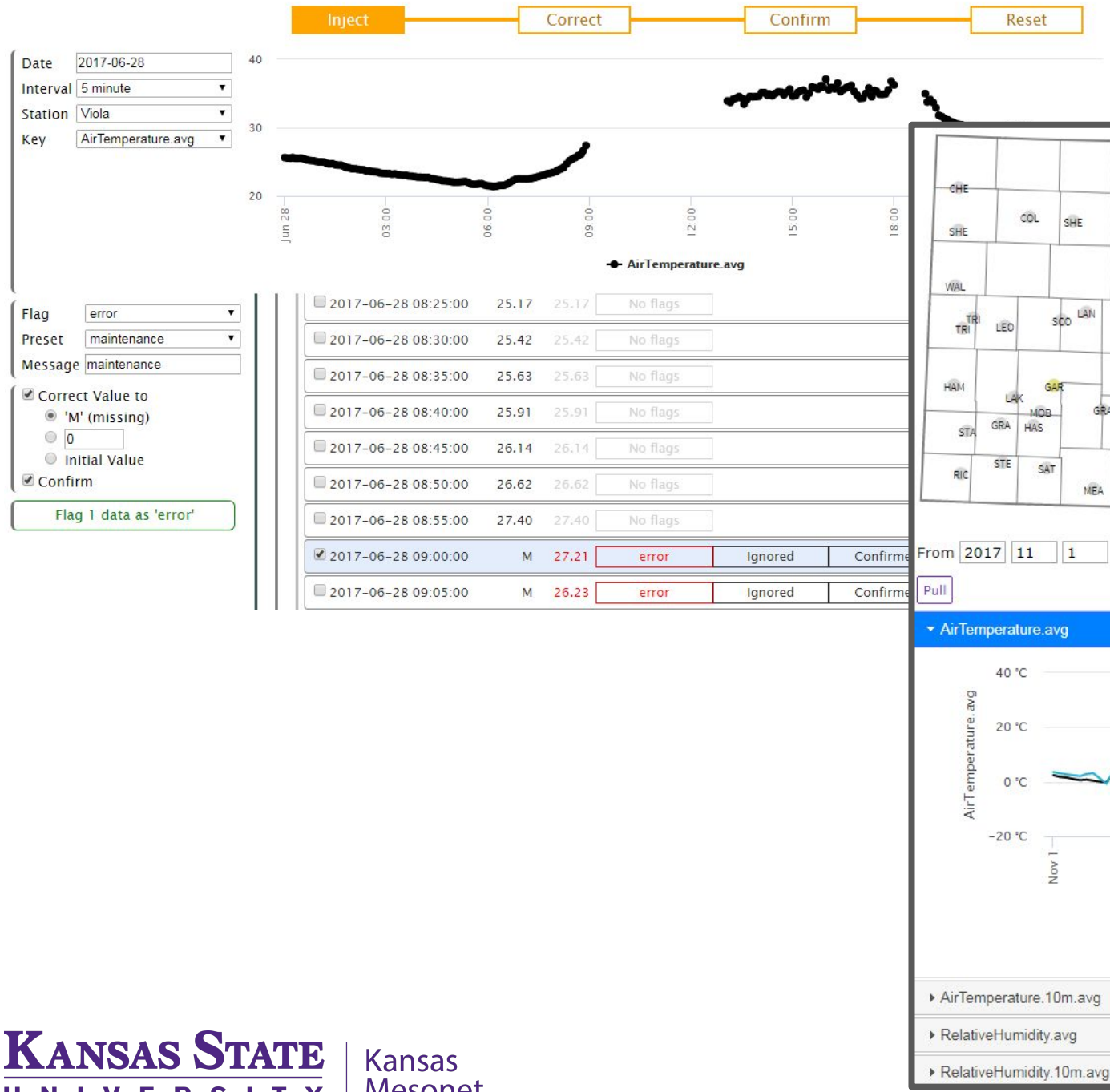

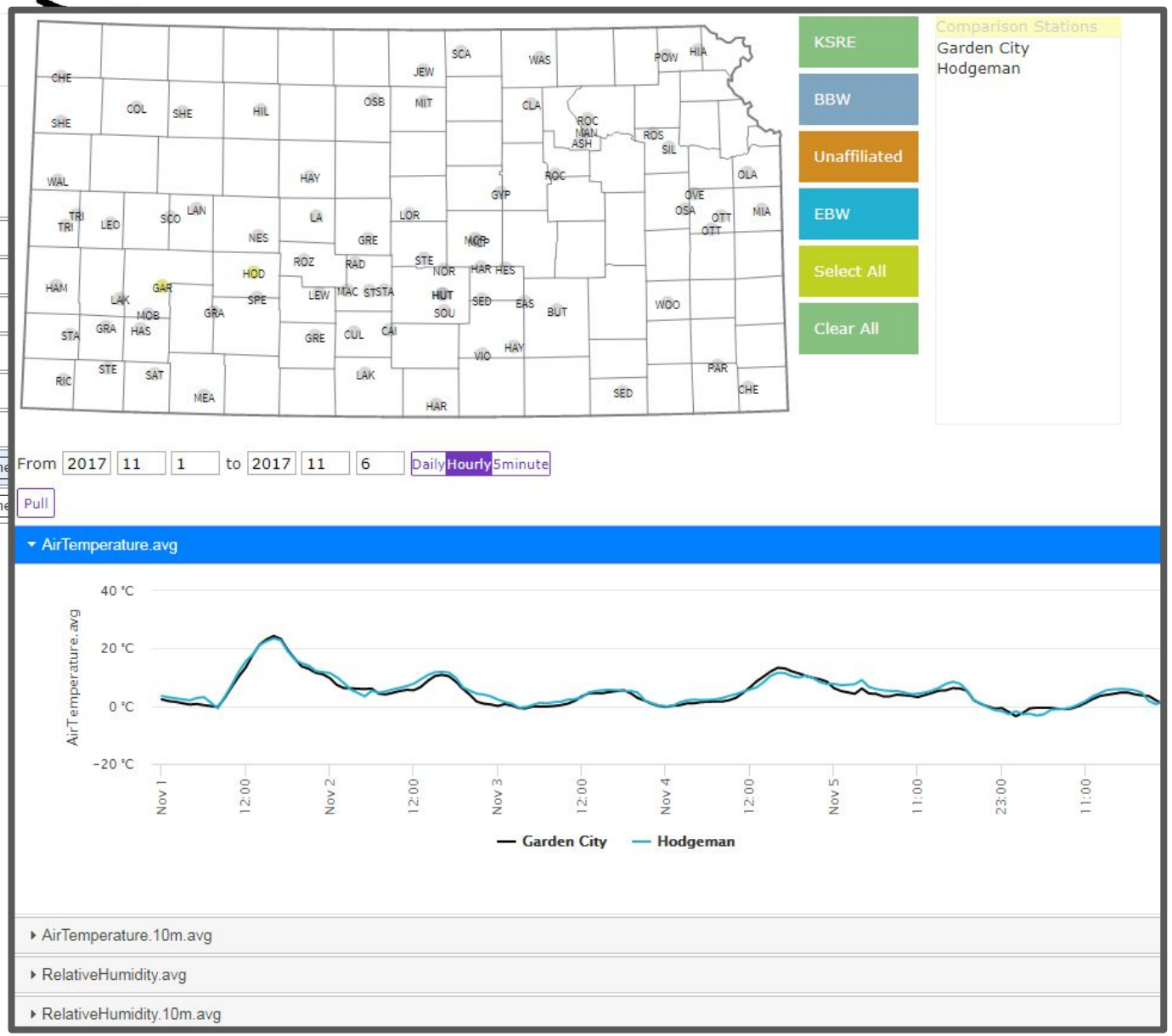

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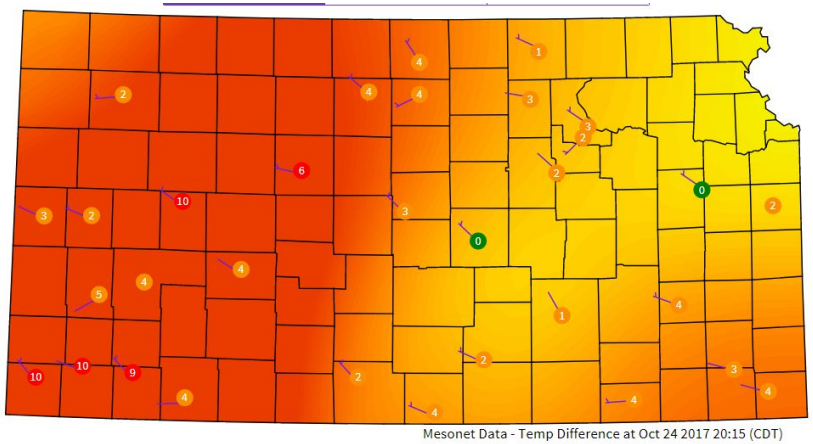
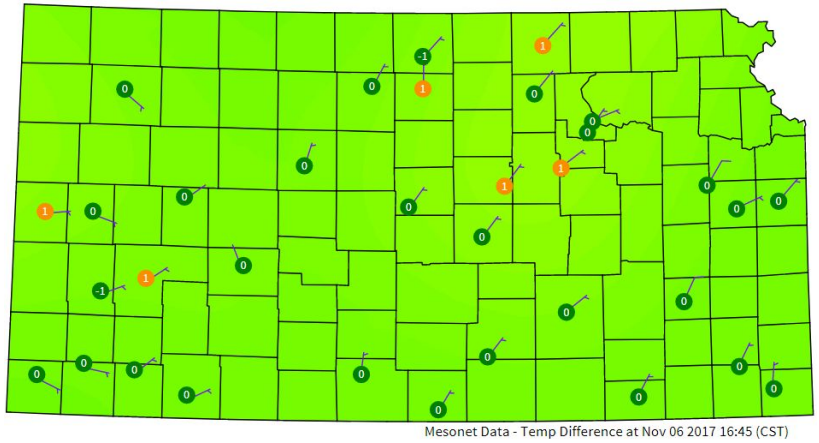
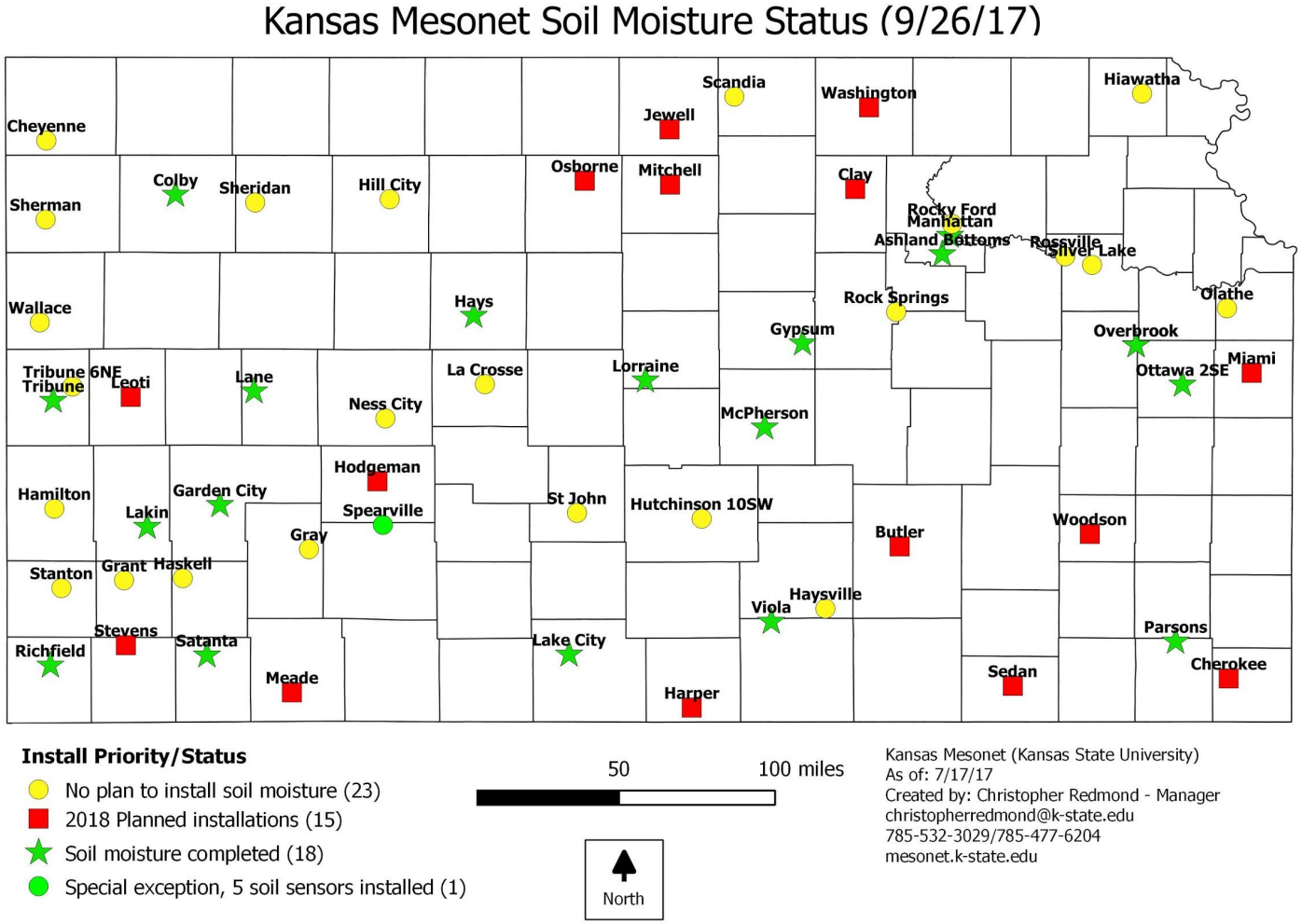
(30’ Temperature - 6’ Temperature)

+5 Inversion







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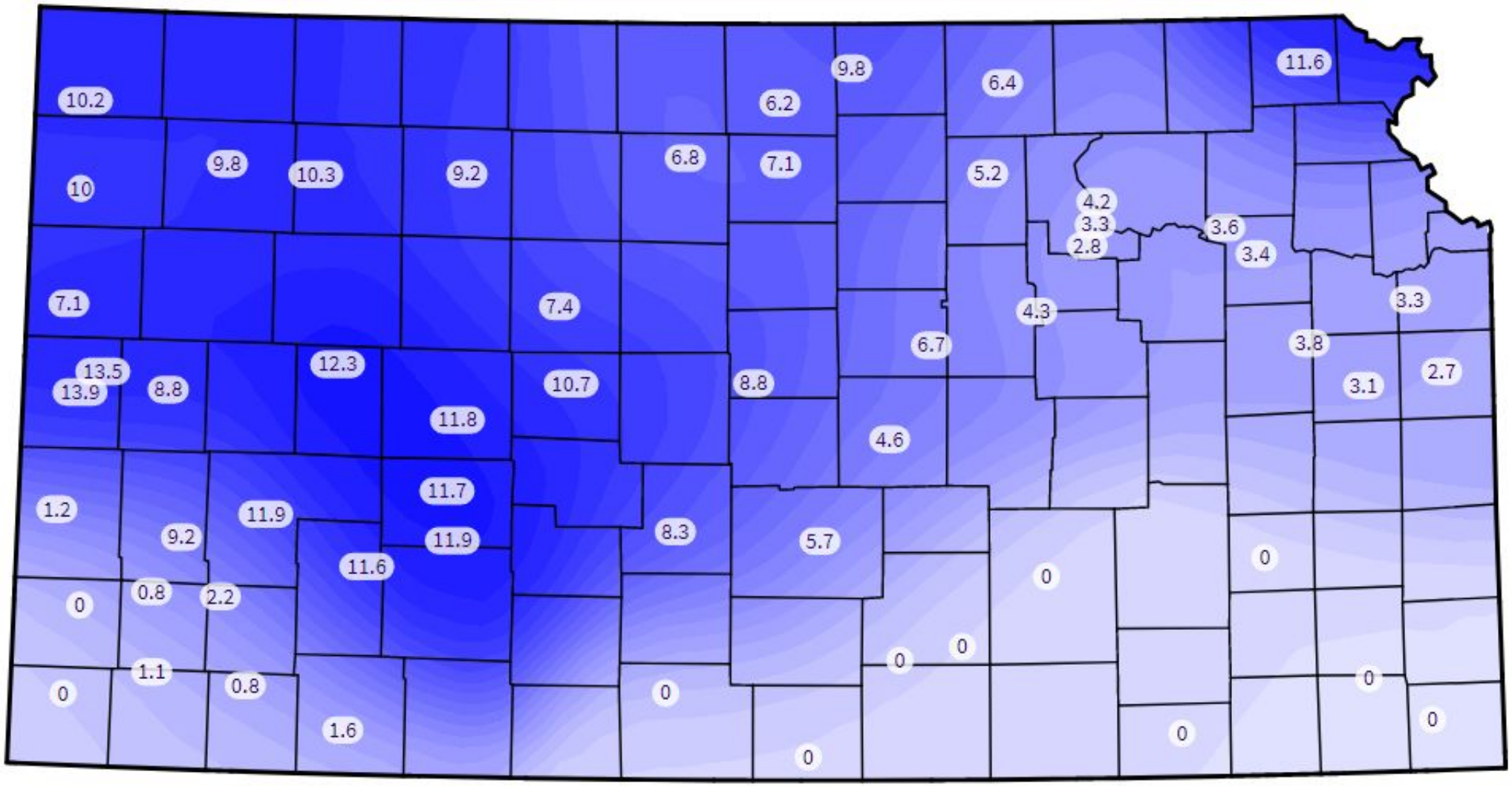
Freeze Monitor

24 hr Low | **Hours Below 32°F** | Hours Below 24°F



Mesonet Data - Hours Below Freezing at Nov 06 2017 21:35 (CST)

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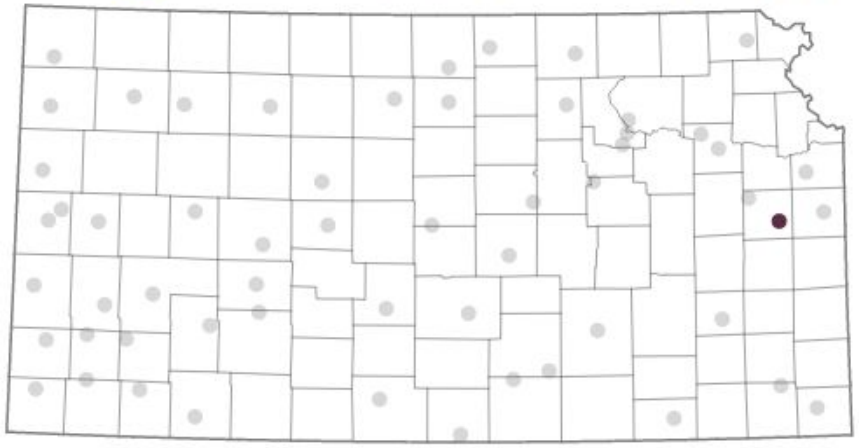
Degree Days

HELP | Old Growing Degree Page | Old Degree Days Page



Stations

- Meade
- Miami
- Mitchell
- Ness City
- Olathe
- Osborne
- Ottawa 2SE
- Overbrook
- Parsons
- Richfield

Calculation

- Corn GDU
- Long Season Sorghum
- Short Season Sorghum
- Alfalfa Weevil
- Heating Degrees
- Cooling Degrees
- Custom

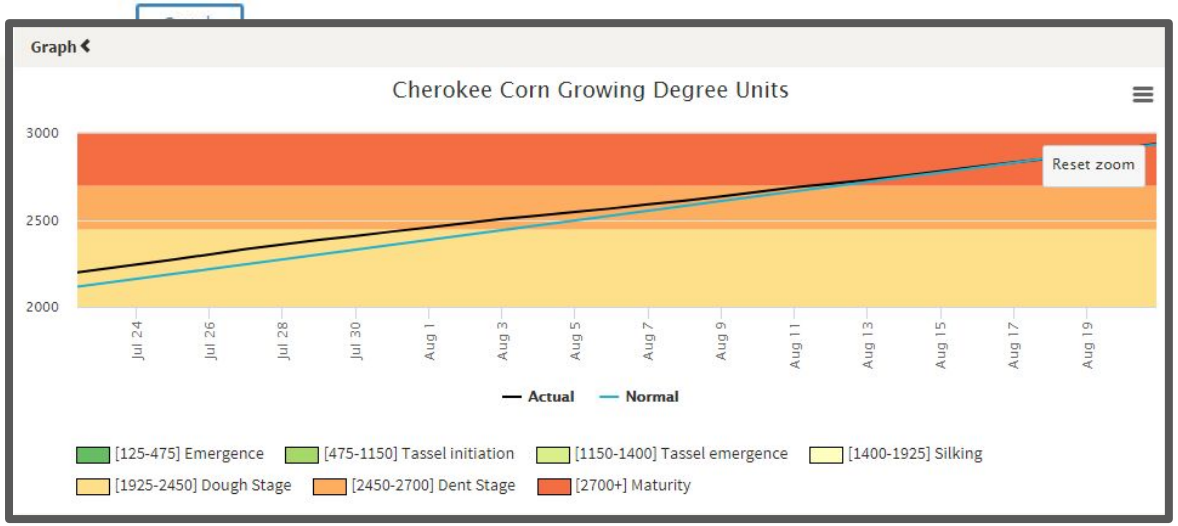
2017 4 1 To 2017 11 6 Submit

Corn GDU Equation

2017-04-01 — 2017-11-05

Station	Corn Growing Degree Units		
	Actual	Normal	Departure
Cherokee*	4237	4166	80
Cheyenne	3229	3442	-213

Graph



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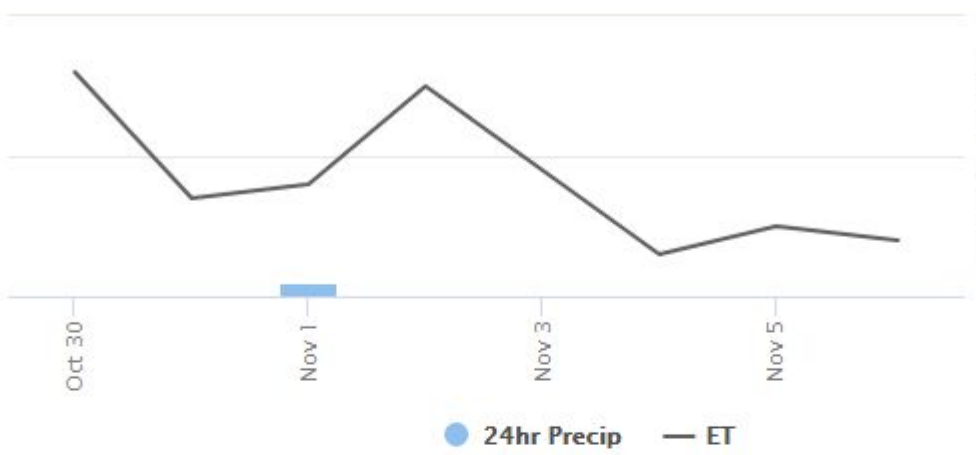
Kansas Mesonet

Tom Willis Tech Farm

Temperature	32 °F
Dewpoint	29 °F
Humidity	90 %
24hr Precip	0.00 in
Wind	N at 0 mph
SLP	1019.3 mb
Last Observed	11-06 22:40

English | Metric



Pull Historical Data

From 2017 11 1 to 2017 11 6 Daily Hourly Pull CSV Show in Table

2017-11-01 -- 2017-11-06

Timestamp	Air Temp Min °F	Air Temp Max °F	Humidity %	Precip in	Wind Speed Avg mph	Wind Speed Max mph	2" Soil Temp Min °F	2" Soil Temp Max °F	4" Soil Temp Min °F	4" Soil Temp Max °F	8" Wa Con
11-01 00:00	27.72	53.63	54.72	0.01	7.36	23.15	46.00	52.09	48.33	51.52	
11-02 00:00	29.92	79.47	54.46	0.00	4.40	14.34	45.16	59.60	47.36	56.25	
11-03 00:00	29.19	59.42	72.30	0.00	6.50	22.84	47.16	55.34	49.84	53.93	
11-04 00:00	26.51	45.59	92.19	0.00	3.04	9.21	45.45	49.70	47.71	49.88	
11-05 00:00	32.61	58.85	84.22	0.00	2.74	8.77	45.73	53.05	47.44	51.82	
11-06 00:00	25.79	49.79	84.81	0.00	5.08	16.18	44.78	51.34	47.56	50.87	

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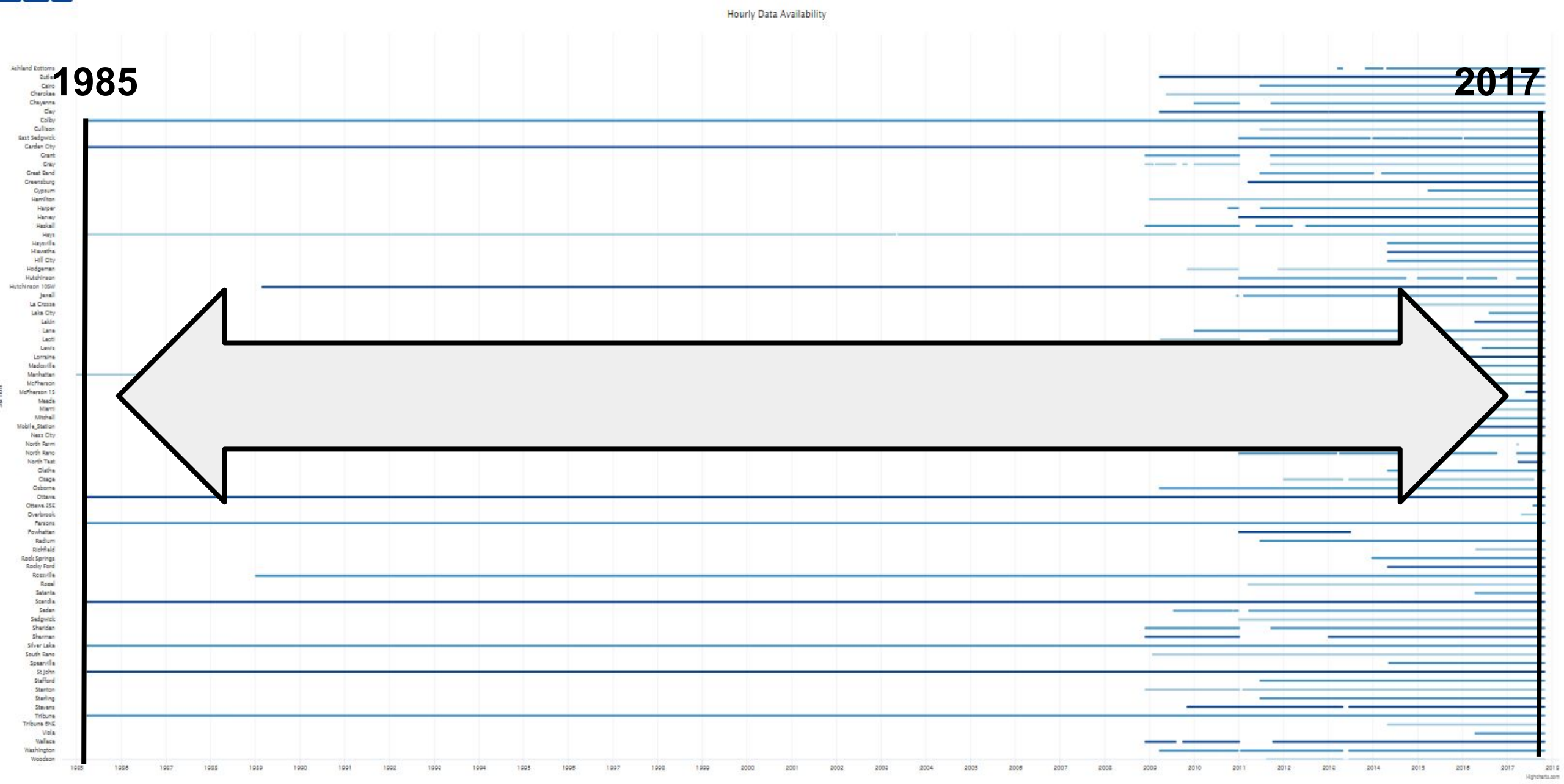
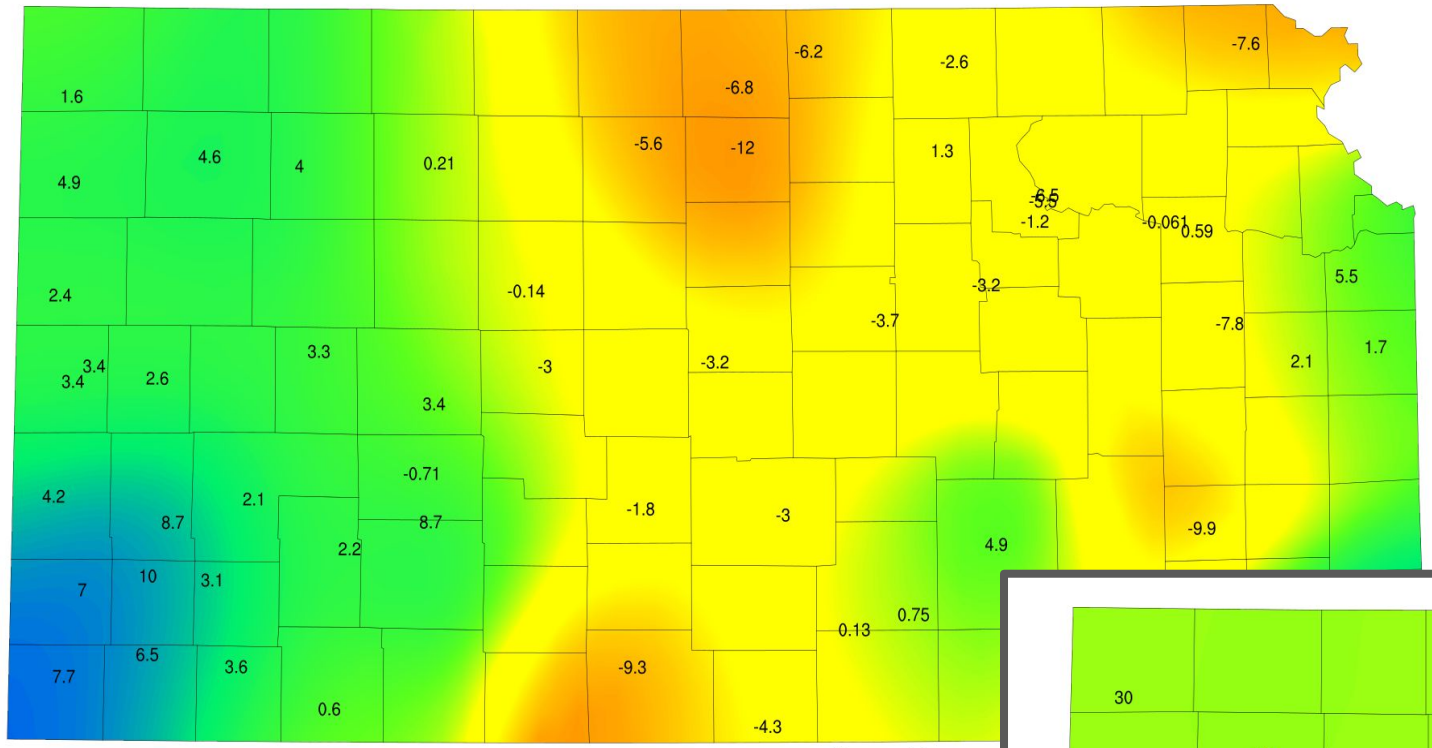


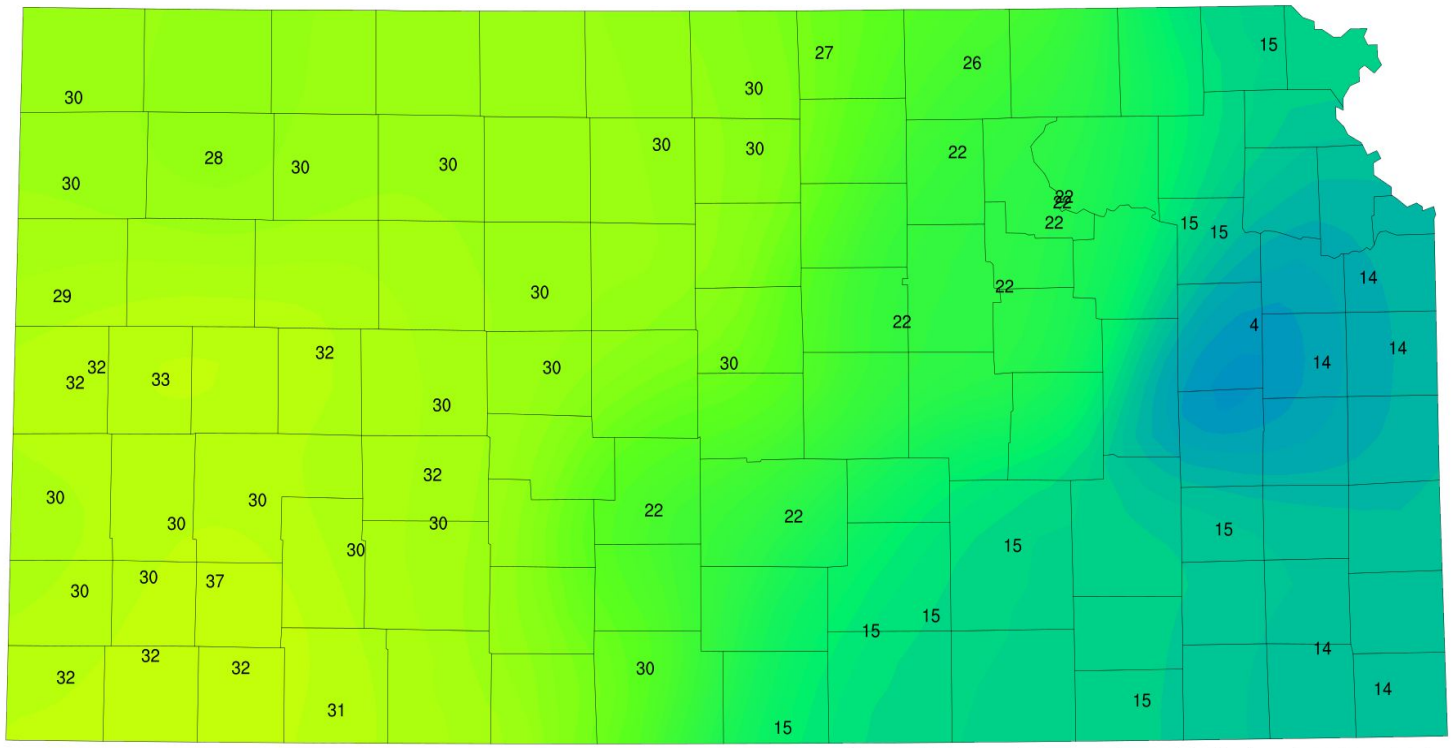
KANSAS STATE UNIVERSITY | Kansas Mesonet

KANSAS STATE UNIVERSITY | Kansas Mesonet



Year to date deficit (inches)

Kansas Mesonet



Consecutive Days Since 0.1 Inches of Precip

Kansas Mesonet (mesonet.ksu.edu), Updated: 11/07 04:27z

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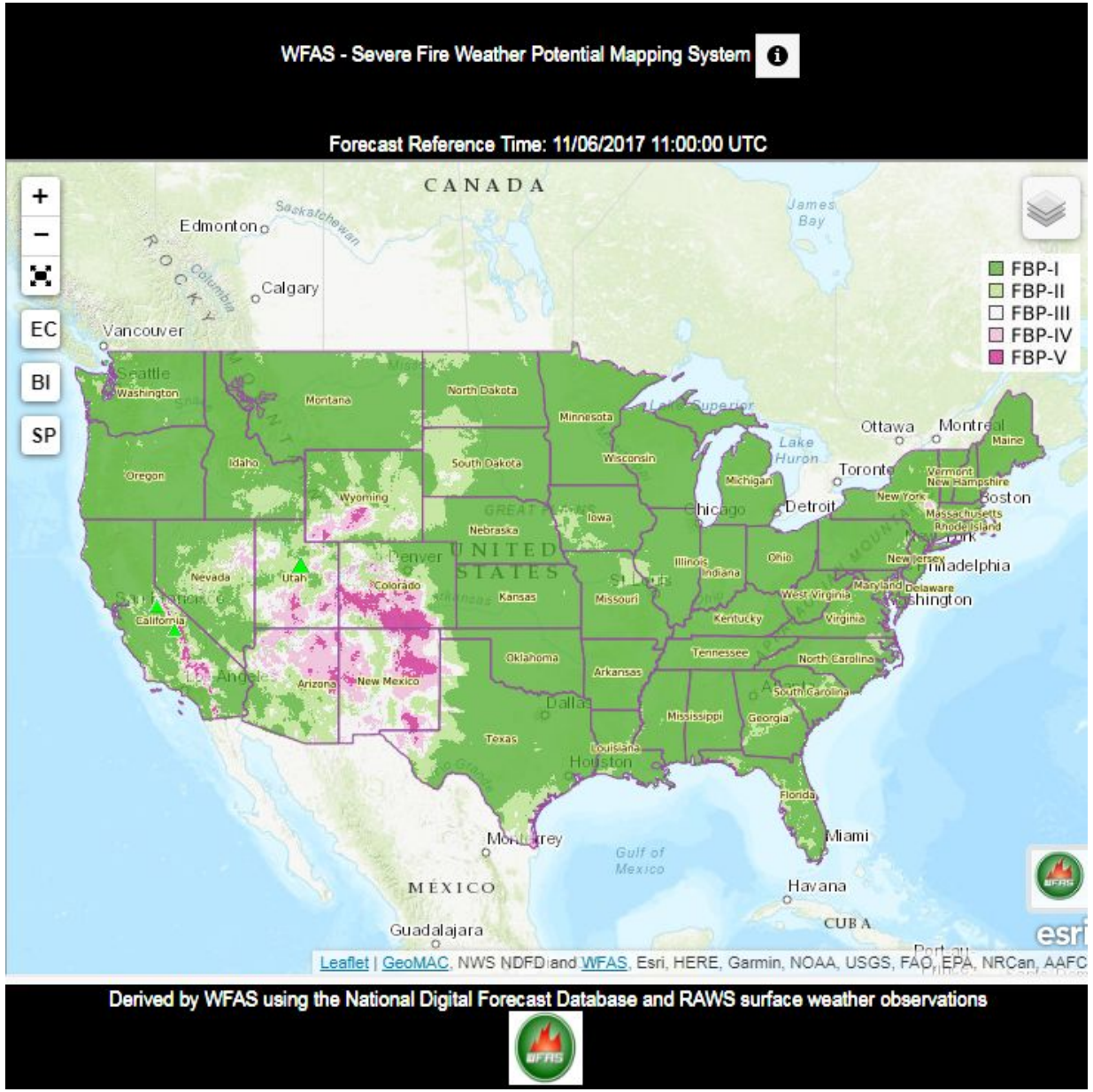
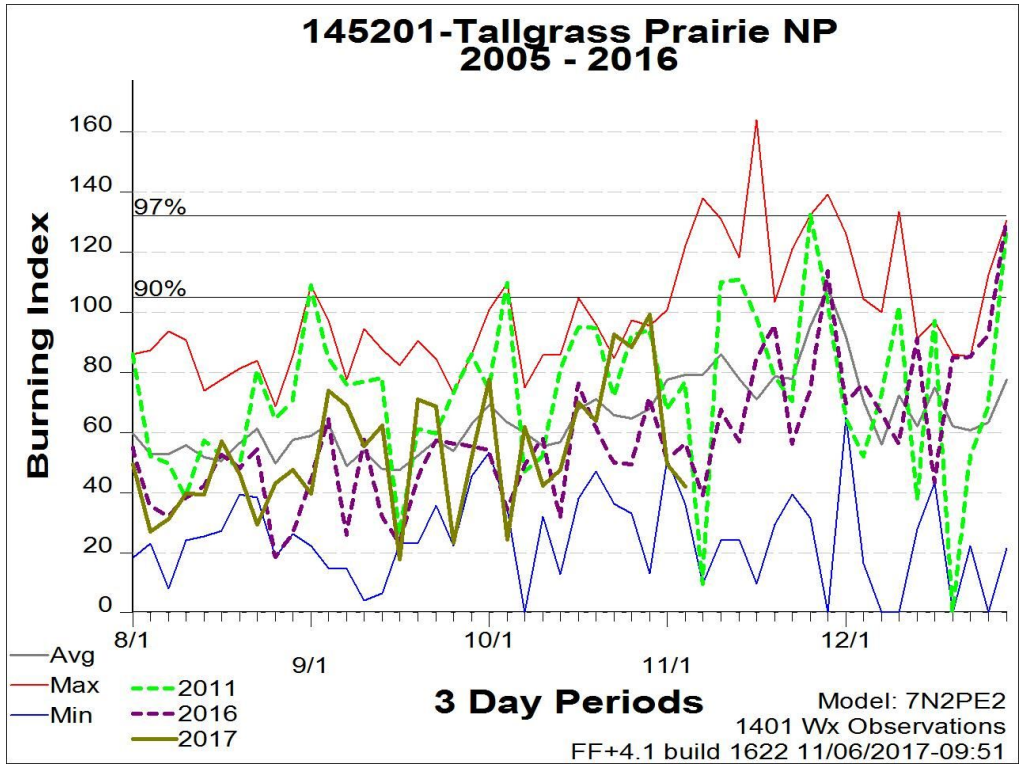
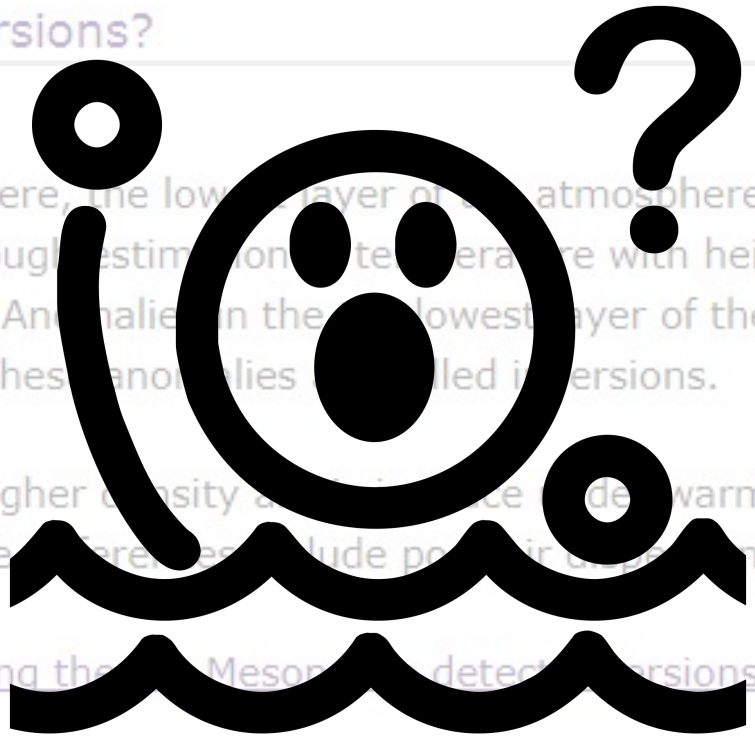

WFAS - Severe Fire Weather Potential Mapping System
Forecast Reference Time: 11/06/2017 11:00:00 UTC
CANADA
Edmonton
Calgary
Vancouver
Seattle
Washington
Montana
North Dakota
Minnesota
Oregon
Idaho
South Dakota
Wisconsin
Wyoming
Nebraska
Iowa
Chicago
Detroit
Ottawa
Montreal
Toronto
Boston
Denver
Nevada
Utah
Colorado
Kansas
Missouri
Illinois
Indiana
Ohio
Philadelphia
California
Oklahoma
Arkansas
Tennessee
Kentucky
West Virginia
Virginia
North Carolina
South Carolina
Arizona
New Mexico
Texas
Mississippi
Georgia
Florida
Miami
Houston
Dallas
Gulf of Mexico
MÉXICO
Havana
CUBA
Guadalajara
FBP-I
FBP-II
FBP-III
FBP-IV
FBP-V
EC
BI
SP
Leaflet | GeoMAC, NWS NDFD and WFAS, Esri, HERE, Garmin, NOAA, USGS, FAO, EPA, NRCan, AAFC
Derived by WFAS using the National Digital Forecast Database and RAWS surface weather observations


145201-Tallgrass Prairie NP
2005 - 2016
Burning Index
160
140
120
100
80
60
40
20
0
97%
90%
8/1
9/1
10/1
11/1
12/1
Avg
Max
Min
2011
2016
2017
3 Day Periods
Model: 7N2PE2
1401 Wx Observations
FF+4.1 build 1622 11/06/2017-09:51

Inversions

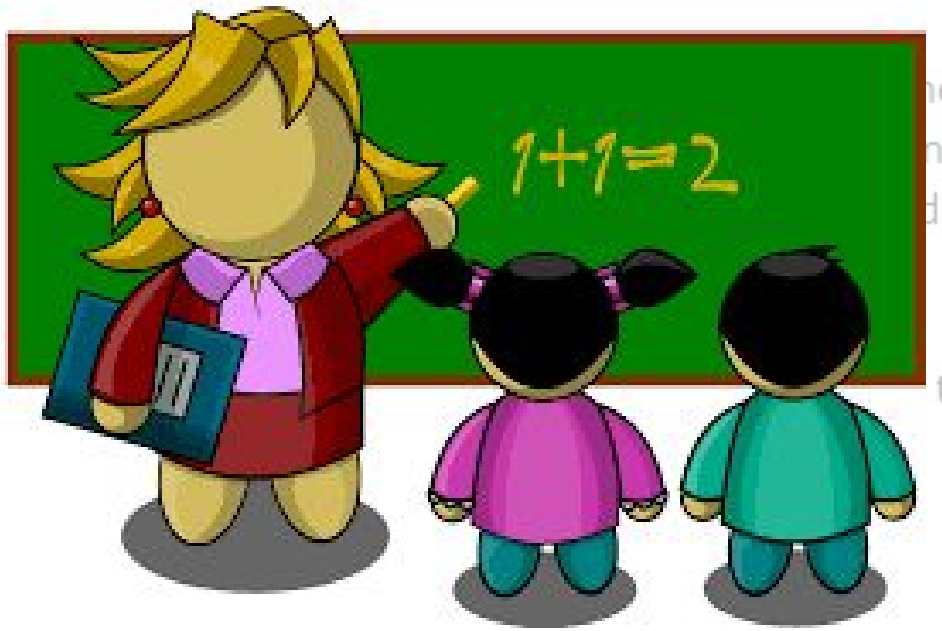
What are inversions?



In the troposphere, the low[illegible] layer of [illegible] atmosphere that reaches [illegible] [illegible]es with altitude. This rough estim[illegible] [illegible] te[illegible] era[illegible]re with height doesn't al[illegible] [illegible]nd solar radiation. An[illegible]alie[illegible] in the [illegible] lowest layer of the atmosphere [illegible] due to these factors. Thes[illegible] anom[illegible]lies [illegible] [illegible]lled i[illegible]ersions.

When cooler, higher [illegible]nsity a[illegible] [illegible]ce [illegible] de[illegible] warm, less dense a[illegible] than expected. These [illegible]ere[illegible] [illegible]lude po[illegible] [illegible]ir [illegible], light winds,

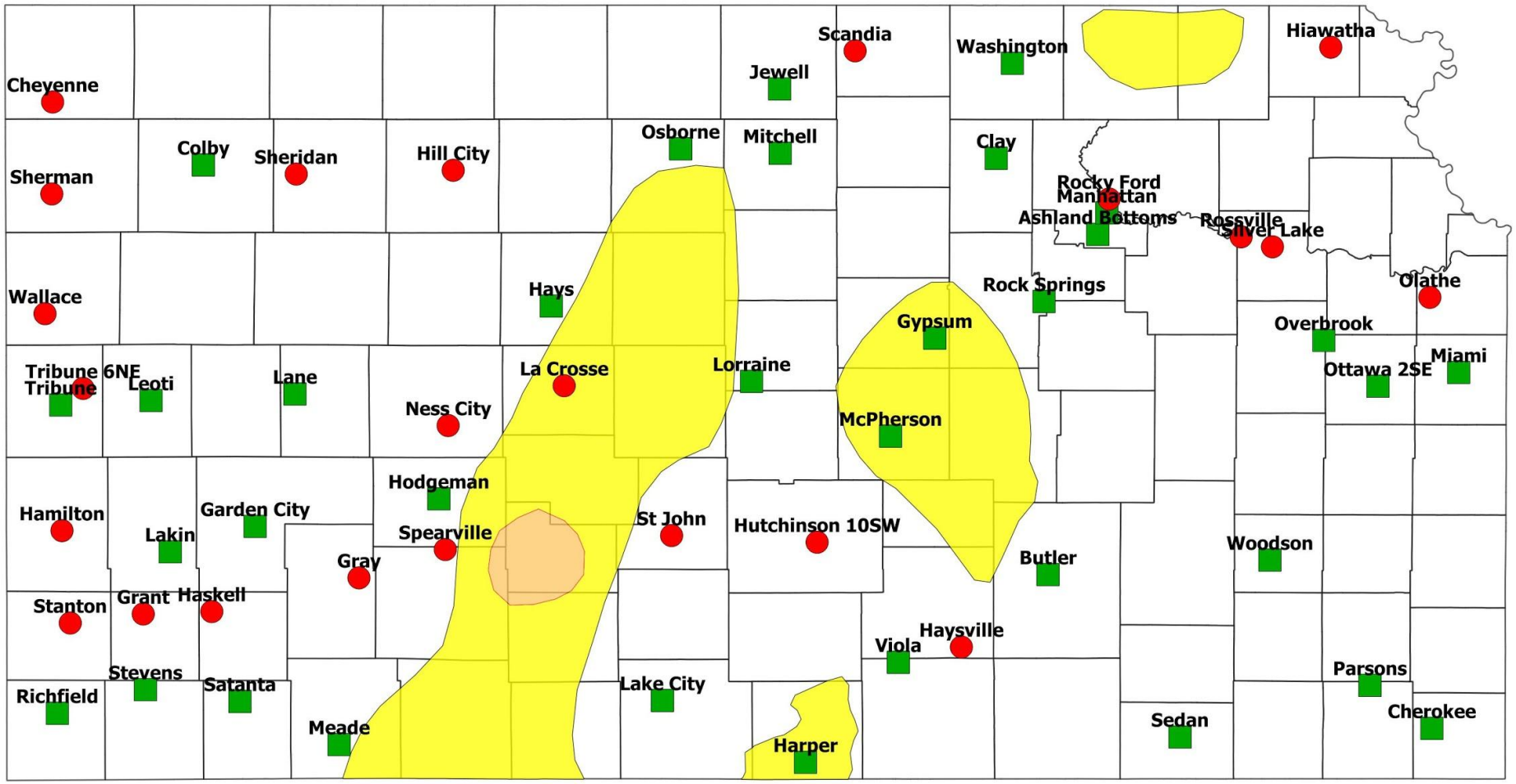
Forward to: using the [illegible] Meson[illegible] detect[illegible] [illegible]rsions



How do surface inversions develop?

Due to solar radiation, inversions often occur at night at the surface of the earth. These inversions develop through the

October 31, 2017 Drought



Station Type
- 10ft Tripod
- 30' Tower

0 50 100 miles

North

Kansas State University, Kansas Mesonet
As of: 10/31/17
Created by: Christopher Redmond, Manager
christopherredmond@k-state.edu
785-532-3029/785-477-6204
mesonet.k-state.edu

KANSAS STATE UNIVERSITY | Kansas Mesonet

CHS®

USDA NRCS
U.S. Department of Agriculture
Natural Resources Conservation Service

THE KANSAS PROJECT

HIGHLAND
COMMUNITY COLLEGE

ESE Alcohol, Inc.
Bio-Refinery
Established1980

K-STATE
Research and Extension

KANSAS WHEAT

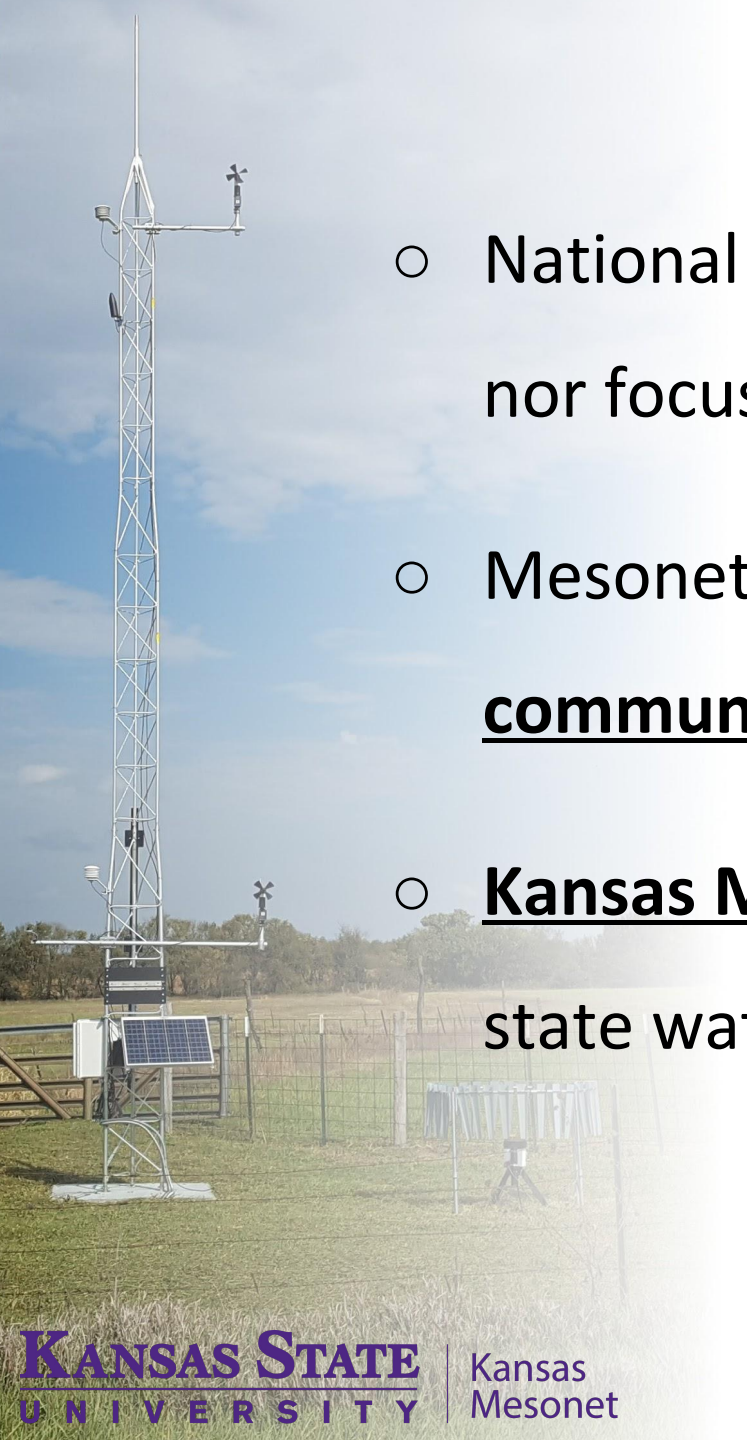
NATIONAL WEATHER SERVICE

AGRONOMY
Kansas State University

AD ASTRA PER ASPERA
Kansas
Water Office

KANSAS STATE UNIVERSITY
WEED SCIENCE

KANSAS STATE UNIVERSITY | Kansas Mesonet



- National and local weather **data isn't applicable on a state level** nor focuses on current critical state needs.
- Mesonet **increases coverage, quality, availability, and communication** of weather data on a standardized network.
- **Kansas Mesonet is critical** for future growth/adaption to dynamic state water and atmospheric conditions.

christopherredmond@ksu.edu

Twitter: @wx_chip

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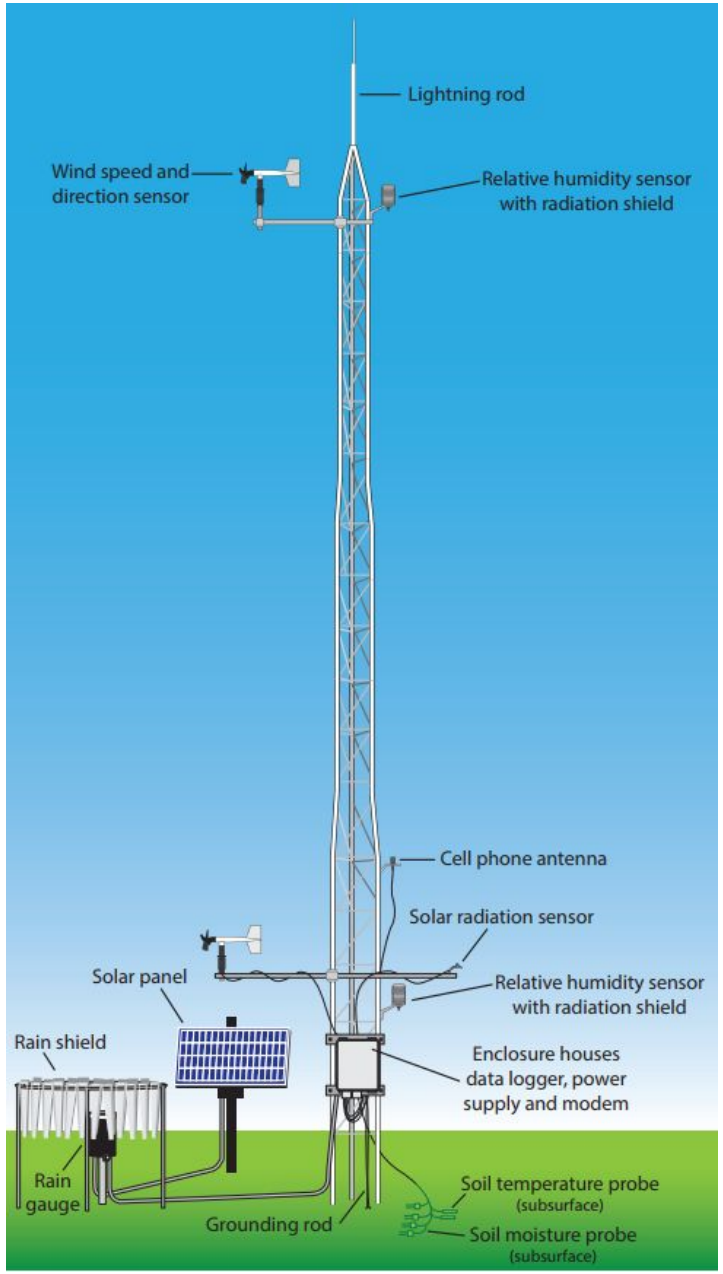
WHY IT RAINS
THEY SAID I LOOKED LIKE A HIPPO
Gemma CORRELL 2013



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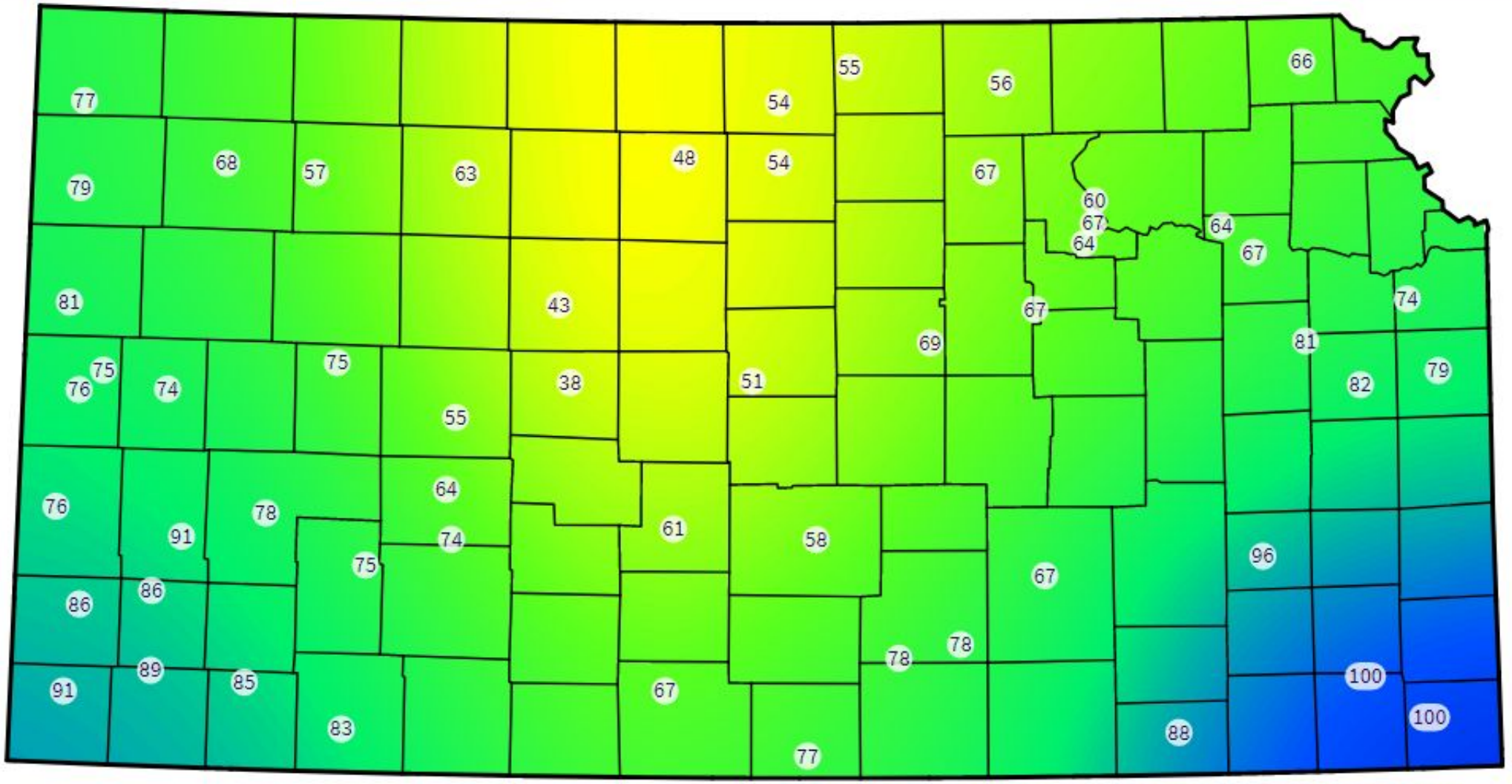
"STRONG WIND TODAY?"

IS IT ME OR IS IT REALLY HUMID TODAY?
Glenn McCoy
© 2011 Glenn McCoy/Dist. by Universal Uclick
7-9
IT'S PRETTY HUMID.

Heat Index

Heat Index | Wet Bulb Globe | Temperature | Rel. Humidity



Mesonet Data - Relative Humidity at Nov 06 2017 21:45 (CST)

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