

TEMPERATURE EXTREMES IN THE UNITED STATES



Temperatures in this summary are given in degrees Fahrenheit ($^{\circ}\text{F}$). Most countries in the world report temperatures in degrees Celsius ($^{\circ}\text{C}$), also called Centigrade. Temperature conversion aids are given on page 5.

TEMPERATURE EXTREMES, HIGHEST

Recorded temperature extremes depend upon a number of factors. Some important factors are: elevation, latitude, condition of the earth's surface, local effects of terrain, the density of the observational network, and the length of the observational record.

Greenland Ranch, California, with 134° on July 10, 1913 holds the record for the highest temperature ever officially observed in the United States. This station was located in barren Death Valley, 178 feet below sea level. Death Valley is about 140 miles long, 4 to 16 miles wide, and oriented north to south in southwestern California. Much of the Valley is below sea level and is flanked by towering mountain ranges with Mt. Whitney, the highest landmark in the 48 conterminous States, rising to 14,495 feet above sea level, less than 100 miles to the west. Death Valley has the hottest summers in the Western Hemisphere, and is the only known place in the United States where nighttime temperatures sometimes remain above 100° .

The highest annual normal (1941-70 mean) temperature in the United States, 78.2° , and the highest summer (June-August) normal temperature, 98.2° , are for Death Valley, California. The highest winter (December-February) normal temperature is 72.8° for Honolulu, Hawaii.

Amazing temperature rises of 40° to 50° in a few minutes occasionally may be brought about by chinook winds. Some outstanding temperature rises are:

- 12 hours: 83° , Granville, North Dakota, Feb. 21, 1918, from -33° to 50° from early morning to late afternoon.
- 15 minutes: 42° , Fort Assiniboine, Montana, Jan. 19, 1892 from -5° to 37°
- 7 minutes: 34° , Kipp, Montana, Dec. 1, 1896. The observer also reported that a total rise of 80° occurred in a few hours and that 30 inches of snow disappeared in one-half day.
- 2 minutes: 49° , Spearfish, South Dakota, Jan. 22, 1943 from -4° at 7:30 a.m. to 45° at 7:32 a.m.

RECORD HIGHEST TEMPERATURES BY STATE
(THRU 1989)

State	Temp. °F.	Date	Station	Elevation Feet
Alabama	112	Sep. 5, 1925	Centerville	345
Alaska	100	Jun. 27, 1915	Fort Yukon	est. 420
Arizona	127	Jul. 7, 1905*	Parker	345
Arkansas	120	Aug. 10, 1936	Ozark	396
California	134	Jul. 10, 1913	Greenland Ranch	-178
Colorado	118	Jul. 11, 1888	Bennett	5,484
Connecticut	105	Jul. 22, 1926	Waterbury	400
Delaware	110	Jul. 21, 1930	Millsboro	20
Florida	109	Jun. 29, 1931	Monticello	207
Georgia	112	Jul. 24, 1952	Louisville	132
Hawaii	100	Apr. 27, 1931	Pahala	850
Idaho	118	Jul. 28, 1934	Orofino	1,027
Illinois	117	Jul. 14, 1954	East St. Louis	410
Indiana	116	Jul. 14, 1936	Collegeville	672
Iowa	118	Jul. 20, 1934	Keokuk	614
Kansas	121	Jul. 24, 1936*	Alton (near)	1,651
Kentucky	114	Jul. 28, 1930	Greensburg	581
Louisiana	114	Aug. 10, 1936	Plain Dealing	268
Maine	105	Jul. 10, 1911*	North Bridgton	450
Maryland	109	Jul. 10, 1936*	Cumberland & Frederick	623; 325
Massachusetts	107	Aug. 2, 1975	New Bedford & Chester	120; 640
Michigan	112	Jul. 13, 1936	Mio	963
Minnesota	114	Jul. 6, 1936*	Moorhead	904
Mississippi	115	Jul. 29, 1930	Holly Springs	600
Missouri	118	Jul. 14, 1954*	Warsaw & Union	687; 560
Montana	117	Jul. 5, 1937	Medicine Lake	1,950
Nebraska	118	Jul. 24, 1936*	Minden	2,169
Nevada	122	Jun. 23, 1954*	Overton	1,240
New Hampshire	106	Jul. 4, 1911	Nashua	125
New Jersey	110	Jul. 10, 1936	Runyon	18
New Mexico	116	Jul. 14, 1934*	Orogrande	4,171
New York	108	Jul. 22, 1926	Troy	35
North Carolina	110	Aug. 21, 1983	Fayetteville	213
North Dakota	121	Jul. 6, 1936	Steele	1,857
Ohio	113	Jul. 21, 1934*	Gallipolis (near)	673
Oklahoma	120	Jul. 26, 1943*	Tishomingo	670
Oregon	119	Aug. 10, 1898	Pendleton	1,074
Pennsylvania	111	Jul. 10, 1936*	Phoenixville	100
Rhode Island	104	Aug. 2, 1975	Providence	51
South Carolina	111	Jun. 28, 1954*	Camden	170
South Dakota	120	Jul. 5, 1936	Gannvalley	1,750
Tennessee	113	Aug. 9, 1930*	Perryville	377
Texas	120	Aug. 12, 1936	Seymour	1,291
Utah	117	Jul. 5, 1985	Saint George	2,880
Vermont	105	Jul. 4, 1911	Vernon	310
Virginia	110	Jul. 15, 1954	Balcony Falls	725
Washington	118	Aug. 5, 1961*	Ice Harbor Dam	475
West Virginia	112	Jul. 10, 1936*	Martinsburg	435
Wisconsin	114	Jul. 13, 1936	Wisconsin Dells	900
Wyoming	114	Jul. 12, 1900	Basin	3,500

*Also on earlier dates at the same time or other places.

RECORD LOWEST TEMPERATURES BY STATE
(THRU 1989)

State	Temp. °F.	Date	Station	Elevation Feet
Alabama	-27	Jan. 30, 1966	New Market	760
Alaska	-80	Jan. 23, 1971	Prospect Creek	1,100
Arizona	-40	Jan. 7, 1971	Hawley Lake	8,180
Arkansas	-29	Feb. 13, 1905	Pond	1,250
California	-45	Jan. 20, 1937	Boca	5,532
Colorado	-61	Feb. 1, 1985	Maybell	5,920
Connecticut	-32	Feb. 16, 1943	Falls Village	585
Delaware	-17	Jan. 17, 1893	Millsboro	20
Florida	- 2	Feb. 13, 1899	Tallahassee	193
Georgia	-17	Jan. 27, 1940	CCC Camp F-16	est. 1,000
Hawaii	12	May 17, 1979	Mauna Kea Obs 111.2	13,770
Idaho	-60	Jan. 18, 1943	Island Park Dam	6,285
Illinois	-35	Jan. 22, 1930	Mount Carroll	817
Indiana	-35	Feb. 2, 1951	Greensburg	954
Iowa	-47	Jan. 12, 1912	Washta	1,157
Kansas	-40	Feb. 13, 1905	Lebanon	1,812
Kentucky	-34	Jan. 28, 1963	Cynthiana	684
Louisiana	-16	Feb. 13, 1899	Minden	194
Maine	-48	Jan. 19, 1925	Van Buren	510
Maryland	-40	Jan. 13, 1912	Oakland	2,461
Massachusetts	-35	Jan. 12, 1981	Chester	640
Michigan	-51	Feb. 9, 1934	Vanderbilt	785
Minnesota	-59	Feb. 16, 1903*	Pokegama Dam	1,280
Mississippi	-19	Jan. 30, 1966	Corinth	420
Missouri	-40	Feb. 13, 1905	Warsaw	700
Montana	-70	Jan. 20, 1954	Rogers Pass	5,470
Nebraska	-47	Feb. 12, 1899	Camp Clarke	3,700
Nevada	-50	Jan. 8, 1937	San Jacinto	5,200
New Hampshire	-46	Jan. 28, 1925	Pittsburg	1,575
New Jersey	-34	Jan. 5, 1904	River Vale	70
New Mexico	-50	Feb. 1, 1951	Gavilan	7,350
New York	-52	Feb. 18, 1979*	Old Forge	1,720
North Carolina	-34	Jan. 21, 1985	Mt. Mitchell	6,525
North Dakota	-60	Feb. 15, 1936	Parshall	1,929
Ohio	-39	Feb. 10, 1899	Milligan	800
Oklahoma	-27	Jan. 18, 1930	Watts	958
Oregon	-54	Feb. 10, 1933*	Seneca	4,700
Pennsylvania	-42	Jan. 5, 1904	Smethport	est. 1,500
Rhode Island	-23	Jan. 11, 1942	Kingston	100
South Carolina	-19	Jan. 21, 1985	Caesars Head	3,100
South Dakota	-58	Feb. 17, 1936	McIntosh	2,277
Tennessee	-32	Dec. 30, 1917	Mountain City	2,471
Texas	-23	Feb. 8, 1933*	Seminole	3,275
Utah	-69	Feb. 1, 1985	Peter's Sink	8,092
Vermont	-50	Dec. 30, 1933	Bloomfield	915
Virginia	-30	Jan. 22, 1985	Mtn. Lake Bio. Stn.	3,870
Washington	-48	Dec. 30, 1968	Mazama & Winthrop	2,120; 1,765
West Virginia	-37	Dec. 30, 1917	Lewisburg	2,200
Wisconsin	-54	Jan. 24, 1922	Danbury	908
Wyoming	-63	Feb. 9, 1933	Moran	6,770

*Also on earlier dates at the same or other places.

TEMPERATURE EXTREMES, LOWEST

The lowest temperature on record in the United States, -79.8° , was observed at Prospect Creek Camp in the Endicott Mountains of Northern Alaska (Latitude $66^{\circ} 48'N$, Longitude $150^{\circ} 40'W$) on January 23, 1971. The lowest ever recorded in the conterminous 48 States, -69.7° , was observed at Rogers Pass, in Lewis and Clark County, Montana on January 20, 1954. Rogers Pass is in mountainous and heavily forested terrain about one-half mile east of and 140 feet below the summit of the Continental Divide.

The lowest annual normal (1941-70 mean) temperature in the United States is 9.3° for Barrow, Alaska which lies on the Arctic coast. Barrow also has the coolest summers (June-August) with a normal temperature of 36.4° . The lowest winter (December-February) normal temperature in the United States is -15.7° for Barter Island on the Arctic coast of northeast Alaska.

In the 48 conterminous States, Mt. Washington, New Hampshire (elevation 6,262 feet) has the lowest annual normal temperature 26.9° and the lowest normal summer temperature, 46.8° . A few stations in the Northeastern United States and in the upper Rocky Mountains have normal annual temperatures in the 30's; summer normal temperatures at these same stations are in the low 50's. Winter normal temperatures are lowest in northeastern North Dakota, 5.6° for Langdon Experiment Farm, and in northwestern Minnesota, 5.3° for Hallock.

In the continental areas of the Temperate Zone, 40° to 50° temperature falls in a few hours caused by advection of cold air masses are not uncommon. Sometimes these large temperature changes due to advection are followed by additional heat loss through radiation and result in remarkable temperature falls. Some outstanding temperature falls are:

- 24 hours: 100° , Browning, Montana, Jan. 23-24, 1916, from 44° to -56°
- 12 hours: 84° , Fairfield, Montana, Dec. 24, 1924, from 63° at noon to -21° at midnight
- 2 hours: 62° , Rapid City, South Dakota, Jan. 12, 1911, from 49° at 6 a.m. to -13° at 8 a.m.
- 27 minutes: 58° , Spearfish, South Dakota, Jan. 22, 1943, from 54° at 9 a.m. to -4° at 9:27 a.m.
- 15 minutes: 47° , Rapid City, South Dakota, Jan. 10, 1911, from 55° at 7 a.m. to 8° at 7:15 a.m.

TEMPERATURE CONVERSIONS

Temperatures in this publication are given in degrees Fahrenheit (°F). The Celsius (C) temperature scale, also called Centigrade, is used in most countries of the world. A temperature conversion scale is shown on the left. Note that the values coincide only at the -40 degree mark.

°F	°C	
212	100	1. { Water Boils
194	90	
176	80	
158	70	
140	60	2. { U.S. Record High
134	56.7	
122	50	
104	40	
86	30	
68	20	
50	10	
32	0	1. { Water Freezes
14	-10	
-4	-20	
-22	-30	
-40	-40	{ Scales Coincide
-58	-50	
-76	-60	3. { U.S. Record Low
-79.8	-62.1	
-94	-70	
-112	-80	
-130	-90	
-148	-100	

The standard formulas to convert °F to °C and °C to °F are shown below:

$$°F = 9/5 °C + 32$$

$$°C = 5/9 (°F - 32)$$

Alternate, easy to remember conversion methods follow:

$$°F = 9/5 (°C + 40) - 40$$

$$°C = 5/9 (°F + 40) - 40$$

To use the alternate conversion formulas for converting from one scale to the other:

(a) add 40 to the value to be converted

(b) multiply that sum by the fraction:
(5/9 for °F to °C)
(9/5 for °C to °F)

(c) subtract 40 from the product

For example, to convert 68°F to °C:

(a) add 40: $68 + 40 = 108$

(b) multiply the sum by 5/9 (°F to °C):
 $5/9 \times 108 = 60$

(c) subtract 40: $60 - 40 = 20$

(d) answer: $68°F = 20°C$

1. Under Standard Sea Level Pressure
2. Greenland Ranch, California - July 10, 1913
3. Prospect Creek Camp, Alaska - January 23, 1971