

# KANSAS CLIMATE SUMMARY AND DROUGHT REPORT

## Current Conditions, Drought Impacts and Outlook

April 2009

### Beneficial Rains Soak Most of Kansas

April 2009 was the 9<sup>th</sup> wettest April of record with a statewide average precipitation of 4.70 inches. This was the first wetter than normal month throughout Kansas since October 2008. A pocket in north Central Kansas and the southwest and southeast corners of the state were the only areas receiving below normal rainfall for the month.

A wedge of abnormally dry conditions continued to be indicated at month's end by the U.S. Drought Monitor. This was a major improvement from conditions one month ago when the entire western half of the state was abnormally dry, with moderate to severe drought in counties along the Oklahoma border.

April temperatures averaged well below normal at many locations across Kansas. The statewide average temperature for the month was 51.6<sup>o</sup>F, some 2.0 degrees below normal. Temperature extremes in Kansas during April ranged from 10<sup>o</sup>F at Ness City on the 7<sup>th</sup> to 92<sup>o</sup>F at Lakin, Syracuse and Ulysses 1SE on April 25<sup>th</sup>.

### CURRENT COUNTY DROUGHT STAGES

No gubernatorial declarations are presently in effect.

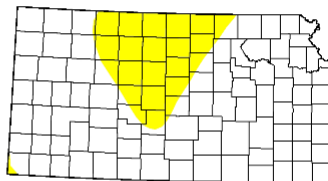
### DROUGHT MONITORING AND INDICES

The U.S. Drought Monitor is perhaps the most widely recognized drought monitoring tool in the nation. The Monitor ([current map](#)) is a composite of several observed weather variables and drought indices that is updated weekly.

### U.S. Drought Monitor Kansas

April 28, 2009  
Valid 7 a.m. EST

	Drought Conditions (Percent Area)					
	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	81.0	19.0	0.0	0.0	0.0	0.0
Last Week (04/21/2009 map)	75.7	24.3	0.0	0.0	0.0	0.0
3 Months Ago (02/03/2009 map)	76.6	23.4	1.0	0.0	0.0	0.0
Start of Calendar Year (01/01/2009 map)	94.4	5.6	0.7	0.0	0.0	0.0
Start of Water Year (10/07/2008 map)	84.6	15.4	7.7	1.1	0.0	0.0
One Year Ago (04/29/2008 map)	65.0	35.0	18.4	2.3	0.0	0.0



**Intensity:**

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

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

<http://drought.unl.edu/dm>



Released Thursday, April 30, 2009

Author: Brad Rippey, U.S. Department of Agriculture

The April 28<sup>th</sup> map shows only a wedge of abnormally dry conditions in north central Kansas. This is much from the March 31<sup>st</sup> situation when the entire western half of the state was abnormally dry, with moderate to severe drought in counties along the Oklahoma border.

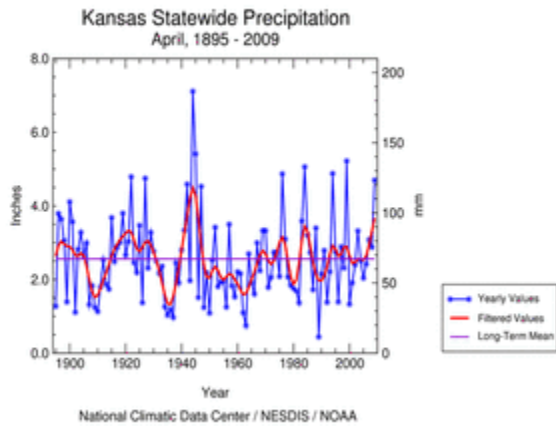
The table accompanying the map compares the percentage of the state currently affected by drought conditions with several points during the past year.

In the Kansas county drought stage scheme, a Drought Watch equates roughly to moderate drought in the U.S. Drought Monitor, while a Drought Warning is the equivalent of severe drought. A Drought Emergency is reserved for

extreme or exceptional drought.

**Palmer Drought Severity Index** - The [Palmer Index](#) (PDSI) is an indicator used in the U.S. Drought Monitor. The statewide average PDSI for the week ending May 2<sup>nd</sup> was 3.66 (very moist), up one category from the 2.43 (unusually moist) value of March 28<sup>th</sup>. Divisional PDSI values ranged from extremely moist in the southeast (5.35) and south central (5.60), down to 1.69 (moist spell) in the west central.

## April Conditions



April 2009 ranks as the 9<sup>th</sup> wettest April on record (1895-2009) in Kansas with a statewide average total precipitation of 4.70 inches (see Table 1). This is 181 percent of normal. The graph at the left shows April precipitation in this long-term perspective. The monthly statewide [moisture status](#) graphs and rankings are available from the National Climatic Data Center.

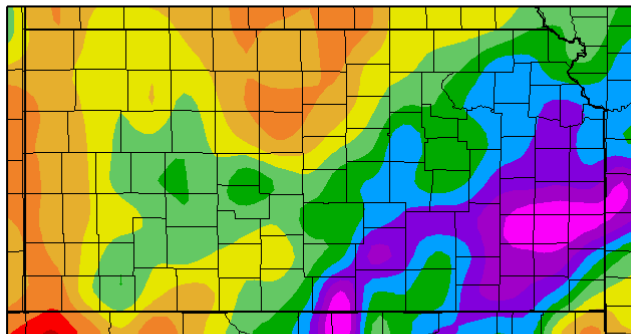
Based on preliminary reports, the greatest total precipitation received in April at National Weather Service COOP network stations, was 12.50 inches at Galesburg in Neosho County. Other COOP stations topping the 10-inch mark included Parsons 2NW, Walnut 3S and Yates Center. Tops for the Community Collaborative Rain, Hail and Snow Network

(CoCoRaHS) was 11.29 inches at Fort Scott 11.1SW in Bourbon County. Several other CoCoRaHS observers in Allen, Butler, Montgomery, Sedgwick and Wilson counties also reported 10 inches or more total precipitation in April.

Winona ((Logan County) received only 0.34 inches of precipitation during April, the least reported by the state's NWS COOP observers. Twelve other COOP stations in north central and far western Kansas also reported less than 2 inches of Precipitation during April. Several CoCoRaHS observers also reported less than 0.50 inches of precipitation in April.

The maps below show total precipitation received and the percent of normal across the state in April.

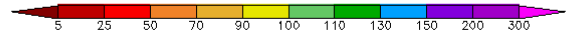
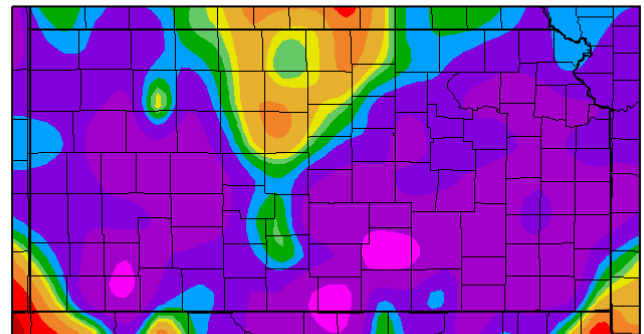
Precipitation (in)  
4/1/2009 - 4/30/2009



Generated 5/5/2009 at HPRCC using provisional data.

NOAA Regional Climate Centers

Percent of Normal Precipitation (%)  
4/1/2009 - 4/30/2009

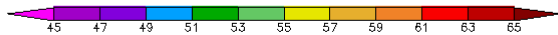
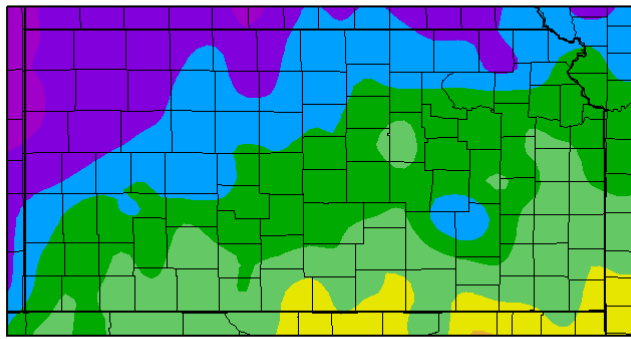


Generated 5/5/2009 at HPRCC using provisional data.

NOAA Regional Climate Centers

The following maps show average monthly temperature and the departure from normal across Kansas during April. The statewide average temperature of 51.6<sup>o</sup> F was 2.0 degrees below normal. Lakin, Syracuse and Ulysses 1SE recorded 92<sup>o</sup>F on April 25 for the state's high during the month. Ness City was the April cold spot with a low of 10<sup>o</sup>F on the 7<sup>th</sup>. Kansas record temperature extremes for April are 107<sup>o</sup> F at Hays in 1989 and -2<sup>o</sup> F at Dresden (Decatur County) in 1935.

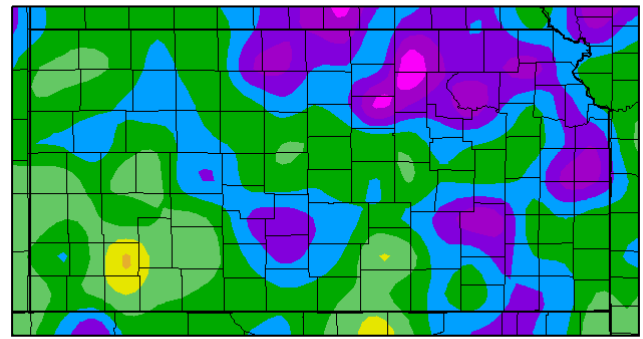
Temperature (F)  
4/1/2009 - 4/30/2009



Generated 5/5/2009 at HPRCC using provisional data.

NOAA Regional Climate Centers

Departure from Normal Temperature (F)  
4/1/2009 - 4/30/2009



Generated 5/5/2009 at HPRCC using provisional data.

NOAA Regional Climate Centers

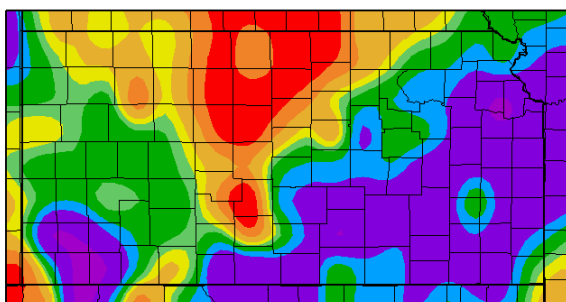
Table 1 summarizes April temperature and precipitation conditions by climate division while Appendix A provides an April summary for principal reporting locations within and adjacent to Kansas. Please note that the data used in compiling Tables 1 and 2 and in Appendix A is preliminary and comes from different sources. This may result in slight differences in the average or extreme values presented.

Division	Precipitation (inches)						Temperature (°F)			
	April 2009			2009 Through April			Average	Dep. <sup>1</sup>	Monthly Extreme (Day)	
	Total	Dep. <sup>1</sup>	% Norm	Total	Dep. <sup>1</sup>	% Norm			Highest	Lowest
Northwest	3.30	1.53	186	3.88	-0.09	98	47.4	-3.1	88 (24)	12 (1)
West Central	3.81	2.17	232	4.48	0.64	117	48.8	-2.7	91 (25)	10 (7)
Southwest	3.33	1.71	206	4.91	1.15	131	52.1	-1.6	92 (25)	14 (7)
North Central	3.40	1.07	146	4.11	-1.44	74	50.0	-2.7	90 (25)	11 (7)
Central	4.71	2.16	185	6.97	0.84	114	51.7	-2.5	89 (25)	11 (7)
South Central	6.22	3.75	252	9.47	3.30	154	53.0	-2.4	90 (22)	13 (7)
Northeast	6.20	3.22	208	9.88	2.04	140	50.7	-2.9	87 (25)	20 (7)
East Central	6.82	3.55	209	11.39	3.49	144	52.0	-2.8	86 (25)	19 (7)
Southeast	8.18	4.86	246	13.79	5.04	158	53.3	-3.3	88 (24)	17 (8)
STATE	5.13	2.71	212	7.72	1.83	131	51.0	-2.7	92 (25)	10 (7)

1. Departure from 1971-2000 normal value  
Source: KSU Weather Data Library

### Longer-Term Precipitation Trends

Percent of Normal Precipitation (%)  
2/1/2009 - 4/30/2009



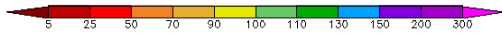
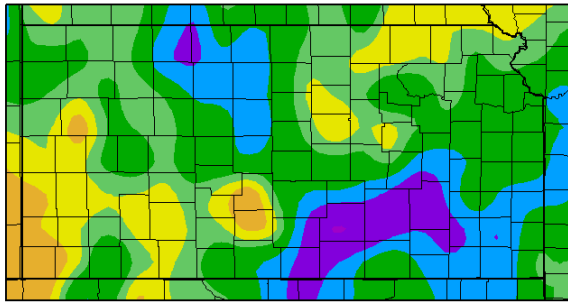
Generated 5/5/2009 at HPRCC using provisional data.

NOAA Regional Climate Centers

The following two maps show the percentage of normal precipitation received across Kansas during the past three months (February - April 2009) and during the past 12 months (May 2008 - April 2009).

While much of the state has experienced significant precipitation since February 1<sup>st</sup>, a wedge-shaped area concentrated in north central Kansas has been drier than normal. The core of this area has received less than 50-percent of normal over this three-month period. Long term, persistent dryness in southwest Kansas continues to stand-out on the 12-month map as do wetter than normal conditions, particularly in the Wichita vicinity

Percent of Normal Precipitation (%)  
5/1/2008 - 4/30/2009



Generated 5/5/2009 at HPRCC using provisional data.

NOAA Regional Climate Centers

While much of the state has experienced significant precipitation since February 1<sup>st</sup>, a wedge-shaped area concentrated in north central Kansas has been drier than normal. The core of this area has received less than 50-percent of normal over this three-month period. Long term, persistent dryness in southwest Kansas continues to stand-out on the 12-month map as do wetter than normal conditions, particularly in the Wichita vicinity.

Radar-based [precipitation estimate maps](#) covering multiple time periods are available from the National Weather Service. These maps are updated daily. Monthly and annual individual station and county average [precipitation data](#) is available from the Weather Data Library at Kansas State University.

Table 2 provides additional perspective on Kansas statewide temperature and precipitation trends over the past 12 months.

Month	Temperature (°F)		Precipitation (inches)		
	Monthly Average	Departure <sup>1</sup>	Monthly Total	Departure <sup>1</sup>	Percent Normal <sup>1</sup>
May 2008	62.7	-0.6	5.53	1.35	132
June 2008	73.7	0.3	5.00	1.12	129
July 2008	78.4	-0.4	3.70	0.09	102
August 2008	75.0	-1.9	4.22	1.06	134
September 2008	66.0	-2.0	4.06	1.38	151
October 2008	55.1	-1.1	4.60	2.42	211
November 2008	43.8	2.0	0.95	-0.78	55
December 2008	29.3	-2.6	0.66	-0.32	67
January 2009	30.9	2.1	0.08	-0.69	10
February 2009	39.5	5.0	0.50	-0.41	55
March 2009	44.0	0.2	1.97	-0.28	88
April 2009	51.6	-2.0	4.70	2.11	181
<b>Past 3 Months</b>	---	---	7.17	1.42	125
<b>Past 6 Months</b>	---	---	8.86	-0.37	96
<b>Past Year</b>	---	---	35.97	7.05	124

1. Departure from 1971-2000 normal value  
Source: NOAA National Climatic Data Center

## DROUGHT IMPACTS AND RESPONSE

### Agriculture

The [Kansas Crop and Weather Report](#) is updated weekly during the growing season. Included is information about crop conditions and progress, soil moisture conditions, range and pasture conditions, hay and pasture supplies and stock water supplies.

The Report released May 4<sup>th</sup> rated topsoil moisture as only 1 percent short-very short, statewide, compared with 35 percent short-very short one month ago and 17 percent short-very short at this time last year. Topsoil moisture was rated at least 51 percent surplus in the south central and three eastern reporting districts, with the southeast reporting 99 percent surplus. Subsoil moisture was rated 7 percent short-very short, 64 percent adequate and 29 percent surplus, statewide.

Statewide, hay and forage supplies were rated 85 percent adequate, while feed grain supplies were rated 94 percent adequate. Stock water supplies were rated as 97 percent adequate-surplus.

Wheat condition was rated 13 percent poor-very poor, 34 percent fair, 4 percent good and 8 percent excellent. This was similar to wheat condition reported at this time in 2008. Range and pasture conditions were rated 79 percent fair-good.

## Streamflow and Reservoir Levels

The U.S. Geological Survey [Kansas Drought Watch](#) provides information on 7-day average streamflow measured at long-term gaging stations and how they compare to normal flows. Most of these gages are located in central and eastern Kansas. A map (click on National Drought Map and then on Kansas) identifies river basins experiencing below normal flows and hydrologic drought.

Seven-day average streamflow was below normal (<25<sup>th</sup> percentile) at 4 percent of Kansas' long-term gaging stations on April 30<sup>th</sup>; the March 31<sup>st</sup> value was 8 percent. Normally about 25 percent of gages are below normal at any given time.

As of April 30, 2009, no streams were under minimum desirable streamflow (MDS) administration by the Kansas Department of Agriculture - Division of Water Resources. Flow in most streams is well above the MDS target level. Timely rains continue to keep flows above MDS targets on the Republican River. As it looks now, the earliest date that criteria for initiating MDS administration on the Republican River would be met, assuming no significant rains, would be mid-June at Concordia and the last week of June at Clay Center.

Table 3 summarizes federal reservoir pool elevations on April 30, 2009 in terms of departure from the top of the conservation/multipurpose pool and pool elevation change since March 31<sup>st</sup>.

Table 3 Kansas Federal Reservoirs End-of-Month Pool Elevation Summary					
Reservoir	Top MP/C Pool <sup>1</sup>	Pool Elevation (Feet MSL)		04/30/2009	
		03/31/09	04/30/09	Departure from Top <sup>2</sup>	Change from 03/31/2009 <sup>2</sup>
<b>Kansas River Basin</b>					
Norton	2304.3	2294.2	2294.6	-9.7	0.4
Harlan County, NE	1946.0	1946.3	1946.9	0.9	0.6
Lovewell	1582.6	1582.0	1582.1	-0.5	0.1
Milford	1144.4	1142.7	1144.7	0.3	2.0
Cedar Bluff	2144.0	2127.1	2127.5	-16.5	0.4
Kanopolis	1463.0	1464.7	1467.2	4.2	2.5
Wilson	1516.0	1516.2	1516.5	0.5	0.3
Kirwin	1729.3	1728.9	1729.4	0.1	0.5
Webster	1892.5	1893.0	1894.1	1.6	1.1
Waconda	1455.6	1454.6	1455.0	-0.6	0.4
Tuttle Creek	1075.0	1072.1	1080.7	5.7	8.6
Perry	891.5	890.7	899.9	8.4	9.2
Clinton	875.5	877.9	883.1	7.6	5.2
Pomona	974.0	977.0	984.1	10.1	7.1
Melvorn	1036.0	1037.1	1042.4	6.4	5.3
Hillsdale	917.0	916.7	920.1	3.1	3.4
<b>Arkansas River Basin</b>					
Cheney	1421.6	1422.1	1423.7	2.1	1.6
El Dorado	1339.0	1340.6	1344.7	5.7	4.1
Toronto	901.5	909.9	922.3	20.8	12.4
Fall River	948.5	956.6	963.3	14.8	6.7
Elk City	794.0	801.5	812.1	18.1	10.6
Big Hill	858.0	859.5	861.2	3.2	1.7
Council Grove	1273.7	1273.0	1279.0	5.3	6.0
Marion	1350.5	1349.1	1352.3	1.8	3.2

J. Redmond	1038.2	1043.2	1053.1	14.9	9.9
1. Seasonal pool operation at El Dorado, Toronto, Fall River, Elk City, Council Grove and John Redmond reservoirs. 2. All values are in feet. Negative departures or changes are shown in red. Source: U.S. Army Corps of Engineers					

## Public Water Systems

No drought-related public water system impacts are currently being reported.

Several publications provide guidance regarding drought preparedness and response. The [2007 Municipal Water Conservation Plan Guidelines](#) replace previous guidelines dating back to 1990. These guidelines cover drought response in addition to long-term water conservation.

The [Drought Vulnerability Assessment Report](#) identifies those systems most likely to first be impacted by drought and the reason for their vulnerability. It was updated in 2007 to reflect system conditions as of 2006.

[Responding to Drought: A Guide for City, County and Water System Officials](#) provides an overview of Kansas county drought stage declarations, local planning and coordination, disaster declarations, and available state and federal assistance.

## Vegetation Conditions

The Kansas Applied Remote Sensing Program (KARS) at the University of Kansas produces a [Kansas Green Report](#) each week during the growing season. This report consists of a set of five interactive maps derived from satellite and historic data that illustrate vegetation conditions and crop progress across the state.

A Vegetation Condition Index Map, included in the Green Report, illustrates vegetation health and levels of plant stress based on current and historic vegetation greenness and surface temperatures. Persistent cloud cover across much of the state precluded preparation of a map for the April 21 – May 4 period.

## Fire

Twelve large wildfires were reported to the Kansas Forest Service in April. These fires burned 18,925 acres in nine counties. The largest was the Lincoln County Complex on April 8<sup>th</sup> which burned 5,350 acres. Sadly, two fatalities were associated with these fires; a civilian was killed in Cowley County on April 8<sup>th</sup>, while a firefighter lost his life in Stafford County on the 22<sup>nd</sup>. Wildfires burning at least 300 acres in grass or 100 acres in timber are considered large.

The [Wildland Fire Outlook](#) issued by the National Interagency Fire Center on May 1<sup>st</sup> foresees normal significant wildfire potential across Kansas during May. Significant fire potential is defined as the likelihood that a wildfire will require mobilization of additional resources from outside the area in which the fire originated.

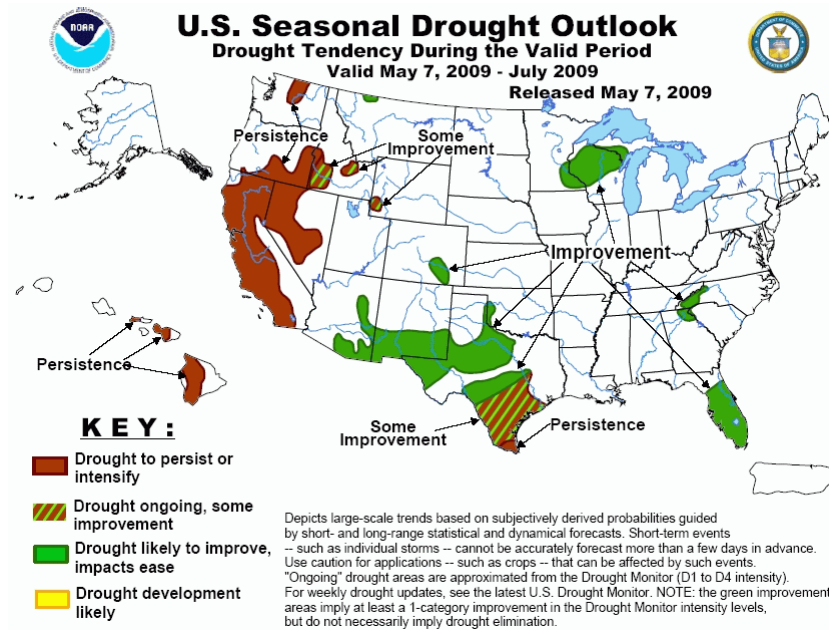
The National Weather Service provides a full range of fire weather products and services for Kansas. Included are the Rangeland Fire Danger Index, Fire Weather Forecasts, Red Flag Watches/Warnings, and Spot Forecasts. Each NWS office serving Kansas has these products available on its website. These websites may be accessed from this [county warning and forecast area](#) map. Clicking on one of these areas takes you to that NWS Office's home page. Look for "Fire Weather" in the menu on the left margin of the page.

[Fire weather](#) links are also available from the Weather Data Library at Kansas State University, as are prescribed burning guidance publications.

## LOOKING AHEAD

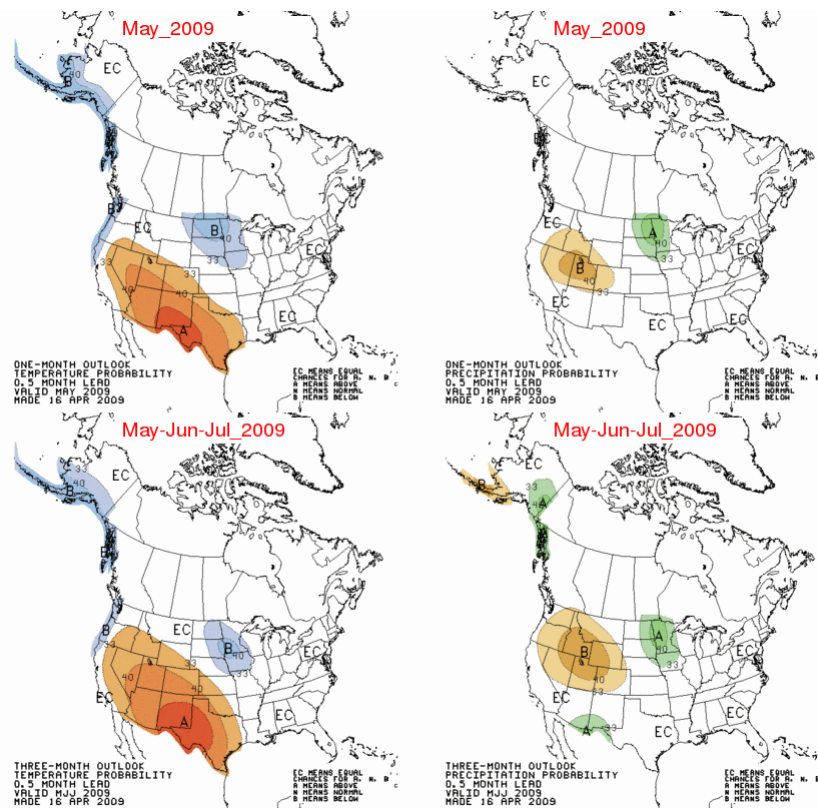
The [Seasonal Drought Outlook](#), developed by the NOAA Climate Prediction Center (NOAA CPC), assesses the likelihood for improvement, persistence or deterioration in drought conditions for areas currently experiencing drought as identified by the U.S. Drought Monitor. The Outlook released May 7<sup>th</sup>

for the period through July 2009 (see below) shows that drought is unlikely to develop in Kansas during this period.



Two additional NOAA CPC products, the [One Month Outlook](#) and the [Three Month Outlook](#), assess the chances for above normal, normal or below normal precipitation and temperatures for the upcoming month and for the following three-month period. Maps depicting these Outlooks are shown below. The most recent Outlook does not indicate a strong likelihood for either above or below normal temperatures or precipitation across most of Kansas during May, but western Kansas is likely to be warmer than normal during the overall May – July period.

### May 2009 and May – July 2009 Precipitation and Temperature Outlooks



## **ADDITIONAL INFORMATION**

The Kansas Climate Summary and Drought Report is compiled by the Kansas Water Office from various federal, state, local and academic sources. The report summarizes conditions at the end of the month indicated. Some data used is preliminary and is subject to change when final data is available at a later date.

The Kansas Water Office web site, [KWO Drought](#), contains additional drought information including links to other agencies with drought information and past issues of the Kansas Climate Summary and Drought Report. The Operations Plan for the Governor's Drought Response Team is also available here.

Please contact Tom Lowe at the KWO (785/296-0874) or [tom.lowe@kwo.ks.gov](mailto:tom.lowe@kwo.ks.gov), should you have any questions or suggestions.

**Appendix A  
April 2009  
Kansas and Regional Climate Summary**

Station (West)	Precipitation (inches)			Temperature (°F)			
	Total	Departure <sup>4</sup>	Percent Normal	Mean	Departure <sup>4</sup>	Extreme (Date)	
						Highest	Lowest
Ashland <sup>2</sup>	2.84	0.95	150	53.6	-1.2	91 (23)	14 (7)
Atwood 2SW <sup>2</sup>	3.76	1.59	173	48.3	-1.2	88 (24)	15 (1, 2)
Burlington, CO <sup>1</sup>	1.02	-0.33	76	47.0	-0.7	84 (23)	18 (6)
Dodge City <sup>1</sup>	3.60	1.35	160	53.4	-0.5	88 (24)	19 (7)
Elkhart <sup>2</sup>	1.00	-0.67	60	52.5	-1.0	88 (25)	24 (6)
Garden City <sup>1</sup>	4.06	2.13	210	51.9	-1.2	90 (24)	18 (7)
Goodland <sup>1</sup>	2.60	1.09	172	47.9	-0.9	85 (23)	19 (6)
Healy <sup>2</sup>	4.63	2.72	242	50.2	-0.9	91 (25)	13 (7)
Guymon, OK <sup>1</sup>	2.04	0.64	146	54.7	-0.2	92 (24)	22 (6)
Hill City <sup>1</sup>	3.94	1.83	187	50.2	-0.8	84 (23)	14 (7)
Lamar, CO <sup>1</sup>	1.83	---	---	51.3	---	87 (24)	18 (7)
Liberal <sup>2</sup>	4.37	2.80	278	53.1	-1.3	90 (25)	24 (6, 7)
McCook, NE <sup>1</sup>	2.64	0.42	119	49.4	-1.0	90 (23)	15 (1, 7)
Ness City <sup>2</sup>	4.91	2.93	248	49.6	-2.8	90 (25)	10 (7)
Oakley 4W <sup>2</sup>	4.43	2.65	249	49.6	-2.4	84 (24)	16 (6, 7)
Springfield, CO <sup>1</sup>	1.79	---	---	50.5	---	86 (24)	19 (6)
Tribune 1W <sup>2</sup>	2.17	0.88	168	48.8	-0.6	88 (25)	15 (7)
Ulysses 3NE <sup>2</sup>	2.81	1.30	186	50.9	-1.9	92 (25)	19 (6)
Wray, CO <sup>2</sup>	5.00	3.22	281	45.7	-4.4	88 (24)	12 (5)
<b>(Central)</b>							
Concordia <sup>1</sup>	3.83	1.38	156	51.8	-1.0	87 (24)	17 (7)
Ellsworth <sup>2</sup>	3.26	0.77	131	51.2	-0.9	86 (23, 25)	16 (7, 8)
Hays 1S <sup>2</sup>	2.36	0.18	108	51.3	-1.8	89 (25)	14 (7)
Hebron, NE <sup>1</sup>	2.74	0.10	104	51.0	1.1	90 (24)	12 (7)
Hutchinson <sup>3</sup>	4.61	1.78	163	53.2	-0.5	85 (22)	18 (7)
McPherson <sup>2</sup>	5.56	2.84	204	51.4	-2.1	83 (23, 24)	19 (7, 8)
Medicine Lodge <sup>1</sup>	4.85	2.15	180	55.7	0.8	87 (22)	19 (7)
Ponca City, OK <sup>1</sup>	3.63	---	---	57.4	-1.5	89 (22)	22 (7)
Salina <sup>1</sup>	3.95	0.89	129	54.1	-0.8	86 (24)	17 (7)
Smith Center <sup>2</sup>	3.04	0.69	129	49.6	-4.2	90 (25)	12 (7)
St. John - Sandyland <sup>3</sup>	5.12	2.73	214	52.8	-3.6	88 (24)	18 (7)
Wichita (ICT) <sup>1</sup>	9.94	7.37	387	55.0	-0.3	86 (22)	21 (7)
<b>(East)</b>							
Bartlesville, OK <sup>1</sup>	5.58	1.74	145	57.2	-3.3	90 (23)	26 (3)
Cassoday <sup>2</sup>	8.22	5.01	256	49.1	-4.1	82 (23)	17 (8)
Chanute <sup>1</sup>	6.68	2.85	174	55.1	-1.3	87 (23)	24 (7)
Emporia 3NW <sup>2</sup>	7.32	4.34	246	51.9	-1.9	84 (24, 25)	21 (7, 8)
Falls City, NE <sup>1</sup>	5.16	1.98	162	51.4	-1.3	88 (24)	21 (7)
Holton 7SE <sup>2</sup>	6.88	3.45	201	49.0	-3.6	84 (25)	21 (1, 7)
Howard 5NE <sup>2</sup>	7.02	3.68	210	53.9	-1.6	87 (24)	23 (7, 8)
Johnson Co. Exc. Apt. <sup>1</sup>	6.38	2.60	169	53.4	-2.4	81 (24)	25 (7)
Joplin, MO <sup>1</sup>	3.08	-1.24	71	56.2	-1.5	86 (23)	24 (7)
Kansas City (MCI), MO <sup>1</sup>	7.12	3.74	211	53.0	-1.4	82 (24)	24 (7)
Manhattan KSU <sup>2</sup>	5.25	2.18	171	51.2	-3.9	87 (25)	22 (7)
Ottawa <sup>3</sup>	7.13	3.58	201	54.6	-2.5	84 (23)	24 (7)
St. Joseph, MO <sup>1</sup>	4.55	1.32	141	51.5	-2.6	86 (24)	24 (7)
Topeka (TOP) <sup>1</sup>	7.09	3.95	226	54.3	-0.2	85 (24)	26 (7)
Winfield <sup>2</sup>	4.78	1.50	146	53.4	-2.0	86 (23, 24)	21 (7)

1. Airport Automated Observation Stations (NWS/FAA)  
2. National Weather Service COOP Network Stations  
3. Kansas State University Experiment Station Network  
4. Departure from 1971-2000 normal value  
T – trace; M – missing data; - - - no normal value from which to calculate departure or percent of normal  
Source: : National Weather Service F-6 and NOW Climate Summaries and KSU Weather Data Library