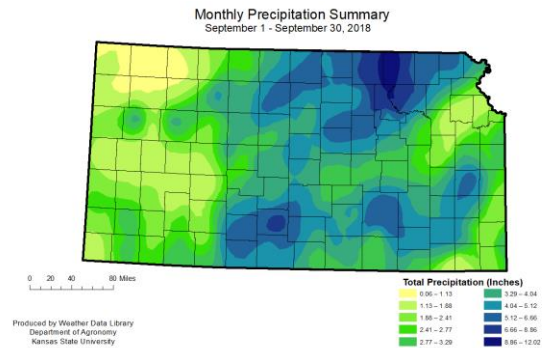


KANSAS CLIMATE SUMMARY

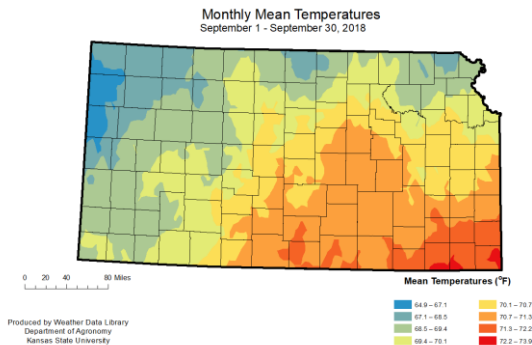
September 2018

Variability was key

Average divisional precipitation ranged from 0.98 inches in the Northwest Division to 4.36 inches in the North Central. This resulted in a 0.56 inch deficit in the Northwest (61% of normal) and a 1.73 inch surplus in the North Central (164% of normal). State-wide average was 1.36 inches, which is a 0.66 inch surplus, or 133 percent of normal. The greatest monthly total for a National Weather Service Cooperative station was at Marysville, Marshall County, with 12.23 inches. The Community Collaborative Rain, Hail and Snow network station with the greatest monthly precipitation was Manhattan 3.7 N, Riley County, with 11.37 inches. Among the Kansas Mesonet stations, the Manhattan station on the North Farm, had the greatest monthly total with 8.00 inches. Most of the rainfall occurred during the first week of the month, particularly over the Labor Day weekend. The flooding produced by the intense rains resulted in a Governor's disaster declaration that covered 5 counties: Jewell, Kingman, Marshall, Pratt and Riley.

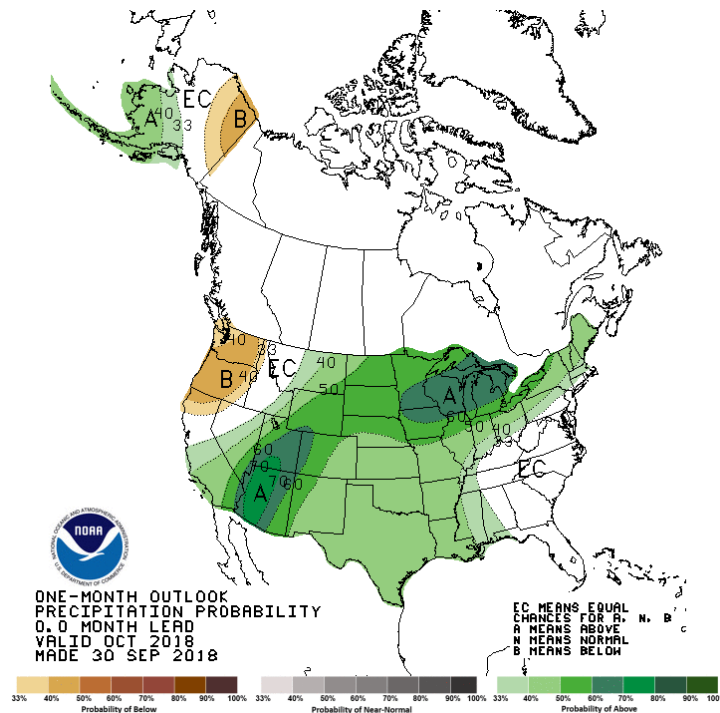
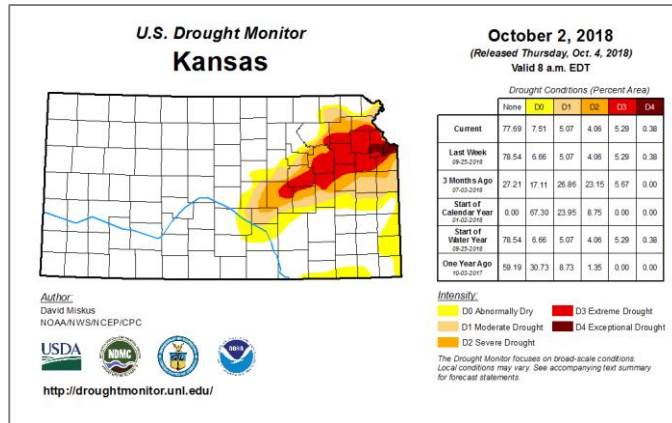


Temperatures also were highly variable. State-wide average temperature for the month was 69.9 °F, which is 1.8 degrees warmer than normal. All divisions were warmer than normal. The Northwest Division had the largest departure, with an average of 67.9 °F, or 2.6 degrees warmer than normal. The South Central Division came closest to normal with an average of 71.3 °F or 1.1 degrees warmer than normal. The variability showed in the range of temperatures. The warmest maximum temperature was 105 °F at Johnson, Stanton County, on the 1st. The coldest minimum temperature was 30 °F, recorded at Brewster 4W, Sherman County, on the 27th. There were 10 record daily high maximum temperatures in the month, and 10 record daily low maximum temperatures. On the minimum temperature side, there were 27 record high minimums compared to only one record low minimum.



While hail and high winds were again major contributors to severe weather in Kansas during September, the big story was the Labor Day flood event. Damage in these counties featured washed out roads, bridges, culverts and flooding to some businesses and residential properties. Complete damage estimates are not yet available. There was one tornado report during the month consisting of land spout funnels in Hamilton County, on the 3rd. They were short lived.

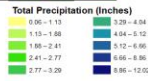
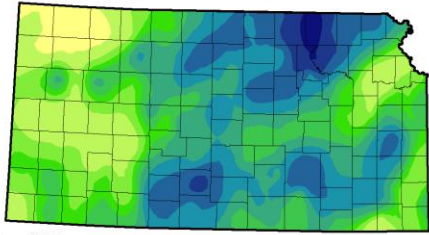
The near normal temperatures in the West moderated the impacts of below normal precipitation. Drought was completely removed from the west, and greatly improved in the central divisions. Exceptional drought continues in eastern Kansas, and extreme drought has shifted into East Central Kansas. Currently, over 77 percent of the state is drought free, while under 1 percent is in exceptional drought conditions. The October outlook has increased chances for above normal precipitation across most of the state. However, a more even distribution across the month will be needed to continue improvement of drought conditions across the state. The temperature outlook is for warmer than normal temperatures statewide.



Appendix:

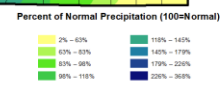
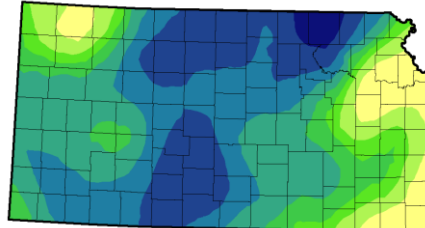
Precipitation and Temperature Maps

Monthly Precipitation Summary
September 1 - September 30, 2018



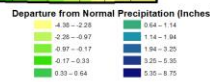
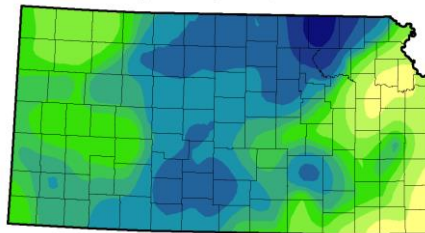
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Department of Agronomy
Kansas State University

Percent of Normal Monthly Precipitation
September 1 - September 30, 2018



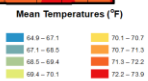
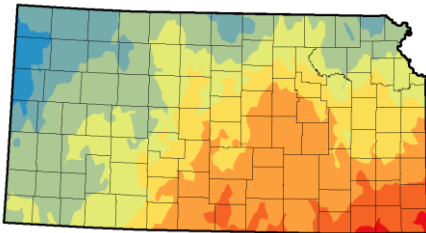
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Departure from Normal Monthly Precipitation
September 1 - September 30, 2018



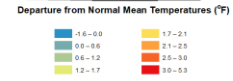
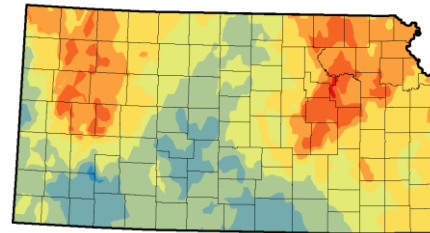
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Monthly Mean Temperatures
September 1 - September 30, 2018



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Departure from Normal Monthly Mean Temperatures
September 1 - September 30, 2018



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Table 1.

Table 1										
Sep-18										
Kansas Climate Division Summary										
Division	Precipitation (inches)						Temperature (°F)			
	Sep-18			2018 through September			Ave	Dep. 1	Monthly Extremes	
	Total	Dep. 1	% Normal	Total	Dep. 1	% Normal			Max	Min
Northwest	0.98	-0.54	61	18.54	0.13	100	67.9	2.6	99	30
West Central	2.20	0.60	141	19.21	1.32	106	68.8	2.3	101	34
Southwest	2.54	0.92	155	20.34	3.28	119	69.8	1.2	105	36
North Central	4.36	1.73	164	24.14	0.20	101	69.5	1.6	100	38
Central	3.84	1.33	155	22.87	-2.12	92	70.5	1.4	101	39
South Central	4.12	1.52	162	26.16	0.09	101	71.3	1.1	101	40
Northeast	4.28	0.67	124	23.77	-5.50	82	69.7	2.3	96	41
East Central	2.94	-0.72	80	22.00	-9.26	69	70.1	1.9	98	39
Southeast	4.09	0.08	106	29.92	-3.50	89	71.6	1.9	97	38
STATE	3.28	0.66	130	23.19	-1.43	96	69.9	1.8	105	30

1. Departure from 1981-2010 normal value

2. State Highest temperature: 105 oF at Johnson, Stanton County, on the 1st.

3. State Lowest temperature: 30 oF at Brewster 4W, Sherman County, on the 27th.

4. Greatest 24hr: 7.00 inches at Marysville, Marshall County, on the 3rd (NWS); 11.00 inches at Manhattan 9.8 NW , Riley County, on the 3rd (CoCoRaHS).

Source: KSU Weather Data Library

Station ¹	Precipitation (inches)			Temperature of			
	Total	Departure	Percent Normal	Mean	Departure	Extreme (Date)	
						Highest	Lowest
West							
Burlington, CO	0.72	-0.42	63%	66.6	3.3	95 (18)	34 (26)
Dodge City	1.87	0.20	112%	69.7	0.5	93 (1)	43 (29,28)
Garden City	1.31	-0.16	89%	68.6	0.4	93 (18)	41 (29)
Goodland	1.00	-0.22	82%	67.1	2.5	96 (18)	35 (26)
Guymon, OK	1.67	-0.12	93%	71.3	0.9	95 (24,19)	40 (22)
Hill City	4.83	2.95	257%	69.3	1.9	96 (18)	37 (26)
Lamar, CO	0.49	-0.76	39%	70.1	3.6	102 (19)	31 (27)
McCook, NE	0.34	-1.10	24%	68.6	4.2	99 (19)	35 (26)
Springfield, CO	1.38	0.05	104%	66.7	0.6	93 (17,13)	37 (27)
Central							
Concordia	5.29	2.38	182%	68.5	0.5	93 (20,18)	42 (22)
Hebron, NE	6.30	3.38	216%	68.8	2.8	95 (20,18)	42 (26,22)
Medicine Lodge	4.78	2.68	228%	71.8	0.6	97 (1)	42 (27)
Ponca City, OK	2.78	-0.51	84%	74.1	2.0	94 (19,18)	40 (27)
Salina	5.39	2.69	200%	70.5	0.3	96 (1)	44 (27)
Wichita (ICT)	2.77	-0.37	88%	72.7	1.7	98 (1)	43 (27)
East							
Bartlesville, OK	1.34	-2.50	35%	72.8	1.4	96 (19,18)	37 (27)
Chanute	4.39	0.72	120%	72.0	2.1	92 (19,18)	39 (27)
Falls City, NE	5.97	2.42	168%	68.7	2.0	96 (18)	42 (26)
Johnson Co. Exec. Apt	3.17	-1.34	70%	70.2	1.6	91 (20,19)	40 (27)
Joplin, MO	2.23	-2.72	45%	72.7	1.9	92 (20,19)	40 (27)
Kansas City (MCI), MO	1.30	-3.32	28%	70.6	2.4	94 (20,19)	40 (27)
St. Joseph, MO	0.41	-3.01	12%	69.5	2.8	97 (18)	38 (27)
Topeka (TOP)	1.12	-2.54	31%	71.4	3.0	96 (19,18)	40 (26)

1. Airport Automated Observation Stations (NWS/FAA)

2. Departure from 1981-2010 normal value

T - Trace; M - Missing; --- no normal value from which to calculate departure or percent of normal

Source: National Weather Service F-6 Climate Summaries

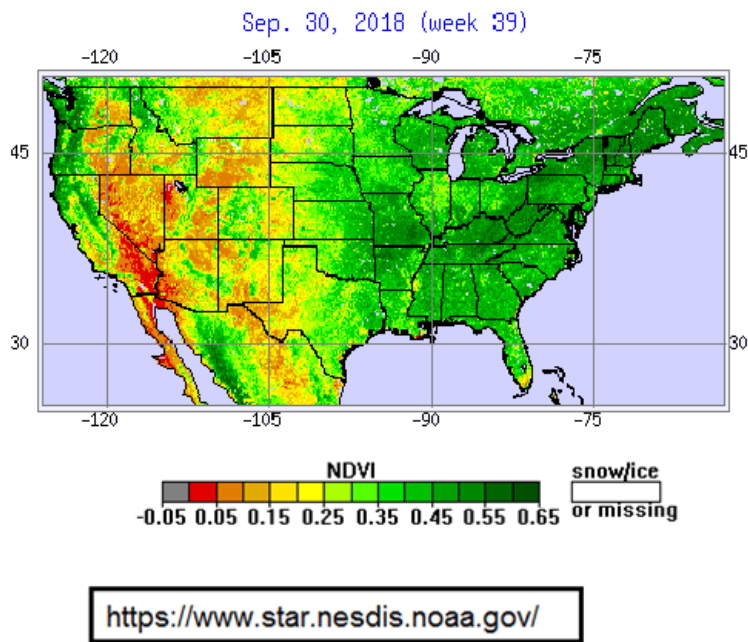


Figure 1. Current Greenness Map (NOAA)

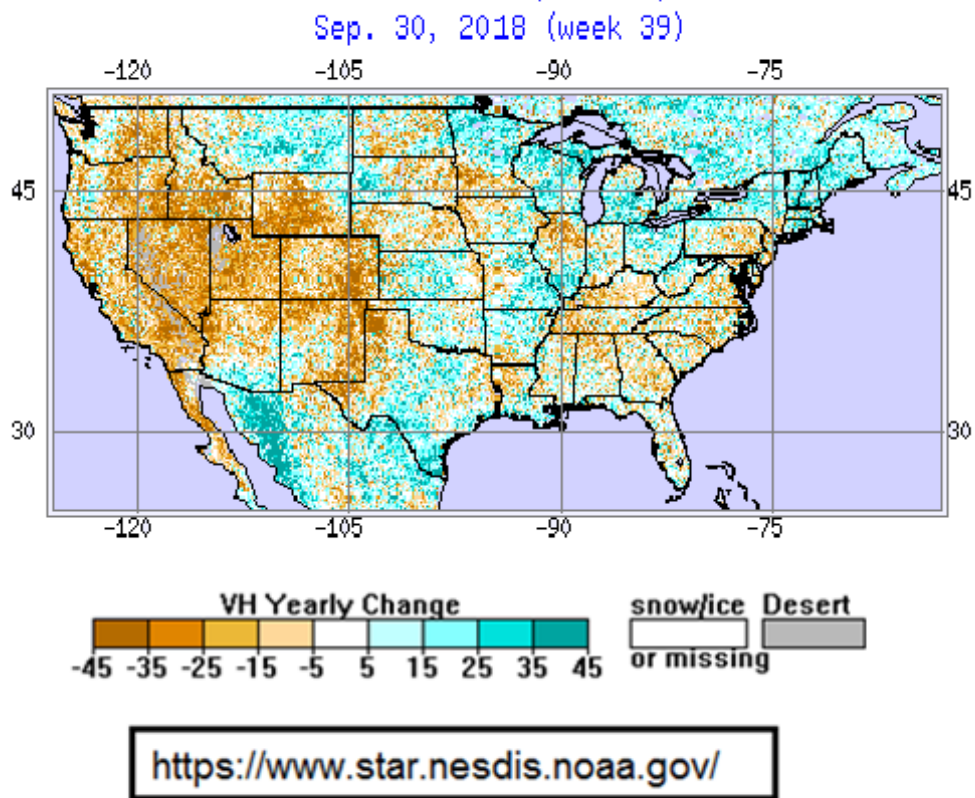
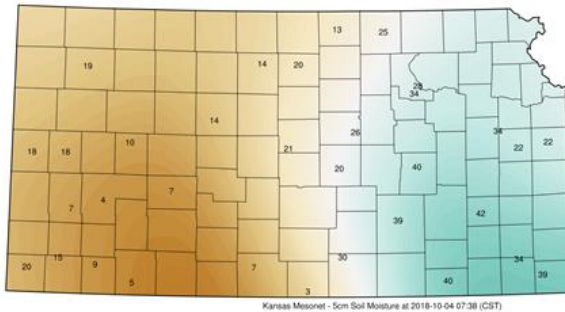


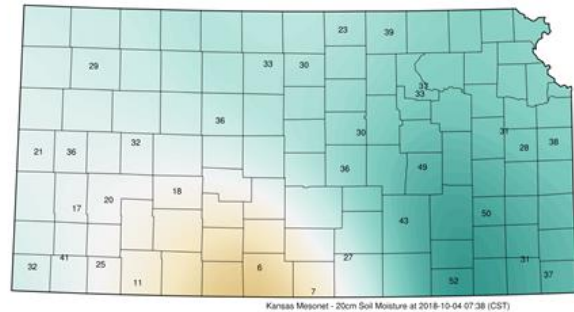
Figure 2. Change in Vegetative Health from 2017

Percent Volumetric Soil Moisture

2 inch



8 inch



Maximum value is ~50

Figure 3. Volumetric Water Content (KS Mesonet)