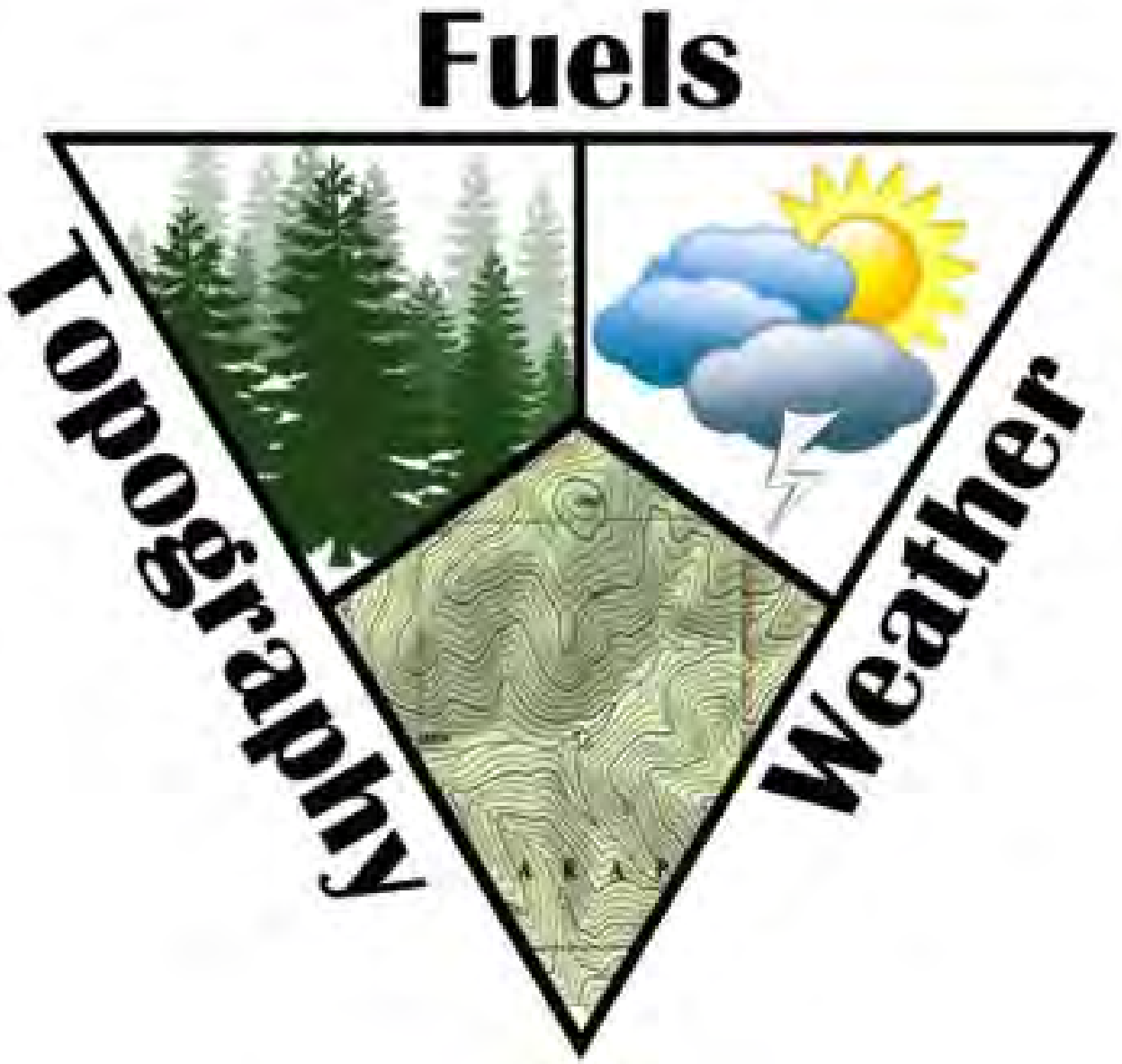
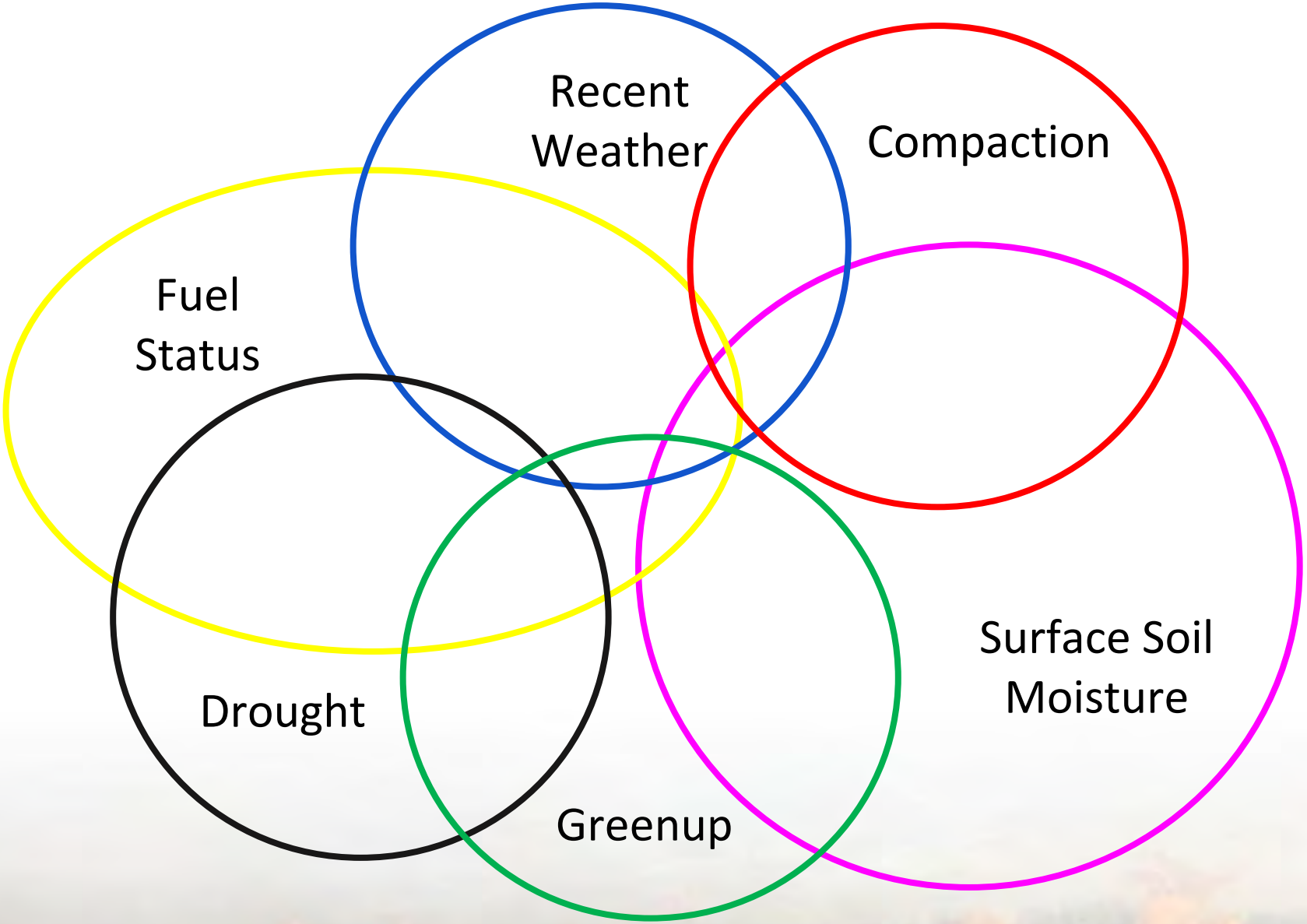
2020 Wildfire Outlook

December 14, 2019

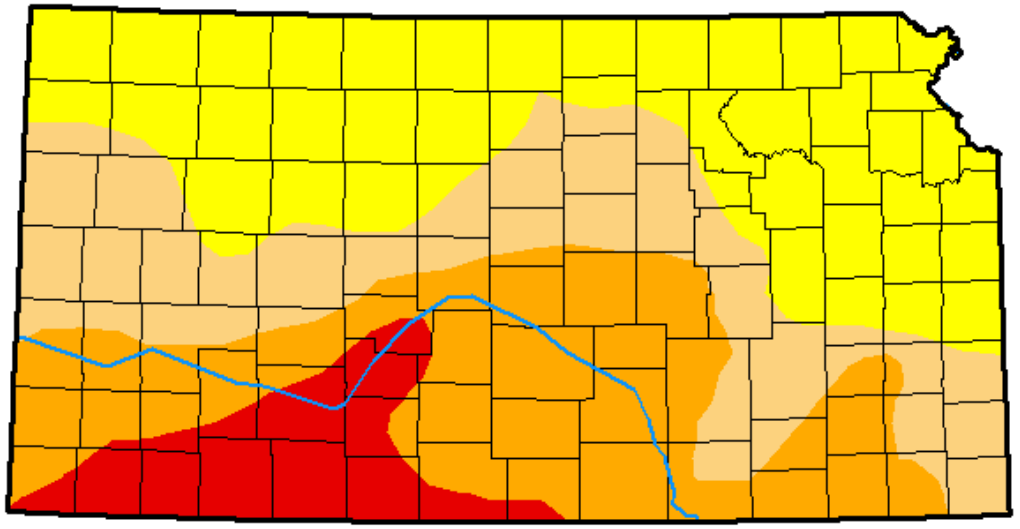
Chip Redmond – Mesonet Manager (KSU), IMET (KFS)


Fuels
Topography
Weather


Recent Weather
Compaction
Fuel Status
Drought
Greenup
Surface Soil Moisture

U.S. Drought Monitor

Kansas



February 6, 2018

(Released Thursday, Feb. 8, 2018)

Valid 7 a.m. EST

Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	0.00	100.00	62.15	36.31	9.45	0.00
Last Week *01-30-2018*	0.00	100.00	65.29	29.07	4.30	0.00
3 Months Ago *11-07-2017*	85.80	14.20	0.64	0.00	0.00	0.00
Start of Calendar Year *01-02-2018*	0.00	100.00	32.70	8.75	0.00	0.00
Start of Water Year *09-26-2017*	59.89	40.11	10.08	1.35	0.00	0.00
One Year Ago *02-07-2017*	35.09	64.91	26.02	6.68	0.00	0.00

Intensity:

- D0 Abnormally Dry
- D1 Moderate Drought
- D2 Severe Drought
- D3 Extreme Drought
- D4 Exceptional Drought

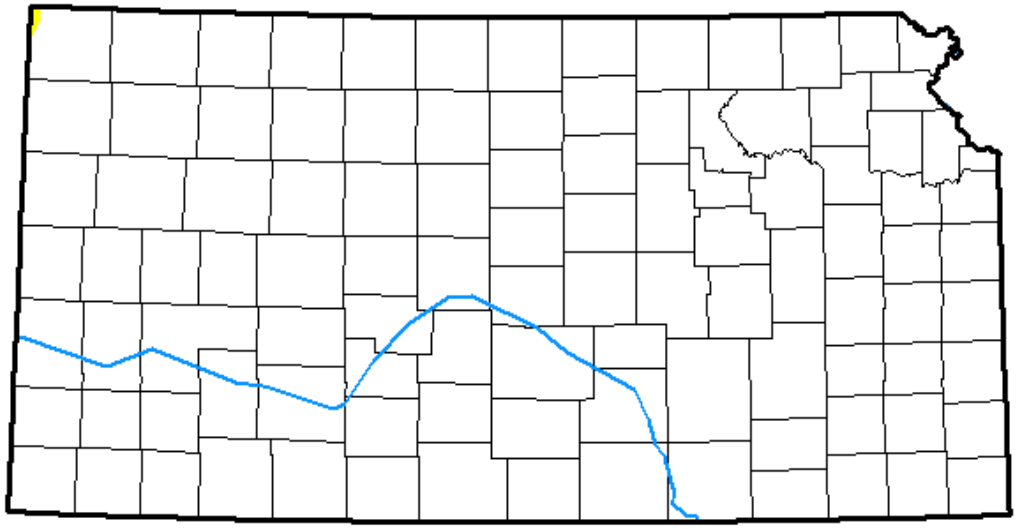
The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. See accompanying text summary for forecast statements.

Author:
Eric Luebehusen
U.S. Department of Agriculture

http://droughtmonitor.unl.edu/

U.S. Drought Monitor

Kansas



February 5, 2019

(Released Thursday, Feb. 7, 2019)

Valid 7 a.m. EST

Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	99.95	0.05	0.00	0.00	0.00	0.00
Last Week *01-29-2019*	100.00	0.00	0.00	0.00	0.00	0.00
3 Months Ago *11-06-2018*	91.64	8.36	1.00	0.00	0.00	0.00
Start of Calendar Year *01-01-2019*	100.00	0.00	0.00	0.00	0.00	0.00
Start of Water Year *09-25-2018*	78.54	21.46	14.80	9.73	5.67	0.38
One Year Ago *02-06-2018*	0.00	100.00	62.15	36.31	9.45	0.00

Intensity:

- D0 Abnormally Dry
- D1 Moderate Drought
- D2 Severe Drought
- D3 Extreme Drought
- D4 Exceptional Drought

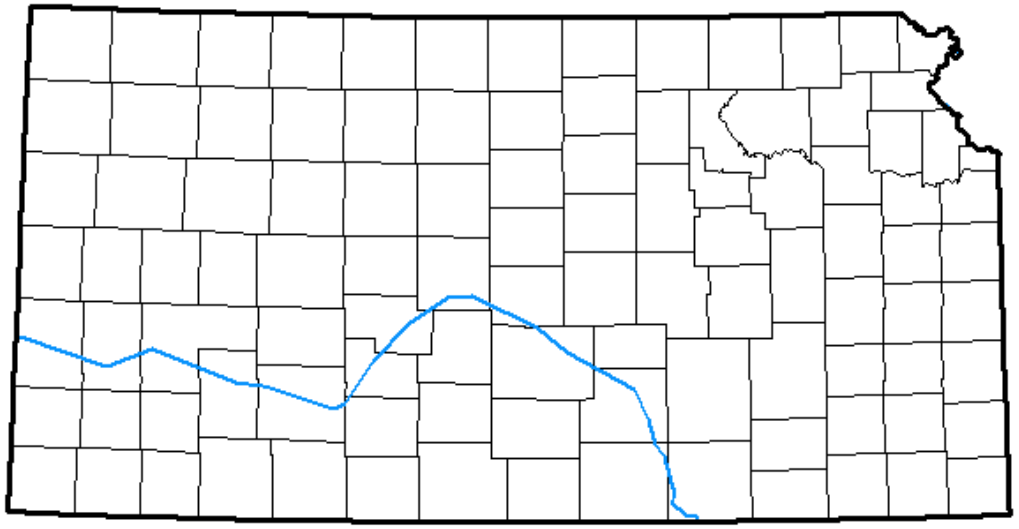
The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. See accompanying text summary for forecast statements.

Author:
Richard Tinker
CPC/NOAA/NWS/NCEP

http://droughtmonitor.unl.edu/

U.S. Drought Monitor

Kansas



May 28, 2019

(Released Thursday, May. 30, 2019)

Valid 8 a.m. EDT

Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	100.00	0.00	0.00	0.00	0.00	0.00
Last Week *05-21-2019*	99.91	0.09	0.00	0.00	0.00	0.00
3 Months Ago *02-26-2019*	100.00	0.00	0.00	0.00	0.00	0.00
Start of Calendar Year *01-01-2019*	100.00	0.00	0.00	0.00	0.00	0.00
Start of Water Year *09-25-2018*	78.54	21.46	14.80	9.73	5.67	0.38
One Year Ago *05-29-2018*	15.19	84.81	69.40	45.96	15.85	1.47

Intensity:

- D0 Abnormally Dry
- D1 Moderate Drought
- D2 Severe Drought
- D3 Extreme Drought
- D4 Exceptional Drought

The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. See accompanying text summary for forecast statements.

Author:
Richard Heim
NCEI/NOAA

http://droughtmonitor.unl.edu/

[DDC] DODGE_CITY Daily Average Wind Speed [mph]

1 Feb 2018 thru 31 May 2018

February 2018

SUN	MON	TUE	WED	THU	FRI	SAT
				1 9	2 15	3 11
4 15	5 19	6 8	7 8	8 [illegible]	9 19	10 16
11 7	12 17	13 15	14 10	15 13	16 14	17 14
18 23	19 14	20 17	21 10	22 7	23 9	24 8
25 6	26 18	27 14	28 12			

March 2018

SUN	MON	TUE	WED	THU	FRI	SAT
				1 10	2 [illegible]	3 [illegible]
4 23	5 [illegible]	6 [illegible]	7 [illegible]	8 9	9 11	10 10
11 13	12 4	13 5	14 16	15 [illegible]	16 [illegible]	17 8
18 15	19 20	20 10	21 10	22 [illegible]	23 13	24 14
25 16	26 13	27 12	28 7	29 11	30 13	31 18

April 2018

SUN	MON	TUE	WED	THU	FRI	SAT
1 12	2 18	3 23	4 [illegible]	5 [illegible]	6 21	7 9
8 [illegible]	9 7	10 12	11 [illegible]	12 [illegible]	13 20	14 29
15 15	16 [illegible]	17 [illegible]	18 22	19 [illegible]	20 16	21 10
22 10	23 5	24 14	25 12	26 9	27 7	28 [illegible]
29 24	30 27					

May 2018

SUN	MON	TUE	WED	THU	FRI	SAT
		1 21	2 8	3 11	4 8	5 9
6 8	7 14	8 10	9 7	10 17	11 12	12 12
13 10	14 10	15 8	16 6	17 17	18 17	19 14
20 12	21 12	22 15	23 15	24 14	25 9	26 14
27 18	28 22	29 13	30 6	31 5		

Generated at 10 Dec 2019 8:06 PM CST in 4.79s

IEM Autoplot App #82

[DDC] DODGE_CITY Daily High Temperature Departure

1 Feb 2018 thru 31 May 2018

February 2018

SUN	MON	TUE	WED	THU	FRI	SAT
				1 -9	2 6	3 18
4 -6	5 9	6 -23	7 -3	8 [illegible]	9 -1	10 -31
11 -5	12 -6	13 15	14 25	15 21	16 -8	17 10
18 27	19 14	20 -19	21 -23	22 -19	23 -19	24 -1
25 0	26 15	27 20	28 -5			

March 2018

SUN	MON	TUE	WED	THU	FRI	SAT
				1 2	2 [illegible]	3 [illegible]
4 25	5 [illegible]	6 [illegible]	7 [illegible]	8 12	9 18	10 14
11 -5	12 0	13 0	14 13	15 [illegible]	16 [illegible]	17 6
18 4	19 -12	20 -1	21 2	22 [illegible]	23 28	24 8
25 3	26 -10	27 -12	28 4	29 -3	30 1	31 -1

April 2018

SUN	MON	TUE	WED	THU	FRI	SAT
1 -27	2 7	3 -8	4 [illegible]	5 [illegible]	6 -15	7 -24
8 [illegible]	9 -4	10 11	11 [illegible]	12 [illegible]	13 4	14 -27
15 -9	16 [illegible]	17 [illegible]	18 -2	19 [illegible]	20 -10	21 -22
22 -6	23 1	24 -14	25 -11	26 -2	27 5	28 [illegible]
29 14	30 10					

May 2018

SUN	MON	TUE	WED	THU	FRI	SAT
		1 18	2 1	3 5	4 4	5 13
6 16	7 18	8 15	9 16	10 15	11 11	12 1
13 8	14 7	15 3	16 11	17 11	18 13	19 0
20 -6	21 4	22 12	23 12	24 12	25 13	26 18
27 15	28 15	29 3	30 7	31 9		

Generated at 10 Dec 2019 8:06 PM CST in 5.11s

IEM Autoplot App #82

[DDC] DODGE_CITY Daily Precipitation

1 Feb 2018 thru 31 May 2018

February 2018

SUN	MON	TUE	WED	THU	FRI	SAT
				1 0	2 0	3 0.04
4 T	5 0	6 0	7 0	8 [illegible]	9 T	10 T
11 0.01	12 0	13 0	14 0	15 0	16 0	17 0
18 0	19 0	20 T	21 0.01	22 T	23 0	24 0
25 0	26 0	27 0	28 0			

March 2018

SUN	MON	TUE	WED	THU	FRI	SAT
				1 0	2 [illegible]	3 [illegible]
4 0	5 [illegible]	6 [illegible]	7 [illegible]	8 0	9 0	10 0
11 0	12 0	13 0	14 0	15 [illegible]	16 [illegible]	17 0
18 0.22	19 0.40	20 T	21 0	22 [illegible]	23 0	24 0
25 T	26 0.01	27 0	28 0	29 0.01	30 0	31 0

April 2018

SUN	MON	TUE	WED	THU	FRI	SAT
1 0	2 0	3 0	4 [illegible]	5 [illegible]	6 0.05	7 0.01
8 0.02	9 0.15	10 0	11 [illegible]	12 [illegible]	13 T	14 T
15 0	16 [illegible]	17 [illegible]	18 0	19 [illegible]	20 0.36	21 0.04
22 0.01	23 0	24 0.28	25 0.06	26 0	27 0	28 [illegible]
29 0	30 0					

May 2018

SUN	MON	TUE	WED	THU	FRI	SAT
		1 T	2 0.18	3 0	4 0	5 0
6 0	7 0	8 0	9 T	10 T	11 0	12 0
13 0	14 0	15 0.16	16 0	17 T	18 0.04	19 0.65
20 0	21 0	22 0	23 T	24 T	25 T	26 0
27 T	28 0.95	29 0.32	30 T	31 T		

[DDC] DODGE_CITY Daily Average Wind Speed [mph]

1 Feb 2019 thru 31 May 2019

February 2019

SUN	MON	TUE	WED	THU	FRI	SAT
					1 8	2 14
3 13	4 13	5 9	6 13	7 15	8 14	9 25
10 13	11 11	12 11	13 13	14 15	15 12	16 9
17 12	18 10	19 9	20 7	21 17	22 11	23 17
24 9	25 18	26 11	27 16	28 5		

March 2019

SUN	MON	TUE	WED	THU	FRI	SAT
					1 11	2 13
3 17	4 8	5 8	6 18	7 10	8 12	9 20
10 7	11 10	12 18	13 26	14 29	15 10	16 9
17 8	18 11	19 12	20 11	21 6	22 13	23 17
24 11	25 5	26 15	27 18	28 18	29 16	30 18
31 4						

April 2019

SUN	MON	TUE	WED	THU	FRI	SAT
	1 10	2 13	3 14	4 7	5 17	6 15
7 13	8 7	9 14	10 18	11 24	12 6	13 10
14 10	15 10	16 13	17 16	18 16	19 10	20 16
21 15	22 15	23 10	24 5	25 15	26 16	27 18
28 16	29 19	30 11				

May 2019

SUN	MON	TUE	WED	THU	FRI	SAT
			1 11	2 11	3 5	4 10
5 13	6 13	7 13	8 11	9 13	10 3	11 5
12 10	13 10	14 5	15 10	16 18	17 20	18 12
19 10	20 17	21 14	22 6	23 14	24 7	25 11
26 15	27 14	28 12	29 11	30 8	31 7	

Generated at 10 Dec 2019 7:57 PM CST in 4.75s

IEM Autoplot App #82

[DDC] DODGE_CITY Daily High Temperature Departure

1 Feb 2019 thru 31 May 2019

February 2019

SUN	MON	TUE	WED	THU	FRI	SAT
					1 11	2 24
3 23	4 4	5 -22	6 -21	7 -31	8 -14	9 -1
10 -4	11 1	12 7	13 11	14 19	15 -22	16 -24
17 -13	18 -27	19 -24	20 -7	21 3	22 -10	23 -14
24 -15	25 0	26 -30	27 -34	28 -17		

March 2019

SUN	MON	TUE	WED	THU	FRI	SAT
					1 -6	2 -27
3 -40	4 -37	5 -28	6 -2	7 -10	8 -4	9 -2
10 -9	11 -7	12 0	13 0	14 -12	15 -6	16 5
17 3	18 3	19 0	20 4	21 5	22 4	23 3
24 1	25 0	26 6	27 16	28 7	29 -18	30 -16
31 -11						

April 2019

SUN	MON	TUE	WED	THU	FRI	SAT
	1 -3	2 -5	3 5	4 3	5 14	6 4
7 11	8 -26	9 20	10 23	11 -22	12 -10	13 -12
14 2	15 14	16 16	17 11	18 -1	19 -6	20 18
21 20	22 0	23 -9	24 4	25 3	26 6	27 0
28 -3	29 -8	30 -21				

May 2019

SUN	MON	TUE	WED	THU	FRI	SAT
			1 -16	2 -11	3 -9	4 -2
5 6	6 7	7 -12	8 -14	9 -25	10 -20	11 -10
12 -4	13 2	14 11	15 11	16 12	17 3	18 -4
19 -9	20 -24	21 -12	22 -8	23 -6	24 -2	25 1
26 -2	27 4	28 -1	29 -11	30 -2	31 0	

[DDC] DODGE_CITY Daily Precipitation

1 Feb 2019 thru 31 May 2019

February 2019

SUN	MON	TUE	WED	THU	FRI	SAT
					1 0	2 0
3 0	4 0	5 T	6 T	7 0.01	8 0	9 0
10 0	11 T	12 0	13 0	14 0	15 0.02	16 0.04
17 0	18 0.03	19 0.01	20 0.01	21 0	22 0	23 0.63
24 T	25 T	26 T	27 T	28 0		

March 2019

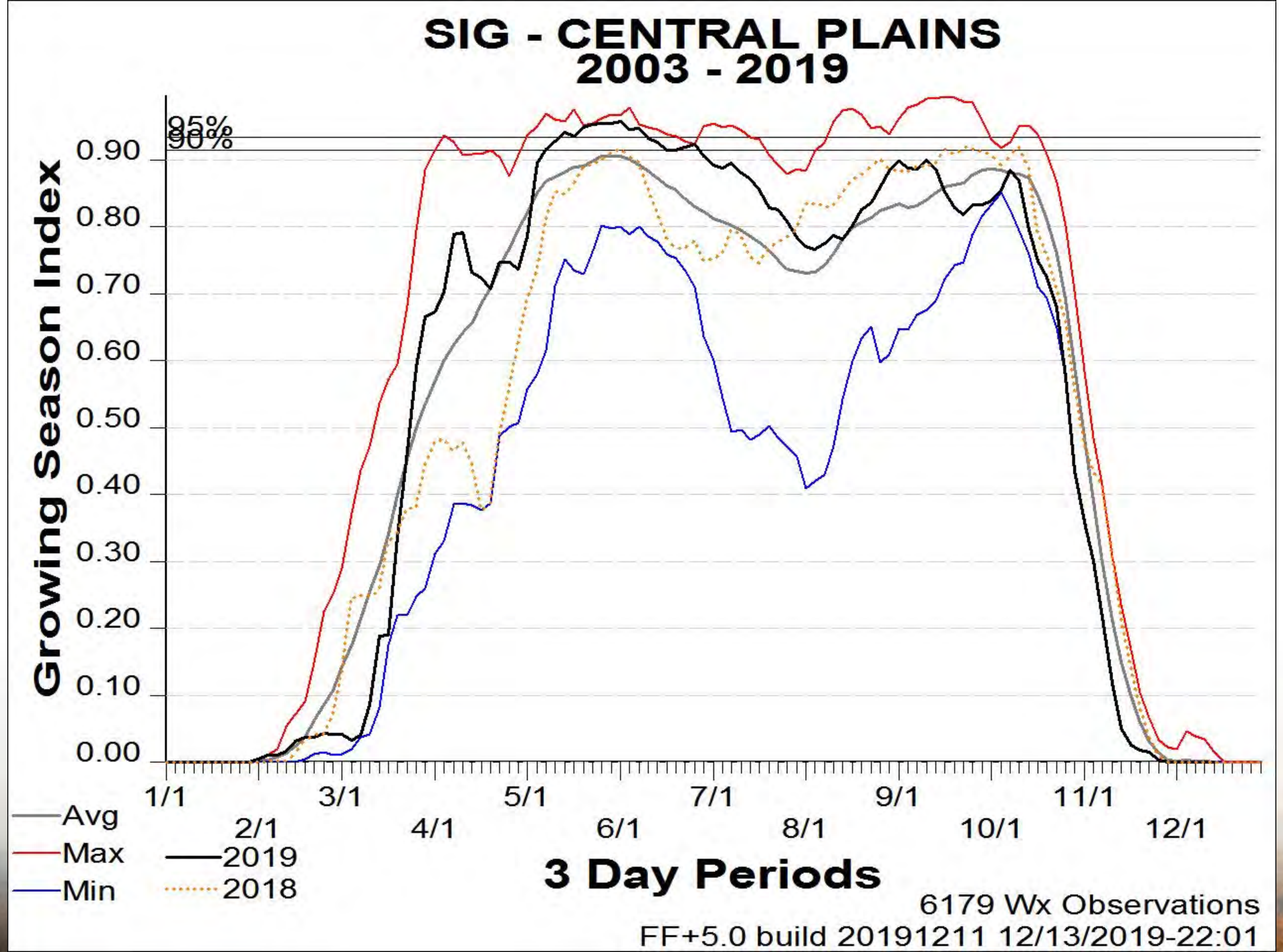
SUN	MON	TUE	WED	THU	FRI	SAT
					1 0	2 0.05
3 0.10	4 T	5 0	6 0	7 0	8 0	9 T
10 0	11 0	12 0.14	13 0.46	14 T	15 0	16 0
17 0	18 0	19 T	20 0	21 0	22 0.40	23 0
24 0	25 0	26 0	27 0	28 0	29 0.04	30 0.01
31 0						

April 2019

SUN	MON	TUE	WED	THU	FRI	SAT
	1 0	2 0	3 0	4 0	5 0	6 0.01
7 0	8 0	9 0	10 0	11 T	12 0	13 0
14 0	15 0	16 0	17 0	18 T	19 0	20 0
21 0	22 0	23 T	24 0	25 0	26 T	27 0
28 0	29 0	30 0.43				

May 2019

SUN	MON	TUE	WED	THU	FRI	SAT
			1 0.16	2 0.01	3 0.03	4 0
5 0.68	6 0.80	7 1.40	8 0.54	9 0.07	10 0	11 0.02
12 T	13 0	14 0	15 0	16 0	17 0.09	18 0.05
19 0.02	20 1.76	21 0.54	22 0	23 1.10	24 T	25 0.24
26 0.91	27 0	28 0	29 0	30 0	31 0	


SIG - CENTRAL PLAINS
2003 - 2019
Growing Season Index
0.90
0.80
0.70
0.60
0.50
0.40
0.30
0.20
0.10
0.00
95%
90%
1/1
2/1
3/1
4/1
5/1
6/1
7/1
8/1
9/1
10/1
11/1
12/1
3 Day Periods
Avg
Max
Min
2019
2018
6179 Wx Observations
FF+5.0 build 20191211 12/13/2019-22:01

[EMP] EMPORIA Daily Average Wind Speed [mph]

1 Feb 2018 thru 31 May 2018

February 2018

SUN	MON	TUE	WEED	THU	FRI	SAT
				1 10	2 9	3 15
4 13	5 10	6 10	7 5	8 [illegible]	9 13	10 14
11 7	12 9	13 10	14 13	15 15	16 10	17 11
18 20	19 14	20 13	21 12	22 6	23 6	24 8
25 6	26 10	27 17	28 9			

March 2018

SUN	MON	TUE	WED	THU	FRI	SAT
				1 11	2 [illegible]	3 [illegible]
4 18	5 [illegible]	6 [illegible]	7 [illegible]	8 6	9 7	10 5
11 15	12 8	13 7	14 11	15 [illegible]	16 [illegible]	17 11
18 9	19 16	20 11	21 5	22 [illegible]	23 13	24 14
25 13	26 11	27 10	28 3	29 8	30 7	31 15

April 2018

SUN	MON	TUE	WED	THU	FRI	SAT
1 12	2 8	3 16	4 [illegible]	5 [illegible]	6 18	7 8
8 [illegible]	9 9	10 10	11 [illegible]	12 [illegible]	13 24	14 19
15 20	16 [illegible]	17 [illegible]	18 19	19 [illegible]	20 11	21 8
22 8	23 6	24 7	25 9	26 5	27 9	28 [illegible]
29 14	30 21					

May 2018

SUN	MON	TUE	WED	THU	FRI	SAT
		1 21	2 21	3	4 8	5 7
6 7	7 6	8 14	9 7	10 11	11 17	12 15
13 14	14 10	15 5	16 3	17 4	18 7	19 8
20 5	21 4	22 7	23 7	24 9	25 7	26 7
27 6	28 6	29 7	30 5	31 5		

Generated at 10 Dec 2019 8:30 PM CST in 6.39s

IEM Autoplot App #82

[EMP] EMPORIA Daily Average Wind Speed [mph]

1 Feb 2019 thru 31 May 2019

February 2019

SUN	MON	TUE	WED	THU	FRI	SAT
					1 5	2 13
3 19	4 14	5 9	6 10	7 16	8 5	9 11
10 9	11 9	12 11	13 12	14 13	15 13	16 8
17 12	18 8	19 12	20 9	21 8	22 8	23 12
24 12	25 11	26 8	27 13	28 6		

March 2019

SUN	MON	TUE	WED	THU	FRI	SAT
					1 3	2 13
3 15	4 9	5 9	6 9	7 10	8 8	9 18
10 7	11 6	12 14	13 23	14 21	15 12	16 7
17 4	18 6	19 11	20 10	21 6	22 3	23 13
24 11	25 8	26 5	27 18	28 10	29 11	30 15
31 5						

April 2019

SUN	MON	TUE	WED	THU	FRI	SAT
	1 11	2 [illegible]	3 12	4 6	5 9	6 10
7 8	8 [illegible]	9 9	10 21	11 18	12 11	13 12
14 9	15 15	16 19	17 12	18 13	19 [illegible]	20 10
21 22	22 11	23 5	24 3	25 10	26 8	27 17
28 [illegible]	29 9	30 9				

May 2019

SUN	MON	TUE	WED	THU	FRI	SAT
			1 6	2 10	3 5	4 3
5 11	6 8	7 9	8 11	9 11	10 4	11 4
12 7	13 5	14 8	15 8	16 17	17 18	18 11
19 10	20 14	21 15	22 8	23 9	24 13	25
26	27	28	29 7	30 8	31 3	

Generated at 10 Dec 2019 8:31 PM CST in 4.82s

IEM Autoplot App #82

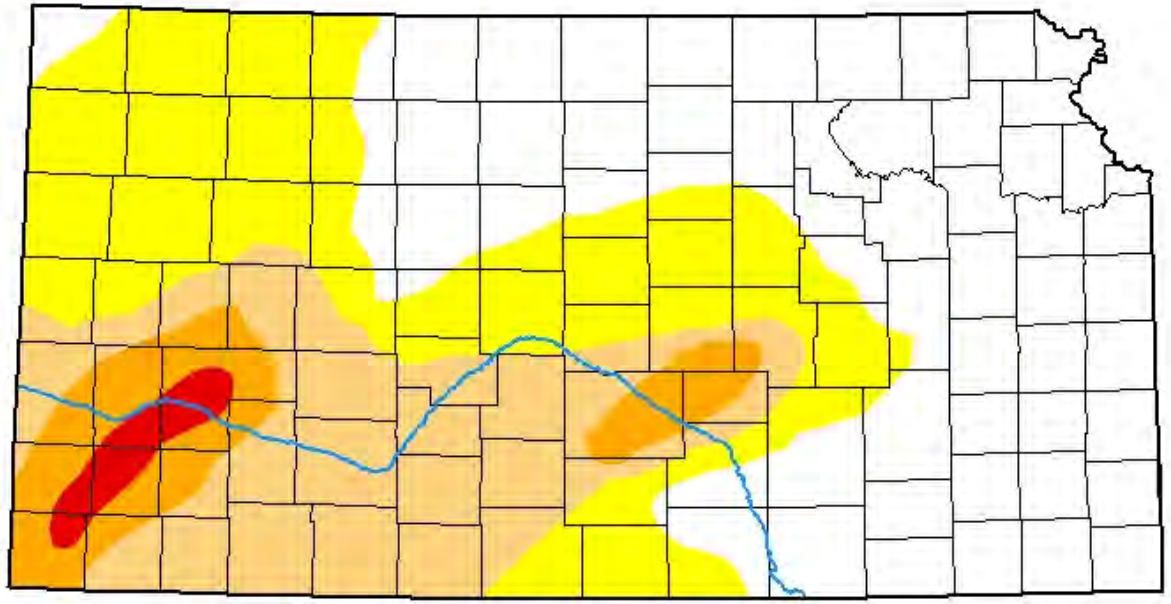
U.S. Drought Monitor

Kansas

December 10, 2019

(Released Thursday, Dec. 12, 2019)

Valid 7 a.m. EST



Intensity:

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

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

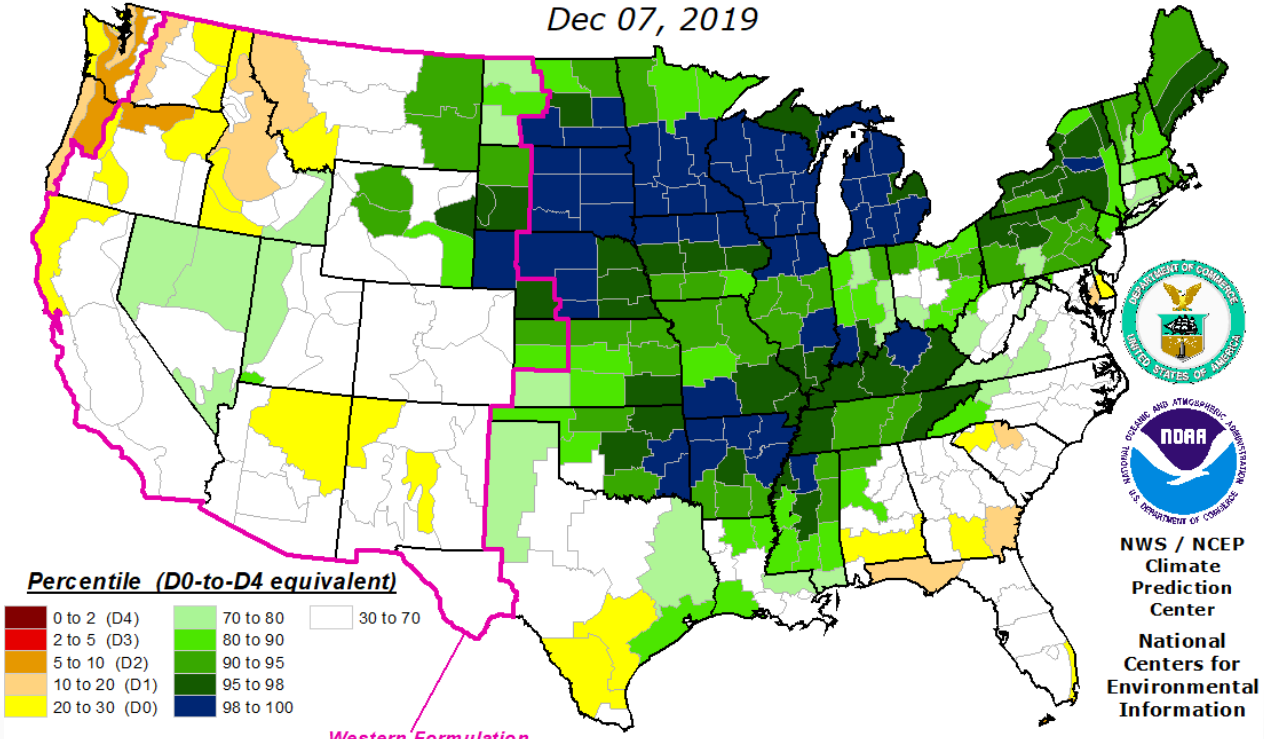
Author:

Deborah Bathke
National Drought Mitigation Center

droughtmonitor.unl.edu

Objective Long-Term Drought Indicator Blend Percentiles

Dec 07, 2019



Percentile (D0-to-D4 equivalent)

- 0 to 2 (D4)
- 2 to 5 (D3)
- 5 to 10 (D2)
- 10 to 20 (D1)
- 20 to 30 (D0)
- 30 to 70
- 70 to 80
- 80 to 90
- 90 to 95
- 95 to 98
- 98 to 100

NWS / NCEP Climate Prediction Center

National Centers for Environmental Information

Inputs (as percentiles):

25% Palmer Hydrologic Index
20% 24-Month Precipitation
20% 12-Month Precipitation
15% 6-Month Precipitation
10% 60-Month Precipitation
10% CPC Soil Moisture Model

Western Formulation Inputs (as percentiles):

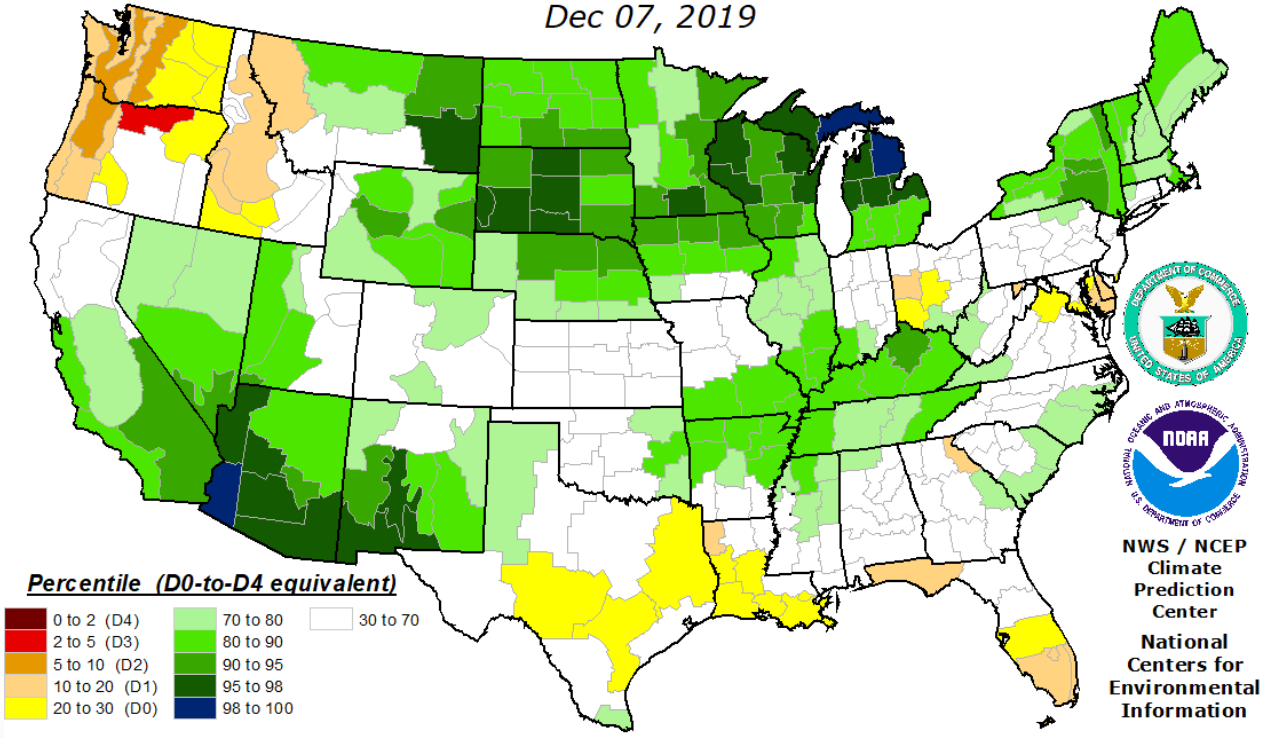
30% Palmer Hydrologic Index
30% 60-Month Average Z-Index
10% 60-Month Precipitation
10% 24-Month Precipitation
10% 12-Month Precipitation
10% CPC Soil Moisture Model

This map approximates impacts responding to precipitation over the course of several months to a few years, such as reservoir content, groundwater, and lake levels. HOWEVER, THE RELATIONSHIP BETWEEN INDICATORS AND WATER SUPPLIES CAN VARY MARKEDLY WITH LOCATION, SEASON, SOURCE, AND MANAGEMENT PRACTICE. Do not interpret this map too literally.

This map is based on preliminary climate division data. Local conditions and/or final data may differ. See the detailed product suite description for more details.

Objective Short-Term Drought Indicator Blend Percentiles

Dec 07, 2019



Percentile (D0-to-D4 equivalent)

- 0 to 2 (D4)
- 2 to 5 (D3)
- 5 to 10 (D2)
- 10 to 20 (D1)
- 20 to 30 (D0)
- 30 to 70
- 70 to 80
- 80 to 90
- 90 to 95
- 95 to 98
- 98 to 100

NWS / NCEP Climate Prediction Center

National Centers for Environmental Information

Inputs (as percentiles):

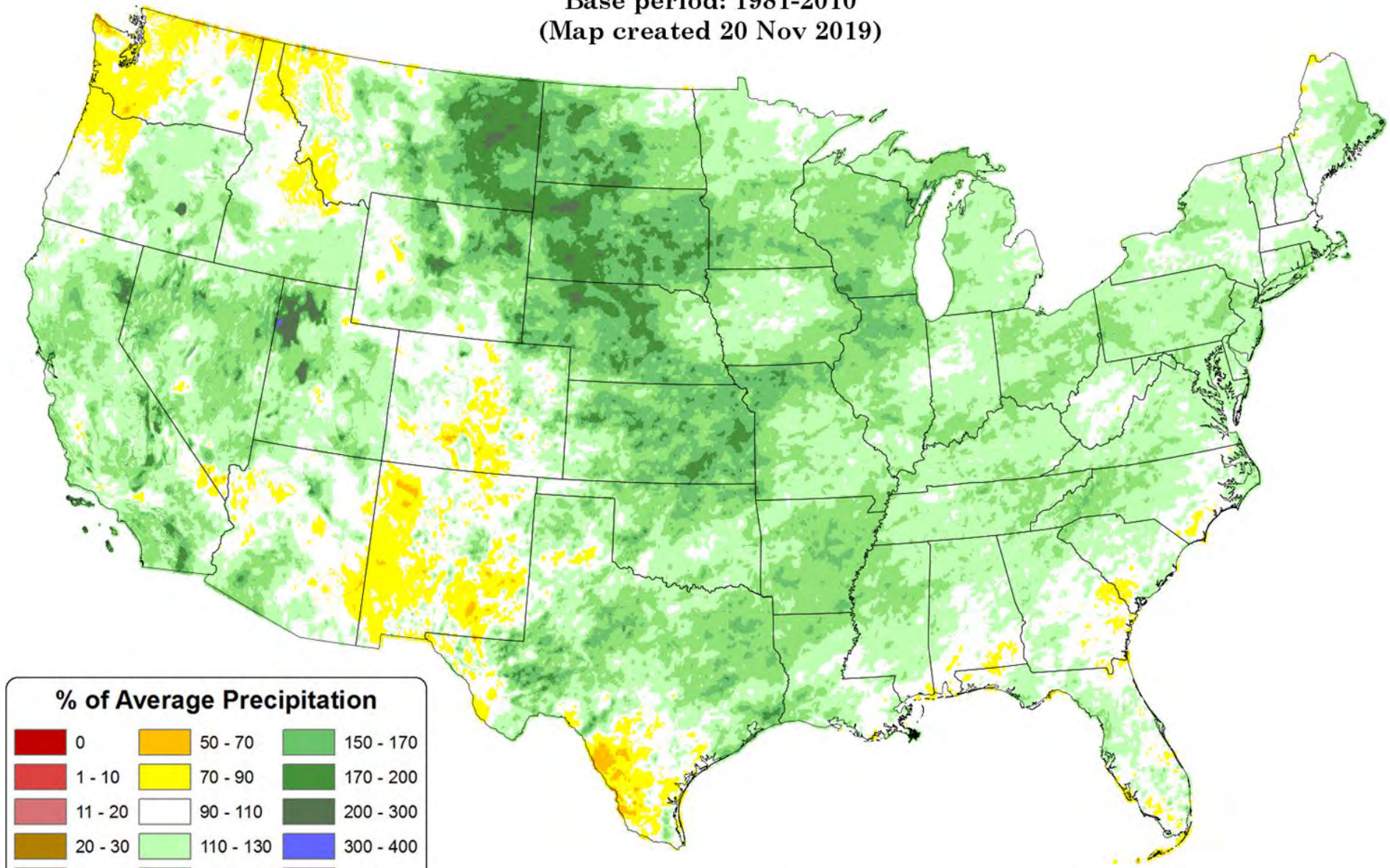
35% Palmer Z-Index
25% 3-Month Precipitation
20% 1-Month Precipitation
13% CPC Soil Moisture Model
7% Palmer Drought Index

This map approximates impacts that respond to precipitation over several days to a few months, such as agriculture, topsoil moisture, unregulated streamflows, and most aspects of wildfire danger. The relationship between indicators and impacts can vary significantly with location and season. Do not interpret this map too literally.

This map is based on preliminary climate division data. Local conditions and/or final data may differ. See the detailed product suite description for more details.

Total Precipitation Anomaly: Oct 2018 - Sep 2019

Period ending 7 AM EST 30 Sep 2019
Base period: 1981-2010
(Map created 20 Nov 2019)



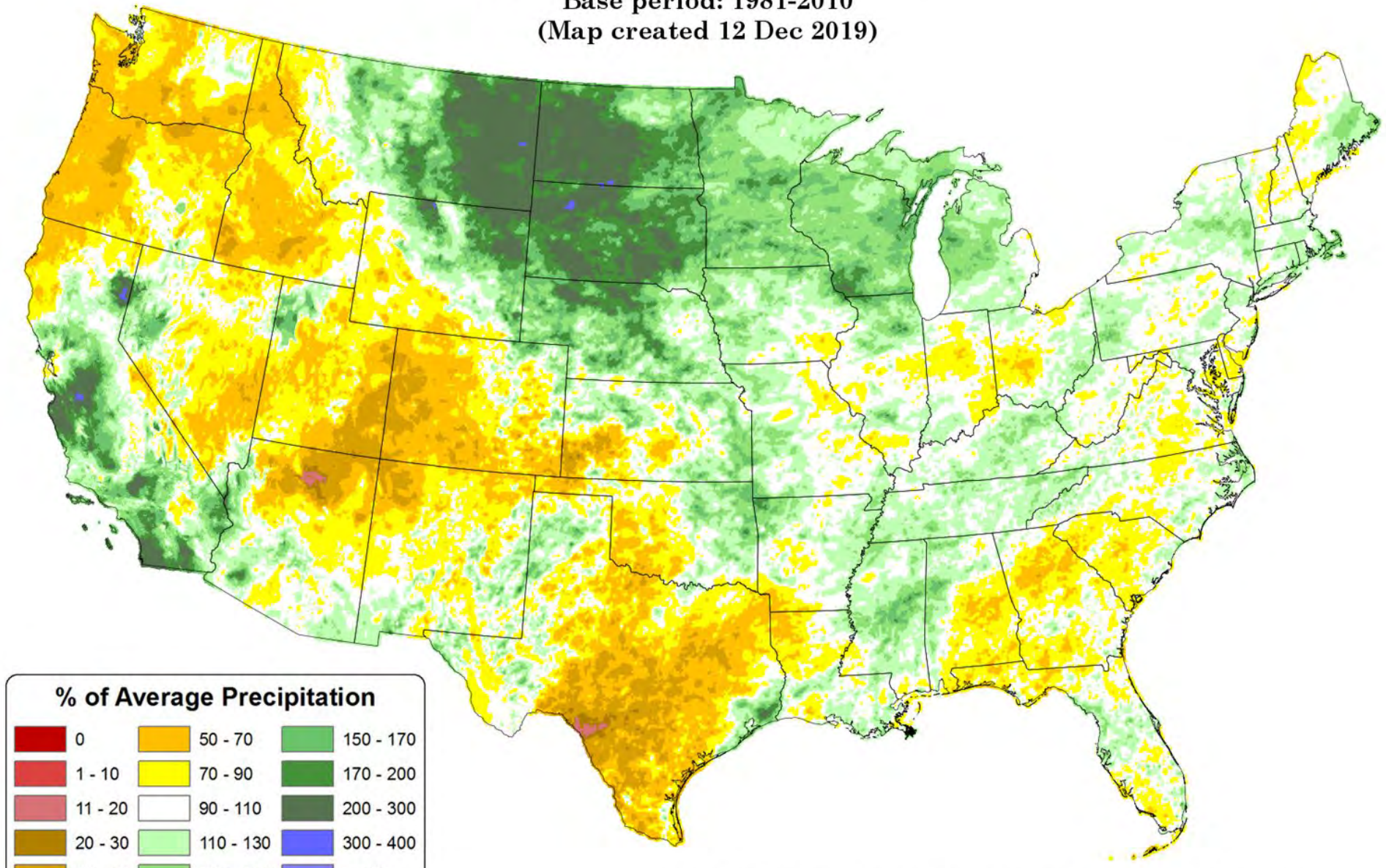
Copyright (c) 2019, PRISM Climate Group, Oregon State University

Total Precipitation Anomaly: Jul 2019 - 11 Dec 2019

Period ending 7 AM EST 11 Dec 2019

Base period: 1981-2010

(Map created 12 Dec 2019)



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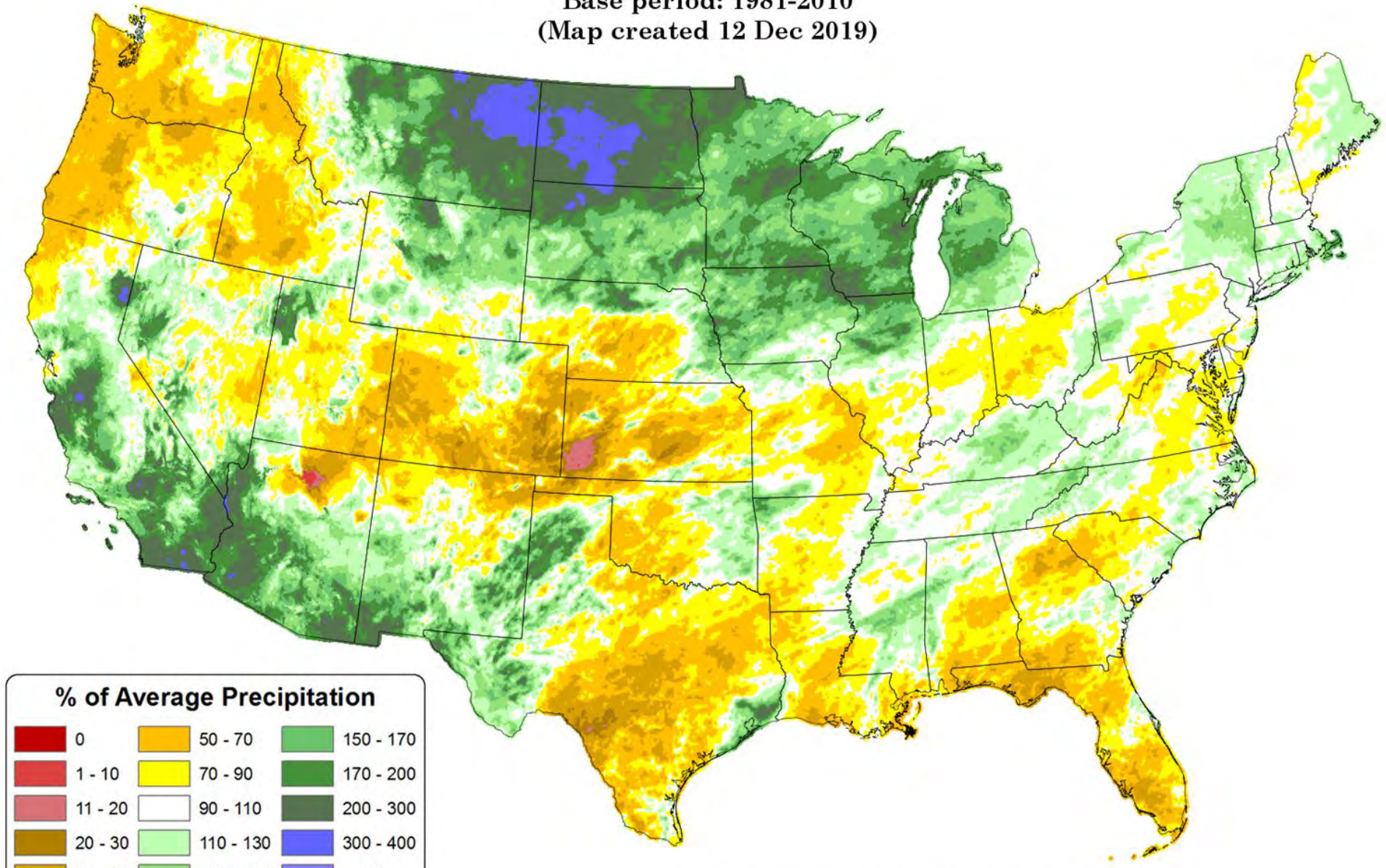
Total Precipitation Anomaly: Sep 2019 - 11 Dec 2019

Period ending 7 AM EST 11 Dec 2019

Base period: 1981-2010

(Map created 12 Dec 2019)



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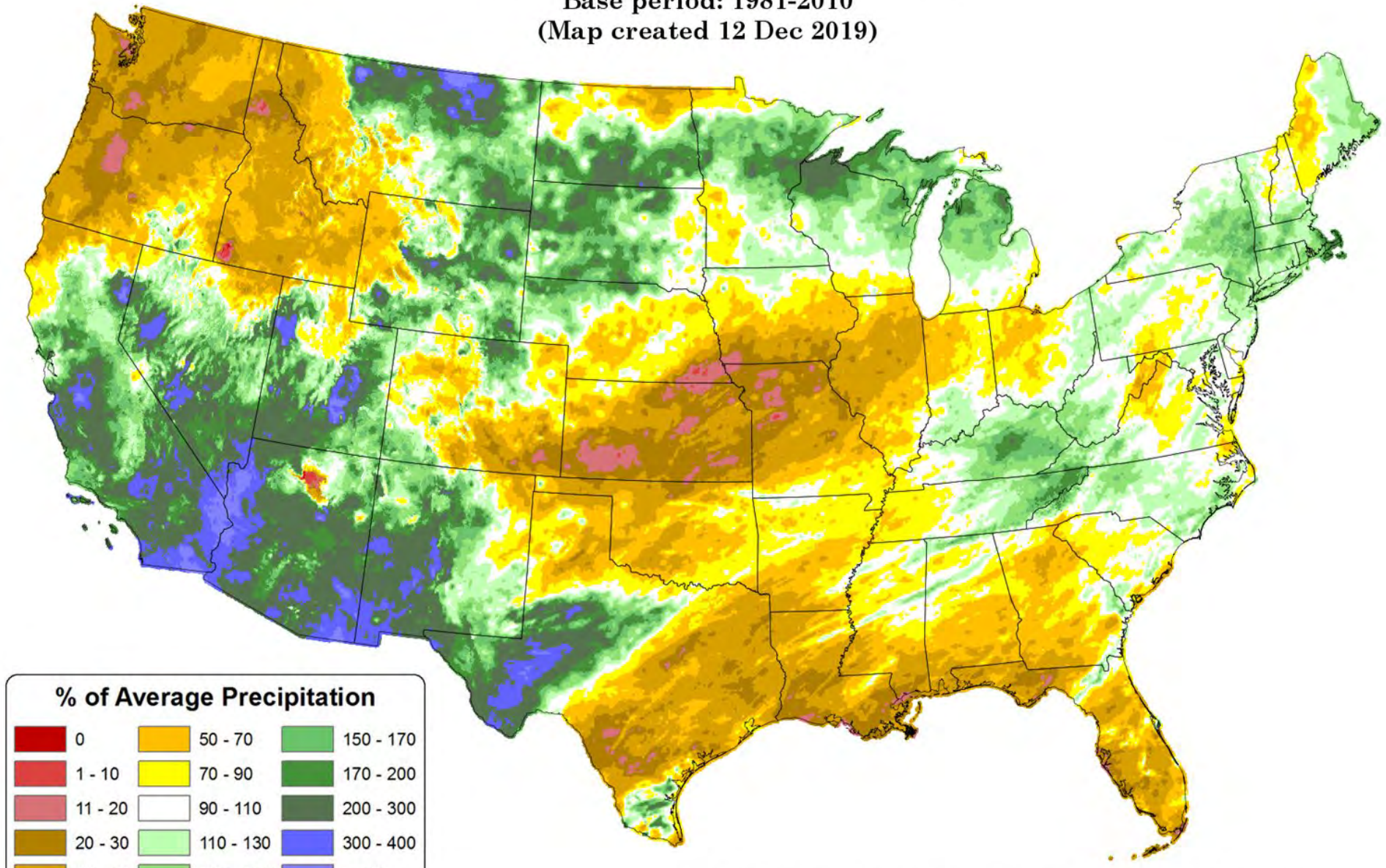
Total Precipitation Anomaly: Nov 2019 - 11 Dec 2019

Period ending 7 AM EST 11 Dec 2019
Base period: 1981-2010
(Map created 12 Dec 2019)



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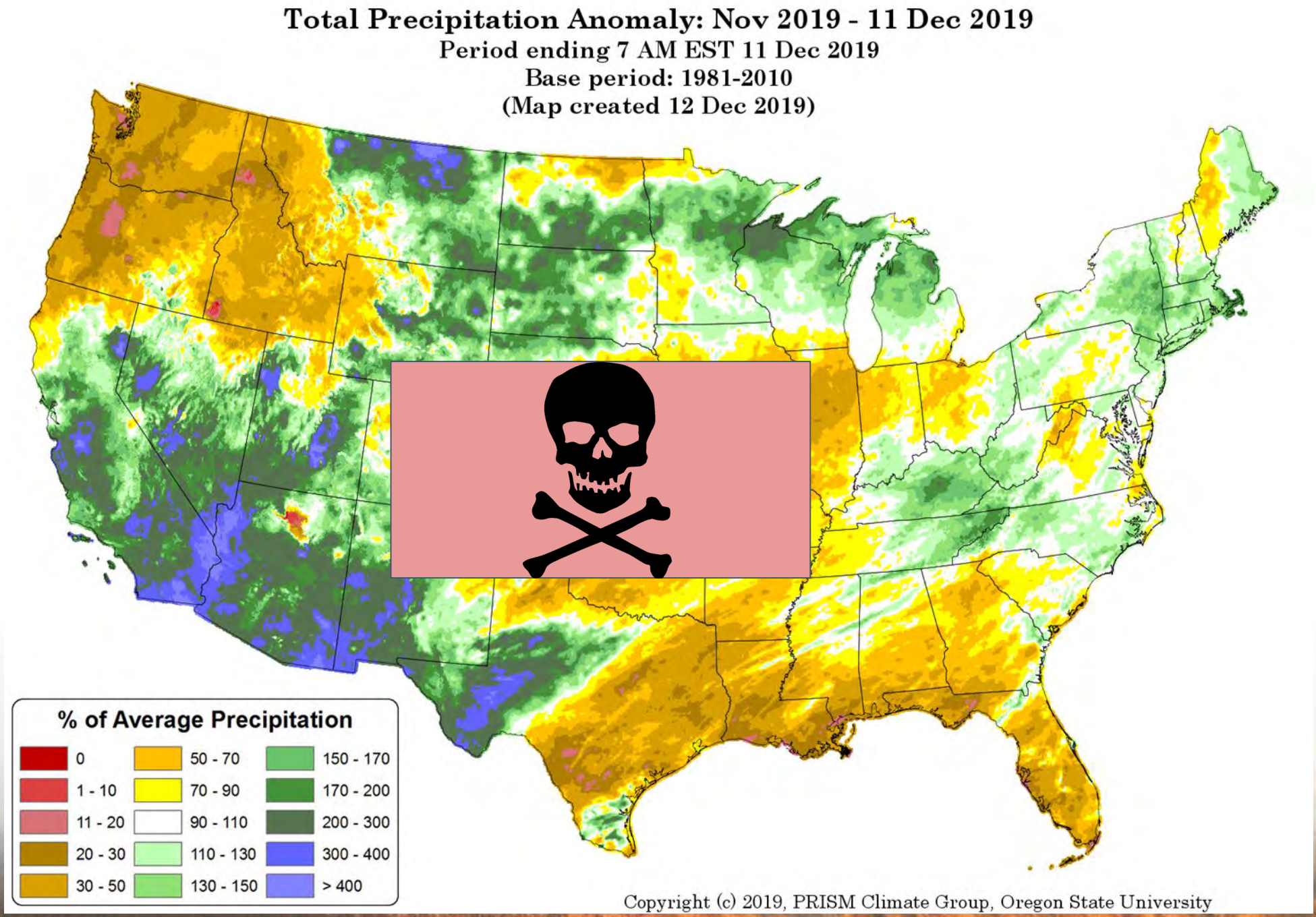
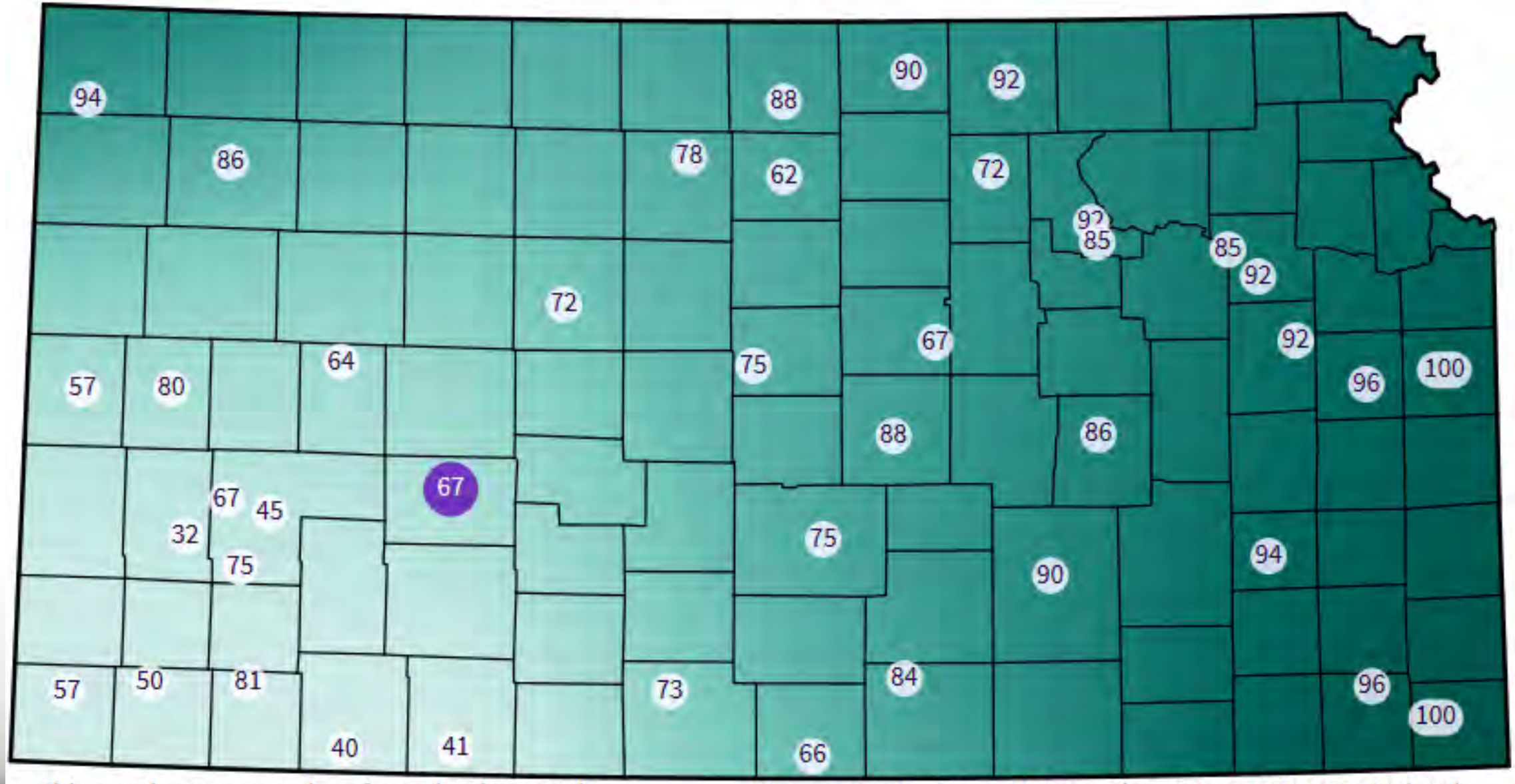

Total Precipitation Anomaly: Nov 2019 - 11 Dec 2019
Period ending 7 AM EST 11 Dec 2019
Base period: 1981-2010
(Map created 12 Dec 2019)
% of Average Precipitation
0
1 - 10
11 - 20
20 - 30
30 - 50
50 - 70
70 - 90
90 - 110
110 - 130
130 - 150
150 - 170
170 - 200
200 - 300
300 - 400
> 400
Copyright (c) 2019, PRISM Climate Group, Oregon State University

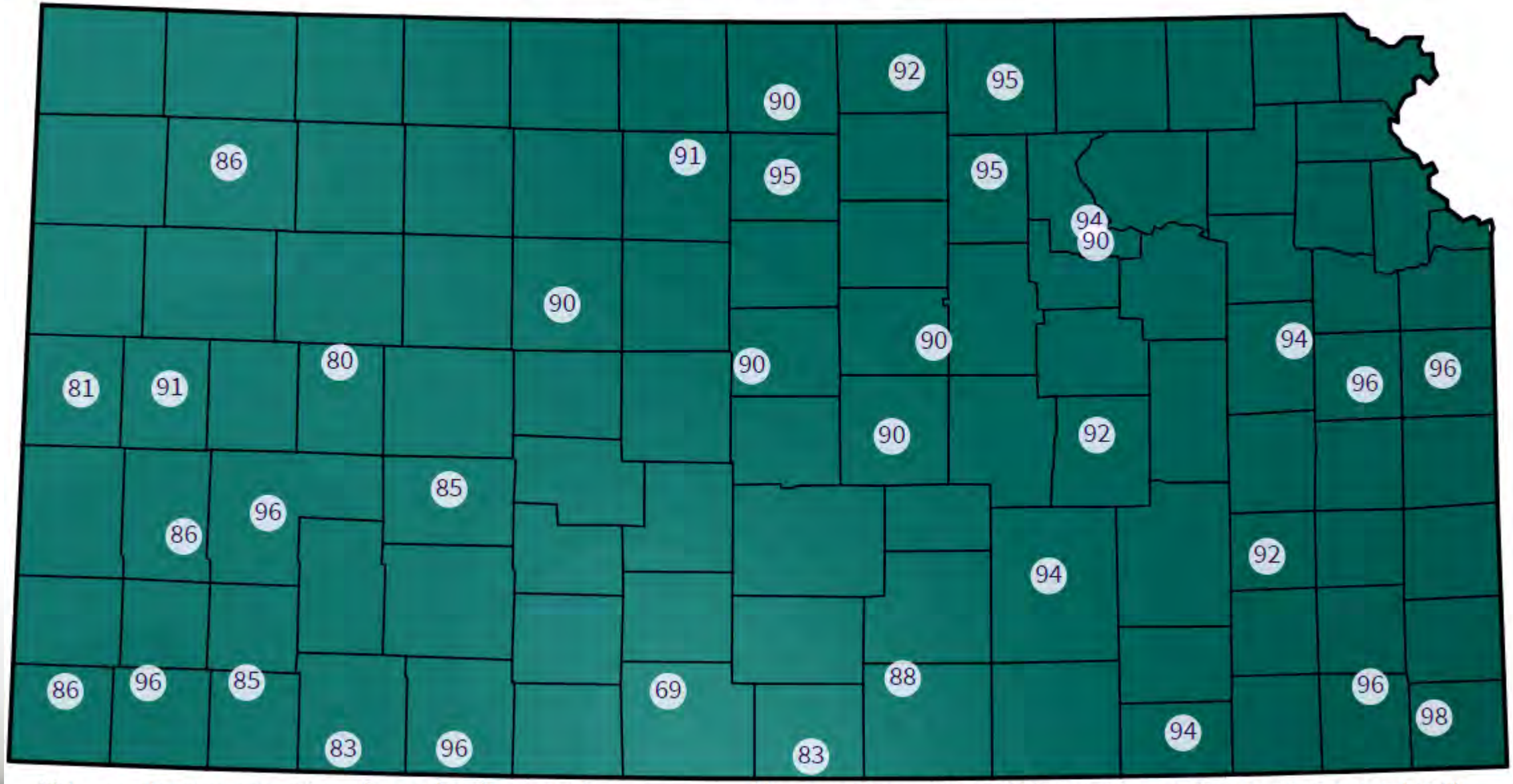
Percent of Saturation at 50 cm



This map is representative of grassland vegetation

Mesonet Data - 50 cm % Saturation at Dec 12 2019 20:20 (CST)

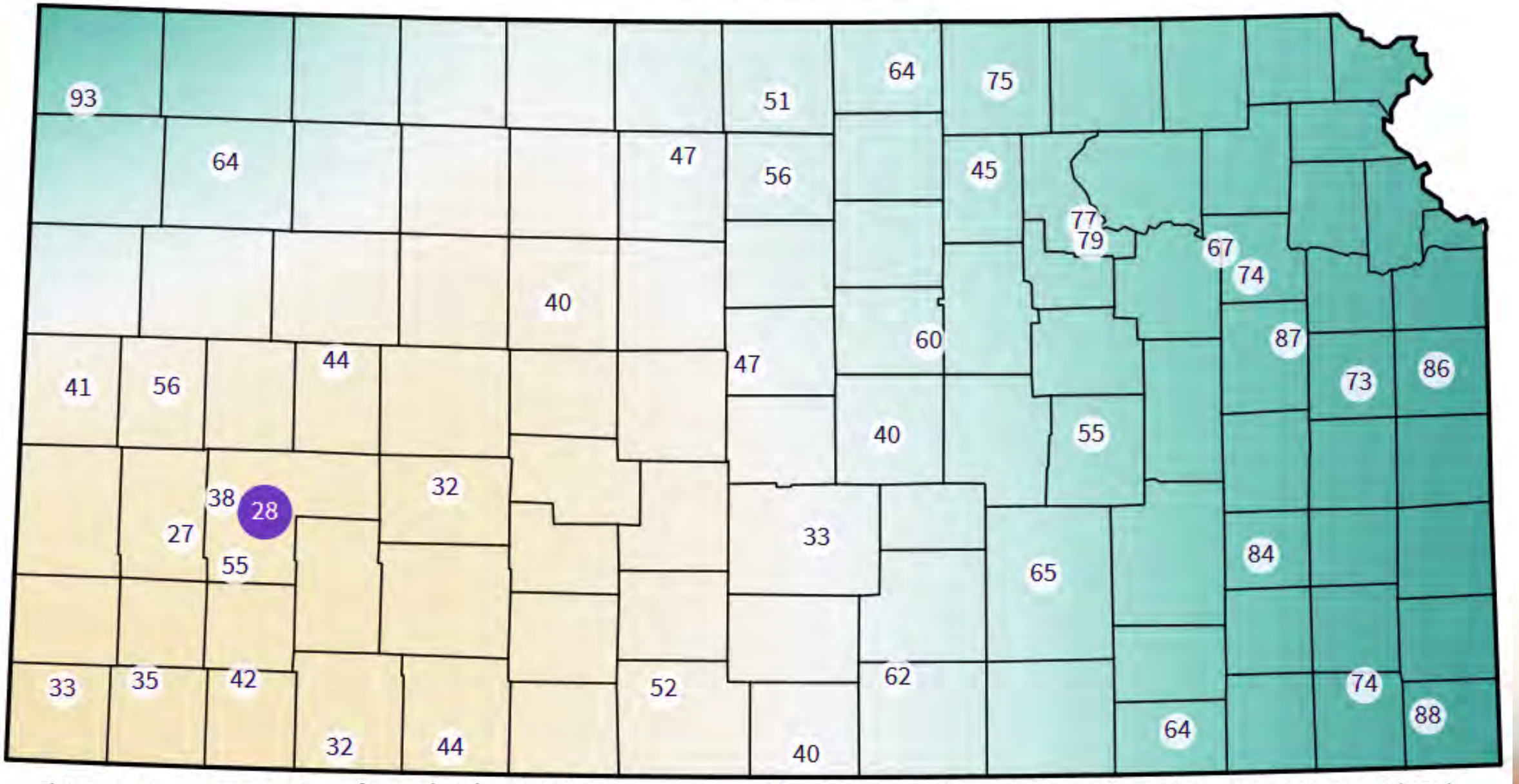
Percent of Saturation at 50 cm



This map is representative of grassland vegetation

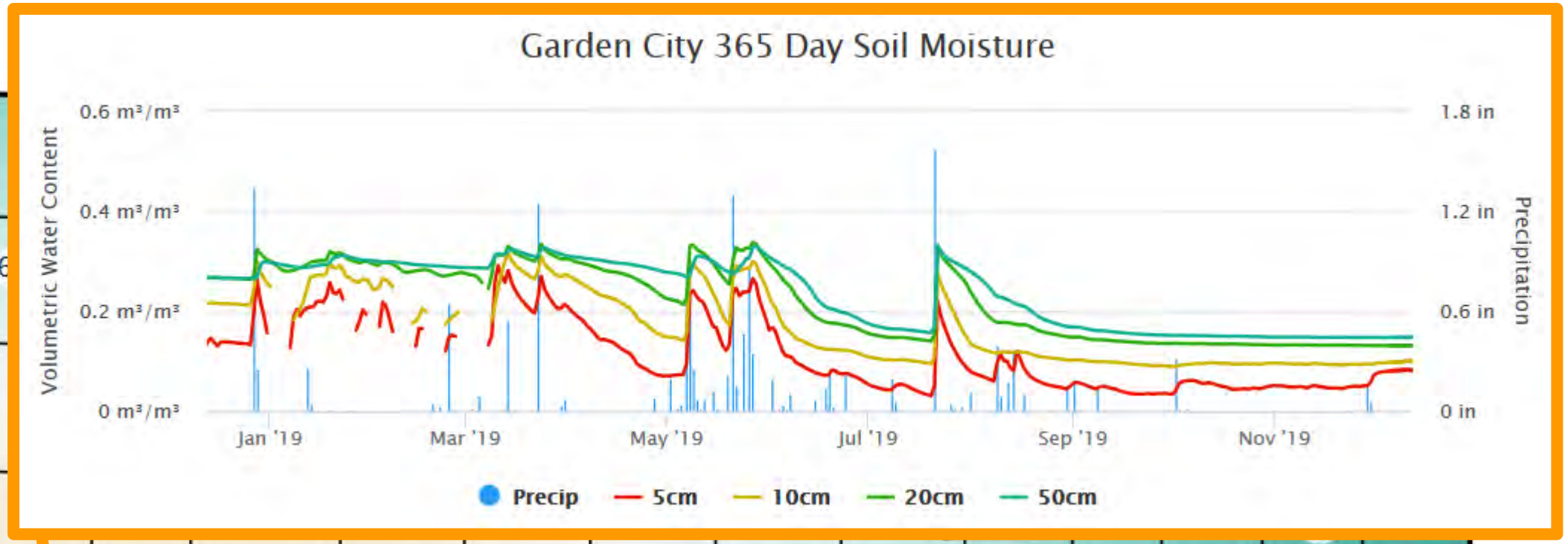
Mesonet Data - 50 cm % Saturation at Dec 10 2018 18:35 (CST)

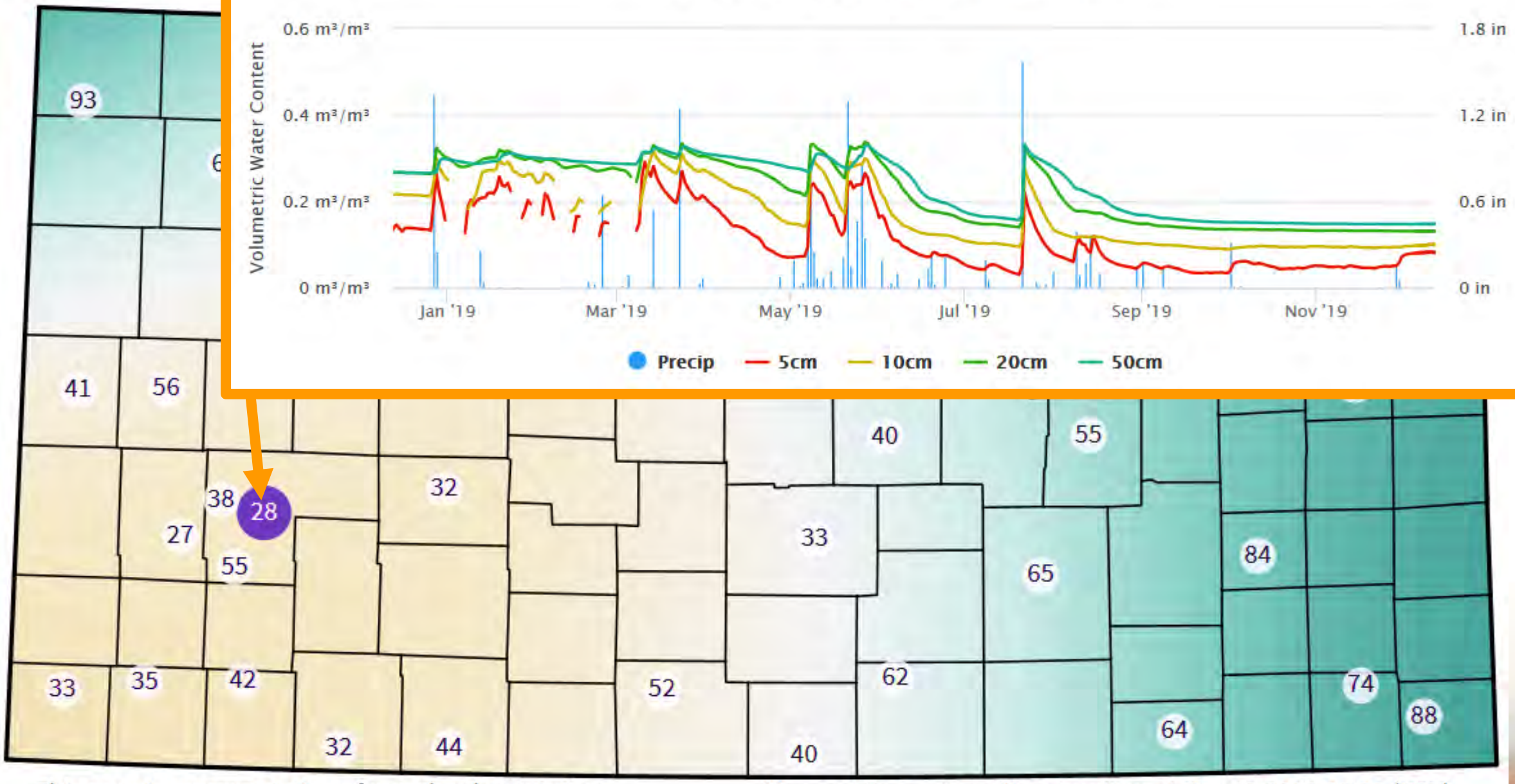
Percent of Saturation at 5 cm



This map is representative of grassland vegetation

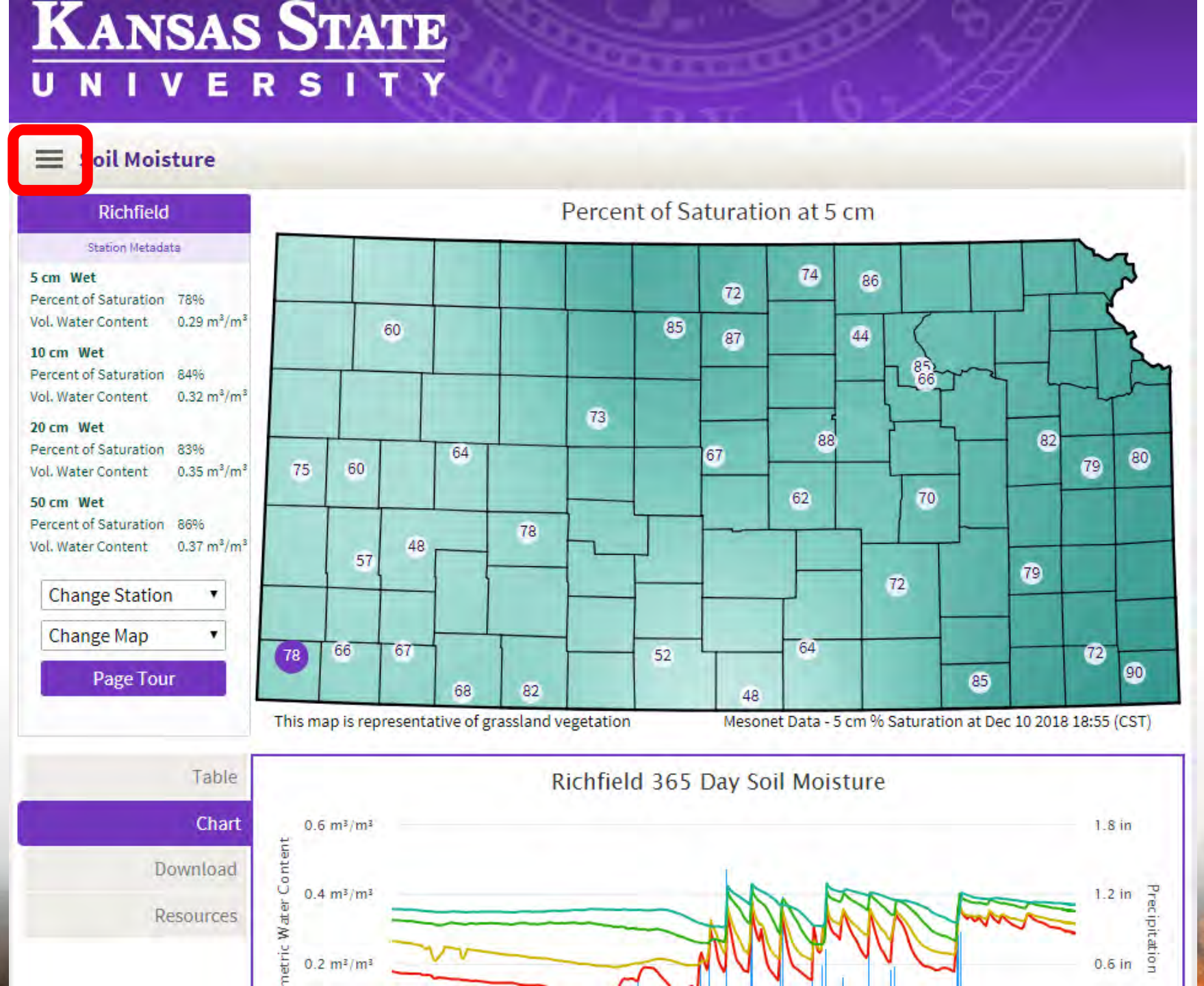
Mesonet Data - 5 cm % Saturation at Dec 12 2019 20:20 (CST)





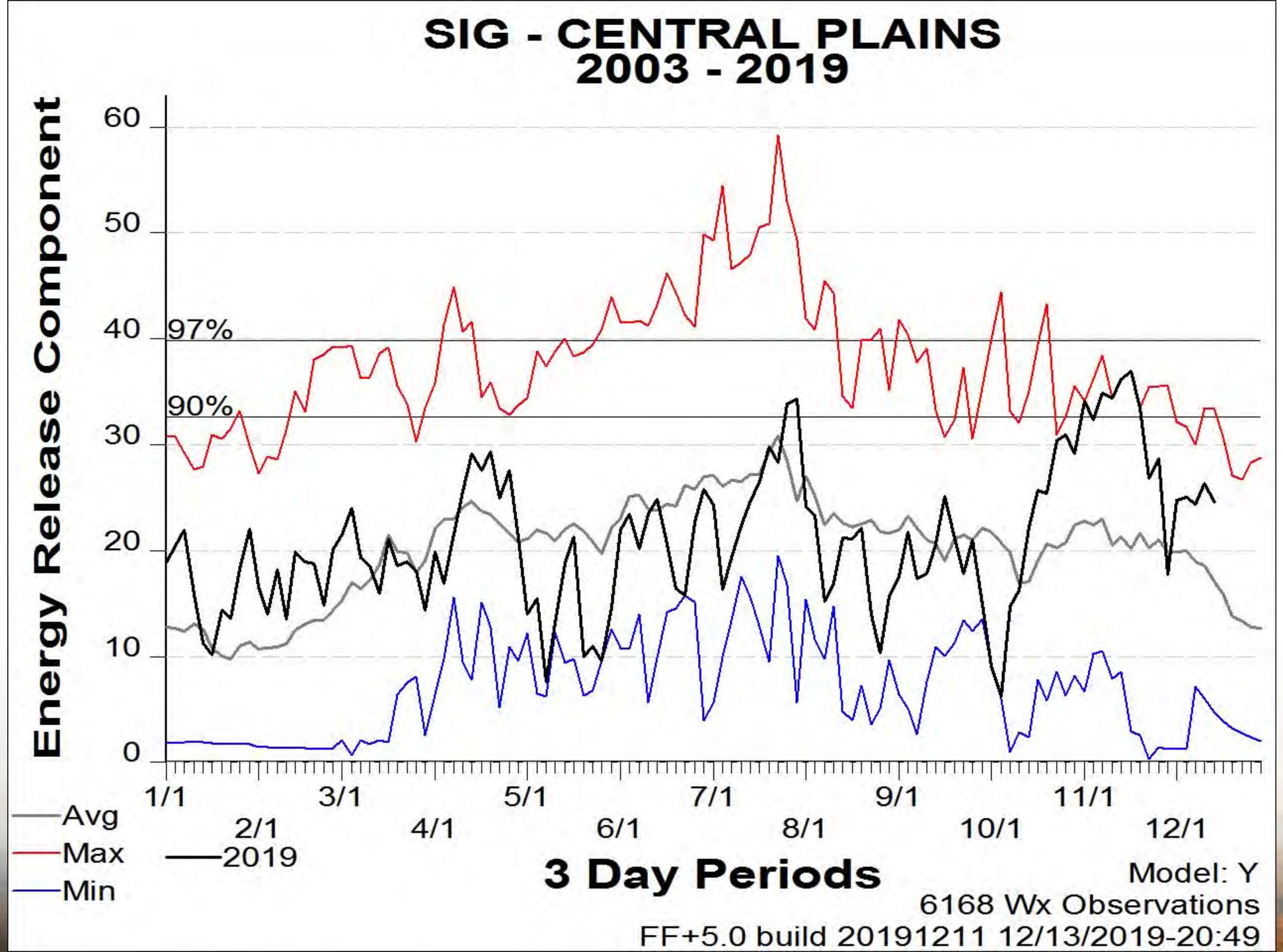
This map is representative of grassland vegetation

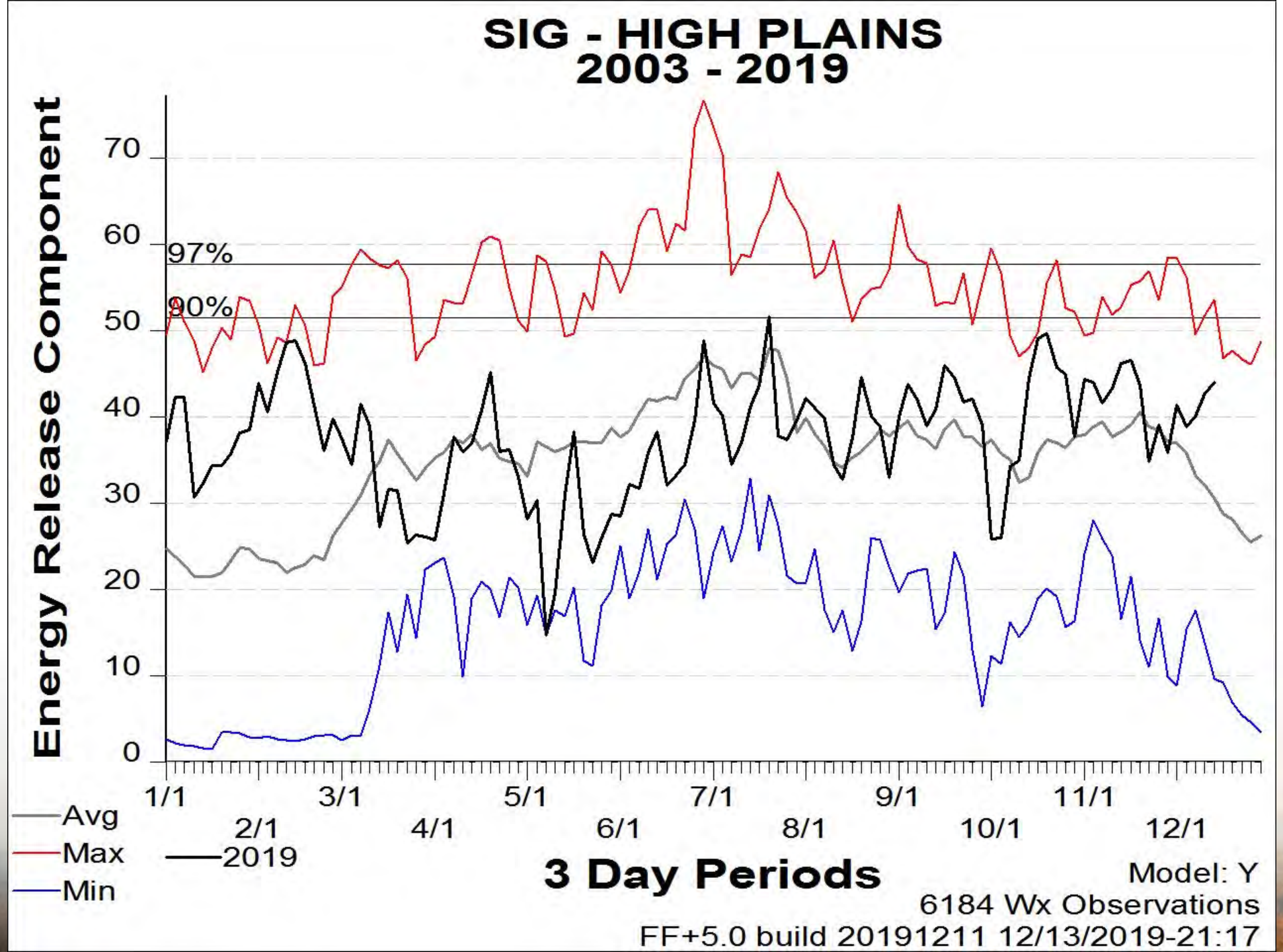
Mesonet Data - 5 cm % Saturation at Dec 12 2019 20:20 (CST)



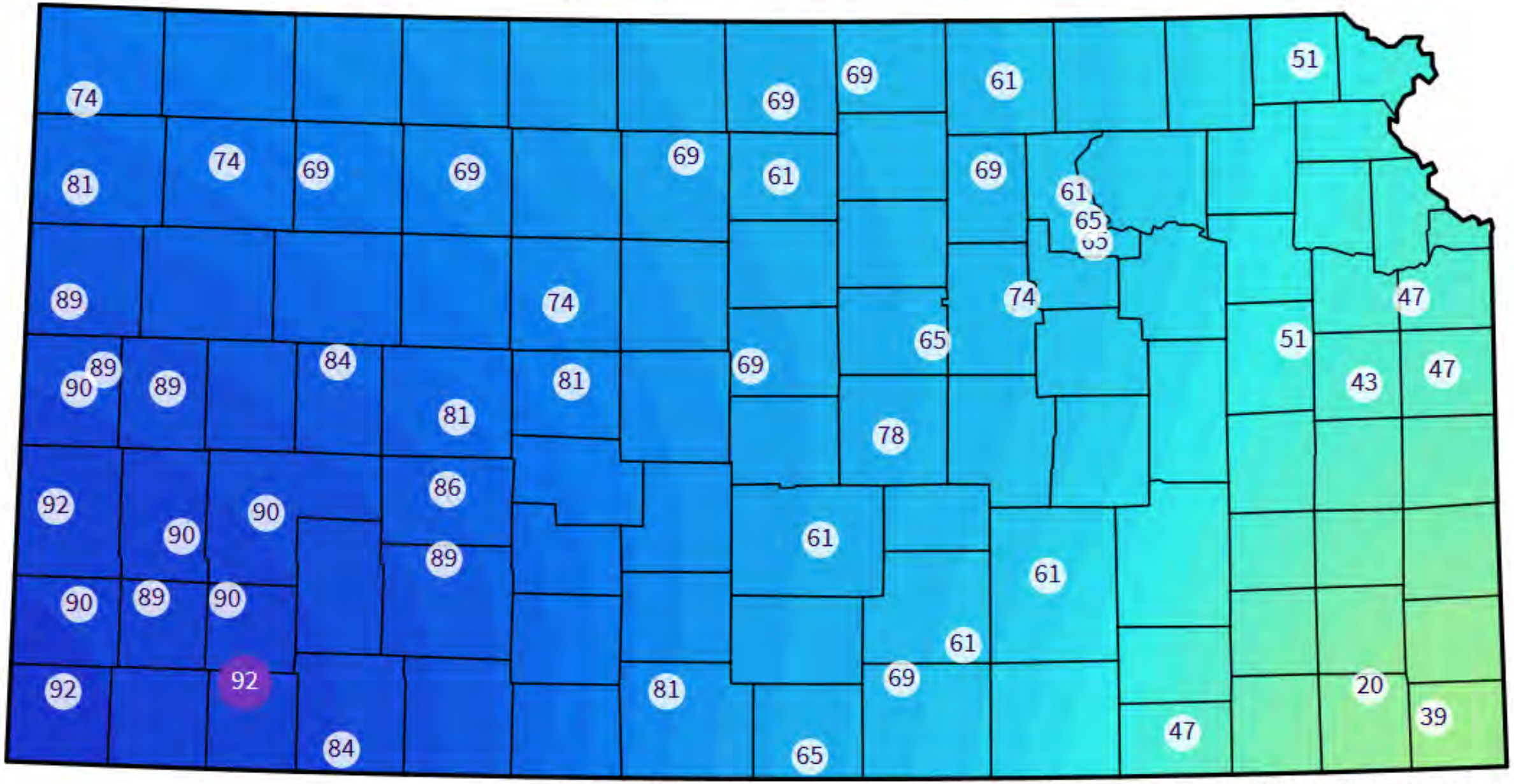
mesonet.ksu.edu

1. Menu
2. Agriculture
3. Soil Moisture

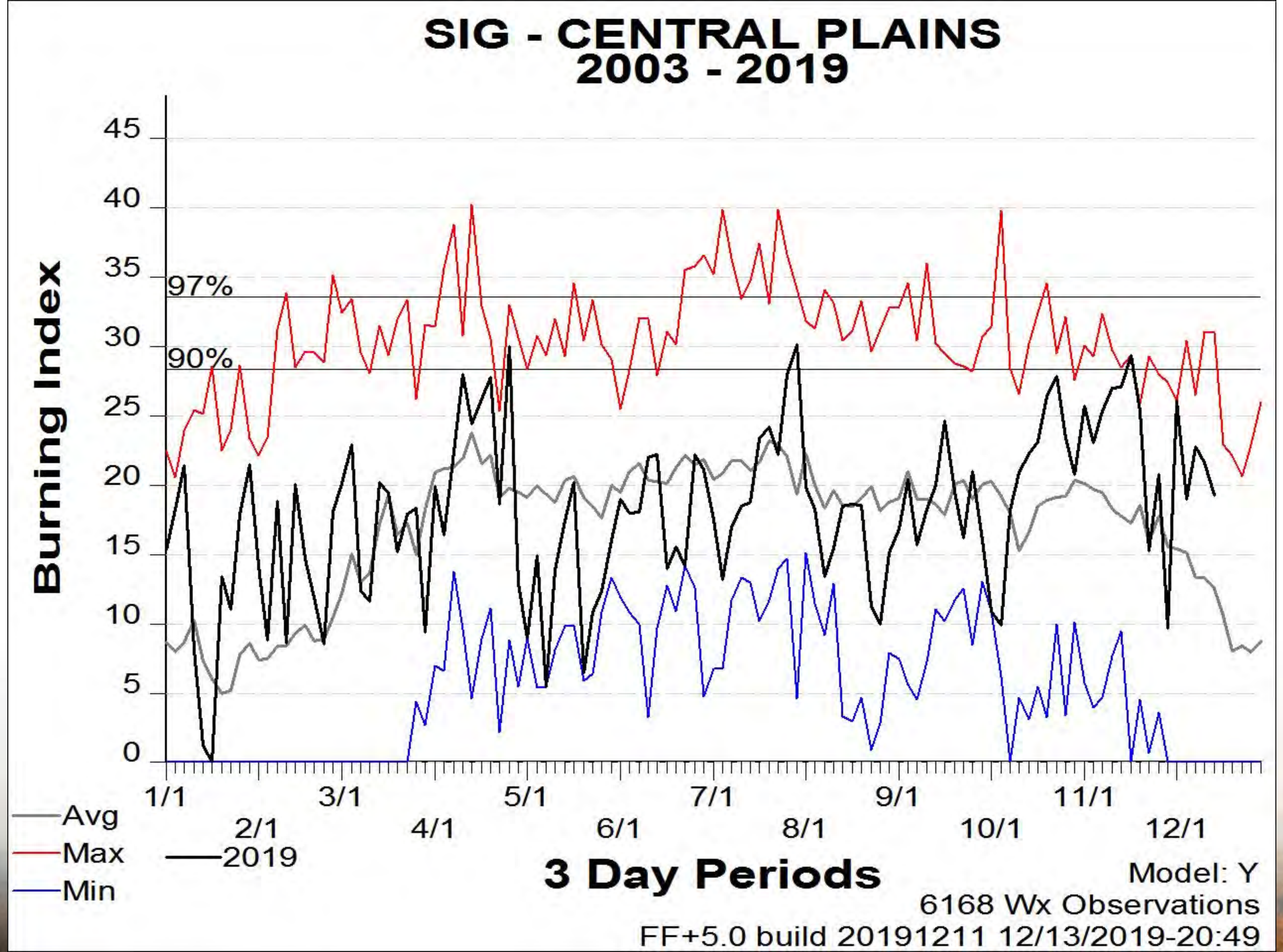

SIG - CENTRAL PLAINS
2003 - 2019
Energy Release Component
60
50
40
30
20
10
0
97%
90%
1/1
2/1
3/1
4/1
5/1
6/1
7/1
8/1
9/1
10/1
11/1
12/1
Avg
Max
Min
2019
3 Day Periods
Model: Y
6168 Wx Observations
FF+5.0 build 20191211 12/13/2019-20:49

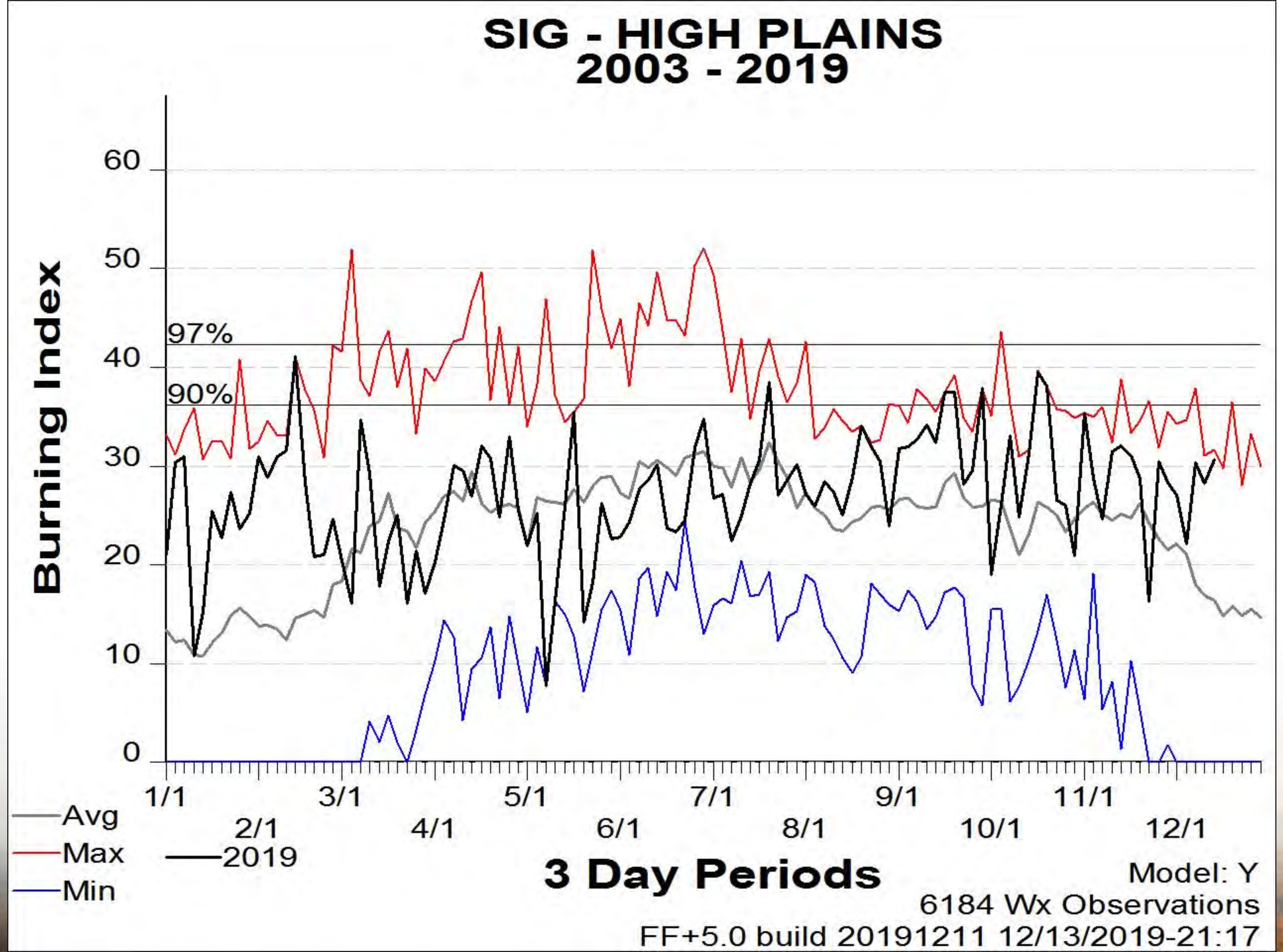

SIG - HIGH PLAINS
2003 - 2019
Energy Release Component
70
60
50
40
30
20
10
0
97%
90%
1/1
2/1
3/1
4/1
5/1
6/1
7/1
8/1
9/1
10/1
11/1
12/1
Avg
Max
Min
2019
3 Day Periods
Model: Y
6184 Wx Observations
FF+5.0 build 20191211 12/13/2019-21:17

Energy Release Component Percentile



Mesonet Data - Energy Release Component Percentile at Dec 13 2019 20:00 (CST)

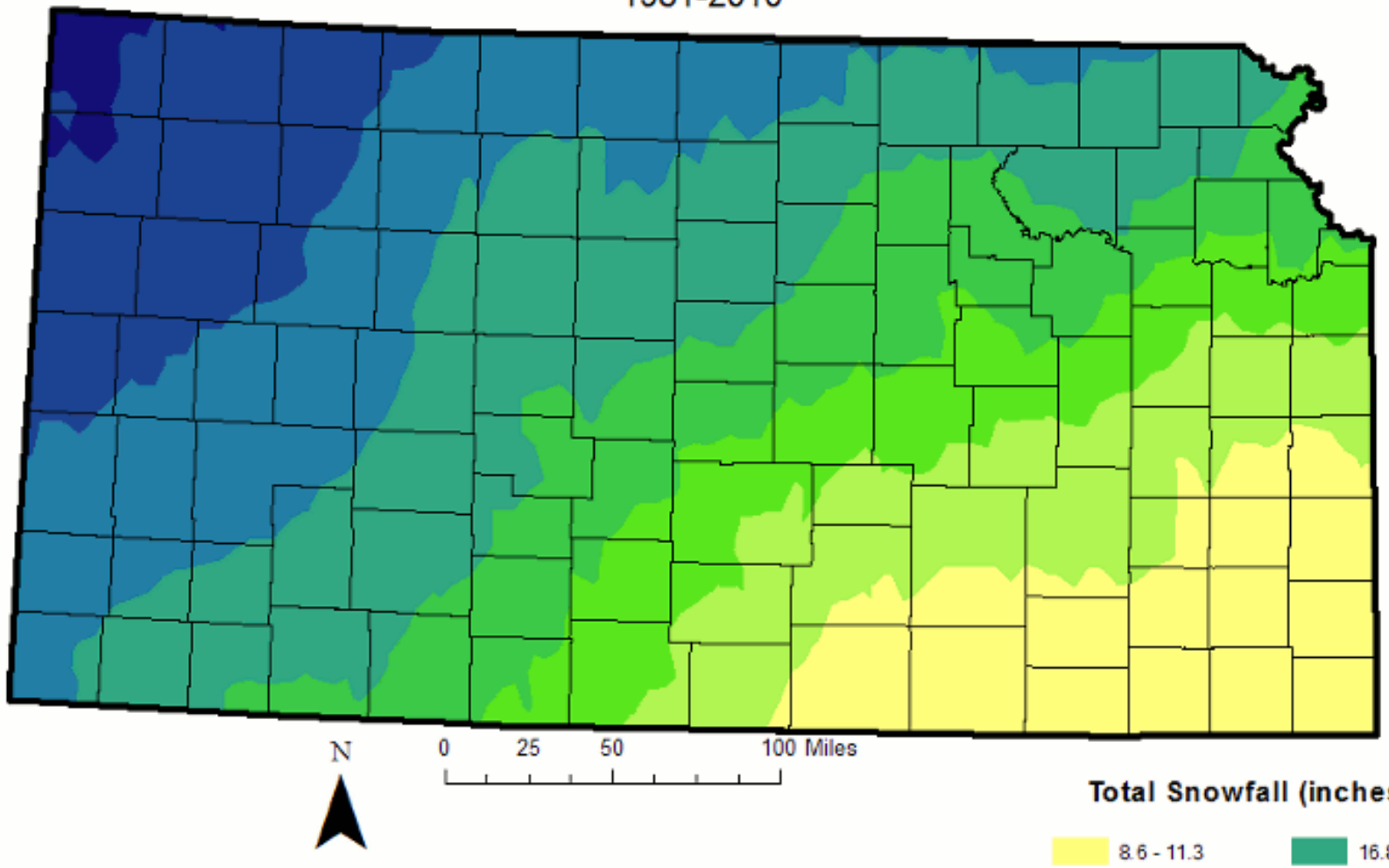

SIG - CENTRAL PLAINS
2003 - 2019
Burning Index
45
40
35
30
25
20
15
10
5
0
97%
90%
1/1
2/1
3/1
4/1
5/1
6/1
7/1
8/1
9/1
10/1
11/1
12/1
Avg
Max
Min
2019
3 Day Periods
Model: Y
6168 Wx Observations
FF+5.0 build 20191211 12/13/2019-20:49


SIG - HIGH PLAINS
2003 - 2019
Burning Index
60
50
40
30
20
10
0
97%
90%
1/1
2/1
3/1
4/1
5/1
6/1
7/1
8/1
9/1
10/1
11/1
12/1
Avg
Max
Min
2019
3 Day Periods
Model: Y
6184 Wx Observations
FF+5.0 build 20191211 12/13/2019-21:17

AGNES

Normal Annual Snowfall

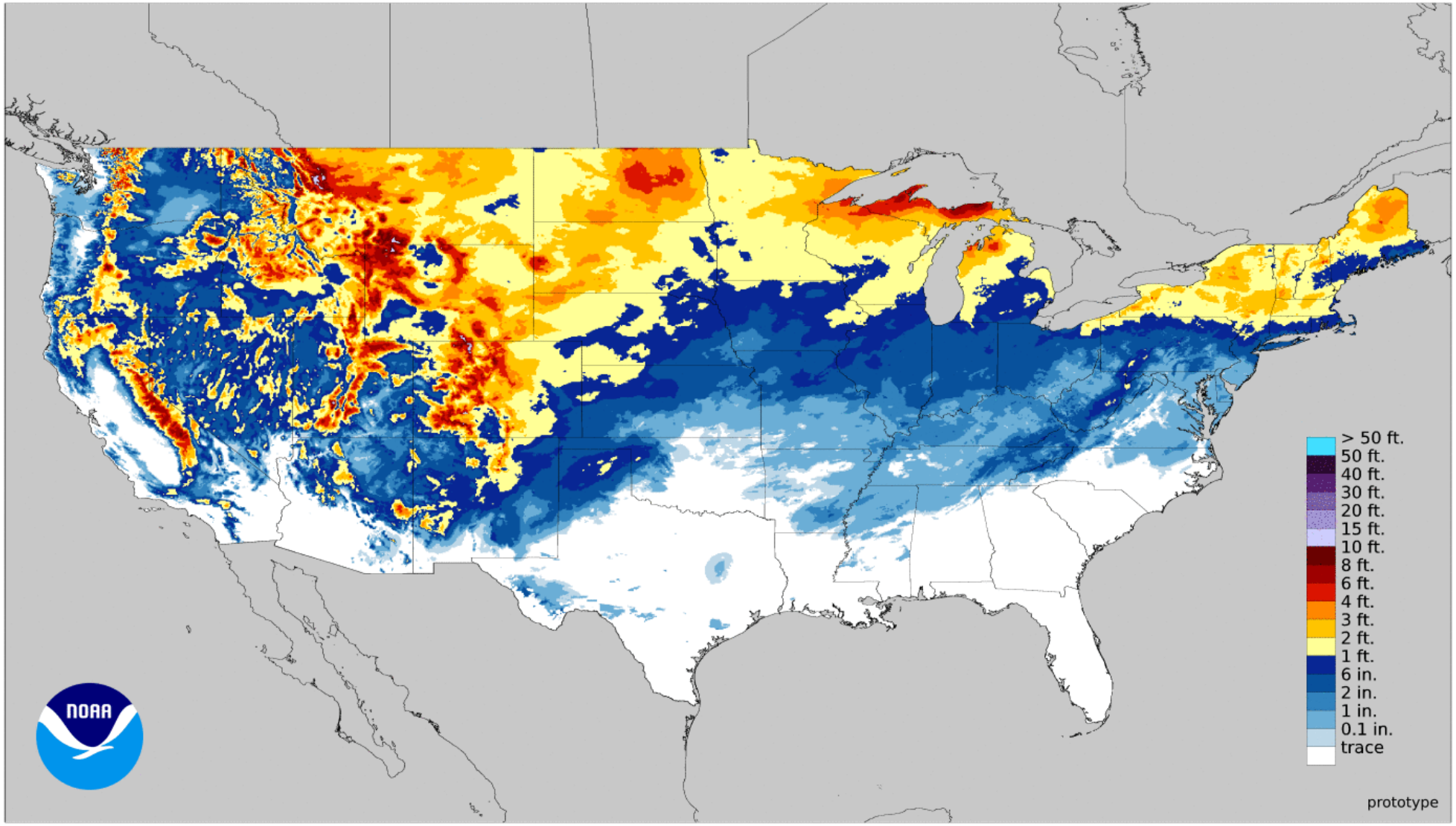
1981-2010

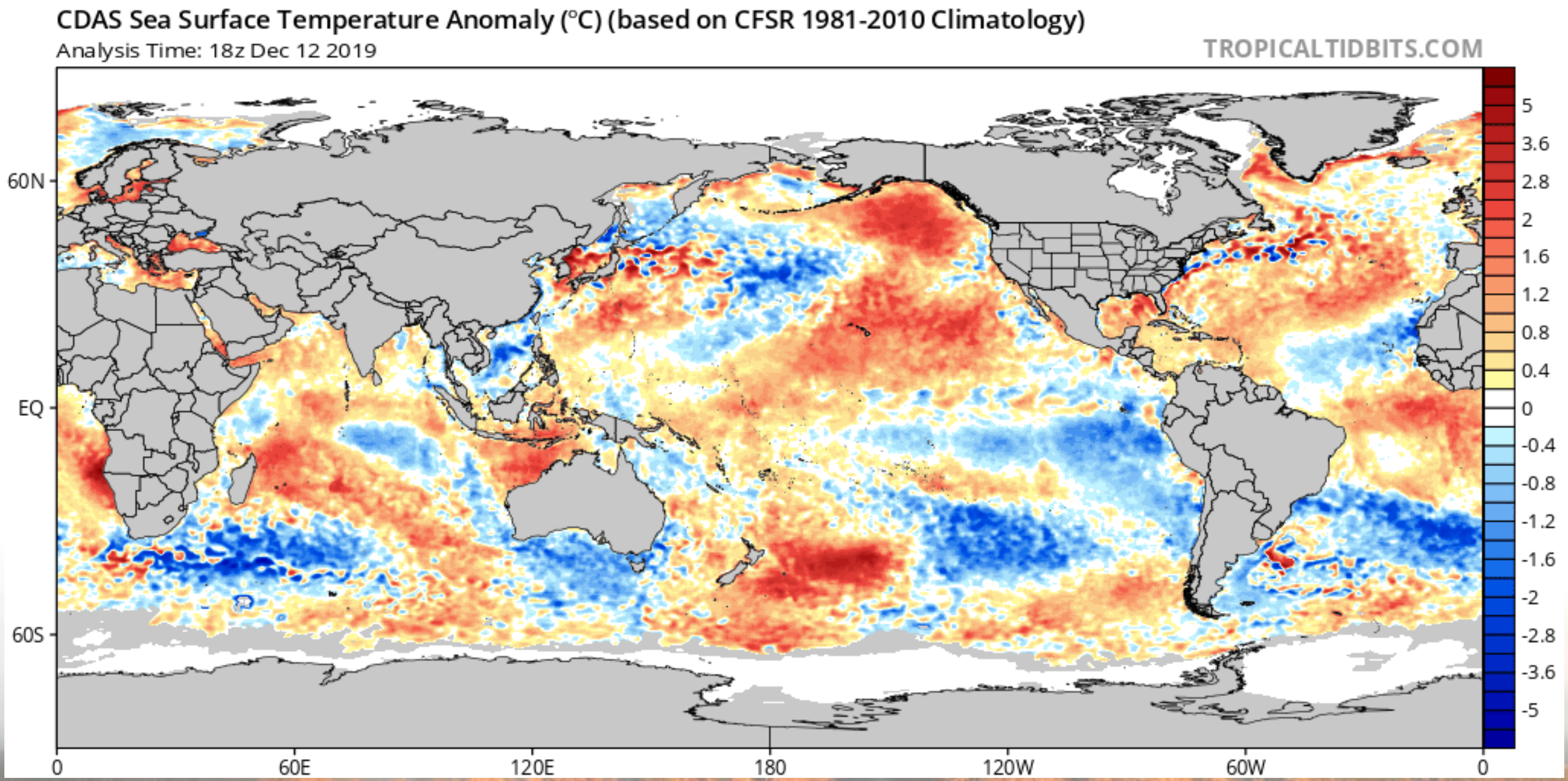


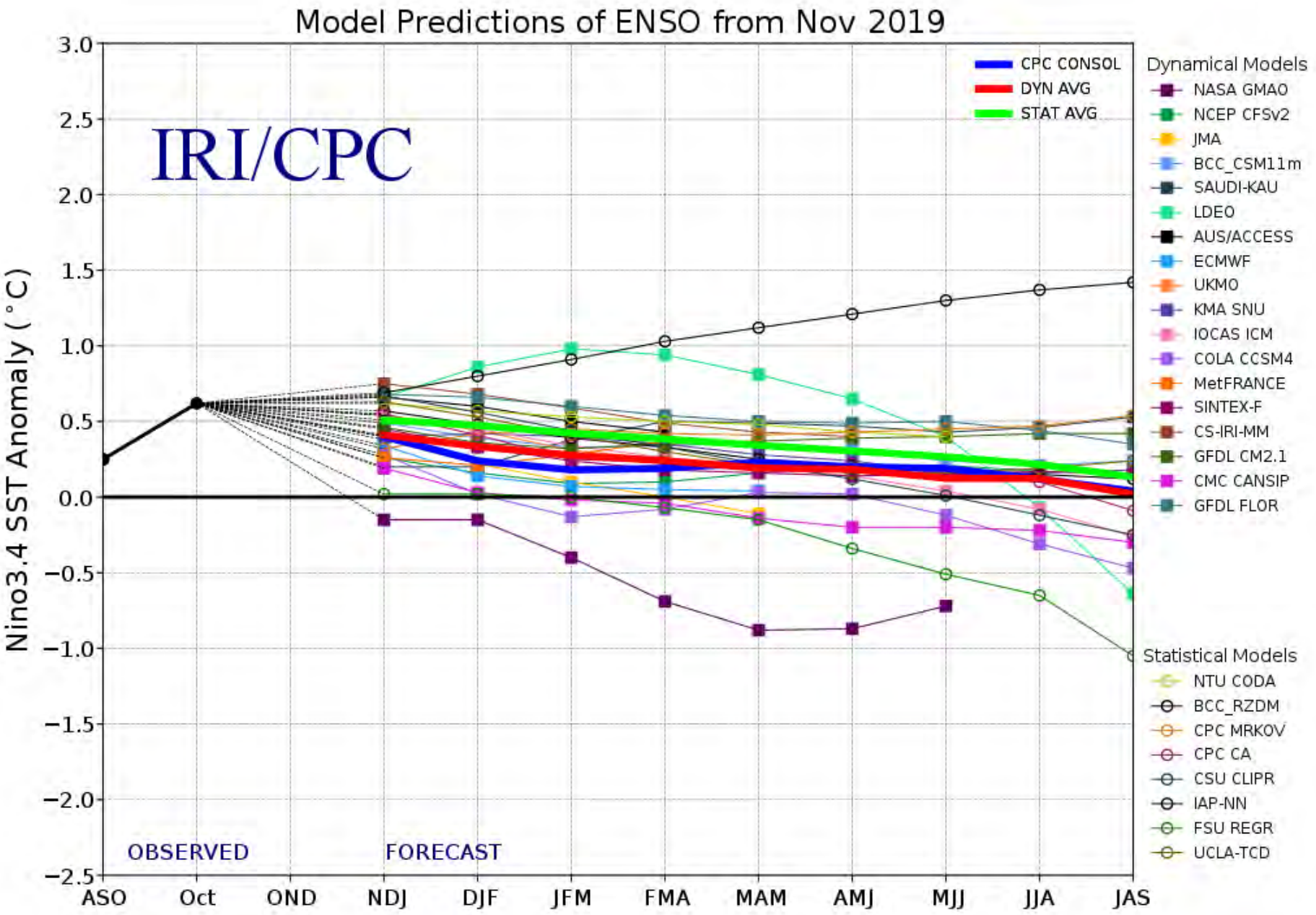
Produced by Weather Data Library
Department of Agronomy
Kansas State University

National Snowfall Analysis: accumulation from 2019-09-30 to 2019-12-12

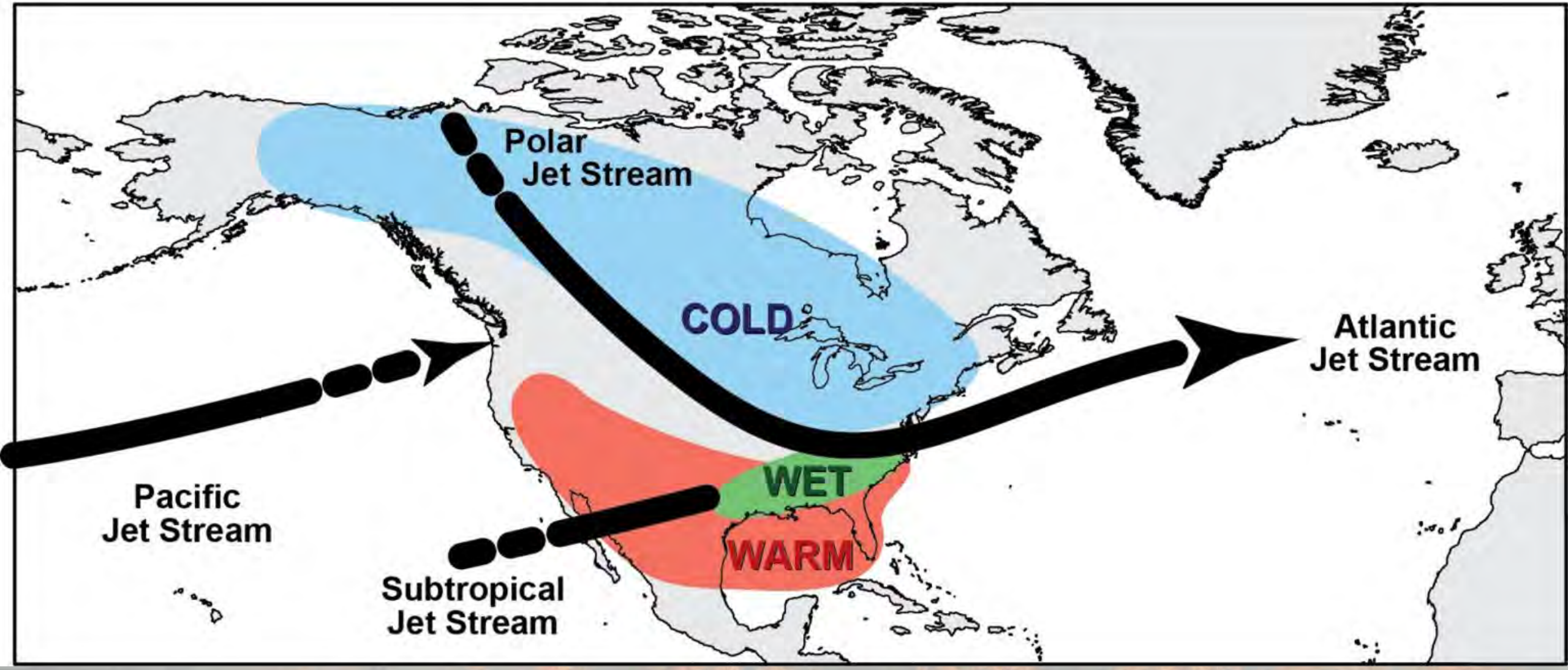
Issued 2019-12-13 03:03:59 UTC




CDAS Sea Surface Temperature Anomaly (°C) (based on CFSR 1981-2010 Climatology)
Analysis Time: 18z Dec 12 2019
TROPICALTIDBITS.COM
60N
EQ
60S
0
60E
120E
180
120W
60W
0
5
3.6
2.8
2
1.6
1.2
0.8
0.4
0
-0.4
-0.8
-1.2
-1.6
-2
-2.8
-3.6
-5

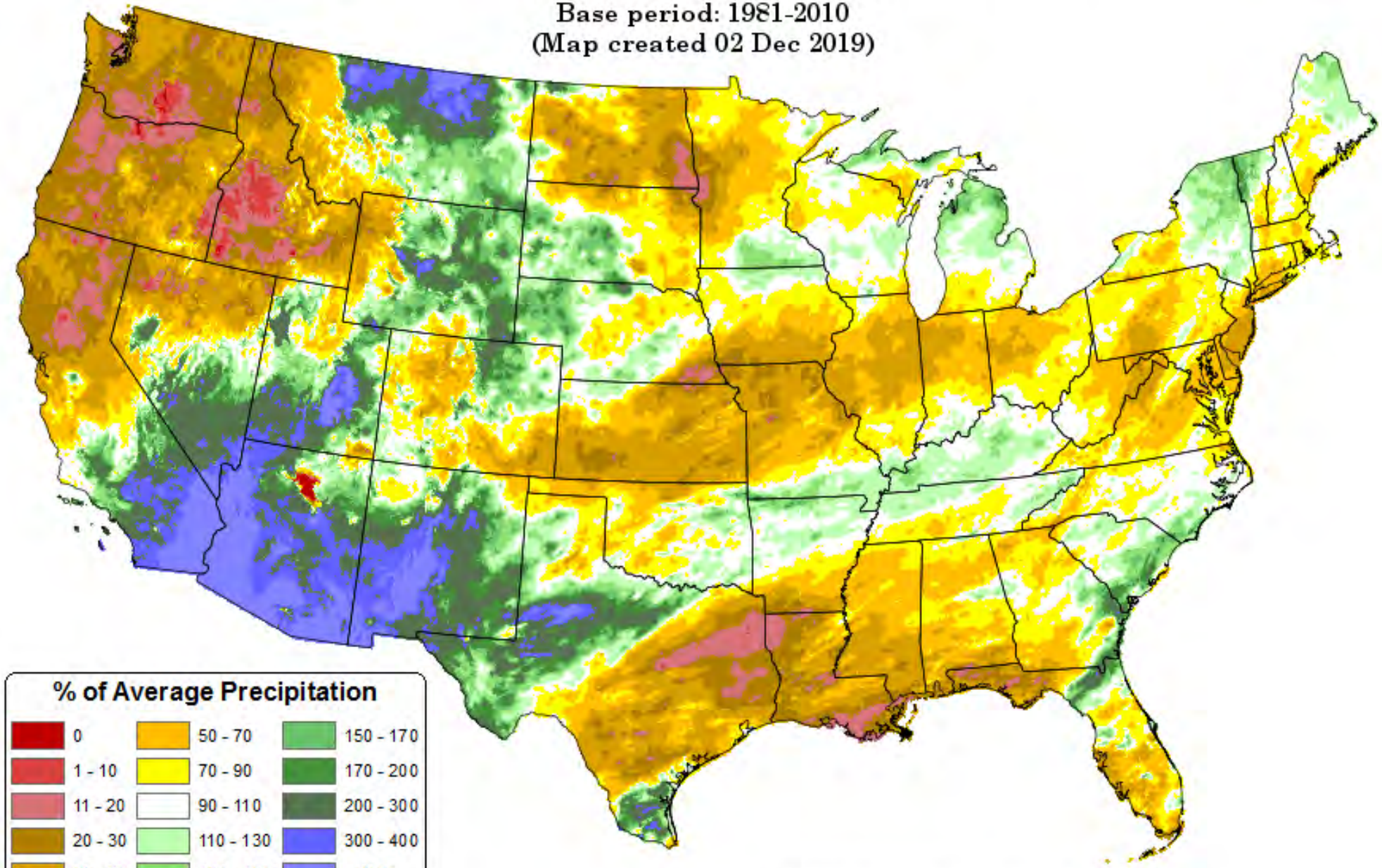

Model Predictions of ENSO from Nov 2019
IRI/CPC
Nino3.4 SST Anomaly (°C)
3.0
2.5
2.0
1.5
1.0
0.5
0.0
−0.5
−1.0
−1.5
−2.0
−2.5
ASO
Oct
OND
NDJ
DJF
JFM
FMA
MAM
AMJ
MJJ
JJA
JAS
OBSERVED
FORECAST
CPC CONSOL
DYN AVG
STAT AVG
Dynamical Models
NASA GMAO
NCEP CFSv2
JMA
BCC_CSM11m
SAUDI-KAU
LDEO
AUS/ACCESS
ECMWF
UKMO
KMA SNU
IOCAS ICM
COLA CCSM4
MetFRANCE
SINTEX-F
CS-IRI-MM
GFDL CM2.1
CMC CANSIP
GFDL FLOR
Statistical Models
NTU CODA
BCC_RZDM
CPC MRKOV
CPC CA
CSU CLIPR
IAP-NN
FSU REGR
UCLA-TCD

ENSO-Neutral Winter Pattern



Total Precipitation Anomaly: Nov 2019

Period ending 30 Nov 2019
Base period: 1981-2010
(Map created 02 Dec 2019)



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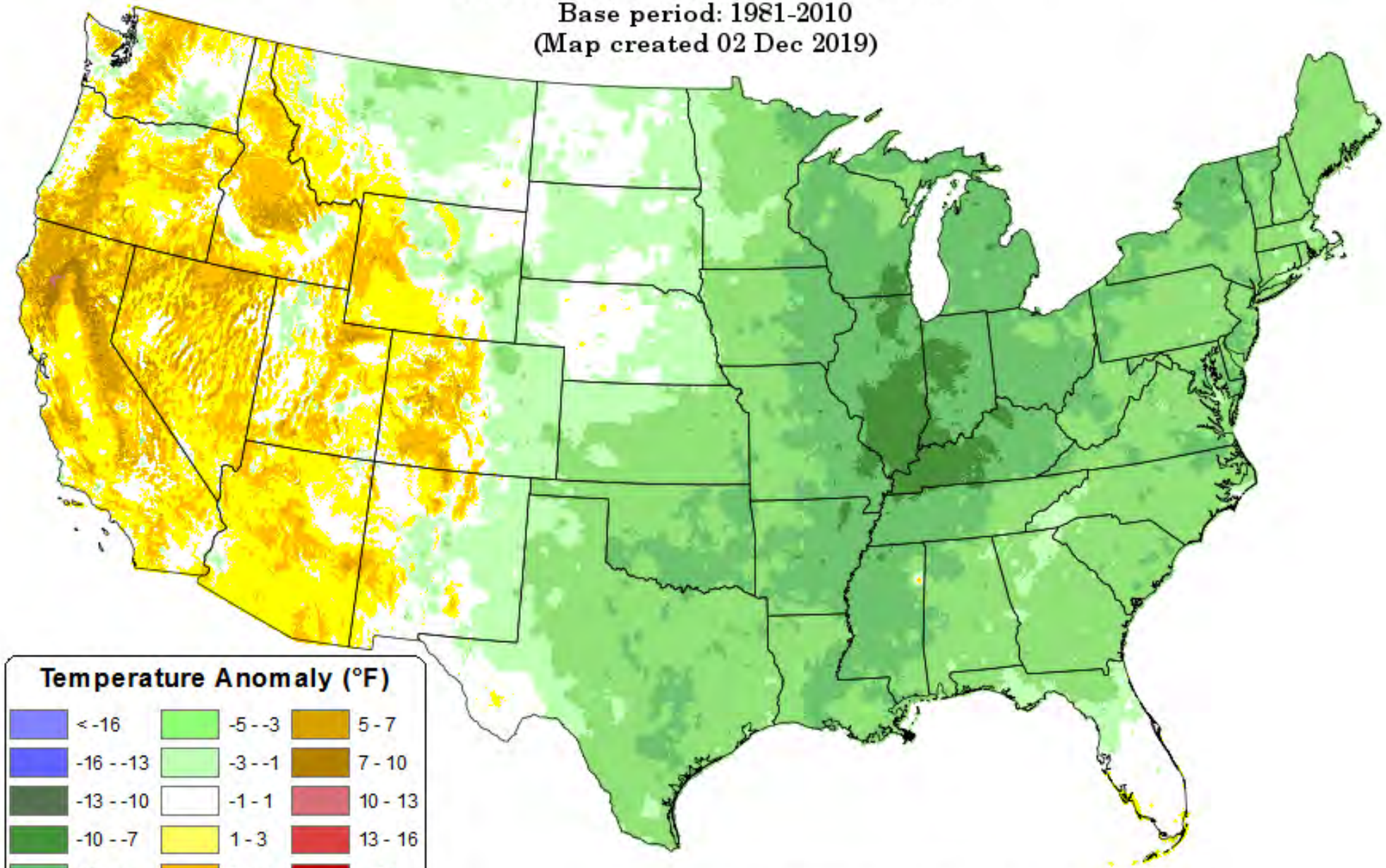
Daily Mean Temperature Anomaly: Nov 2019

Period ending 7 AM EST 30 Nov 2019
Base period: 1981-2010
(Map created 02 Dec 2019)



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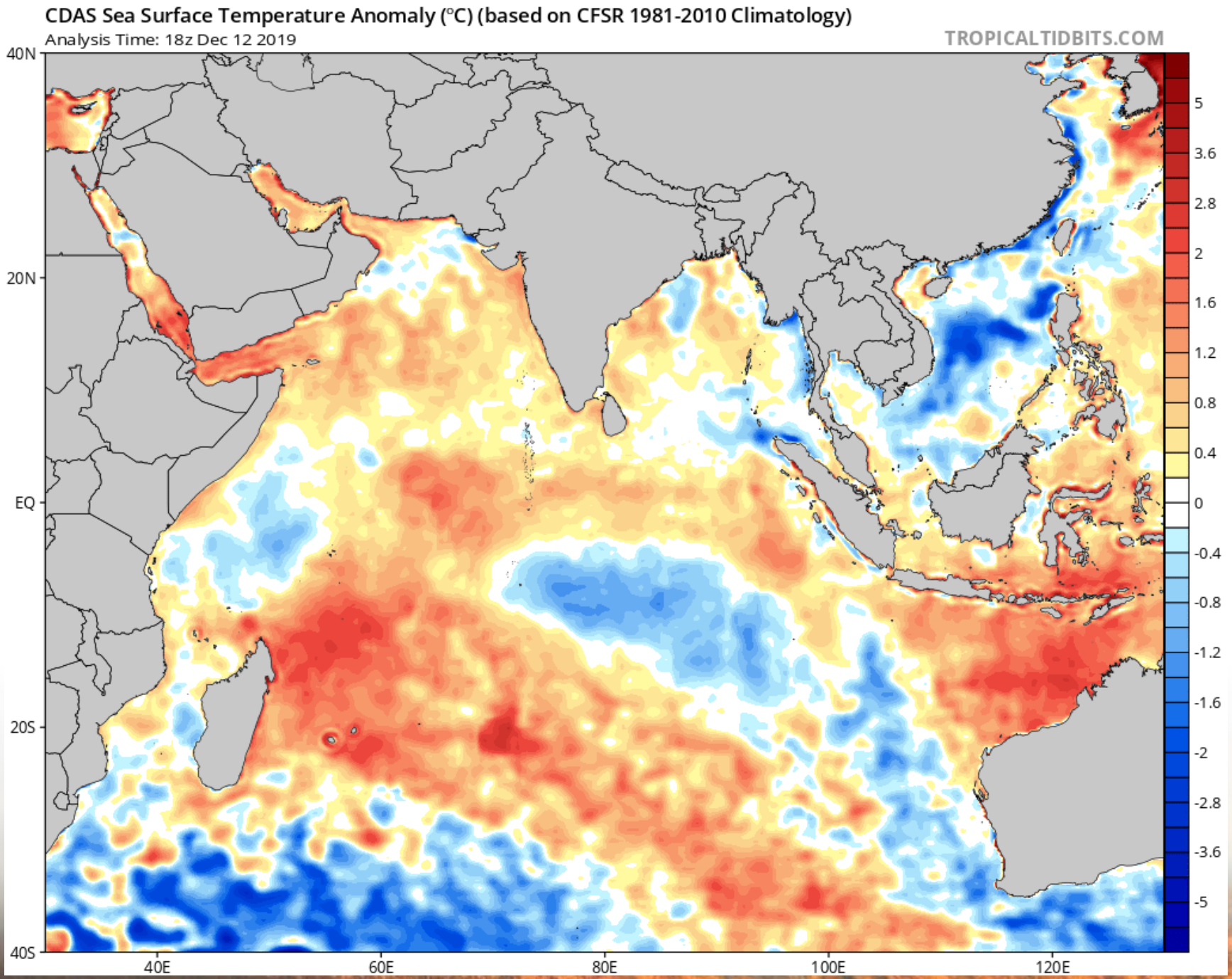
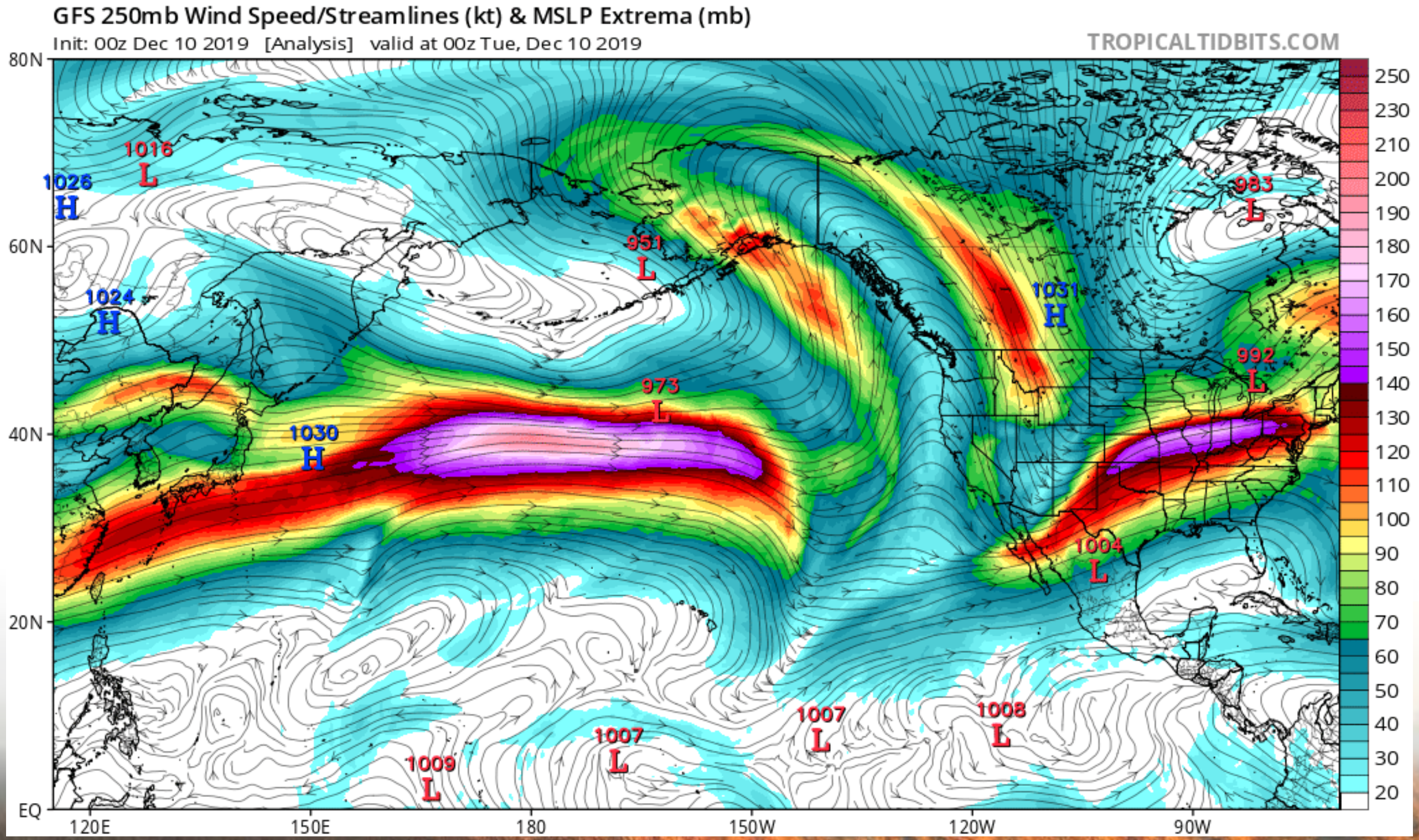

CDAS Sea Surface Temperature Anomaly (°C) (based on CFSR 1981-2010 Climatology)
Analysis Time: 18z Dec 12 2019
TROPICALTIDBITS.COM
40N
20N
EQ
20S
40S
40E
60E
80E
100E
120E
5
3.6
2.8
2
1.6
1.2
0.8
0.4
0
-0.4
-0.8
-1.2
-1.6
-2
-2.8
-3.6
-5


GFS 250mb Wind Speed/Streamlines (kt) & MSLP Extrema (mb)
Init: 00z Dec 10 2019 [Analysis] valid at 00z Tue, Dec 10 2019
TROPICALTIDBITS.COM
80N
60N
40N
20N
EQ
120E
150E
180
150W
120W
90W
1016 L
1026 H
1024 H
951 L
1031 H
983 L
992 L
973 L
1030 H
1004 L
1007 L
1008 L
1007 L
1009 L
250
230
210
200
190
180
170
160
150
140
130
120
110
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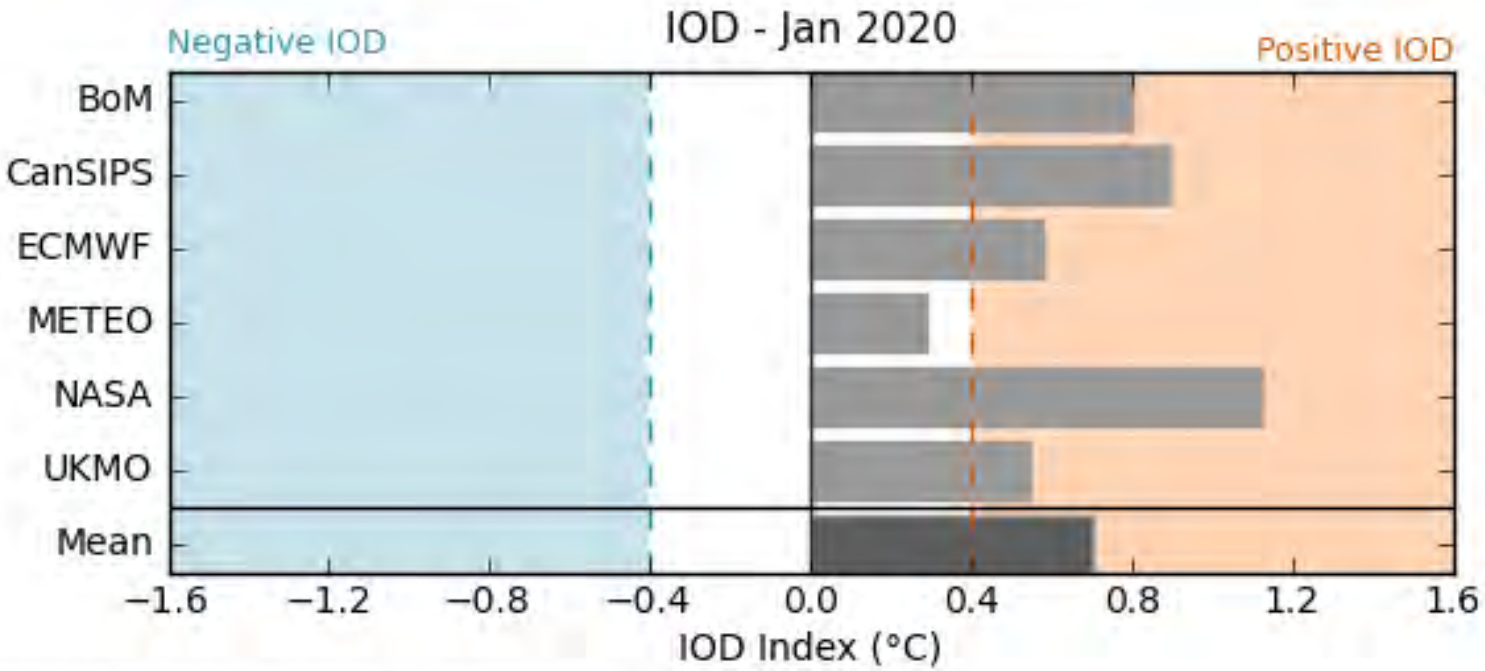
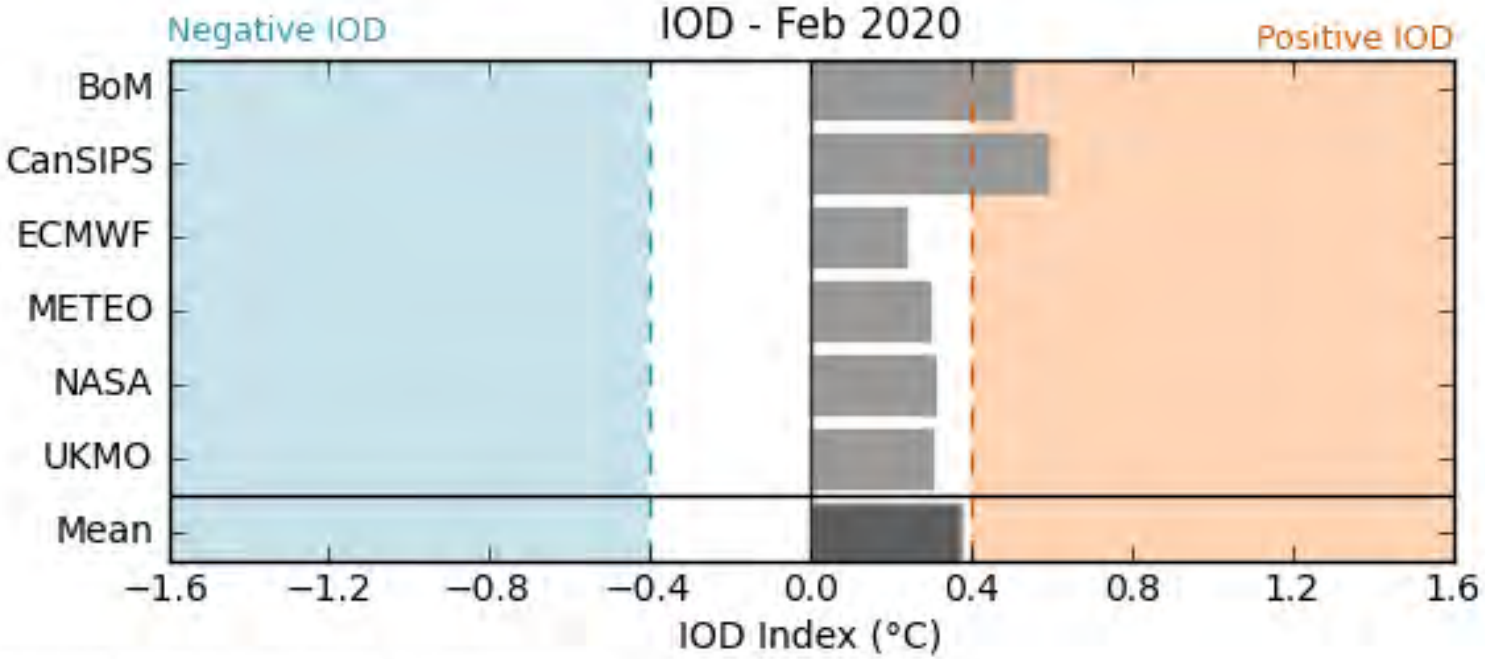
80
70
60
50
40
30
20





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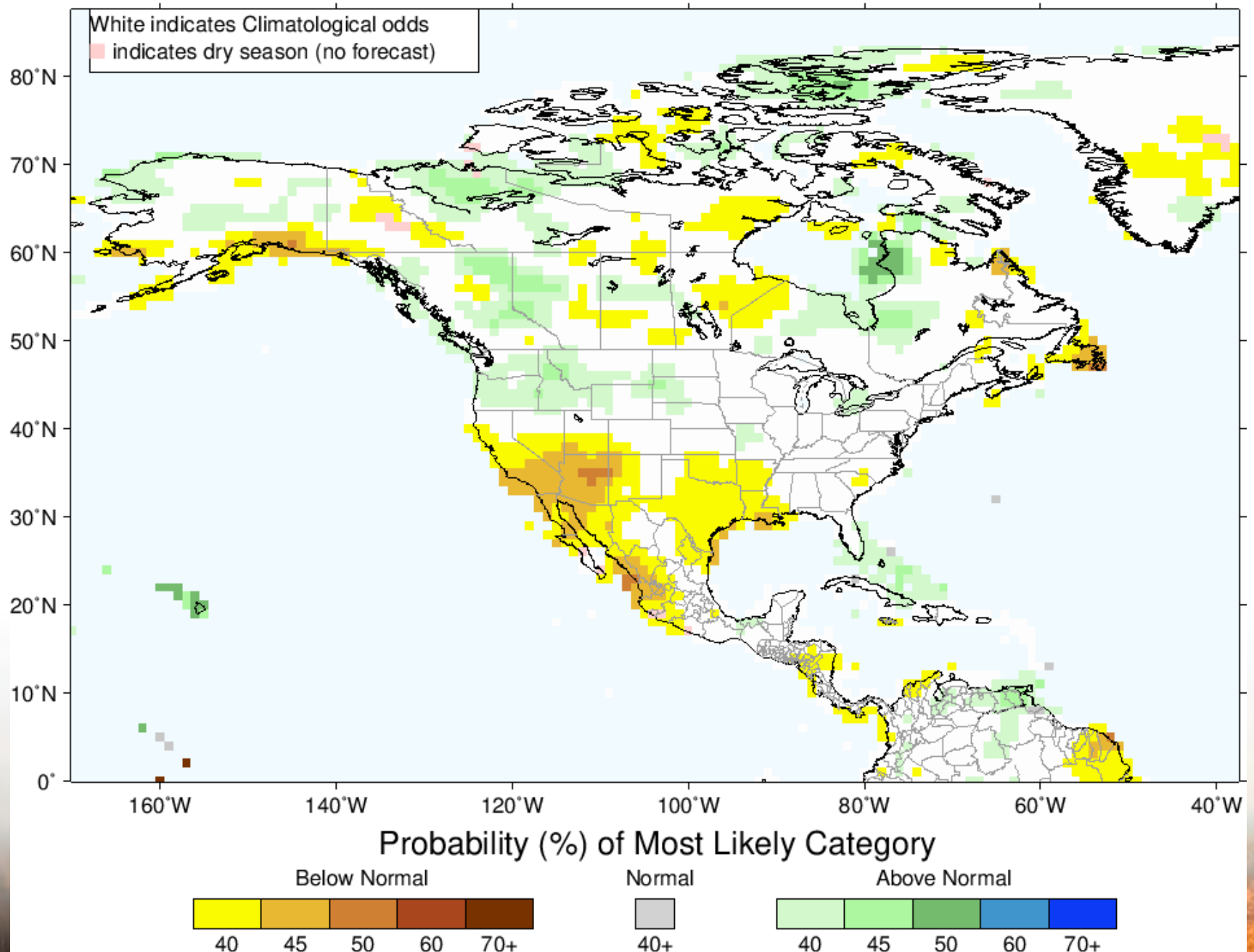
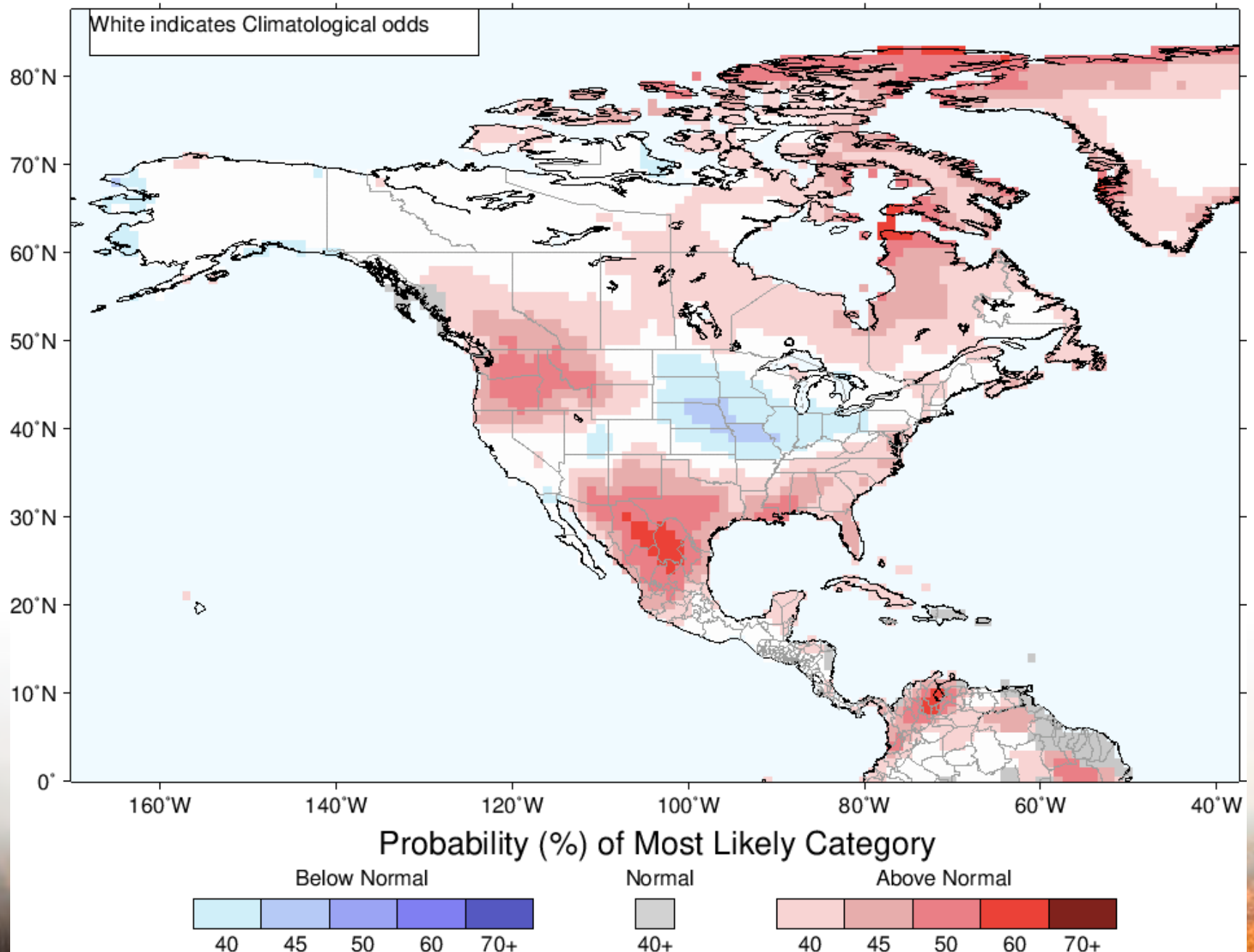
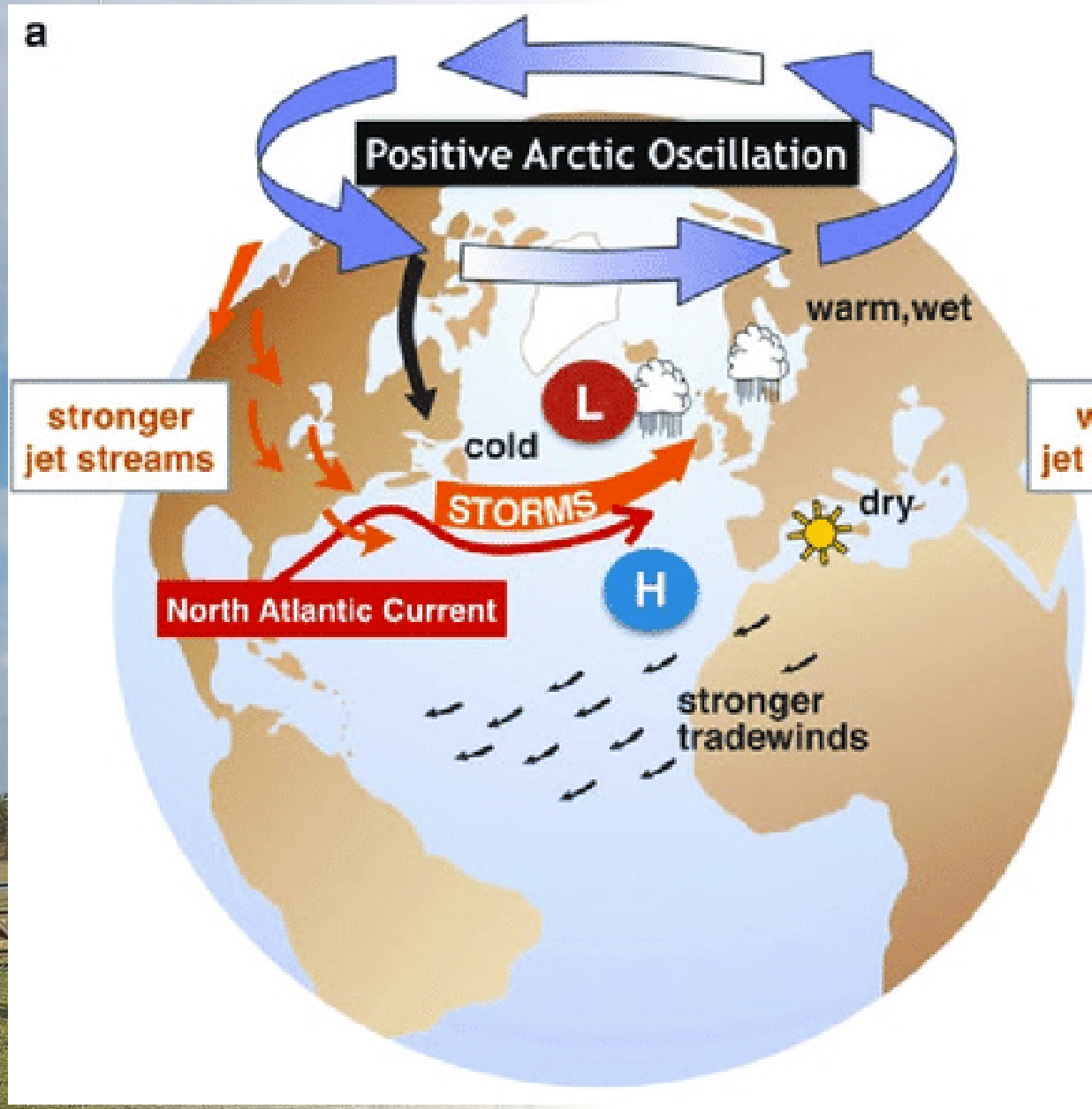
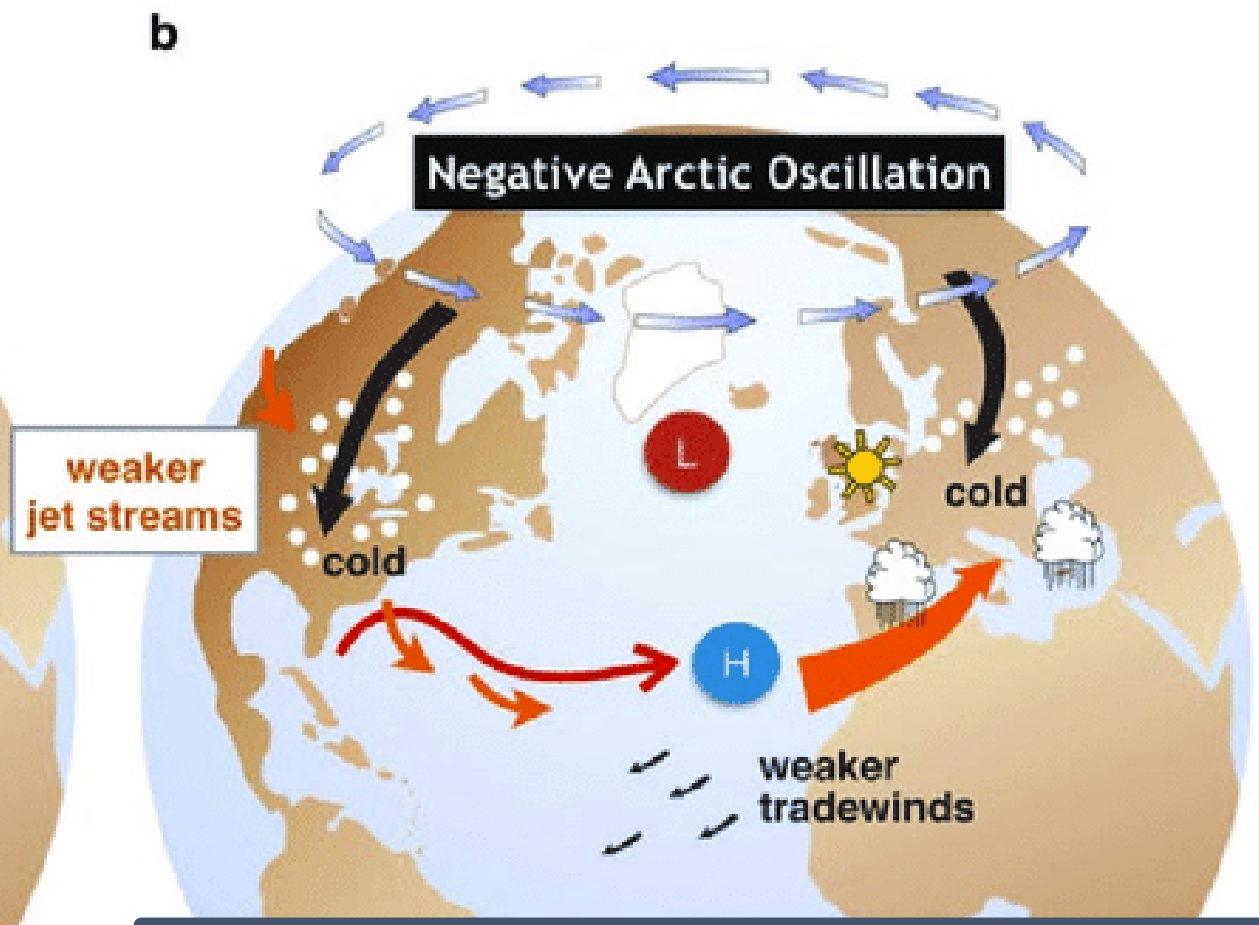
IRI Multi–Model Probability Forecast for Precipitation for January–February–March 2020, Issued November 2019

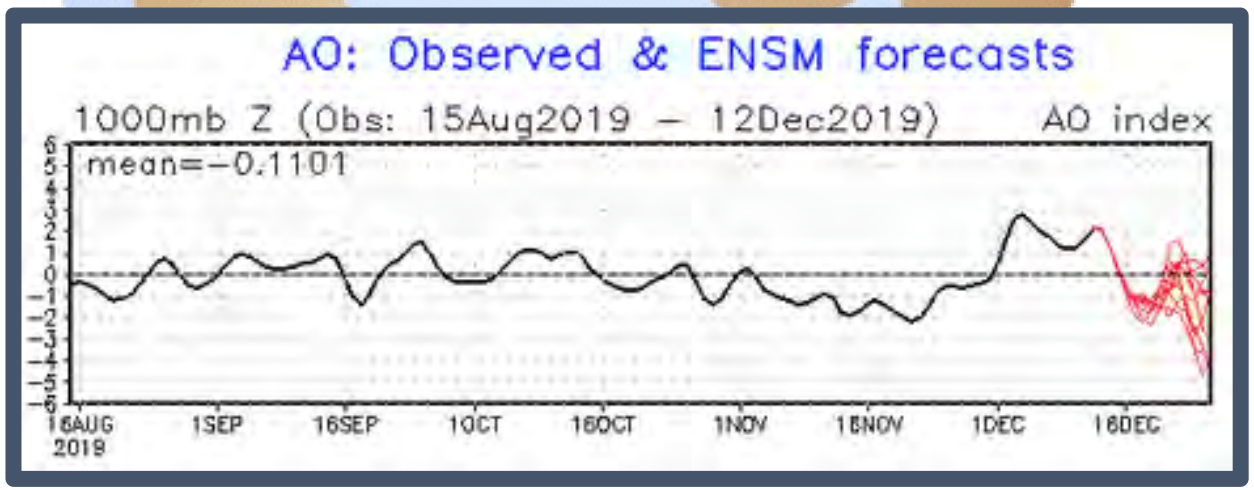


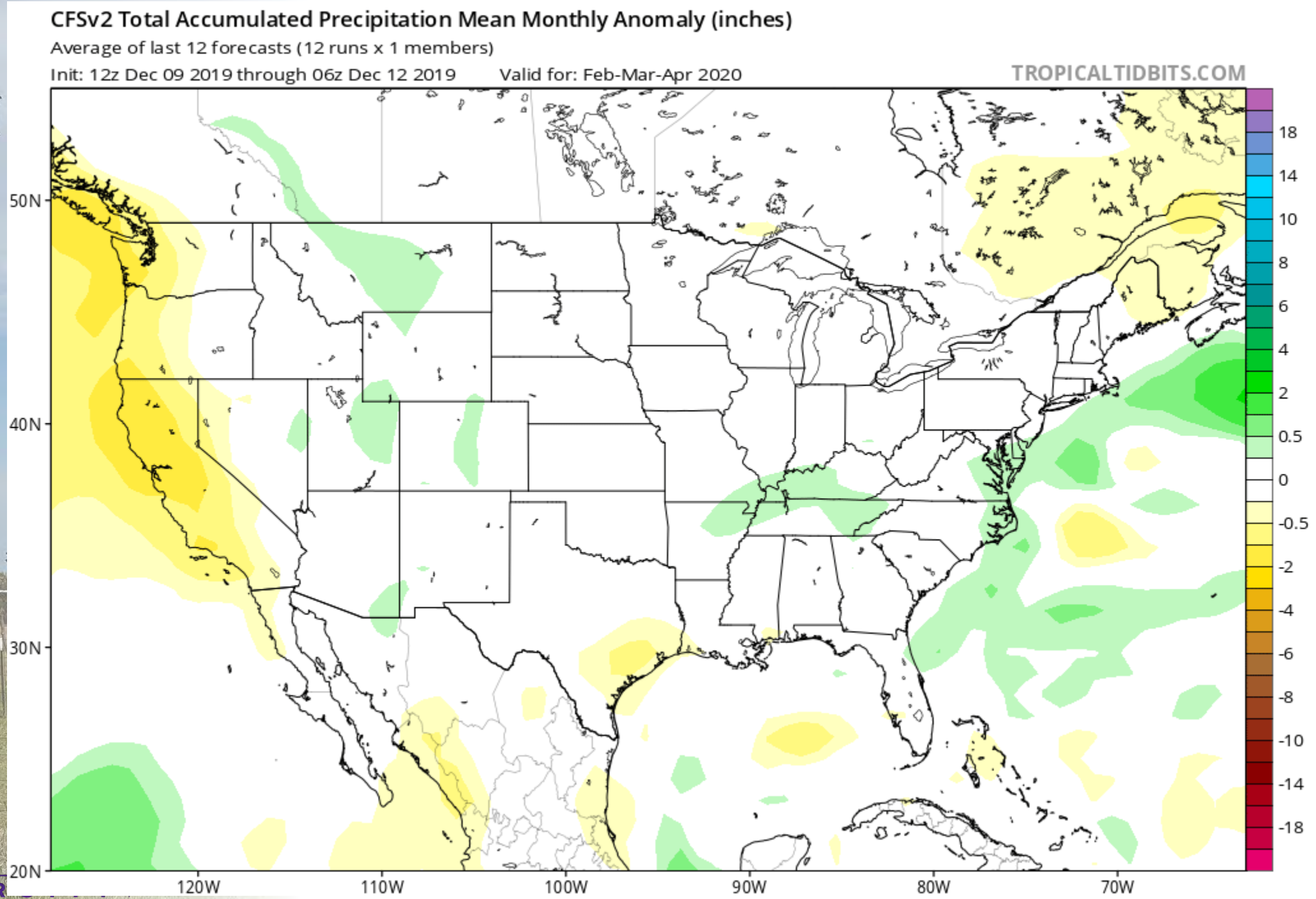
IRI Multi–Model Probability Forecast for Temperature for January–February–March 2020, Issued November 2019



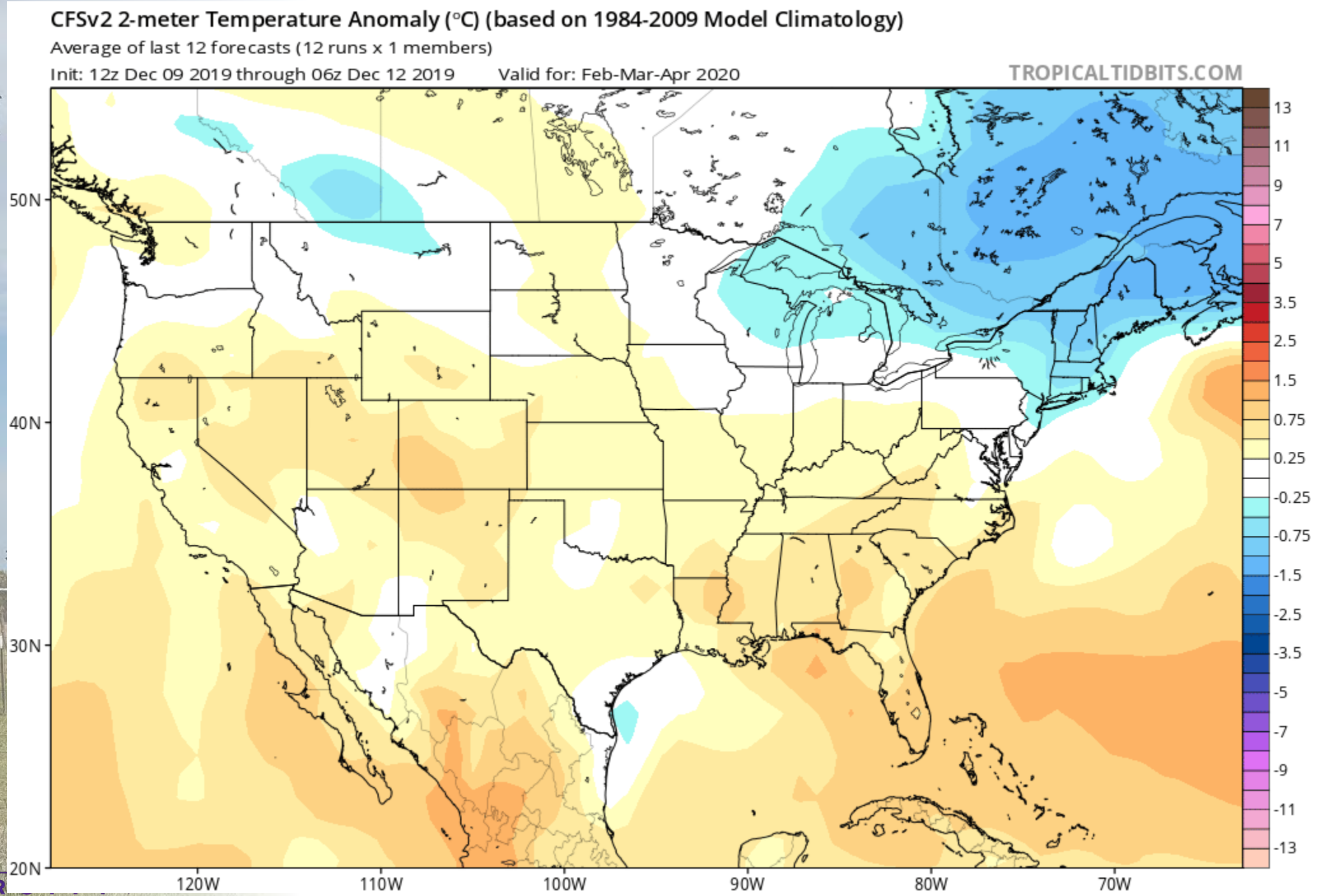

a
Positive Arctic Oscillation
warm,wet
stronger
jet streams
L
cold
STORMS
dry
H
North Atlantic Current
stronger
tradewinds


b
Negative Arctic Oscillation
weaker
jet streams
L
cold
cold
H
weaker
tradewinds

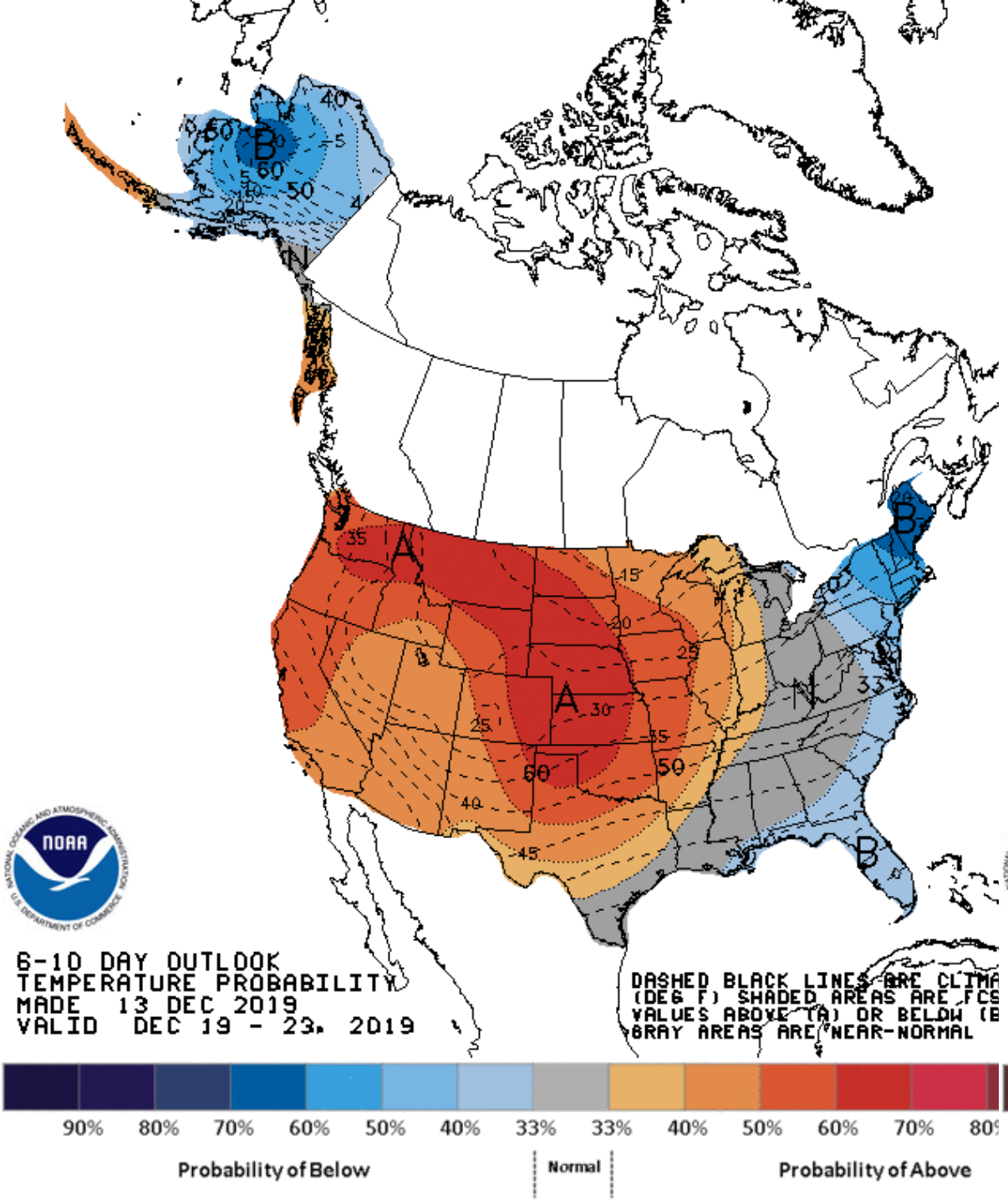

AO: Observed & ENSM forecasts
1000mb Z (Obs: 15Aug2019 – 12Dec2019)
AO index
mean=-0.1101
16AUG 2019
1SEP
16SEP
1OCT
16OCT
1NOV
16NOV
1DEC
16DEC

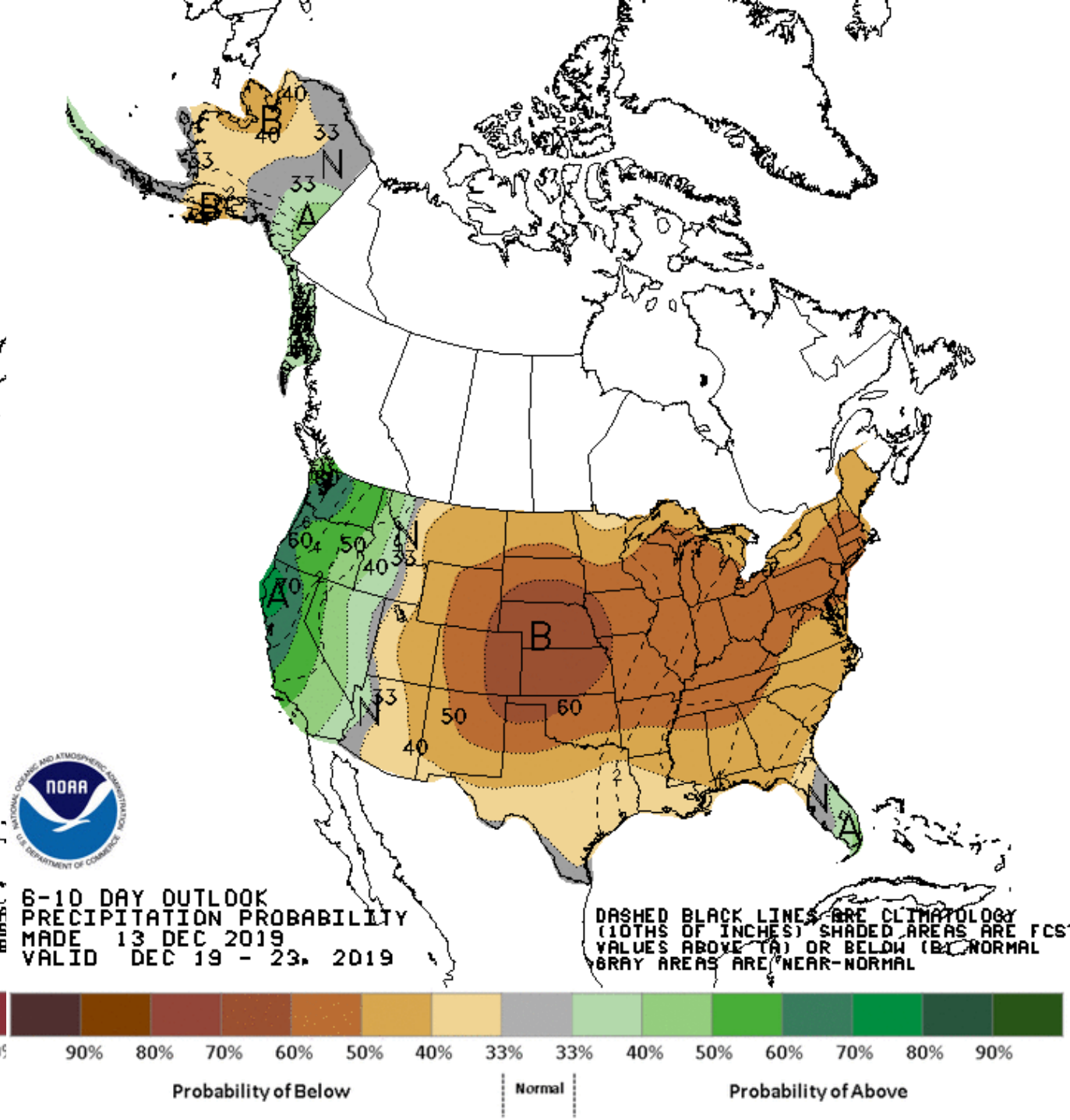


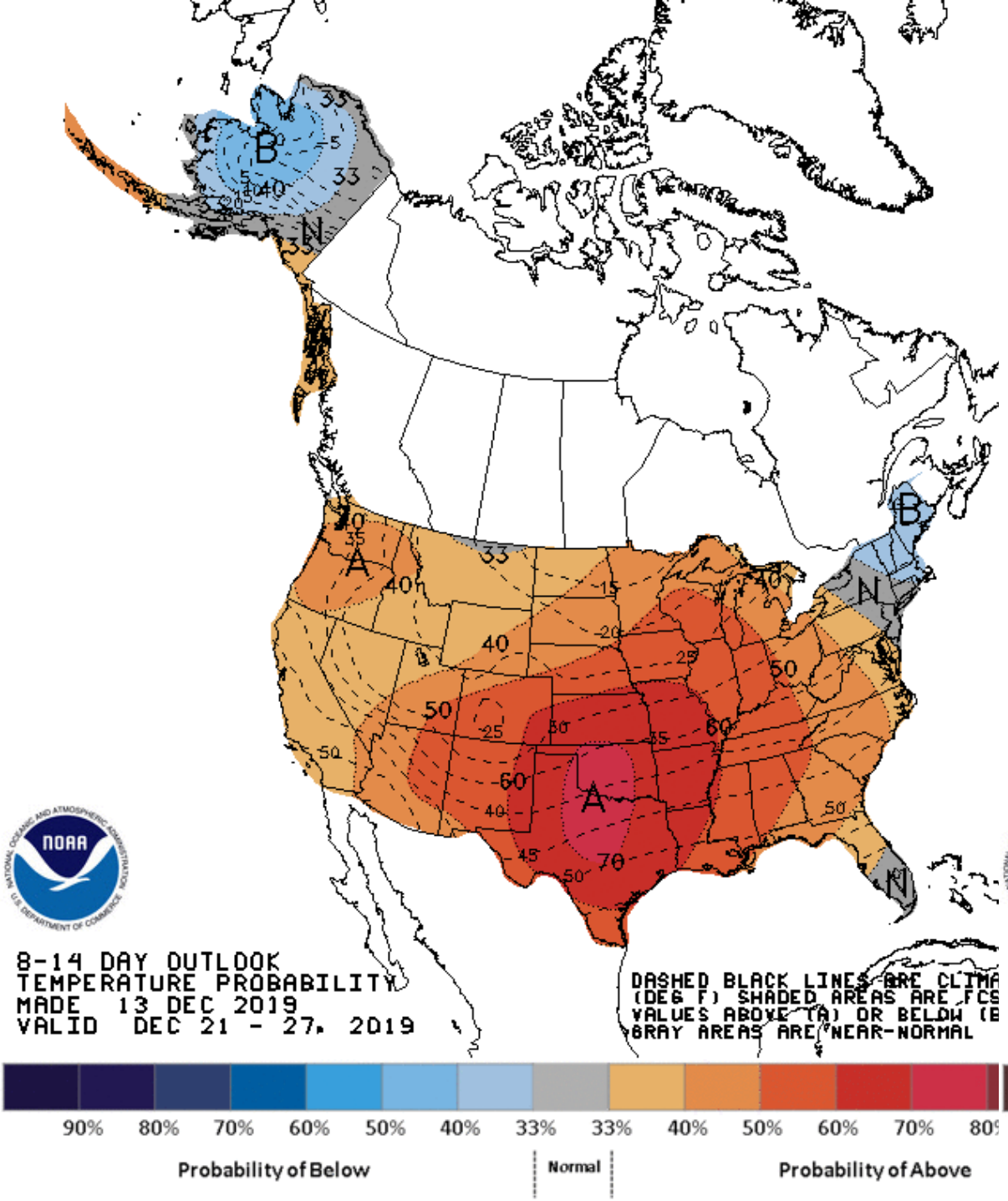
KANSAS
UNIVER

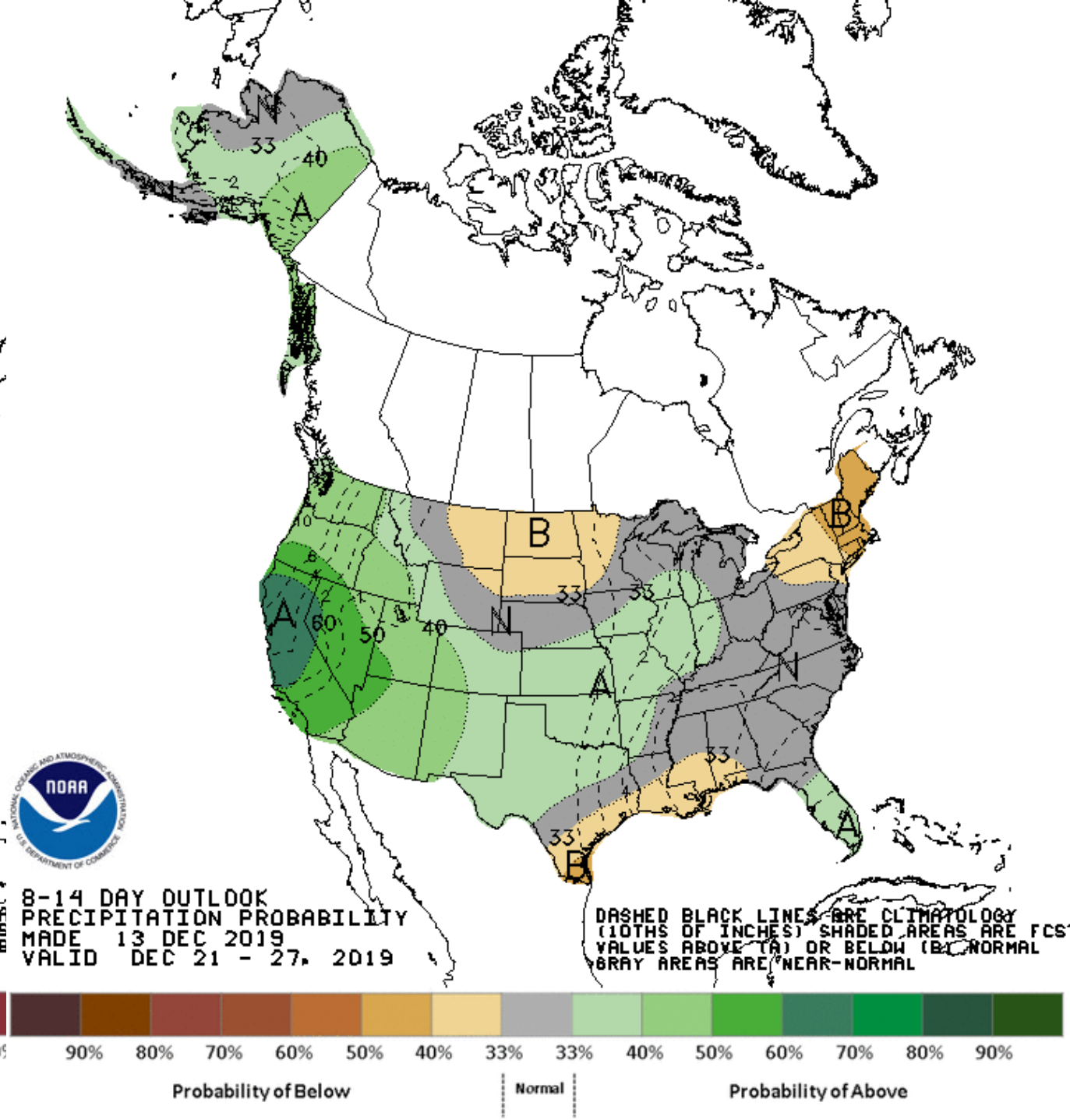


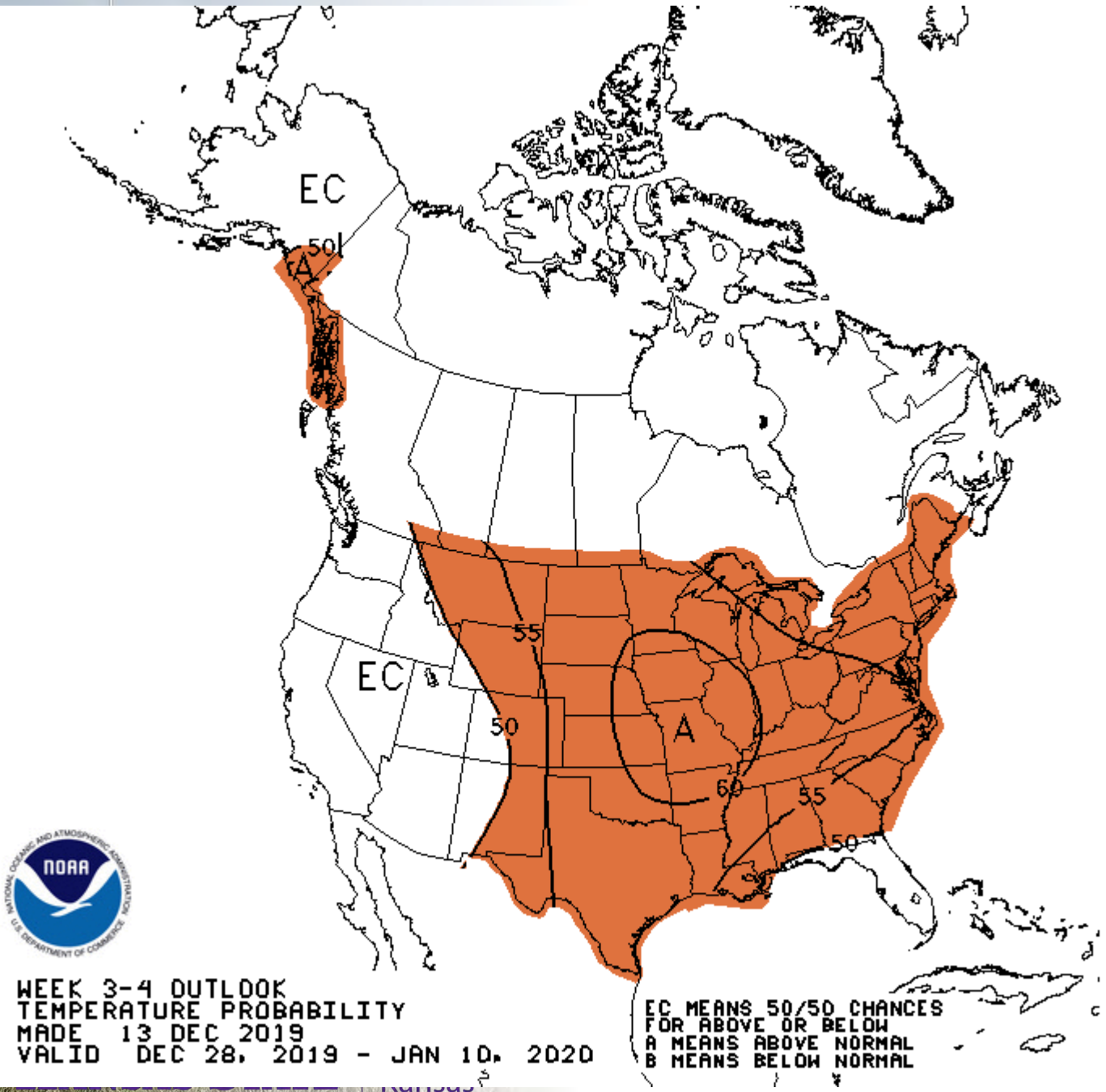
KANSAS
UNIVER

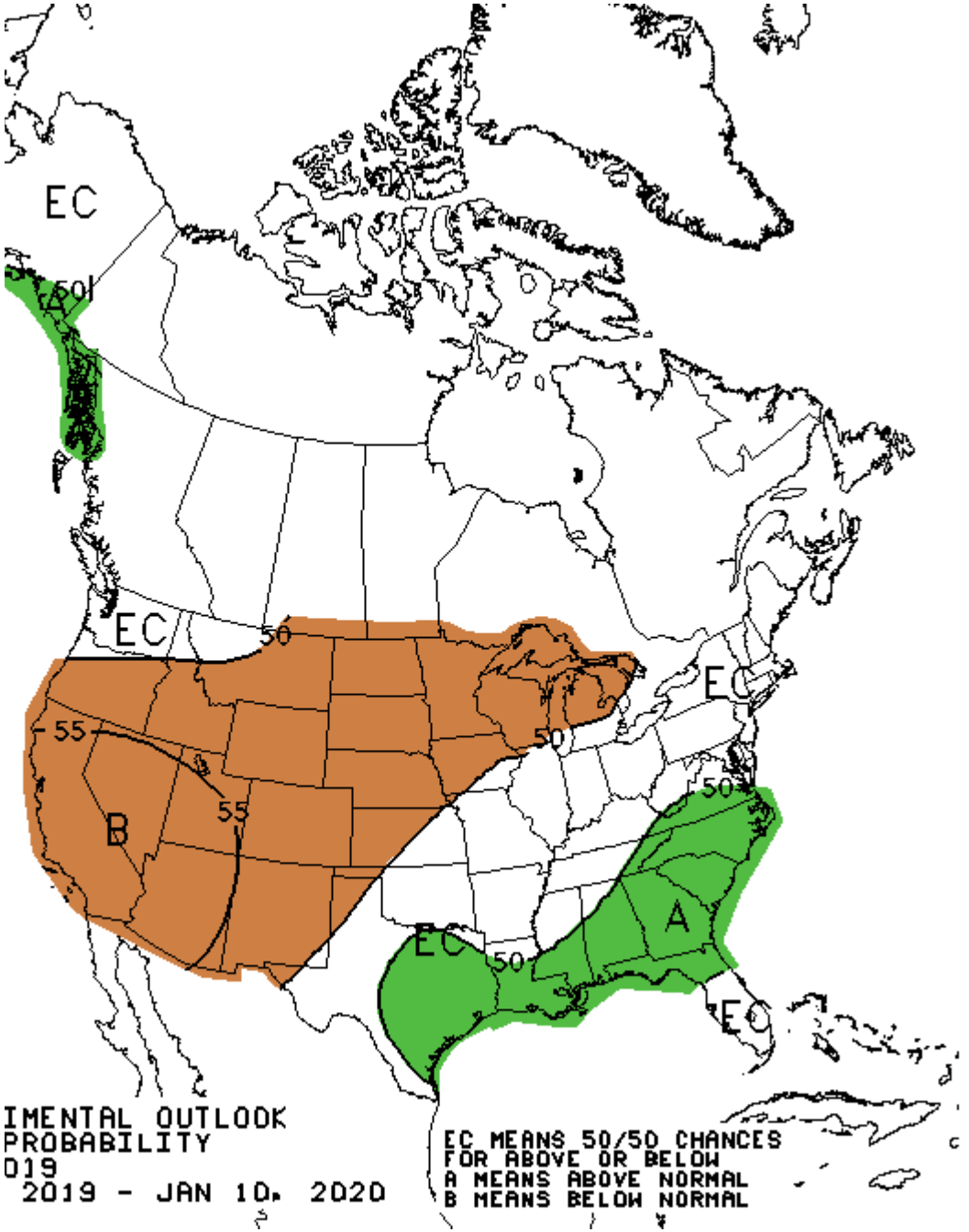

6-10 DAY OUTLOOK
TEMPERATURE PROBABILITY
MADE 13 DEC 2019
VALID DEC 19 - 23, 2019
DASHED BLACK LINES ARE CLIMA
(DEG F) SHADED AREAS ARE FCS
VALUES ABOVE (A) OR BELOW (B
GRAY AREAS ARE NEAR-NORMAL
90% 80% 70% 60% 50% 40% 33% 33% 40% 50% 60% 70% 80%
Probability of Below
Normal
Probability of Above

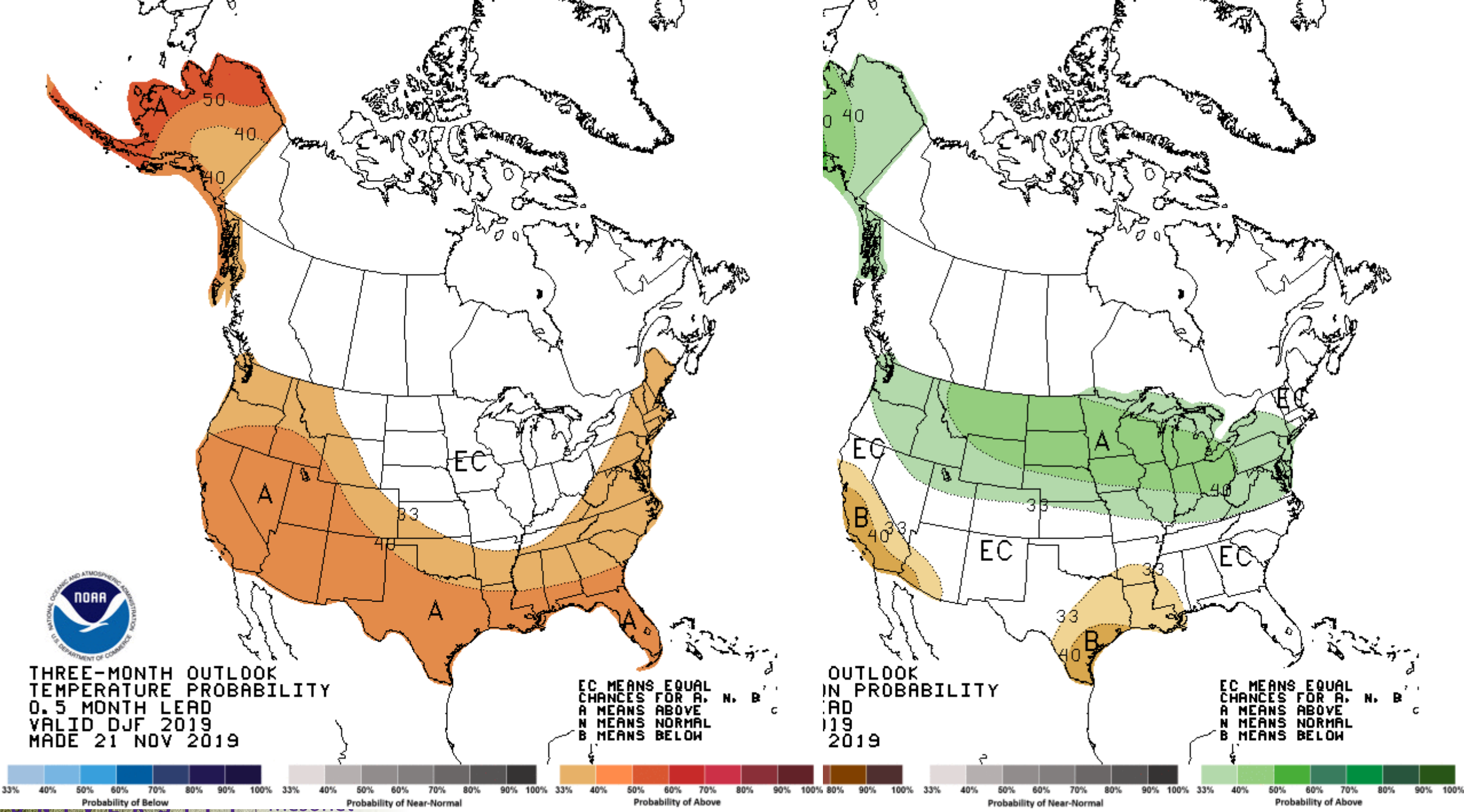

6-10 DAY OUTLOOK
PRECIPITATION PROBABILITY
MADE 13 DEC 2019
VALID DEC 19 - 23, 2019
DASHED BLACK LINES ARE CLIMATOLOGY
(10THS OF INCHES) SHADED AREAS ARE FCS
VALUES ABOVE (A) OR BELOW (B) NORMAL
GRAY AREAS ARE NEAR-NORMAL
90% 80% 70% 60% 50% 40% 33% 33% 40% 50% 60% 70% 80% 90%
Probability of Below
Normal
Probability of Above

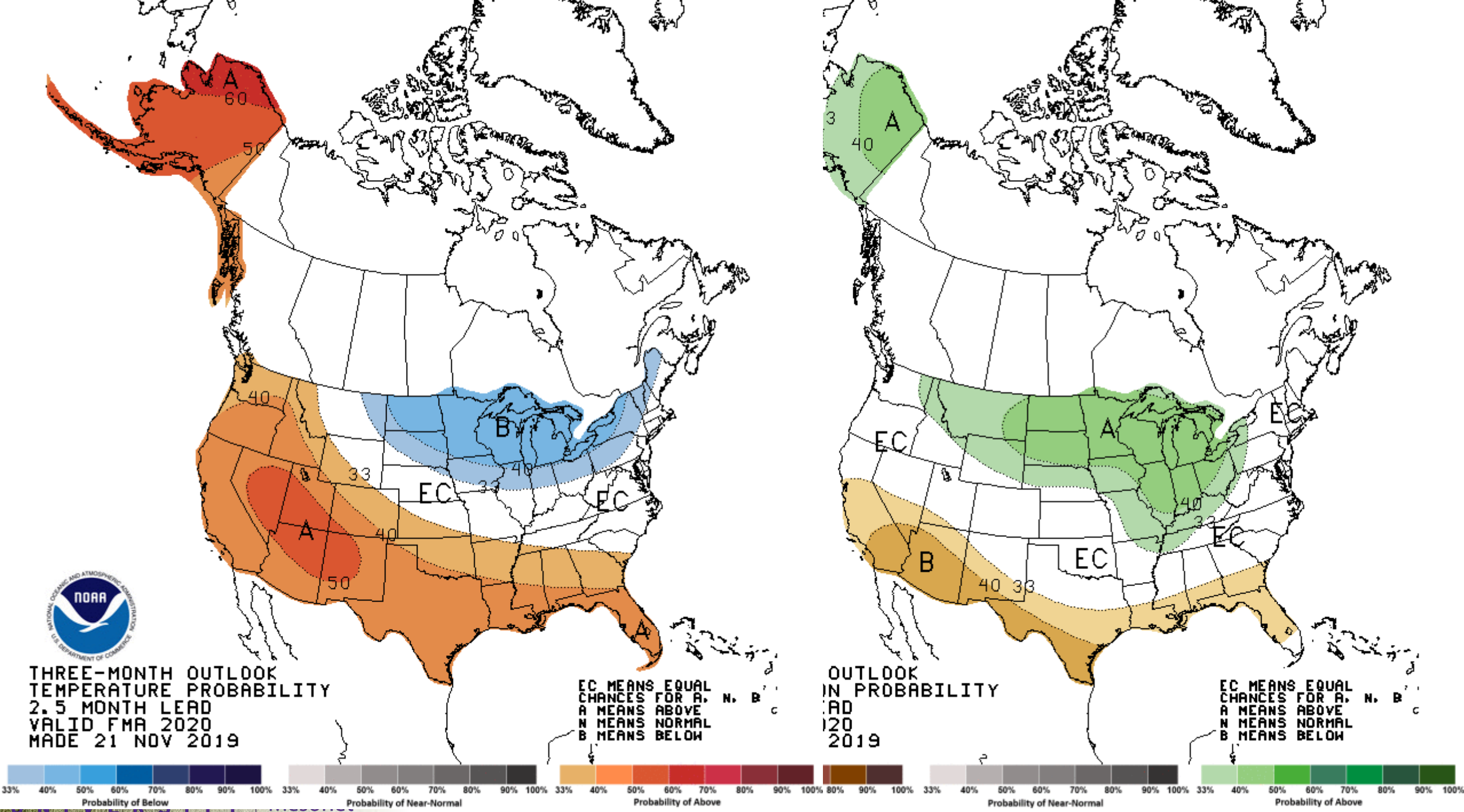

8-14 DAY OUTLOOK
TEMPERATURE PROBABILITY
MADE 13 DEC 2019
VALID DEC 21 - 27, 2019
DASHED BLACK LINES ARE CLIMA
(DEG F) SHADED AREAS ARE FCS
VALUES ABOVE (A) OR BELOW (B
GRAY AREAS ARE NEAR-NORMAL
90% 80% 70% 60% 50% 40% 33% 33% 40% 50% 60% 70% 80%
Probability of Below
Normal
Probability of Above


8-14 DAY OUTLOOK
PRECIPITATION PROBABILITY
MADE 13 DEC 2019
VALID DEC 21 - 27, 2019
DASHED BLACK LINES ARE CLIMATOLOGY
(10THS OF INCHES) SHADED AREAS ARE FCS
VALUES ABOVE (A) OR BELOW (B) NORMAL
GRAY AREAS ARE NEAR-NORMAL
90% 80% 70% 60% 50% 40% 33% 33% 40% 50% 60% 70% 80% 90%
Probability of Below
Normal
Probability of Above

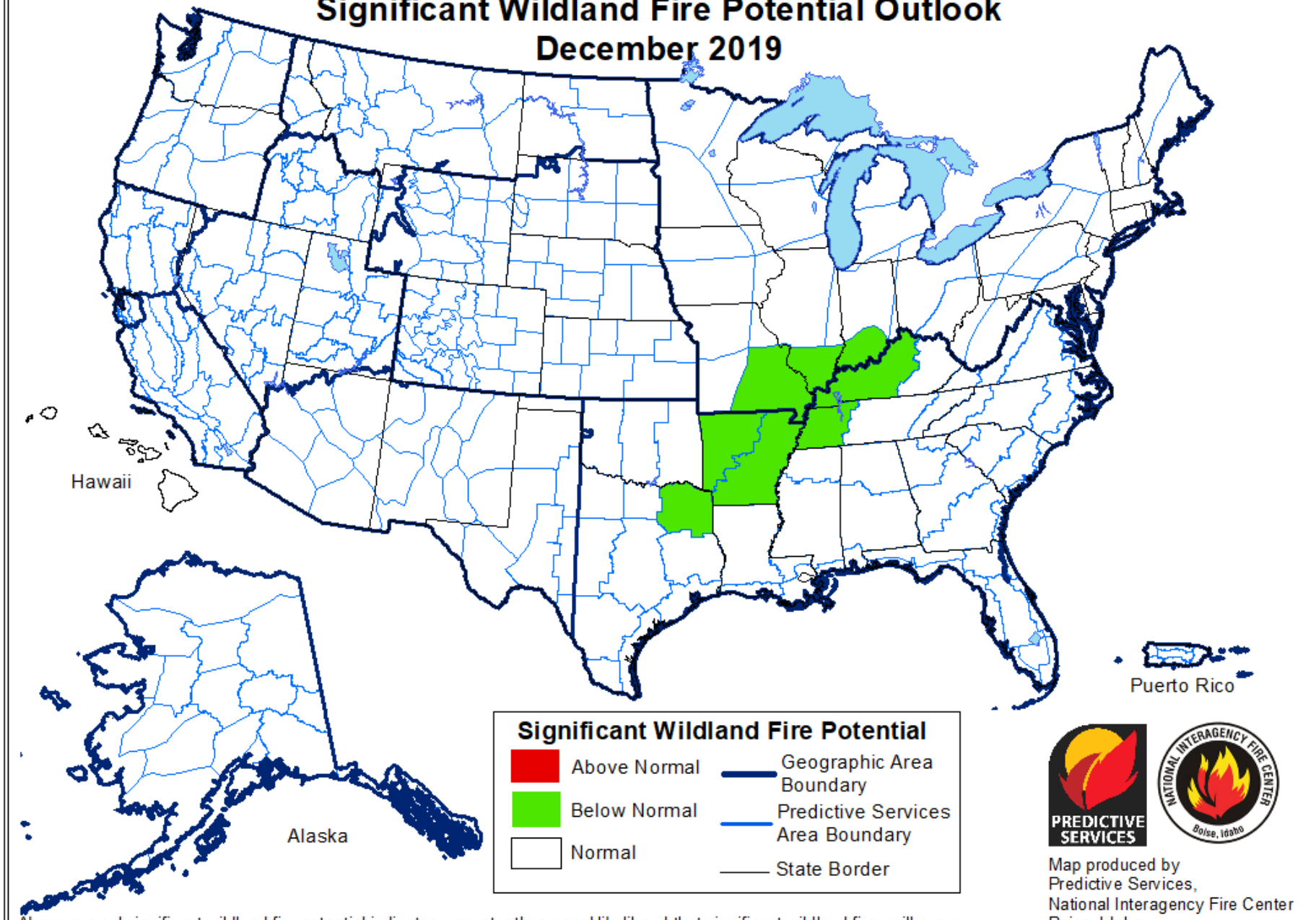

EC
50
A
EC
55
50
A
60
55
50
WEEK 3-4 OUTLOOK
TEMPERATURE PROBABILITY
MADE 13 DEC 2019
VALID DEC 28, 2019 - JAN 10, 2020
EC MEANS 50/50 CHANCES
FOR ABOVE OR BELOW
A MEANS ABOVE NORMAL
B MEANS BELOW NORMAL


EC
50
A
EC
50
55
B
55
50
EC
50
A
EC
50
EC
IMENTAL OUTLOOK
PROBABILITY
019
2019 - JAN 10, 2020
EC MEANS 50/50 CHANCES
FOR ABOVE OR BELOW
A MEANS ABOVE NORMAL
B MEANS BELOW NORMAL


THREE-MONTH OUTLOOK
TEMPERATURE PROBABILITY
0.5 MONTH LEAD
VALID DJF 2019
MADE 21 NOV 2019
EC MEANS EQUAL
CHANCES FOR A, N, B
A MEANS ABOVE
N MEANS NORMAL
B MEANS BELOW
33% 40% 50% 60% 70% 80% 90% 100%
Probability of Below
Probability of Near-Normal
Probability of Above
OUTLOOK
IN PROBABILITY
LAD
019
2019
EC MEANS EQUAL
CHANCES FOR A, N, B
A MEANS ABOVE
N MEANS NORMAL
B MEANS BELOW
Probability of Near-Normal
Probability of Above


THREE-MONTH OUTLOOK
TEMPERATURE PROBABILITY
2.5 MONTH LEAD
VALID FMA 2020
MADE 21 NOV 2019
EC MEANS EQUAL
CHANCES FOR A, N, B
A MEANS ABOVE
N MEANS NORMAL
B MEANS BELOW
OUTLOOK
IN PROBABILITY
AD
20
2019
EC MEANS EQUAL
CHANCES FOR A, N, B
A MEANS ABOVE
N MEANS NORMAL
B MEANS BELOW
33% 40% 50% 60% 70% 80% 90% 100%
Probability of Below
Probability of Near-Normal
Probability of Above
Probability of Near-Normal
Probability of Above

Significant Wildland Fire Potential Outlook
December 2019



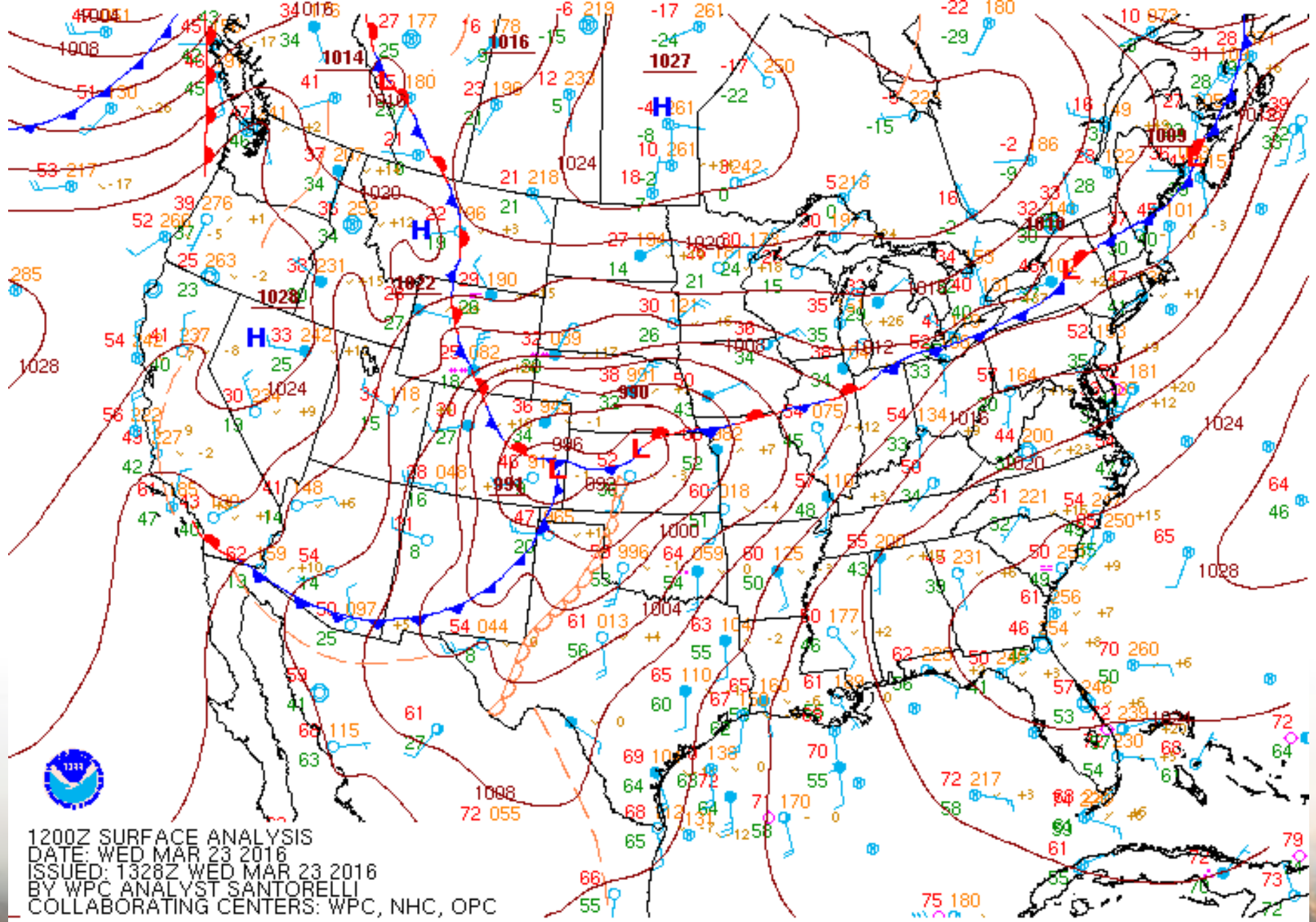
Above normal significant wildland fire potential indicates a greater than usual likelihood that significant wildland fires will occur. Significant wildland fires should be expected at typical times and intervals during normal significant wildland fire potential conditions. Significant wildland fires are still possible but less likely than usual during forecasted below normal periods.

Map produced by
Predictive Services,
National Interagency Fire Center
Boise, Idaho
Issued December 1, 2019
Next issuance January 1, 2020

Fire potential across the region continues in the average range after moderating conditions occurred during November resulting from early season cold temperatures and snowfall. Warm, dry, and windy periods are at a climatological (seasonal) lull this time of year; however, an increase in these events typically occurs during February and especially March as the pre-green fire season expands mainly across the eastern plains. Although large fire activity for the December-March period across the geographic area is expected to be average, the emergence of drought coinciding with areas of heavy fuel loading across southeastern Colorado and southwestern Kansas will need to be monitored for the possibility of an early and extended pre-greenup fire season in February and especially March.

Thoughts on upcoming season…

- Significant fuel load usually implies more fire activity, even on less potent days
- Snow could still mitigate some fuels concerns - expect more smoldering/rekindles
- No drought relief into spring - anticipate continued expansion
- Warmer than normal temperatures very likely
- More fire activity than 2019 <u>almost guaranteed</u>
- Expect normal to above normal fire season


1200Z SURFACE ANALYSIS
DATE: WED MAR 23 2016
ISSUED: 1328Z WED MAR 23 2016
BY WPC ANALYST SANTORELLI
COLLABORATING CENTERS: WPC, NHC, OPC

Followup...

kansasforests.org

mesonet.ksu.edu

weather.gov/ict

christopherredmond@ksu.edu

@wx_chip

@ksmesonet

Weather Observations

- Why
- When
- Where
- How

Fire Weather and Fire Behavior Impacts from Clouds

http://www.predictiveservices.nifc.gov

http://www.weather.gov
http://fire.boi.noaa.gov

High Clouds:

Cloud bases typically 16,000 - 50,000 ft (5-15 km)
Usually seen as indirect indicators of potential behavior

Cirrus Streaks
Single or multiple bands across sky indicating Jet Stream aloft - Possible instability or surface winds increasing fire behavior

Cirrus
Dense, in patches, not increasing, or with tufts - No significant fire weather or fire behavior expected

Cirrus
Anvil shaped remains of a thunderstorm - Watch for gusty winds from nearby decaying thunderstorms

Cirrus
In hooks or filaments, increasing in density - Often indicates cold air aloft, watch for possible instability leading to more active fire

Cirrus
Cirrus bands, transparent, relatively near the horizon - Typically indicates weather fronts are 2 to 3 days away

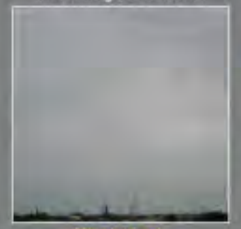
Cirrus
Cirrus bands, covering majority of the sky with sun obscured - Typically indicates weather fronts are one day or less away

Cirrostratus
Sun mostly visibile - No significant impact on fire weather or fire behavior

Cirrocumulus
Alone or with some cirrus or cirrostratus - very high instability, usually little impact on surface conditions

Middle Clouds:

Cloud bases typically 6,500 - 23,000 ft (2-7 km)
Can be direct and/or indirect indicators of potential behavior



Altostratus / Nimbostratus
Usually dense enough to hide the sun or moon - Often contains steady rain, watch for slippery footing, expect minimal fire activity

Altocumulus
Semi-transparent, one level - Indicates weak mid-level instability and increasing moisture, possible monsoon thunderstorm development within 24 hours

Wave Cloud
Formed by strong winds over uneven terrain, often repeating downstream - These strong winds may surface and result in running fire

Altocumulus
One or more bands or layers, expanding, thickening - Indicates instability present, monitor for additional development

Altocumulus
From the spreading of cumulus or cumulonimbus - Could indicate presence of nearby thunderstorms, caution for gusty winds generally from the direction of the clouds

Altocumulus
Generally opaque layers, possibly containing virga - Weak instability, virga may result in gusty winds, cloud density usually inhibits further convection

Altocumulus Floccus (Shearing / Altocumulus Castellanus)
Cumulus-like tufts or flat base with turrets - When observed in morning hours, often indicates afternoon / evening thunderstorms

Altocumulus
Chaotic sky, cloud bases at several levels - Lower cloud base may block view of higher based storms, hides potential for lightning and gusty winds

Low Clouds:

cloud bases up to 6,500 ft (0-2 km)
Usually have direct impacts on potential fire weather and fire behavior

Fair Weather Cumulus
Flattened Appearance - Weak instability present, but rarely results in further development, active fire behavior still possible, especially under low humidity

Cumulus
Moderate/strong vertical development, or towering cumulus - Atmosphere is unstable, monitor for futher development and increased fire activity

Cumulonimbus (aka CB)
Tops not fibrous, no anvil - Significant vertical motion present, gusty downdrafts likely, thunderstorms are possible, erratic fire activity

Stratocumulus
Moderate instability - Showers and downdrafts likely, thunderstorms possibly hidden, variable fire behavior

Stratus
Smooth appearance, continuous low layer - Often inhibits aircraft use, minimal fire activity

Stratus Fractus / Cumulus Fractus
Occurs with rain or snow - Usually associated with cold front, winds may push fire

Stratocumulus & Cumulus
Usually associated with cool weather - Fire activity may increase with afternoon heating and instability

Strong Thunderstorm
Strong downdraft winds, lightning, heavy rain, and hail possible underneath - Distant terrain channelled winds and lightning possible

Special cases:

These phenomena occur under significantly unstable conditions - Exercise extreme caution when they are observed, particularly when fire is between you and it

Pyrocumulus
Unstable conditions where smoke moisture condenses to form cumulus - Downdrafts, rain, lightning possible

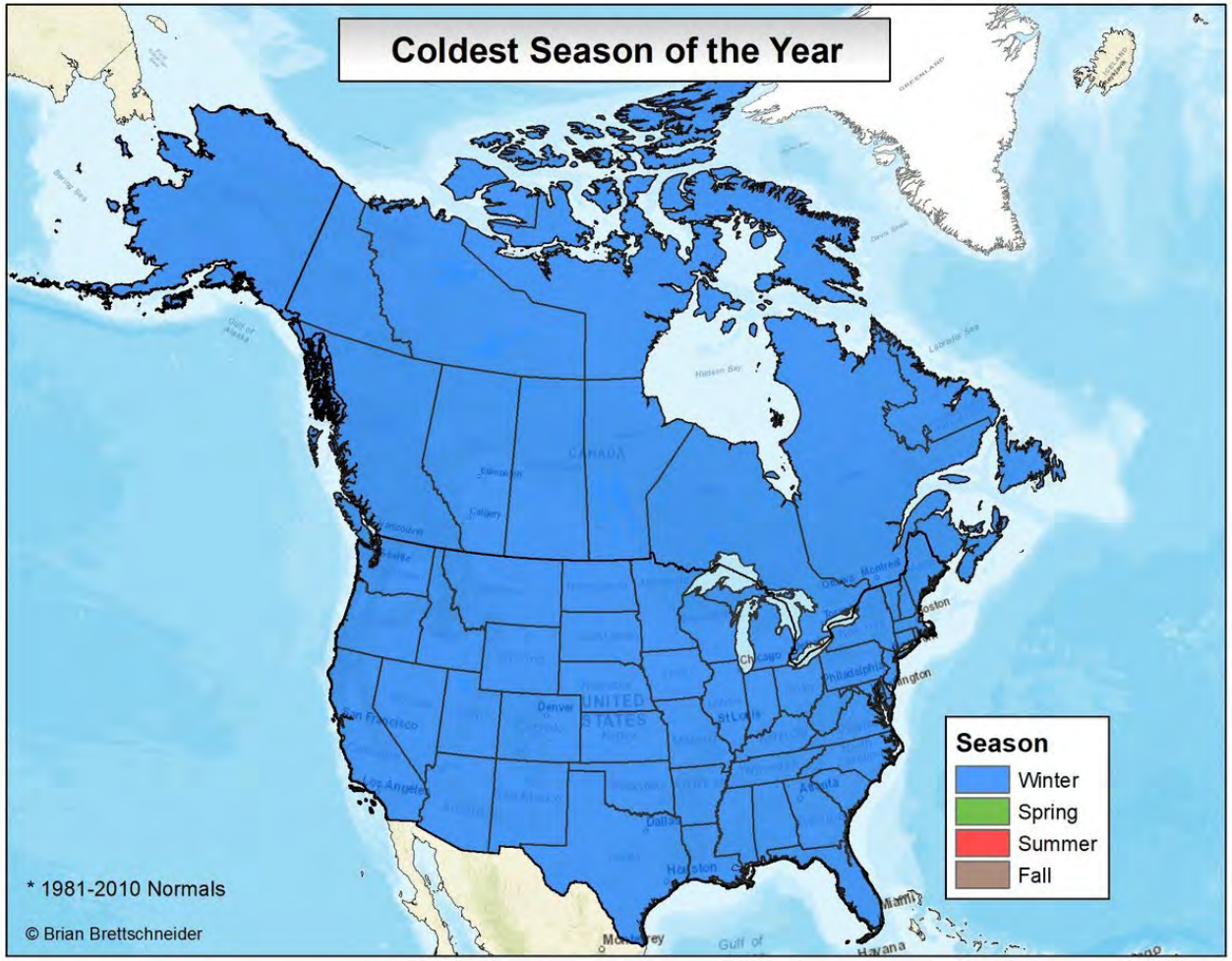
Tornado
Rapidly rotating column that touches the ground under a thunderstorm - Seek immediate shelter in a sturdy building

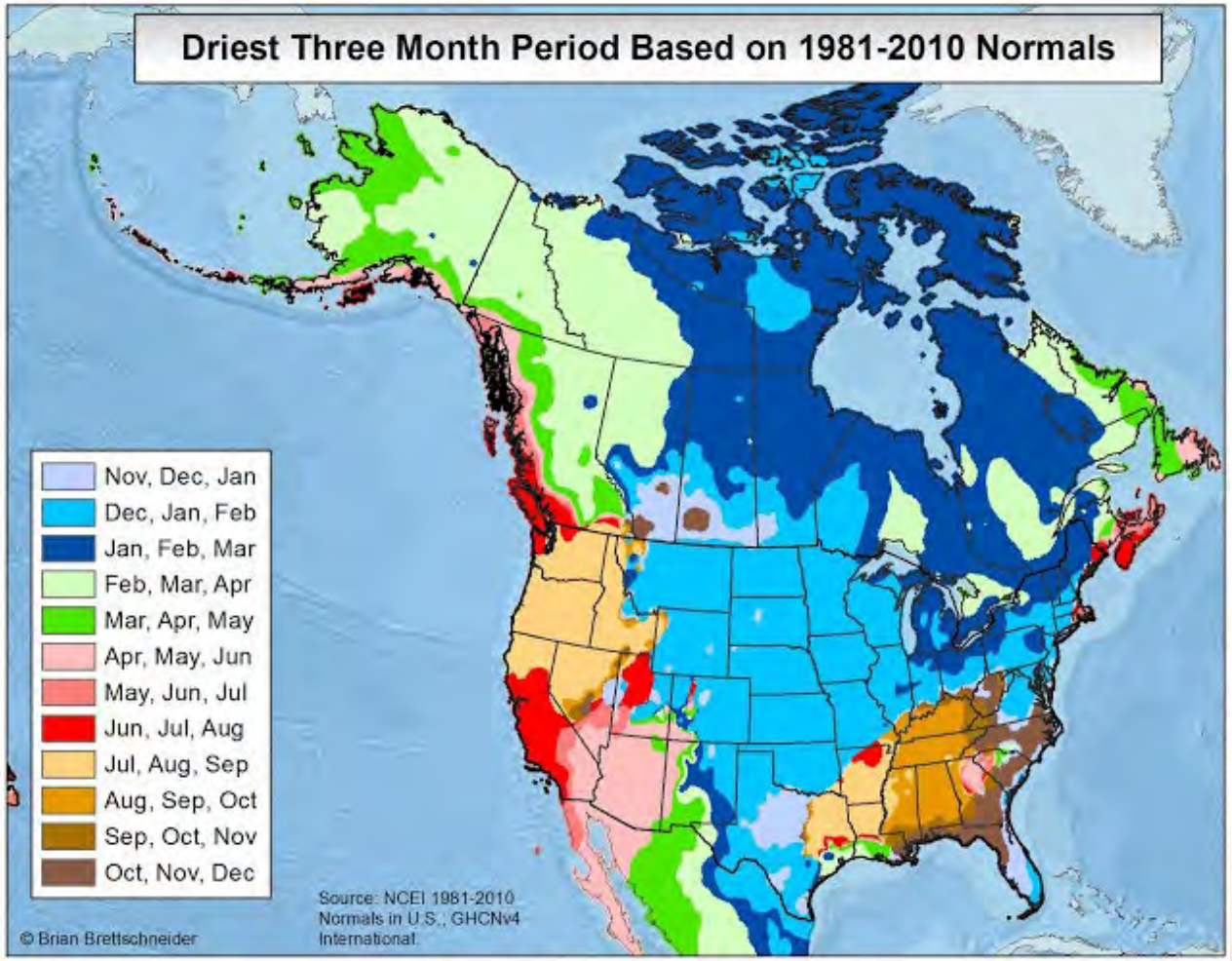
Fire Whirl
Localized, intense wind swirl under unstable conditions with possible speeds exceeding 50 mph - Can scatter fire, spot across lines, and enter safe zones

Shelf Cloud
Represents the leading edge of strong winds in advance of a thunderstorm - can extend ahead and past the main thunderstorm column

Virga
Rain or snow that evaporates before reaching the ground - Sudden, gusty outflow winds may dramatically increase fire behavior

Special photo credit thanks to Jim W. Lee, Eric Kurth, Brian Klimowski, Eric Helgeson, Mike Richmond, Coleen Decker, Julia Ruthford, and Robert Survick


Coldest Season of the Year
Season
Winter
Spring
Summer
Fall
* 1981-2010 Normals
© Brian Brettschneider


Driest Three Month Period Based on 1981-2010 Normals
Nov, Dec, Jan
Dec, Jan, Feb
Jan, Feb, Mar
Feb, Mar, Apr
Mar, Apr, May
Apr, May, Jun
May, Jun, Jul
Jun, Jul, Aug
Jul, Aug, Sep
Aug, Sep, Oct
Sep, Oct, Nov
Oct, Nov, Dec
Source: NCEI 1981-2010 Normals in U.S.; GHCNv4 International.
© Brian Brettschneider

[EMP] EMPORIA Daily High Temperature Departure

1 Feb 2018 thru 31 May 2018

February 2018

SUN	MON	TUE	WEED	THU	FRI	SAT
				1 -3	2 -3	3 6
4 -6	5 -11	6 -19	7 -7	8 [illegible]	9 0	10 -25
11 -9	12 -6	13 6	14 22	15 25	16 -6	17 10
18 8	19 15	20 -18	21 -23	22 -16	23 -15	24 -13
25 3	26 13	27 17	28 13			

March 2018

SUN	MON	TUE	WED	THU	FRI	SAT
				1 3	2 [illegible]	3 [illegible]
4 14	5 [illegible]	6 [illegible]	7 [illegible]	8 -4	9 17	10 9
11 -8	12 -2	13 -2	14 10	15 [illegible]	16 [illegible]	17 -3
18 -4	19 -11	20 -13	21 -2	22 [illegible]	23 12	24 0
25 -11	26 -2	27 -14	28 -10	29 -17	30 0	31 0

April 2018

SUN	MON	TUE	WED	THU	FRI	SAT
1 -29	2 -22	3 -18	4 [illegible]	5 [illegible]	6 -17	7 -21
8 [illegible]	9 -12	10 2	11 [illegible]	12 [illegible]	13 14	14 -24
15 -27	16 [illegible]	17 [illegible]	18 1	19 [illegible]	20 -4	21 -16
22 -9	23 4	24 7	25 -18	26 -1	27 3	28 [illegible]
29 7	30 9					

May 2018

SUN	MON	TUE	WED	THU	FRI	SAT
		1 4	2 10	3 8	4 5	5 10
6 13	7 12	8 13	9 12	10 10	11 10	12 11
13 13	14 8	15 4	16 4	17 7	18 2	19 4
20 -9	21 0	22 6	23 8	24 5	25 6	26 11
27 10	28 9	29 8	30 6	31 8		

Generated at 10 Dec 2019 8:28 PM CST in 5.08s

IEM Autoplot App #82

[EMP] EMPORIA Daily Precipitation

1 Feb 2018 thru 31 May 2018

February 2018

SUN	MON	TUE	WED	THU	FRI	SAT
				1 0	2 0	3 0
4 0.01	5 0	6 0	7 0	8 [illegible]	9 0	10 T
11 T	12 0	13 0	14 0	15 T	16 0	17 0
18 0	19 0.02	20 0.46	21 T	22 0.10	23 0.05	24 0.02
25 0	26 0	27 0	28 0			

March 2018

SUN	MON	TUE	WED	THU	FRI	SAT
				1 0	2 [illegible]	3 [illegible]
4 T	5 [illegible]	6 [illegible]	7 [illegible]	8 0	9 0	10 T
11 0	12 0	13 0	14 0	15 [illegible]	16 0 [illegible]3	17 0
18 0.36	19 1.08	20 0	21 0	22 [illegible]	23 T	24 0
25 0	26 0.67	27 0.04	28 0.01	29 0	30 0	31 T

April 2018

SUN	MON	TUE	WED	THU	FRI	SAT
1 0.06	2 0	3 0.01	4 [illegible]	5 [illegible]	6 T	7 0
8 0[illegible]8	9 T	10 0	11 [illegible]	12 [illegible]	13 0.03	14 0.01
15 0	16 [illegible]	17 [illegible]	18 0	19 [illegible]	20 0	21 0.80
22 0.07	23 0	24 0	25 0.51	26 0	27 0	28 [illegible]
29 T	30 0					

May 2018

SUN	MON	TUE	WED	THU	FRI	SAT
		1 0	2 0.54	3 T	4 0	5 0
6 0	7 0	8 0	9 0.10	10 0.01	11 0	12 0
13 0	14 1.85	15 T	16 0	17 0	18 0.02	19 0.36
20 0.19	21 0	22 0	23 0	24 0.34	25 0.07	26 0
27 0	28 0	29 0.54	30 T	31 0.24		

Generated at 10 Dec 2019 8:30 PM CST in 4.99s

IEM Autoplot App #82

[EMP] EMPORIA Daily High Temperature Departure

1 Feb 2019 thru 31 May 2019

February 2019

SUN	MON	TUE	WED	THU	FRI	SAT
					1 11	2 19
3 25	4 14	5 -20	6 -19	7 -23	8 -19	9 -10
10 -6	11 -9	12 -3	13 8	14 13	15 -23	16 -20
17 -15	18 -17	19 -16	20 -9	21 -4	22 -7	23 1
24 -12	25 5	26 -18	27 -28	28 -23		

March 2019

SUN	MON	TUE	WED	THU	FRI	SAT
					1 -13	2 -17
3 -33	4 -37	5 -27	6 -14	7 -6	8 -14	9 5
10 -7	11 0	12 -2	13 6	14 -6	15 -7	16 3
17 0	18 -2	19 9	20 0	21 2	22 7	23 -1
24 -2	25 -4	26 4	27 13	28 5	29 -12	30 -16
31 -15						

April 2019

SUN	MON	TUE	WED	THU	FRI	SAT
	1 -7	2 [illegible]	3 3	4 -2	5 8	6 9
7 11	8 [illegible]	9 16	10 20	11 7	12 -9	13 -14
14 -5	15 10	16 14	17 12	18 -1	19 [illegible]	20 9
21 14	22 3	23 -16	24 0	25 3	26 3	27 0
28 [illegible]	29 -4	30 -14				

May 2019

SUN	MON	TUE	WED	THU	FRI	SAT
			1 -10	2 -9	3 -13	4 -3
5 1	6 6	7 -4	8 -5	9 -23	10 -13	11 -15
12 -7	13 -1	14 8	15 10	16 12	17 9	18 -4
19 -10	20 -23	21 -6	22 -2	23 -2	24 -2	25 1
26 -2	27 6	28 -2	29 -8	30 0	31 1	

[EMP] EMPORIA Daily Precipitation

1 Feb 2019 thru 31 May 2019

February 2019

SUN	MON	TUE	WED	THU	FRI	SAT
					1 0	2 0
3 0	4 0	5 0	6 T	7 M	8 0	9 0
10 T	11 0.19	12 0	13 0	14 0	15 0.10	16 T
17 0	18 0	19 0.19	20 T	21 0	22 0.19	23 0.61
24 0	25 0	26 0	27 T	28 0		

March 2019

SUN	MON	TUE	WED	THU	FRI	SAT
					1 0	2 0
3 T	4 0	5 0	6 0	7 T	8 0	9 0.09
10 0	11 0	12 0.76	13 0.70	14 0.01	15 0	16 0
17 0	18 0	19 0.09	20 0	21 0	22 0	23 0.08
24 0.06	25 0	26 0	27 0	28 T	29 0.30	30 0.04
31 0						

April 2019

SUN	MON	TUE	WED	THU	FRI	SAT
	1 0	2 M	3 T	4 T	5 0	6 0.27
7 0	8 M	9 0	10 0	11 0	12 0	13 0
14 0	15 0	16 0	17 0.64	18 0.06	19 M	20 0
21 0	22 0	23 0.09	24 0	25 0	26 0	27 0
28 M	29 1.09	30 2.52				

May 2019

SUN	MON	TUE	WED	THU	FRI	SAT
			1 0.18	2 0.09	3 0.09	4 0
5 T	6 2.13	7 1.52	8 2.05	9 0.01	10 0.01	11 0.04
12 0.10	13 0	14 T	15 0	16 0	17 0	18 0.38
19 0.01	20 1.67	21 1.63	22 0	23 0	24 0.22	25 0.43
26 0.07	27 0.26	28 1.17	29 0	30 0	31 0	