U. S. DEPARTMENT OF COMMERCE, WEATHER BUREAU
IN COOPERATION WITH OTTUMWA CHAMBER OF COMMERCE
CLIMATOGRAPHY OF THE UNITED STATES NO. 20 — 13

CLIMATOLOGICAL SUMMARY

STATION : OTTUMWA, IOWA

TUDE 41° 2'
GITUDE 92° 24"
ELEV. (GROUND) 649 Ft.

MEANS AND EXTREMES FOR PERIOD 1931 - 60

Month	Temperature (°F) Means: Daily maximum	Daily minimum	Monthly	Extremes: Record highest	Year	Record lowest	Year	** Mean degree days	Precipitation Totals (Inches): Mean	Greatest daily	Year	Snow, Sleet: Mean	Maximum monthly	Year	Greatest daily	Year	Mean number of days: Precip. .10 inch or more	Temperatures Max. 90° and above	Max. 32° and below	Min. 32° and below	Min. 0° and below	Month
(a)	(30)	(30)	(30)	(30)		(30)			(30)	(30)		(30)	(30)		(30)		(30)	(30)	(30)	(30)	(30)	
Jan.	34.9	14.8	24.9	65	1939	-32	1957	1243	1.46	1.68	1960+	6.2	19.5	1936	8.8	1948	4	0	13	29	5	Jan.
Feb.	38.6	18.0	28.3	71	1932	-28	1936	1037	1.11	1.48	1937	5.0	23.7	1960	10.0	1960	3	0	8	25	3	Feb.
Mar.	48.6	27.3	38.0	86	1938	-15	1960	837	2.28	4.18	1939	6.2	23.4	1960	9.3	1932	6	0	3	22	*	Mar.
Apr.	64.0	40.0	52.0	89	1942+	11	1936	390	3.10	2.52	1947	0.5	3.5	1950	3.5	1950	7	0	0	7	0	Apr.
May	74.9	50.8	62.9	103	1934	25	1950	161	3.97	2.66	1937	T	T	1954+	T	1954+	8	2	0	*	0	May
June	84.1	61.0	72.6	107	1934	39	1935	36	5.19	4.29	1946	0	0				7	8	0	0	0	June
July	89.9	64.9	77.4	115	1936	46	1950+	3	3.25	3.00	1932	0	0				5	15	0	0	0	July
Aug.	87.7	63.3	75.5	115	1934	40	1950	9	4.04	3.98	1955	0	0				6	13	0	0	0	Aug.
Sept.	80.4	54.0	67.2	102	1947	23	1942	84	3.45	3.70	1931	0	T	1942	T	1942	6	6	0	*	0	Sept.
Oct.	69.7	42.7	56.2	96	1938	17	1952	313	2.30	2.21	1954	T	0.3	1937	0.3	1937	4	1	*	5	0	Oct.
Nov.	50.7	30.3	40.5	83	1938	-8	1937	735	1.80	2.25	1938	1.6	11.0	1934	10.3	1934	4	0	2	19	*	Nov.
Dec.	38.6	19.9	29.3	70	1946	-19	1958+	1107	1.48	1.64	1941	4.6	11.8	1944	6.5	1944	3	0	9	28	3	Dec.
Year	63.5	40.6	52.1	115	1936+	-32	1957	5955	33.43	4.29	1946	24.1	23.7	1960	10.3	1934	63	45	35	135	11	Year

(a) Average length of record, years.

T Trace, an amount too small to measure.

** Base 65°F

+ Also on earlier dates, months, or years.

* Less than one half.

CLIMATE OF OTTUMWA

The city of Ottumwa is located in the Des Moines River Valley about 93 miles above the juncture of the river with the Mississippi. The rolling terrain of the vicinity slopes generally southeastward with the drainage pattern. The typically continental climate is characterized by frequent and rapid weather changes due to the proximity of the two major midwest storm tracks, one from the northwest and the other from the southwest, which produces rather warm summers and cold winters.

Minimum temperatures and shower activity are most variable of the elements measured. On calm, clear nights temperatures in the lowlands are usually a few degrees lower than those in the urban uplands and the showers are quite variable over short distances. About 70 per cent of the annual precipitation falls during the crop season of April through September with the most showers and thunderstorms in May, June and August; although the heaviest observational day rainfall occurred on October 16, 1905, when 4.63 inches of rain was measured. Rainfall intensities of 2.90 inches or more in 24 hours and/or 1.45 inches in one hour can be expected about once every two years and 5.75 inches or more in 24 hours and/or 2.40 inches in an hour can be expected to occur about once in 50 years (based on Des Moines and Keokuk, Iowa rainfall frequency data). On June 28, 1960, two inches of rain fell in 15 minutes. On the average, rainfalls of one inch or more occur on 8 days a year, a quarter inch or more on 40 days, one-tenth inch or more on 63 days and measurable rain on 106 days a year. Of the average of about 52 thunderstorms per year, 42 occur during the crop season sometimes with damaging winds, heavy rainfalls or even on rare occasions, tornadoes. During the past 25 years only three tornadoes, minor in nature, have originated in Wappello County. At an elevation of thirty feet, a height of most industrial and business constructions, wind velocities, excluding tornadoes, can be expected to reach 55 miles per hour about once every two years, 85 miles per hour once in fifty years and 90 miles per hour once in a century. On June 28, 1960, high winds with gusts to 115 miles per hour occurred.

Summer winds are prevailing southerly and in the winter northwesterly averaging from 8 to 12 miles per hour. Flooding in the Des Moines River Valley occurs one or more times a season. The worst flood year was 1947 with 7 different flood peaks and three of the four highest levels of record were reported on June 7, 15 and 28 of that year. Also of importance to agricultural interests are the probabilities of an inch or more of available moisture per week during peak corn growth. Part of this may be available from storage. The probability of receiving this amount of rainfall per week is about 4 in 10 in May and June, and 3 or 4 in 10 the remainder of the season.

Snowfall, averaging about 24 inches per season, has varied from only 3.2 inches during the 1927-28 season to 62.3 in. in 1884-85. The earliest snowfall of record occurred on September 25, 1942. The average date of the first snowfall of consequence, an inch or more, is about December 10.

Extreme temperatures of record range from -36° F., recorded on January 22, 1930, to 115° F. measured on August 8, 1934 and July 15, 1936. On about 45 days a season the temperature equals or exceeds 90°, which is above the optimum growth requirement of most plants. The growing season averages about 170 days from the average last spring occurence of 32° on April 25 to the average fall threshold of 32° on Oct. 11. The extreme threshold date of 32° ranges from May 25, 1926, to September 16, 1937.

Relative humidity averages about 60 per cent during the afternoon to around 80 per cent at sunrise, but with considerable variation from day to day. Seasonal variation of sunshine ranges from about 46 per cent of the possible in December to 75 per cent of the possible in July but available solar energy increases about four fold in June and July over December.

Average Temperature (°F)

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Ann'l
1931	31.2	37.2	36.1	50.7	58.5	74.8	78.8	73.5	72.8	59.8	48.0	37.2	54.9
1932	29.6	34.4	32.2	52.8	64.4	73.7	77.3	73.4	64.1	52.0	35.8	25.8	51.3
1933	35.9	25.8	39.4	51.5	63.2	78.4	77.2	72.1	71.1	51.9	40.6	32.4	53.3
1934	31.8	27.0	37.4	53.2	69.0	79.8	83.8	78.0	64.2	57.4	44.4	24.2	54.2
1935	25.2	32.2	43.9	49.3	57.4	68.8	81.2	76.4	66.6	54.3	37.7	24.8	51.5
1936	14.4	12.4	43.6	48.8	68.6	73.2	85.0	82.2	71.2	54.3	38.6	32.1	52.1
1937	19.6	23.3	35.4	51.4	64.9	71.3	76.4	78.6	67.0	52.9	35.5	25.8	50.2
1938	25.5	34.4	47.4	52.0	61.6	70.0	78.8	77.3	68.6	62.4	41.4	29.6	54.1
1939	33.2	26.2	40.4	50.2	67.3	73.8	78.6	72.0	70.4	56.6	41.5	34.9	53.8
1940	9.9	28.2	35.9	51.0	59.8	73.7	78.7	73.2	66.8	59.6	37.4	33.5	50.6
1941	28.0	26.6	37.4	57.2	68.4	72.6	77.3	77.6	69.1	57.8	43.4	36.4	54.3
1942	25.6	28.2	41.8	57.6	63.4	73.0	76.8	74.8	66.1	56.4	43.8	24.6	52.7
1943	23.8	32.8	36.4	52.4	60.6	74.6	77.8	77.2	63.4	54.6	37.0	28.8	51.6
1944	32.4	31.4	34.9	47.8	66.9	75.2	75.4	74.2	67.4	55.8	44.4	23.2	52.4
1945	20.6	29.2	49.0	53.0	58.1	66.8	73.9	74.6	65.2	53.1	40.2	21.1	50.4
1946	27.8	33.7	50.8	55.9	58.8	72.1	75.8	70.2	66.0	59.4	41.8	34.0	53.9
1947	28.9	22.2	34.0	51.0	58.0	68.8	74.4	83.8	70.6	63.0	36.2	32.2	50.6
1948	20.3	26.7	37.1	57.8	61.8	70.4	76.8	76.2	69.8	53.6	42.7	30.4	52.0
1949	23.1	25.3	38.9	51.4	65.8	73.6	77.9	74.3	60.6	57.6	44.0	32.7	52.1
1950	26.7	27.7	36.2	46.0	62.6	69.7	71.1	69.8	65.6	59.9	36.2	20.3	49.3
1951	20.6	26.2	30.8	47.2	63.4	67.9	74.2	73.1	62.4	54.3	33.6	22.1	48.0
1952	20.5	34.1	33.6	51.0	60.6	76.0	76.8	72.0	66.5	51.3	39.7	31.3	51.5
1953	26.9	31.4	37.4	45.1	61.7	75.8	79.2	76.5	69.4	60.5	43.2	30.3	53.1
1954	23.1	38.6	35.4	55.4	57.8	75.4	80.9	78.9	68.4	55.3	43.5	31.9	53.7
1955	23.6	26.6	38.2	59.0	64.9	68.5	79.7	76.7	68.9	54.6	34.8	25.6	51.8
1956	23.2	28.5	38.5	50.7	66.1	75.4	76.2	74.9	67.1	61.5	40.9	31.0	52.8
1957	19.3	34.3	38.5	53.2	62.4	72.1	80.3	75.3	64.2	52.3	39.0	34.4	52.1
1958	25.6	18.5	37.1	52.5	63.8	69.0	73.1	75.5	67.7	57.0	45.3	25.6	50.9
1959	18.4	28.3	39.3	51.8	66.1	74.0	74.7	78.5	66.8	52.2	34.0	35.4	51.6
1960	26 0	22.9	21.6	52.9	61.1	68.6	74.1	75.6	68.3	54.8	41.9	26.2	49.5

Total Precipitation (Inches)

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Ann'l
1931	0.61	0.30	3.51	3.92	3.52	6.95	1.36	1.88	9.48	6.10	5.10	2.97	45.70
1932	1.29	0.61	1.75	2.07	4.60	6.97	6.20	10.82	1.24	3.10	1.54	1.90	42.09
1933	0.68	0.58	2.14	0.95	4.84	3.32	0.41	4.91	5.36	2.15	0.20	0.46	26.00
1934	0.59	0.69	0.84	2.43	1.57	3.19	1.81	1.77	5.71	0.98	5.81	0.55	25.94
1935	1.19	1.22	1.55	1.57	7.11	10.31	3.59	2.74	4.93	1.48	3.34	0.76	39.79
1936	1.82	0.72	0.55	1.18	2.85	2.08	0.11	2.09	10.02	1.96	0.47	1.42	25.27
1937	3.26	1.70	2.00	2.91	4.60	5.32	3.43	1.70	0.60	1.68	1.04	0.78	29.02
1938	2.28	0.84	2.97	3.45	3.50	4.48	2.78	3.92	1.09	2.03	5.18	1.01	33.53
1939	0.80	1.67	5.32	3.31	1.39	4.16	1.56	9.16	0.58	1.38	0.93	0.83	31.09
1940	0.98	1.21	1.68	3.55	2.58	1.37	3.86	6.61	0.22	1.43	1.94	1.58	27.01
1941	2.73	0.62	0.67	2.52	3.45	6.00	2.07	3.85	6.64	6.49	1.49	2.70	39.23
1942	0.50	1.78	1.03	1.27	2.51	7.34	7.83	2.26	3.77	2.00	2.83	2.40	35.52
1943	0.97	1.24	1.38	4.11	6.49	5.88	5.55	5.19	1.84	1.40	0.66	0.95	35.66
1944	0.82	1.32	3.09	6.98	4.08	6.03	1.81	7.53	3.03	2.15	2.62	2.25	41.71
1945	1.19	0.80	2.84	3.38	5.86	5.49	1.43	1.77	10.65	0.02	0.72	3.01	37.16
1946	2.44	0.23	5.02	2.37	5.18	8.23	4.10	2.48	2.92	2.75	2.67	0.97	39.36
1947	1.93	0.18	1.61	6.27	4.59	11.13	0.58	1.19	2.94	4.13	1.67	1.74	37.96
1948	1.68	1.39	2.44	2.30	2.63	1.51	5.07	0.76	4.39	1.19	2.60	2.55	28.51
1949	3.09	1.66	3.32	1.34	2.40	8.87	2.95	3.60	3.05	1.38	0.82	1.88	34.36
1950	2.69	1.85	0.32	3.55	4.31	5.93	1.35	2.00	0.55	0.05	0.79	0.66	24.05
1951	0.66	2.15	4.80	3.79	5.10	8.61	4.00	5.17	1.40	4.20	1.41	0.94	42.23
1952	1.03	0.85	3.24	2.54	5.15	5.78	2.56	6.44	0.60	0	3.09	2.17	33.45
1953	0.78	2.23	4.66	1.69	1.03	3.22	0.85	0.51	1.43	0.36	0.27	1.95	18.98
1954	0.21	0.96	2.53	3.27	2.99	3.07	1.60	8.14	1.41	5.56	0.44	0.84	31.02
1955	2.24	1.49	1.10	5.62	4.49	3.91	4.85	4.96	4.31	1.20	0.28	0.31	34.76
1956	0.32	1.06	1.11	1.09	1.51	1.77	4.60	8.16	0.71	0.73	0.74	0.76	22.56
1957	0.86	0.09	3.02	5.57	3.40	4.06	33.3	T	2.34	2.22	2.36	2.61	29.86
1958	1.12	0.56	0.33	1.67	3.14	3.37	9.20	3.94	4.25	0.96	1.66	0.47	30.67
1959	1.05	1.35	1.62	3.70	7.19	1.85	6.01	4.09	5.45	5.00	0.65	2.75	40.71
1960	3.90	2.03	2.00	4.44	6.96	5.62	2.65	3.52	2.53	4.94	0.66	0.32	39.57

STATION HISTORY

Ottumwa has a long record of weather observations, although the records made during the earlier years have frequent breaks in them. The first observations we know about were made in February, 1884, by Mr. L. J. Baker. The station at that time was said to have been at 41° 02' N. and 92° 24' W. Beyond that we have no information concerning the exact location of the station. Mr. Baker continued making the observations for a little over three years. Then, in rapid succession the following men were named observers: J. F. Herrick, W. B. LaForce, M. W. Pasco, James A. Hull, W. J. Mesmer, Chester Potter, Chas. W. Sloan, Lewis W. Barger, Tom Ray, Eugene Field, Henry Eilens, and William H. Powell. Each person served for a short time, some less than one year, and others as long as six years. We know practically nothing about the exact location of these observation stations.

In February, 1923, Mr. Clement L. Mikesh became the official weather observer in Ottumwa. His record of precipitation and temperature as recorded at his gravel plant about one mile west, southwest of the Post Office, through February 1960, serves as a basis for most of this summary. The ten months of record, March through December 1960, were measured at the Airport by FAA personnel. Observations were begun in 1944 at the Airport by U. S. Navy Air Station personnel. The CAA (now FAA) took over the observational program in 1947 and have continued it to the present.

STATION HISTORY - Cont'd.

Because of its strategic location on the Des Moines River, Ottumwa has also been the site of a long record of river stage observations. Fragmentary records of the river stage start as early as 1913. In more recent years, they have been more complete. The present observer, Mr. Winfrey Kinnear, has been recording both river stage and precipitation amounts since 1946.

The City of Ottumwa has been quite fortunate in having three quite stable climatological sites until 1960. Precipitation data, prior to this summary is contained in the Weather Bureau Publication Bulletin W and the climatic data is published each month in Climatological Data, Iowa.

The U. S. Department of Commerce, Weather Bureau in cooperation with Ottumwa Chamber of Commerce

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