Kentucky Weather and Climate

KY Master Naturalist Program - 3/19/2021

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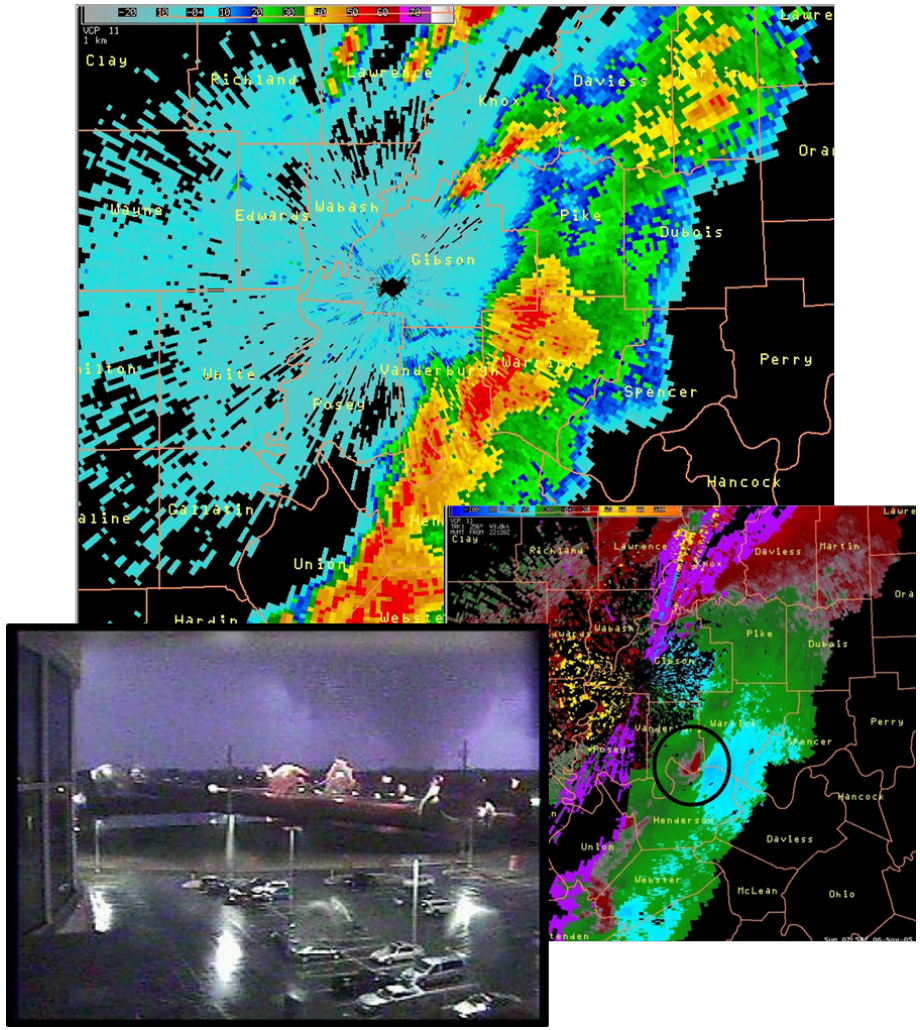
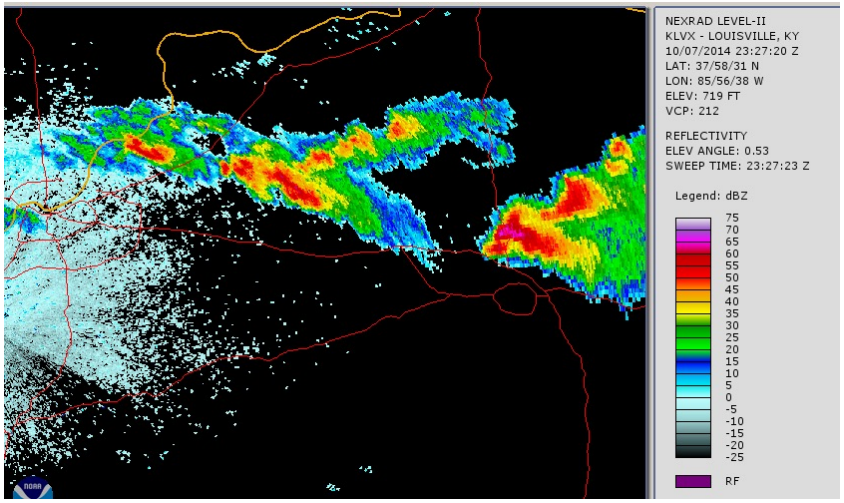
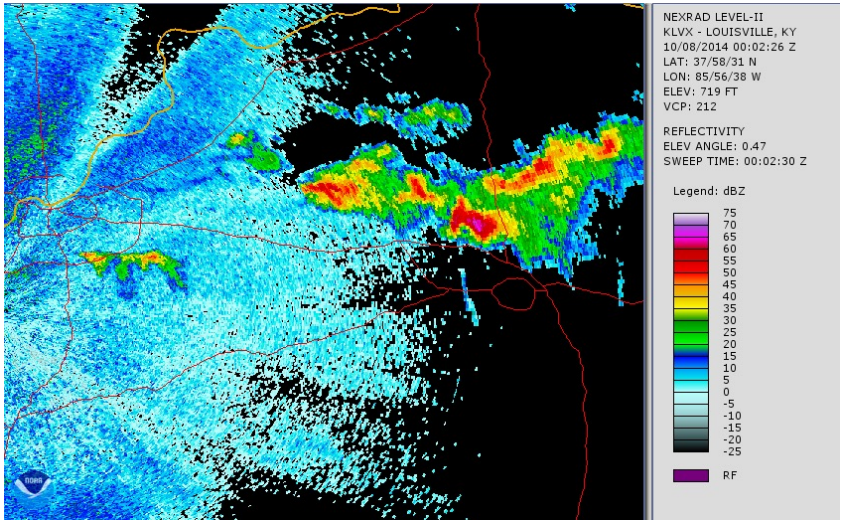
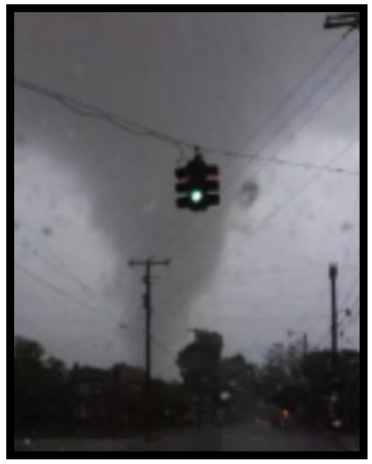


Biosystems & Agricultural Engineering

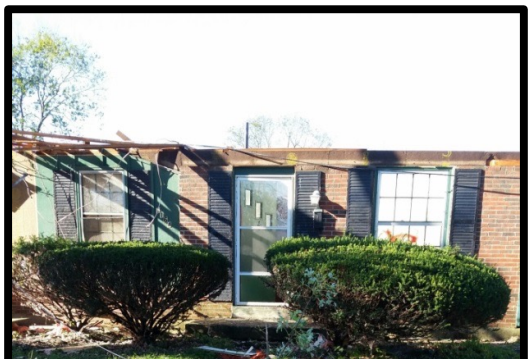
My Most Memorable Experience







My Most Memorable Experience



Please, please, please…..Get a weather radio and determine your safe shelter

Agricultural Weather Center

weather.uky.edu

Research

DAY	MONDAY				TUESDAY							
EST 3HR	1P	4P	7P	10P	1A	4A	7A	10A	1P	4P	7P	10P
MAX/MIN	--	--	6°	--	--	--	-5°	--	--	--	10°	--
TEMP.	0°	-1°	-2°	-4°	-4°	-4°	-4°	-1°	7°	10°	10°	10°
Sky Cover	56%	60%	68%	65%	61%	53%	46%	37%	29%	34%	42%	36%
Clouds												
DEW PT	-10°	-12°	-12°	-10°	-11°	-10°	-9°	-6°	-6°	-1°	-1°	-1°
RH	62%	59%	61%	75%	71%	74%	78%	79%	54%	61%	60%	60%
POP 12HR	--	--	23%	--	--	--	6%	--	--	--	6%	--
Rain/Snow	0.00in	--	0.00in	--	0.00in	--	0.00in	--	0.00in	--	0.00in	--
Wind Speed	23	18	16	15	14	13	14	15	15	14	7	7
Wind Gust	31	31	26	26	18	18	22	24	25	24	9	9
Wind Dir.	W	W	W	W	W	W	W	SW	W	SW	SW	S
DEW	--	--	--	--	--	--	--	--	--	--	--	--
Snow	--	--	--	--	--	--	--	--	--	--	--	--
SnowShowers	Periods of	Periods of	Scattered	Scattered	Scattered	Scattered	Scattered	Scattered	--	--	--	--

Forecasting

Modeling

What we do?

Teaching

Extension

Event Forecasting

Biosystems & Agricultural Engineering

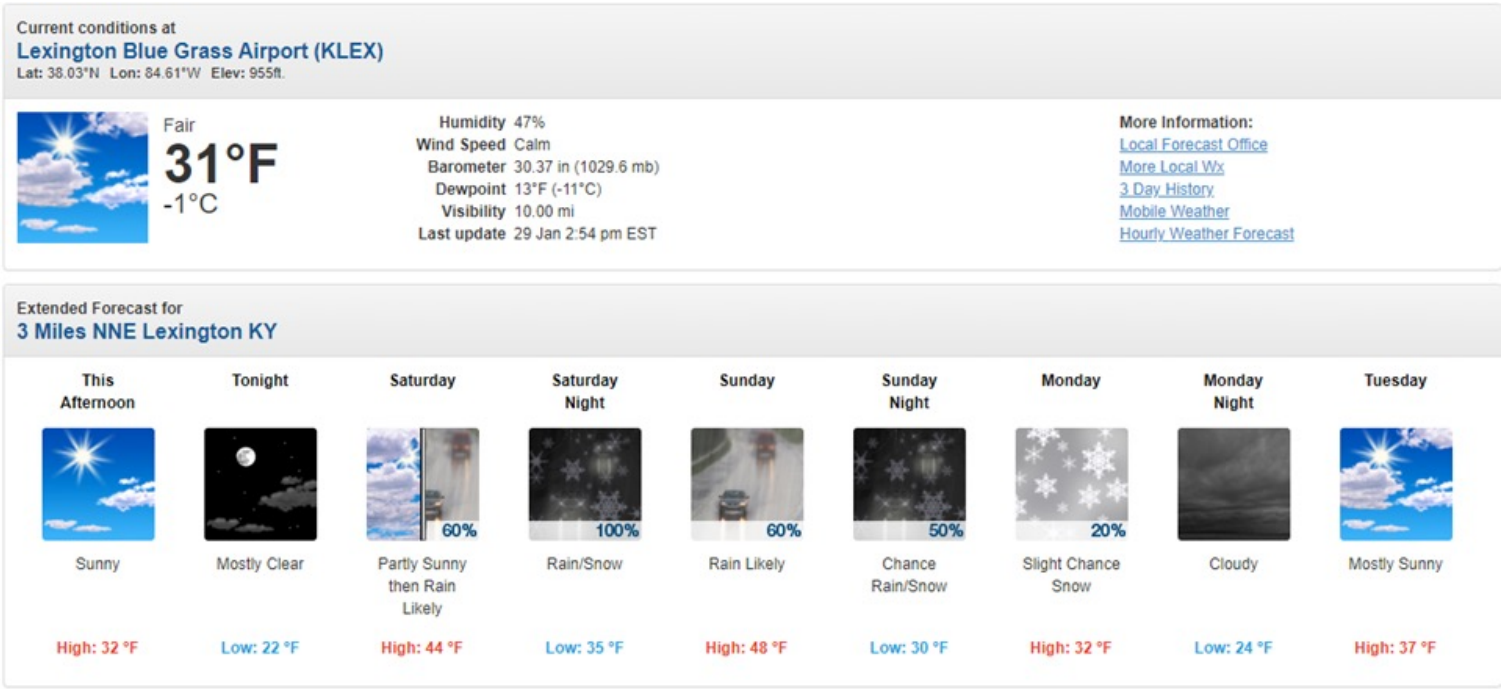
Kentucky Weather Explained

- Weather and Climate Defined
- Climate of Kentucky
- KY Climate is Changing
- Main Processes Driving Weather in KY
- Extreme Weather
- Sources of Climate/Weather Info
- Emergency Preparedness

Weather and Climate Defined

"Weather is what you get. Climate is what you expect."

- ***Weather*** is the state of the atmosphere at some place and time (**short term**)
  - Described with quantitative variables
    - Temperature, humidity, cloudiness, precipitation, wind speed, wind direction
  - What should I wear? Should I run irrigation? Can I spray today?



Weather and Climate Defined

"Weather is what you get. Climate is what you expect."

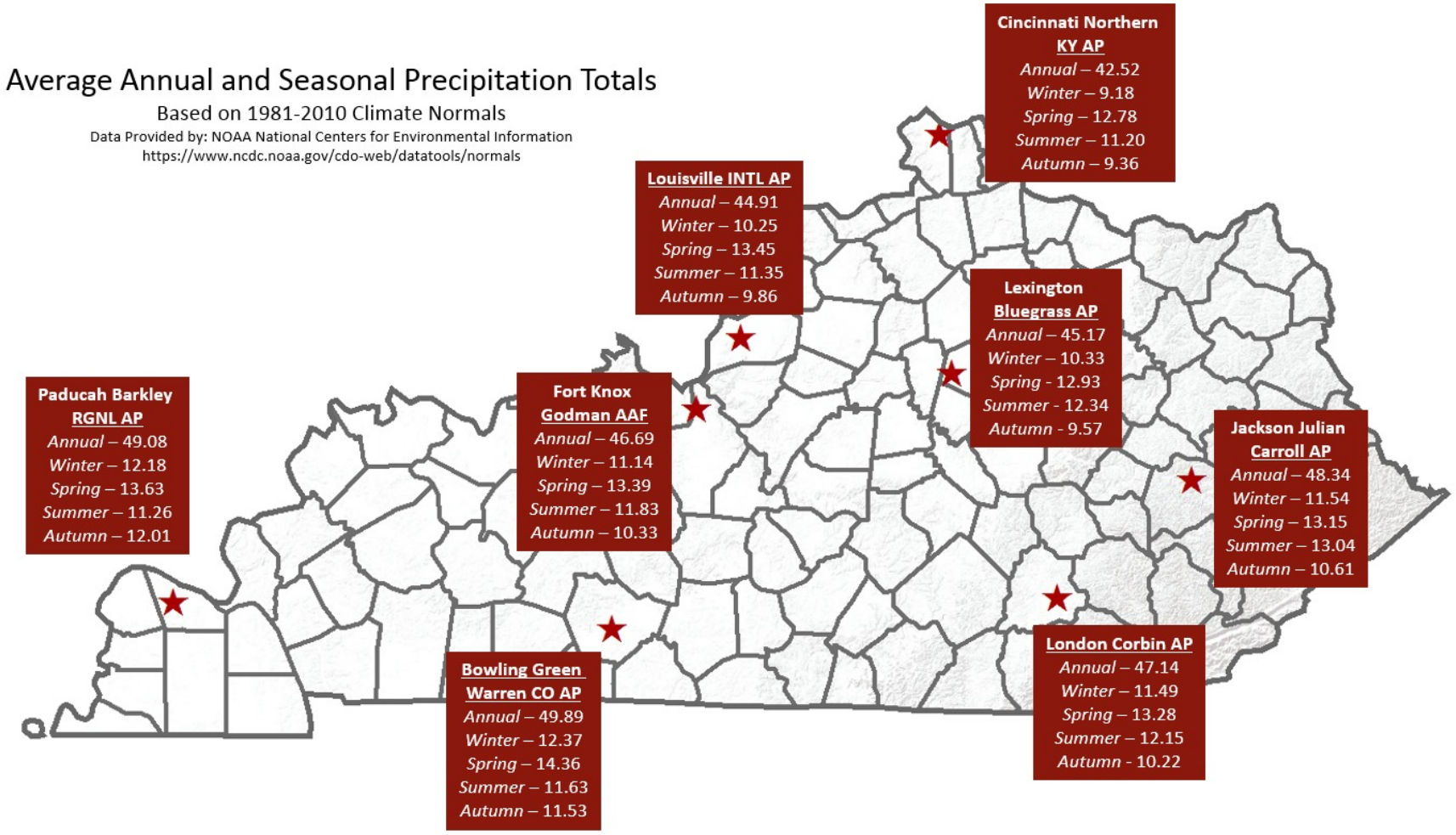
- ***Climate*** is weather conditions at some locality averaged over a specified time period (long term)
  - Climate is an average of the weather, figured over the last 30-years and updated every decade (normals)
  - A locale's climate also includes weather extremes
  - What should I buy? When can I plant crops? What crops can I plant? Long term sustainability?

MONTH	PRECIP (IN)	MIN TMP (°F)	AVG TMP (°F)	MAX TMP (°F)
01	3.20	24.9	32.9	40.9
02	3.20	28.1	36.9	45.6
03	4.07	35.7	45.5	55.4
04	3.60	44.7	55.3	65.8
05	5.26	53.9	64.2	74.4
06	4.44	62.5	72.7	82.9
07	4.65	66.3	76.2	86.1
08	3.25	65.0	75.3	85.6
09	2.91	57.5	68.1	78.8
10	3.13	46.6	57.0	67.5
11	3.53	37.3	46.3	55.4
12	3.93	28.0	36.0	43.9

Lexington, KY 1981-2010 Monthly Normals: https://www.ncdc.noaa.gov/cdo-web/datatools/normals

Climate of Kentucky

Precipitation



Temperatures

Statewide

Normals	Jan	Feb	Mar	Apr	May	Jun	
1981-2010	33.7	37.8	46.2	55.8	64.3	72.6	
	Jul	Aug	Sep	Oct	Nov	Dec	Annual
	76.2	75.2	68.1	57.0	46.8	36.6	55.9

Western KY

Normals	Jan	Feb	Mar	Apr	May	Jun	
1981-2010	34.6	38.9	47.9	57.5	66.4	74.7	
	Jul	Aug	Sep	Oct	Nov	Dec	Annual
	78.3	77.1	69.8	58.6	48.0	37.4	57.4

Eastern KY

Normals	Jan	Feb	Mar	Apr	May	Jun	
1981-2010	33.8	37.6	45.6	55.0	63.1	71.2	
	Jul	Aug	Sep	Oct	Nov	Dec	Annual
	74.8	73.9	67.0	56.1	46.2	36.5	55.1

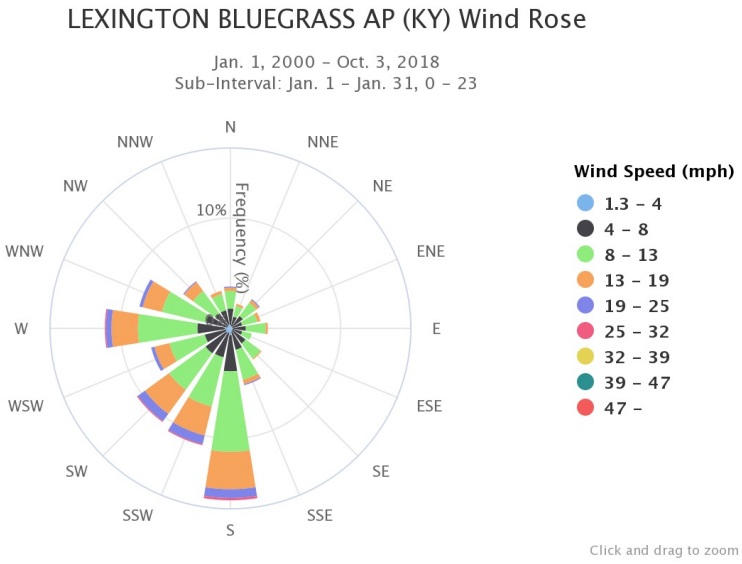
Frost/Freeze Occurrence Data

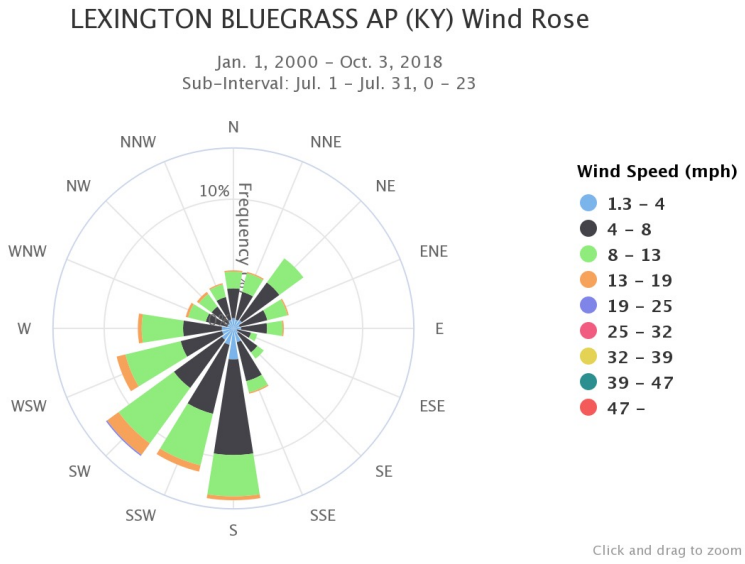
Typical First and Last Occurrences of 32° F in Kentucky

	Coordinates (°)		Date of First Fall Frost[1,2]					Date of Last Spring Frost[1,3]				
Location	LAT	LONG	Early	10%	50%	90%	Late	Early	90%	50%	10%	Late
Ashland	38.45	-82.61	8/31	10/6	10/20	11/3	11/3	4/10	4/6	4/24	5/10	6/10
Barbourville	36.88	-83.88	10/3	10/5	10/19	11/2	11/13	3/25	4/7	4/22	5/9	5/22
Bardstown	37.82	-85.38	10/2	10/7	10/23	11/6	11/9	3/27	3/30	4/14	4/29	5/2
Barren River Lake	36.90	-86.12	10/2	10/13	10/29	11/13	11/26	3/27	3/27	4/12	4/28	5/3
Berea	37.57	-84.29	9/24	10/15	10/31	11/17	11/21	3/19	3/24	4/11	4/30	5/20
Bowling Green Warren Co AP	36.96	-86.42	10/6	10/12	10/27	11/9	11/15	3/19	3/25	4/9	4/25	4/22
Bradfordsville	37.50	-85.15	9/24	10/4	10/18	11/2	11/8	4/1	4/7	4/21	5/6	5/22
Cincinnati N Ky Int AP	39.04	-84.67	9/30	10/9	10/24	11/6	11/8	3/29	4/2	4/16	5/2	5/18
Crab Orchard	37.49	-84.44	9/22	10/3	10/19	11/4	11/9	4/5	4/3	4/20	5/6	6/9
Cynthiana	38.38	-84.30	10/2	10/5	10/20	11/3	11/8	3/28	4/3	4/20	5/7	5/9
Dix Dam	37.79	-84.71	10/6	10/9	10/24	11/6	11/21	3/21	4/2	4/16	5/1	5/8
Greensburg	37.26	-85.50	10/2	10/8	10/24	11/6	11/8	3/29	4/1	4/17	5/3	5/12
Henderson	37.76	-87.65	10/4	10/10	10/27	11/11	11/27	3/6	3/24	4/8	4/23	4/22
Hodgenville	37.53	-85.74	10/3	10/8	10/24	11/6	11/9	3/30	3/31	4/16	5/1	5/15
Hopkinsville	36.85	-87.52	9/22	10/13	10/28	11/13	11/25	3/19	3/24	4/10	4/24	4/25
Jackson Julian Carroll AP	37.59	-83.31	10/4	10/14	11/1	11/16	11/25	3/21	3/24	4/9	4/25	5/15
Leitchfield	37.51	-86.29	9/30	9/29	10/11	10/24	11/8	4/1	4/14	4/28	5/15	5/15
Lexington Bluegrass AP	38.04	-84.61	10/4	10/12	10/27	11/9	11/10	3/27	3/29	4/14	4/29	5/18
London Corbin AP	37.09	-84.08	9/24	10/7	10/22	11/5	11/13	3/29	3/31	4/16	5/3	5/15
Louisville Int AP	38.18	-85.74	10/9	10/20	11/4	11/20	11/28	3/14	3/19	4/3	4/19	4/22
Mammoth Cave	37.13	-86.15	9/24	10/11	10/27	11/11	11/26	3/29	3/24	4/10	4/26	5/17
Maysville	38.69	-83.79	10/4	10/10	10/25	11/8	11/11	3/29	4/4	4/18	5/1	5/7
Monticello	36.87	-84.83	10/3	10/6	10/22	11/5	11/13	3/27	4/3	4/20	5/5	5/19
Mount Vernon	37.35	-84.34	10/2	10/7	10/22	11/5	11/9	4/1	4/4	4/20	5/5	5/18
Murray	36.61	-88.31	10/8	10/19	11/3	11/20	11/27	3/6	3/17	4/2	4/18	4/22
Nolin River Lake	37.28	-86.25	9/22	10/7	10/24	11/7	11/6	4/1	4/3	4/20	5/7	5/21
Paducah Barkley Regional AP	37.06	-88.77	10/4	10/11	10/26	11/9	11/12	3/6	3/23	4/8	4/22	4/27
Princeton	37.12	-87.87	10/4	10/6	10/22	11/6	11/12	3/6	3/29	4/13	4/29	5/2
Providence	37.40	-87.76	10/3	10/11	10/26	11/8	11/23	3/7	3/25	4/9	4/22	5/2
Rough River Lake	37.62	-86.50	9/22	10/3	10/18	11/1	11/2	3/31	4/4	4/20	5/7	5/21
Scottsville	36.75	-86.23	10/3	10/8	10/23	11/5	11/23	3/22	3/31	4/16	5/2	5/2
Somerset	37.12	-84.62	9/27	10/4	10/18	11/1	11/9	3/24	4/3	4/20	5/6	5/18

[1] Temperature data is based on the latest set of climate normals, 30 years of data from 1981-2010.
[2] Early = Earliest date recorded for first frost occurrence; 10%, 50%, 90% = Probablility data of first occurrence or earlier; Last = Latest date recorded for first frost occurrence.
[3] Early = Earliest date recorded for last frost occurrence; 90%, 50%, 10% = Probability date of last occurrence or later; Last = Lastest date recorded for last frost occurrence.
Sources: Probability data (10, 50, 90%) - National Centers for Environmental Information, URL: https://www.ncdc.noaa.gov/cdo-web/search?datasetid=GHCND; Early and Late - Midwestern Regional Climate Center cli-MATE tool kit, URL: https://mrcc.illinois.edu/CLIMATE/

Wind Speed and Direction



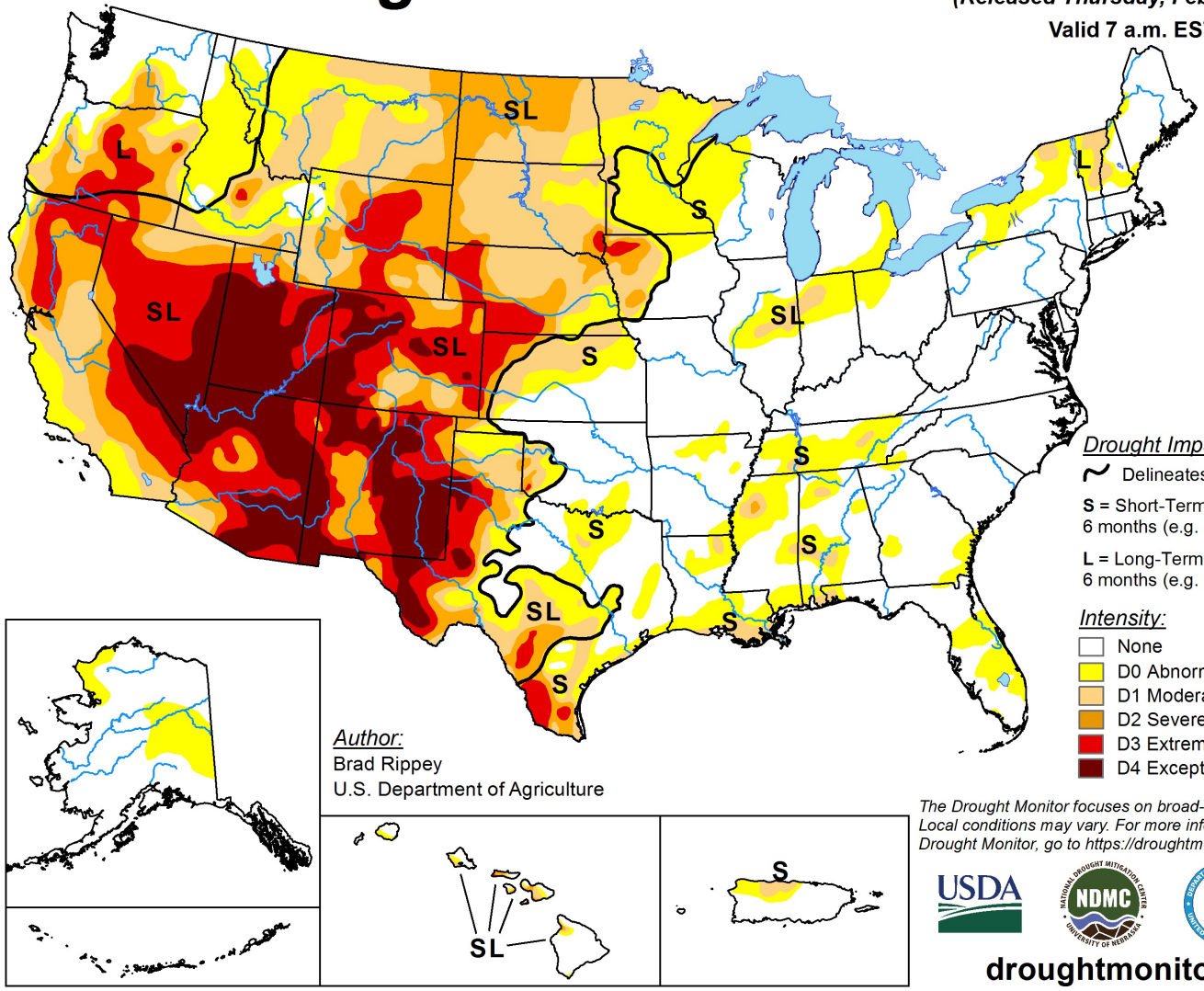


U.S. Drought Monitor

February 9, 2021

(Released Thursday, Feb. 11, 2021)

Valid 7 a.m. EST



Drought Impact Types:

~ Delineates dominant impacts

S = Short-Term, typically less than 6 months (e.g. agriculture, grasslands)

L = Long-Term, typically greater than 6 months (e.g. hydrology, ecology)

Intensity:

- None
- D0 Abnormally Dry
- D1 Moderate Drought
- D2 Severe Drought
- D3 Extreme Drought
- D4 Exceptional Drought

Author:

Brad Rippey

U.S. Department of Agriculture

The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. For more information on the Drought Monitor, go to https://droughtmonitor.unl.edu/About.aspx

droughtmonitor.unl.edu

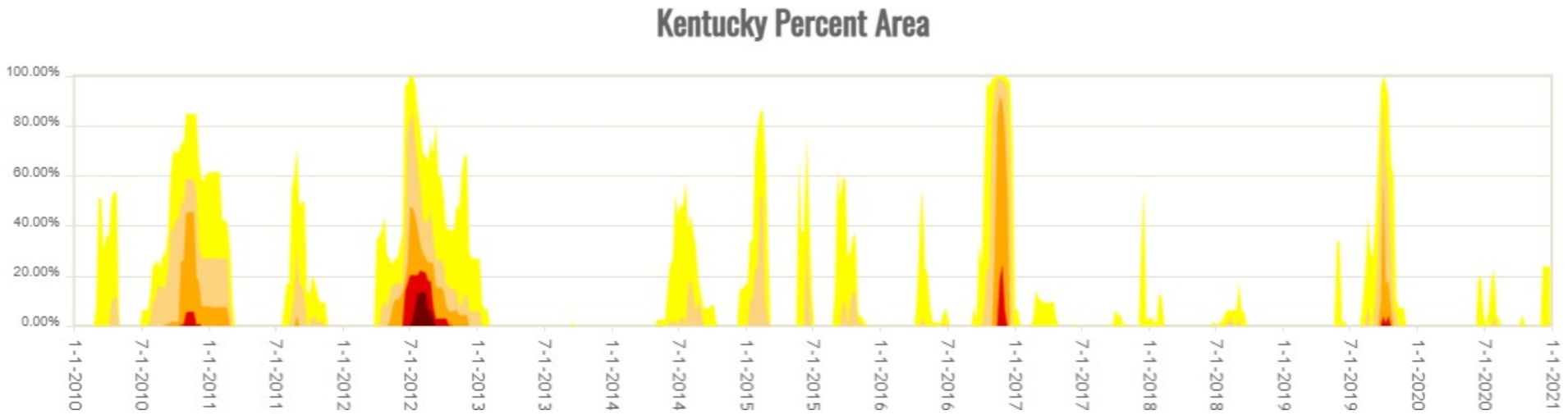
https://droughtmonitor.unl.edu/

Kentucky Drought Impacts

Category	Impact
D0	Lawns and vegetation are brown
	Crops and pastures show mild stress
D1	Crops and pastures show stress; corn germination is poor
	Burn bans are issued; wildfires are reported
	Increased algae and fungus growth is noted
	Trees begin to show mild stress
D2	Hay yield is low; crop losses are reported; livestock need supplemental hay and water
	Ponds, lakes, and river levels are low; boating hazards are found in lakes
	Tress distressed, leaves wilting, pine trees turning brown
D3	Maintaining cattle and horses is very expensive, cost of food and water is very high; producers sell livestock
	Creeks and ponds are completely dry; water shortages are widespread; water restrictions begin
D4	Hay hotline is put in place due to shortages; producers are hauling water
	Water sources are extremely low

https://droughtmonitor.unl.edu/Data/StateImpacts.aspx

Kentucky Drought Time Series



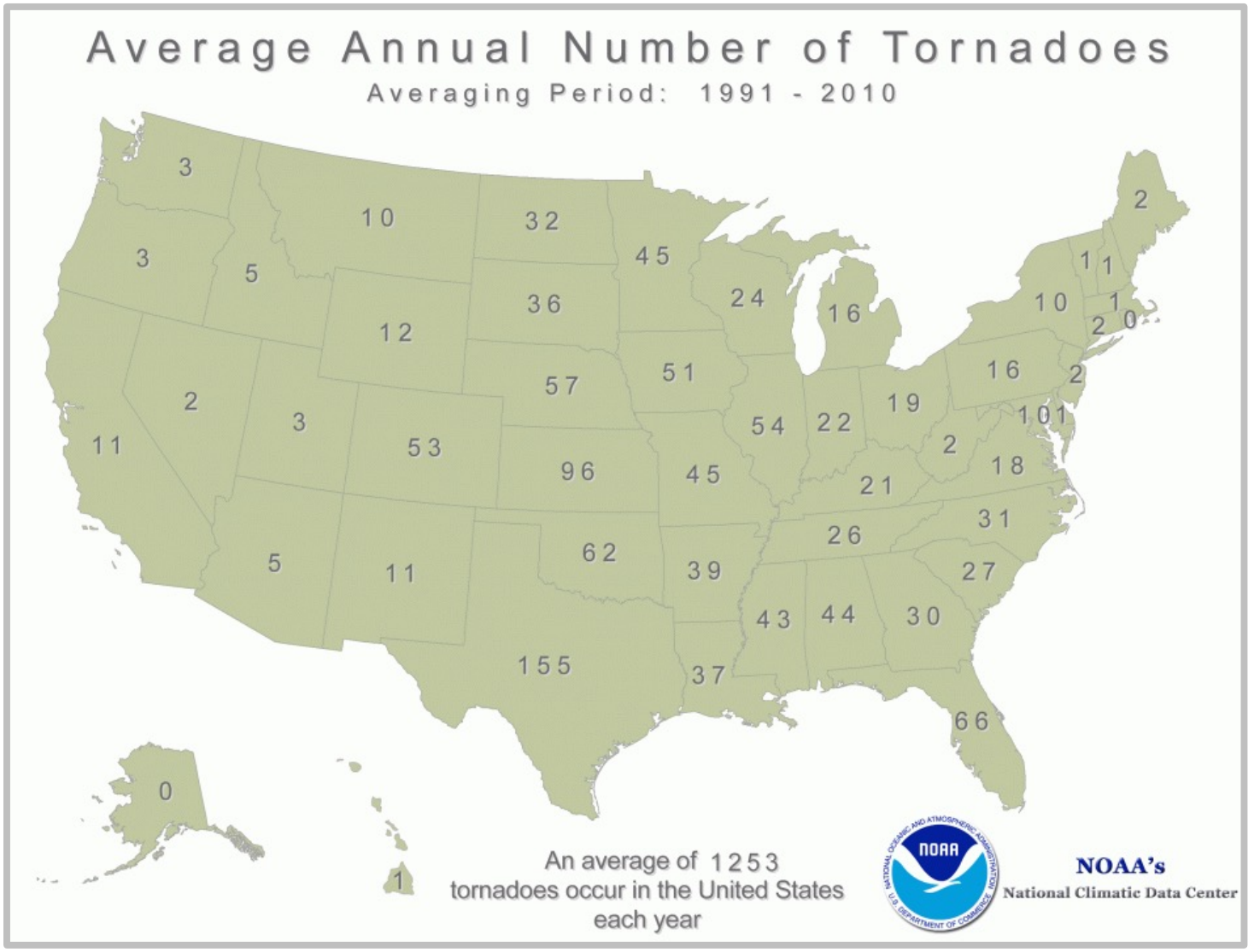
https://droughtmonitor.unl.edu/Data/Timeseries.aspx

Intensity and Impacts

- None
- D0 (Abnormally Dry)
- D1 (Moderate Drought)
- D2 (Severe Drought)
- D3 (Extreme Drought)
- D4 (Exceptional Drought)

https://droughtmonitor.unl.edu/

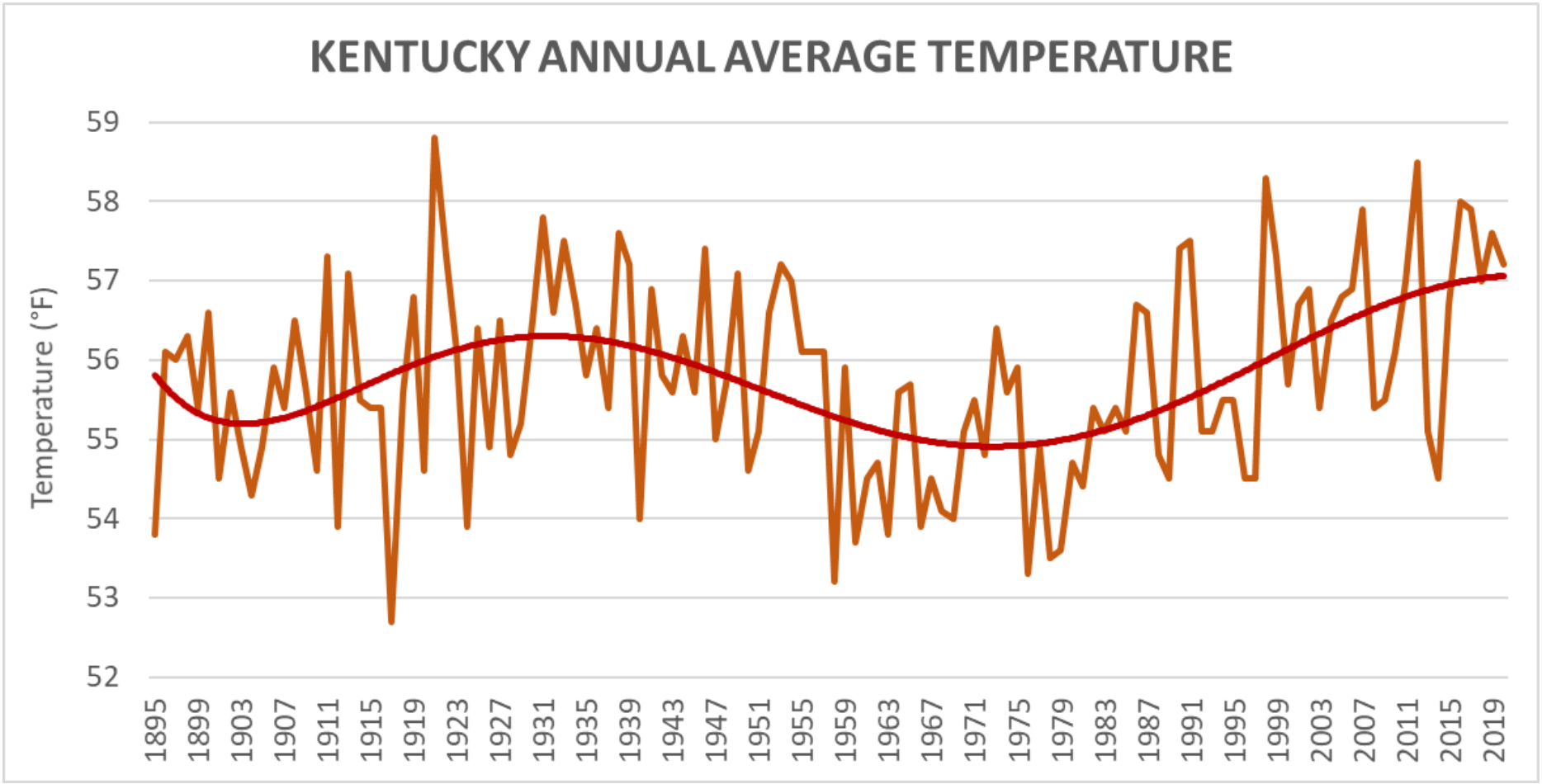
Severe Weather



Kentucky Climate is Changing

Climate Change

- Can be a very sensitive/controversial topic with varying opinions (Model limitations, political/religious beliefs, cause)
- Projections point toward a warmer and wetter climate ahead
- Potential for more extreme weather
- Impacts on agriculture, forested regions, human health, navigation, and aquatic ecosystems, etc.

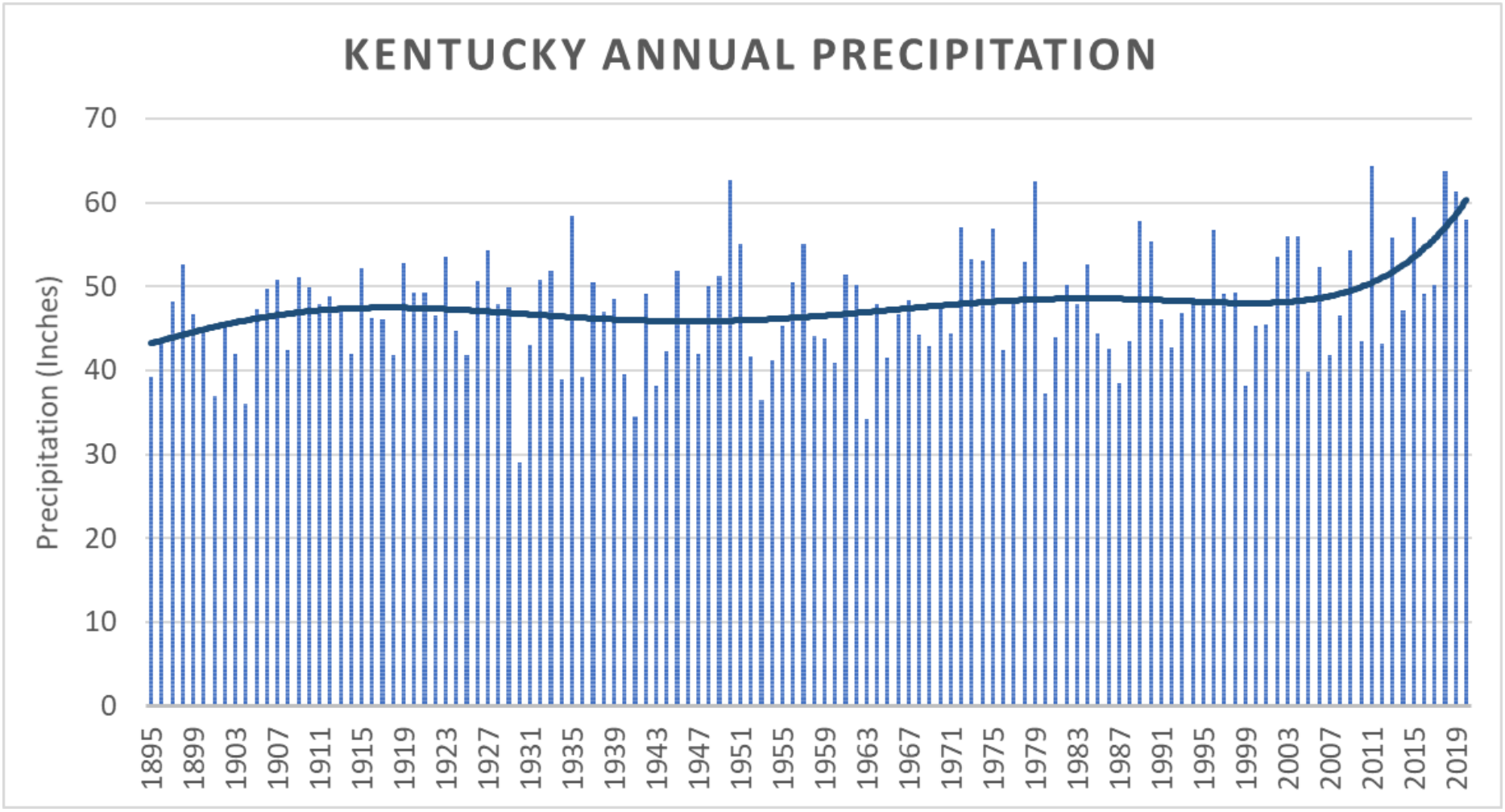


Data Courtesy: Midwestern Regional Climate Center,
cli-MATE Tools Environment, https://mrcc.illinois.edu/CLIMATE/

Kentucky Top Ten Warmest Years on Record (1895 - 2020)				
Rank	**Year**	**Avg.**	**Normal**	**Dep.**
1	1921	58.7	55.9	2.8
2	2012	58.4	55.9	2.5
3	1998	58.2	55.9	2.3
4	2016	57.9	55.9	2.0
5	2017	57.8	55.9	1.9
5	1931	57.8	55.9	1.9
7	2007	57.7	55.9	1.8
8	1938	57.5	55.9	1.6
8	2019	57.5	55.9	1.6
10	1933	57.4	55.9	1.5
10	1991	57.4	55.9	1.5

Table 2 - Data Courtesy: Midwestern Regional Climate Center
cli-MATE tools environment, https://mrcc.illinois.edu/CLIMATE/

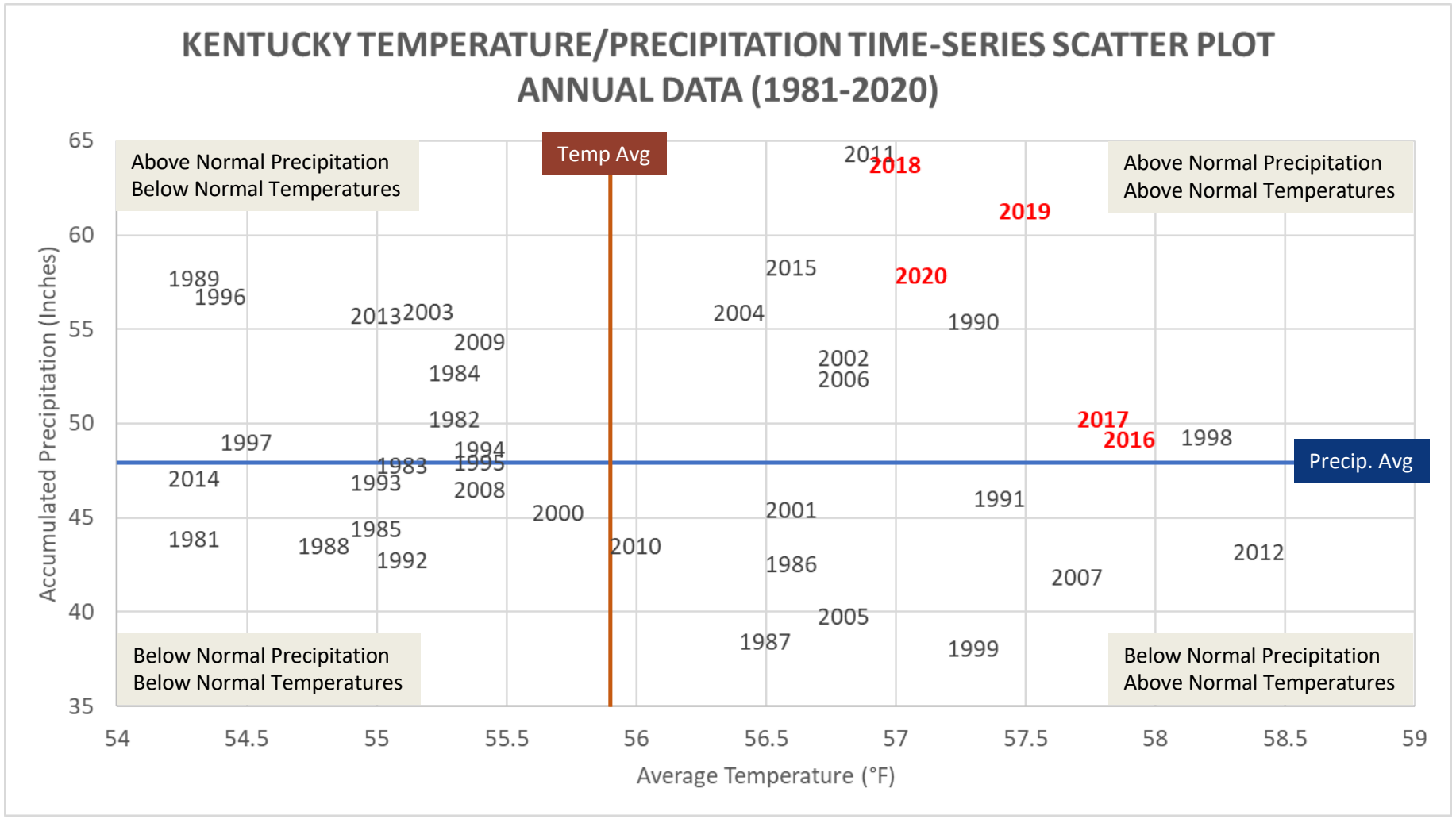
2020 Data: 57.1, #17 on record



Data Courtesy: Midwestern Regional Climate Center,
cli-MATE Tools Environment, https://mrcc.illinois.edu/CLIMATE/

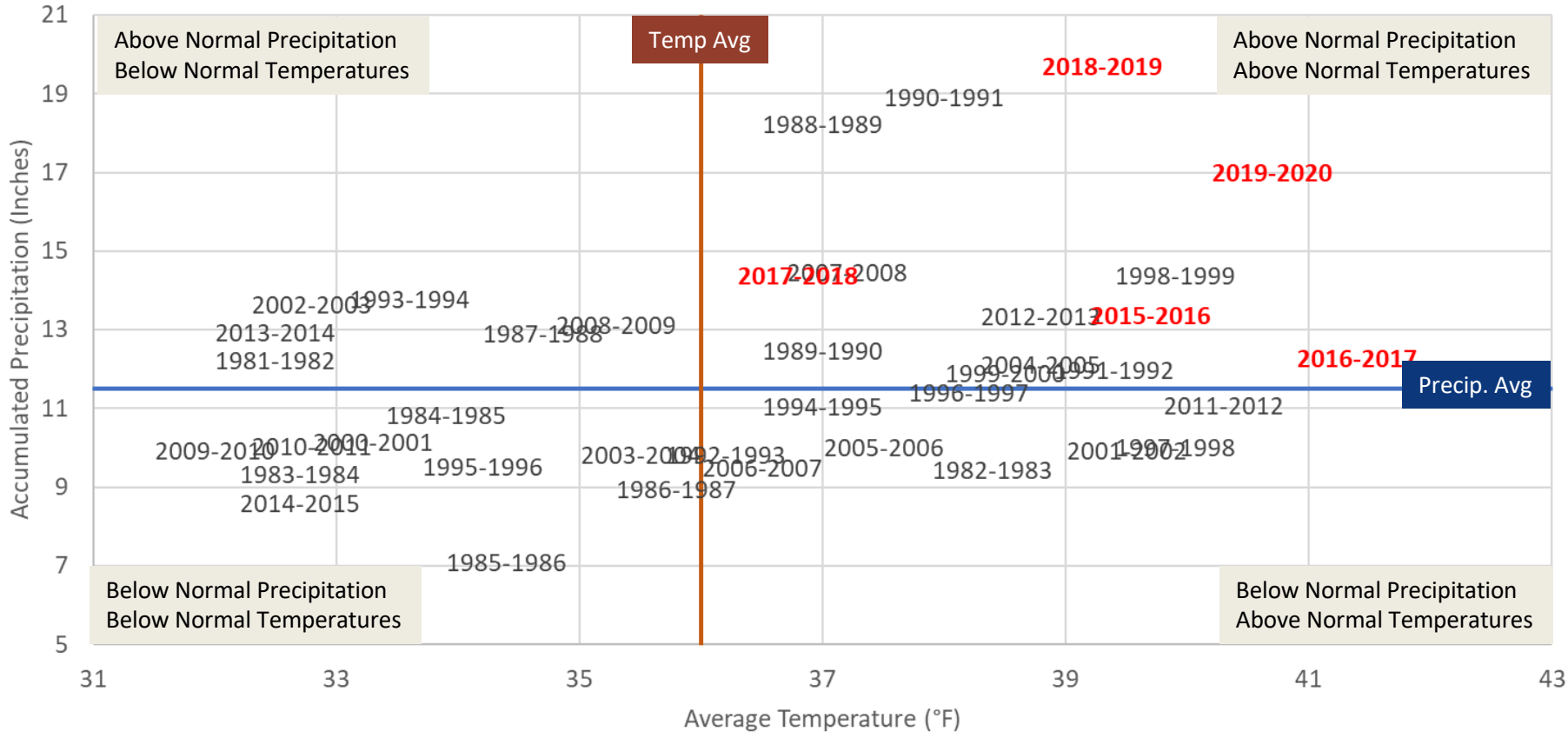
Kentucky Top Ten Wettest Years on Record (1895 - 2020)				
Rank	**Year**	**Total**	**Normal**	**Dep.**
1	2011	64.35	47.9	16.45
2	2018	63.74	47.9	15.84
3	1950	62.63	47.9	14.73
4	1979	62.58	47.9	14.68
5	2019	61.32	47.9	13.42
6	1935	58.38	47.9	10.48
7	2015	58.31	47.9	10.41
8	2020	57.87	47.9	9.97
9	1989	57.74	47.9	9.84
10	1972	56.08	47.9	9.18

Table 1 - Data Courtesy: Midwestern Regional Climate Center, cli-MATE tools environment, https://mrcc.illinois.edu/CLIMATE/



Data Courtesy: Midwestern Regional Climate Center,
cli-MATE Tools Environment, https://mrcc.illinois.edu/CLIMATE/

KENTUCKY TEMPERATURE/PRECIPITATION TIME-SERIES SCATTER PLOT
WINTER SEASON (DECEMBER-FEBRUARY)(1981-2020)



Data Courtesy: Midwestern Regional Climate Center,
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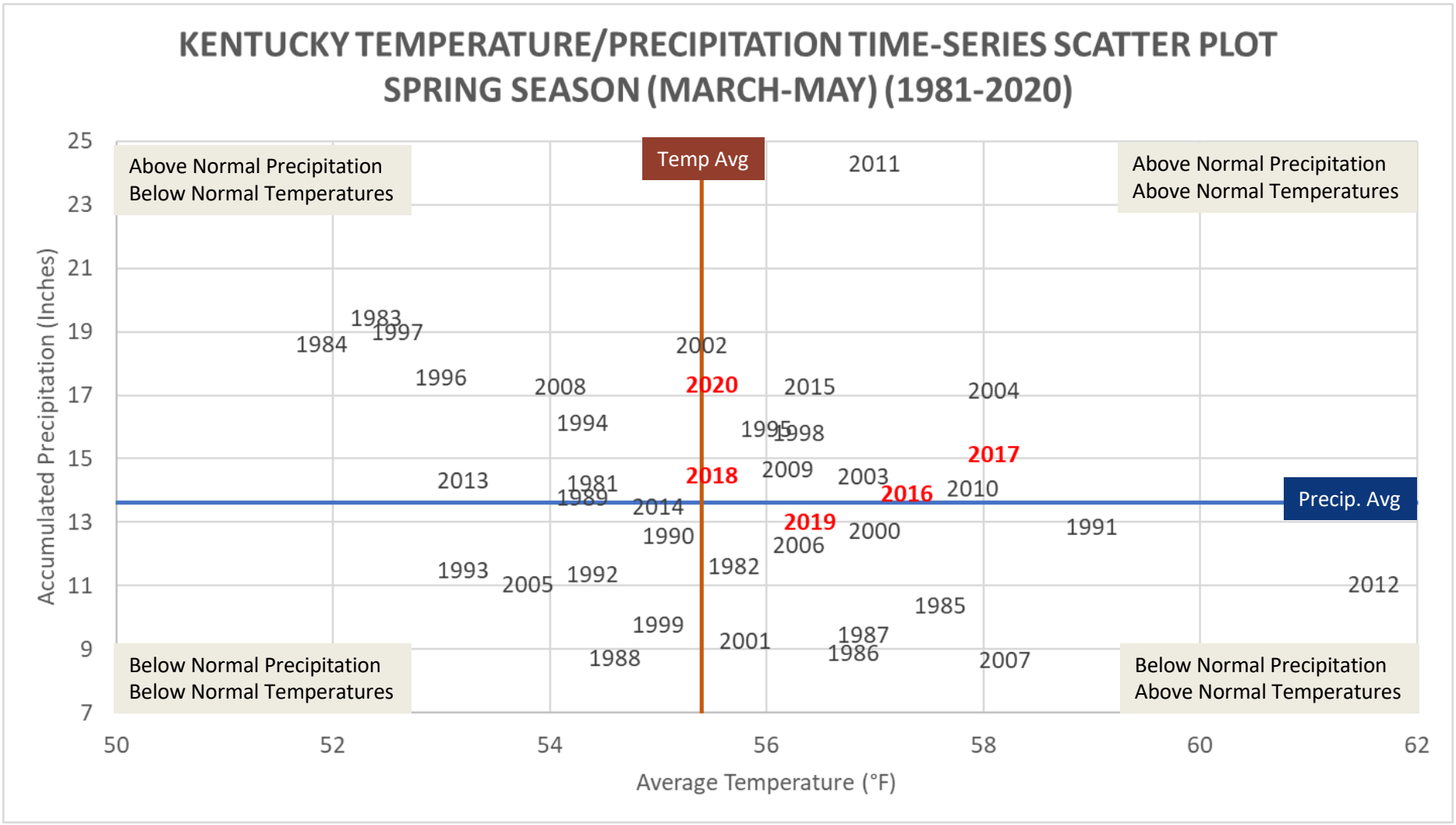
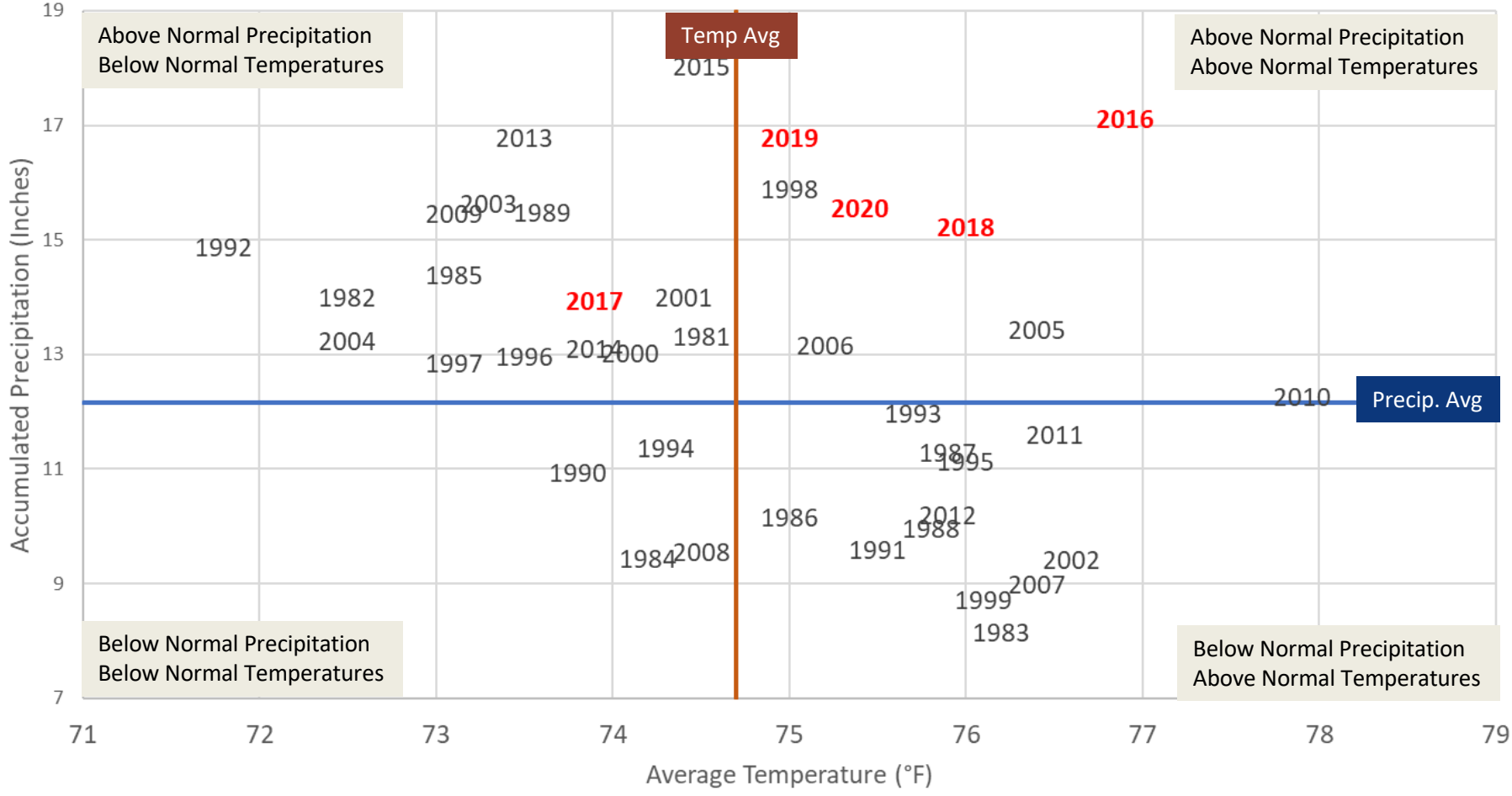


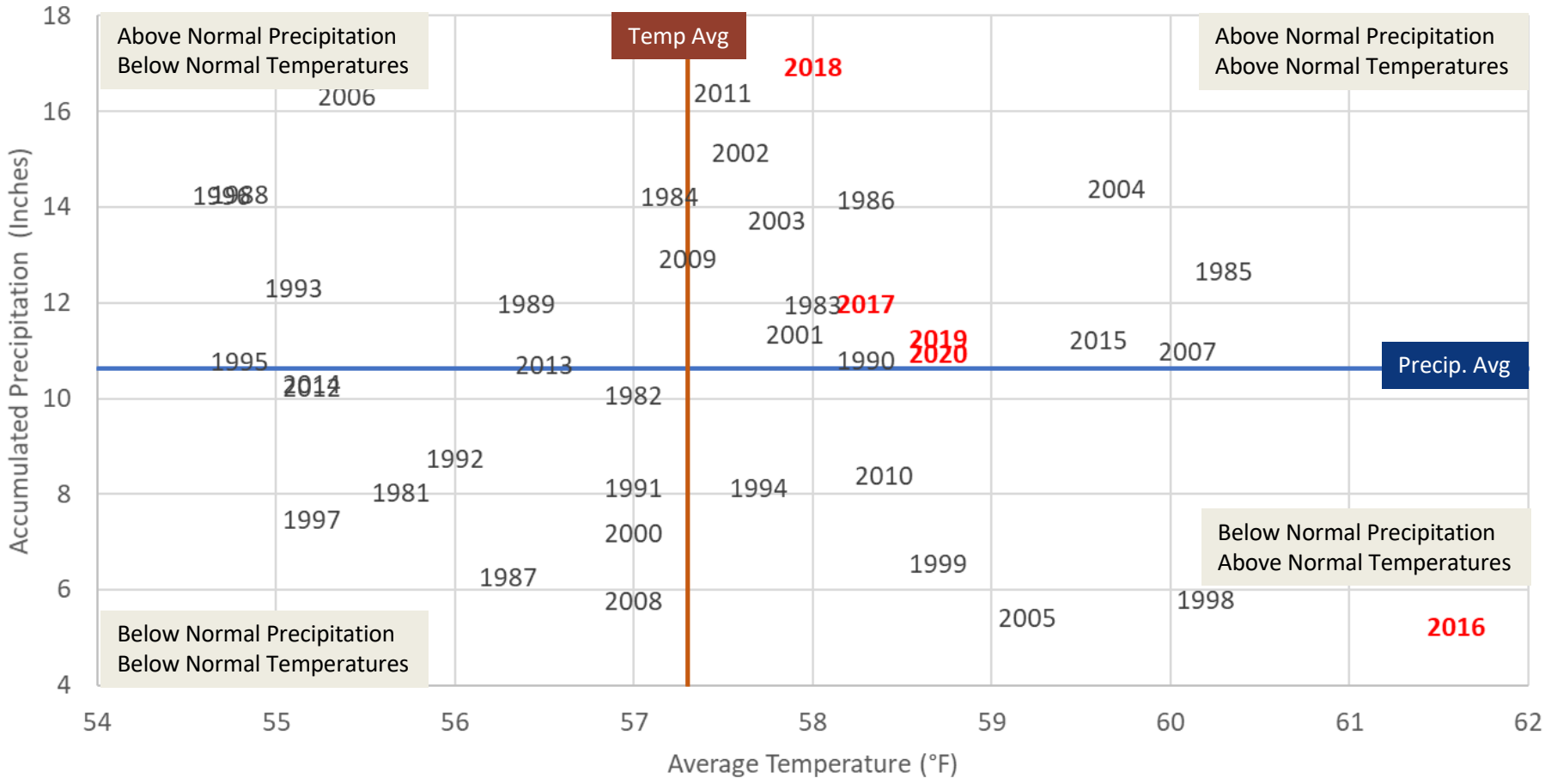
Data Courtesy: Midwestern Regional Climate Center,
cli-MATE Tools Environment, https://mrcc.illinois.edu/CLIMATE/

KENTUCKY TEMPERATURE/PRECIPITATION TIME-SERIES SCATTER PLOT
SUMMER SEASON (JUNE-AUGUST)(1981-2020)



Data Courtesy: Midwestern Regional Climate Center,
cli-MATE Tools Environment, https://mrcc.illinois.edu/CLIMATE/

KENTUCKY TEMPERATURE/PRECIPITATION TIME-SERIES SCATTER PLOT
FALL SEASON (SEPTEMBER-NOVEMBER)(1981-2020)

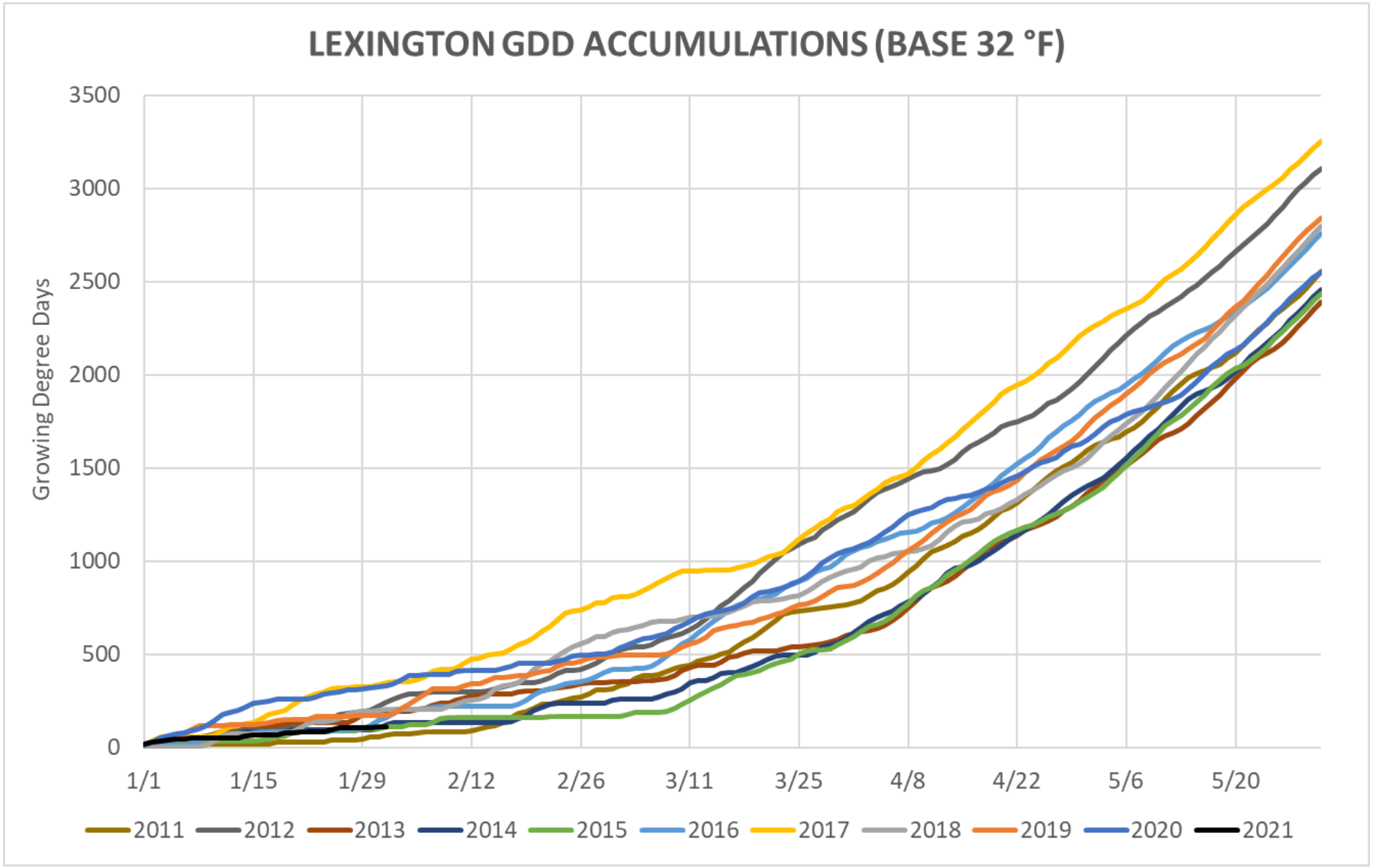


Data Courtesy: Midwestern Regional Climate Center,
cli-MATE Tools Environment, https://mrcc.illinois.edu/CLIMATE/

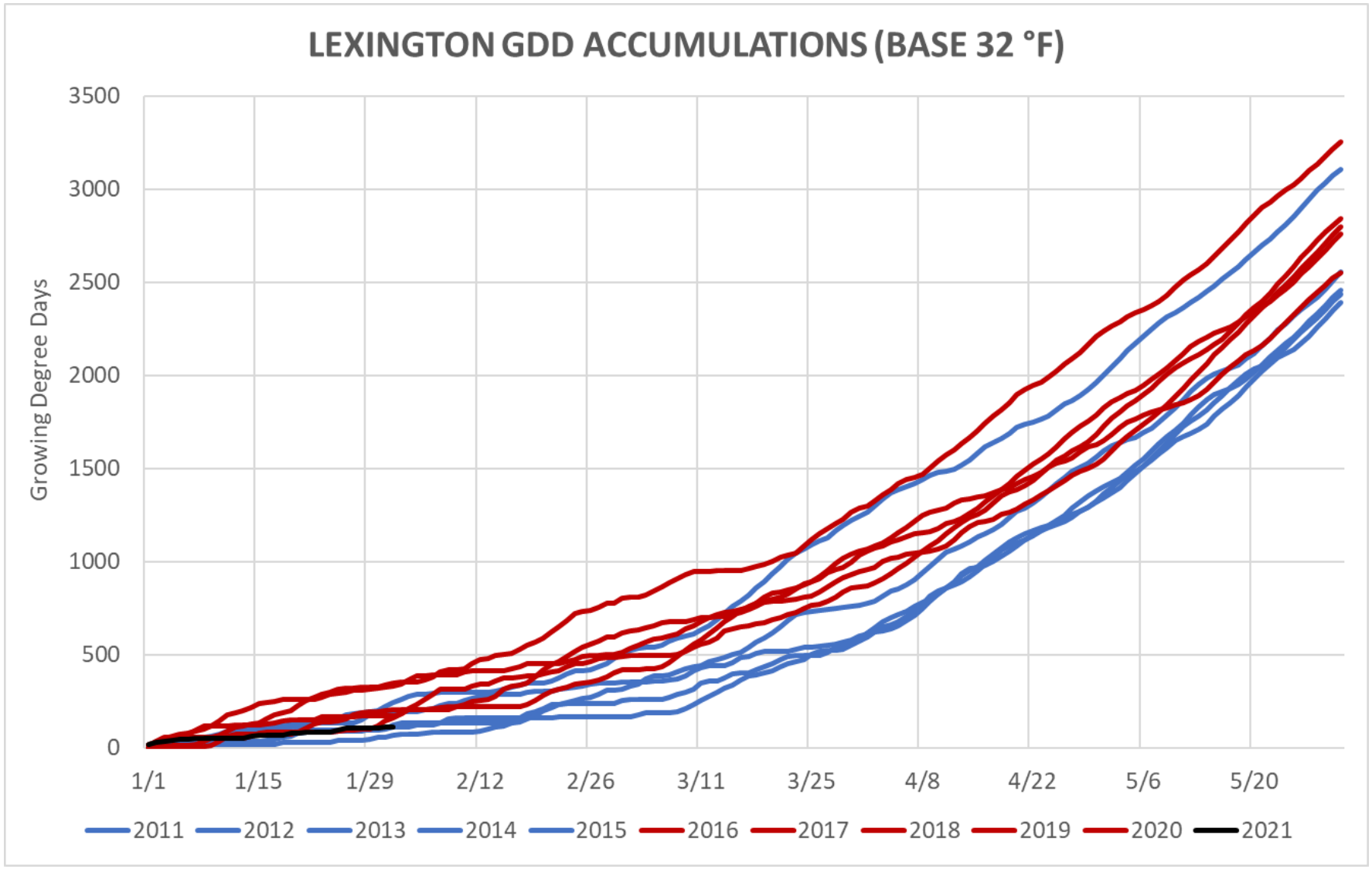
	Fall Freeze 50%		
Station	1971-2000	1981-2010	1991-2020*
LEXINGTON BLUEGRASS AP, KY	25-Oct	27-Oct	27-Oct
LOUISVILLE INTL AP, KY	30-Oct	4-Nov	2-Nov
CINCINNATI NORTHERN KENTUCKY INTL AP, KY	17-Oct	24-Oct	22-Oct
PADUCAH BARKLEY REGIONAL AP, KY	25-Oct	26-Oct	26-Oct
LONDON CORBIN AP, KY	16-Oct	22-Oct	22-Oct
BOWLING GREEN WARREN CO AP, KY	23-Oct	27-Oct	29-Oct

	Spring Freeze 50%		
Station	1971-2000	1981-2010	1991-2020*
LEXINGTON BLUEGRASS AP, KY	15-Apr	14-Apr	9-Apr
LOUISVILLE INTL AP, KY	8-Apr	3-Apr	30-Mar
CINCINNATI NORTHERN KENTUCKY INTL AP, KY	20-Apr	16-Apr	21-Apr
PADUCAH BARKLEY REGIONAL AP, KY	7-Apr	8-Apr	6-Apr
LONDON CORBIN AP, KY	19-Apr	16-Apr	12-Apr
BOWLING GREEN WARREN CO AP, KY	11-Apr	9-Apr	4-Apr

	Average Freeze-Free Period		
Station	1971-2000	1981-2010	1991-2020*
LEXINGTON BLUEGRASS AP, KY	193	196	201
LOUISVILLE INTL AP, KY	205	215	217
CINCINNATI NORTHERN KENTUCKY INTL AP, KY	180	191	184
PADUCAH BARKLEY REGIONAL AP, KY	201	201	203
LONDON CORBIN AP, KY	180	189	193
BOWLING GREEN WARREN CO AP, KY	195	201	208



Data Courtesy: Midwestern Regional Climate Center,
cli-MATE Tools Environment, https://mrcc.illinois.edu/CLIMATE/



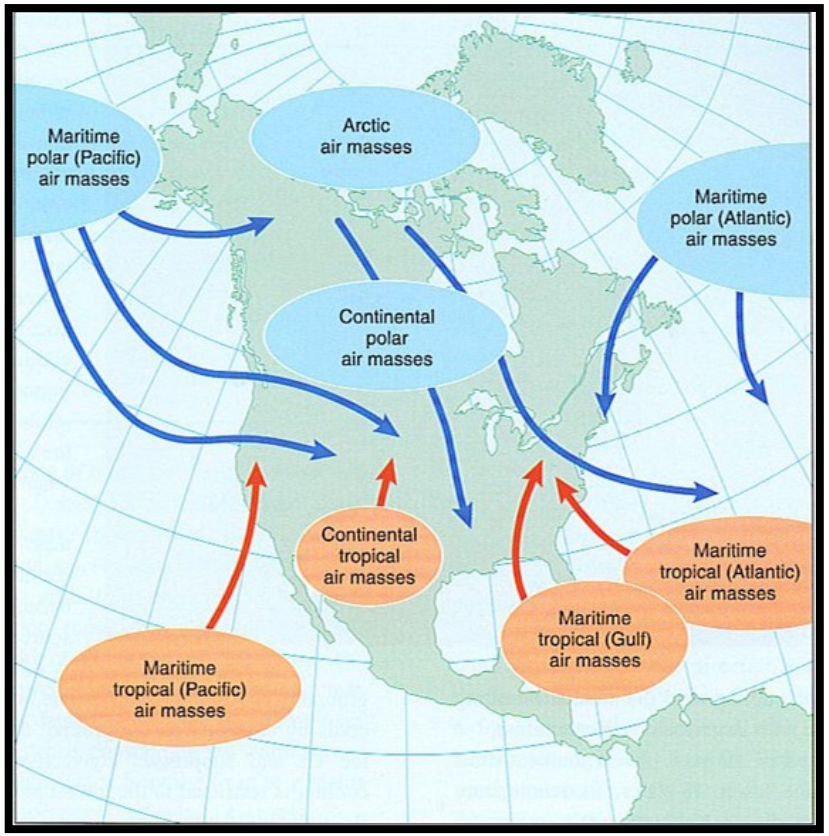
Data Courtesy: Midwestern Regional Climate Center,
cli-MATE Tools Environment, https://mrcc.illinois.edu/CLIMATE/

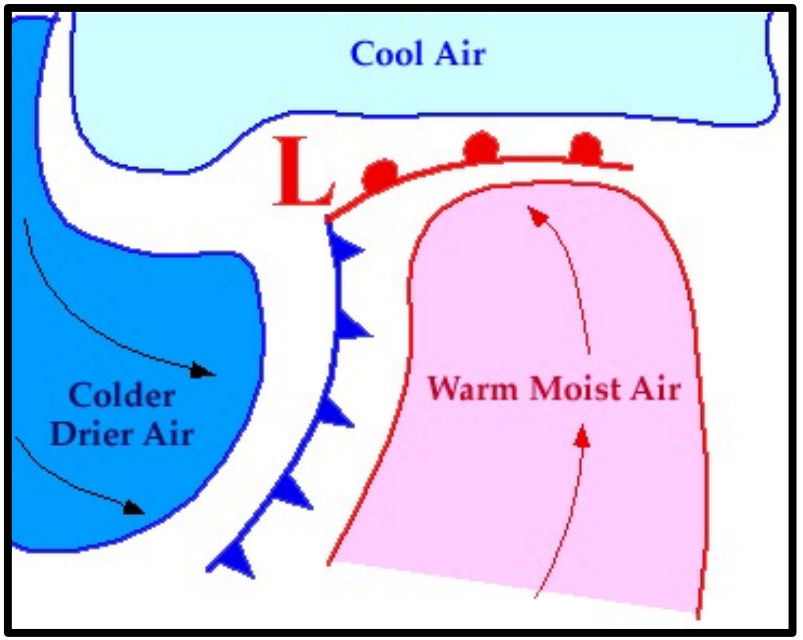
Main Processes Driving Kentucky Weather

Our weather is all determined by location!

Don't like the weather today, just wait for tomorrow!

- Latitude
- Distance to a source of moisture
- Elevation

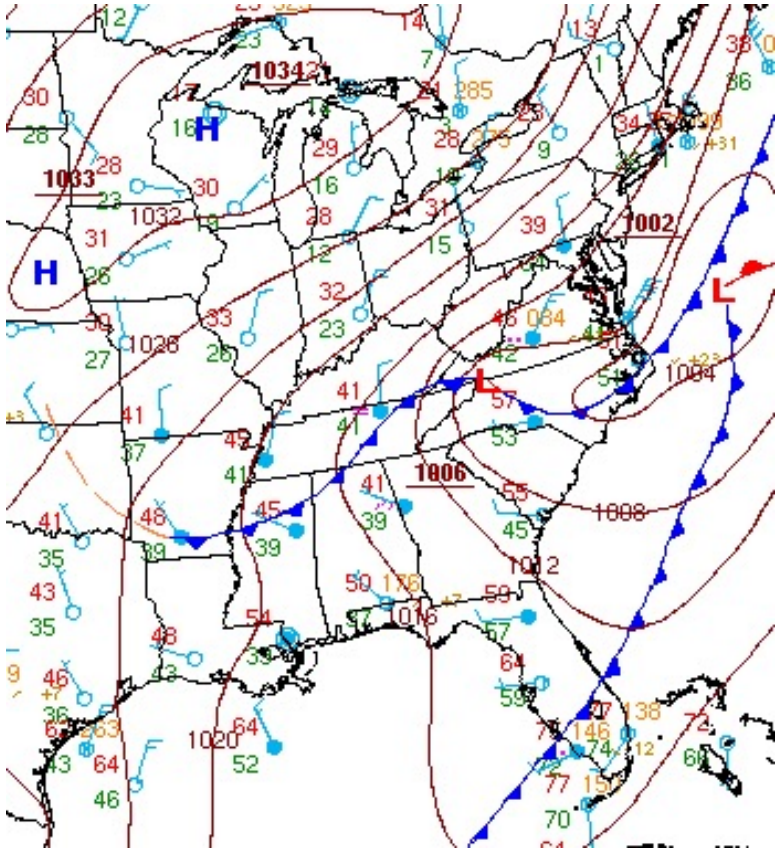




Rules of Thumb

- 1. "**L**“

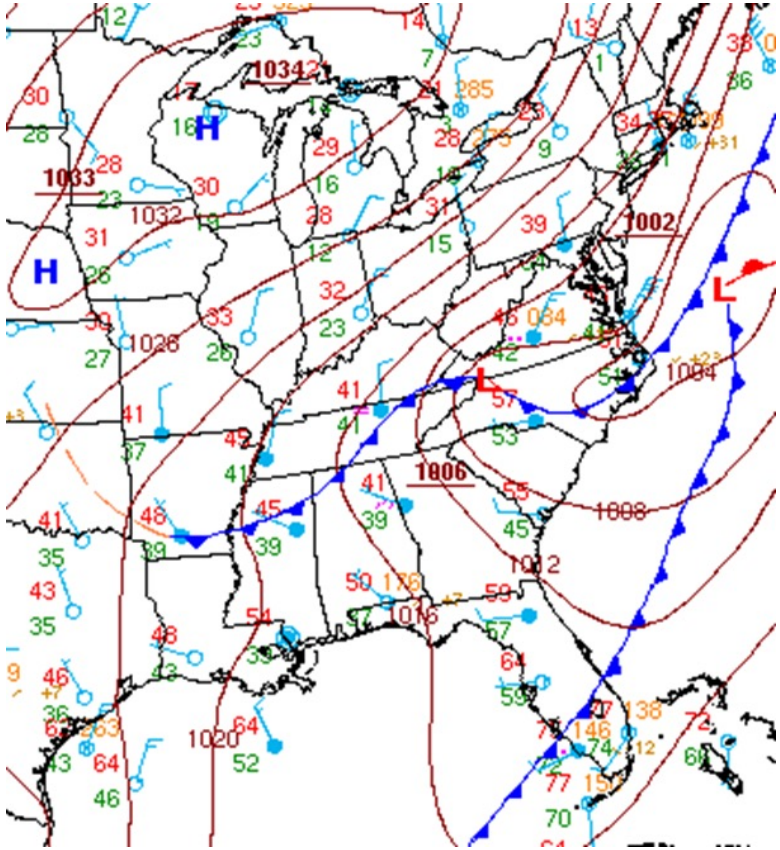
The L's on surface weather maps stand for Low air pressure. In the Northern Hemisphere, winds flow **counter-clockwise** and are **directed in and up toward the center** of all low pressure centers. This upward moving air cools to the point that condensation occurs. We see this as clouds. If the air continues to rise, then precipitation can occur. So...the weather usually associated with Low pressure is **cloudy and wet**.



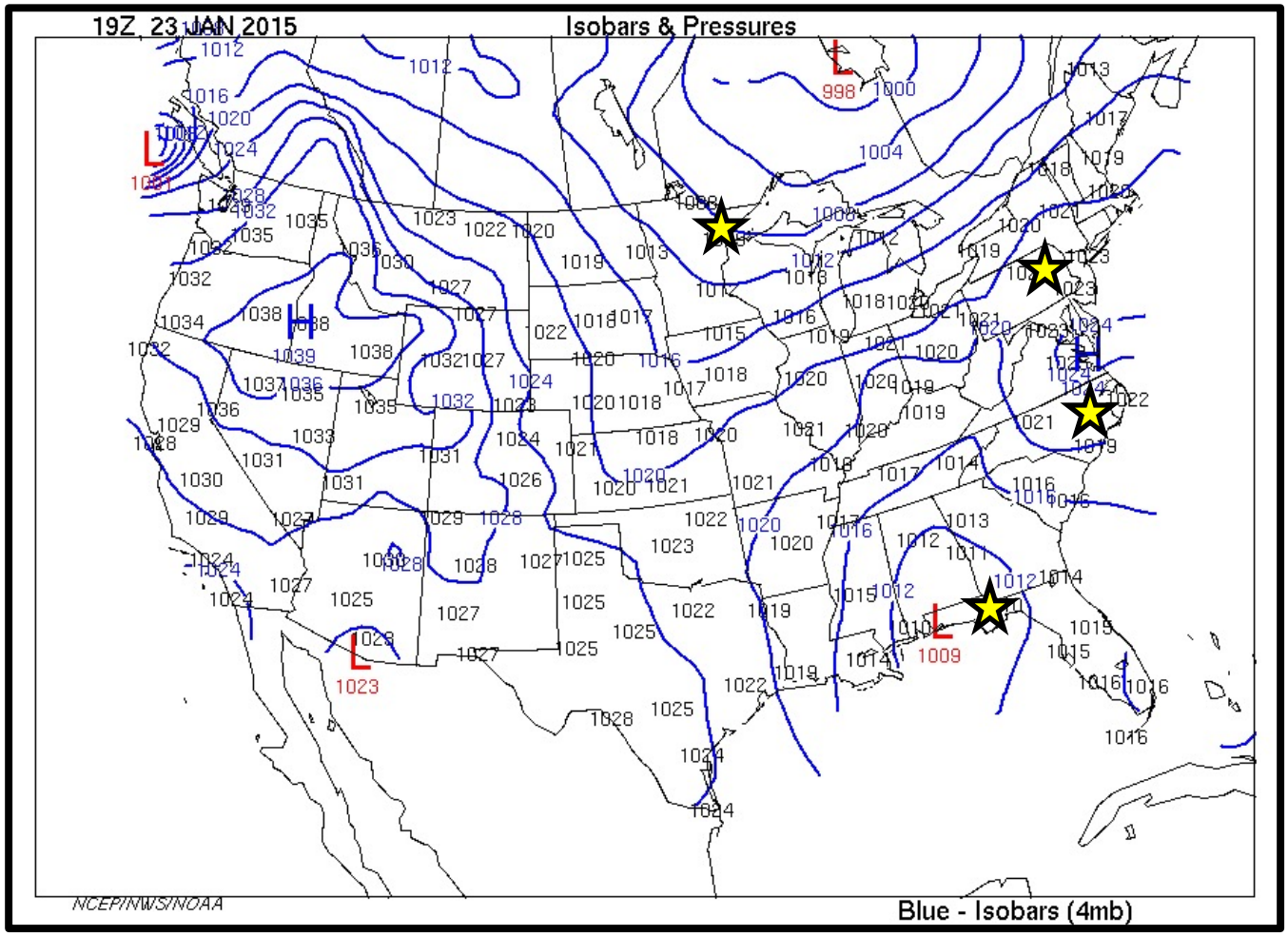
Rules of Thumb

- 2. "H“

The H's on surface weather maps stand for High air pressure. In the Northern Hemisphere, winds flow **clockwise** and are **directed out and down away from the center** of High pressure centers. This downward moving air actually warms up as it is descending, which is the opposite needed to create any clouds and precipitation. The weather usually associated with High pressure is **clear and dry**.



Pressure Systems Cont.
(What's the weather like?)



1. Tallahassee, FL
2. Greenville, NC
3. Duluth, MN
4. Scranton, PA

- Wind Direction?
- Cloudy/Wet, Clear/Dry?

Rules of Thumb

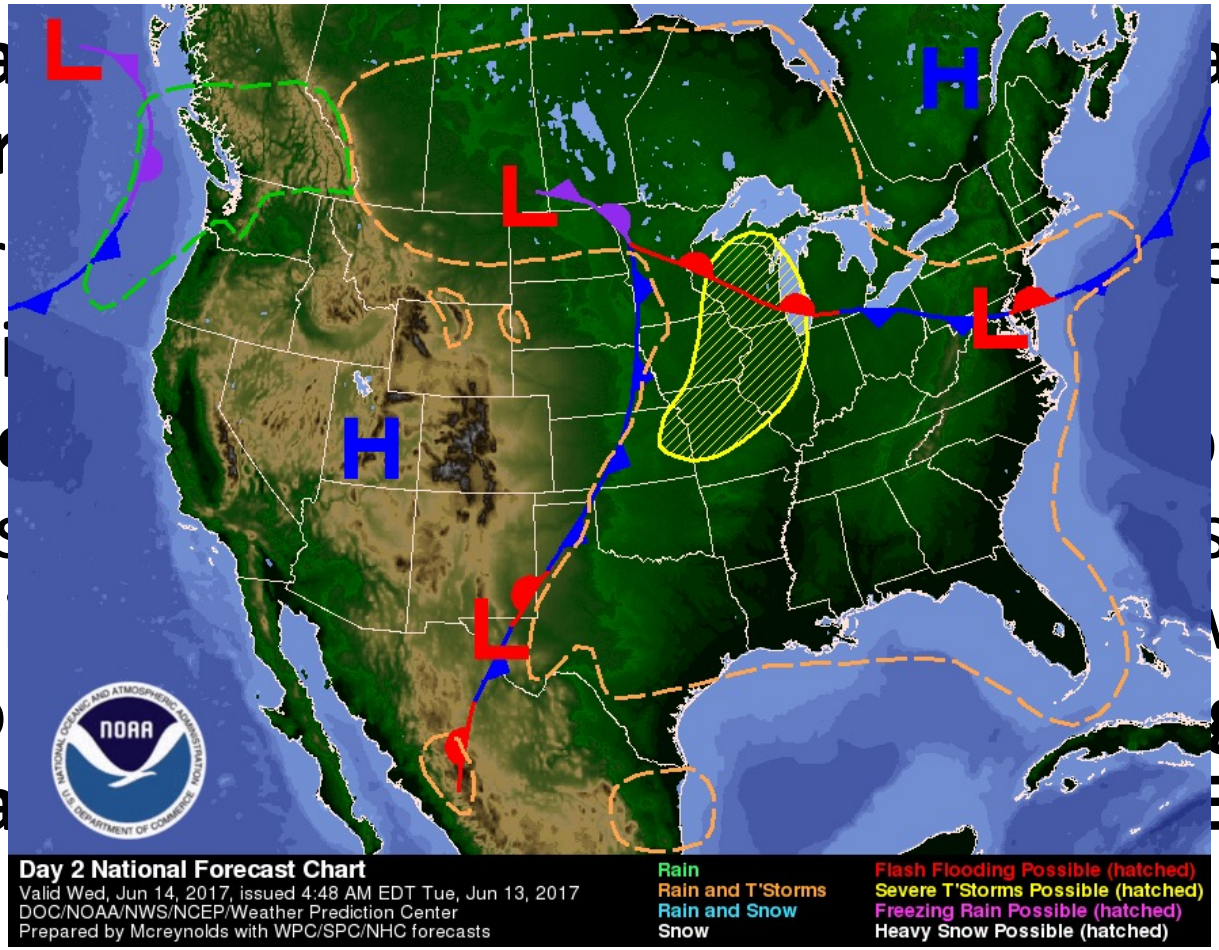
- 3. **How do weather systems move across China...Russia....USA?**

In the Northern Hemisphere....weather systems generally move from **WEST to EAST**...steered by the upper air winds (25,000 to 30,000 feet).

Rules of Thumb

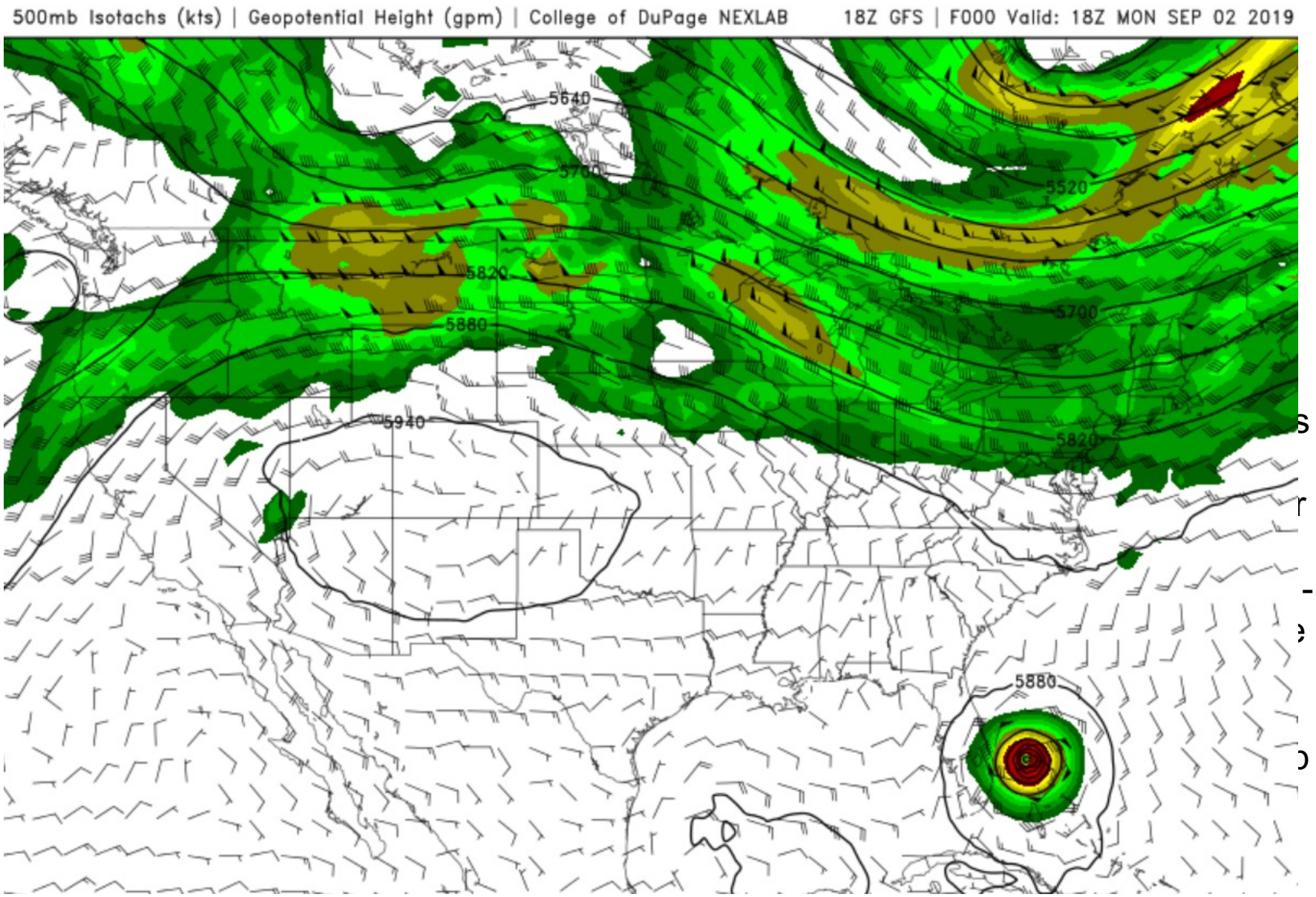
- 4. **Wha** **as of high pr**

Fronts ar eas of high ai with fronts is out fronts. As s and the locat vn on the lo **gets a new na** **E SYSTEM.**



Rules of Thumb

POPs


500mb Isotachs (kts) | Geopotential Height (gpm) | College of DuPage NEXLAB
18Z GFS | F000 Valid: 18Z MON SEP 02 2019
5640
5700
5520
5820
5880
5700
5940
5820
5880

Extreme Weather Events in Kentucky

Warmest/Coldest Temperatures

Coldest (World)(Inhabited) - **Siberian village of Oymyakon (pop. 4000): 1933 – (-90 F)**

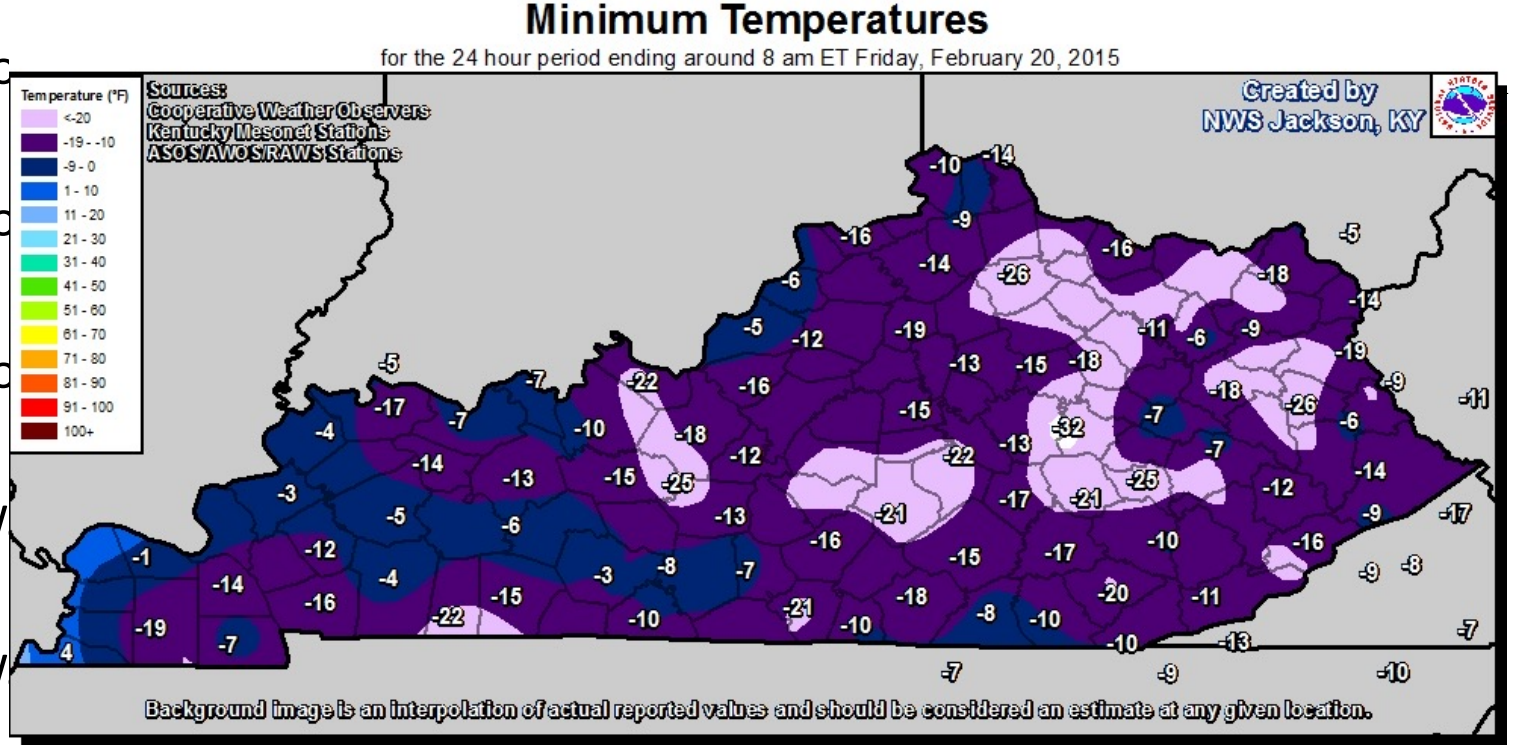
Co **27 F)**

Co

Co

W

W



Warmest (Kentucky) - **Greensburg, KY: 1930 – (114 F)**

Great Flood of 1937

Highest Annual Recorded Precipitation in

- 70% of Louisville was submerged
- 3.3 billion in damages
- Crest - 85.4 ft. (Flood Stage – 55 ft.)
- 15 inches of rain in 12 days

Highest Recorded Wind Gust in the US Non-Tornado

2008-09-14	09:56	84	51	31	41	5000	12000	10	983.70
2008-09-14	10:56	84	54	32	49	4600	m	10	982.40
2008-09-14	11:56	86	55	40	59	3800	12000	7	980.70
2008-09-14	12:56	86	44	38	75	0	m	5	983.10
2008-09-14	13:56	81	50	32	53	4800	m	10	986.10
2008-09-14	14:56	77	57	33	45	4000	m	10	988.40
2008-09-14	15:56	74	66	21	29	3400	4400	10	989.70
2008-09-14	16:56	71	75	22	34	2900	3400	5	991.10

ry

Hurricane Ike – September 14, 2008
300 K without power in Louisville
4 Fatalities

Largest Hailstone (Diameter)

Photo Courtesy: WBKO
April 16, 1998
Bowling Green
Max- Baseball size
Dealer Lots totaled
~500 Million in Damage

Monitoring the weather and climate in KY

Monitoring on the Ground

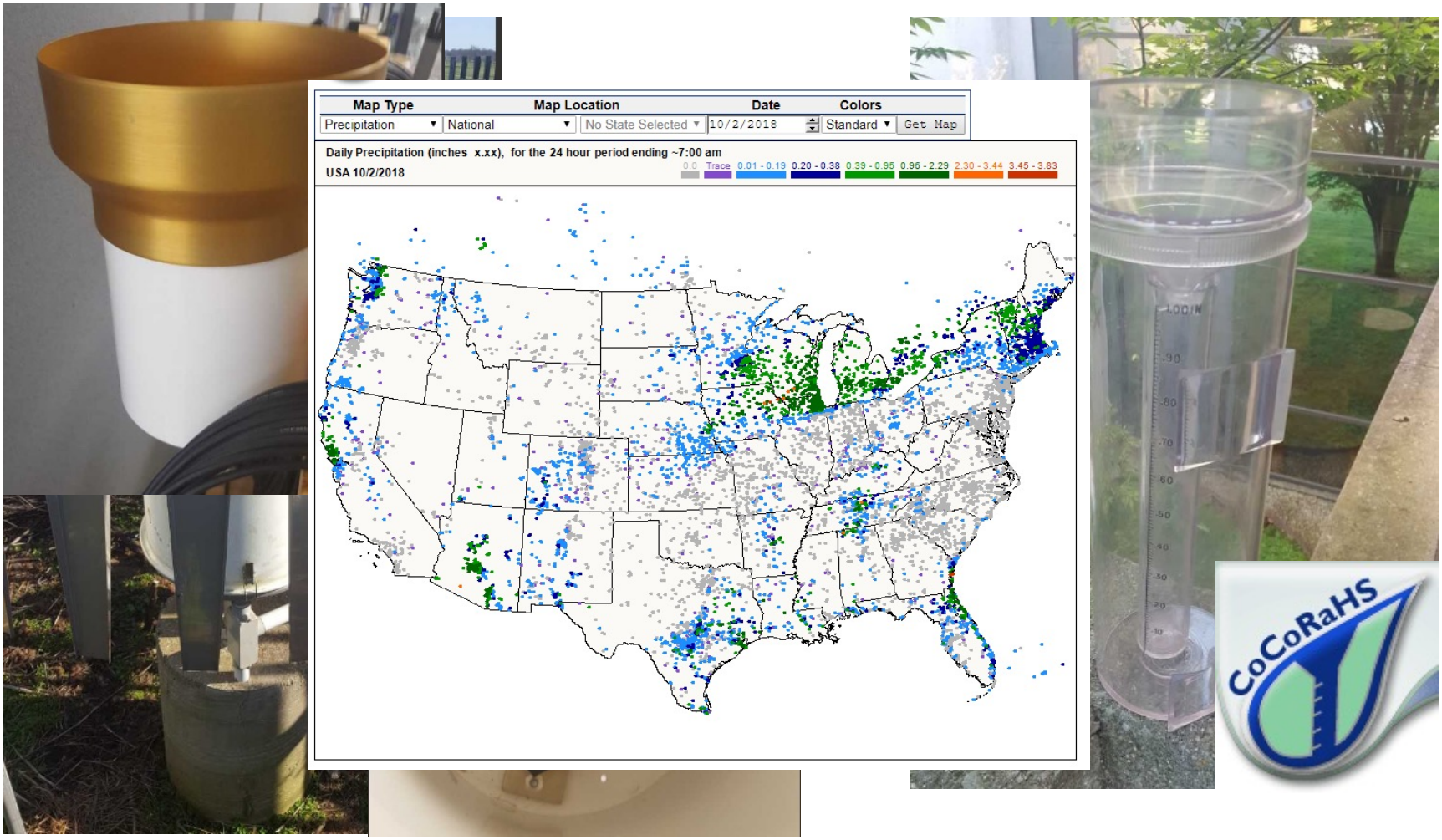
Automated Surface Observing System (ASOS)

Cooperative Observer Network

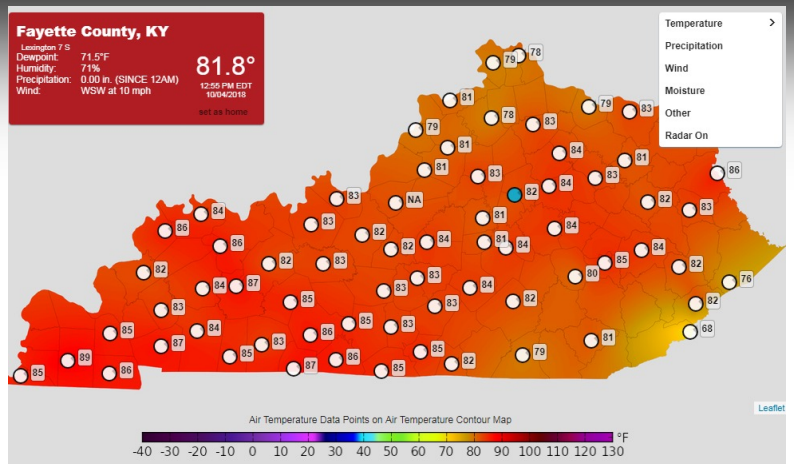
- Member stations record daily precipitation and max/min temperatures for hydrologic, agricultural, and climatic purposes

Climate Reference Network Station

Measuring Precipitation



Data provided by the Kentucky Mesonet
Western Kentucky University (kymesonet.org)



- **Consist of 70 Research Quality Weather Stations**
- **Collects Every 5 Minutes**
- **Measures Several Variables**
  - Temperature
  - Precipitation
  - Wind Speed and Direction
  - Relative Humidity
  - Dewpoint
  - Solar Radiation

Point Ag Forecast

weather.uky.edu

DAY	WEDNESDAY				THURSDAY								FRIDAY							
EST 3HR	1P	4P	7P	10P	1A	4A	7A	10A	1P	4P	7P	10P	MIDN	1A	4A	7A	10A	1P	4P	7P
MAX/MIN	--	--	26°	--	--	--	24°	--	--	--	33°	--	--	--	--	17°	--	--	--	26°
TEMP.	22°	25°	25°	25°	25°	25°	25°	28°	30°	31°	31°	28°	26°	25°	22°	17°	19°	23°	25°	22°
Sky Cover	84%	87%	90%	90%	89%	89%	90%	89%	93%	89%	87%	86%	89%	90%	88%	85%	77%	67%	56%	58%
Clouds																				
DEW PT	15°	17°	19°	20°	21°	23°	23°	26°	28°	28°	28°	25°	23°	22°	18°	14°	15°	17°	17°	16°
RH	74%	71%	77%	81%	85%	92%	92%	92%	93%	89%	88%	88%	88%	88%	84%	88%	84%	77%	71%	77%
POP 12HR	--	--	37%	--	--	--	91%	--	--	--	74%	--	--	--	--	28%	--	--	--	5%
Rain/Snow	0.00in	--	0.00in	--	0.15in	--	0.19in	--	0.08in	--	0.08in	--	0.01in	--	--	0.00in	--	0.00in	--	0.00in
Wind Speed	8	8	6	6	6	5	6	6	6	6	6	6	6	6	7	6	6	7	8	6
Wind Gust	13	14	10	10	8	8	10	9	9	8	9	8	10	12	12	10	10	13	14	10
Wind Dir.	E	E	E	NE	E	NE	NE	NE	N	N	NW	NW	NW	NW	NW	NW	NW	W	W	W
DEW	Freeze	Freeze	Freeze	Freeze	Freeze	Freeze	Freeze	Freeze	--	Frost	Frost	Freeze	Freeze	Freeze	Freeze	Freeze	Freeze	Freeze	Freeze	Freeze
Feels Like	13	16	18	18	18	19	18	22	24	25	25	22	19	18	14	9	11	15	16	15
Snow	--	--	--	Slight Chance	Definite	Definite	Definite	--	--	--	--	--	--	--	--	--	--	--	--	--
SnowShowers	--	--	--	--	--	--	--	Likely	Likely	Likely	Chance	Chance	Chance	--	--	--	--	--	--	--
RainShowers	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
FreezingRain	--	--	--	--	--	--	Slight Chance	--	--	--	--	--	--	--	--	--	--	--	--	--
Spray Cond.	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD
Dry Cond.	FAIR	FAIR	FAIR	POOR	POOR	POOR	POOR	POOR	POOR	POOR	POOR	POOR	POOR	POOR	POOR	POOR	POOR	FAIR	FAIR	FAIR
Livestock Coldstress	DANGER	DANGER	DANGER	DANGER	DANGER	DANGER	DANGER	NONE	NONE	NONE	NONE	NONE	NONE	DANGER	DANGER	EMERG	DANGER	DANGER	DANGER	DANGER

County Summaries

http://weather.uky.edu/kycounty.php

Weather Summary Table (Station: LEXINGTON 7S)

Last n Days	Temperature						Precipitation			Extreme Temp		ET	Water Balance
	Max	Dev	Min	Dev	Ave	Dev	Total	Dev	%Norm	Hi	Lo		
1	19	-27	12	-16	16	-21	0.11	-0.01	92	19	12	0.03	0.08
7	26	-19	21	-6	24	-12	1.46	0.65	180	30	12	0.15	1.31
14	32	-11	23	-3	28	-7	1.68	0.08	105	43	12	0.44	1.24
30	35	-7	26	1	30	-3	5.01	1.78	155	54	12	0.96	4.05
90	42	-2	30	3	36	1	10.10	-0.69	94	64	9	-	-
180	56	-1	42	3	49	1	22.05	2.19	111	90	9	-	-
360	64	-1	48	2	56	1	48.99	3.78	108	90	9	-	-

Degree Days Table

Growing Degree Days			Corn Growing Degree Days			Insect Degree Days			
Start Date	GDD	Dev	Start Date	Corn GDD	Dev	Insect	ADD	Insect	ADD
Count from Jan 1	0	-0	Planting Apr 1	0	0	Alfalfa Weevil	1	European Corn Borer	0
Count from Apr 1	0	0	Planting May 1	0	0	Oriental Fruit Moth	5	San Jose Scale	0

Sources of Weather Data

- Forecast Information – NWS/UK Ag WX
- Drought Information – US Drought Monitor
- Severe Weather Information – Storm Prediction Center
- Past Data – Midwestern Regional Climate Center, UK Ag WX, Kentucky Mesonet, National Centers for Environmental Information.

Midwestern Regional Climate Center

cli-MATE
MRCC APPLICATION TOOLS ENVIRONMENT

Hi Tom!
Log out

CURRENT DAILY STATION INFORMATION:
Station Name: LEXINGTON BLUEGRASS AP
County: FAYETTE
State: KY
More Info
Select Daily Station

Synchronize Stations

CURRENT HOURLY STATION INFORMATION:
Station Name: LEXINGTON BLUEGRASS AP
County: FAYETTE
State: KY
More Info
Select Hourly Station

MRC
Midwestern R
Climate C

Privacy

- Daily-Observed Data
- Hourly-Observed Data
- Climate Division Data
- State Data
- Gridded Data
- Maps of Data
- Charts and Graphs
- Help

Send Feedback

What's New on cli-MATE

13 July, 2018 - SUB-DAILY THRESHOLD TOOL: Curious about how often dew point temperatures over 75°F occur or how often the wind chill is below 0°F at your favorite station? MRCC's new Sub-Daily Threshold Tool can be used to answer these types of questions. The tool allows users to search for occurrences of up to two thresholds during a selected time period. The time period can be restricted by both time of year and time of day. Output is displayed as either a chronological list of the hours or days meeting the threshold, monthly counts by hour or day, or seeing runs of hours or days that meet the threshold. This tool can be found at Hourly-Observed Data > Sub-Daily > Threshold Search.

Threshold Search
DETROIT CITY AP
26163
Lat/Lon/Elev: 42.4092/-83.01/625
Years: 2009 to 2018
Limited to: 01/01 - 12/31 and 00:00 - 24:00
Criterion: Heat Index (F) greater than or equal to 100.0
Mode: Monthly counts of hours meeting criteria

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
2009	0	0	0	0	0	0	0	5	0	0	0	0	5
2010	0	0	0	0	0	0	0	0	0	0	0	0	0
2011	0	0	0	0	0	0	25	0	5	0	0	0	30
2012	0	0	0	0	0	5	27	0	0	0	0	0	32
2013	0	0	0	0	0	0	8	0	0	0	0	0	8
2014	0	0	0	0	0	0	0	0	2	0	0	0	2
2015	0	0	0	0	0	0	0	0	0	0	0	0	0
2016	0	0	0	0	0	0	0	4	0	0	0	0	4
2017	0	0	0	0	0	0	0	0	0	0	0	0	0
2018	0	0	0	0	0	5	5*	-	-	-	-	-	10*
Averages	0.0	0.0	0.0	0.0	0.0	1.0	6.7**	1.0**	0.8**	0.0**	0.0**	0.0**	9.0**

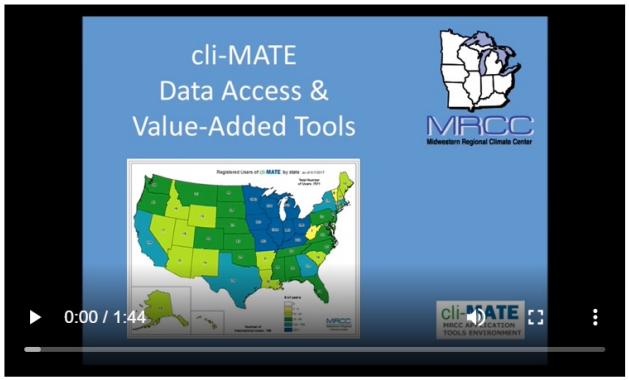
- = indicates that there is no available data
* = indicates that the data are not complete
** = indicates that the average value is being computed using only the years with complete data
Time of observation may vary by station, date, and/or variable

Midwestern Regional Climate Center
cli-MATE: MRCC Application Tools Environment
Generated at: 7/13/2018 11:48:36 AM CDT

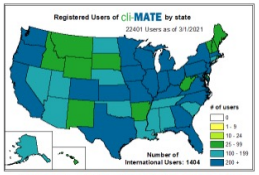
15 May, 2018 - MULTI-STATION DAILY SUMMARIES: cli-MATE's Multi-Station Daily Summaries tool helps users find information like such as the lowest temperature recorded in the state or the average wind speed over a period. The user selects a state and the summary period. The maximum and

Access data by selecting a product from the menu on the left
(First level menu items without ▸ next to them are not currently available. All third level menu items are available)

Have questions on how to use cli-MATE?
Watch the Getting Started tutorial below!
View our other tutorial videos



Check out our WxAlmanac app! Available for Apple and Android, this free mobile app has thous stations, data for temperature, rain and snowfall, a searchable station map, and includes a grap past seven days' weather.



CLICK FOR LARGER IMAGE

Emergency Preparedness

Identify disasters in your area

- ✓ Lightning
- ✓ Winter Weather
- ✓ Wildfires
- ✓ Tornadoes
- ✓ Severe weather
- ✓ Floods
- ✓ Extreme Heat/Cold
- ✓ Drought
- ✓ Landslides

Credit: NWS Paducah, 2005 Evansville Tornado

Credit: Matt Barton, UK College of Agriculture, 2015

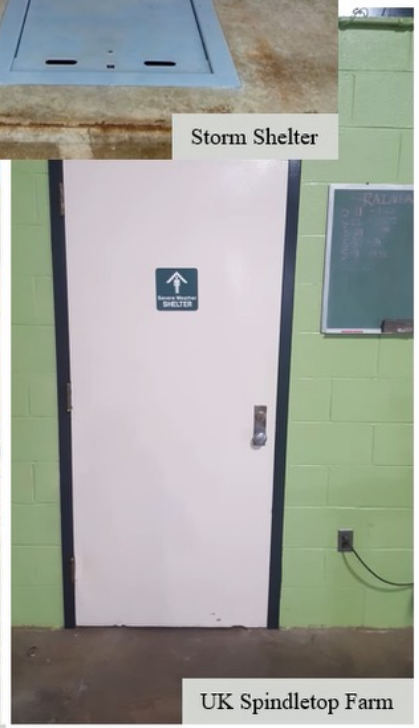
October 2014, Georgetown, KY

Make an Emergency/Evacuation Plan for BOTH family and farm

- Identify Shelter Areas
  - Lowest level possible (basement preferably)
  - Interior rooms away from windows
  - Label shelters both inside and outside (large operations)
- Take into account the possibility of evacuation
  - Ex. Identify higher locations in case of a flood
- Ask yourself the "What if's"
  - Electrical Loss
  - Limited access to clean water
  - Roads are blocked
  - Communications are down
  - Downed fence/loose animals
  - Lack of personnel
  - Plan scenarios that extend a week
- Have a plan for every type of disaster


Storm Shelter

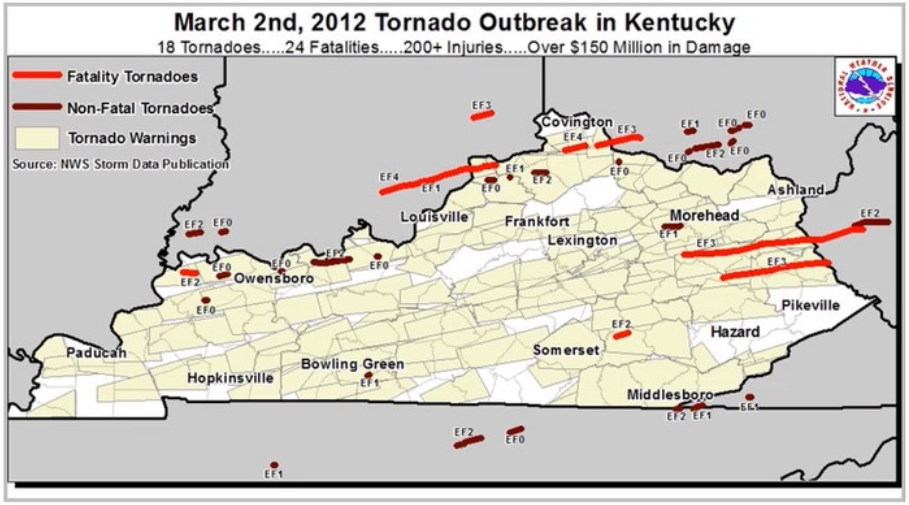

2014 Paris, KY Tornado Damage


UK Spindletop Farm

How will you receive and communicate any potential threats?

- Receiving warning
  - NOAA Weather Radio
  - Apps
  - Television/Radio
  - Identify local outdoor warning systems
    (Audible at your farm?)
- Communicating warning
  - Two-way radios

http://bereadylexington.com/noaa-weather-radio/



Develop an Emergency Contact List

- Include contact information for:
  - Local Cooperative Extension
  - Neighbors
  - Utility Companies
  - Insurance Policies
  - Veterinarians
  - Emergency Medical Contacts
- Give everyone involved a copy or central access location
  - Consider making information available on a small card to keep in wallet

Keep Up-to-date List of On-Farm Inventory

- Livestock
- Acreage
- Electrical shutoff points
- Hazardous materials
- Farm machinery

Photo Courtesy: Matt Adams, Hardin County
2012 Drought

Photo Courtesy: Douglas Wilson, McCracken County
2012 Drought

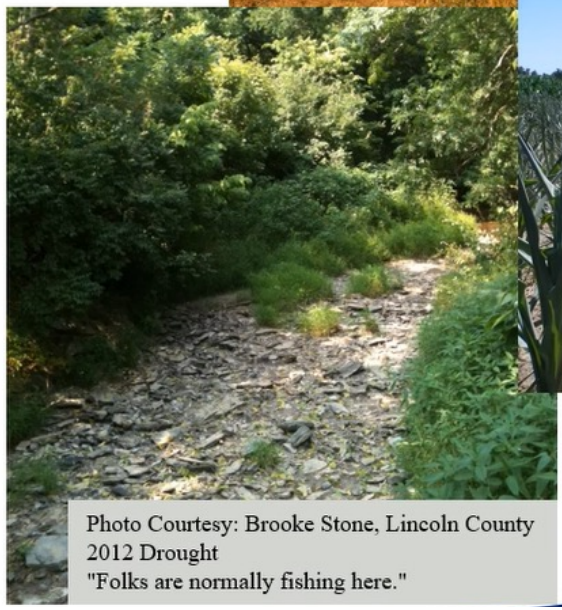


Photo Courtesy: Brooke Stone, Lincoln County
2012 Drought
"Folks are normally fishing here."

Put together a farm disaster kit/stockpile items

- Alternative power supplies (generators)
- Fence supplies
- Extra fuel
- Additional feed for livestock
- Dry bedding
- Fire extinguishers in all buildings/machinery
- Alternative sources of clean water

Credit: Matt Barton, UK College of Agriculture, 2015

Review plan regularly

- Practice and review plan annually
- Make periodic updates to staff contact information
- Replenish supplies
- Learn from the past

Credit: NWS Paducah, 2009 Ice Storm

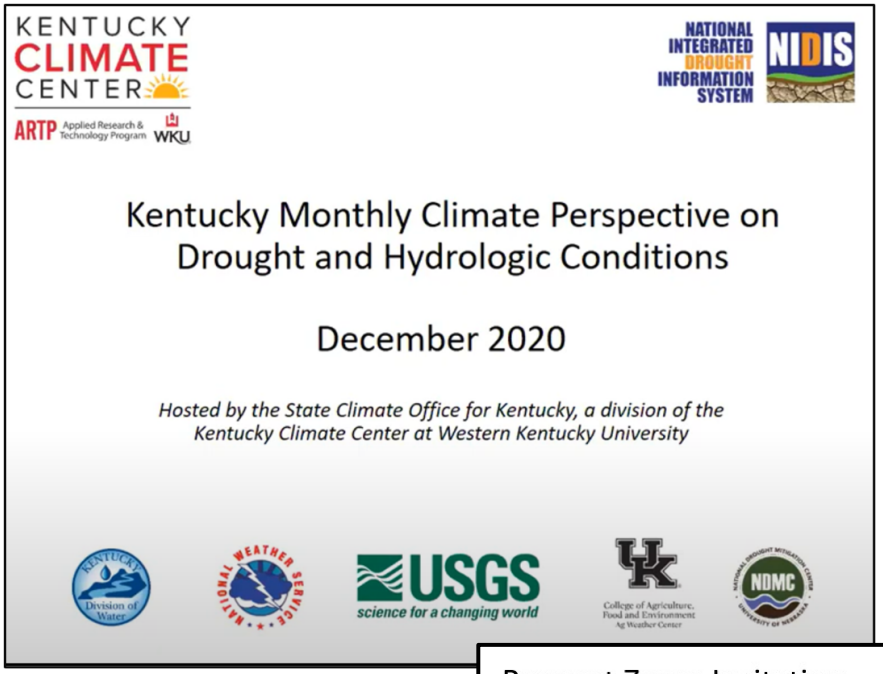
Credit: http://bereadylexington.com/remember-the-2009-ice-storm/

Matt Dixon

Meteorologist

UK Ag Weather Center

Department of Biosystems and Agricultural Engineering
UK, Lexington, Kentucky
(859) 218-4363
matt.dixon@uky.edu



Request Zoom Invitation

1. kymesonet@wku.edu
2. stuart.foster@wku.edu
3. matt.dixon@uky.edu

Next Webinar

April 1, 2021 (2PM EST /1PM CST)

Biosystems & Agricultural Engineering