

This publication summarizes state records related to maximum and minimum temperatures, precipitation and snowfall events. Included is a summary with the top-10 hottest, coldest, driest, and wettest years in Kansas during the period of 1895 to 2015.

**Maximum temperature records in Kansas**

In July 1936 in Fredonia and Alton, Kansas, the National Centers for Environmental Information documented a record high temperature of 121 degrees Fahrenheit. Because recording instruments have been relocated over time, neither of these climate stations is in the U.S. Historical Climatology Network. From the 30 USHCN stations with quality-controlled daily data, 120 degrees Fahrenheit is the highest maximum temperature recorded in Kansas, in 1893 and 1954 (Figure 1). Most of the highest maximum temperatures were observed in 1936 (Figure 1). The months with the highest maximum temperatures are most often July or August.

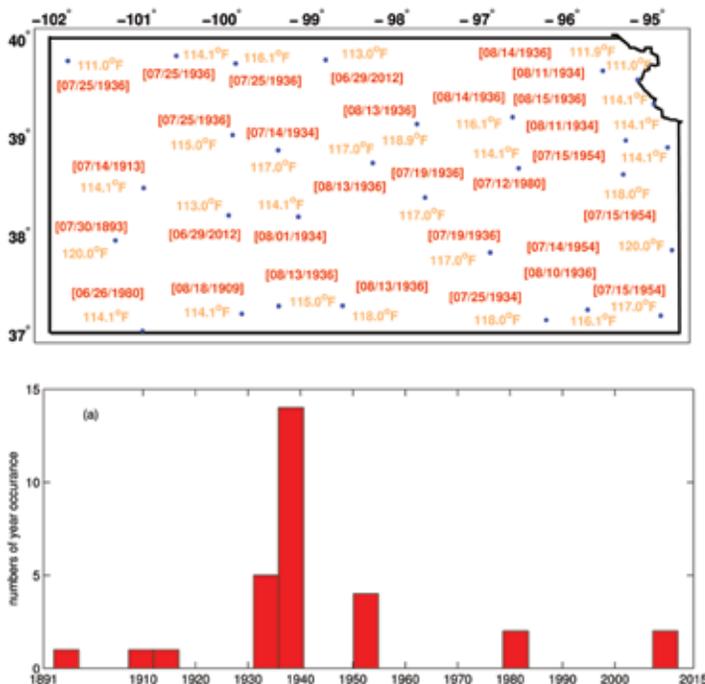
**Minimum temperature records in Kansas**

The National Centers for Environmental Information documented a Kansas record of -40 degrees Fahrenheit in February 1905 in Lebanon. For the 30 USHCN stations

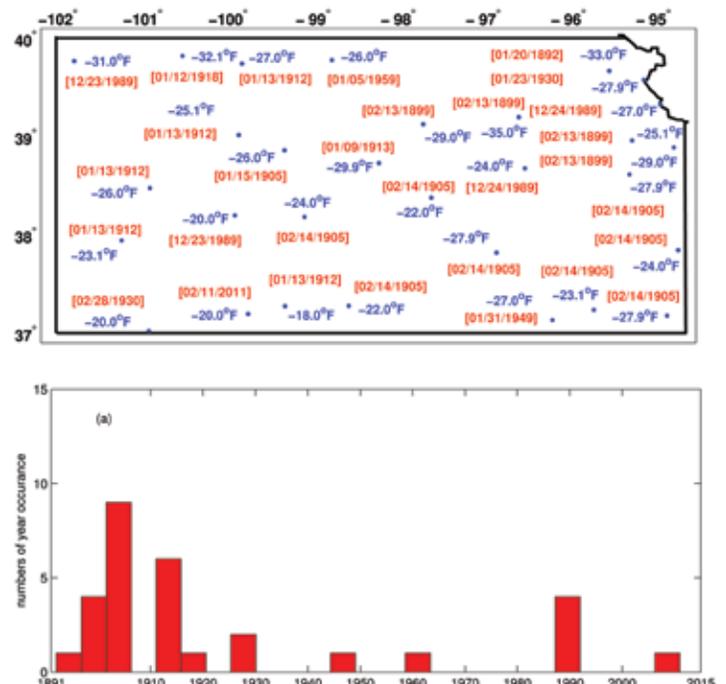
selected, this record is not included because this climate station has experienced station relocation and therefore has long-term missing observations in the series. The lowest temperature record from 1891 to 2015 in the 30 USHCN stations is -35 degrees Fahrenheit in Manhattan in February 1893. The majority of lowest minimum temperature records were observed from the 1890s to the 1910s (Figure 2). February is the most frequent month for lowest minimum temperature records, followed by January.

**Precipitation and snowfall records for a 24-hour period**

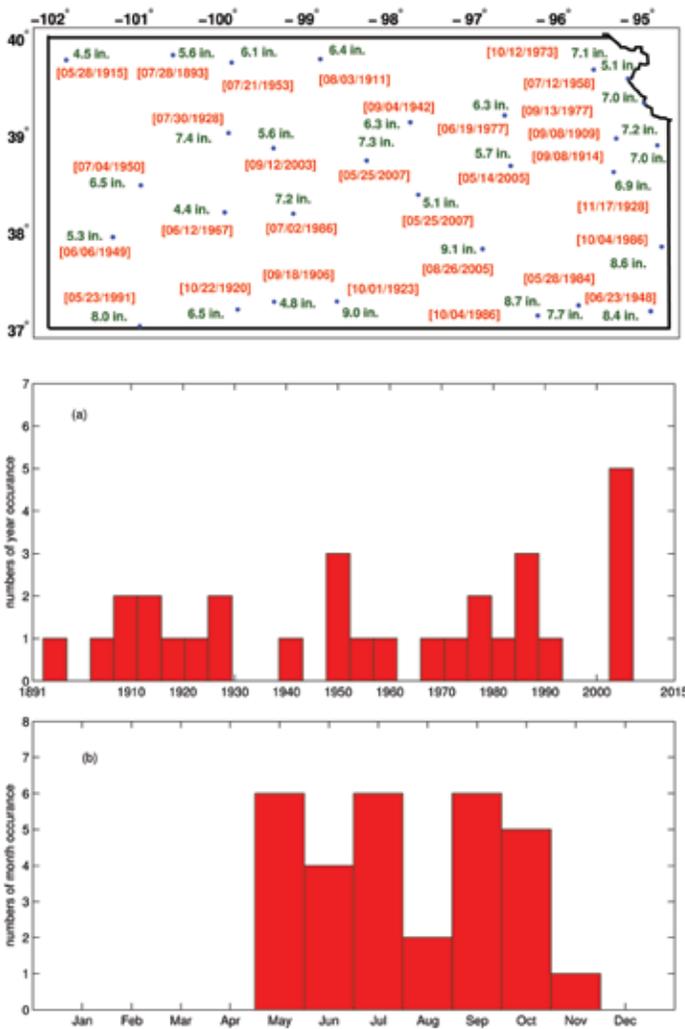
**Precipitation events.** The frequency of extreme precipitation events in Kansas has increased from 1891 to 2015. More 24-hour precipitation records were set during the most recent decade than in any other decade since 1891 (Figure 3). The highest recorded 24-hour precipitation event was 9.1 inches in August 2005 (Figure 1). The range of the stations 24-hour precipitation records in Kansas is from 4.4 to 9.1 inches. The majority of record precipitation events have occurred in May, July, and September. There is a lower chance to establish a record in August (Figure 3).



**Figure 1.** Daily maximum temperature records (°F) and dates for 30 climate stations across Kansas from 1891 to 2015. Bottom panel: histogram of years for all maximum temperature records in Kansas.



**Figure 2.** Top panel: daily minimum temperature records (°F) and dates from 30 climate stations across Kansas over 1891 to 2015. Bottom panel: histogram of years for all minimum temperature records in Kansas.

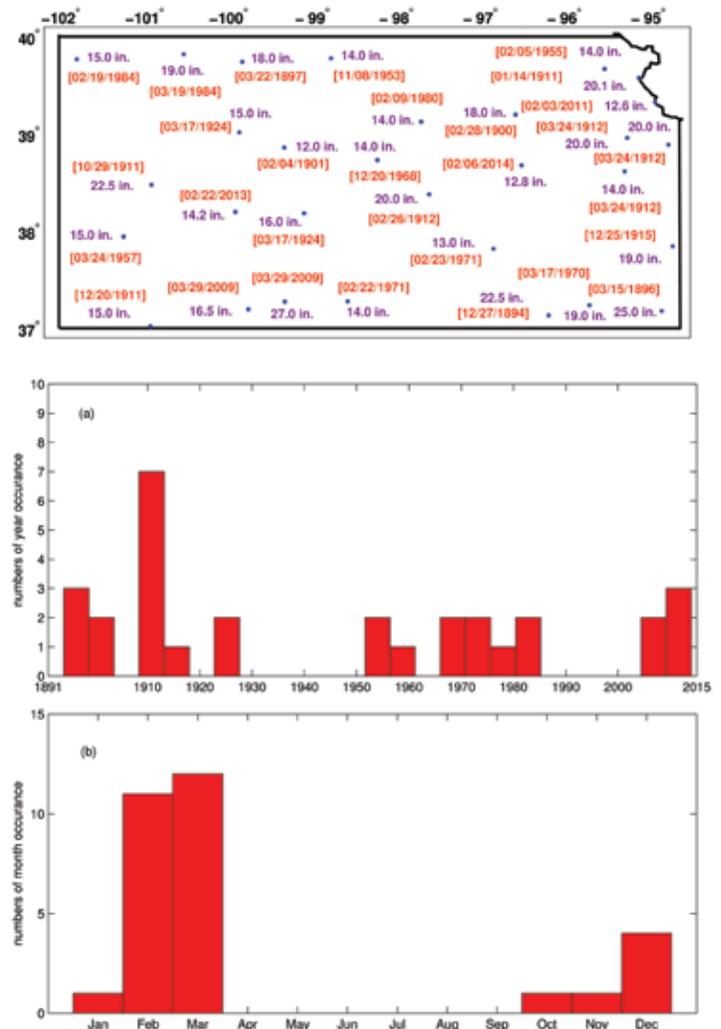


**Figure 3.** Top panel: 24-hour precipitation records (inches) and dates for 30 climate stations across Kansas over 1891 to 2015. Bottom panel: (a) histogram of years for 24-hour precipitation records in Kansas; and (b) histogram of months for 24-hour precipitation records in Kansas.

Snowfall events. For the 24-hour snowfall records across the state, the National Centers for Environmental Information documented a 30-inch snowfall event in Pratt in March 2009. The station 24-hour snowfall records shown in Figure 4 range from 12 to 27 inches. The most frequent decade for establishing a snowfall record was the 1910s (Figure 4). March is the most frequent month in which record 24-hour snowfall events have occurred in Kansas.

### Top 10 hottest, coldest, driest, and wettest years in Kansas

Table 1 provides the top ten hottest, coldest, driest, and wettest years during the period of 1895 to 2015. The hottest year recorded during this period was 2012 and the coldest year was 1912. Five of the ten hottest years



**Figure 4.** Top panel: 24-hour snowfall records (inches) and dates for 30 climate stations across Kansas over 1891 to 2015. Bottom panel: (a) histogram of years for 24-hour snowfall records in Kansas; and (b) histogram of months for 24-hour snowfall records observed in Kansas.

occurred during the 1930s. Both the driest and wettest years occurred in the 1950s. Only two of the driest years were during the Dust Bowl years of the 1930s. Two of the wettest years, 1951 and 1993, saw significant flooding in northeast Kansas.

The temperature difference between hottest year and coldest year is over 6 degrees Fahrenheit in Kansas. Perhaps more significantly, the precipitation difference is 19 inches between the wettest and driest years.

These significant swings of temperature and precipitation make crop and livestock productions in Kansas relatively vulnerable to changes of increasing climate extreme events from short-term or longer-term perspectives, which requires that adaptive measures need to be taken for sustaining Kansas agricultural production.

**Table 1.** *Kansas top 10 hottest, coldest, driest, and wettest years from 1895 to 2015*

<b>Rank</b>	<b>Hottest year</b>	<b>Degrees F</b>	<b>Rank</b>	<b>Coldest year</b>	<b>Degrees F</b>
1	2012	58.9	1	1912	52.3
2	1934	58.1	2	1951	52.5
3	1954	57.7	3	1993	52.6
4	2006	57.6	4	1924	52.6
5	1938	57.5	5	1917	52.7
6	1939	57.4	6	1979	52.8
7	1946	57.4	7	1903	52.9
8	1933	57.3	8	1895	52.9
9	1931	57.1	9	1929	52.9
10	1921	57.1	10	1985	53.0

<b>Rank</b>	<b>Driest year</b>	<b>Inches</b>	<b>Rank</b>	<b>Wettest year</b>	<b>Inches</b>
1	1956	17.3	1	1951	43.7
2	1966	19.3	2	1973	42.7
3	2012	19.4	3	1915	41.3
4	1936	19.8	4	1993	41.1
5	1952	20.1	5	1961	38.1
6	1939	20.7	6	1941	37.5
7	1910	20.7	7	2007	36.6
8	1917	21.0	8	1944	36.4
9	1963	21.1	9	1985	35.9
10	1988	21.3	10	1992	35.8

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