SELECTING PREFERRED SITES FOR A SOLAR POWER STATION USING SOLAR/CLIMATIC DATA

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TASK 1.1.1 SOLAR DATA

The principal objectives of this task were to:

- Collect solar energy data pertinent to the continental U.S.
- Calculate the direct normal radiation from available total (direct + diffuse) radiation measurements using the method of Liu and Jordan; and draw contours of equal direct radiation intensity.
- Identify, from the radiation maps, geographic regions receiving the highest radiation at the surface.
- Collect and analyze climatic data applicable to the identified regions.
- Recommend, based on both solar energy and climatic criteria, one or two of these regions as the best general location(s) for a solar power plant. (A specific site will be selected in Task 1.2 using as a basis the non-solar site selection criteria developed in Task 1.1.2.)

Objective No. 1: Collect Solar Energy Data

To accomplish this objective, selected pages of the "Climatic Atlas of the United States" published in 1968 were consulted as the most authoritative source of information available. These data, supplied by the National Climatic Center, Asheville, North Carolina, consisted of smoothed isolines and tables based on U. S. Weather Bureau data spanning a number of years*. Specific solar/climatic parameters examined included the following:

- Mean daily solar radiation, monthly and annual
- Mean total hours of sunshine, monthly and annual
- Mean percentage of possible sunshine, monthly and annual
- Mean sky cover, sunrise to sunset, monthly and annual

The analyzed (contoured) annual charts of the above parameters are included as Figures 1 through 4. Refer to Appendix A for complete data including monthly analyses and tabular data. To augment the solar/climatic analysis of subregions selected as potential power station sites, LCDs (Local Climatological Data) for specific stations were obtained (from Asheville). These pamphlets provide a narrative climatological summary as well as statistical data for such parameters as temperature, precipitation, relative humidity, percent of possible sunshine, sky cover, and days with thunderstorms, fog, etc. LCDs of interest are presented in Appendix B.

*The period of record varies from station to station. See notations on individual maps (Appendix A).

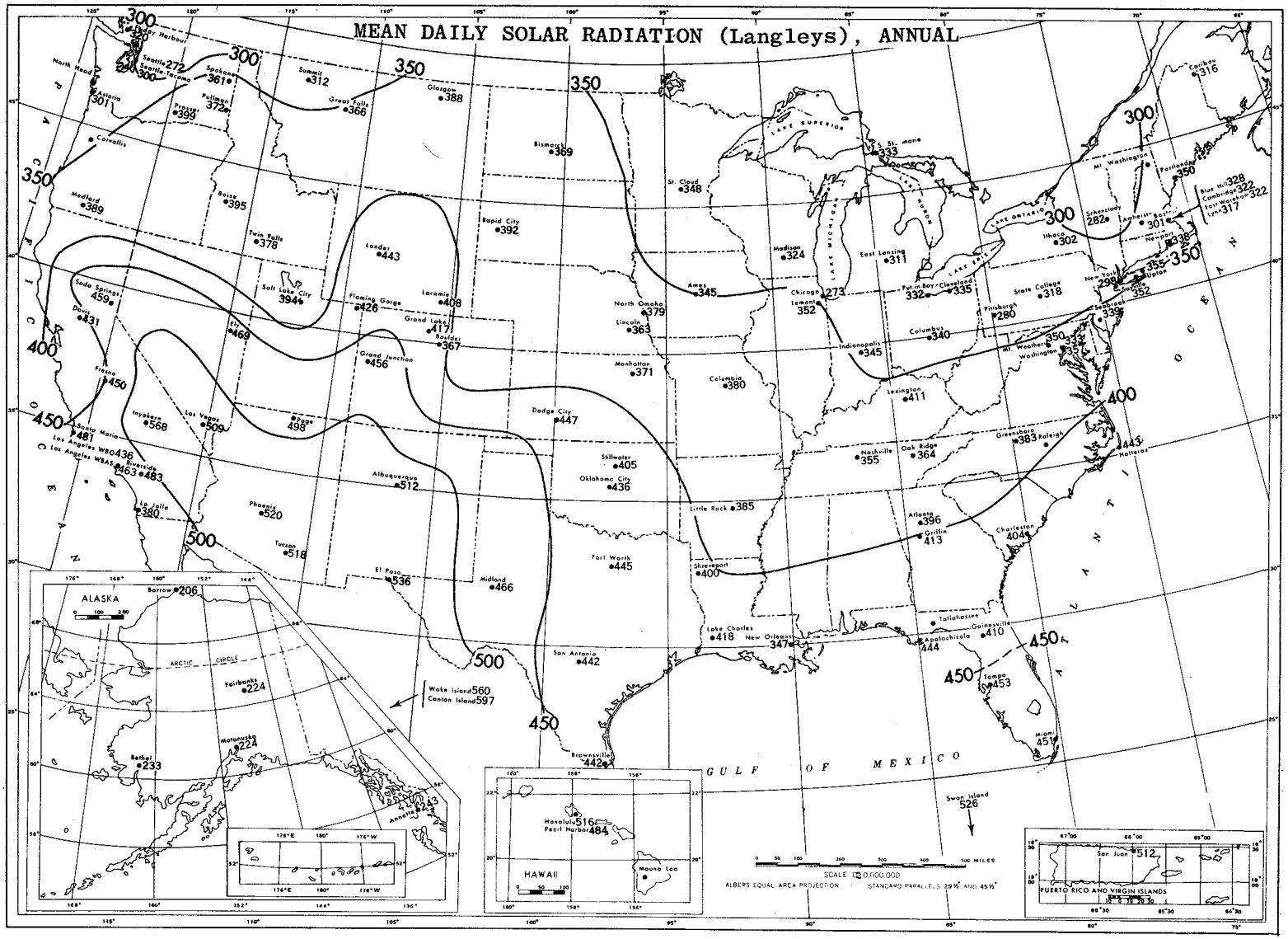

Figure 1. Mean Daily Total Radiation, Annual

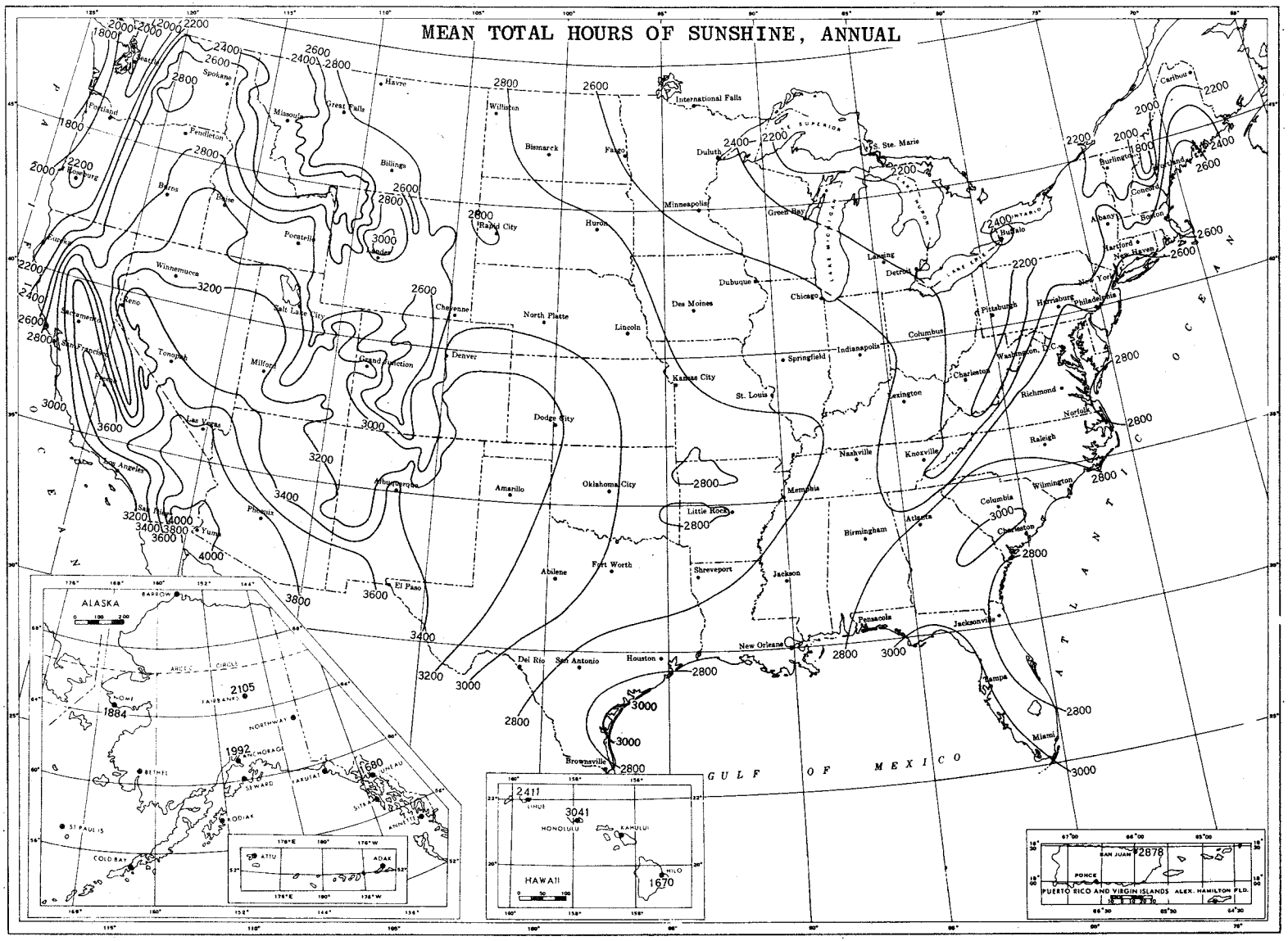

Figure 2. Mean Total Hours of Sunshine, Annual

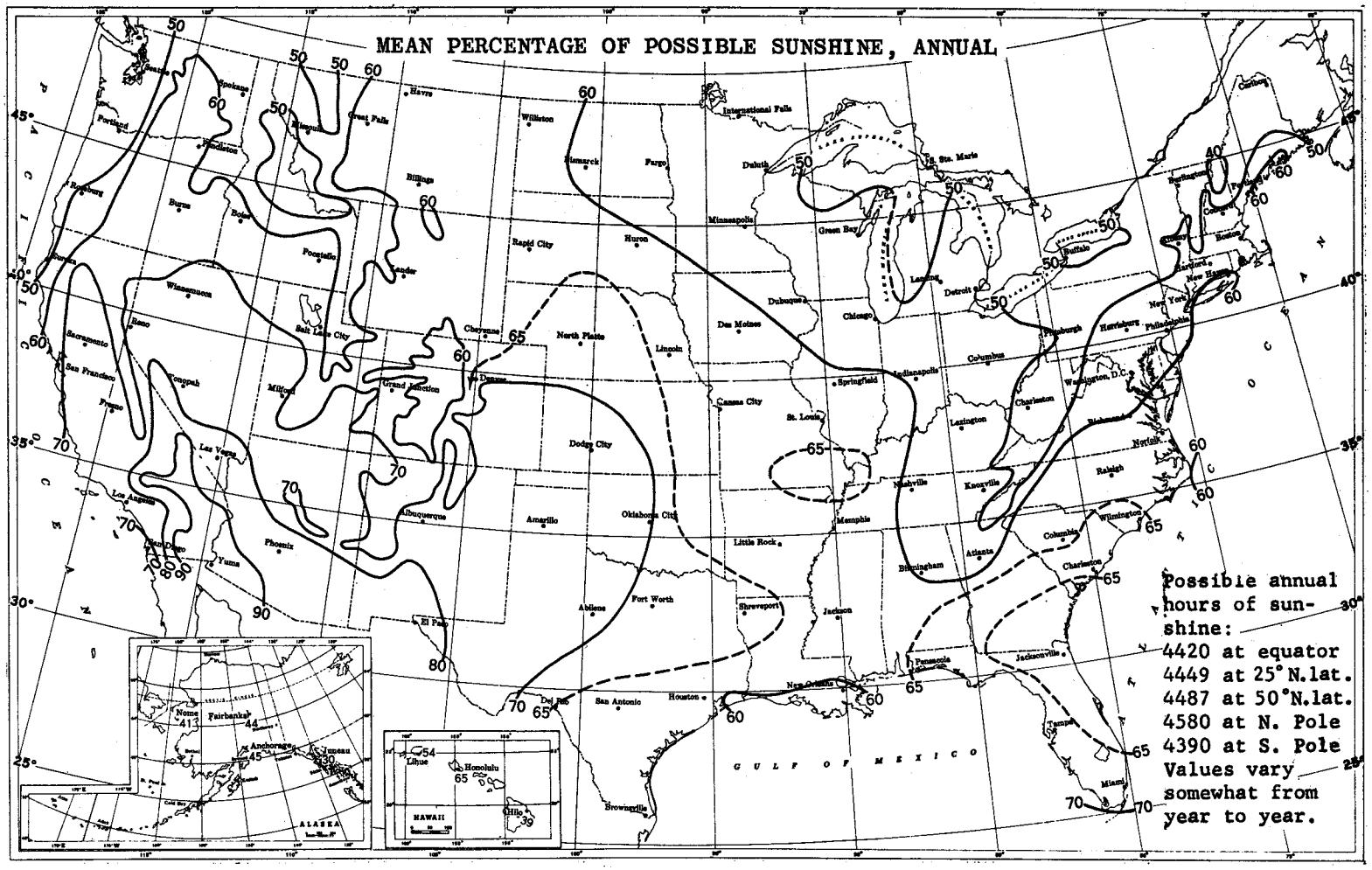

Figure 3. Mean Percentage of Sunshine, Annual

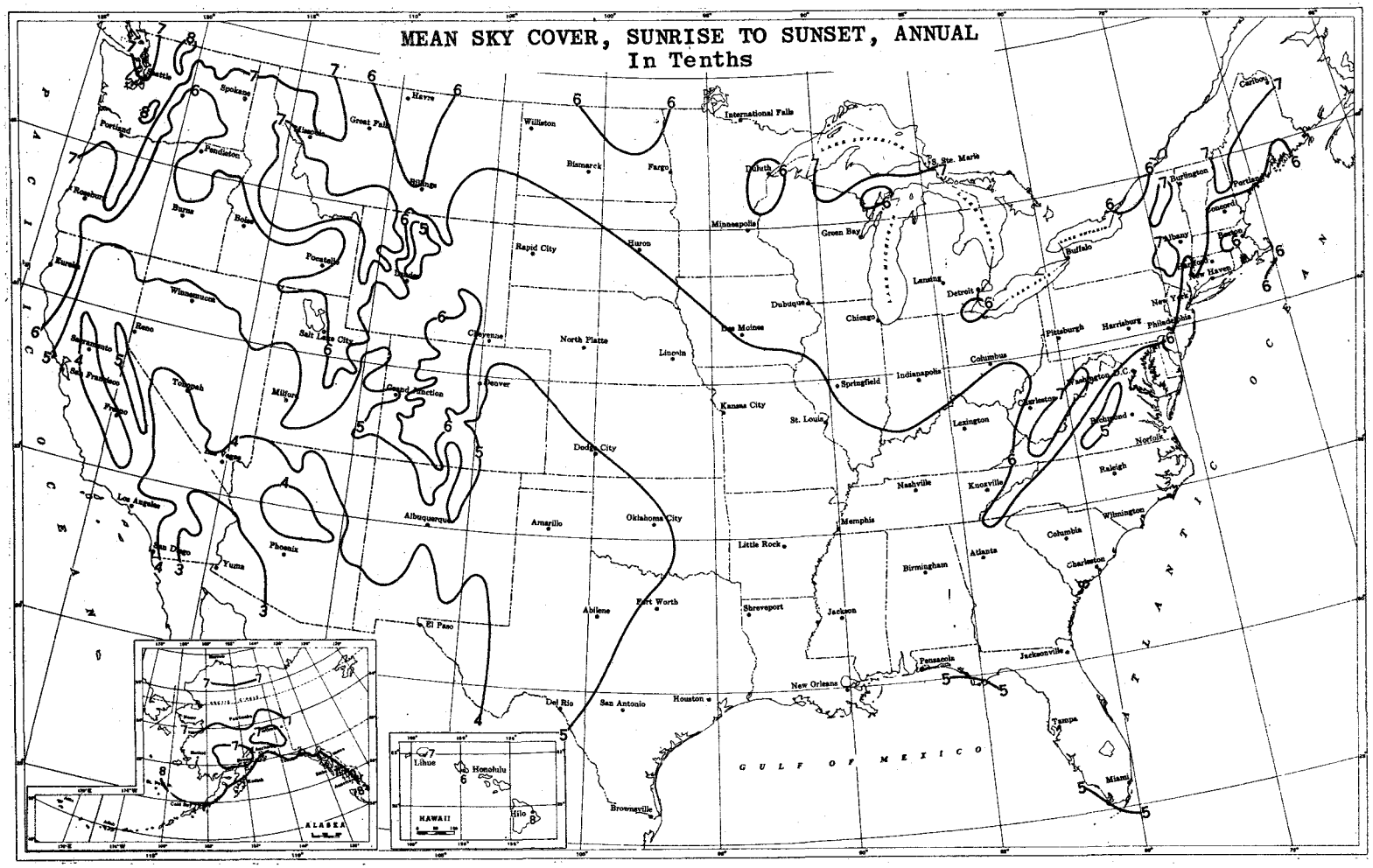

Figure 4. Mean Sky Cover, Sunrise to Sunset, Annual

Objective No. 2: Calculate Direct Normal Radiation Incident at the Surface for Selected Stations and Create Direct Radiation Map

To determine the intensity of direct solar radiation from the intensity of total (direct + diffuse) radiation incident on a horizontal surface, the empirical correlation between direct and diffuse solar radiation intensities given by Liu and Jordan (1960)[1] was used:

$$\tau_{dh} = 0.2710 - 0.2939\,\tau_{Dh} \qquad (1)$$

where $\tau_{dh} = I_{dh}/I_{oh}$ is the ratio of the diffuse radiation on a horizontal surface at the surface of the earth, I_{dh}, to the intensity of solar radiation arriving at a horizontal surface outside the earth's atmosphere; and $\tau_{Dh} = I_{Dh}/I_{oh}$ is the ratio of the intensity of direct solar radiation on a horizontal surface at the earth's surface, I_{Dh}, to the intensity of radiation on a horizontal surface outside the earth's atmosphere, I_{oh}. Since the quantity I_{oh} can be calculated from the known angular relationships between the earth and sun, the above relationship allows one to separate the total radiation into its direct and diffuse components.

Equation (1) is based on the theoretical studies made by Liu and Jordan (1960) and careful analysis of the then existing solar radiation data. The correlation has been found to apply to widely separate localities with different climatic conditions. Figures 5, 6 and 7 show the comparison between this empirical correlation with experimental data for Hump Mountain, North Carolina; Blue Hill, Massachusetts; and Minneapolis, Minnesota, taken from the reference by Liu and Jordan (1960). This empirical correlation is believed to be applicable to other localities as well.

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[1] Liu, Benjamin Y.H., and Jordan, Richard C., "The Interrelationship and Characteristic Distribution of Direct, Diffuse and Total Solar Radiation," Solar Energy IV, No. 3, July 1960.

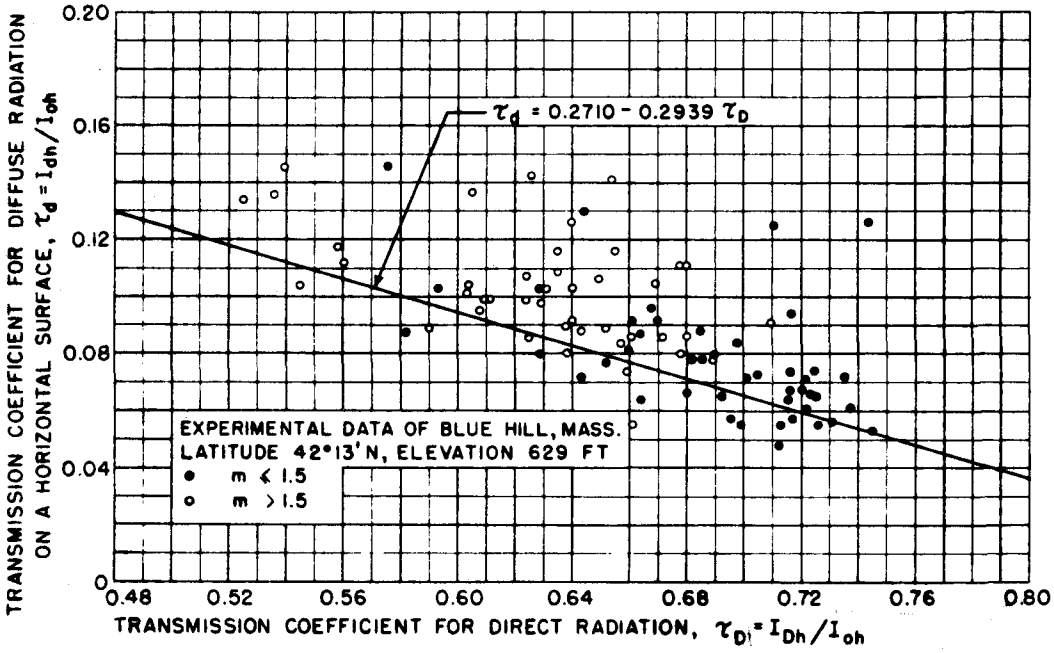

Figure 5. Comparison of the Empirical Relation Between the Intensities of Direct and Diffuse Radiation on a Horizontal Surface Derived from the Data for Hump Mountain, N.C., with the Data for Blue Hills, Mass.

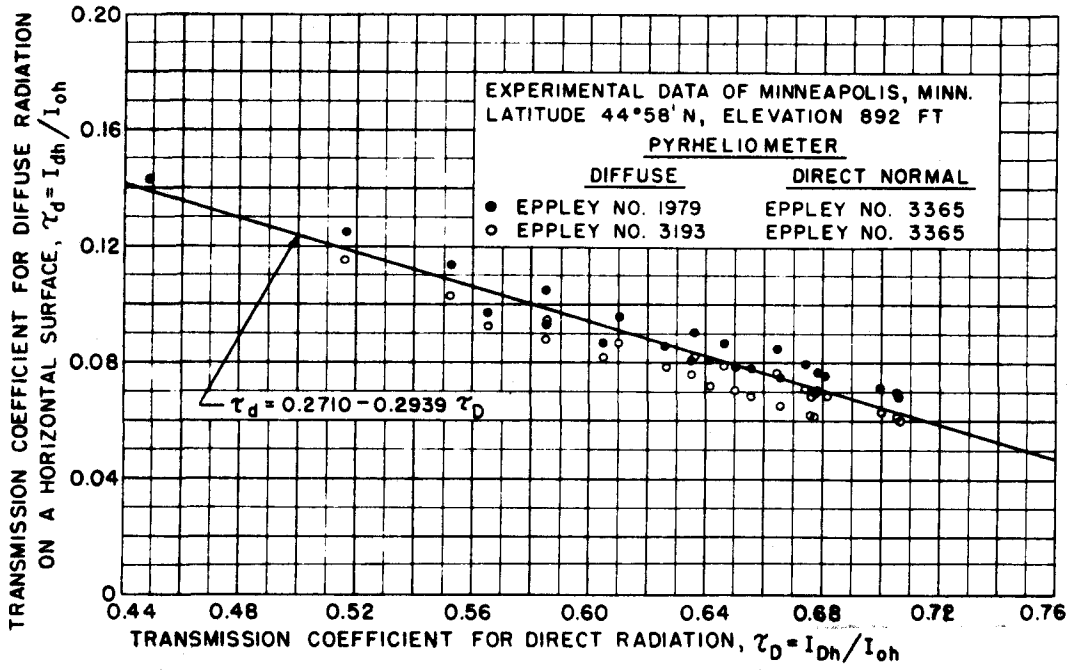

Figure 6. Comparison of the Empirical Relation Between the Intensities of Direct and Diffuse Radiation on a Horizontal Surface Derived from the Data for Hump Mountain, N.C., with the Data for Minneapolis, Minn.

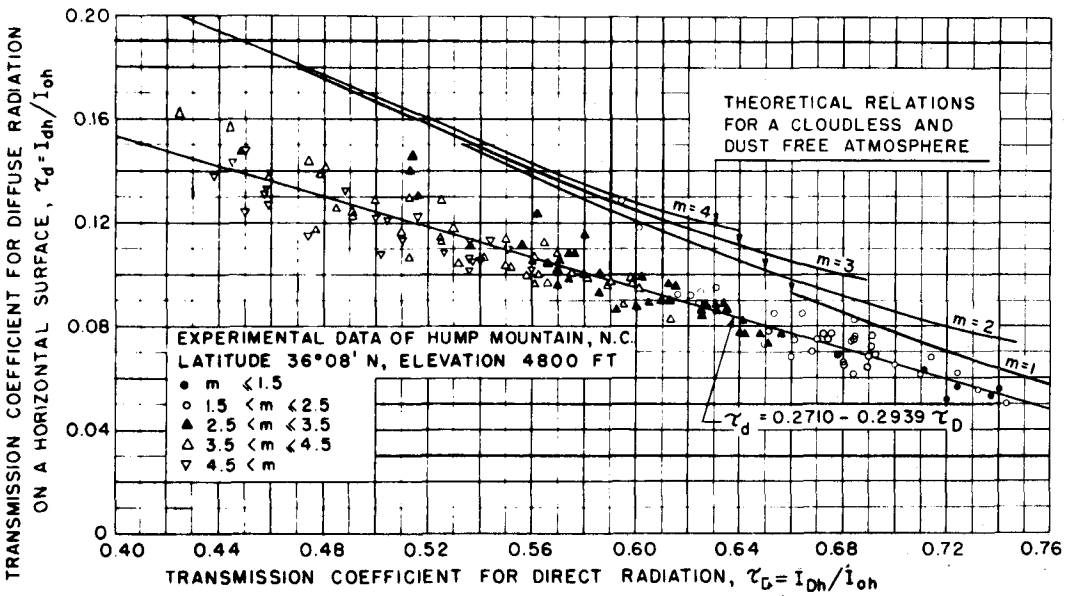

Figure 7. Theoretical and Experimental Relations Between the Intensities of Direct and Diffuse Radiation on a Horizontal Surface for a Cloudless Atmosphere at 4800 Foot Elevation

Equation (1) can be converted to a form by which the direct normal radiation incident on a horizontal surface at a given station can be easily calculated:

$$\tau_{dh} = 0.271 - 0.2939\,\tau_{Dh}$$

$$\tau_{dh} = \frac{I_{dh}}{I_{oh}}$$

$$\tau_{Dh} = \frac{I_{Dh}}{I_{oh}}$$

$$I_T = I_{dh} + I_{Dh}$$

$$\underbrace{I_{oh}\,\tau_{dh}}_{I_{dh}} = 0.271\,I_{oh} - 0.2939\,\underbrace{I_{oh}\,\tau_{Dh}}_{I_{Dh}}$$

$$I_{dh} = 0.271\, I_{oh} - 0.2939\, I_{Dh}$$

$$-0.271\, I_{oh} = -I_{dh} - 0.2939\, I_{Dh}$$

$$+ \frac{I_T = I_{dh} + I_{Dh}}{I_T - 0.271\, I_{oh} = I_{Dh}\ \underbrace{(1 - 0.2939)}_{0.7061}}$$

$$\boxed{\frac{I_T - 0.271\, I_{oh}}{0.7061} = I_{Dh}} \qquad (2)$$

The variable I_T (total direct + diffuse radiation) is the solar radiation value given by the Weather Bureau for each station. I_{oh} is the solar radiation incident on a horizontal surface from sunrise to sunset at the top of the earth's atmosphere above station latitude and can be approximated as follows:

$$\boxed{\begin{aligned} I_{oh} &= 1.94 \text{ gm cal/cm}^2\text{/min} \times 60 \text{ min} \times 12.23 \text{ hours} \times \cos \phi \\ &= 1424 \text{ Langleys*} \times \cos \phi \end{aligned}} \qquad (3)$$

where 1.94 gm cal/cm^2/min is the solar constant,** ϕ the station latitude and 12.23 the average hours of possible sunshine per day at 37.5°N latitude. The latter value is acceptable since there is so little difference between 25°N. latitude and 50°N. latitude in terms of possible annual hours of sunshine: 4449 compared to 4487, respectively.

*1 Langley = 1 gm cal/cm^2

**Calculations by the Smithsonian Institute, Moon and others show a slightly higher value for the solar constant.

Equation (3) represents the amount of solar energy which is incident when the sun is directly over the equator; it is taken as the annual average since the sun "moves" both north and south of the equator an equal distance over a year's time. The effect of the earth's inclination can be ignored since it essentially cancels out from winter to summer. Since we are dealing with annual averages of total insolation at the surface, and are using the direct values for comparative purposes only (to select areas of high direct insolation), the average values for I_{oh} thus derived are considered satisfactory for the purpose of this study.

Direct solar radiation data were then derived using a computer program based on Equation (2). The two variables (I_{oh} and I_T) served as input. These data were then plotted on a map of the U.S. and isolines drawn to reveal zones of high and low direct normal solar radiation (Figure 8).

Objective No. 3: Identify U.S. Areas with the Highest Incident Solar Radiation at the Surface

To accomplish this objective, the map of the direct solar radiation (Figure 8) was reviewed first to identify area(s) of the U.S. receiving the highest average amount of direct solar radiation -- the component of the total radiation used by solar energy concentrators. Following this, the four Weather Bureau maps (Figures 2 through 4) were reviewed to identify high solar radiation centers based on total (direct + diffuse) radiation data. Since both the direct radiation map (Figure 8) and the total radiation map (Figure 1) displayed the same general area of high solar energy concentration, the remaining three maps (Figures 2 through 4) were reviewed to help pinpoint other areas of high energy concentration.

Review of Direct Solar Radiation Map -- (This map is based on data derived from the Liu and Jordan equation for the direct radiation component of total (diffuse + direct) solar radiation.) Figure 8 shows that the only area of

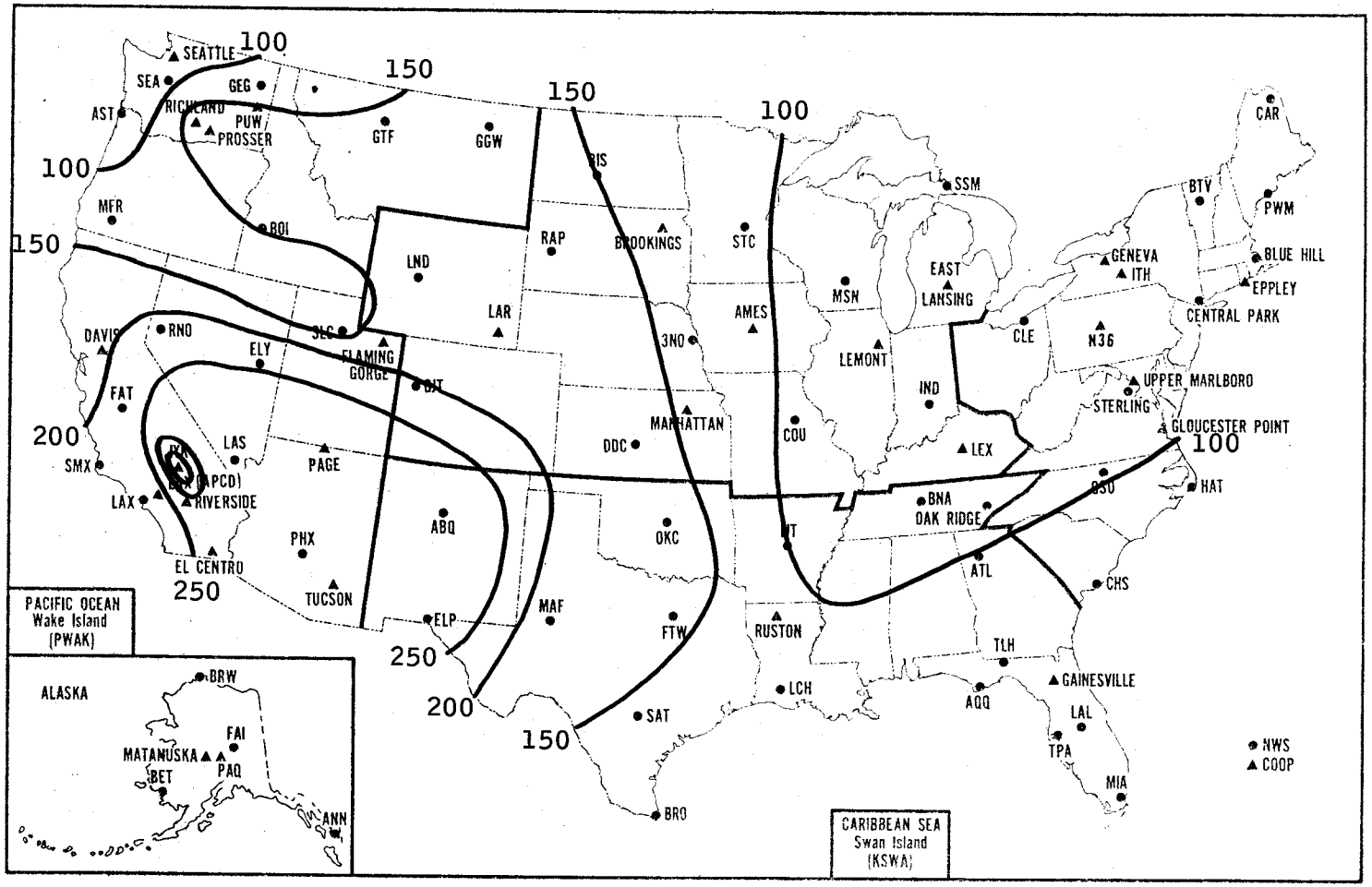

Figure 8. Solar Radiation Stations - Isopleths of Mean Daily Direct Solar Radiation (Langleys)

the U.S. receiving greater than 250 Langleys* per day (mean daily value averaged over the year) is a contiguous five-state region in the southwest. The area of highest concentration of direct radiation (greater than 350 Langleys per day) appears to be an area in the vicinity of Inyokern (China Lake), California.

Review of Total (Diffuse + Direct) Solar Radiation Maps (Provided by U.S. Weather Bureau) -- Referring to Figure 1 it is obvious that the highest mean daily concentration of total solar energy (500 + Langleys per day) also occurs in the same general area, i.e., southwestern U.S. It also experiences the highest mean annual hours of sunshine (3800^{+} hours - Figure 2), the highest mean annual percentage of possible sunshine (80^{+} percent annually - Figure 3), and has fewer clouds than any other area in the U.S. with a mean annual sky cover of 3-4 tenths.

To help pinpoint smaller areas of high solar energy concentration, the monthly maps of (1) mean daily solar radiation, (2) mean total hours of sunshine, (3) mean percentage of possible sunshine, and (4) mean sky cover, sunset to sunrise, were consulted: (Appendix A presents these maps).

Mean Daily Solar Radiation by Months -- Ranges from 250-300 Langleys per day in December and January to 700-800 Langleys in May, June and July, the high being centered over Inyokern, California.

Mean Monthly Total Hours of Sunshine -- Ranges from 220-240 hours per month in December and January to 380-420 hours per month in May and June, the highs occurring in the vicinity of Yuma, Arizona, and Inyokern, California.

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*1 Langley = 1 gm cal/cm^2

Mean Monthly Percentage of Possible Sunshine -- Ranges from 70-80 percent in December and January to greater than 90 percent in May and June. Of the stations reporting in the area, Yuma, Arizona receives the highest annual mean percentage of possible sunshine (91 percent). In May and June it receives highs of 97 and 98 percent, respectively. A low of 83 percent occurs in December and January. Phoenix data shows 85 percent annually with highs of 93 and 94 percent in May and June; and lows of 76 and 79 percent in January and February. At Inyokern, values range from 70 percent in December and January to greater than 90 percent in May, June, and July.

Mean Monthly Sky Cover -- Ranges from 1-3 tenths sky cover in May and June to 3-5 tenths in December and January. Yuma, Arizona has by far the lowest frequency of mean annual sky cover (1.7 tenths) with Inyokern, Phoenix and Tucson close behind at 3.5, 3.5 and 3.9 tenths, respectively.

This five-state region of highest total solar radiation incident at the surface (Nevada, California, Arizona, New Mexico, and Texas) has within its bounds one major center of higher radiation. This area, which shows up well on the mean daily solar radiation charts for June and July (Appendix A), is centered over Inyokern, California. Another area which shows up well on the two sunshine charts for most months (Appendix A), is located in Southwest, Arizona. (This area is bounded on the west by El Centro, California (Imperial Valley) and Yuma, Arizona and on the east by Phoenix and Tucson, Arizona.

The large five-state region with its two subregions described above comprise the U.S. areas of highest total solar radiation incident at the surface (as revealed by U.S. Weather Bureau data).

Objective No. 4: Collect and Analyze Climatic Data Applicable to the Identified Region(s)

Climatological data for selected stations within the U.S. zone of highest solar radiation (both total and direct) were collected and evaluated. This zone is characterized by mean daily solar radiation readings of greater than 250 Langleys direct radiation (Figure 8) and greater than 500 Langleys total radiation (Figure 1). It encompasses the five-state area of southwestern United States described previously.

Basic data for the study were provided by the National Climatic Center at Asheville, N.C. and consisted primarily of annual summaries with comparative data (Appendix B).

The purpose of this climatic analysis was to review a representative cross-section of reporting stations within the area to (1) detect typical local weather conditions which would adversely affect either the operation or the physical integrity of a solar power plant and (2) rank the stations as potential power station sites according to overall climatological suitability.

The stations of primary concern to this study were stations (3) through (9) shown in Table 1. The first two stations (Ely and Reno), lying slightly outside the region of interest, are presented for comparison.

Adverse Weather Factors -- Table 2 shows three stations, i.e., Tucson, Albuquerque and El Paso, to be particularly vulnerable to both long-term and short-term climatic effects, with the latter predominating. However, with one possible exception,* none of these is sufficiently intense and/or long lasting to warrant excluding that area as a potential site. Phoenix,

*Albuquerque experiences minimum temperatures of 32°F or below on 120 mean days a year.

Table 1. Annual Climatic Summaries and Penalty Guides

Weather Element No:				1	2	3	4		5		6	7			8		9	10		11		12	13	14		15			16	17	18	19	20	21	22	23	24	25		
				Temperature							Precipitation											Humidity (Annual Mean)		Wind							Mean No. of Days With:									
				Normal			Extremes										Snow, Ice Pellets									Fastest MPH								Temperatures					
Station \ Data	Latitude	Longitude	Ground Elevation (ft)	Daily Max.	Daily Min.	Monthly	Record High	Year	Record Low	Year	Normal Total	Max. Monthly	Year	Min. Monthly	Year	Max. in 24 Hours	Year	Mean Total	Max. Monthly	Year	Max. in 24 Hours	Year	0400	1600	Mean Speed (mph)	Prevailing Direction	Speed	Direction	Year	% of Possible Sunshine	Mean Sky Cover (S-S)	Precipitation .01" or More	Snow or Ice Pellets 1 inch or More	Thunderstorms	Heavy Fog	Max. 90° & Above	Max. 32° & Below	Min. 32° & Below	Min. 0° & Below	Average Daily Solar Radiation (Langleys)	POR
(1) Ely, Nevada	39°17'N	114°51'W	6253	60.6	28.0	44.3	99	June 1954	-27	Jan. 1949	8.33	3.53	June 1963	0.00	Oct. 1952	1.54	Feb. 1969	47.4	24.8	Jan. 1967+	13.1	Jan. 1943	65	36	10.6	S	74	S	May 1948	73	5.2	72	15	33	2	16	27	218	19	465	1931-60
(2) Reno, Nevada	39°30'N	119°47'W	4404	66.7	30.1	48.4	103	Aug. 1970+	-11	Jan. 1971	7.15	5.25	Dec. 1955	0.00	Sept. 1964+	2.37	Jan. 1943	26.4	29.0	Mar. 1952	16.9	Mar. 1952	70	32	6.3	WNW	80	SW	Mar. 1968+	80	4.5	49	9	13	8	54	8	189	2	408	1931-60
(3) Las Vegas, Nev.	36°05'N	115°10'W	2162	78.7	52.6	65.7	115	June 1970	8	Jan. 1963	3.90	2.59	Aug 1957	0.00	Sept. 1971+	2.59	Aug. 1957	1.2	16.7	Jan. 1949	5.0	Jan. 1949	39	20	8.8	SW	64	SW	July 1971	86	3.4	23	*	15	1	131	*	41	0	504	1931-60
(4) Phoenix, Arizona	33°26'N	112°01'W	1117	84.7	53.3	69.0	116	June 1970	19	Jan. 1971	7.20	5.56	Aug. 1951	0.00	June 1971+	3.07	Aug. 1943	T	0.6	Feb. 1939	0.6	Feb. 1939	54	23	5.9	E	75	SW	Sept. 1950	86	3.4	35	0	23	2	161	0	15	0	503	1931-60
(5) Yuma, Arizona	32°40'N	114°36'W	194	87.1	57.9	72.5	116	June 1968	24	Jan. 1971	3.03	2.68	Oct. 1957	0.00	Vari-ous	2.42	Sept. 1963	T	T	Dec. 1967	T	Dec. 1967	53	22	7.8	N	64	S	Aug. 1954	91	1.7	15	0	7	1	165	0	2	0	525(E)	1945-64
(6) Tucson, Arizona	32°07'N	110°56'W	2584	81.3	54.1	67.7	111	June 1970+	16	Jan. 1949	11.00	7.93	Aug. 1955	0.00	Nov. 1970+	3.93	July 1958	1.4	6.8	Dec. 1971	6.8	Dec. 1971	52	25	8.2	SE	71	SE	July 1971	86	3.8	50	1	40	1	141	0	21	0	500	1931-60
(7) Albuquerque, N.M.	35°03'N	106°37'W	5311	69.2	44.1	56.6	104	July 1971	-17	Jan. 1971	8.13	3.33	July 1968	0.00	Dec. 1956+	1.92	Sept. 1955	9.7	14.7	Dec. 1959	14.2	Dec. 1958	57	28	8.9	SE	90	SE	Dec. 1943	77	4.2	58	4	43	5	61	6	120	1	507	1931-60
(8) El Paso, Texas	31°48'N	106°24'W	3918	77.2	49.4	63.3	106	June 1968+	-8	Jan 1962	7.89	6.29	Sept. 1958	0.00	Jan. 1967+	2.89	Sept. 1941	4.4	10.1	Dec. 1960	7.8	Nov. 1961	52	26	9.8	N	70	NW	May 1950+	83	3.8	44	2	36	2	103	1	61	*	522	1931-60
(9) Inyokern, Calif. (China Lake)	35°41'N	117°41'W	2283	79.0	49.9	64.7	114	June 1961	6	Jan. 1963	2.61	2.14	Sept. -	0.00	Jan. +	1.03	Nov. 1946	---	---	---	---	---	35.4 (avg)		7.3	SW	70	W	Mar. 1952	93(E)	3(E)	--	0	3	-	-	-	-	-	568	1945-64

Wx Element No.	Penalty
(2)	1 point per degree < 33
(5)	1 point per 10 degrees < 20
(6)	1 point per inch > 5
(7)	1 point per inch > 3
(8)	1 point per inch > 2
(9)	0 - T = 0 1 - 5 = 2 6 - 20 = 5 > 20 = 10
(10)	0 - 1 = 0 2 - 10 = 2 10 - 20 = 5 > 20 = 10
(11)	0 - 1 = 0 2 - 5 = 2 6 - 10 = 5 > 10 = 10
(14)	1 - 7 = 0 (Light air to light breeze) 8 - 12 = 2 (Gentle breeze) 13 - 18 = 5 (Moderate breeze) 19 - 24 = 10 (Fresh breeze)
(18)	0 - 20 = 0 21 - 40 = 1 41 - 60 = 2 > 60 = 3
(20)	0 - 20 = 0 21 - 40 = 5 > 40 = 10
(21)	0 - 2 = 0 3 -5 = 1 5 - 10 = 2 > 10 = 4
(24)	0 - 25 = 0 26 - 100 = 2 > 100 = 10
(25)	0 - 5 = 0 10 - 20 = 2 > 20 = 4

PENALTY GUIDES

T = Trace
E = Estimated
* = Less than 1/2
POR = Period of Record

Table 2. Climatic Degradation by Station

Station / Parameter	Temperature	Precipitation						Wind	Mean Days With:		
		Rain			Snow						
	Record Low	Normal Annual	Monthly Max	24-hour Max	Normal Annual	Monthly Max	24-hour Max	Fastest Speed	1" or more of snow	Thunderstorms	Min. Temp. 32° or below
Las Vegas						S	S	S			
Phoenix								S			
Yuma								S			
Tucson		P	S	S			S	S		S	
Albuquerque	S				P	S	S	S	S	S	P
El Paso	S		S			S	S	S		S	P
Inyokern								S			

P = Persistent effect
S = Sporadic effect

Yuma and Inyokern (China Lake) are least degraded with their suitability marred only by occasional high winds (which is common to all stations reviewed).

Station Ranking -- The three best sites for a solar power station, based on the least occurrence or non-occurrence of specific weather conditions, were identified in the preceding paragraph. To rank these stations as well as the remaining six shown in Table 1 from 1-9 (most suitable to least suitable) four different methods were used:

- Relative position
- Least degradation
- Weighted relative position
- Weighted least degradation

The relative position method involved comparing each station's characteristic performance against each of 25 weather elements (Table 1) and ranking them element by element from 1 to 9 (most suitable to least suitable as a power station site). (See Table 3.) For example, Yuma was ranked No. 1 with respect to weather element No. 14 (Mean Wind Speed) since it was the lowest (5.9 mph).

When all 25 columns were filled (i.e., all stations were ranked for all 25 weather elements), each station's overall ranking was obtained by totaling its individual rankings (adding across each row). Final rankings for eight and nine stations, respectively, using this method are shown in Columns A1 and A2 of Table 3.

The method of least degradation uses the position ranking matrix (Table 3) as a basis. In addition, penalties are applied for weather conditions which are more detrimental to a solar power station than can be expressed by a simple comparative station ranking system. For example, referring to Tables 1 and 3, it can be seen that the maximum 24-hour snowfall (weather element No. 11) for three stations (Ely, Reno, and Albuquerque) far exceeds that of the other stations. These stations then are penalized 10 points per Penalty Guide No. 11 (shown in Table 1). Penalties for all stations are shown in the upper right-hand corner of station/element squares shown in Table 3. Station rankings using this method were obtained by adding the penalties horizontally across the matrix for each station. The resulting overall rankings by least degradation for eight and nine stations, respectively, are shown in Columns B1 and B2 of Table 3.

Table 3. Station Ranking by Four Methods

Basic Matrix

Wx Parameter:	Temperature					Precipitation						Humidity		Wind		% Poss. Sunshine	Mean Sky Cover	Mean Days With:							
									Snow													Temperature			
																						Max.		Min.	
Station	Normal Daily Max.	Normal Daily Min.	Normal Monthly	Record High	Record Low	Normal Total	Monthly Max.	24-Hr. Max.	Mean Total	Monthly Max	24-Hr. Max..	0400	1600	Mean Speed	Fastest Speed			≥.01" Rain	≥1" Snow	Thunder-storms	Fog	90°+	≤32°	≤32°	≤0°
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
1. Ely	9	9^5	9	8	9^5	8^3	5^1	2	7^{10}	7^{10}	7^{10}	6	8	9^2	4	7	7	8^3	7^6	6^5	2	8	6	8^{10}	5^2
2. Reno	8	8^3	8	7	7^3	4^2	6^2	4	6^{10}	8^{10}	8^{10}	7	7	2	6	5	6	5^2	6^4	3	4^2	7	5	9^{10}	4
3. Las Vegas	5	4	4	2	4^1	3	2	6^1	2^2	6^5	3^2	1	1	6^2	1	3	3	2^1	2	4	1	4	2	4^2	1
4. Phoenix	2	3	2	1	2	5^2	7^2	8^1	1	2	2	4	3	1	5	3	3	3^1	1	5	2	2	1	2	1
5. Yuma	1	1	1	1	1	2	3	5	1	1	1	3	2	4	1	2	1	1	1	2	1	1	1	1	1
6. Tucson	3	2	3	4	3	9^6	9^5	9^2	3^2	3^2	4^5	2	4	5^2	3	3	4	6^2	3	8^5	1	3	1	3	1
7. Albuquerque	7	7	7	6	8^4	7^3	4	3	5^5	5^5	6^{10}	5	6	7^2	7	6	5	7^2	5^2	9^{10}	3^1	6	4	6^{10}	3
8. El Paso	6	6	6	5	6^3	6^3	8^3	7^1	4^2	4^5	5^5	2	5	8^2	2	4	4	4^2	4^2	7^5	2	5	3	5^2	2
9. Inyokern	4	5	5	3	5^1	1	1	1	-	-	-	-	-	3	2	1	2	-	1	1	-	-	-	-	-
WT:	0	2	1	0	2	2	3	3	3	3	3	1	1	3	0	3	1	2	3	2	2	2	1	3	3

Results

Column:	A1			B1			A2		X	B2		X		C1			D1			C2		X	D2		X
Station	Score	Rank		Score	Rank		Score	Rank		Score	Rank			Score	Rank		Score	Rank		Score	Rank		Score	Rank	
1. Ely	171	8		72	8		99	9		27	9			340	8		195	8		170	9		63	9	
2. Reno	148	7		58	7		80	7	8*	14	5	8		277	7		162	7		127	5	8	34	5	8
3. Las Vegas	76	3		16	3		49	4		4	3			160	3		46	3		94	3		11	3	
4. Phoenix	71	2		6	2		48	3		5	4			141	2		15	2		95	4		13	4	
5. Yuma	40	1		0	1		26	1		0	1			86	1		0	1		59	2		0	1	
6. Tucson	99	4		31	4		68	5		17	6	5		207	4		80	4		138	6	5	49	8	7
7. Albuquerque	144	6		54	6		88	8	7	21	8	7		265	6		142	6		149	7	6	46	6	
8. El Paso	120	5		35	5		79	6		19	7	6		245	5		92	5		153	8	7	46	7	5
9. Inyokern							35	2		1	2									52	1		2	2	
Method	8 Stations by	Relative Position		8 Stations by	Least Degradation		9 Stations by	Relative Position		9 Stations by	Least Degradation			8 Stations by Wt'd	Relative Position		8 Stations by Wt'd	Least Degradation		9 Stations by Wt'd	Relative Position		9 Stations by Wt'd	Least Degradation	

*This number and all others appearing to the right of the calculated rankings (Column X) are adjusted rankings to account for the occurrence of precipitation and low temperatures not factored into the 9-station evaluation because of Inyokern's incomplete data. It is a more realistic figure.

Overall rankings of stations using the third and fourth methods (weighted relative position and weighted least degradation) were obtained by weighting the individual weather elements evaluated in the two previous methods and going through the same procedure. Resulting overall rankings for eight and nine stations, respectively, are shown in Columns C1, D1 and C2, D2 of Table 3.

Objective No. 5: Recommend Best Location(s) for a Solar Energy Plant Based on Solar Energy and Climatic Criteria

The best site for a solar energy plant in the continental United States based on solar energy measurements, will be found within the borders of a contiguous five-state region comprised of Nevada, California, Arizona, New Mexico and Texas. This region was evaluated on the basis of climate using local weather station data. A cross-section of representative stations were ranked in descending order from either 1 to 9 or 1 to 8 (best suited to least suited for a solar power station) depending on whether eight-station or nine-station data were used. One station (Inyokern) had incomplete data so could only be evaluated against comparable data of the other eight stations. The stations were ranked using four different methods as described under Objective No. 4. Results are presented in Table 4. Based on these results and Table 2, the region in the vicinity of Yuma, Arizona is recommended as the preferred site of a solar power station. Recommended sites in order of preference are areas in the vicinity of:

1. Yuma, Arizona
2. Inyokern, California
3. Phoenix, Arizona
4. Las Vegas, Nevada
5. Tucson, Arizona
6. El Paso, Texas
7. Albuquerque, New Mexico

Table 4. Climatic Ranking of 8 Stations and 9 Stations by Four Methods

Station \ Method	Eight Stations			
	Relative Position	Least Degradation	Weighted Relative Position	Weighted Least Degradation
Yuma	1	1	1	1
Phoenix	2	2	2	2
Las Vegas	3	3	3	3
Tucson	4	4	4	4
El Paso	5	5	5	5
Albuquerque	6	6	6	6
Reno	7	7	7	7
Ely	8	8	8	8

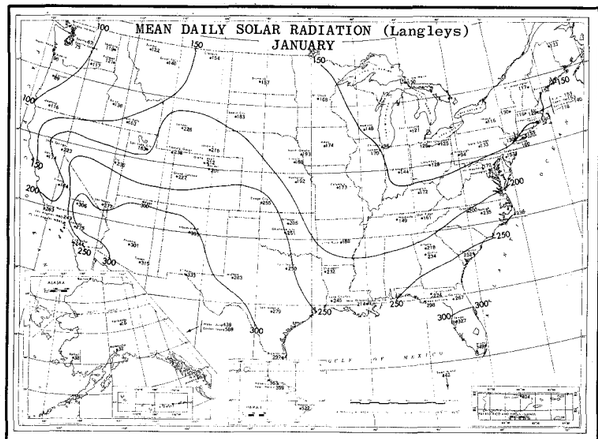
Station \ Method	Nine Stations			
	Relative Position	Least Degradation	Weighted Relative Position	Weighted Least Degradation
Yuma	1	1	2	1
Inyokern	2	2	1	2
Las Vegas	4	3	3	3
Phoenix	3	4	4	4
Tucson	5	5	5	7
El Paso	6	6	7	5
Albuquerque	7	7	6	6
Reno	8	8	8	8
Ely	9	9	9	9

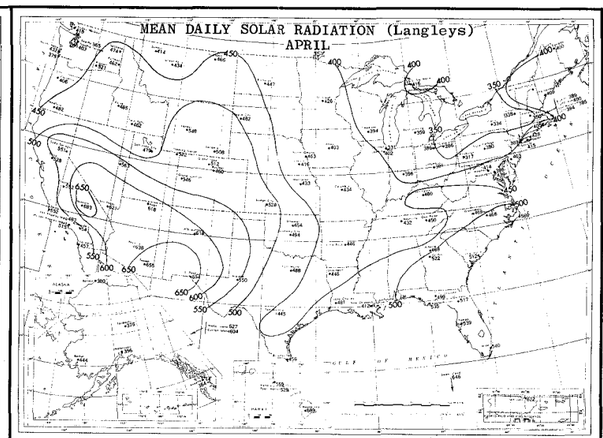
APPENDIX A
SOLAR/CLIMATIC MAPS AND DATA

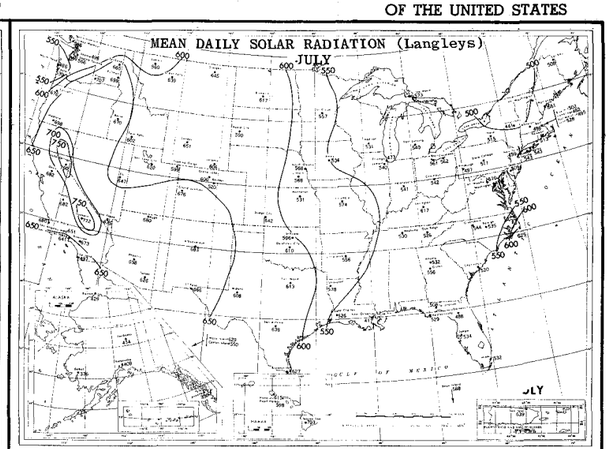
U.S. DEPARTMENT OF COMMERCE
Weather Bureau

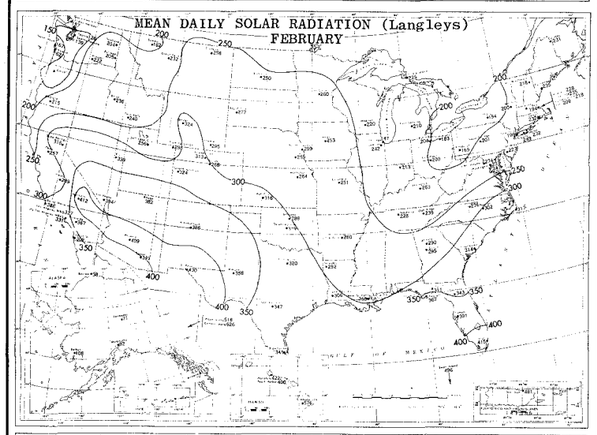
MEAN DAILY SOLAR RADIATION, MONTHLY AND ANNUAL

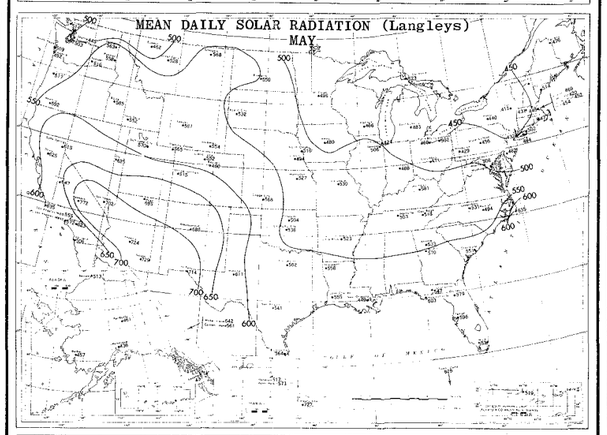
SHEET OF THE NATIONAL ATLAS
OF THE UNITED STATES

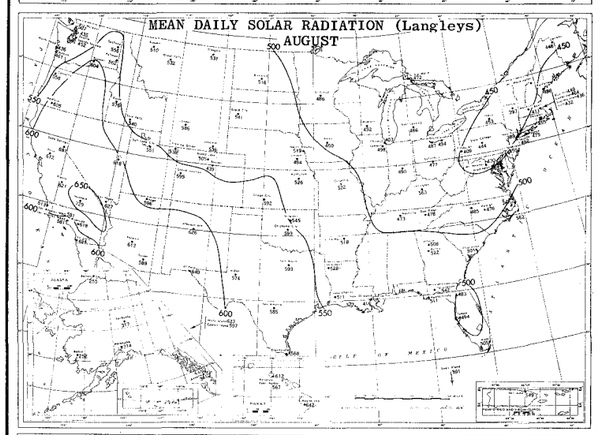


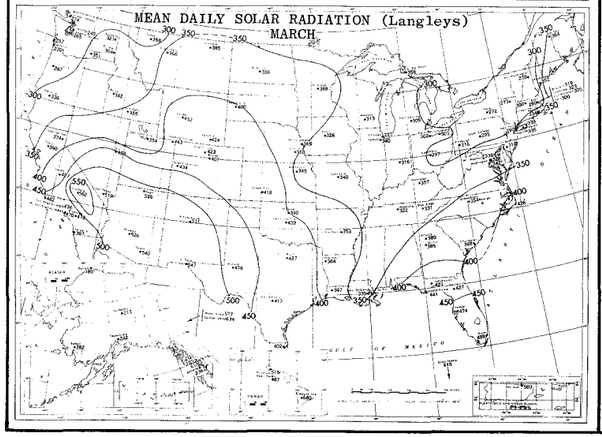


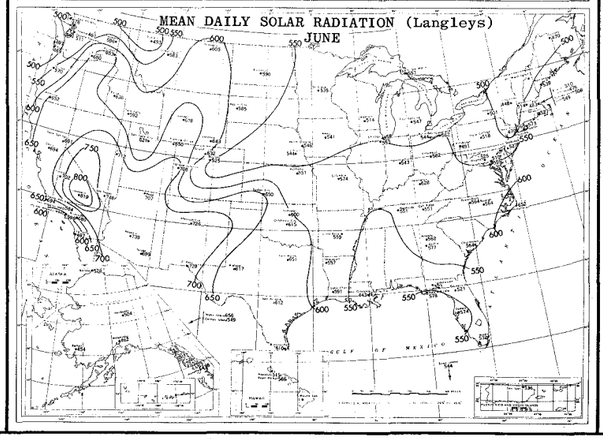


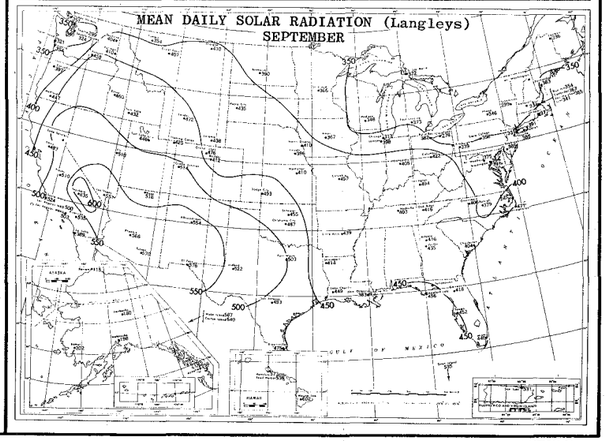






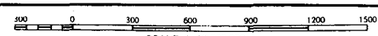






Prepared by Office of Meteorological Research
and Office of Climatology

Scale for the 48 Contiguous States:



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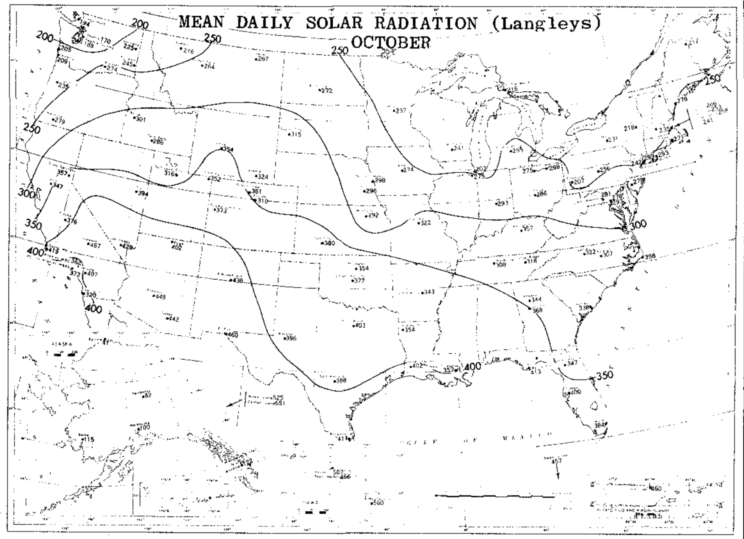

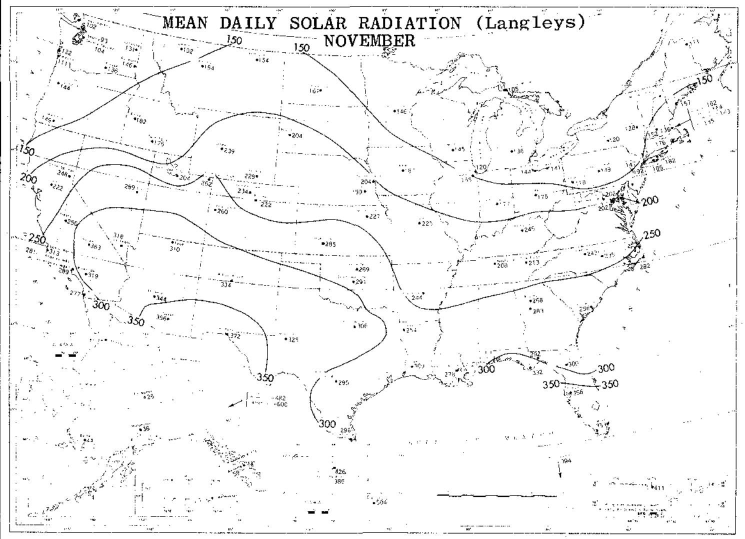

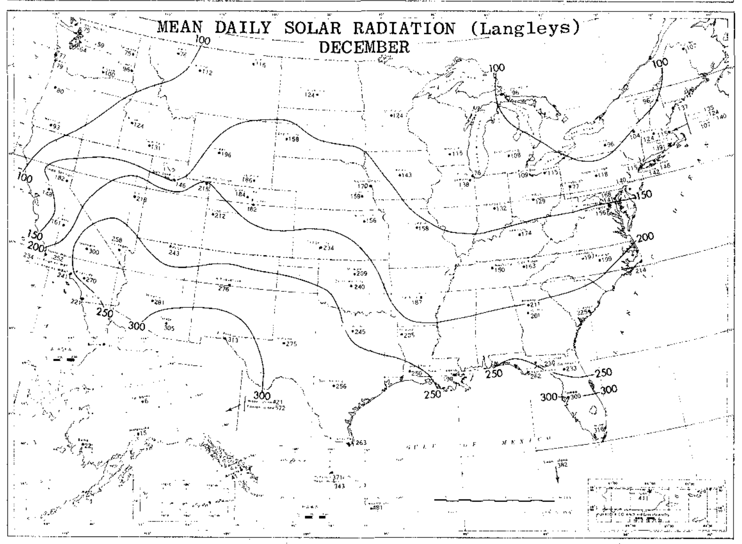

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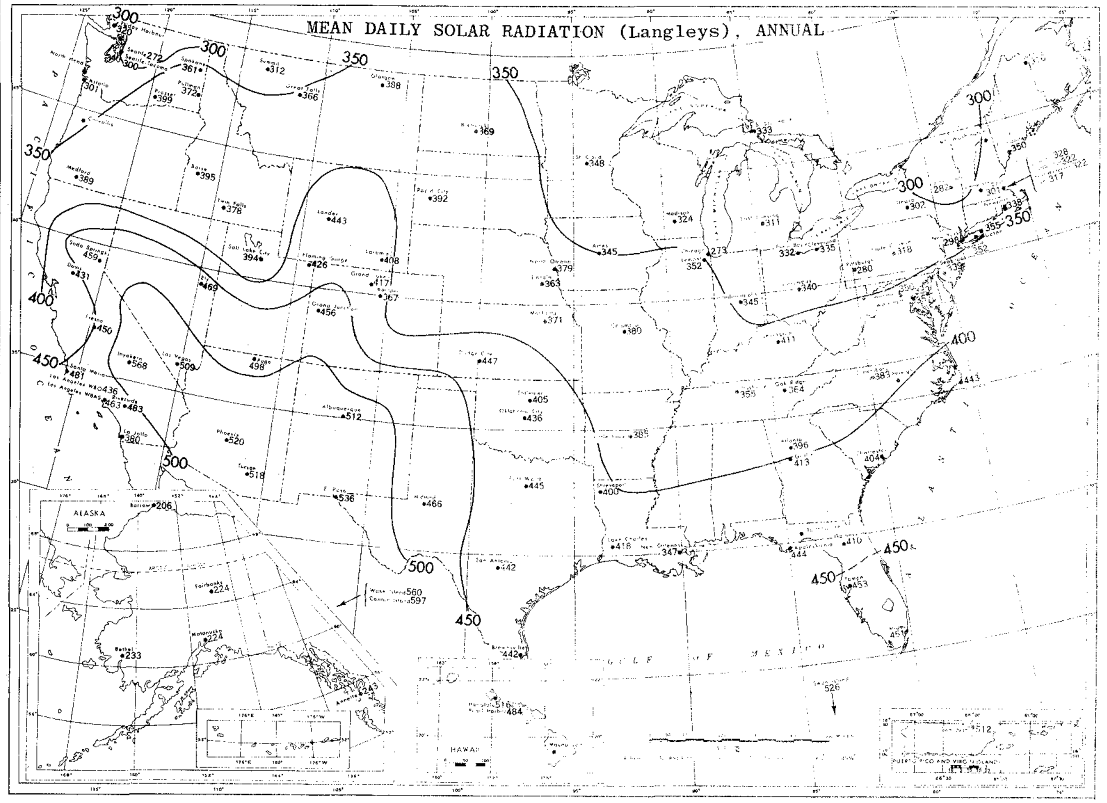


These charts and table are based on all usable solar radiation data, direct and diffuse, measured on a horizontal surface and published in the Monthly Weather Review and Climatological Data National Summary through 1962. All data were measured in, or were reduced to, the International Scale of Pyrheliometry, 1956.

Langley is the unit used to denote one gram calorie per square centimeter (1 langley = 1 gm. cal. cm^{-2}).

MEAN DAILY SOLAR RADIATION (Langleys) AND YEARS OF RECORD USED

STATES AND STATIONS	JAN	YRS	FEB	YRS	MAR	YRS	APR	YRS	MAY	YRS	JUNE	YRS	JULY	YRS	AUG	YRS	SEPT	YRS	OCT	YRS	NOV	YRS	DEC	YRS	ANNUAL
ALASKA. Annette	63	6	115	6	236	7	364	7	437	6	438	6	438	6	341	6	258	7	122	7	59	7	41	7	243
Barrow	#		38	8	180	8	380	8	513	8	528	8	429	9	255	10	115	10	41	10	#		#		206
Bethel	38	9	108	10	282	9	444	10	457	10	454	10	376	10	252	10	202	10	115	10	44	9	22	9	233
Fairbanks	16	25	71	27	213	25	376	28	461	28	504	29	434	28	317	29	180	29	82	30	26	26	6	26	224
Matanuska	32	6	92	6	242	4	356	7	436	7	462	6	409	6	314	6	198	6	100	6	38	6	15	7	224
ARIZ., Page	300	2	382	3	526	3	618	2	695	2	707	2	680	3	596	3	516	3	402	3	310	3	243	3	498
Phoenix	301	11	409	11	526	11	638	11	724	11	739	11	658	11	613	11	566	11	449	11	344	11	281	11	520
Tucson	315	5	391	5	540	4	655	5	729	5	699	5	626	6	588	6	570	6	442	6	356	6	305	6	518
ARK., Little Rock	188	9	260	9	353	10	446	9	523	9	559	9	556	8	518	9	439	7	343	8	244	10	187	10	385
CALIFORNIA, Davis	174	18	257	17	390	18	528	18	625	18	694	18	682	18	612	18	493	18	347	19	222	19	148	19	431
Fresno	184	31	289	31	427	31	552	31	647	31	702	32	682	32	621	31	510	31	376	32	250	31	161	32	450
Inyokern (China Lake)	306	11	412	11	562	11	683	11	772	11	819	11	772	11	729	10	635	8	467	9	363	11	300	12	568
LaJolla	244	19	302	18	397	19	457	20	506	19	487	21	497	22	464	22	389	22	320	21	277	20	221	20	380
Los Angeles WBAS	248	10	331	10	470	10	515	10	572	9	596	9	641	9	581	10	503	10	373	10	289	10	241	10	463
Los Angeles WBO	243	9	327	9	436	9	483	9	555	9	584	9	651	9	581	10	500	10	362	10	281	10	234	10	436
Riverside ‡	275	8	367	8	478	9	541	9	623	9	680	9	673	9	618	9	535	9	407	9	319	9	270	9	483
Santa Maria	263	11	346	11	482	11	552	10	635	11	694	11	680	11	613	11	524	11	419	11	313	11	252	11	481
Soda Springs	223	4	316	3	374	4	551	4	615	3	691	4	760	3	681	3	510	3	357	4	248	4	182	3	459
COLO., Boulder	201	5	268	4	401	4	460	4	460	4	525	5	520	5	439	5	412	4	310	4	222	4	182	4	367
Grand Junction	227	9	324	9	434	8	546	8	615	9	708	8	676	8	595	8	514	8	373	10	260	10	212	10	456
Grand Lake (Granby)	212	6	313	7	423	7	512	8	552	8	632	8	600	8	505	7	476	6	361	7	234	6	184	7	417
D. C., Washington (C.O.)	174	3	266	3	344	2	411	2	551	2	494	2	536	2	446	3	375	3	299	3	211	3	166	3	356
American University	158	39	231	39	322	39	398	39	467	39	510	39	496	39	440	38	364	38	278	38	192	39	141	39	333
Silver Hill	177	7	247	6	342	7	438	7	513	7	555	7	511	7	457	7	391	8	293	8	202	7	156	6	357
FLA., Apalachicola	298	10	367	10	441	10	535	10	603	9	578	9	529	9	511	9	456	9	413	10	332	10	262	10	444
Belle Isle	297	10	330	10	412	10	463	10	483	10	464	10	488	11	461	10	400	10	366	11	313	11	291	10	397
Gainesville	267	11	343	10	427	12	517	12	579	12	521	10	488	10	483	8	418	9	347	8	300	10	233	10	410
Miami Airport	349	10	415	9	489	9	540	10	553	10	532	10	532	10	505	10	440	10	384	10	353	10	316	10	451
Tallahassee	274	2	311	2	423	3	499	3	547	3	521	3	508	3	542	2	*		*		292	2	230	2	---
Tampa	327	8	391	8	474	8	539	8	596	8	574	9	534	9	494	9	452	9	400	9	356	9	300	9	453
GA., Atlanta	218	11	290	11	380	11	488	11	533	11	562	11	532	10	508	10	416	10	344	11	268	11	211	11	396
Griffin	234	9	295	9	385	10	522	11	570	11	577	11	556	11	522	11	435	11	368	11	283	11	201	11	413
HAWAII, Honolulu	363	4	422	4	516	4	559	5	617	5	615	5	615	5	612	5	573	5	507	5	426	5	371	5	516
Mauna Loa Obs.	522	2	576	2	680	2	689	3	727	3	*		703	3	642	3	602	2	560	2	504	2	481	3	---
Pearl Harbor	359	5	400	4	487	4	529	5	573	5	566	5	598	5	567	5	539	5	466	5	386	5	343	5	484
IDAHO, Boise	138	10	236	9	342	9	485	9	585	10	636	9	670	10	576	10	460	10	301	11	182	11	124	11	395
Twin Falls	163	20	240	20	355	20	462	21	552	20	592	18	602	20	540	20	432	19	286	20	176	20	131	19	378
ILL., Chicago	96	19	147	19	227	19	331	19	424	19	458	18	473	19	403	18	313	19	207	20	120	20	76	20	273
Lemont	170	6	242	6	340	6	402	6	506	6	553	6	540	6	498	6	398	5	275	5	165	5	138	5	352
IND., Indianapolis	144	10	213	10	316	10	396	10	488	9	543	11	541	10	490	11	405	11	293	11	177	11	132	11	345
IOWA, Ames	174	5	253	5	326	5	403	5	480	5	541	5	436	6	460	6	367	6	274	7	187	7	143	7	345
KANS., Dodge City	255	7	316	7	418	7	528	7	568	7	650	7	642	8	592	9	493	9	380	9	285	10	234	10	447
Manhattan	192	3	264	3	345	3	433	3	527	4	551	4	531	4	526	4	410	4	292	4	227	4	156	4	371
KY., Lexington	172	9	263	9	357	10	480	10	581	10	628	9	617	10	563	10	494	10	357	9	245	9	174	11	411
LA., Lake Charles	245	11	306	11	397	11	481	11	555	11	591	11	526	11	511	11	449	11	402	11	300	10	250	10	418
New Orleans	214	14	259	14	335	15	412	16	449	14	443	13	417	15	416	15	383	15	357	13	278	13	198	14	347
Shreveport	232	3	292	3	384	3	446	4	558	4	557	4	578	4	528	4	414	4	354	4	254	4	205	4	400
MAINE, Caribou	133	8	231	9	364	8	400	10	476	10	470	10	508	11	448	11	336	11	212	11	111	11	107	9	316
Portland	152	7	235	8	352	7	409	8	514	9	539	9	561	9	488	8	383	7	278	9	157	8	137	9	350
MASS., Amherst	116	2	*		300	2	*		431	2	514	2	*		---		---		---		152	2	124	2	---
Blue Hill	153	27	228	27	319	26	389	26	469	27	510	27	502	26	449	27	354	28	266	28	162	28	135	28	328
Boston	129	16	194	17	290	17	350	17	445	16	483	16	486	16	411	16	334	17	235	16	136	16	115	15	301
Cambridge	153	4	235	3	323	3	400	3	420	3	476	3	482	4	464	4	367	4	253	4	164	4	124	4	322
East Wareham	140	13	218	13	305	12	385	14	452	14	508	14	495	14	436	14	365	13	258	14	163	14	140	13	322
Lynn	118	2	209	2	300	2	394	2	454	2	549	4	528	4	432	3	341	2	241	3	135	3	107	3	317
MICH., East Lansing	121	10	210	11	309	11	359	11	483	10	547	11	540	11	466	11	373	11	255	11	136	11	108	11	311
Sault Ste. Marie	130	10	225	9	356	10	416	10	523	10	557	11	573	11	472	10	322	10	216	9	105	9	96	9	333
MINN., St. Cloud	168	8	260	8	368	8	426	8	496	8	535	8	557	9	486	8	366	8	237	7	146	8	124	8	348
MO., Columbia (C. O.)	173	10	251	10	340	11	434	11	530	11	574	11	574	10	522	10	453	10	322	10	225	10	158	9	380
University of Missouri	166	5	248	6	324	6	429	6	501	6	560	6	583	6	509	6	417	6	324	5	177	5	146	5	365
MONT., Glasgow	154	6	258	8	385	7	466	8	568	8	605	8	645	9	531	10	410	10	267	8	154	8	116	7	358
Great Falls	140	8	232	9	366	9	434	8	528	8	583	8	639	9	532	9	407	10	264	10	154	10	112	10	366
Summit	122	3	162	2	268	3	414	3	462	3	493	3	560	2	510	2	354	2	216	2	102	2	76	2	312
NEBR., Lincoln	188	39	259	39	350	39	416	39	494	40	541	38	568	38	484	38	396	38	296	36	199	40	159	39	363
North Omaha	193	3	299	3	365	3	463	3	516	3	546	4	568	4	519	4	410	4	298	4	204	1	170	4	379
NEV., Ely	236	7	339	9	468	9	563	9	625	10	712	10	647	11	618	11	518	11	394	10	289	10	218	10	469
Las Vegas	277	11	384	11	519	11	621	11	702	11	748	10	675	11	627	11	551	11	429	11	318	11	258	11	509
N. J., Seabrook	157	8	227	8	318	8	403	8	482	9	527	8	509	8	455	9	385	9	278	7	192	8	140	8	339
N. H., Mt. Washington	117	2	218	2	238	2	*		*		*		---		---		*		*		*		96	2	---
N. Mex., Albuquerque	303	13	386	13	511	13	618	13	686	13	726	13	683	12	626	13	554	14	438	15	334	15	276	14	512
N. Y., Ithaca	116	22	194	21	272	23	334	23	440	24	501	23	515	23	453	23	346	21	231	22	120	22	96	23	302
N. Y. Central Park	130	34	199	34	290	33	369	35	432	35	470	34	459	35	389	35	331	36	242	36	147	36	115	35	298
Sayville	160	11	249	11	335	10	415	10	494	10	565	10	543	10	462	10	385	10	289	10	186	10	142	11	352
Schenectady	130	8	200	9	273	9	338	9	413	9	448	8	441	8	397	8	299	8	218	8	128	8	104	8	282
Upton	155	8	232	8	339	8	428	8	502	8	573	8	543	7	475	7	391	7	293	6	182	7	146	7	355
N. C., Greensboro	200	7	276	9	354	9	469	9	531	10	564	10	544	10	485	10	406	10	322	10	243	10	197	8	383
Hatteras	238	10	317	9	426	8	569	9	635	10	652	10	625	10	562	11	471	11	358	11	282	11	211	11	443
Raleigh	235	3	302	2	*		466	3	494	2	564	2	535	3	476	3	379	3	307	3	235	3	196	3	---
N. D., Bismarck	157	7	250	8	356	6	447	8	550	8	590	9	617	10	516	11	390	11	272	11	161	10	124	10	369
OHIO, Cleveland	125	6	183	6	303	7	[illegible]	8	502	8	562	8	562	8	494	8	278	8	289	9	141	9	115	7	335
Columbus	128	7	200	7	297	7	391	7	471	6	562	4	542	5	477	4	422	4	286	4	176	4	129	5	340
Put-in-Bay	126	10	204	9	302	10	386	11	468	11	544	11	561	10	487	10	382	11	275	11	144	11	109	11	332
OKLA., Oklahoma City	251	10	319	10	409	9	494	10	556	10	615	7	610	8	593	8	487	9	377	10	291	9	240	9	436
Stillwater	205	6	289	8	390	9	454	9	564	9	600	10	596	10	545	10	455	11	354	10	269	9	209	8	405
OREG., Astoria	90	7	162	8	270	8	375	8	492	8	469	8	539	8	461	7	351	7	209	8	111	8	79	8	301
Corvallis	89	2	*		287	3	406	3	517	3	570	3	676	4	558	4	387	4	235	4	144	4	80	4	---
Medford	116	11	215	11	336	11	482	11	592	11	652	11	698	10	605	11	447	11	279	11	149	11	93	11	389
PA., Pittsburgh	94	6	169	5	216	6	317	6	429	6	491	6	497	7	409	6	339	6	207	5	118	6	77	5	280
State College	133	19	201	19	295	20	380	20	456	20	518	20	511	20	444	20	358	20	256	20	149	20	118	20	318
R. I., Newport	155	23	232	22	334	23	405	23	477	23	527	24	513	24	455	24	377	24	271	24	176	24	139	23	338
S. C., Charleston	252	11	314	11	388	11	512	11	551	11	564	11	520	11	501	11	404	11	338	11	286	11	225	11	404
S. D., Rapid City	183	11	277	11	400	11	482	11	532	11	585	11	590	11	541	11	435	11	315	10	204	10	158	10	392
TENN., Nashville	149	18	228	19	322	19	432	19	503	18	551	18	530	17	473	17	403	17	308	19	208	18	150	18	355
Oak Ridge	161	11	235	11	331	11	450	11	518	11	551	11	526	11	478	11	416	11	318	11	213	10	163	11	364
TEXAS, Brownsville	297	10	341	10	402	10	456	11	564	10	610	9	627	8	568	11	475	11	411	11	296	11	263	10	442
El Paso	333	11	430	11	547	10	654	11	714	11	729	11	666	11	640	10	576	11	460	11	372	11	313	11	536
Ft. Worth	250	11	320	11	427	11	488	11	562	11	651	11	613	11	593	11	503	11	403	11	306	11	245	9	445
Midland	283	7	358	8	476	9	550	9	611	8	617	8	608	7	574	8	522	9	396	9	335	8	271	8	466
San Antonio	279	9	347	9	417	9	445	9	541	9	612	9	639	9	585	9	493	10	398	10	[illegible]	10	[illegible]	8	442
UTAH, Flaming Gorge	238	[illegible]	298	2	443	2	522	2	565	2	650	2	599	3	538	3	425	3	332	3	262	3	[illegible]	[illegible]	426
Salt Lake City	152	8	256	8	354	8	479	8	570	7	621	7	620	6	551	7	456	8	316	8	204	8	146	9	394
VA., Mt. Weather	172	2	274	3	338	2	414	2	508	2	525	3	510	3	430	3	375	3	281	2	202	2	168	2	350
WASH., North Head	*		167	2	257	3	432	2	509	3	487	3	486	3	436	3	321	3	201	3	[illegible]	3	77	[illegible]	---
Friday Harbor	87	5	157	7	274	8	418	8	514	9	578	10	586	10	507	11	351	8	194	10	102	10	75	8	326
Prosser	117	4	222	4	351	4	521	5	616	4	680	4	707	4	604	4	458	4	274	4	146	4	100	4	399
Pullman	121	1	205	2	304	2	462	2	558	4	653	5	699	5	562	4	410	4	245	3	146	3	96	3	372
University of Washington	67	9	126	9	248	10	364	9	445	10	461	10	496	11	435	10	299	8	170	9	93	9	59	9	272
Seattle-Tacoma	75	9	139	9	265	9	403	9	503	9	511	9	586	9	452	10	324	10	188	10	104	9	64	10	300
Spokane	119	8	204	8	321	8	474	9	563	9	596	9	665	9	556	9	404	10	225	9	[illegible]	9	75	7	361
WIS., Madison †	148	46	226	46	313	45	394	47	466	47	514	47	531	47	452	47	348	47	241	47	145	44	115	46	324
WYO., Lander	226	6	324	9	452	9	548	11	587	11	678	11	651	11	586	10	472	8	354	7	239	9	196	9	443
Laramie	216	3	295	3	424	3	508	3	554	3	643	3	606	3	536	3	438	3	324	3	228	3	186	4	408
ISLAND STATIONS																									
Canton Island	588	9	626	7	634	7	604	9	561	9	549	8	550	9	597	9	640	9	651	9	600	8	572	8	597
San Juan, P. R.	404	5	481	4	580	4	622	4	519	5	536	6	629	5	549	6	531	6	469	6	411	6	415	6	512
Swan Island	442	6	496	7	615	6	646	6	625	6	544	8	588	8	591	7	535	8	457	7	394	8	382	8	526
Wake Island	438	7	518	7	577	7	627	7	642	8	656	6	629	7	623	7	587	6	525	7	482	7	421	7	560

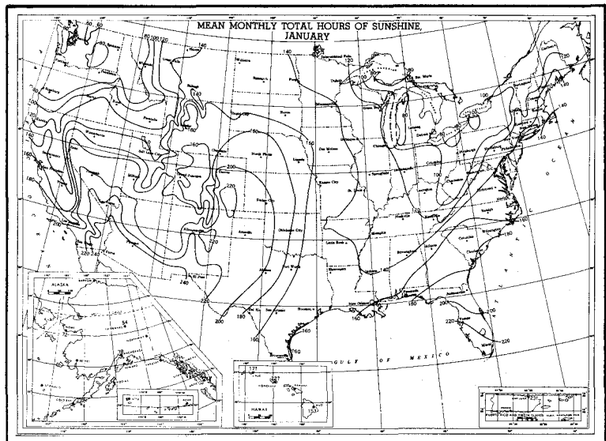
NOTES:
- * Denotes only one year of data for the month -- no means computed.
- --- No data for the month (or incomplete data for the year).
- \# Barrow is in darkness during the winter months.
- † Madison data after 1957 not used due to exposure influences.
- ‡ Riverside data prior to March 1952 not used-instrumental discrepancies.

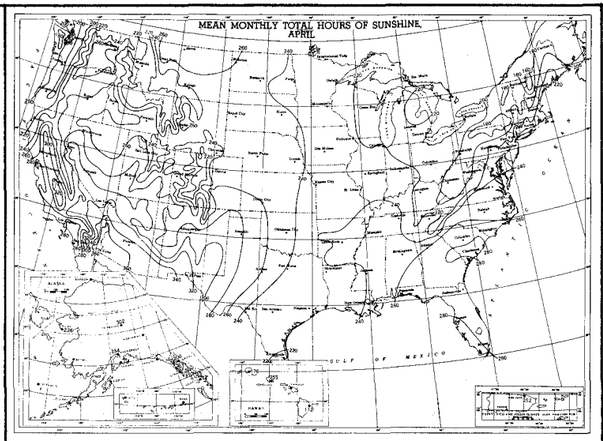
Langley is the unit used to denote one gram calorie per square centimeter.

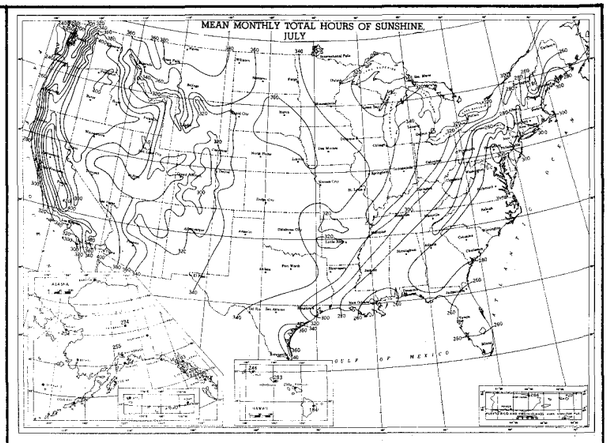
UNITED STATES DEPARTMENT OF COMMERCE
WEATHER BUREAU

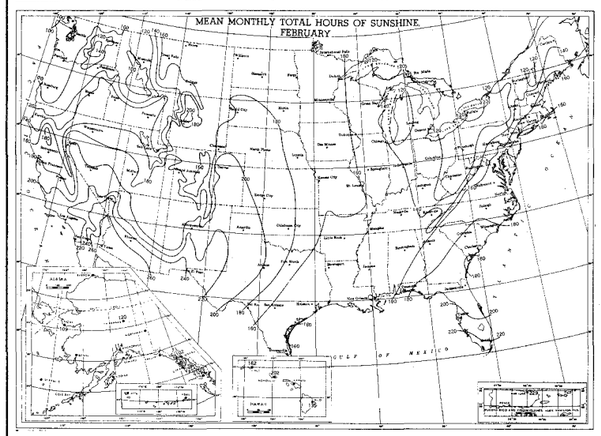
MEAN TOTAL HOURS OF SUNSHINE, MONTHLY AND ANNUAL

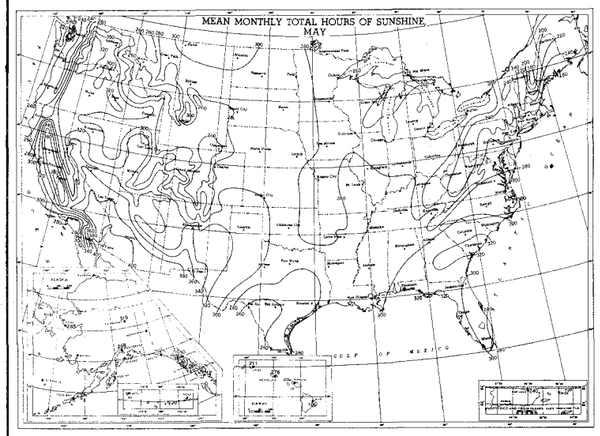
SHEET OF THE NATIONAL ATLAS
OF THE UNITED STATES

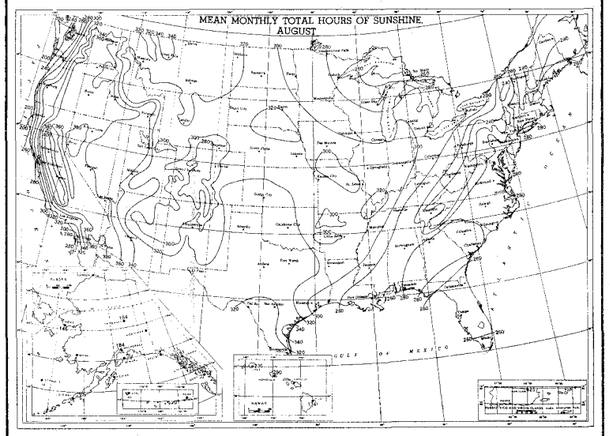


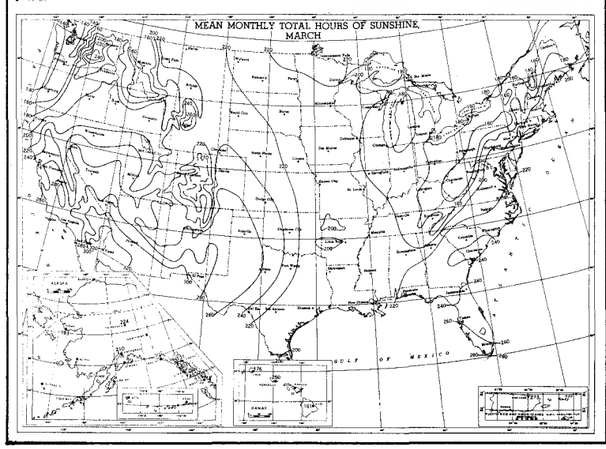


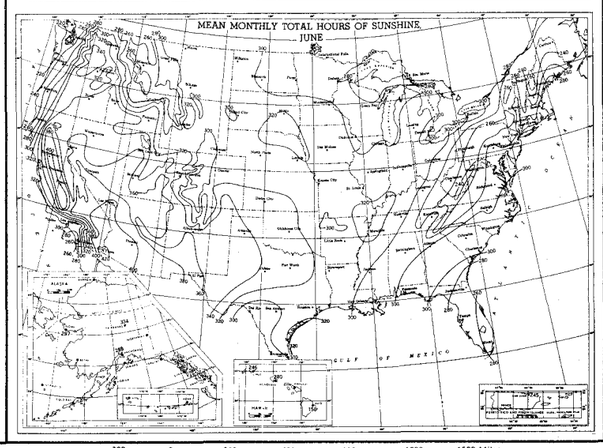


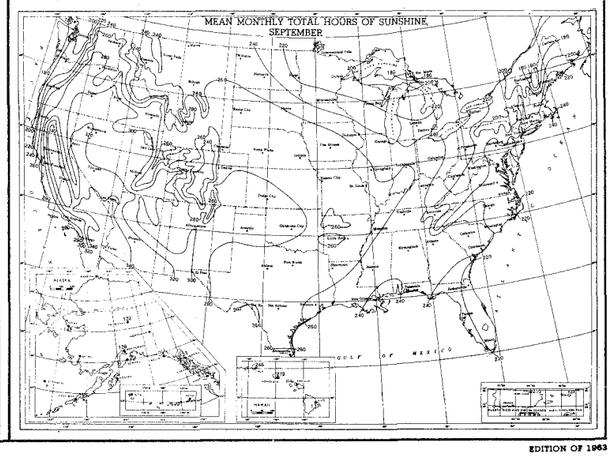












Base map by United States Weather Bureau
Data based on period, 1931-60
Prepared by Office of Climatology

Scale for the 48 Contiguous States:

300 0 300 600 900 1200 1500 Miles

SCALE 1:30,000,000

ALBERS EQUAL AREA PROJECTION-STANDARD PARALLELS 29½° AND 45½°

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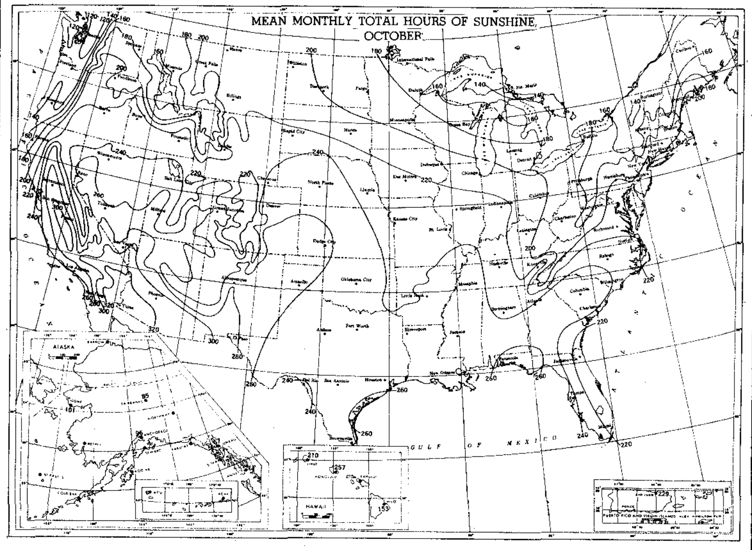

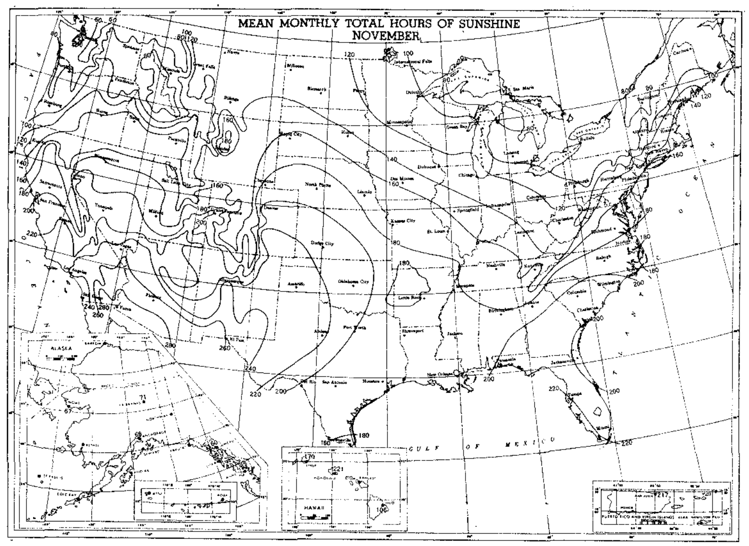

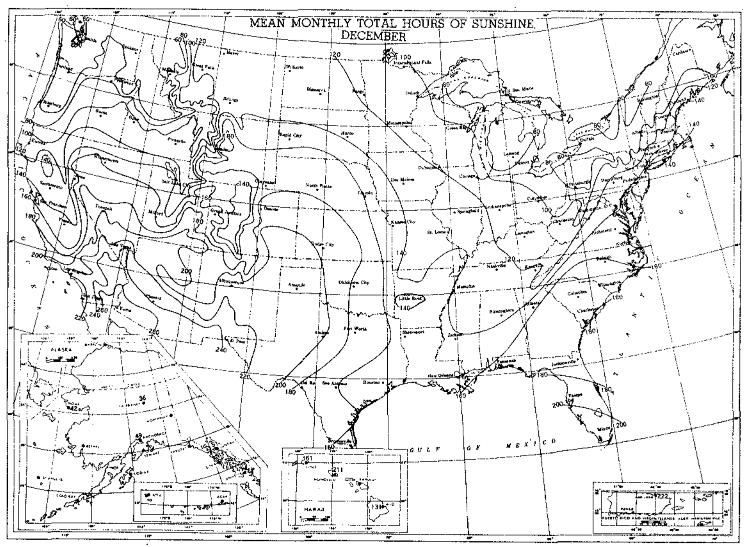

Scale for the 48 Contiguous States:
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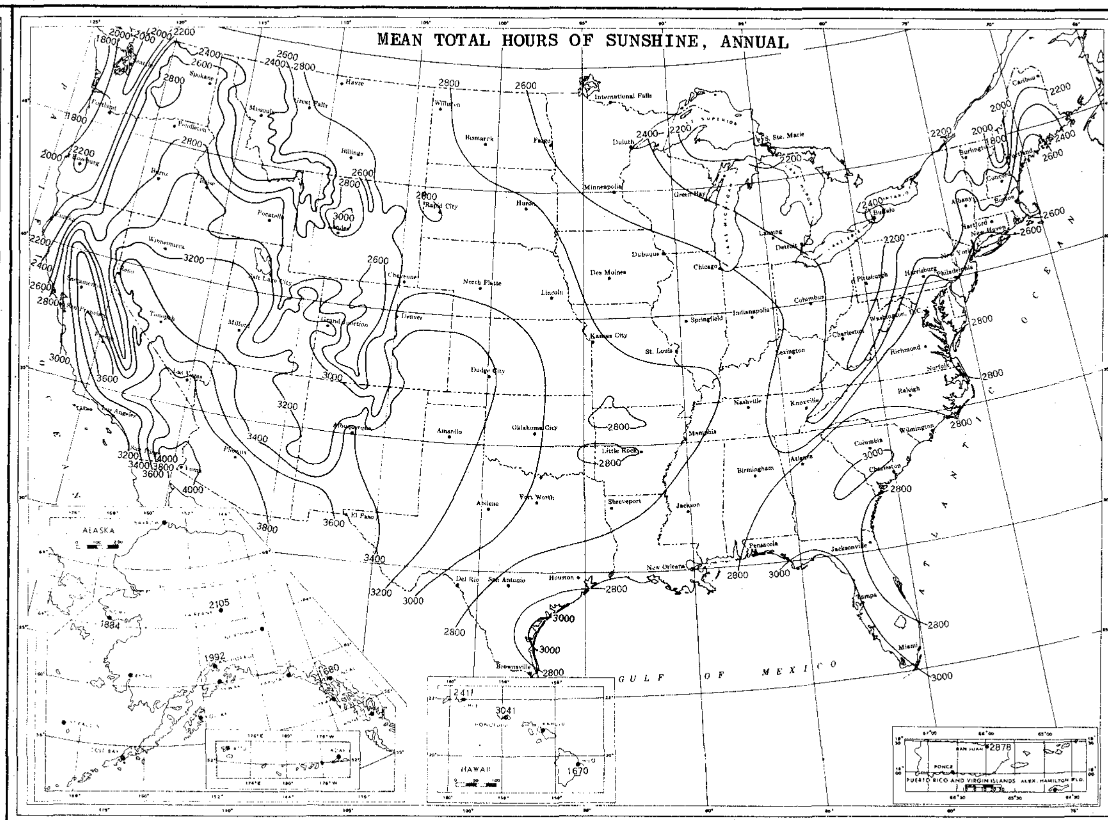
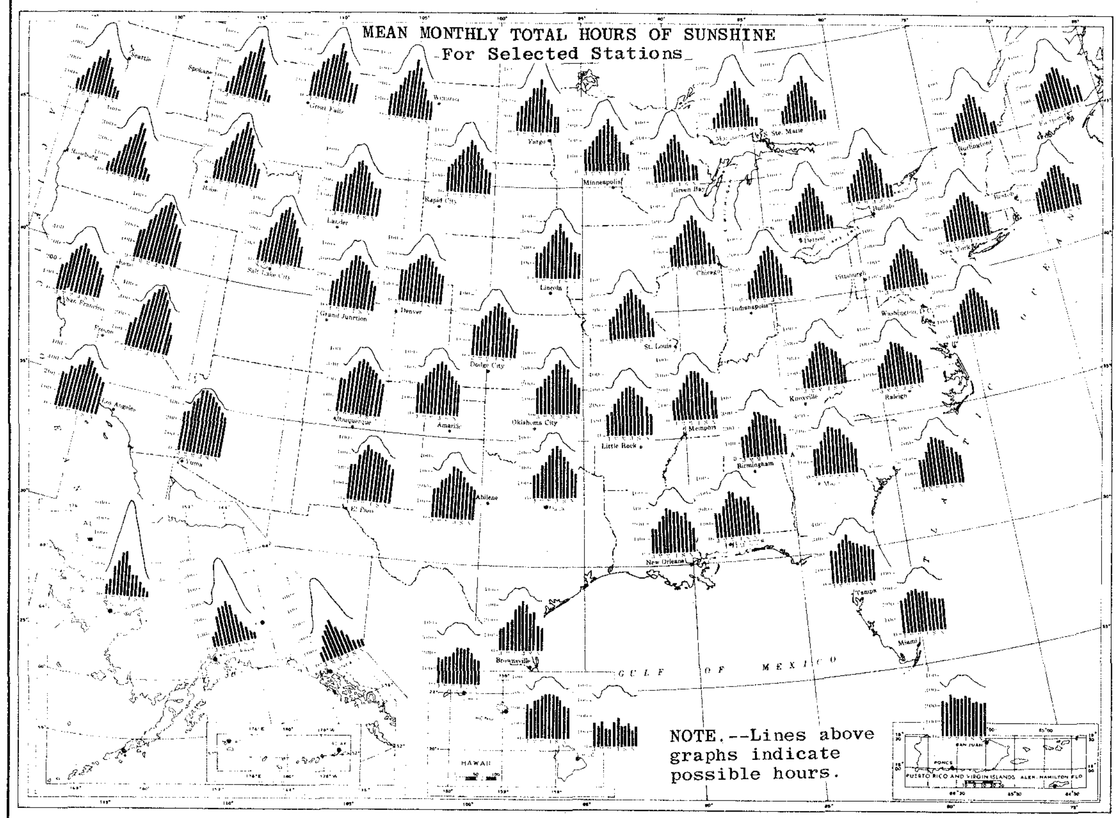
ALBERS EQUAL AREA PROJECTION-STANDARD PARALLELS 29½° AND 45½°





Scale for the 48 Contiguous States:
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SCALE 1:20,000,000
ALBERS EQUAL AREA PROJECTION-STANDARD PARALLELS 29½° AND 45½°

MEAN NUMBER OF HOURS OF SUNSHINE

STATE AND STATION	YEARS	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	ANNUAL
ALA. BIRMINGHAM	30	138	152	207	248	293	294	269	265	244	234	182	136	2662
MOBILE	22	157	158	212	253	301	289	249	259	235	254	195	146	2708
MONTGOMERY	30	160	168	227	267	317	311	288	290	260	250	200	156	2894
ALASKA ANCHORAGE	19	78	114	210	254	268	288	255	184	128	96	68	49	1992
FAIRBANKS	20	54	120	224	302	319	334	274	164	122	85	71	36	2105
JUNEAU	29	71	102	171	200	230	251	193	161	123	67	60	51	1680
NOME	27	72	109	193	226	285	297	204	146	142	101	67	42	1884
ARIZ. PHOENIX	30	248	244	314	346	404	404	377	351	334	307	267	236	3832
PRESCOTT	14	222	230	293	323	378	392	323	305	315	286	254	228	3549
TUCSON	13	255	266	317	350	399	394	329	329	335	317	280	258	3829
YUMA	30	258	266	337	365	419	420	404	380	351	330	285	262	4077
ARK. FT. SMITH	30	146	156	202	234	268	303	321	305	261	230	174	147	2747
LITTLE ROCK	30	143	158	213	243	291	316	321	316	265	251	181	142	2840
CALIF. EUREKA	30	120	138	180	209	247	261	244	205	195	164	127	108	2198
FRESNO	29	153	192	283	330	389	418	435	406	355	306	221	144	3632
LOS ANGELES	30	224	217	273	264	292	299	352	336	295	263	249	220	3284
RED BLUFF	15	156	186	246	302	366	396	438	407	341	277	199	154	3468
SACRAMENTO	30	134	169	255	300	367	405	437	406	347	283	197	122	3422
SAN DIEGO	30	216	212	262	242	261	253	293	277	255	234	236	217	2958
SAN FRANCISCO	30	165	182	251	281	314	330	300	272	267	243	198	156	2959
COLO. DENVER	30	207	205	247	252	281	311	321	297	274	246	200	192	3033
GRAND JUNCTION	30	169	182	243	265	314	350	349	311	291	255	198	168	3095
PUEBLO	30	224	217	261	271	299	340	349	318	290	265	225	211	3270
CONN. HARTFORD	30	141	166	206	223	267	285	299	268	220	193	137	136	2541
NEW HAVEN	30	155	178	215	234	274	291	309	284	238	215	157	154	2704
D. C. WASHINGTON	30	138	160	205	226	267	288	291	264	233	207	162	135	2576
FLA. APALACHICOLA	26	193	195	233	274	328	296	273	259	236	263	216	175	2941
JACKSONVILLE	30	192	189	241	267	296	260	255	248	199	205	191	170	2713
KEY WEST	30	229	238	285	296	307	273	277	269	236	237	226	225	3098
LAKELAND	7	204	186	222	251	285	268	252	242	203	209	212	198	2732
MIAMI	30	222	227	266	275	280	251	267	263	216	215	212	209	2903
PENSACOLA	30	175	180	232	270	311	302	278	284	249	265	206	166	2918
TAMPA	30	223	220	260	283	320	275	257	252	232	243	227	209	3001
GA. ATLANTA	25	154	165	218	266	309	304	284	285	247	241	188	160	2821
MACON	30	177	178	235	279	321	314	292	295	253	236	202	168	2950
SAVANNAH	30	175	173	229	274	307	279	267	256	212	216	197	167	2752
HAWAII HILO	7	153	135	161	112	106	158	184	134	137	153	106	131	1670
HONOLULU	30	227	202	250	255	276	280	293	290	279	257	221	211	3041
LIHUE	10	171	162	176	176	211	246	246	236	246	210	170	161	2411
IDAHO BOISE	30	116	144	218	274	322	352	412	378	311	232	143	104	3006
POCATELLO	30	111	143	211	255	300	338	380	347	296	230	145	108	2864
ILL. CAIRO	15	124	160	218	254	298	324	345	336	279	254	181	145	2918
CHICAGO	30	126	142	199	221	274	300	333	299	247	216	136	118	2611
MOLINE	18	132	139	189	214	255	279	337	300	251	214	130	123	2563
PEORIA	30	134	149	198	229	273	303	336	299	259	222	149	122	2673
SPRINGFIELD	30	127	149	193	224	282	304	346	312	266	225	152	122	2702
IND. EVANSVILLE	30	123	145	199	237	294	322	342	318	274	236	156	120	2766
FT. WAYNE	30	113	136	191	217	281	310	342	306	242	210	120	102	2570
INDIANAPOLIS	30	118	140	193	227	278	313	342	313	265	222	139	118	2668
TERRE HAUTE	24	125	148	189	231	274	302	341	305	253	235	150	122	2675
IOWA BURLINGTON	19	148	165	217	241	284	315	353	327	270	243	175	147	2885
CHARLES CITY	22	137	157	190	226	258	285	336	290	241	207	130	115	2572
DES MOINES	30	155	170	203	236	276	303	346	299	263	227	156	136	2770
SIOUX CITY	30	164	177	216	254	300	320	363	320	270	236	160	146	2926
KAN. CONCORDIA	30	180	172	214	243	281	315	348	308	249	245	189	172	2916
DODGE CITY	30	205	191	249	268	305	335	359	335	290	266	218	198	3219
TOPEKA	18	159	160	193	215	260	287	310	304	263	229	173	149	2702
WICHITA	30	187	186	233	254	291	321	350	325	277	245	206	182	3057
KY. LOUISVILLE	30	115	135	188	221	283	303	324	295	256	219	148	114	2601
LA. NEW ORLEANS	30	160	158	213	247	292	287	260	269	241	260	200	157	2744
SHREVEPORT	19	151	172	214	240	298	332	339	322	289	273	208	177	3015
MAINE EASTPORT	22	133	151	196	201	245	248	275	260	205	175	105	115	2309
PORTLAND	30	155	174	213	226	268	286	312	294	229	202	146	148	2653
MD. BALTIMORE	30	148	170	211	229	270	295	299	272	238	212	164	145	2653
MASS. BLUE HILL OBS.	10	125	136	165	182	233	248	266	241	211	181	134	135	2257
BOSTON	30	148	168	212	222	263	283	300	280	232	207	152	148	2615
NANTUCKET	22	128	156	214	227	278	284	291	279	242	208	149	129	2585
MICH. ALPENA	24	86	124	198	228	261	303	339	285	204	159	70	67	2324
DETROIT	30	90	128	180	212	263	295	321	284	226	189	98	89	2375
LANSING	30	84	119	175	215	272	305	344	294	228	182	87	73	2378
ESCANABA	30	112	148	204	226	266	283	316	267	198	162	90	94	2366
GRAND RAPIDS	30	74	117	178	218	277	308	349	304	231	188	92	70	2406
MARQUETTE	30	78	113	172	207	248	268	305	251	186	142	68	66	2104
SAULT STE. MARIE	30	83	123	187	217	252	269	309	256	165	133	61	62	2117
MINN. DULUTH	30	125	163	221	235	268	282	328	277	203	166	100	107	2475
MINNEAPOLIS	30	140	166	200	231	272	302	343	296	237	193	115	112	2607
MISS. JACKSON	12	130	147	195	244	280	287	279	287	235	223	185	150	2646
VICKSBURG	30	136	141	199	232	284	304	291	297	254	244	183	140	2705
MO. COLUMBIA	30	147	164	207	232	281	296	341	298	262	225	166	138	2757
KANSAS CITY	30	154	170	211	235	278	313	347	308	266	235	178	151	2846
ST. JOSEPH	23	154	165	211	231	274	301	347	287	260	224	168	144	2766
ST. LOUIS	30	137	152	202	235	283	301	325	289	256	223	166	125	2694
SPRINGFIELD	30	145	164	213	238	278	305	342	310	269	233	183	140	2820
MONT. BILLINGS	21	140	154	208	236	283	301	372	332	258	213	136	129	2762
GREAT FALLS	19	154	176	245	261	299	299	381	342	256	206	132	133	2884
HAVRE	30	136	174	234	268	311	312	384	339	260	202	132	122	2874
HELENA	30	138	168	215	241	292	292	342	336	258	202	137	121	2742
MISSOULA	25	85	109	167	209	261	260	378	328	246	178	90	66	2377
NEBR. LINCOLN	30	173	172	213	244	287	316	356	309	266	237	174	160	2907
NORTH PLATTE	30	181	179	221	246	282	310	343	304	264	242	184	169	2925
OMAHA	30	172	188	222	259	305	332	379	311	270	248	166	145	2997
VALENTINE	30	185	194	229	252	296	323	369	326	275	242	174	172	3037
NEV. ELY	22	186	197	262	260	300	354	359	344	303	255	204	187	3211
LAS VEGAS	8	239	251	314	336	386	411	383	364	345	301	258	250	3838
RENO	30	185	199	267	306	354	376	414	391	336	273	212	170	3483
WINNEMUCCA	30	142	155	207	255	312	346	395	375	316	242	177	139	3061
N. H. CONCORD	23	136	153	192	196	229	261	286	260	214	179	122	126	2354
MT. WASHINGTON OBS.	18	94	98	133	141	162	145	150	143	139	159	89	87	1540
N. J. ATLANTIC CITY	30	151	173	210	233	273	287	298	271	239	218	177	153	2683
TRENTON	30	145	168	203	235	277	294	309	273	239	208	160	142	2653
N. MEX. ALBUQUERQUE	30	221	218	273	299	343	365	340	317	299	279	245	219	3418
ROSWELL	21	218	223	286	306	330	333	341	313	266	266	242	216	3340
N. Y. ALBANY	30	125	151	194	213	266	301	317	286	224	192	115	112	2496
BINGHAMTON	30	94	119	151	170	226	256	266	230	184	158	92	79	2025
BUFFALO	30	110	125	180	212	274	319	338	297	239	183	97	84	2458
NEW YORK	30	154	171	213	237	268	289	302	271	235	213	169	155	2677
ROCHESTER	30	93	123	172	209	274	314	333	294	224	173	97	86	2392
SYRACUSE	30	87	115	165	197	261	295	316	276	211	163	81	74	2241
N. C. ASHEVILLE	30	146	161	211	247	289	292	268	250	235	222	179	146	2646
CAPE HATTERAS	9	152	168	206	259	293	301	286	265	214	202	169	154	2669
CHARLOTTE	30	165	177	230	267	313	316	291	277	247	243	198	167	2891
GREENSBORO	30	157	171	217	231	298	302	287	272	243	236	190	163	2767
RALEIGH	29	154	168	220	255	290	284	277	253	224	215	184	156	2680
WILMINGTON	30	179	180	237	279	314	312	286	273	237	238	206	178	2919
N. DAK. BISMARCK	30	141	170	205	236	279	294	358	307	243	198	130	125	2686
DEVILS LAKE	30	150	177	220	250	291	297	352	302	230	198	123	124	2714
FARGO	30	132	170	210	232	283	288	343	293	222	187	112	114	2586
WILLISTON	29	141	168	215	260	305	312	377	328	247	206	131	129	2819
OHIO CINCINNATI (ABBE)	30	115	137	186	222	273	309	323	295	253	205	138	118	2574
CLEVELAND	30	79	111	167	209	274	301	325	288	235	187	99	77	2352
COLUMBUS	30	112	132	177	215	270	296	323	291	250	210	131	101	2508
DAYTON	10	114	136	195	222	281	313	323	307	268	229	152	124	2664
SANDUSKY	30	100	128	183	229	285	312	343	302	248	201	111	91	2533
TOLEDO	30	93	120	170	203	263	296	331	298	241	196	106	92	2409
OKLA. OKLAHOMA CITY	29	175	182	235	253	290	329	352	331	282	243	201	175	3048
TULSA	18	152	164	200	213	244	287	314	308	281	241	207	172	2783
OREG. BAKER	22	118	143	198	251	302	313	406	368	289	215	132	100	2835
PORTLAND	30	77	97	142	203	246	249	329	275	218	134	87	65	2122
ROSEBURG	30	69	96	148	205	257	278	369	329	255	146	81	50	2283
PA. HARRISBURG	30	132	160	203	230	277	297	319	282	233	200	140	131	2604
PHILADELPHIA	30	142	166	203	231	270	281	288	253	225	205	158	142	2564
PITTSBURGH	25	89	114	163	200	239	260	283	250	234	180	114	76	2202
READING	30	133	151	195	220	259	275	293	259	219	198	144	127	2473
SCRANTON	30	108	138	178	199	251	269	290	249	213	183	120	105	2303
R. I. PROVIDENCE	30	145	168	211	221	271	285	292	267	226	207	153	143	2589
S. C. CHARLESTON	30	168	189	243	284	323	308	297	281	244	239	210	187	2993
COLUMBIA	30	173	183	233	274	312	312	291	283	243	242	202	166	2914
GREENVILLE	26	166	176	227	274	307	300	278	274	239	232	192	157	2822
S. DAK. HURON	30	153	177	213	250	295	321	367	320	260	212	142	134	2844
RAPID CITY	30	164	182	222	245	278	300	348	317	266	228	164	144	2858
TENN. CHATTANOOGA	30	126	146	187	239	290	295	278	266	247	220	169	128	2591
KNOXVILLE	30	124	144	189	237	281	288	277	248	237	213	157	120	2515
MEMPHIS	30	135	152	204	244	296	321	319	314	261	243	180	139	2808
NASHVILLE	30	123	142	196	241	285	308	292	279	250	224	168	126	2634
TEX. ABILENE	13	190	199	250	250	290	347	335	322	276	245	223	201	3137
AMARILLO	30	207	199	258	276	305	338	350	328	288	260	229	205	3243
AUSTIN	30	148	152	207	221	266	302	331	320	261	242	180	160	2790
BROWNSVILLE	30	147	152	187	210	272	297	326	311	246	252	165	151	2716
CORPUS CHRISTI	24	160	165	212	237	295	329	366	341	276	264	194	164	3003
DALLAS	30	155	159	220	238	279	326	341	325	274	240	191	163	2911
DEL RIO	27	173	173	230	237	259	279	331	319	252	240	195	178	2866
EL PASO	30	234	236	299	329	373	369	336	327	300	287	257	236	3583
GALVESTON	30	151	149	203	230	288	322	305	292	257	264	199	151	2811
HOUSTON	30	144	141	193	212	266	298	294	281	238	239	181	146	2633
PORT ARTHUR	30	153	149	209	235	292	317	285	281	252	256	191	148	2768
SAN ANTONIO	30	148	153	213	224	258	292	325	307	261	241	183	160	2765
UTAH SALT LAKE CITY	30	137	155	227	269	329	358	377	346	306	249	171	135	3059
VT. BURLINGTON	30	103	127	184	185	244	270	291	266	199	152	77	80	2178
VA. LYNCHBURG	26	153	169	216	243	288	297	288	264	235	217	177	158	2705
NORFOLK	30	156	174	223	257	304	311	296	282	237	220	182	161	2803
RICHMOND	30	144	166	211	248	280	296	286	263	230	211	176	152	2663
WASH. NORTH HEAD	22	76	97	135	182	221	214	226	186	170	123	87	66	1783
SEATTLE	30	74	99	154	201	247	234	304	248	197	122	77	62	2019
SPOKANE	30	78	120	197	262	308	309	397	350	264	177	86	57	2605
TATOOSH ISLAND	30	70	100	135	182	229	217	235	190	175	129	71	60	1793
WALLA WALLA	30	72	106	194	262	317	335	411	367	280	198	92	51	2685
W. VA. ELKINS	24	110	119	158	198	227	256	225	236	211	186	131	103	2160
PARKERSBURG	30	91	111	155	200	252	277	286	264	230	189	117	93	2265
WIS. GREEN BAY	30	121	148	194	210	251	279	314	266	213	176	110	106	2388
MADISON	30	126	147	196	214	258	285	336	288	230	198	116	108	2502
MILWAUKEE	30	116	134	191	218	267	293	340	292	235	193	125	106	2510
WYO. CHEYENNE	30	191	197	243	237	259	304	318	286	265	242	188	170	2900
LANDER	30	200	208	260	264	301	340	361	326	280	233	186	185	3144
SHERIDAN	30	160	179	226	245	286	303	367	333	266	221	153	145	2884
P. R. SAN JUAN	30	231	229	273	252	240	245	264	257	219	229	217	222	2878

The smoothed isolines on these charts and the data in this tabulation are based on Weather Bureau records from black-bulb type sunshine recorders. These values are those made during the 1931-60 period.

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UNITED STATES
DEPARTMENT OF COMMERCE
WEATHER BUREAU

MEAN PERCENTAGE OF POSSIBLE SUNSHINE, MONTHLY AND ANNUAL

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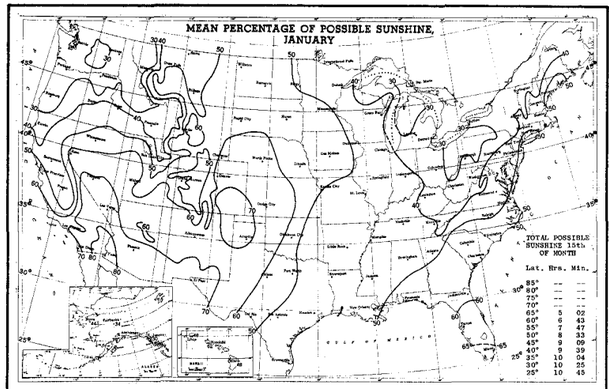

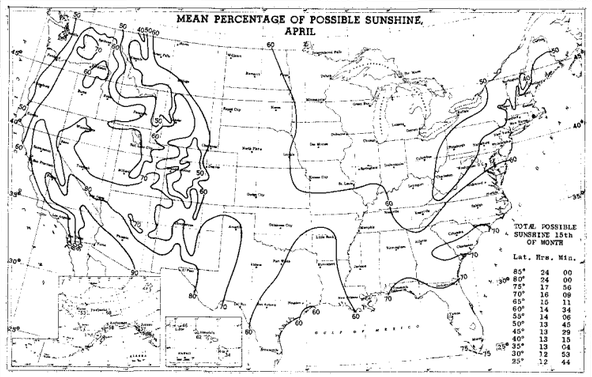

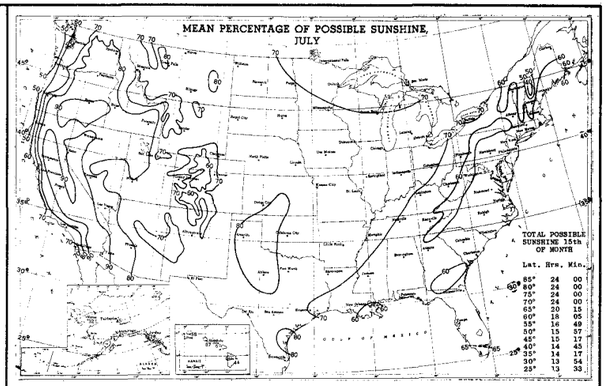

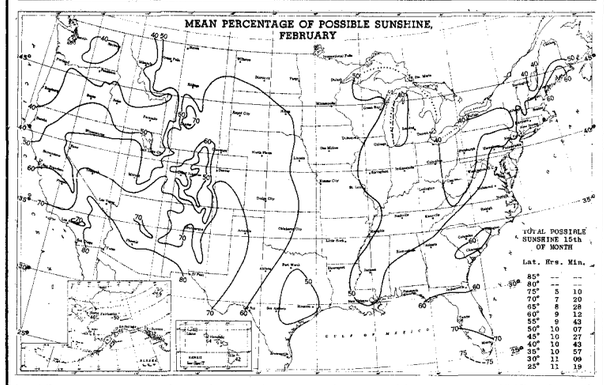

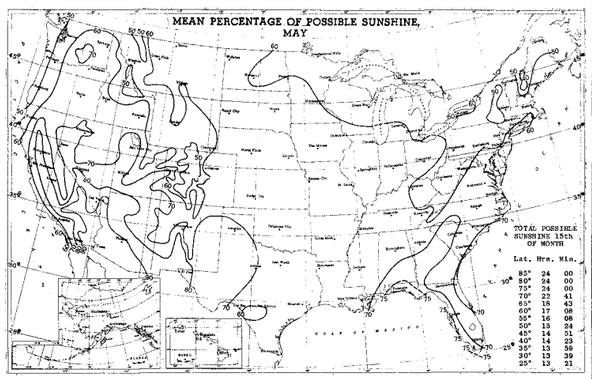

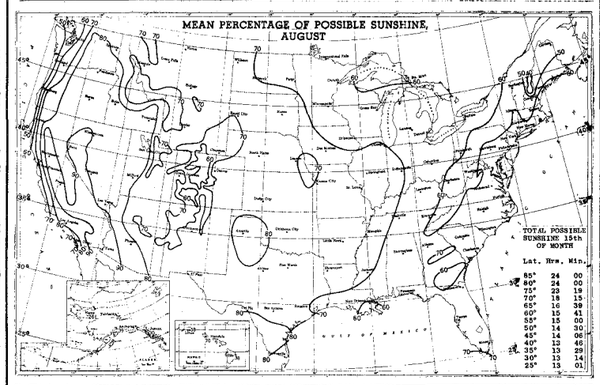

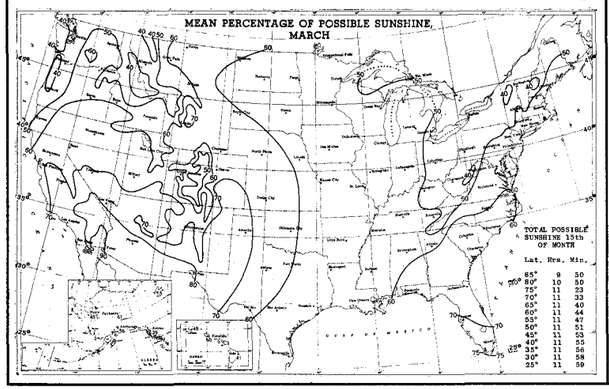

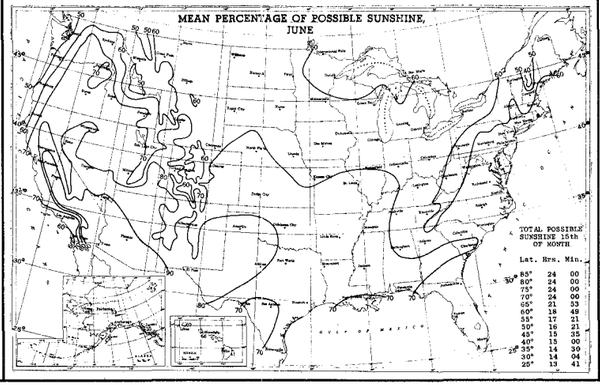

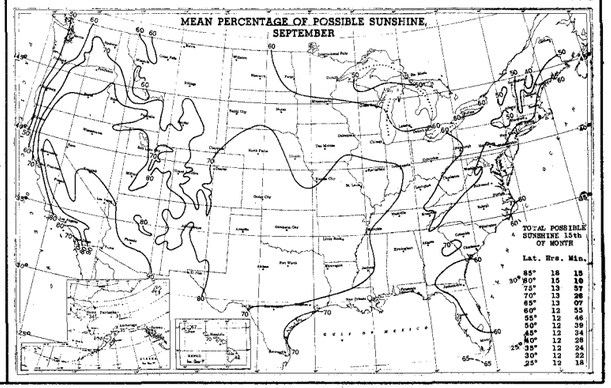

Base map by United States Weather Bureau

Smoothed isolines based on readings from black-bulb type sunshine recorders at 164 stations with 20 years or more of record through 1959

Prepared by Office of Climatology

300 0 300 600 900 1200 1500 Miles

SCALE 1:30,000,000

ALBERS EQUAL AREA PROJECTION — STANDARD PARALLELS 29½° AND 45½°

EDITION OF 1960

MEAN PERCENTAGE OF POSSIBLE SUNSHINE, MONTHLY AND ANNUAL

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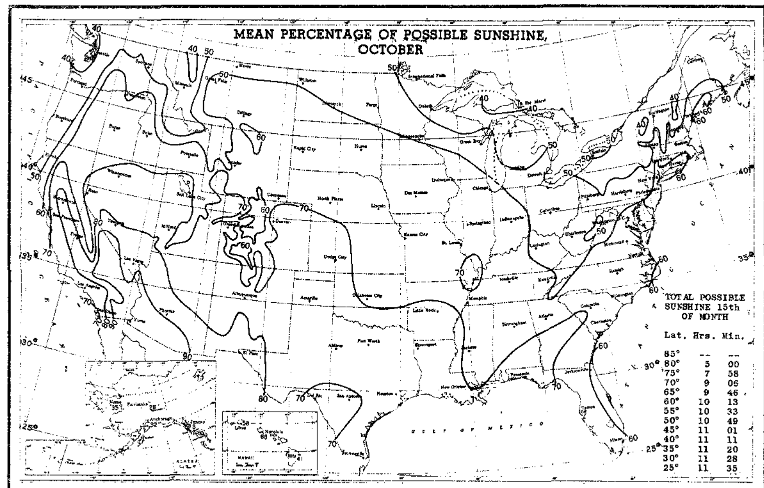

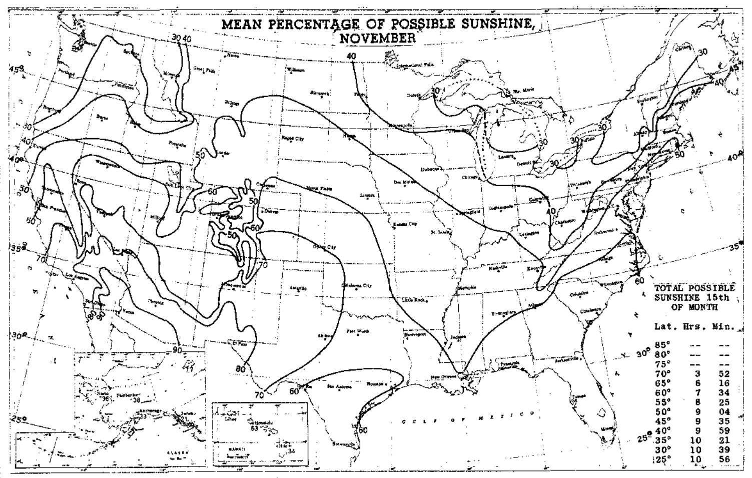

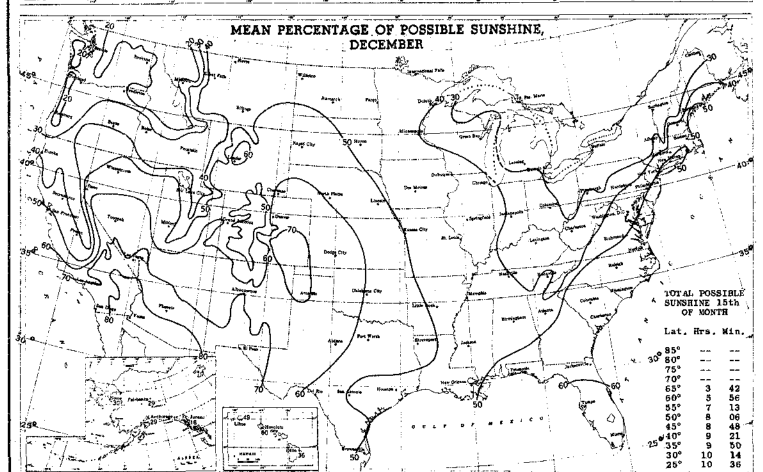

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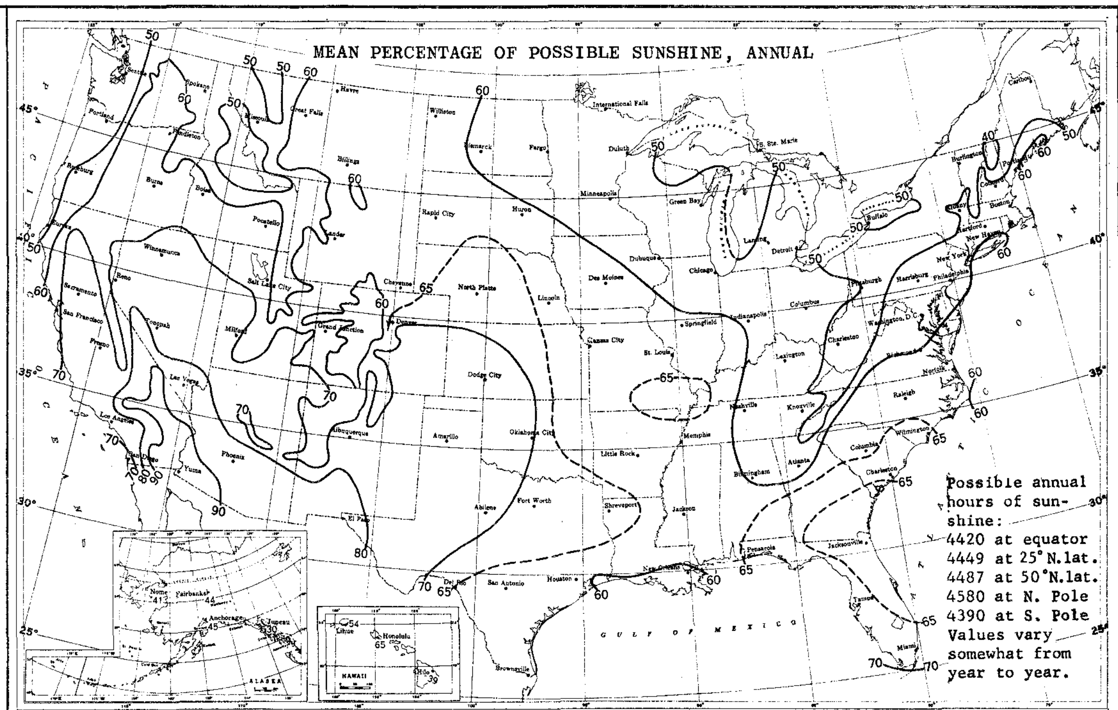
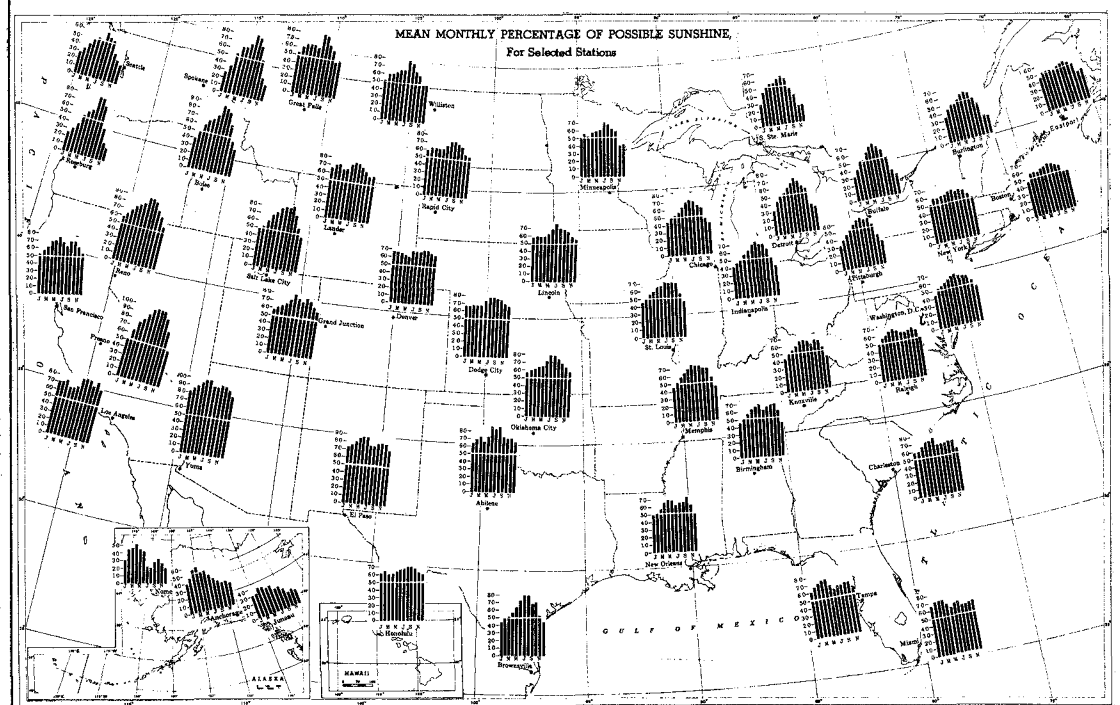
ALBERS EQUAL AREA PROJECTION-STANDARD PARALLELS 29½° AND 45½°





200 0 200 400 600 800 1000 Miles
SCALE 1:20,000,000
ALBERS EQUAL AREA PROJECTION — STANDARD PARALLELS 29½° AND 45½°

MEAN PERCENTAGE OF POSSIBLE SUNSHINE FOR SELECTED LOCATIONS

STATE AND STATION	YEARS	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	ANNUAL
ALA. BIRMINGHAM	56	43	49	56	63	66	67	62	65	66	67	58	44	59
MONTGOMERY	49	51	53	61	69	73	72	66	69	69	71	64	48	64
ALASKA. ANCHORAGE	19	39	46	56	58	50	51	45	39	35	32	33	29	45
FAIRBANKS	20	34	50	61	68	55	53	45	35	31	28	38	29	44
JUNEAU	14	30	32	39	37	34	35	28	30	25	18	21	18	30
NOME	29	44	46	48	53	51	48	32	26	34	35	36	30	41
ARIZ. PHOENIX	64	76	79	83	88	93	94	84	84	89	88	84	77	85
YUMA	52	83	87	91	94	97	98	92	91	93	93	90	83	91
ARK. LITTLE ROCK	66	44	53	57	62	67	72	71	73	71	74	58	47	62
CALIF. EUREKA	49	40	44	50	53	54	56	51	46	52	48	42	39	49
FRESNO	55	46	63	72	83	89	94	97	97	93	87	73	47	78
LOS ANGELES	63	70	69	70	67	68	69	80	81	80	76	79	72	73
RED BLUFF	39	50	60	65	75	79	86	95	94	89	77	64	50	75
SACRAMENTO	48	44	57	67	76	82	90	96	95	92	82	65	44	77
SAN DIEGO	68	68	67	68	66	60	60	67	70	70	70	76	71	68
SAN FRANCISCO	64	53	57	63	69	70	75	68	63	70	70	62	54	66
COLO. DENVER	64	67	67	65	63	61	69	68	68	71	71	67	65	67
GRAND JUNCTION	57	58	62	64	67	71	79	76	72	77	74	67	58	69
CONN. HARTFORD	48	46	55	56	54	57	60	62	60	57	55	46	46	56
D. C. WASHINGTON	66	46	53	56	57	61	64	64	62	62	61	54	47	58
FLA. APALACHICOLA	26	59	62	62	71	77	70	64	63	62	74	66	53	65
JACKSONVILLE	60	58	59	66	71	71	63	62	63	58	58	61	53	62
KEY WEST	45	68	75	78	78	76	70	69	71	65	65	69	66	71
MIAMI BEACH	48	66	72	73	73	68	62	65	67	62	62	65	65	67
TAMPA	63	63	67	71	74	75	66	61	64	64	67	67	61	68
GA. ATLANTA	65	48	53	57	65	68	68	62	63	65	67	60	47	60
HAWAII. HILO	9	48	42	41	34	31	41	44	38	42	41	34	36	39
HONOLULU	53	62	64	60	62	64	66	67	70	70	68	63	60	65
LIHUE	9	48	48	48	46	51	60	58	59	67	58	51	49	54
IDAHO. BOISE	20	40	48	59	67	68	75	89	86	81	66	46	37	66
POCATELLO	21	37	47	58	64	66	72	82	81	78	66	48	36	64
ILL. CAIRO	30	46	53	59	65	71	77	82	79	75	73	56	46	65
CHICAGO	66	44	49	53	56	63	69	73	70	65	61	47	41	59
SPRINGFIELD	59	47	51	54	58	64	69	76	72	73	64	53	45	60
IND. EVANSVILLE	48	42	49	55	61	67	73	78	76	73	67	52	42	64
FT. WAYNE	48	38	44	51	55	62	69	74	69	64	58	41	38	57
INDIANAPOLIS	63	41	47	49	55	62	68	74	70	68	64	48	39	59
IOWA. DES MOINES	66	56	56	56	59	62	66	75	70	64	64	53	48	62
DUBUQUE	54	48	52	52	58	60	63	73	67	61	55	44	40	57
SIOUX CITY	52	55	58	58	59	63	67	75	72	67	65	53	50	63
KANS. CONCORDIA	52	60	60	62	63	65	73	79	76	72	70	64	58	67
DODGE CITY	70	67	66	68	68	68	74	78	78	76	75	70	67	71
WICHITA	46	61	63	64	64	66	73	80	77	73	69	67	59	69
KY. LOUISVILLE	59	41	47	52	57	64	68	72	69	68	64	51	39	59
LA. NEW ORLEANS	69	49	50	57	63	66	64	58	60	64	70	60	46	59
SHREVEPORT	18	48	54	58	60	69	78	79	80	79	77	65	60	69
MAINE. EASTPORT	58	45	51	52	52	51	53	55	57	54	50	37	40	50
MASS. BOSTON	67	47	56	57	56	59	62	64	63	61	58	48	48	57
MICH. ALPENA	45	29	43	52	56	59	64	70	64	52	44	24	22	51
DETROIT	69	34	42	48	52	58	65	69	66	61	54	35	29	53
GRAND RAPIDS	56	26	37	48	54	60	66	72	67	58	50	31	22	49
MARQUETTE	55	31	40	47	52	53	56	63	57	47	38	24	24	47
S. STE. MARIE	60	28	44	50	54	54	59	63	58	45	36	21	22	47
MINN. DULUTH	49	47	55	60	58	58	60	68	63	53	47	36	40	55
MINNEAPOLIS	45	49	54	55	57	60	64	72	69	60	54	40	40	56
MISS. VICKSBURG	66	46	50	57	64	69	73	69	72	74	71	60	45	64
MO. KANSAS CITY	69	55	57	59	60	64	70	76	73	70	67	59	52	65
ST. LOUIS	68	48	49	56	59	64	68	72	68	67	65	54	44	61
SPRINGFIELD	45	48	54	57	60	63	69	77	72	71	65	58	48	63
MONT. HAVRE	55	49	58	61	63	63	65	78	75	64	57	48	46	62
HELENA	65	46	55	58	60	59	63	77	74	63	57	48	43	60
KALISPELL	50	28	40	49	57	58	60	77	73	61	50	28	20	53
NEBR. LINCOLN	55	57	59	60	60	63	69	76	71	67	66	59	55	64
NORTH PLATTE	53	63	63	64	62	64	72	78	74	72	70	62	58	68
NEV. ELY	21	61	64	68	65	67	79	79	81	81	73	67	62	72
LAS VEGAS	19	74	77	78	81	85	91	84	86	92	84	83	75	82
RENO	51	59	64	69	75	77	82	90	89	86	76	68	56	76
WINNEMUCCA	53	52	60	64	70	76	83	90	90	86	75	62	53	74
N. H. CONCORD	44	48	53	55	53	51	56	57	58	55	50	43	43	52
N. J. ATLANTIC CITY	62	51	57	58	59	62	65	67	66	65	54	58	52	60
N. MEX. ALBUQUERQUE	28	70	72	72	76	79	84	76	75	81	80	79	70	76
ROSWELL	47	69	72	75	77	76	80	76	75	74	74	74	69	74
N. Y. ALBANY	63	43	51	53	53	57	62	63	61	58	54	39	38	53
BINGHAMTON	63	31	39	41	44	50	56	54	51	47	43	29	26	44
BUFFALO	49	32	41	49	51	59	67	70	67	60	51	31	28	53
CANTON	43	37	47	50	48	54	61	63	61	54	45	30	31	49
NEW YORK	83	49	56	57	59	62	65	66	64	64	61	53	50	59
SYRACUSE	49	31	38	45	50	58	64	67	63	56	47	29	26	50
N. C. ASHEVILLE	57	48	53	56	61	64	63	59	59	62	64	59	48	58
RALEIGH	61	50	56	59	64	67	65	62	62	63	64	62	52	61
N. DAK. BISMARCK	65	52	58	56	57	58	61	73	69	62	59	49	48	59
DEVILS LAKE	55	53	60	59	60	59	62	71	67	59	56	44	45	58
FARGO	39	47	55	56	58	62	63	73	69	60	57	39	46	59
WILLISTON	43	51	59	60	63	66	66	78	75	65	60	48	48	63
OHIO. CINCINNATI	44	41	46	52	56	62	69	72	68	68	60	46	39	57
CLEVELAND	65	29	36	45	52	61	67	71	68	62	54	32	25	50
COLUMBUS	65	36	44	49	54	63	68	71	68	66	60	44	35	55
OKLA. OKLAHOMA CITY	62	57	60	63	64	65	74	78	78	74	68	64	57	68
OREG. BAKER	46	41	49	56	61	63	67	83	81	74	62	46	37	60
PORTLAND	69	27	34	41	49	52	55	70	65	55	42	28	23	48
ROSEBURG	29	24	32	40	51	57	59	79	77	68	42	28	18	51
PA. HARRISBURG	60	43	52	55	57	61	65	68	63	62	58	47	43	57
PHILADELPHIA	66	45	56	57	58	61	62	64	61	62	61	53	49	57
PITTSBURGH	63	32	39	45	50	57	62	64	61	62	54	39	30	51
R. I. BLOCK ISLAND	48	45	54	47	56	58	60	62	62	60	59	50	44	56
S. C. CHARLESTON	61	58	60	65	72	73	70	66	66	67	68	68	57	66
COLUMBIA	55	53	57	62	68	69	68	63	65	64	68	64	51	63
S. DAK. HURON	62	55	62	60	62	65	68	76	72	66	61	52	49	63
RAPID CITY	53	58	62	63	62	61	66	73	73	69	66	58	54	64
TENN. KNOXVILLE	62	42	49	53	59	64	66	64	59	64	64	53	41	57
MEMPHIS	55	44	51	57	64	68	74	73	74	70	69	58	45	64
NASHVILLE	63	42	47	54	60	65	69	69	68	69	65	55	42	59
TEX. ABILENE	14	64	68	73	66	73	86	83	85	73	71	72	66	73
AMARILLO	54	71	71	75	75	75	82	81	81	79	76	76	70	76
AUSTIN	33	46	50	57	60	62	72	76	79	70	70	57	49	63
BROWNSVILLE	37	44	49	51	57	65	73	78	78	67	70	54	44	61
DEL RIO	36	53	55	61	63	60	66	75	80	69	66	58	52	63
EL PASO	53	74	77	81	85	87	87	78	78	80	82	80	73	80
FT. WORTH	33	56	57	65	66	67	75	78	78	74	70	63	58	68
GALVESTON	66	50	50	55	61	69	76	72	71	70	74	62	49	63
SAN ANTONIO	57	48	51	56	58	60	69	74	75	69	67	55	49	62
UTAH. SALT LAKE CITY	22	48	53	61	68	73	78	82	82	84	73	56	49	69
VT. BURLINGTON	54	34	43	48	47	53	59	62	59	51	43	25	24	46
VA. NORFOLK	60	50	57	60	63	67	66	66	66	63	64	60	51	62
RICHMOND	56	49	55	59	63	67	66	65	62	63	64	58	50	61
WASH. NORTH HEAD	44	28	37	42	48	48	48	50	46	48	41	31	27	41
SEATTLE	26	27	34	42	48	53	48	62	56	53	36	28	24	45
SPOKANE	62	26	41	53	63	64	68	82	79	68	53	28	22	58
TATOOSH ISLAND	49	26	36	39	45	47	46	48	44	47	38	26	23	40
WALLA WALLA	44	24	35	51	63	67	72	86	84	72	59	33	20	60
YAKIMA	18	34	49	62	70	72	74	86	86	74	61	38	29	65
W. VA. ELKINS	55	33	37	42	47	55	55	56	53	55	51	41	33	48
PARKERSBURG	62	30	36	42	49	56	60	63	60	60	53	37	29	48
WIS. GREEN BAY	57	44	51	55	56	58	64	70	65	58	52	40	40	55
MADISON	59	44	49	52	53	58	64	70	66	60	56	41	38	56
MILWAUKEE	59	44	48	53	56	60	65	73	67	62	56	44	39	57
WYO. CHEYENNE	63	65	66	64	61	59	68	70	68	69	69	65	63	66
LANDER	57	66	70	71	66	65	74	76	75	72	67	61	62	69
SHERIDAN	52	56	61	62	61	61	67	76	74	67	60	53	52	64
YELLOWSTONE PARK	35	39	51	55	57	56	63	73	71	65	57	45	38	56
P. R. SAN JUAN	57	64	69	71	66	59	62	65	67	61	63	63	65	65

Based on period of record through December 1959, except in a few instances.

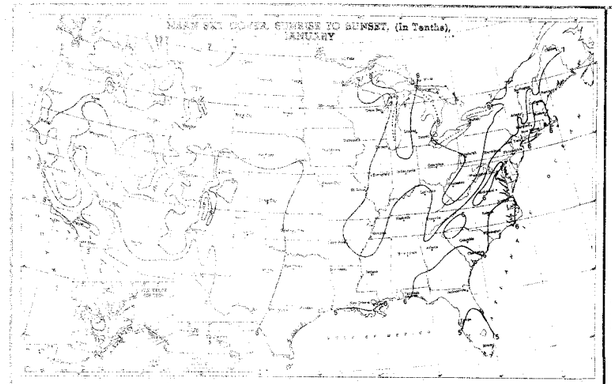
These charts and tabulation derived from "Normals, Means, and Extremes" table in U. S. Weather Bureau publication Local Climatological Data, except inset table on charts from U. S. Naval Observatory publication Tables of Sunrise, Sunset, and Twilight.

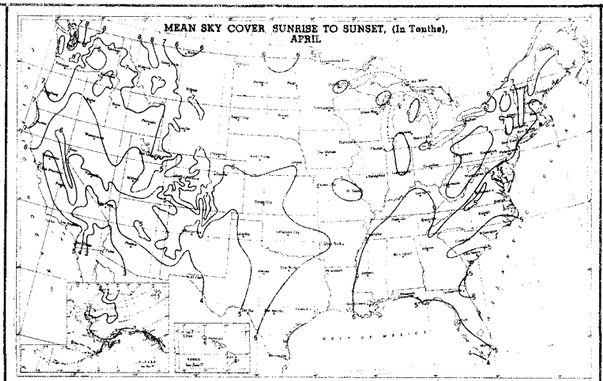
GPO 903795

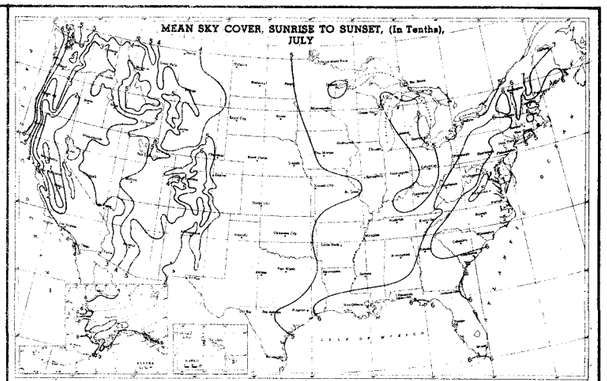
UNITED STATES
DEPARTMENT OF COMMERCE
WEATHER BUREAU

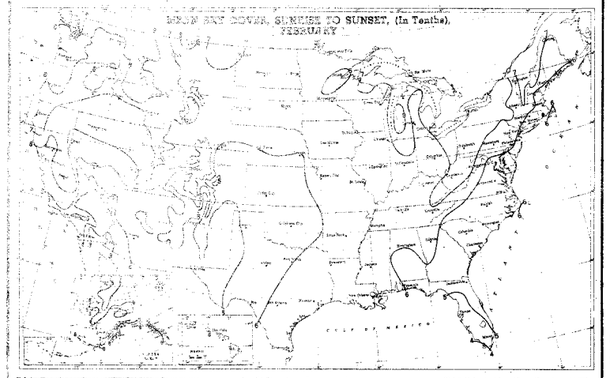
MEAN SKY COVER, SUNRISE TO SUNSET, MONTHLY AND ANNUAL

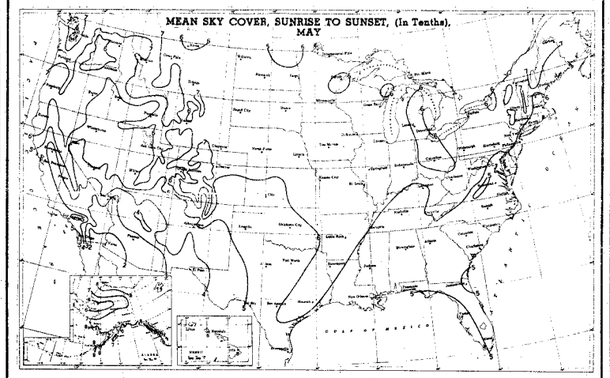
SHEET OF THE NATIONAL ATLAS
OF THE
UNITED STATES

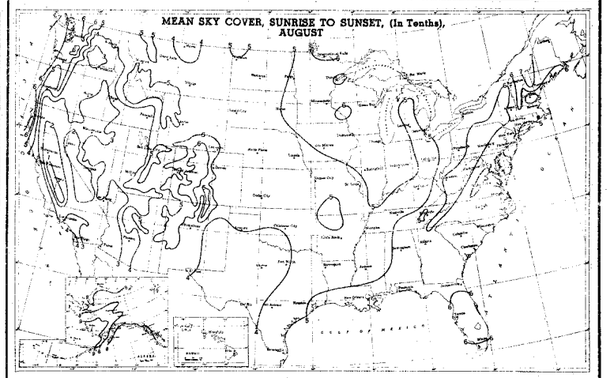


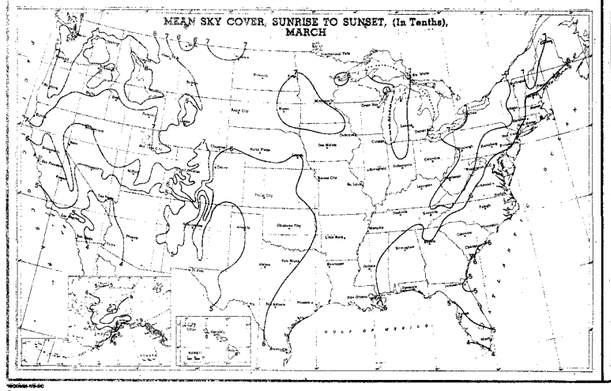


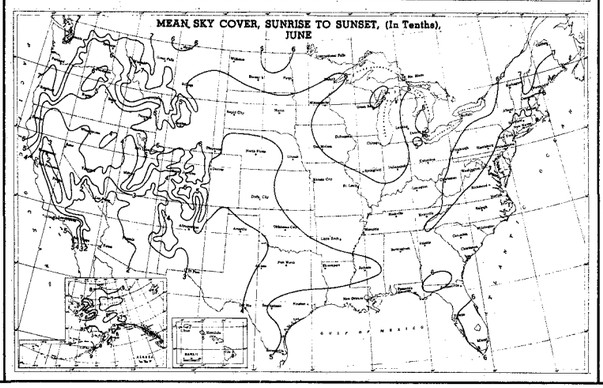


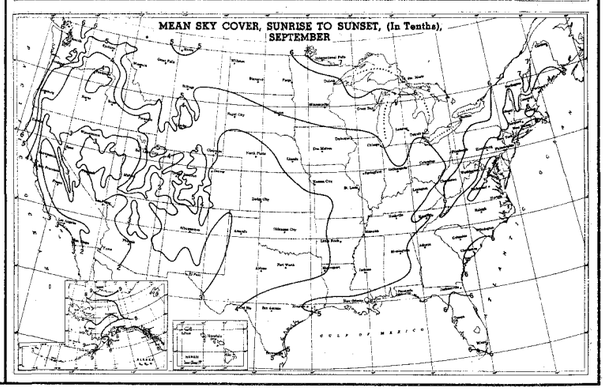












Base map by United States Weather Bureau

Smoothed isolines based on hourly observations from sunrise to sunset at 236 stations with 20 years or more of record through 1959

Prepared by Office of Climatology

300 0 300 600 900 1200 1500 Miles

SCALE 1:30,000,000

ALBERS EQUAL AREA PROJECTION-STANDARD PARALLELS 29½° AND 45½°

EDITION OF 1961.

MEAN SKY COVER, SUNRISE TO SUNSET, MONTHLY AND ANNUAL

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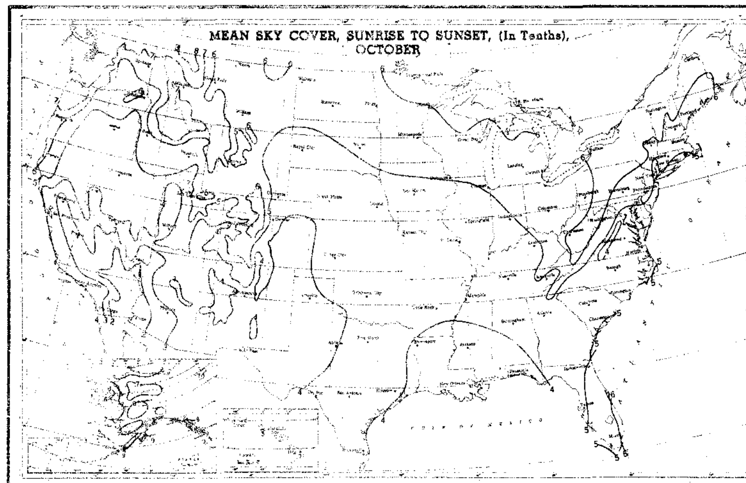

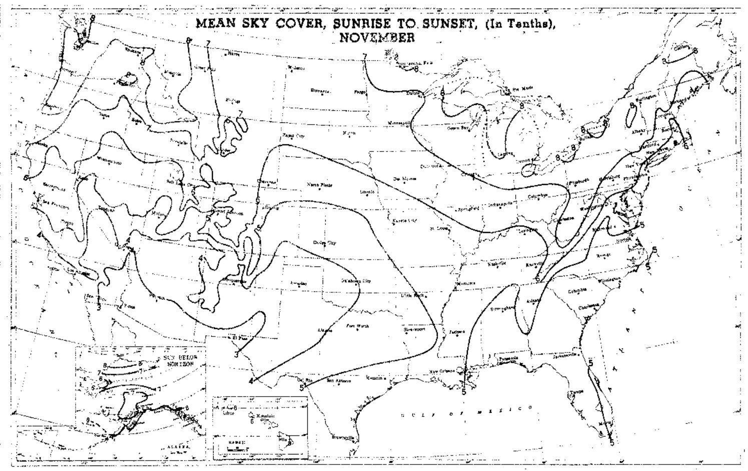

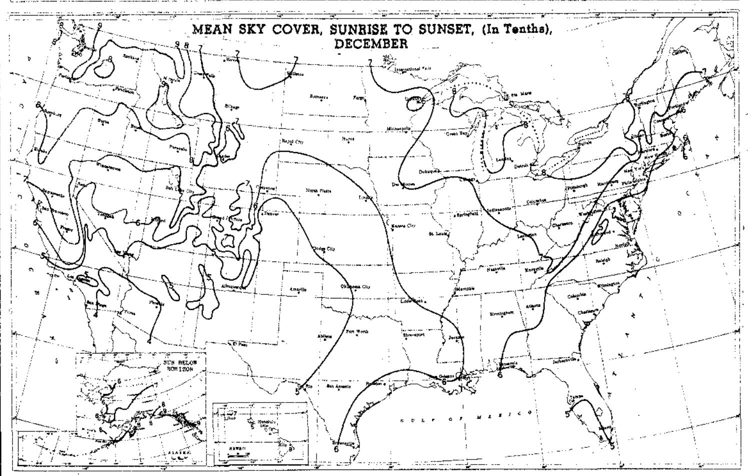

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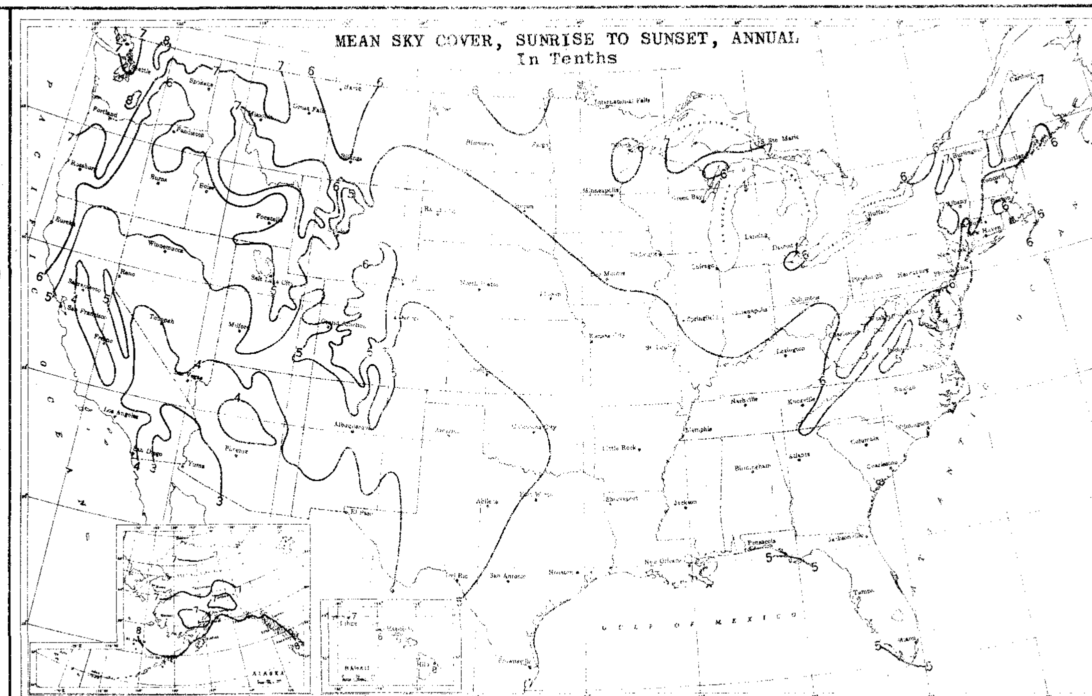
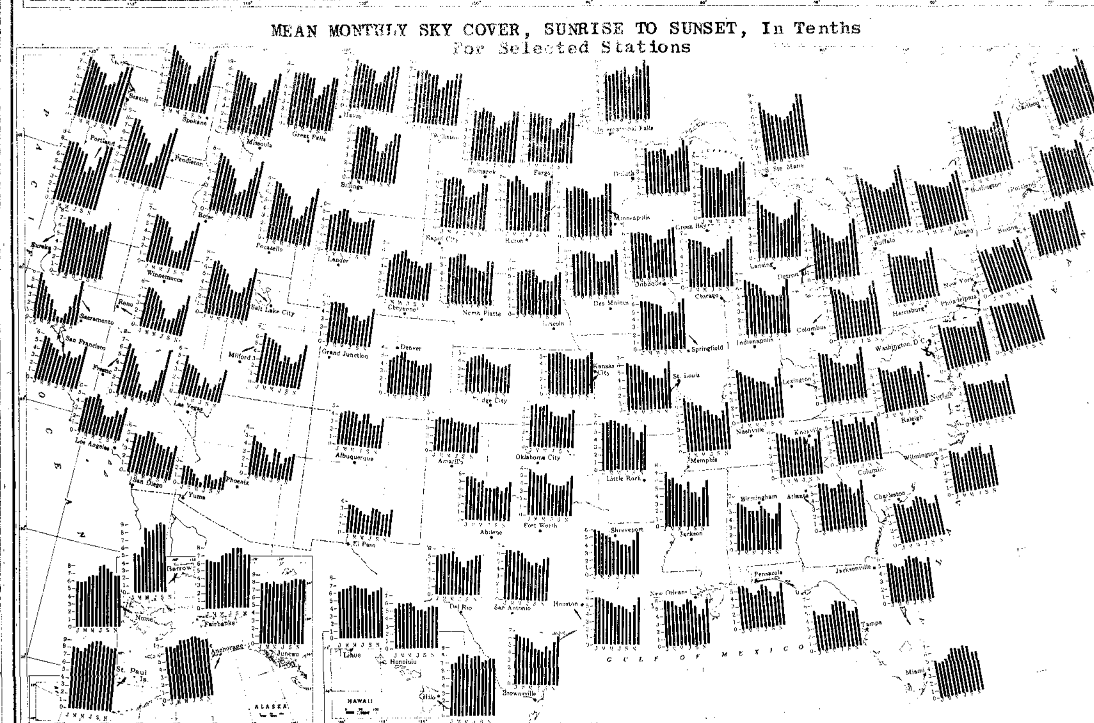
ALBERS EQUAL AREA PROJECTION–STANDARD PARALLELS 29½° AND 45½°





200 0 200 400 600 800 1000 Miles

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ALBERS EQUAL AREA PROJECTION–STANDARD PARALLELS 29½° AND 45½°

MEAN SKY COVER, SUNRISE TO SUNSET, (In Tenths)

STATE AND STATION	YEARS	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	ANNUAL
ALA. BIRMINGHAM	54	6.2	5.9	5.6	5.2	5.2	5.2	5.7	5.3	4.8	4.1	4.7	5.1	5.3
MOBILE	11	6.5	6.6	[illegible]	5.7	5.6	5.7	6.6	5.4	5.9	4.3	4.9	6.1	5.8
MONTGOMERY	20	5.9	5.7	5.2	4.8	4.7	5.1	5.5	5.2	4.5	3.9	4.5	5.7	5.1
ALASKA, ANCHORAGE	19	8.8	6.8	6.6	6.9	7.6	7.5	7.6	7.8	7.8	7.6	7.3	7.4	7.3
ANNETTE	12	7.7	8.0	7.7	7.6	7.9	8.0	8.0	7.8	7.7	8.5	8.5	8.6	8.0
BARROW	18	*	5.3	5.0	8.0	8.5	8.0	8.2	8.9	9.2	8.5	*	*	-
BARTER ISLAND	9	*	4.7	5.8	6.5	8.5	8.1	7.9	8.3	8.6	8.5	*	*	-
BETHEL	16	6.3	6.2	6.5	6.9	7.9	8.1	8.5	9.0	8.2	7.7	7.2	6.7	7.4
CORDOVA	14	7.2	7.1	7.1	7.4	8.5	8.3	8.4	8.1	8.2	8.0	7.9	7.8	7.9
FAIRBANKS	16	6.5	6.3	6.2	6.2	7.0	7.3	7.3	7.9	7.9	7.9	7.1	7.1	7.1
JUNEAU	16	7.9	8.0	7.8	8.2	7.8	7.8	8.3	8.0	8.4	8.6	8.5	8.5	8.2
KOTZEBUE	16	5.8	5.5	6.0	5.8	6.4	6.9	7.7	8.3	7.5	7.2	6.6	5.9	6.6
MCGRATH	16	6.6	6.3	6.5	6.1	7.5	7.8	7.8	8.5	8.1	8.4	[illegible]	6.8	7.3
NOME	25	5.9	5.8	5.9	5.8	6.7	6.8	7.9	8.1	7.3	7.1	6.5	6.6	6.8
ST. PAUL ISLAND	30	8.1	8.0	7.7	8.1	8.7	8.9	9.1	9.1	8.6	8.5	8.3	8.4	8.5
ARIZ. FLAGSTAFF	10	5.9	4.9	5.0	4.5	4.1	2.4	5.5	5.3	2.9	3.3	3.4	4.4	4.3
PHOENIX	14	5.1	4.5	4.3	3.8	2.9	2.0	3.8	3.5	3.0	2.6	3.1	3.6	3.5
TUCSON	16	5.0	4.5	4.6	3.7	2.8	2.2	5.5	4.7	2.7	3.1	3.0	4.4	3.9
YUMA	30	2.4	2.5	2.2	1.6	1.1	0.6	1.7	1.8	1.1	1.3	1.7	2.5	1.7
ARK. FT. SMITH	67	5.4	5.5	5.4	5.4	5.2	4.6	4.4	4.2	3.9	3.3	4.5	5.3	4.8
LITTLE ROCK	[illegible]	6.2	6.3	6.5	6.4	6.2	5.7	5.0	5.4	4.8	3.9	5.0	5.9	5.7
CALIF. BAKERSFIELD	11	6.2	5.5	5.4	4.4	3.2	1.3	1.1	1.1	1.2	2.7	4.1	6.3	3.6
BISHOP	12	5.3	4.8	4.7	4.7	4.1	2.3	2.4	1.9	2.0	2.8	3.5	4.9	3.6
EUREKA	17	7.3	7.3	7.3	7.2	6.8	6.4	6.6	6.9	6.0	6.5	7.0	7.6	6.9
FRESNO	22	6.7	6.2	5.5	4.4	3.4	1.9	1.1	1.1	1.3	2.8	4.4	7.0	3.8
LOS ANGELES	[illegible]	4.6	4.8	4.8	5.3	4.8	4.1	2.8	2.7	2.8	3.9	3.4	4.5	4.0
RED BLUFF	15	6.6	6.3	5.1	5.4	4.6	3.2	1.3	1.6	2.2	4.0	5.5	6.9	4.5
SACRAMENTO	50	6.3	5.2	4.4	3.3	2.7	1.6	0.7	0.7	1.4	2.4	4.0	5.9	3.2
SAN DIEGO	19	3.1	5.0	4.9	5.7	5.5	5.1	4.4	4.3	3.7	4.3	3.7	4.7	4.7
SAN FRANCISCO	49	5.7	5.5	5.0	4.5	4.4	3.7	4.2	4.6	3.8	4.0	4.5	5.6	4.6
COLO. COLORADO SPRINGS	10	4.9	5.1	5.7	6.0	6.0	4.5	4.3	4.7	3.5	3.7	4.7	4.5	4.9
DENVER	48	4.5	4.8	5.3	5.7	5.7	4.7	4.6	4.7	4.0	4.1	4.2	4.4	4.7
GRAND JUNCTION	37	5.3	5.4	5.2	5.4	4.8	3.8	3.9	4.0	3.3	3.5	4.2	5.1	4.5
CONN. HARTFORD	[illegible]	6.2	5.7	5.8	6.3	6.0	5.8	5.7	5.6	5.0	5.3	6.2	6.2	5.8
D.C. WASHINGTON	70	6.1	5.8	5.6	5.4	5.4	5.1	5.1	5.1	4.8	4.7	5.4	5.8	5.3
FLA. APALACHICOLA	26	5.2	5.1	5.5	4.8	4.3	5.2	6.0	5.7	5.6	3.9	4.4	5.7	5.1
JACKSONVILLE	[illegible]	5.3	5.2	4.9	4.6	4.7	5.8	5.9	5.6	5.7	5.1	4.7	5.4	5.2
KEY WEST	59	4.3	3.8	3.7	3.8	4.4	5.4	5.3	5.3	5.5	4.5	4.2	4.3	4.6
MIAMI	[illegible]	5.7	[illegible]	4.7	4.9	5.4	[illegible]	[illegible]	5.8	6.2	5.8	5.2	5.2	5.4
TAMPA	34	5.3	[illegible]	4.8	4.7	4.6	5.8	6.3	6.1	6.0	4.7	4.3	5.2	5.2
GA. ATLANTA	25	6.2	6.2	6.1	5.5	5.5	5.6	6.3	5.7	5.3	4.5	5.0	6.2	5.7
HAWAII HILO	12	6.8	7.0	7.8	8.3	8.2	[illegible]	7.8	7.9	7.2	7.4	7.6	7.6	7.6
HONOLULU	13	5.3	6.0	5.8	6.2	6.0	5.5	5.0	5.1	4.8	5.4	5.5	5.4	5.5
LIHUE	10	6.2	6.5	6.3	[illegible]	[illegible]	[illegible]	[illegible]	6.5	5.7	6.2	6.4	6.6	6.5
IDAHO, BOISE	20	7.5	7.2	6.5	[illegible]	[illegible]	4.7	[illegible]	[illegible]	3.5	5.0	6.6	7.6	5.6
POCATELLO	21	7.7	7.5	[illegible]	[illegible]	[illegible]	4.8	[illegible]	[illegible]	3.8	5.1	6.5	7.7	5.6
ILL. CAIRO	66	6.5	6.3	6.3	6.0	5.9	5.6	5.2	5.0	4.6	4.4	5.5	6.3	5.6
CHICAGO	84	6.4	6.2	6.1	[illegible]	[illegible]	[illegible]	4.3	4.6	4.7	5.0	6.2	6.6	5.5
SPRINGFIELD	31	6.4	6.4	6.4	6.1	[illegible]	5.7	4.7	[illegible]	4.9	4.8	6.1	6.5	5.7
IND. FT. WAYNE	44	7.1	7.0	6.6	6.4	5.8	5.6	4.7	5.0	5.0	5.4	6.7	7.4	6.1
INDIANAPOLIS	51	7.1	6.8	6.6	6.4	6.0	5.6	5.0	5.1	4.8	5.0	6.3	7.1	6.0
IOWA, DES MOINES	72	6.4	5.5	5.8	5.7	5.6	5.3	4.3	4.4	4.5	4.4	5.3	5.8	5.2
DUBUQUE	[illegible]	6.1	6.0	6.2	5.9	5.9	5.6	4.7	5.0	5.1	5.2	6.3	6.5	5.7
SIOUX CITY	66	5.6	5.8	6.1	5.9	5.9	5.3	4.3	4.6	4.5	4.6	5.7	5.9	5.4
KANS. CONCORDIA	16	5.5	5.8	5.9	5.9	6.0	5.0	4.5	4.9	4.0	4.3	4.8	5.3	5.1
DODGE CITY	67	4.0	4.5	4.7	4.5	4.9	4.3	[illegible]	3.7	3.5	3.4	3.6	3.9	4.1
GOODLAND	11	5.8	[illegible]	6.0	6.0	6.0	4.4	4.4	[illegible]	3.6	3.9	4.8	5.1	5.0
WICHITA	66	5.6	5.7	5.2	5.3	5.2	4.6	3.9	3.8	3.9	4.0	4.4	5.0	4.6
KY. LOUISVILLE	54	6.8	6.3	6.3	6.4	5.5	5.3	4.8	4.8	4.5	4.6	5.7	6.7	5.6
LA. NEW ORLEANS	[illegible]	[illegible]	[illegible]	[illegible]	5.8	5.3	[illegible]	[illegible]	5.8	5.2	4.0	4.7	5.9	5.4
SHREVEPORT	82	5.8	5.7	5.4	5.2	4.8	4.0	4.5	4.0	4.0	3.7	4.7	5.6	4.8
MAINE, CARIBOU	19	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	7.4	[illegible]	[illegible]	6.6	[illegible]	8.1	[illegible]	[illegible]
PORTLAND	[illegible]	6.2	6.3	6.6	6.7	6.8	6.9	6.5	6.3	6.3	6.6	7.6	7.2	6.8
MASS. BOSTON	64	6.0	5.9	[illegible]	5.8	5.8	5.7	5.6	5.3	5.1	5.3	6.0	6.0	5.7
MICH. ALPENA	47	7.7	[illegible]	6.3	[illegible]	[illegible]	5.5	4.8	5.1	5.8	6.3	7.9	8.0	6.4
DETROIT	[illegible]	7.4	6.9	6.5	[illegible]	[illegible]	[illegible]	4.7	4.8	5.0	5.4	7.1	7.6	6.0
GRAND RAPIDS	[illegible]	8.2	7.5	6.6	6.0	5.4	[illegible]	4.7	5.0	5.4	6.0	7.5	8.3	6.4
MARQUETTE	[illegible]	7.7	[illegible]	[illegible]	[illegible]	[illegible]	5.0	[illegible]	[illegible]	6.3	7.0	8.0	8.0	6.8
SAULT STE. MARIE	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	6.3	7.2	8.4	8.3	6.6
MINN. DULUTH	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	6.8	6.1	5.7
MINNEAPOLIS	24	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	6.9	6.1
MISS. MERIDIAN	12	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	4.5	3.9	4.6	[illegible]	5.2
VICKSBURG	35	5.7	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	4.1	3.4	4.5	5.6	5.0
MO. KANSAS CITY	60	5.1	[illegible]	5.2	5.2	[illegible]	[illegible]	[illegible]	[illegible]	4.7	4.1	[illegible]	[illegible]	4.9
ST. LOUIS	24	[illegible]	5.9	6.6	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	6.1	5.2
SPRINGFIELD	50	[illegible]	5.3	5.2	[illegible]	4.6	4.7	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
MONT. HAVRE	36	[illegible]	5.9	5.9	[illegible]	5.5	5.3	[illegible]	3.8	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
HELENA	[illegible]	6.8	6.6	6.6	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
KALISPELL	56	7.7	6.7	[illegible]	[illegible]	5.4	5.3	3.5	3.9	4.9	5.7	7.6	[illegible]	[illegible]
MILES CITY	10	[illegible]	6.9	[illegible]	6.8	5.2	5.7	3.9	4.1	5.2	3.3	6.6	6.2	[illegible]
NEBR. LINCOLN	60	[illegible]	5.7	[illegible]	[illegible]	5.9	5.2	4.3	4.6	4.4	4.4	5.3	5.6	5.2
NORTH PLATTE	11	[illegible]	[illegible]	[illegible]	[illegible]	6.6	[illegible]	4.9	[illegible]	4.5	4.4	5.8	5.8	5.6
NEV. ELY	[illegible]	6.2	[illegible]	6.2	6.0	5.9	4.0	3.9	3.4	3.0	4.1	5.4	6.0	5.0
LAS VEGAS	11	5.2	4.2	4.1	3.8	3.3	[illegible]	2.8	2.3	1.5	2.3	3.2	4.4	3.2
RENO	35	5.3	5.3	4.9	4.6	4.1	3.1	1.8	1.8	2.1	3.4	4.3	5.5	3.9
WINNEMUCCA	24	6.3	6.3	5.6	5.8	5.1	4.0	2.3	2.2	2.4	4.0	5.3	6.6	4.7
N.H. CONCORD	[illegible]	5.8	5.0	4.9	5.2	5.2	4.8	4.7	4.8	5.0	5.3	6.0	5.9	5.2
N.J. ATLANTIC CITY	59	6.2	5.6	5.7	5.8	5.6	5.5	5.3	5.2	5.1	4.8	5.3	6.0	5.5
N.MEX. ALBUQUERQUE	25	4.3	4.5	4.6	4.5	4.3	3.4	4.4	4.5	3.2	2.9	3.1	4.0	4.0
RATON	8	5.1	5.4	5.2	5.9	6.1	4.5	5.3	5.4	3.9	4.6	4.4	4.2	5.0
ROSWELL	38	4.1	4.0	4.0	3.8	3.9	3.2	3.6	3.6	3.4	3.3	3.3	3.9	3.7
N.Y. ALBANY	65	6.6	6.0	5.9	5.8	5.6	5.3	5.1	5.0	5.0	5.4	6.4	6.7	5.7
BINGHAMTON	58	7.5	7.2	7.1	6.9	6.5	6.2	6.1	6.0	6.0	6.3	7.5	7.9	6.8
BUFFALO	37	8.1	7.5	7.0	6.5	6.0	5.5	5.2	5.4	5.6	6.2	7.7	8.2	6.6
CANTON	43	6.9	6.3	6.0	6.1	5.7	5.0	4.8	5.0	5.5	6.1	7.5	7.4	6.0
NEW YORK	69	5.2	5.8	5.9	5.2	5.8	5.7	5.6	5.2	5.0	5.0	5.8	6.0	5.7
SYRACUSE	55	7.9	7.5	7.1	6.6	6.0	5.7	5.4	5.6	5.8	6.3	7.7	8.1	6.6
N.C. ASHEVILLE	56	6.0	5.7	5.6	5.4	[illegible]	5.5	5.9	5.7	5.2	4.4	4.8	5.8	5.5
HATTERAS	24	6.1	5.9	5.9	5.1	[illegible]	5.4	5.8	5.6	5.7	5.1	5.1	5.9	5.6
RALEIGH	54	6.0	5.5	5.4	[illegible]	5.1	5.4	5.6	5.5	5.2	4.4	4.7	5.8	5.3
WILMINGTON	19	5.7	5.4	5.3	4.6	4.9	5.3	5.6	5.4	5.6	4.4	4.5	5.4	5.2
N.DAK. BISMARCK	15	6.7	6.6	6.9	[illegible]	6.4	6.2	4.5	4.8	5.4	5.6	6.6	6.6	6.1
DEVILS LAKE	55	6.1	6.0	[illegible]	5.8	5.6	5.6	4.5	4.7	5.3	5.6	6.6	6.3	5.7
FARGO	40	6.5	6.3	6.4	6.0	5.7	5.7	4.4	4.6	5.3	5.7	6.7	6.7	5.8
WILLISTON	18	6.8	6.9	7.1	6.6	6.4	6.6	4.7	5.0	5.9	6.0	6.9	6.9	6.3
OHIO, CINCINNATI	24	7.4	6.8	6.8	6.5	6.2	5.8	5.1	5.1	4.8	5.0	6.4	7.3	6.1
CLEVELAND	65	7.7	7.4	6.7	6.1	5.6	5.2	4.6	4.8	5.1	5.7	7.4	8.0	6.2
COLUMBUS	64	7.1	6.7	6.6	6.2	5.6	5.2	4.8	4.8	4.7	5.0	6.5	7.2	5.9
OKLA. OKLAHOMA CITY	23	5.5	5.7	5.4	5.5	5.6	4.7	4.2	4.3	4.1	4.1	4.6	5.2	4.9
OREG. BAKER	58	6.9	6.7	6.3	6.9	5.7	5.0	2.8	2.8	3.8	4.5	6.0	6.7	5.3
MEDFORD	29	8.2	7.6	7.2	6.6	5.8	4.9	2.1	2.2	3.3	5.6	7.4	8.6	5.8
PORTLAND	13	7.9	7.9	8.0	7.4	7.1	6.9	4.6	5.4	5.1	7.0	8.2	8.6	7.0
ROSEBURG	7	8.9	8.5	7.9	7.2	6.4	6.4	2.8	3.7	4.9	6.9	8.4	8.9	6.7
PA. HARRISBURG	58	6.6	6.1	6.1	6.2	6.0	5.9	5.6	5.6	5.1	5.2	6.2	6.5	5.9
PHILADELPHIA	63	6.1	5.8	5.8	5.8	5.8	5.8	5.7	5.6	5.2	4.9	5.6	6.0	5.7
PITTSBURGH	83	7.4	7.0	6.7	6.3	5.7	5.5	5.3	5.2	5.0	5.4	6.7	7.5	6.1
R.I. BLOCK ISLAND	27	6.0	5.5	5.5	5.7	5.7	5.3	5.2	5.0	4.8	4.6	5.7	5.9	5.4
PROVIDENCE	49	5.9	5.4	5.4	5.7	5.6	5.4	5.4	5.1	5.0	4.7	5.5	5.7	5.4
S.C. CHARLESTON	59	5.4	5.3	5.1	4.5	4.6	5.3	5.7	5.5	5.1	4.3	4.3	5.3	5.0
COLUMBIA	15	6.0	5.7	5.8	5.1	5.2	5.1	5.8	5.1	5.6	4.6	4.8	5.7	5.4
S.DAK. HURON	16	6.6	6.4	7.2	6.6	6.2	5.7	4.6	4.9	5.0	5.1	6.6	6.7	6.0
RAPID CITY	17	6.4	6.4	6.6	6.6	6.5	5.7	4.2	4.3	4.6	4.9	6.2	6.2	5.7
TENN. KNOXVILLE	78	5.9	5.8	5.5	5.2	4.9	5.0	5.1	5.0	4.1	3.7	4.7	5.7	5.0
MEMPHIS	14	7.2	6.5	6.5	6.0	6.0	5.2	5.3	4.7	4.5	4.1	5.2	6.2	5.6
NASHVILLE	36	6.8	6.5	6.1	5.8	5.6	5.2	5.2	5.0	4.7	4.3	5.5	6.5	5.6
TEX. ABILENE	25	5.6	5.6	5.4	4.9	5.2	4.2	4.2	4.2	4.4	3.8	4.3	5.1	4.7
AMARILLO	64	4.2	4.5	4.2	4.3	4.4	3.8	4.0	3.8	3.7	3.7	3.6	4.2	4.0
AUSTIN	29	6.2	6.1	5.7	5.6	5.5	4.7	4.5	4.0	4.5	4.2	5.1	5.8	5.2
BROWNSVILLE	32	6.5	6.2	6.1	5.9	5.4	4.7	4.5	4.3	5.0	4.4	5.7	6.4	5.4
CORPUS CHRISTI	23	6.5	6.7	6.3	6.2	5.8	4.6	4.5	4.2	4.7	3.9	5.2	6.4	5.4
DEL RIO	49	5.2	5.3	5.3	5.4	5.7	4.9	4.2	3.5	4.4	4.6	5.1	5.2	4.9
EL PASO	64	3.7	3.6	3.4	2.9	2.6	2.4	4.0	3.8	3.1	2.7	2.8	3.5	3.2
FT. WORTH	25	5.9	5.6	5.2	5.2	5.4	4.2	4.0	3.8	3.7	3.9	4.4	5.3	4.7
GALVESTON	52	5.9	5.9	5.7	5.4	4.8	4.1	4.7	4.5	4.3	3.6	4.7	5.9	5.0
HOUSTON	46	6.1	6.1	5.9	5.7	5.4	4.8	5.2	5.0	4.7	4.2	5.2	6.2	5.4
MIDLAND	11	5.4	5.3	5.1	4.9	4.7	3.8	4.6	3.9	3.5	3.6	3.5	4.3	4.4
SAN ANTONIO	17	6.4	6.5	6.3	6.4	6.2	5.4	5.0	4.6	4.9	4.6	5.4	5.7	5.6
UTAH, MODENA	46	5.2	5.5	5.0	5.1	4.4	2.8	3.7	3.5	2.8	3.6	4.1	5.0	4.2
SALT LAKE CITY	24	6.9	7.0	6.5	6.1	5.4	4.2	3.5	3.4	3.4	4.3	5.6	6.9	5.3
VT. BURLINGTON	49	7.2	6.9	6.6	6.7	6.7	6.1	5.8	5.7	6.0	6.5	7.9	7.8	6.7
VA. NORFOLK	40	5.6	5.2	5.1	4.8	4.8	4.9	5.0	5.0	4.6	4.4	4.6	5.4	5.0
RICHMOND	56	5.9	5.2	5.3	5.1	5.0	5.2	5.2	5.2	4.9	4.3	4.8	5.5	5.1
ROANOKE	11	6.7	6.3	6.4	6.3	6.3	5.8	6.0	5.9	5.5	5.2	5.3	6.2	6.0
WASH. NORTH HEAD	56	7.3	7.3	7.1	6.9	6.9	6.8	6.4	6.5	6.2	6.8	7.6	7.8	7.0
SEATTLE	24	8.0	7.7	7.4	6.9	6.4	6.4	4.9	5.3	5.6	7.2	8.0	8.1	6.8
SPOKANE	67	8.1	7.4	6.8	6.4	6.2	5.8	3.5	3.6	4.8	6.0	7.7	8.2	6.2
TATOOSH ISLAND	49	7.9	7.3	7.3	7.2	7.1	7.1	6.9	7.0	6.5	6.9	8.0	7.9	7.3
WALLA WALLA	50	8.1	7.4	6.3	5.4	5.0	4.5	2.4	2.7	4.0	5.2	7.4	8.4	5.6
YAKIMA	27	7.7	7.1	6.5	6.1	5.6	5.0	2.6	2.8	3.9	5.4	7.1	7.8	5.6
W.VA. ELKINS	27	7.9	7.6	7.4	7.0	6.8	6.7	6.5	6.4	6.1	6.1	6.9	7.6	6.9
PARKERSBURG	68	7.3	6.8	6.4	6.0	5.5	5.2	5.0	5.1	4.8	5.1	6.6	7.3	5.9
WIS. GREEN BAY	69	6.8	6.5	6.4	6.4	6.4	6.2	5.6	5.7	5.9	6.3	7.2	7.1	6.4
MILWAUKEE	58	6.5	6.3	6.3	6.0	5.7	5.5	4.5	4.8	5.1	5.5	6.5	6.7	5.8
WYO. CHEYENNE	56	4.8	5.0	5.7	6.2	6.3	5.3	4.8	5.0	4.5	4.4	5.0	5.1	5.2
LANDER	64	4.7	4.8	5.3	5.6	5.5	4.5	4.1	4.0	4.0	4.3	4.9	4.7	4.7
SHERIDAN	15	6.5	6.7	6.9	6.6	6.6	5.8	3.9	4.1	4.7	5.1	6.4	6.6	5.8
YELLOWSTONE	35	6.9	6.4	6.4	6.1	6.3	5.4	4.3	4.3	4.9	5.4	6.4	6.8	5.8
P.R. SAN JUAN	57	4.9	4.5	4.5	5.0	5.8	5.8	5.5	5.1	5.8	5.4	5.2	5.1	5.2
VIRGIN ISLANDS, ST. CROIX	6	5.6	5.8	5.7	5.9	7.2	6.9	7.0	6.1	7.0	6.5	6.0	5.8	6.3

* SUN BELOW HORIZON.

BASED ON PERIOD OF RECORD THROUGH DECEMBER 1959, EXCEPT IN A FEW INSTANCES. VALUES ARE IN TENTHS; (10.0 WOULD BE COMPLETE SKY COVERAGE). DERIVED FROM "NORMALS, MEANS, AND EXTREMES" TABLE IN U. S. WEATHER BUREAU PUBLICATION LOCAL CLIMATOLOGICAL DATA.

GPO 906974

APPENDIX B
WEATHER SUMMARIES FOR SELECTED STATIONS

A UNITED STATES DEPARTMENT OF COMMERCE PUBLICATION

LOCAL CLIMATOLOGICAL DATA
ANNUAL SUMMARY WITH COMPARATIVE DATA

YUMA, ARIZONA

1971

U.S. DEPARTMENT OF COMMERCE NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION ENVIRONMENTAL DATA SERVICE

NARRATIVE CLIMATOLOGICAL SUMMARY

The climate of Yuma is definitely a desert product. During the winters, home-heating is necessary from late October until the 10th of April; but work or play can be conducted comfortably out-of-doors from about 10 a.m. to 5 p.m. during the winter, which is a period of mostly clear skies and abundant sunshine. Frosts are not uncommon in the nearby valleys and must be expected occasionally on higher lands.

In the period from November 1 to April 1 there are, on the average, 16 daylight hours with rain, a little more than three a month. There are places in the world where more rain has fallen in a single year than has fallen at Yuma during the past 90 years.

The sun does not shine all of every day, but it comes nearer doing so at Yuma than any other place in the United States for which we have records. Even in December and January the lower Colorado River Valley averages better than eight hours of sunshine a day.

The summers in this country are long and hot. Afternoon temperatures reach 100°, on the average, from June 5 to September 23, and 105° from June 29 to August 19. An extreme of 120° has been reached four times and the absolute high of 123° was registered on September 1, 1950.

The hot air, ballooning upwards, draws in moisture-laden air from the Gulf of Lower California. Water content of the air from mid-July to mid-September is higher than might be expected over a desert area. This condition results from the relative nearness to the Gulf of Lower California. Evaporative coolers are very effective for cooling purposes during all the months except July, August, and September, during which months the wet bulb temperatures are frequently between 75° and 80° -- a condition that makes the ordinary water cooler somewhat ineffective.

EXTREME WEATHER CONDITIONS RECORDED AT YUMA ARE INDICATED BELOW.

The greatest number of consecutive days with:

Maximum temperature 90° or higher, 152 in 1956.
Maximum temperature 100° or higher, 101 in 1937.
Maximum temperature 110° or higher, 14 in 1955.
Minimum temperature 32° or lower, 8 in 1913.
Minimum temperature 80° or higher, 30 in 1959.
Rainfall 0.01 inch or more, 7 in 1897.
No rainfall as great as 0.01 inch, from December 29, 1879, to December 15, 1880, 351 days.

Other statistics show:

Yuma's warmest day with a mean temperature of 103.5° was recorded on July 31, 1957.

Warmest month was July 1959 with a mean temperature of 96.7°. The average maximum was 109.4°, and the minimum temperature averaged 83.9°.

Warmest year was 1958 with a mean temperature of 76.3°. The average maximum temperature was 90.6°, and the minimum averaged 61.9°.

Coldest day was January 6, 1913, with a mean temperature of 31°. The maximum temperature reading was 38° and the minimum temperature was 24°.

Coldest month was January 1937 with an average of 44.9°. The maximum temperature averaged 55.9°, and the minimum 33.9°.

Coldest year was 1909 with an average of 70.4°+. The average maximum was 85.7° and the minimum 55.2°.

Highest temperature ever recorded at Yuma was 123° on September 1, 1950.

Lowest temperature ever recorded at Yuma was 22° on January 24, 1937, December 26, 1911, and January 20, 1883.

Wettest year on record, 1905 with 11.41 inches of rainfall.

Driest year on record, 1956 with 0.30 inch of rainfall.

Snow entries in the records indicate a trace in December 1932, January 1937, and December 1967.

METEOROLOGICAL DATA FOR THE CURRENT YEAR

Station: YUMA, ARIZONA — MCAS/YUMA INTL AIRPORT — Standard time used: MOUNTAIN — Latitude: 32° 40' N — Longitude: 114° 36' W — Elevation (ground): 194 feet — Year: 1971

Month	Temperature: Averages: Daily maximum	Daily minimum	Monthly	Extremes: Highest	Date	Lowest	Date	Degree days (Base 65°): Heating	Cooling	Precipitation: Total	Greatest in 24 hrs.	Date	Snow, Ice pellets: Total	Greatest in 24 hrs.	Date	Relative humidity (Local time): Hour 05	Hour 11	Hour 17	Hour 23	Wind & Resultant: Direction	Speed	Average speed	Fastest mile: Speed	Direction #	Date	Percent of possible sunshine	Average sky cover sunrise to sunset	Number of days: Sunrise to sunset: Clear	Partly cloudy	Cloudy	Precipitation .01 inch or more	Snow, Ice pellets 1.0 inch or more	Thunderstorms	Heavy fog	Temperatures: Maximum ‡ 90° and above	32° and below	Minimum 32° and below	0° and below	Average daily solar radiation - langleys
JAN	68.1	41.4	54.8	88	19	24	8	331	22	0.04	0.04	2	0.0	0.0		47	32	22	38	36	4.7	7.3	27	NW	3	87	3.8	17	6	8	1	0	0	1	0	0	5	0	
FEB	72.5	43.9	58.2	86	11	37	7	195	11	0.03	0.03	17	0.0	0.0		52	29	20	42	32	2.8	7.9	32	NW	19	88	2.3	20	6	2	1	0	0	0	0	0	0	0	
MAR	79.9	48.0	64.0	96	30+	34	3+	105	84	0.00	0.00		0.0	0.0		43	21	15	30	32	3.0	7.5	34	N	1	91	2.6	22	6	3	0	0	0	0	3	0	0	0	
APR	81.9	52.8	67.4	95	13	46	22	36	116	0.17	0.17	14-15	0.0	0.0		52	28	21	41	26	3.1	8.3	42	W	17	93	1.4	25	4	1	2	0	0	0	8	0	0	0	
MAY	86.8	59.3	73.1	98	25+	51	29	4	259	T	T	6	0.0	0.0		51	29	20	38	25	3.3	8.3	31	N	17	89	1.9	24	3	4	0	0	0	0	14	0	0	0	
JUN	99.9	69.0	84.5	112	21	56	3	0	589	0.00	0.00		0.0	0.0		45	24	15	31	21	4.5	7.6	25	S	23	97	.7	28	2	0	0	0	0	0	26	0	0	0	
JUL	106.2	79.5	92.9	113	11	70	1	0	868	T	T	31 +	0.0	0.0		53	33	21	38	17	7.9	10.0	33	SE	28	93	2.9	18	10	3	0	0	1	0	31	0	0	0	
AUG	101.0	80.2	90.6	108	1	75	21	0	799	0.80	0.55	21-22	0.0	0.0		68	45	36	55	16	6.7	9.2	36	E	4	85	3.9	15	12	4	5	0	5	0	31	0	0	0	
SEP	98.9	72.5	85.7	114	12	57	28	0	627	1.27	1.27	29	0.0	0.0		56	36	21	43	17	1.2	7.2	26	NW	18	93	1.5	25	4	1	1	0	1	0	26	0	0	0	
OCT	81.3	56.6	69.0	98	10	35	30	76	205	T	T	25 +	0.0	0.0		57	33	26	46	35	2.4	7.3	28	NE	5	88	1.7	26	2	3	0	0	1	0	11	0	0	0	
NOV	73.6	46.5	60.1	84	11+	39	17	155	15	0.00	0.00		0.0	0.0		56	33	25	47	35	3.2	6.6	24	W	29	79	3.5	16	7	7	0	0	0	0	0	0	0	0	
DEC	62.4	40.5	51.5	75	25	31	12	415	0	0.15	0.10	4	0.0	0.0		65	44	34	56	35	3.4	7.0	28	NW	31	74	4.1	16	7	8	4	0	0	0	0	0	2	0	
YEAR	84.4	57.5	71.0	114	SEP. 12	24	JAN. 8	1317	3595	2.46	1.27	SEP. 29	0.0	0.0		54	32	23	42	25	0.9	7.9	42	W	APR. 17	89	2.5	252	69	44	14	0	8	1	150	0	7	0	

NORMALS, MEANS, AND EXTREMES

Month	Temperature: Normal: Daily maximum	Daily minimum	Monthly	Extremes Ø: Record highest	Year	Record lowest	Year	Normal heating degree days (Base 65°)	Precipitation: Normal total	Maximum monthly	Year	Minimum monthly	Year	Maximum in 24 hrs.	Year	Snow, Ice pellets: Mean total	Maximum monthly	Year	Maximum in 24 hrs.	Year	Relative humidity (Local time): Hour 05	Hour 11	Hour 17	Hour 23	Wind & Mean speed	Prevailing direction	Fastest mile: Speed	Direction #	Year	Pct. of possible sunshine	Mean sky cover sunrise to sunset	Mean number of days: Sunrise to sunset: Clear	Partly cloudy	Cloudy	Precipitation .01 inch or more	Snow, Ice pellets 1.0 inch or more	Thunderstorms	Heavy fog	Temperatures: Max. ‡ 90° and above	32° and below	Min. 32° and below	0° and below	Average daily solar radiation - langleys
(a)	(b)	(b)	(b)	7		7		(b)	(b)	21		21		21		21	21		21		7	7	7	7	21	13	21	21		21	21	21	21	21	21	21	21	7	7	7	7	
J	66.8	40.0	53.4	88	1971	24	1971	363	0.39	1.29	1955	T	1970+	0.56	1955	0.0	0.0		0.0		57	39	27	47	7.3	N	41	NW	1964	84	4.2	16	7	8	2	0	0	*	0	0	1	0	
F	71.1	43.4	57.3	89	1968	31	1965	228	0.36	1.82	1958	0.00	1967	1.34	1958	0.0	0.0		0.0		55	34	23	44	7.5	N	50	W	1964	88	3.6	16	6	6	1	0	0	*	0	0	*	0	
M	78.0	48.0	63.0	98	1966	34	1971	130	0.24	0.82	1970	0.00	1971+	0.61	1970	0.0	0.0		0.0		51	28	19	39	7.9	WNW	43	N	1956	92	3.5	18	7	6	2	0	0	*	0	0	0	0	
A	86.1	55.0	70.6	102	1965	42	1967	29	0.09	1.20	1965	0.00	1962+	1.08	1965	0.0	0.0		0.0		47	25	17	38	8.4	W	47	NW	1954	94	2.4	21	5	4	1	0	0	*	0	0	0	0	
M	93.9	62.1	78.0	109	1970	46	1967	0	0.01	0.37	1965	0.00	1970+	0.37	1965	0.0	0.0		0.0		44	23	15	32	8.3	WNW	38	NW	1957	96	1.8	24	5	2	*	0	0	*	0	0	0	0	
J	101.9	70.0	86.0	116	1968	56	1971	0	0.01	0.02	1960	0.00	1971+	0.02	1960	0.0	0.0		0.0		44	24	14	31	8.5	SSE	42	SW	1966	98	1.1	26	3	1	*	0	*	0	27	0	0	0	
J	106.9	78.7	92.8	114	1970+	70	1971+	0	0.23	1.07	1958	T	1971+	1.06	1958	0.0	0.0		0.0		50	32	23	39	9.5	SSE	52	NE	1961	90	2.8	20	8	3	1	0	2	0	31	0	0	0	
A	104.9	78.3	91.6	115	1969	63	1968	0	0.50	1.31	1955	0.00	1956+	1.14	1970	0.0	0.0		0.0		59	37	27	46	9.0	SSE	54	S	1954	91	2.6	21	7	3	2	0	2	0	31	0	0	0	
S	101.1	71.5	86.3	114	1971	53	1965	0	0.38	2.47	1963	0.00	1968+	2.42	1963	0.0	0.0		0.0		57	33	23	45	7.1	SSE	42	SE	1969+	94	1.4	25	4	1	1	0	1	*	28	0	0	0	
O	89.5	59.4	74.5	104	1965+	35	1971	0	0.38	2.68	1957	0.00	1967+	2.09	1957	0.0	0.0		0.0		51	28	19	40	6.5	N	47	S	1964	93	2.0	24	5	2	1	0	1	0	16	0	0	0	
N	76.7	46.6	61.7	94	1966	33	1964	148	0.12	1.66	1969	0.00	1971+	1.42	1969	0.0	0.0		0.0		58	36	28	50	6.8	N	47	N	1957	86	3.1	19	5	6	1	0	0	*	*	0	0	0	
D	68.4	41.6	55.0	83	1966	27	1968	319	0.32	1.67	1965	0.00	1963+	1.37	1961	T	T	1967	T	1967	64	44	35	55	7.1	N	47	W	1959	82	3.7	17	6	8	2	0	*	1	0	0	1	0	
YR	87.1	57.9	72.5	116	JUN. 1968	24	JAN. 1971	1217	3.03	2.68	OCT. 1957	0.00	NOV. 1971+	2.42	SEP. 1963	T	T	DEC. 1967	T	DEC. 1967	53	32	22	42	7.8	N	54	S	AUG. 1954	91	2.7	247	68	50	15	0	7	1	165	0	2	0	

Ø For period April 1964 through the current year.
Means and extremes above are from existing and comparable exposures. Annual extremes have been exceeded at other sites in the locality as follows: Highest temperature 123 in September 1950; lowest temperature 22 in January 1937 and earlier date; maximum monthly precipitation 6.25 in August 1909; maximum precipitation in 24 hours 4.01 in August 1909; fastest mile of wind 56 from Northwest in March 1949.

(a) Length of record, years, based on January data. Other months may be for more or fewer years if there have been breaks in the record.
(b) Climatological standard normals (1931-1960).
* Less than one half.
\+ Also on earlier dates, months, or years.
T Trace, an amount too small to measure.
Below zero temperatures are preceded by a minus sign. The prevailing direction for wind in the Normals, Means, and Extremes table is from records through 1963.
‡ ≤ 70° at Alaskan stations.

Unless otherwise indicated, dimensional units used in this bulletin are: temperature in degrees F.; precipitation, including snowfall, in inches; wind movement in miles per hour; and relative humidity in percent. Heating degree day totals are the sums of negative departures of average daily temperatures from 65° F. Cooling degree day totals are the sums of positive departures of average daily temperatures from 65° F. Sleet was included in snowfall totals beginning with July 1948. The term "Ice pellets" includes solid grains of ice (sleet) and particles consisting of snow pellets encased in a thin layer of ice. Heavy fog reduces visibility to 1/4 mile or less.

Sky cover is expressed in a range of 0 for no clouds or obscuring phenomena to 10 for complete sky cover. The number of clear days is based on average cloudiness 0-3, partly cloudy days 4-7, and cloudy days 8-10 tenths.

Solar radiation data are the averages of direct and diffuse radiation on a horizontal surface. The langley denotes one gram calorie per square centimeter.

& Figures instead of letters in a direction column indicate direction in tens of degrees from true North; i.e., 09 - East, 18 - South, 27 - West, 36 - North, and 00 - Calm. Resultant wind is the vector sum of wind directions and speeds divided by the number of observations. If figures appear in the direction column under "Fastest mile" the corresponding speeds are fastest observed 1-minute values.

To 8 compass points only.

AVERAGE TEMPERATURE

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Annual
1932	50.8	58.6	65.8	70.4	77.0	83.8	90.8	90.9	86.9	72.8	64.7	50.7	71.9
1933	51.1	53.0	65.3	66.6	72.9	85.2	93.6	92.0	87.5	79.2	65.2	57.1	72.4
1934	57.5	62.6	73.0	76.0	81.8	81.2	93.0	91.8	85.6	76.2	63.8	57.8	75.0
1935	56.0	61.2	61.4	70.7	74.6	87.8	91.3	90.6	87.4	73.1	59.5	56.2	72.5
1936	55.4	59.6	67.5	73.8	80.6	88.0	93.0	93.0	85.1	74.0	63.8	56.0	74.1
1937	44.9	57.8	63.3	70.2	78.1	85.6	92.8	93.4	89.6	76.8	64.1	60.3	73.1
1938	58.5	58.2	62.2	70.8	77.4	85.2	90.6	90.4	87.5	73.2	59.0	57.9	72.6
1939	55.1	53.2	65.5	73.8	79.0	85.1	91.8	92.6	83.2	74.2	66.5	61.0	73.4
1940	59.2	59.6	67.8	72.2	81.7	88.0	91.6	92.1	85.3	75.6	61.0	59.0	74.4
1941	56.4	62.5	64.8	67.0	80.2	82.6	91.9	87.2	80.8	71.1	65.2	57.7	72.3
1942	58.2	57.5	69.0	68.1	76.3	84.8	94.2	91.0	84.7	75.4	65.8	59.0	73.2
1943	57.8	62.6	68.0	73.4	79.9	83.8	92.3	91.0	88.8	76.2	64.3	56.4	74.5
1944	55.6	55.4	63.2	68.0	76.8	80.6	89.6	92.0	86.8	75.8	60.2	57.4	71.8
1945	55.1	59.2	60.6	69.5	77.0	82.8	92.7	92.0	86.7	77.2	62.2	55.0	72.5
1946	56.0	56.9	63.6	74.6	77.4	86.8	91.6	92.9	87.0	70.4	59.9	58.5	73.0
1947	53.8	63.2	65.8	71.0	80.2	84.4	92.4	89.9	88.0	75.2	59.2	53.6	73.1
#1948	56.8	57.1	59.8	71.2	76.7	83.9	90.8	91.8	86.2	74.7	59.2	51.9	71.7
1949	46.8	55.2	63.2	74.9	78.4	88.8	93.6	92.8	92.2	73.8	69.8	54.8	73.7
#1950	52.7	63.2	67.4	75.5	78.1	86.6	91.8	93.6	85.6	81.5	69.5	63.0	75.7
1951	56.3	59.7	64.8	71.6	80.2	85.9	94.9	91.9	90.6	77.2	64.0	55.6	74.4
1952	53.8	59.4	60.2	72.0	84.1	85.6	93.9	94.9	90.4	82.9	61.1	55.4	74.5
1953	61.5	59.0	65.4	69.9	73.6	85.8	95.2	93.2	88.2	76.4	66.4	55.6	74.2
1954	56.6	66.6	63.1	76.4	81.2	85.8	94.3	90.8	88.9	77.9	67.5	56.4	75.4
1955	52.0	55.0	64.7	68.7	76.7	85.5	90.2	92.0	88.7	79.7	63.6	58.4	72.9
1956	59.0	54.7	65.8	70.1	79.2	89.0	91.9	90.9	91.9	74.8	63.4	57.8	74.0
1957	56.2	65.8	66.6	71.4	75.6	90.7	96.3	92.4	88.0	73.5	61.0	59.6	74.7
1958	58.1	63.0	61.9	72.5	84.9	88.6	94.1	94.9	89.4	81.0	64.4	62.1	76.3
1959	60.1	58.2	68.4	76.8	77.7	92.0	96.7	93.2	86.2	77.5	66.5	57.5	75.9
1960	53.0	58.1	69.8	74.2	79.7	92.3	95.8	94.2	89.8	76.3	64.8	56.1	75.4
1961	59.7	62.4	65.7	73.6	77.7	90.9	94.0	93.2	84.6	75.0	61.7	56.1	74.6
1962	56.8	60.2	61.3	77.4	76.2	86.2	93.3	95.9	89.1	77.0	68.0	59.8	75.1
1963	53.2	67.5	64.4	68.3	81.2	84.3	93.6	91.7	89.9	79.3	65.4	57.6	74.7
#1964	53.5	56.2	61.6	68.1	75.8	84.8	93.2	91.4	84.7	79.1	58.9	55.8	71.9
1965	56.6	58.4	61.2	69.7	75.8	81.0	92.4	92.5	82.4	77.6	65.0	54.4	72.2
1966	52.2	55.0	65.4	73.6	81.2	86.4	92.8	93.2	86.6	74.2	64.0	57.2	73.5
1967	55.1	60.6	65.3	63.2	77.4	83.1	93.9	93.3	84.4	76.7	66.9	52.4	72.7
1968	55.2	64.3	66.1	70.1	78.7	86.9	91.4	88.8	84.9	74.9	63.4	51.8	73.0
1969	59.6	56.9	62.8	71.0	80.3	83.4	93.4	95.9	88.8	71.6	63.8	56.5	73.7
1970	54.9	61.0	62.4	65.9	79.3	86.6	94.5	93.8	84.4	72.3	63.1	54.1	72.7
1971	54.8	58.2	64.0	67.4	73.1	84.5	92.9	90.6	85.7	69.0	60.1	51.5	71.0
RECORD MEAN	54.9	58.9	64.1	70.6	77.2	85.2	91.9	91.2	85.6	74.2	62.9	55.8	72.7
MAX	67.3	72.5	78.5	86.2	93.4	101.9	106.2	104.8	100.6	89.3	76.7	67.9	67.1
MIN	42.4	45.3	49.7	54.9	61.0	68.5	77.6	77.5	70.5	59.0	49.0	43.6	58.3

TOTAL DEGREE DAYS

YUMA, ARIZONA

Season	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	Total
1932-33	0	0	0	8	36	442	432	338	25	41	13	0	1335
1933-34	0	0	0	0	62	246	233	78	2	3	0	0	624
1934-35	0	0	0	0	119	228	288	130	134	10	0	0	909
1935-36	0	0	0	10	169	270	297	166	52	16	0	0	980
1936-37	0	0	0	0	74	281	623	200	87	8	0	0	1273
1937-38	0	0	0	0	60	148	206	191	104	14	0	0	723
1938-39	0	0	0	3	178	230	303	330	92	6	0	0	1142
1939-40	0	0	0	2	28	142	189	158	22	6	0	0	547
1940-41	0	0	0	4	136	190	267	80	40	36	0	0	753
1941-42	0	0	0	2	84	234	133	207	86	8	0	0	754
1942-43	0	0	0	4	40	187	224	100	5	22	0	0	582
1943-44	0	0	0	6	65	266	295	274	80	9	0	0	995
1944-45	0	0	0	0	169	237	307	164	154	59	0	0	1090
1945-46	0	0	0	0	121	314	275	226	81	9	0	0	1026
1946-47	0	0	0	14	157	206	343	71	42	13	0	0	846
1947-48	0	0	0	0	186	352	262	242	167	7	0	0	1216
#1948-49	0	0	0	7	181	406	562	277	84	10	0	0	1527
#1949-50	0	0	0	25	7	328	378	69	40	2	2	0	851
1950-51	0	0	0	0	32	82	273	168	74	9	2	0	640
1951-52	0	0	0	3	71	286	342	156	186	2	0	0	1046
1952-53	0	0	0	0	168	294	119	171	69	19	0	0	840
1953-54	0	0	0	1	74	283	258	40	87	0	0	0	543
1954-55	0	0	0	2	13	263	398	282	67	22	2	0	1049
1955-56	0	0	0	0	96	202	178	292	72	25	0	0	865
1956-57	0	0	0	13	103	214	265	67	31	13	0	0	706
1957-58	0	0	0	0	125	162	205	62	106	28	0	0	688
1958-59	0	0	0	0	88	106	151	188	9	0	0	0	542
1959-60	0	0	0	16	34	231	362	195	13	8	0	0	859
1960-61	0	0	0	0	59	269	159	73	38	0	0	0	598
1961-62	0	0	0	18	118	266	253	138	149	0	0	0	942
1962-63	0	0	0	0	36	165	359	28	74	28	0	0	690
#1963-64	0	0	0	0	63	222	349	249	140	38	19	0	1080
1964-65	0	0	0	0	199	278	258	190	126	64	1	0	1116
1965-66	0	0	0	0	65	321	390	273	71	3	0	0	1123
1966-67	0	0	0	0	82	249	299	126	56	70	1	0	883
1967-68	0	0	0	0	37	385	296	69	41	14	0	0	842
1968-69	0	0	0	0	67	403	167	219	146	3	9	0	1014
1969-70	0	0	0	3	67	257	306	116	108	53	0	0	910
1970-71	0	0	0	4	75	333	331	195	105	36	4	0	1083
1971-72	0	0	0	76	155	415							

TOTAL PRECIPITATION

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Annual
1932	T	1.06	0.00	T	0.00	T	1.36	T	0.03	3.39	T	0.51	6.35
1933	1.16	0.12	0.00	0.91	0.01	T	T	0.27	0.20	0.78	0.02	0.09	3.56
1934	0.03	0.18	0.18	0.00	0.00	T	T	0.74	T	0.00	0.54	0.65	2.32
1935	0.74	0.66	0.11	0.01	T	0.00	T	0.59	0.84	0.00	0.03	0.30	3.28
1936	0.24	0.18	T	0.00	0.00	T	0.18	0.11	0.02	T	0.42	0.14	1.29
1937	0.14	0.08	1.47	0.00	T	0.09	0.46	T	1.71	0.00	0.00	0.35	4.30
1938	0.07	0.58	0.61	T	0.00	T	0.18	0.25	0.35	T	0.00	0.88	2.92
1939	0.91	0.19	0.01	T	0.00	0.00	0.11	0.12	5.13	T	0.19	0.00	6.66
1940	0.04	0.25	0.21	0.00	0.00	T	T	0.10	0.53	0.41	T	0.79	2.33
1941	0.83	0.50	1.54	0.28	0.00	0.00	0.17	2.16	0.08	0.36	0.37	0.42	6.71
1942	0.19	0.84	0.17	T	0.00	0.00	0.08	1.08	0.00	0.04	0.00	0.01	2.41
1943	0.33	T	0.27	T	0.00	T	T	1.29	0.04	0.03	0.00	0.46	2.42
1944	0.20	1.25	0.20	T	T	0.00	0.00	0.00	0.21	0.64	1.22	0.35	4.07
1945	0.37	1.05	0.39	T	0.00	0.00	0.09	1.61	T	0.54	0.00	0.05	4.10
1946	0.07	T	T	T	0.00	0.00	0.44	0.19	0.55	T	0.12	0.88	2.25
1947	0.00	T	0.18	T	T	0.00	T	0.57	0.17	T	T	0.11	1.03
#1948	0.00	0.02	0.17	0.00	0.00	0.07	0.22	T	0.02	1.07	0.00	0.26	1.83
1949	2.83	0.02	0.04	T	0.32	0.00	0.13	T	T	0.35	T	0.29	3.98
#1950	0.05	0.16	T	T	0.00	0.00	0.76	T	0.45	0.00	T	T	1.42
1951	0.39	T	T	0.40	T	0.00	0.55	1.13	T	0.27	0.10	0.11	2.95
1952	0.34	0.26	0.62	0.34	0.00	T	0.02	0.00	T	0.00	0.37	0.97	2.92
1953	0.01	0.10	0.18	T	0.00	T	T	0.02	0.00	T	T	T	0.31
1954	0.05	0.05	0.25	0.00	T	T	0.10	0.02	T	0.12	0.02	T	0.61
1955	1.29	0.01	0.00	0.00	0.00	0.00	0.34	1.31	0.00	T	T	T	2.95
1956	0.04	0.06	0.00	T	0.00	T	0.20	0.00	T	T	0.00	0.00	0.30
1957	0.66	0.05	0.27	0.10	0.00	0.00	T	1.03	0.00	2.68	T	0.05	4.84
1958	T	1.82	0.34	0.01	0.05	T	1.07	0.08	T	0.57	0.08	0.00	4.02
1959	0.02	0.22	T	0.01	0.03	0.00	0.11	0.11	0.02	0.03	0.01	1.07	1.63
1960	0.74	0.07	0.03	T	0.01	0.02	T	0.01	0.42	T	T	0.12	1.42
1961	0.24	T	0.01	0.00	T	T	0.02	0.39	0.00	T	0.08	1.43	2.17
1962	0.48	0.05	0.17	0.00	T	T	T	T	T	0.05	0.04	0.37	1.16
1963	0.50	0.13	0.16	T	0.00	0.00	0.05	0.06	2.47	0.92	0.19	0.00	4.48
1964	T	0.14	T	0.78	T	0.00	0.02	0.49	T	0.24	0.22	0.09	1.98
1965	0.56	0.38	0.04	1.20	0.37	0.00	0.03	0.02	0.00	0.00	0.58	1.67	4.85
1966	0.41	0.17	0.06	T	0.00	T	0.20	0.08	0.04	0.03	T	0.02	1.01
1967	0.25	0.00	0.07	T	T	T	0.01	0.37	1.97	0.00	1.45	0.65	4.77
1968	T	0.27	0.33	T	0.00	0.00	0.91	0.10	0.00	T	T	0.06	1.67
1969	0.68	0.03	0.02	0.08	0.05	0.00	T	T	0.23	0.01	1.66	0.67	3.43
1970	T	0.56	0.82	T	0.00	0.00	T	1.21	0.02	0.02	0.02	0.01	2.66
1971	0.04	0.03	0.00	0.17	T	0.00	T	0.80	1.27	T	0.00	0.15	2.46
RECORD MEAN	0.42	0.39	0.30	0.11	0.03	0.01	0.20	0.54	0.40	0.28	0.24	0.47	3.39

TOTAL SNOWFALL

Season	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	Total

Record mean values above (not adjusted for instrument location changes listed in the Station Location table) are means for the period beginning in 1879 for temperature and 1876 for precipitation.

# Indicates a break in the data sequence during the year, or season, due to a station move or relocation of instruments. See Station Location table. Data are from City Office locations through 1948 and from Airport locations thereafter.

STATION LOCATION

YUMA, ARIZONA

Location	Occupied from	Occupied to	Airline distance and direction from previous location	Latitude North	Longitude West	Elevation above Sea level: Ground at temperature site	Elevation above Ground: Wind instruments	Extreme thermometers	Psychrometer	Telepsychrometer	Tipping bucket rain gage	Weighing rain gage	8" rain gage	Hygrothermometer	Elevation above Sea level: Sunshine Switch	Remarks
CITY																
Fort Yuma (Present Indian School Hill)	11/18/73	7/07/85		32° 44'	114° 37'								a21			a - 26 feet to 1882.
Quartermaster Building Fort Yuma, North end of Second Avenue	7/07/85	7/1891	1/2 mi.WSW	32° 44'	114° 37'	138	50	b16	b16				c2			b - 5' to 1889. c - 21' to 1886; 22' to 1888; 1' to 1890.
Quartermaster Building Fort Yuma, North end of Second Avenue	7/1891	8/26/49	No change	32° 44'	114° 37'	138	d57	e9	e9		3		2		55	d - 50' to 1903; 47' to 1904; 46' to 1905; 58' to 1941. e - 16' to 1908. Tipping bucket installed 1922; Sunshine Switch 1909. Maximum and minimum temperatures and precipitation only after 9/7/48.
AIRPORT																
Yuma Army Airfield 4 miles SSE of Post Office	8/1929	2/1935		32° 40'	114° 36'	203										
Yuma Army Airfield South wing of Room T-114	12/02/42	1/09/46	1 mi. SSE	32° 39'	114° 35'	203	64	19	19				14			
Yuma Army Airfield East wing of Room T-114	1/11/46	9/07/48		32° 39'	114° 35'	203	24	4	4				4			
Yuma Army Airfield South wing of Room T-114	9/07/48	7/01/50		32° 39'	114° 35'	203	23	4	4		14		14		19	
Administration Building Marine Corps Air Station Yuma International AP (Yuma County Airport to October 1962)	7/01/50	Present	1 mi. NNW	32° 40'	114° 36'	i194	f20	4	4	h4	4		4		17	f - 27' until remoted to field site 1/19/58. g - Installed 3/21/58. h - Commissioned 810' NW of thermometer site 3/24/64. i - 199' to 3/24/64.

Requests for additional information should be directed to the National Weather Service Office for which this summary was issued.

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U.S. DEPARTMENT OF COMMERCE
NATIONAL CLIMATIC CENTER
FEDERAL BUILDING
ASHEVILLE, N.C. 28801

A UNITED STATES DEPARTMENT OF COMMERCE PUBLICATION

LOCAL CLIMATOLOGICAL DATA
ANNUAL SUMMARY WITH COMPARATIVE DATA

PHOENIX, ARIZONA

1971

U.S. DEPARTMENT OF COMMERCE NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION ENVIRONMENTAL DATA SERVICE

NARRATIVE CLIMATOLOGICAL SUMMARY

Phoenix is located in about the center of the Salt River Valley, a broad, oval-shaped, nearly flat plain. The Salt River runs from east to west through the valley but, owing to impounding dams upstream, it is usually dry. The climate is of a desert type with low annual rainfall and low relative humidity. Daytime temperatures are high throughout the summer months. The winters are mild. Nighttime temperatures frequently drop below freezing during the three coldest months, but afternoons are usually sunny and warm.

At an elevation of about 1100 feet, the station is in a level or gently sloping valley running east and west. The Salt River Mountains are located about 6 miles to the south and rise to 2600 feet m.s.l. The Phoenix Mountains lie 8 miles to the north-northwest and have a maximum elevation of 2300 feet m.s.l. Eighteen miles to the southwest lies the 3300-foot Estrella Mountain, and 25 miles to the west are found the White Tank Mountains with an elevation of 4000 feet m.s.l. The Superstition Mountains are approximately 40 miles to the east and rise to 4600 feet m.s.l.

The central floor of the Salt River Valley is irrigated by water from dams built on the Salt River system. To the north and west of the gravity flow irrigated district there is considerable agricultural land irrigated by pump water. There is no evidence that the irrigation has in any way affected the relative humidity in the valley. The average daytime relative humidity is about 30 percent based on observations at 11:00 a.m. and 5:00 p.m.

There are two separate rainfall seasons. The first occurs during the winter months from November to March when the area is subjected to occasional storms from the Pacific Ocean. While this is classed as a rainfall season, there can be periods of a month or more in this or any other season when practically no precipitation occurs. Snowfall occurs very rarely in the Salt River Valley, while light snows occasionally fall in the higher mountains surrounding the valley. The second rainfall period occurs during July and August when Arizona is subjected to widespread thunderstorm activity whose moisture supply originates in the Gulf of Mexico. These thunderstorms are extremely variable in intensity and location.

The spring and fall months are generally dry, although precipitation in substantial amounts has fallen on occasion during every month of the year.

Since the Phoenix area is primarily agricultural, minimum temperatures and their variation over the valley have been studied closely. During the winter months the temperature is marginal for some types of crops, such as citrus. Areas with milder temperatures around the edges of the valley are utilized by these crops. However, the valley is subject to occasional killing and hard freezes in which no area escapes damage.

The valley floor, in general, is rather free of wind. During the spring months southwest and west winds predominate and are associated with the passage of low pressure throughs. During the thunderstorm season there are often local gusty winds, usually flowing from an easterly direction. Throughout the year there are periods, often several days in length, in which winds remain under 10 miles an hour.

Sunshine in the Phoenix area averages 86 percent of the possible amount, ranging from a minimum monthly average of 77 percent in January and December to a maximum of 94 percent in June. During the winter, skies are sometimes cloudy, but clear skies predominate and temperatures are mild. During the spring, skies are also predominately clear with warm temperatures during the day and mild pleasant evenings. Beginning with June, daytime weather is hot. During July and August, there is often considerable afternoon cloudiness associated with cumulus clouds building up over the nearby mountains. Summer thundershowers seldom occur in the valley before evening.

The autumn season, beginning during the latter part of September, is characterized by sudden changes in temperature. The change from the heat of summer to mild winter temperatures usually occurs during October. The normal temperature change from the beginning to the end of this month is the greatest of any of the twelve months in central Arizona. By November, the mild winter season is definitely established in the Salt River Valley region.

METEOROLOGICAL DATA FOR THE CURRENT YEAR

Station: PHOENIX, ARIZONA — SKY HARBOR AIRPORT — Standard time used: MOUNTAIN — Latitude: 33° 26' N — Longitude: 112° 01' W — Elevation (ground): 1117 feet — Year: 1971

Month	Temperature: Averages: Daily maximum	Daily minimum	Monthly	Extremes: Highest	Date	Lowest	Date	Degree days (Base 65°): Heating	Cooling	Precipitation: Total	Greatest in 24 hrs.	Date	Snow, Ice pellets: Total	Greatest in 24 hrs.	Date	Relative humidity: Hour 05	Hour 11 (Local time)	Hour 17 (Local time)	Hour 23 (Local time)	Wind &: Resultant: Direction	Resultant: Speed	Average speed	Peak gust: Speed	Peak gust: Direction	Peak gust: Date	Percent of possible sunshine	Average sky cover sunrise to sunset	Number of days: Sunrise to sunset: Clear	Partly cloudy	Cloudy	Precipitation .01 inch or more	Snow, Ice pellets 1.0 inch or more	Thunderstorms	Heavy fog	Temperatures: Maximum: 90° and above	‡ 32° and below	Minimum: 32° and below	0° and below	Average daily solar radiation - langleys
JAN	68.1	36.2	52.2	88	19	19	7	396	7	0.22	0.22	2	0.0	0.0		57	32	21	43	11	1.7	6.1	28	W	2	91	2.8	22	3	6	1	0	0	0	0	0	7	0	299
FEB	71.0	41.5	56.3	84	13+	31	28	241	2	0.35	0.34	17-18	0.0	0.0		44	27	17	35	14	0.9	8.2	46	WNW	3	89	2.9	16	8	4	3	0	1	0	0	0	2	0	383
MAR	80.0	46.5	63.3	95	29	30	2	123	76	T	T	13	0.0	0.0		32	15	10	22	21	0.9	7.5	39	W	13	95	2.6	20	8	3	0	0	0	0	5	0	2	0	507
APR	81.4	51.6	66.5	94	13	44	19	53	107	0.13	0.13	15	0.0	0.0		38	21	14	26	22	1.0	7.7	39	WSW	17	89	2.1	21	6	3	1	0	0	0	6	0	0	0	564
MAY	87.6	58.9	73.3	97	26+	51	5	0	265	T	T	28 +	0.0	0.0		35	18	14	22	23	1.5	8.9	46	NE	12	93	2.4	23	4	4	0	0	0	0	15	0	0	0	635
JUN	101.0	69.5	85.3	111	22	56	3	0	614	0.00	0.00		0.0	0.0		31	15	11	18	26	2.4	8.1	36	W	2	94	1.6	23	4	3	0	0	1	0	28	0	0	0	636
JUL	107.3	82.5	94.9	114	11	72	1	0	934	0.24	0.14	16	0.0	0.0		39	24	17	27	27	3.6	9.4	51	SE	31	89	3.0	19	9	3	2	0	4	0	31	0	0	0	631
AUG	100.5	78.7	89.6	106	31+	72	13+	0	773	0.99	0.30	3	0.0	0.0		64	40	30	46	19	1.4	8.0	46	ESE	12	75	4.4	6	24	1	7	0	12	0	30	0	0	0	548
SEP	99.0	72.1	85.6	110	12+	59	20	0	623	0.92	0.69	29	0.0	0.0		47	29	21	34	12	1.8	8.0	52	SE	1	90	1.7	24	5	1	3	0	2	0	27	0	0	0	494
OCT	81.7	56.9	69.3	95	13	34	30	79	220	0.27	0.21	16-17	0.0	0.0		59	33	25	44	13	2.5	8.6	39	S	24	81	2.9	19	7	5	3	0	1	0	12	0	0	0	390
NOV	73.6	45.7	59.7	88	11	37	18+	185	30	T	T	29 +	0.0	0.0		59	35	23	45	11	2.4	5.7	25	ENE	19	75	4.2	17	4	9	0	0	0	0	0	0	0	0	289
DEC	61.1	39.3	50.2	76	25+	28	12	455	0	0.47	0.24	7	0.0	0.0		73	58	38	62	12	2.4	6.2	28	ENE	17	68	5.1	13	6	12	6	0	0	0	0	0	6	0	224
YEAR	84.4	56.6	70.5	114	JUL. 11	19	JAN. 7	1532	3651	3.59	0.69	SEP. 29	0.0	0.0		48	29	20	35	17	0.9	7.7	52	SE	SEP. 1	86	3.0	223	88	54	26	0	21	0	154	0	17	0	467

NORMALS, MEANS, AND EXTREMES

Month	Temperature: Normal: Daily maximum	Daily minimum	Monthly	Extremes: Record highest	Year	Record lowest	Year	Normal heating degree days (Base 65°)	Precipitation: Normal total	Maximum monthly	Year	Minimum monthly	Year	Maximum in 24 hrs.	Year	Snow, Ice pellets: Mean total	Maximum monthly	Year	Maximum in 24 hrs.	Year	Relative humidity: Hour 05 (Local time)	Hour 11 (Local time)	Hour 17 (Local time)	Hour 23 (Local time)	Wind &: Mean speed	Prevailing direction	Peak gust Ø: Speed	Direction	Year	† Pct. of possible sunshine	$ Mean sky cover sunrise to sunset	Mean number of days: Sunrise to sunset: Clear	Partly cloudy	Cloudy	Precipitation .01 inch or more	Snow, Ice pellets 1.0 inch or more	Thunderstorms	Heavy fog	Temperatures: Max.: 90° and above	‡ 32° and below	Min.: 32° and below	0° and below	Average daily solar radiation - langleys
(a)	(b)	(b)	(b)	11		11		(b)	(b)	34		34		34		34	34		34		11	11	11	11	26	18	34	34		76	26	34	34	34	32	34	32	34	11	11	11	11	22
J	64.0	35.3	49.7	88	1971	19	1971	474	0.73	2.41	1955	0.00	1948	1.31	1951	T	T	1962+	T	1962+	67	44	31	57	4.9	E	49	WNW	1965	78	4.8	14	7	10	4	0	*	1	0	0	7	0	296
F	68.1	38.9	53.5	89	1963	26	1964	328	0.85	2.23	1944	0.00	1967	1.07	1944	T	0.6	1939	0.6	1939	61	39	27	50	5.5	E	49	SSE	1959	80	4.3	13	6	9	4	0	1	*	0	0	3	0	397
M	75.0	42.9	59.0	95	1971	25	1966	217	0.66	4.16	1941	0.00	1959+	1.32	1941	0.0	0.0		0.0		59	33	23	44	6.2	E	50	WNW	1956	83	4.3	15	7	9	3	0	1	*	1	0	1	0	513
A	83.9	50.4	67.2	101	1962	37	1968	75	0.32	2.10	1941	0.00	1962+	1.38	1941	T	T	1949	T	1949	46	24	16	30	6.5	E	45	NW	1957+	88	3.5	17	7	6	2	0	1	0	7	0	0	0	629
M	92.9	57.1	75.0	108	1970+	40	1967+	0	0.13	0.94	1944	0.00	1952+	0.94	1944	0.0	0.0		0.0		37	18	13	22	6.6	E	59	SSE	1954	93	2.7	21	6	4	1	0	*	0	22	0	0	0	704
J	101.6	65.5	83.6	116	1970	51	1965	0	0.09	0.95	1955	0.00	1971+	0.94	1955	0.0	0.0		0.0		36	18	13	22	6.6	E	47	SW	1965	94	1.8	23	5	2	1	0	1	0	28	0	0	0	712
J	104.6	75.0	89.8	114	1971+	67	1968+	0	0.77	4.19	1955	T	1947	1.97	1955	0.0	0.0		0.0		47	29	20	34	6.9	W	71	N	1959	84	3.8	16	11	4	4	0	6	0	31	0	0	0	640
A	101.6	73.4	87.5	114	1969	61	1968+	0	1.12	5.56	1951	0.02	1967	3.07	1943	0.0	0.0		0.0		57	36	25	43	6.3	E	60	SSW	1953	85	3.5	17	10	4	5	0	8	0	31	0	0	0	590
S	98.2	67.3	82.8	110	1971	47	1965	0	0.73	4.23	1939	0.00	1968+	2.43	1970	0.0	0.0		0.0		55	33	24	43	6.0	E	75	SW	1950	89	2.1	22	5	3	3	0	3	0	27	0	0	0	534
O	86.7	54.6	70.7	102	1963	34	1971	22	0.46	2.66	1957	0.00	1952+	1.47	1959	0.0	0.0		0.0		53	28	20	42	5.5	E	48	SSW	1956	88	2.6	21	6	4	3	0	1	0	14	0	0	0	435
N	73.7	42.4	58.1	92	1967	31	1966	234	0.49	3.04	1952	0.00	1956+	1.07	1952	0.0	0.0		0.0		61	38	29	53	5.0	E	45	WSW	1963+	84	3.5	18	6	6	2	0	*	*	0	*	0	0	324
D	66.1	37.0	51.6	82	1965	24	1968	415	0.85	3.98	1967	0.00	1958	1.89	1967	T	T	1968+	T	1968+	70	49	36	61	4.8	E	68	W	1953	77	4.0	15	6	10	4	0	1	1	0	0	4	0	267
YR	84.7	53.3	69.0	116	JUN. 1970	19	JAN. 1971	1765	7.20	5.56	AUG. 1951	0.00	JUN. 1971+	3.07	AUG. 1943	T	0.6	FEB. 1939	0.6	FEB. 1939	54	32	23	42	5.9	E	75	SW	SEP. 1950	86	3.4	212	82	71	35	0	23	2	161	0	15	0	503

Ø Peak Gust observed during Airway observational program from January 1938 through October 1953; from recorder charts thereafter.
† Combined record from Post Office, August 1895 through October 1953, and from Sky Harbor Airport, November 1953 to date.
$ Broken record: 1940, 1941, and 1948 to date.
Means and extremes above are from existing and comparable exposures. Annual extremes have been exceeded at other sites in the locality as follows:
Highest temperature 118 in July 1958+; lowest temperature 16 in January 1913; maximum monthly precipitation 6.47 in July 1911; maximum precipitation in 24 hours 4.98 in July 1911; maximum monthly snowfall 1.0 in January 1937 and earlier; maximum snowfall in 24 hours 1.0 in January 1937 and earlier.

(a) Length of record, years, based on January data. Other months may be for more or fewer years if there have been breaks in the record.
(b) Climatological standard normals (1931-1960).
* Less than one half.
\+ Also on earlier dates, months, or years.
T Trace, an amount too small to measure.
Below zero temperatures are preceded by a minus sign.
The prevailing direction for wind in the Normals, Means, and Extremes table is from records through 1963.
‡ ≷ 70° at Alaskan stations.

Unless otherwise indicated, dimensional units used in this bulletin are: temperature in degrees F.; precipitation, including snowfall, in inches; wind movement in miles per hour; and relative humidity in percent. Heating degree day totals are the sums of negative departures of average daily temperatures from 65° F. Cooling degree day totals are the sums of positive departures of average daily temperatures from 65° F. Sleet was included in snowfall totals beginning with July 1948. The term "ice pellets" includes solid grains of ice (sleet) and particles consisting of snow pellets encased in a thin layer of ice. Heavy fog reduces visibility to 1/4 mile or less.

Sky cover is expressed in a range of 0 for no clouds or obscuring phenomena to 10 for complete sky cover. The number of clear days is based on average cloudiness 0-3, partly cloudy days 4-7, and cloudy days 8-10 tenths.

Solar radiation data are the averages of direct and diffuse radiation on a horizontal surface. The langley denotes one gram calorie per square centimeter.

& Figures instead of letters in a direction column indicate direction in tens of degrees from true North; i.e., 09 - East, 18 - South, 27 - West, 36 - North, and 00 - Calm. Resultant wind is the vector sum of wind directions and speeds divided by the number of observations. If figures appear in the direction column under "Fastest mile" the corresponding speeds are fastest observed 1-minute values.

AVERAGE TEMPERATURE

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Annual
1932	47.0	56.8	61.9	69.2	77.3	85.0	91.8	92.1	87.0	71.5	63.0	49.3	71.0
1933	48.6	49.6	61.9	64.7	72.6	87.6	95.0	92.4	86.8	76.8	62.7	54.6	71.1
1934	54.5	60.8	70.0	74.8	83.2	83.8	94.0	90.0	84.8	75.5	61.4	56.0	74.1
1935	53.8	57.9	57.6	69.4	74.1	89.2	92.0	88.4	84.6	72.6	57.2	54.3	70.9
#1936	52.8	56.4	64.6	73.1	81.7	90.3	93.2	91.1	83.6	73.2	61.8	53.2	72.9
#1937	43.2	54.7	59.9	67.6	78.6	85.3	91.8	92.2	86.9	74.8	62.3	56.9	71.2
1938	52.6	54.4	57.8	66.6	78.7	83.4	88.8	88.2	84.4	69.2	53.2	53.6	69.2
1939	50.7	47.0	61.0	70.2	77.5	84.6	92.0	90.3	82.0	69.4	62.5	55.5	70.2
1940	54.6	55.2	63.6	69.5	80.8	89.1	92.0	91.3	85.0	72.7	57.7	55.6	72.3
1941	53.3	57.3	58.4	61.6	74.5	80.6	88.6	86.2	79.2	66.4	60.0	52.3	68.2
1942	52.4	51.0	57.0	64.8	73.4	83.2	91.8	87.6	83.3	70.6	61.9	54.5	69.3
1943	51.7	57.6	63.2	70.7	77.5	83.6	91.0	87.4	84.0	71.1	59.4	52.4	70.8
1944	49.9	51.6	56.0	64.0	74.0	79.6	88.6	90.3	83.0	73.2	56.6	52.0	68.2
1945	50.4	54.6	55.8	65.4	75.1	81.2	91.1	89.6	83.8	73.8	57.6	49.3	69.0
1946	49.6	52.0	60.8	72.4	75.8	86.2	90.1	88.8	83.8	66.4	54.3	53.6	69.5
1947	48.5	58.1	62.7	68.2	78.8	83.7	92.9	88.8	86.2	72.7	55.0	49.2	70.4
1948	51.6	52.6	56.3	69.2	76.4	84.2	91.2	91.4	85.6	73.6	54.8	50.1	69.8
1949	43.7	51.8	59.1	70.6	76.0	85.3	90.4	87.6	86.1	68.5	64.4	51.3	69.6
1950	49.7	58.9	62.6	72.5	76.0	84.9	90.5	90.3	82.2	78.3	64.2	57.5	72.3
1951	51.9	56.1	60.7	67.8	76.7	83.0	92.5	87.2	83.2	71.9	58.6	52.1	70.1
#1952	51.4	54.2	55.6	67.5	79.6	84.5	89.9	90.9	85.8	76.8	57.1	51.0	70.4
1953	54.5	53.3	61.5	66.6	70.9	85.0	90.8	89.3	84.1	71.6	61.5	49.3	69.9
1954	52.3	61.1	58.3	71.6	78.2	84.7	91.3	88.4	86.2	74.9	64.6	54.0	72.1
1955	48.7	50.9	61.6	66.7	75.6	83.7	86.7	86.6	82.9	75.7	59.1	55.8	69.5
1956	56.0	50.9	61.6	66.1	76.9	86.9	87.9	85.8	84.6	69.7	57.8	53.3	69.8
1957	54.0	61.4	61.8	66.5	72.9	87.1	91.4	88.0	83.2	70.6	56.4	55.0	70.7
#1958	53.0	58.0	57.0	66.7	81.3	89.1	93.6	92.7	86.6	76.6	61.4	56.0	72.7
1959	53.8	53.9	63.6	73.5	76.3	90.3	94.0	88.1	83.3	72.7	60.9	53.6	72.0
#1960	48.5	51.5	65.1	70.4	77.8	90.0	92.4	89.7	85.9	70.6	60.5	50.5	71.1
1961	54.2	55.6	59.6	69.2	75.6	88.6	91.7	88.6	80.6	69.6	57.1	52.3	70.2
1962	51.5	55.7	56.0	72.3	73.5	83.1	90.2	91.7	84.3	71.6	61.9	55.0	70.6
1963	48.4	60.2	61.0	65.8	80.0	81.7	92.0	87.1	85.1	76.2	61.9	51.8	71.0
1964	46.7	49.3	56.5	65.2	73.7	82.6	90.6	86.2	80.9	74.9	55.5	52.0	67.8
1965	52.7	52.4	56.1	63.4	71.8	79.0	91.0	89.0	79.2	73.8	62.1	52.9	68.6
1966	48.2	49.7	61.2	69.8	80.1	86.8	93.0	90.9	82.9	70.9	60.5	52.0	70.5
1967	50.7	55.7	62.8	62.4	75.1	81.1	91.6	91.0	84.8	73.5	63.9	48.2	70.1
1968	52.4	59.7	59.9	66.7	76.6	86.2	90.2	86.5	83.6	72.7	59.2	49.5	70.3
1969	54.9	53.0	56.9	68.5	78.3	84.2	93.1	94.4	86.0	69.5	62.1	54.8	71.3
1970	52.1	60.2	59.5	64.7	79.6	88.1	95.0	92.5	82.2	69.1	61.4	52.6	71.4
1971	52.2	56.3	63.3	66.5	73.3	85.3	94.9	89.6	85.6	69.3	59.7	50.2	70.5
RECORD MEAN	51.6	55.4	60.3	67.7	75.8	85.0	90.7	88.9	83.4	71.6	59.9	52.4	70.2
MAX	65.0	69.0	74.6	82.9	91.8	101.4	104.1	101.7	97.7	86.8	74.7	65.8	84.6
MIN	38.1	41.7	46.0	52.4	59.8	68.6	77.3	76.0	69.1	56.3	45.0	38.9	55.8

TOTAL DEGREE DAYS

PHOENIX, ARIZONA

Season	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	Total
1932-33	0	0	0	14	69	488	506	429	95	74	0	0	1675
1933-34	0	0	0	0	85	323	325	117	6	14	7	0	877
1934-35	0	0	0	0	178	284	347	204	239	17	0	0	1269
1935-36	0	0	0	22	237	328	378	246	77	31	0	0	1319
#1936-37	0	0	0	8	118	367	681	287	173	34	5	0	1673
#1937-38	0	0	0	0	119	252	311	243	187	30	0	0	1142
1938-39	0	0	0	25	357	352	440	503	194	15	0	0	1886
1939-40	0	0	0	12	106	292	312	281	103	17	0	0	1123
1940-41	0	0	0	29	229	282	361	215	202	136	11	0	1465
1941-42	0	0	0	57	165	396	387	391	246	63	6	0	1711
1942-43	0	0	0	24	106	323	413	209	86	45	0	0	1206
1943-44	0	0	0	37	171	393	467	388	282	57	2	0	1797
1944-45	0	0	0	0	267	404	452	291	286	103	0	0	1803
1945-46	0	0	0	6	235	487	479	365	150	17	0	0	1739
1946-47	0	0	0	37	323	350	513	194	102	25	0	0	1544
1947-48	0	0	0	6	304	485	412	361	266	21	0	0	1855
1948-49	0	0	0	15	312	464	664	308	184	42	0	0	2049
1949-50	0	0	0	59	53	431	469	167	107	11	4	0	1301
1950-51	0	0	0	0	72	226	399	249	147	36	16	0	1145
1951-52	0	0	0	11	186	394	414	306	295	43	0	0	1649
#1952-53	0	0	0	0	252	429	318	322	131	49	6	0	1507
1953-54	0	0	0	19	148	479	388	114	206	7	4	0	1365
1954-55	0	0	0	14	39	336	500	390	117	37	3	0	1436
1955-56	0	0	0	1	181	278	271	402	131	55	0	0	1319
1956-57	0	0	0	47	214	356	334	117	107	48	7	0	1230
#1957-58	0	0	0	12	253	303	365	191	245	68	0	0	1437
1958-59	0	0	0	4	124	271	341	306	66	0	3	0	1115
1959-60	0	0	0	26	119	342	506	388	56	14	0	0	1451
#1960-61	0	0	0	16	153	445	326	259	166	6	0	0	1371
1961-62	0	0	0	51	233	388	414	255	277	2	0	0	1620
1962-63	0	0	0	1	115	301	507	148	151	50	0	0	1273
1963-64	0	0	0	0	133	403	558	450	277	69	23	0	1913
1964-65	0	0	0	0	281	396	375	346	269	133	14	0	1814
1965-66	0	0	4	7	116	370	516	423	145	12	0	0	1593
1966-67	0	0	0	8	139	397	437	256	102	93	10	0	1442
1967-68	0	0	0	6	72	512	384	151	167	39	0	0	1331
1968-69	0	0	0	0	173	473	306	327	265	12	13	0	1369
1969-70	0	0	0	12	95	307	393	134	166	60	0	0	1167
1970-71	0	0	0	19	119	376	396	241	123	53	0	0	1327
1971-72	0	0	0	79	185	455							

TOTAL PRECIPITATION

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Annual
1932	0.10	2.12	0.05	0.05	0.00	0.23	0.11	0.10	0.34	1.73	0.00	1.84	6.67
#1933	2.31	0.15	0.00	1.11	T	0.23	0.30	0.38	1.62	0.38	0.62	T	7.10
1934	0.40	0.99	0.10	0.07	0.10	0.03	0.11	1.07	0.66	0.00	0.63	1.71	5.87
1935	0.95	3.18	1.39	0.09	0.14	0.00	0.93	1.27	1.30	0.13	0.56	0.39	10.33
#1936	0.80	1.01	0.50	0.14	T	T	2.49	0.32	0.43	0.13	0.35	2.12	8.29
#1937	0.83	0.76	1.58	T	0.08	T	0.49	0.05	1.17	T	0.00	0.41	5.37
1938	0.51	0.68	0.77	0.02	T	0.36	0.08	0.97	T	0.00	0.00	1.62	5.01
1939	0.27	0.59	0.11	0.11	0.00	0.00	0.77	1.18	4.23	0.10	0.47	T	7.83
1940	0.01	0.51	T	0.04	T	T	0.33	0.54	1.47	1.05	0.29	3.94	8.18
1941	0.97	2.02	4.16	2.10	0.81	T	0.79	0.85	1.82	0.52	1.16	1.06	16.26
1942	0.36	0.21	0.22	0.69	0.00	0.00	1.14	1.29	0.07	0.60	T	0.29	4.87
1943	0.66	0.06	0.55	0.05	0.01	0.02	0.38	4.91	0.78	0.19	0.00	1.42	9.03
1944	0.37	2.23	0.99	0.49	0.94	0.00	0.65	0.07	0.23	0.33	1.12	1.28	8.70
1945	1.01	0.10	0.79	T	0.00	0.00	1.31	0.58	T	0.53	0.00	0.44	4.76
1946	1.16	0.15	0.02	0.02	0.00	0.00	1.50	2.41	2.42	0.05	0.82	0.83	9.38
1947	0.03	0.13	T	T	0.32	T	T	1.10	0.34	0.04	0.59	0.45	3.00
1948	0.00	1.31	0.16	T	T	0.08	0.91	0.41	T	0.60	0.00	0.68	4.15
1949	1.71	0.12	0.35	0.18	0.09	0.33	0.44	0.48	0.99	0.82	0.31	0.92	6.74
1950	0.41	1.15	0.26	T	T	0.11	0.76	0.37	0.49	0.00	0.04	0.03	3.62
1951	1.58	0.29	0.44	1.02	0.20	T	1.06	5.56	0.33	0.52	0.73	0.64	12.37
#1952	0.56	0.29	2.20	1.94	0.00	0.06	0.54	1.11	0.23	0.00	3.04	0.68	10.65
1953	0.23	0.53	0.74	0.02	0.71	T	0.88	0.31	0.00	T	0.07	0.07	3.56
1954	0.88	0.58	1.22	0.02	0.11	0.02	0.36	0.55	0.44	0.12	T	0.01	4.31
1955	2.41	0.09	T	T	0.02	0.95	4.19	1.80	T	0.13	0.05	0.18	9.82
1956	0.67	0.64	0.00	0.03	T	0.01	0.92	0.46	0.02	0.06	0.00	0.01	2.82
1957	1.57	0.21	0.53	0.12	0.43	0.26	0.72	0.85	0.00	2.66	0.02	0.23	7.60
#1958	0.07	1.15	1.94	0.89	0.08	0.05	0.31	0.72	2.25	0.50	0.16	0.00	8.12
1959	0.23	0.63	0.00	0.05	T	T	0.45	1.36	0.04	1.75	0.43	3.46	8.40
1960	0.85	0.04	0.57	0.00	T	T	0.25	0.82	0.12	0.67	T	0.07	3.39
1961	0.23	0.01	0.41	T	T	T	0.40	2.11	0.22	0.08	0.12	0.85	4.43
1962	1.20	0.83	0.50	0.00	T	0.12	0.10	0.25	0.39	T	0.03	0.48	3.90
1963	0.55	1.16	0.30	0.33	T	0.00	0.03	2.68	T	1.46	0.73	T	7.24
1964	0.22	0.01	0.37	0.10	T	0.00	0.60	1.29	1.80	0.17	0.35	1.09	6.00
1965	1.22	0.91	1.39	1.35	0.16	0.91	0.16	0.18	0.60	0.20	0.92	3.19	11.19
1966	0.35	0.95	0.34	T	T	0.22	0.09	2.17	2.00	0.25	0.38	0.52	7.27
1967	0.25	0.00	0.43	0.08	0.05	0.47	0.99	0.02	0.13	0.67	1.27	3.98	8.34
1968	0.19	1.20	1.04	T	T	0.00	1.70	0.59	0.00	0.35	0.91	0.69	6.67
1969	1.37	0.78	0.56	0.03	0.26	0.00	0.28	0.14	2.11	0.08	0.65	0.68	6.94
1970	T	0.30	2.26	T	T	0.00	0.48	1.02	2.85	0.44	0.02	0.26	7.63
1971	0.22	0.35	T	0.13	T	0.00	0.24	0.99	0.92	0.27	T	0.47	3.59
RECORD MEAN	0.77	0.74	0.66	0.36	0.12	0.09	0.90	1.05	0.80	0.45	0.59	0.88	7.41

TOTAL SNOWFALL

Season	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	Total
1932-33	0.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	1.0
#1933-34	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1934-35	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1935-36	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
#1936-37	0.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	1.0
#1937-38	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1938-39	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1939-40	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1940-41	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1941-42	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1942-43	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1943-44	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1944-45	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1945-46	0.0	0.0	0.0	0.0	0.0	0.0	T	0.0	0.0	0.0	0.0	0.0	T
1946-47	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1947-48	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1948-49	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	T	0.0	0.0	T
1949-50	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1950-51	0.0	0.0	0.0	0.0	0.0	0.0	T	0.0	0.0	0.0	0.0	0.0	T
1951-52	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
#1952-53	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1953-54	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1954-55	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1955-56	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1956-57	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
#1957-58	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1958-59	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1959-60	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1960-61	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1961-62	0.0	0.0	0.0	0.0	0.0	0.0	T	0.0	0.0	0.0	0.0	0.0	T
1962-63	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1963-64	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1964-65	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1965-66	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1966-67	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1967-68	0.0	0.0	0.0	0.0	0.0	T	0.0	0.0	0.0	0.0	0.0	0.0	T
1968-69	0.0	0.0	0.0	0.0	0.0	T	0.0	0.0	0.0	0.0	0.0	0.0	T
1969-70	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1970-71	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1971-72	0.0	0.0	0.0	0.0	0.0	0.0							

Record mean values above (not adjusted for instrument location changes listed in the Station Location table) are means for the period beginning in 1896.

# Indicates a break in the data sequence during the year, or season, due to a station move or relocation of instruments. See Station Location table. Temperature, Precipitation, and Snowfall are from City Office locations through 1937. Heating Degree Days are from City Office locations through June 1938. All data for later periods are from Airport locations.

STATION LOCATION

PHOENIX, ARIZONA

Location	Occupied from	Occupied to	Airline distance and direction from previous location	Latitude North	Longitude West	Elevation above Sea level: Ground at temperature site	Elevation above Ground: Wind instruments	Extreme thermometers	Psychrometer	Telepsychrometer	Tipping bucket rain gage	Weighing rain gage	8" rain gage	Hygrothermometer	Elevation above Sea level: Pyranometer	Remarks
CITY																
Adobe Building Corner of Center and Washington	1/28/76	1/19/78		33° 27'	112° 04'	1085										
Center Street, between Washington & Jefferson	1/19/78	8/05/95	100 ft. S	33° 27'	112° 04'	1085		4	4				a3			a - 19 feet to 12/31/81. Several breaks in records.
Wharton Block 38 N Center Street	8/06/95	8/01/01	250 ft. N	33° 27'	112° 04'	1085	57	47	47				37			
Talbot Building SW corner First Avenue at Adams	8/01/01	3/24/13	300 ft. NW	33° 27'	112° 05'	1085	56	50	50		b41		41			b - Added 6/1/06.
Federal Building 230 N First Avenue	3/24/13	6/27/16	500 ft. NNW	33° 27'	112° 05'	1086	81	76	76		68		68			
Water Users Building 145 W Van Buren Street	6/27/16	9/04/24	100 ft. W	33° 27'	112° 05'	1086	81	11	11		68		68			Wind instruments & rain gage equipment left on roof of Federal Building. Thermometer shelter moved to lawn between the buildings.
Ellis Building Basement 137 N Second Avenue	9/04/24	8/22/33	300 ft. S	33° 27'	112° 05'	1086	82	10	10		56		56			Thermometer shelter in Ellis Court, exposure poor, moved back to Federal Bldg. lawn on 7/18/25.
Ellis Building 5th Floor 137 N Second Avenue	8/22/33	10/22/36	No change	33° 27'	112° 05'	1086	107	10	10		81		81			Ellis Building was raised 2 stories.
Post Office Building 500 N Central Avenue	10/22/36	12/16/36	1200 ft. NNE	33° 27'	112° 04'	1083	51	39	39		36		36			Shelter on flat gravelled roof.
Post Office Building 500 N Central Avenue	12/16/36	10/22/53	No change	33° 27'	112° 04'	1083	87	39	39		36		36			Psychrometric observations moved to WBAS at Sky Harbor Airport on 7/1/39.
Post Office Building 500 N Central Avenue	10/22/53	8/15/68	No change	33° 27'	112° 04'	1083		39				39	36			Combined at Airport effective 10/22/53, weighing rain gage added 11/1/53. Psychrometer, wind equipment and tipping bucket removed same date.
AIRPORT																
Sky Harbor Airport Administration Building 3 miles ESE Phoenix P. O.	5/02/33	12/19/52		33° 26'	112° 02'	1108	29	5	5	a5			3		b 1128	Station closed 7/27/35 to 1/1/38. Cotton Region Shelter moved 110 feet NE & Standard Shelter added 10/1/40. a - Commissioned 6/1/49. b - Added 6/4/49.
Sky Harbor Airport New Terminal Building	12/19/52	5/29/58	0.8 mi. SE	33° 26'	112° 01'	1114	32	5	5	5		5	3		1128	Weighing Rain Gage added 11/1/53.
Sky Harbor Airport FAA Operations Building	5/29/58	Present	0.3 mi. NW	33° 26'	112° 01'	d1117	e18	5	5	5		4	3	c5	1139	c - Commissioned 3900 feet E of office 12/12/60. d - 1109 feet to 12/12/60. e - 41 feet to 12/12/60.

Requests for additional information should be directed to the National Weather Service Office for which this summary was issued.

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U.S. DEPARTMENT OF COMMERCE
NATIONAL CLIMATIC CENTER
FEDERAL BUILDING
ASHEVILLE, N.C. 28801

A UNITED STATES DEPARTMENT OF COMMERCE PUBLICATION

LOCAL CLIMATOLOGICAL DATA
ANNUAL SUMMARY WITH COMPARATIVE DATA

LAS VEGAS, NEVADA

1971

U.S. DEPARTMENT OF COMMERCE NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION ENVIRONMENTAL DATA SERVICE

NARRATIVE CLIMATOLOGICAL SUMMARY

Las Vegas is situated near the center of a broad desert valley, which is almost surrounded by mountains ranging from 2,000 to 10,000 feet higher than the floor of the valley. This Vegas Valley, comprising about 600 square miles, runs from northwest to southeast, and slopes gradually upward on each side towards the surrounding mountains. Weather observations are taken at McCarran Airport, 7 miles south of downtown Las Vegas, and about 5 miles southwest and 300 feet higher than the lower portions of the valley. Since mountains encircle the valley, drainage winds are usually downslope toward the center, or lowest portion of the valley. This condition also affects minimum temperatures, which in lower portions of the valley can be from 15° to 25° colder than recorded at the airport on clear, calm nights. The four seasons are well defined. Summers are typically "desert" with maximum temperatures usually in the 100° plus bracket. The proximity of the mountains contributes materially to the relatively cool summer nights, with the majority of the minimums being between 70° and 75°. There is a period of about two weeks almost every summer when warm, moist, tropical air predominates weather conditions in this area, and causes scattered thundershowers, occasionally quite severe, together with higher than average humidity. Although maximum temperatures are much lower during this humid period, minimum temperatures are higher than usual and many natives consider this the most unpleasant weather of the year. Soil erosion, especially near the mountains and foothills surrounding the valley, is evidence that these summer thundershowers have in the past on occasion developed into "cloudburst" proportions. Aside from this short humid period, summers are not as uncomfortable as indicated by the daytime maxima, because of the prevailing low humidity. Winters, on the whole, are mild and pleasant. Daytime temperatures average near 60°, and with mostly clear skies and warm sunshine, there is little decrease in outdoor activities. Winter minimum temperatures average 3° above freezing. The spring and fall seasons are generally considered most ideal, although rather sharp temperature transients occur during these months. There are but few days during the spring and fall months when outdoor activities are affected in any degree by the weather.

The Sierra Nevada Mountains of California and the Spring Mountains immediately west of the Vegas Valley, the latter rising to elevations over 10,000 feet above the valley floor, act as effective barriers to moisture laden storms moving eastward from the Pacific Ocean. It is mainly these barriers that result in a minimum of dark overcast and rainy days. Rainy days average from less than one in June to three per month in the winter months. Snow rarely falls in this valley, and it usually melts as it falls, or shortly thereafter. The one real exception occurred during January 1949 when 16.7 inches of snowfall was recorded. The maximum depth on the ground at any time was 7 inches on the 12th of the month. January 1949 will be remembered because of relatively heavy snows over the far southwest, which extended to the southern California coastline.

Strong winds, associated with major storms, usually reach this valley from the southwest or through the pass from the northwest. Winds over 50 m.p.h. are infrequent, but when they do occur, are probably the most provoking of the elements experienced in the Vegas Valley, because of the blowing dust and sand associated with these stronger winds.

METEOROLOGICAL DATA FOR THE CURRENT YEAR

Station: LAS VEGAS, NEVADA — MCCARRAN INTERNATIONAL AIRPORT — Standard time used: PACIFIC — Latitude: 36° 05' N — Longitude: 115° 10' W — Elevation (ground): 2162 feet — Year: 1971

Month	Temperature: Averages: Daily maximum	Daily minimum	Monthly	Extremes: Highest	Date	Lowest	Date	Degree days (Base 65°): Heating	Cooling	Precipitation: Total	Greatest in 24 hrs.	Date	Snow, Ice pellets: Total	Greatest in 24 hrs.	Date	Relative humidity: Hour 04 (Local time)	Hour 10 (Local time)	Hour 16 (Local time)	Hour 22 (Local time)	Wind &: Resultant: Direction	Resultant: Speed	Average speed	Fastest mile: Speed	Fastest mile: Direction #	Fastest mile: Date	Percent of possible sunshine	Average sky cover sunrise to sunset	Number of days: Sunrise to sunset: Clear	Partly cloudy	Cloudy	Precipitation .01 inch or more	Snow, Ice pellets 1.0 inch or more	Thunderstorms	Heavy fog	Temperatures: Maximum: 90° and above ‡	32° and below	Minimum: 32° and below	0° and below	Average daily solar radiation - langleys
JAN	56.6	32.2	44.4	74	31+	12	6	630	0	T	T	2	T	T	2	45	36	25	40	27	3.1	7.2	37	SW	13	91	3.8	17	7	7	0	0	0	0	0	0	15	0	278
FEB	62.9	36.5	49.7	79	11	19	27	421	0	0.03	0.02	17	0.0	0.0		35	26	18	28	32	3.1	8.3	46	NW	19	89	3.8	13	9	6	2	0	0	0	0	0	7	0	372
MAR	69.7	41.8	55.8	88	30	23	3	306	24	T	T	13	0.0	0.0		26	17	11	18	28	2.8	9.3	48	NW	31	93	3.7	17	7	7	0	0	0	0	0	0	6	0	503
APR	77.3	48.7	63.0	89	13	39	2	105	53	T	T	18 +	0.0	0.0		29	18	13	22	22	5.3	10.5	44	SW	17	91	2.5	19	9	2	0	0	0	0	0	0	0	0	616
MAY	80.5	55.5	68.0	95	15	46	8	47	148	0.84	0.60	7	0.0	0.0		40	25	18	32	22	3.6	10.2	52	SW	21	83	3.8	16	9	6	4	0	1	0	0	0	7	0	648
JUN	93.1	68.4	83.3	111	22	51	1	0	536	T	T	2	0.0	0.0		22	13	9	14	20	7.3	10.1	36	SW	26	98	1.6	23	5	2	0	0	0	0	26	0	0	0	732
JUL	107.1	78.5	92.8	113	28+	66	1	0	871	0.08	0.05	30	0.0	0.0		23	16	11	17	20	6.5	9.9	64	SW	14	95	2.9	17	13	1	2	0	5	0	31	0	0	0	
AUG	101.1	76.8	89.0	109	2+	71	14	0	752	0.90	0.50	14	0.0	0.0		44	32	23	34	18	2.4	7.4	55	NE	8	78	4.4	15	8	8	5	0	10	0	31	0	0	0	557
SEP	92.1	63.0	77.6	107	12	47	30	4	390	0.00	0.00		0.0	0.0		23	16	13	19	20	2.1	8.9	54	NW	30	97	1.2	25	4	1	0	0	0	0	18	0	0	0	556
OCT	75.7	47.6	61.7	95	14	26	30	207	112	0.06	0.06	17	0.0	0.0		36	27	19	28	25	3.3	8.2	40	NW	29	87	2.2	23	6	2	1	0	0	0	9	0	3	0	373
NOV	63.4	38.4	50.9	73	10+	31	20	417	0	0.12	0.12	15	0.0	0.0		41	30	24	36	28	3.0	6.8	31	SW	13	75	4.1	14	9	7	1	0	0	0	0	0	2	0	277
DEC	51.1	31.7	41.4	62	25	21	9	724	0	0.51	0.21	27	T	T	13	51	44	36	48	29	3.4	8.5	38	NW	7	63	4.8	13	8	10	7	0	0	1	0	0	18	0	203
YEAR	78.0	51.6	64.8	113	JUL. 28+	12	JAN. 6	2861	2906	2.54	0.60	MAY 7	T	T	DEC. 13 +	35	25	18	28	23	2.9	8.8	64	SW	JUL. 14	87	3.2	212	94	59	22	0	16	1	122	0	51	0	

NORMALS, MEANS, AND EXTREMES

Month	Temperature: Normal: Daily maximum	Daily minimum	Monthly	Extremes: Record highest	Year	Record lowest	Year	Normal heating degree days (Base 65°)	Precipitation: Normal total	Maximum monthly	Year	Minimum monthly	Year	Maximum in 24 hrs.	Year	Snow, Ice pellets: Mean total	Maximum monthly	Year	Maximum in 24 hrs.	Year	Relative humidity: Hour 04 (Local time)	Hour 10 (Local time)	Hour 16 (Local time)	Hour 22 (Local time)	Wind &: Mean speed	Prevailing direction	Fastest mile Ø: Speed	Direction #	Year	Pct. of possible sunshine	Mean sky cover sunrise to sunset	Mean number of days: Sunrise to sunset: Clear	Partly cloudy	Cloudy	Precipitation .01 inch or more	Snow, Ice pellets 1.0 inch or more	Thunderstorms	Heavy fog	Temperatures: Max.: 90° and above ‡	32° and below	Min.: 32° and below	0° and below	Average daily solar radiation - langleys
(a)	(b)	(b)	(b)	12		12		(b)	(b)	23		23		23		23	23		23		11	11	11	11	23	15	7	7		23	23	23	23	23	23	23	23	11	11	11	11	22
J	54.2	32.0	43.1	75	1962	8	1963	688	0.53	2.41	1949	T	1971+	1.01	1952	0.9	16.7	1949	5.0	1949	52	37	27	45	6.9	W	52	SW	1965	78	4.9	14	6	11	3	*	0	*	16	0	281
F	59.4	36.1	47.8	79	1971	19	1971+	487	0.44	0.96	1969	0.00	1967+	0.63	1958	T	T	1966+	T	1966+	48	35	25	41	8.1	SW	54	NW	1965	81	4.5	13	7	8	2	0	*	0	0	6	0	380
M	67.6	42.0	54.8	91	1966	23	1971+	335	0.35	1.50	1952	0.00	1956	1.14	1952	T	T	1963+	T	1963+	40	26	18	32	9.6	SW	52	SW	1966	84	4.3	14	9	8	2	0	*	*	3	0	512
A	77.6	51.4	64.5	96	1962	32	1967	111	0.23	2.44	1965	0.00	1962	0.97	1965	T	T	1970+	T	1970+	35	21	15	26	10.6	SW	48	N	1969+	86	3.6	17	7	6	2	0	1	0	3	0	*	0	626
M	87.9	59.6	73.8	106	1969+	40	1964	6	0.08	0.96	1969	0.00	1970+	0.80	1969	0.0	0.0		0.0		31	18	13	22	10.9	SW	52	SW	1971	88	3.3	18	9	4	1	0	1	0	15	0	0	0	701
J	97.2	68.5	82.9	115	1970	51	1971+	0	0.04	0.82	1967	0.00	1958+	0.75	1967	0.0	0.0		0.0		27	16	11	18	10.6	SW	46	SW	1965	93	1.9	23	5	2	1	0	1	0	24	0	0	0	740
J	103.5	75.8	89.7	114	1967	62	1970+	0	0.50	1.64	1956	0.00	1963	1.32	1956	0.0	0.0		0.0		29	20	15	22	9.8	SW	64	SW	1971	86	3.0	19	9	3	3	0	5	0	31	0	0	0	672
A	101.0	73.4	87.2	113	1969	56	1968	0	0.48	2.59	1957	0.00	1956	2.59	1957	0.0	0.0		0.0		37	25	19	28	9.2	SW	55	NE	1971	88	2.6	21	7	3	3	0	5	0	30	0	0	0	622
S	94.3	65.6	80.0	107	1971	46	1965	0	0.34	1.58	1963	0.00	1971+	1.07	1963	0.0	0.0		0.0		33	21	16	25	8.7	SW	54	NW	1971	92	1.7	24	4	2	1	0	2	0	22	0	0	0	550
O	80.1	53.1	66.6	99	1963	26	1971	78	0.20	0.63	1958	0.00	1967+	0.63	1958	T	T	1956	T	1956	36	24	18	29	7.7	WSW	52	NW	1970	87	2.6	21	6	4	2	0	*	*	6	0	0	0	400
N	65.0	39.9	52.5	83	1967	28	1968+	387	0.31	2.22	1965	0.00	1956	1.78	1960	0.2	4.0	1964	4.0	1964	48	35	28	43	6.8	W	39	SW	1970+	81	3.8	16	7	7	2	*	*	*	0	0	2	0	309
D	56.2	33.9	45.1	71	1966	15	1968	617	0.40	1.38	1959	0.00	1963+	0.83	1959	0.1	2.0	1967	2.0	1967	57	43	34	51	6.8	W	54	SW	1964	79	4.4	15	7	9	2	*	*	*	0	0	14	0	253
YR	78.7	52.6	65.7	115	JUN. 1970	8	JAN. 1963	2709	3.90	2.59	AUG. 1957	0.00	SEP. 1971+	2.59	AUG. 1957	1.2	16.7	JAN. 1949	5.0	JAN. 1949	39	27	20	32	8.8	SW	64	SW	JUL. 1971	86	3.4	215	83	67	23	*	15	1	131	*	41	0	304

Ø For period August 1964 through the current year.
Means and extremes above are from existing and comparable exposures. Annual extremes have been exceeded at other sites in the locality as follows:
Highest temperature 117 in July 1942; maximum monthly precipitation 3.39 in September 1939.

(a) Length of record, years, based on January data. Other months may be for more or fewer years if there have been breaks in the record.
(b) Climatological standard normals (1931-1960).
* Less than one half.
\+ Also on earlier dates, months, or years.
T Trace, an amount too small to measure.
Below zero temperatures are preceded by a minus sign.
The prevailing direction for wind in the Normals, Means, and Extremes table is from records through 1963.
‡ ≤ 70° at Alaskan stations.

Unless otherwise indicated, dimensional units used in this bulletin are: temperature in degrees F.; precipitation, including snowfall, in inches; wind movement in miles per hour; and relative humidity in percent. Heating degree day totals are the sums of negative departures of average daily temperatures from 65° F. Cooling degree day totals are the sums of positive departures of average daily temperatures from 65° F. Sleet was included in snowfall totals beginning with July 1948. The term "Ice pellets" includes solid grains of ice (sleet) and particles consisting of snow pellets encased in a thin layer of ice. Heavy fog reduces visibility to 1/4 mile or less.

Sky cover is expressed in a range of 0 for no clouds or obscuring phenomena to 10 for complete sky cover. The number of clear days is based on average cloudiness 0-3, partly cloudy days 4-7, and cloudy days 8-10 tenths.

Solar radiation data are the averages of direct and diffuse radiation on a horizontal surface. The langley denotes one gram calorie per square centimeter.

& Figures instead of letters in a direction column indicate direction in tens of degrees from true North; i.e., 09 - East, 18 - South, 27 - West, 36 - North, and 00 - Calm. Resultant wind is the vector sum of wind directions and speeds divided by the number of observations. If figures appear in the direction column under "Fastest mile" the corresponding speeds are fastest observed 1-minute values.

To 8 compass points only.

AVERAGE TEMPERATURE

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Annual
1937	31.2	44.8	53.4	61.6	74.2	82.1	87.8	87.6	80.3	67.0	54.0	47.5	64.3
1938	46.0	47.7	53.2	64.4	70.2	81.0	87.0	86.0	79.9	63.4	46.0	46.8	64.3
1939	44.2	41.2	55.8	65.0	74.2	81.6	86.5	87.8	75.6	63.7	55.1	48.5	65.1
1940	46.5	50.2	58.4	65.2	78.0	86.4	88.3	89.0	76.3	66.4	50.1	46.2	66.8
1941	46.9	52.8	55.4	59.2	73.4	78.8	87.2	83.0	73.0	60.7	52.8	46.1	64.1
1942	45.8	46.3	53.7	64.6	71.0	83.3	91.7	86.8	77.4	67.7	54.4	47.7	65.9
1943	46.4	51.8	58.5	68.0	75.4	80.2	88.6	87.2	80.9	67.8	52.7	47.8	67.1
1944	44.8	46.9	55.0	62.1	73.5	77.6	87.1	87.4	81.1	70.2	53.2	46.6	65.5
1945	45.4	51.0	53.0	63.2	74.8	80.8	89.8	86.4	80.4	67.5	51.6	43.2	65.6
1946	43.8	46.8	56.0	69.1	74.6	85.8	89.3	88.3	80.0	61.6	50.6	48.6	66.2
1947	42.6	53.4	59.9	66.2	78.8	82.2	88.6	87.0	83.3	67.8	50.3	44.0	67.0
#1948	45.6	46.4	50.4	65.0	72.0	82.6	88.6	86.7	79.8	67.3	49.6	41.1	64.6
1949	32.4	41.8	53.6	67.1	70.8	83.3	89.3	85.0	82.2	63.3	58.9	43.3	64.2
1950	41.2	51.7	56.7	67.1	72.5	81.3	88.7	87.3	78.2	71.8	56.6	51.2	67.0
1951	43.8	47.5	54.6	64.1	72.8	82.0	90.1	85.5	81.4	64.9	50.9	42.3	65.0
1952	41.8	48.4	50.4	64.1	76.2	80.3	88.2	90.8	80.7	71.9	49.5	45.4	65.6
1953	50.4	48.7	56.4	63.9	66.2	81.7	90.6	87.1	81.8	65.3	55.1	44.0	65.9
1954	45.3	54.1	52.2	69.6	77.8	81.2	90.7	86.0	80.6	68.4	57.2	43.8	67.3
1955	41.1	43.7	54.1	60.3	70.2	81.6	87.2	86.7	80.8	69.8	53.1	48.1	64.8
1956	48.8	45.6	56.5	63.4	74.3	85.5	88.2	86.2	83.4	65.3	50.6	45.8	66.2
1957	43.6	55.0	56.9	63.5	69.3	85.8	88.9	86.3	80.1	63.7	49.0	46.8	65.8
1958	46.0	52.2	52.1	62.4	78.0	84.0	88.8	90.5	81.0	69.9	53.5	48.8	67.3
1959	46.4	47.7	57.2	68.7	72.2	86.8	93.4	87.1	77.8	68.2	53.4	47.4	67.2
#1960	41.0	46.0	59.7	66.0	73.4	87.4	91.0	88.3	82.0	66.1	53.0	44.3	66.5
1961	45.1	51.0	56.2	65.1	72.9	87.0	91.0	87.7	75.6	64.1	50.3	42.5	65.7
1962	44.3	49.9	51.3	70.3	70.6	82.3	88.3	89.8	81.4	68.7	57.3	45.9	66.7
1963	41.1	55.8	54.0	58.5	75.9	78.6	90.4	87.9	80.5	70.1	55.0	44.6	66.0
1964	42.0	45.6	52.3	61.8	70.9	80.9	90.7	87.6	78.4	72.0	50.0	45.3	64.8
1965	47.1	49.5	53.2	61.2	69.6	78.0	88.7	87.9	74.8	69.8	55.9	45.0	65.1
1966	42.7	45.8	57.9	66.4	77.5	83.9	89.3	89.6	80.1	66.5	55.4	46.1	66.8
1967	45.3	50.6	59.3	56.2	72.5	79.6	91.7	90.3	80.0	69.1	56.7	41.6	66.1
1968	44.2	55.7	57.5	62.0	73.5	84.0	89.0	83.5	79.7	67.0	54.5	40.8	66.0
1969	47.5	46.3	53.0	64.4	76.8	81.4	89.7	92.2	82.5	62.8	53.5	45.8	66.3
1970	44.0	52.5	54.9	58.6	75.3	83.4	91.1	88.8	77.2	63.8	55.0	44.5	65.8
1971	44.4	49.7	55.8	63.0	68.0	83.3	92.8	89.0	77.6	61.7	50.9	41.4	64.8
RECORD MEAN	44.0	49.0	55.1	64.1	73.3	82.5	89.4	87.6	79.6	66.7	53.0	45.4	65.8
MAX	56.5	61.9	69.0	78.6	88.4	98.2	104.9	102.7	95.4	81.9	66.9	57.9	80.2
MIN	31.4	36.0	41.2	49.5	58.2	66.7	73.9	72.4	63.8	51.5	39.1	32.8	51.4

TOTAL DEGREE DAYS

LAS VEGAS, NEVADA

Season	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	Total
1936-37							1049	566	357	132	2	0	
1937-38	0	0	0	16	333	548	587	468	368	102	34	0	2456
1938-39	0	0	0	89	569	563	644	666	286	77	1	0	2895
1939-40	0	0	0	64	298	510	574	425	215	75	0	0	2161
1940-41	0	0	0	73	449	586	565	344	293	186	0	0	2496
1941-42	0	0	5	159	367	588	596	524	353	51	20	0	2663
1942-43	0	0	0	53	317	542	577	368	213	78	4	0	2152
1943-44	0	0	0	77	368	539	636	526	311	97	6	0	2560
1944-45	0	0	0	0	355	570	608	391	374	143	0	0	2441
1945-46	0	0	0	41	408	679	656	511	282	47	0	0	2624
1946-47	0	0	0	118	433	508	694	325	163	58	3	0	2302
1947-48	0	0	0	46	441	656	603	535	451	88	18	0	2838
#1948-49	0	0	6	52	462	742	1011	653	352	60	8	1	3347
1949-50	0	0	0	151	183	672	730	368	255	51	35	0	2445
1950-51	0	0	0	3	250	419	650	486	319	84	33	0	2244
1951-52	0	0	0	86	413	700	711	475	447	60	2	0	2894
1952-53	0	0	0	1	458	598	446	450	268	102	60	0	2383
1953-54	0	0	0	104	292	643	602	300	393	15	12	0	2361
1954-55	0	0	0	63	229	649	733	591	336	168	40	2	2811
1955-56	0	0	0	17	350	520	497	553	268	105	8	0	2318
1956-57	0	0	0	85	427	590	657	276	243	93	32	0	2403
1957-58	0	0	0	89	475	556	580	350	394	154	3	0	2601
1958-59	0	0	0	42	338	497	571	477	239	21	19	0	2204
#1959-60	0	0	2	48	340	534	736	544	177	77	4	0	2462
1960-61	0	0	0	63	351	636	611	384	268	63	5	0	2381
1961-62	0	0	0	136	438	693	635	418	420	13	30	0	2783
1962-63	0	0	0	28	229	588	733	254	337	109	7	0	2285
1963-64	0	0	0	17	295	626	703	557	394	141	72	0	2805
1964-65	0	0	0	12	444	606	551	427	358	220	49	0	2667
1965-66	0	0	15	17	266	615	685	529	235	54	0	0	2416
1966-67	0	0	0	47	286	578	606	397	189	261	25	0	2389
1967-68	0	0	0	18	244	716	638	265	231	110	8	0	2230
1968-69	0	0	1	28	304	743	536	518	381	74	16	0	2601
1969-70	0	0	0	112	341	589	643	344	304	208	8	0	2549
1970-71	0	0	0	111	295	631	630	421	306	105	47	0	2546
1971-72	0	0	4	207	417	724							

TOTAL PRECIPITATION

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Annual
1937	0.66	0.06	0.91	T	T	T	0.70	T	0.01	0.00	T	0.11	2.45
1938	0.14	0.89	1.17	0.13	0.13	0.23	0.46	0.10	0.37	0.21	T	0.63	4.46
1939	1.55	0.28	0.40	0.55	0.11	0.00	0.25	0.17	3.39	0.07	0.35	0.18	7.30
1940	0.34	1.18	0.23	0.39	0.13	0.01	T	0.07	0.88	0.05	0.30	1.78	5.36
1941	1.14	1.58	1.63	1.68	0.21	T	0.93	1.75	T	1.13	0.33	0.34	10.72
1942	0.00	0.06	0.36	0.06	T	0.00	T	1.77	0.00	0.09	0.00	0.05	2.39
1943	1.01	0.14	0.52	0.85	T	0.00	T	0.04	0.31	0.03	T	1.34	4.24
1944	0.40	1.08	0.06	T	0.18	0.00	T	0.00	0.00	0.01	0.42	0.05	2.20
1945	0.41	0.10	1.58	T	0.03	T	1.68	0.40	0.00	0.43	T	0.65	5.28
1946	0.01	0.04	0.14	0.07	0.11	0.00	0.08	0.38	0.51	0.66	1.04	0.25	3.29
1947	T	T	T	T	0.11	0.00	0.13	0.16	0.01	1.13	0.22	0.96	2.72
#1948	T	0.33	0.03	T	0.00	T	0.00	0.06	T	0.01	0.00	0.33	0.76
1949	2.41	0.62	0.31	0.08	0.29	0.07	0.23	0.25	T	0.02	0.01	0.13	4.42
1950	0.02	0.07	T	T	T	T	1.34	0.29	0.62	T	T	T	2.34
1951	0.19	0.02	0.03	0.04	0.10	0.00	0.57	0.16	0.98	0.05	0.44	0.23	2.81
1952	1.07	T	1.50	0.57	T	0.01	0.47	0.49	0.87	0.00	0.16	0.41	5.55
1953	0.01	0.00	0.03	T	0.03	T	0.23	0.10	0.02	0.12	0.02	T	0.56
1954	0.91	0.02	0.81	T	0.00	0.01	1.61	0.28	0.45	0.02	0.36	0.24	4.71
1955	1.40	0.13	T	0.11	0.03	0.39	1.55	1.74	0.00	T	0.03	0.02	5.40
1956	0.23	0.00	0.00	0.08	T	0.00	1.64	0.00	0.00	0.09	0.00	0.00	2.04
1957	0.26	0.16	0.10	0.55	0.15	T	0.41	2.59	T	0.49	0.26	0.01	4.98
1958	0.43	0.73	0.55	0.64	0.18	0.00	0.01	0.18	0.21	0.63	0.96	0.00	4.52
1959	0.11	0.72	T	T	T	T	0.02	0.33	0.01	0.51	1.09	1.38	4.17
1960	0.56	0.42	0.05	0.10	T	T	0.41	T	0.23	0.49	1.88	0.26	4.40
1961	0.22	0.01	0.51	0.02	T	T	0.53	0.80	0.26	0.26	0.10	0.46	3.17
1962	0.10	0.39	0.17	0.00	0.06	0.01	T	T	0.03	0.45	T	0.24	1.45
1963	0.12	0.33	0.23	0.10	T	0.15	0.00	0.42	1.58	0.61	0.33	0.00	3.87
1964	0.05	0.02	0.02	0.03	0.05	0.03	0.24	0.05	T	T	0.63	T	1.12
1965	0.03	0.45	0.74	2.44	0.40	T	0.28	0.38	T	T	2.22	1.00	7.96
1966	T	0.07	0.04	0.01	T	0.15	0.30	0.09	0.35	0.09	0.33	0.48	1.91
1967	0.47	0.00	T	0.09	0.21	0.82	0.20	0.38	1.03	0.00	1.52	0.82	5.54
1968	0.01	0.22	0.22	0.10	T	0.31	0.11	0.04	0.01	T	0.02	0.07	1.11
1969	1.57	0.96	0.57	T	0.96	0.23	0.06	0.33	0.08	0.27	0.06	T	5.09
1970	0.01	0.86	0.28	0.04	0.00	0.18	0.58	1.79	0.00	0.02	0.38	0.15	4.29
1971	T	0.03	T	T	0.84	T	0.08	0.90	0.00	0.06	0.12	0.51	2.54
RECORD MEAN	0.45	0.34	0.38	0.25	0.12	0.07	0.43	0.47	0.35	0.23	0.39	0.37	3.85

TOTAL SNOWFALL

Season	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	Total

Record mean values above (not adjusted for instrument location changes listed in the Station Location table) are means for the period beginning in 1937.

# Indicates a break in the data sequence during the year, or season, due to a station move or relocation of instruments. See Station Location table.

STATION LOCATION

LAS VEGAS, NEVADA

Location	Occupied from	Occupied to	Airline distance and direction from previous location	Latitude North	Longitude West	Elevation above Sea level: Ground at temperature site	Elevation above Ground: Wind instruments	Extreme thermometers	Psychrometer	Telepsychrometer	Tipping bucket rain gage	Weighing rain gage	8" rain gage	Hygrothermometer	Elevation above Sea level: Pyranometer	Remarks
Western Air Express A. P. Water Tower Building	8/15/35	8/01/42		36° 14'	115° 02'	1876	d47	a5	5		c3	b4	a3			a - Added 12/26/36. b - Added 11/8/40. c - Added 4/29/41, removed 6/10/42. d - 30 feet to 6/21/41. Some minor relocations of instruments.
Administration Building McCarran Field ‡ ‡ New name for Airport.	8/01/42	12/18/48	600 ft. NNW	36° 14'	115° 02'	1879	26	5	5		e4	f3	3			e - Installed 8/18/42, at 3 feet to 7/25/45. f - 4 feet to 7/25/45, removed 1/25/48. Several minor relocations of one or more instruments.
Administration Building McCarran Field †† †† Name transferred to new Airport. Changed to McCarran International Airport in 1968.	12/18/48	Present	14 mi. SW	36° 05'	115° 10'	2162	a20	5	5		3		b4	c4	2188 d 2200	a - 27 feet to 2/2/54 and 72 feet to 3/12/59. b - 3 feet to 2/2/54. c - Commissioned 2200 feet E of thermometer site 5/1/60. d - Elevation effective 3/12/68.

Requests for additional information should be directed to the National Weather Service Office for which this summary was issued.

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A UNITED STATES DEPARTMENT OF COMMERCE PUBLICATION

LOCAL CLIMATOLOGICAL DATA
ANNUAL SUMMARY WITH COMPARATIVE DATA

TUCSON, ARIZONA

1971

U.S. DEPARTMENT OF COMMERCE NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION ENVIRONMENTAL DATA SERVICE

NARRATIVE CLIMATOLOGICAL SUMMARY

Within 10 to 15 miles of the station the terrain is flat or gently rolling, with many dry washes. There is a general increase in elevation from north and northwest to south and southeast. Rugged mountain ranges and jutting hills encircle the valley floor. The higher mountains to the north, east, and south reach up to over 5,000 feet above the airport, and are at distances of 25 to 40 miles. To the west, the hills and smaller mountains range from 500 to 4,000 feet above the airport; all are more than 5 miles distant.

The soil cover is rather sandy, and native vegetation is mostly brush, cacti, and small trees, typical of the low latitude desert climate. The metropolitan area of Tucson lies at the foot of the Catalina Mountains, to the north of the airport. As a result of the lower elevation and more protected location of the City, recorded maximum temperatures are usually higher there than at the airport and minimum temperatures are correspondingly lower than at the airport.

As might be expected from its geographical situation, the climate of Tucson is prominently characterized by a long, hot season, beginning in April and ending in October. From May through September, maximum temperatures above 90° are the rule, with the mean maximum occasionally exceeding 100° in July. Under usual conditions, the diurnal temperature range is large, averaging almost 30°, although it may exceed 40°. Clear skies or very thin high clouds permit intense surface heating during the day and active radiational cooling at night, a process enhanced by the characteristic atmospheric dryness. The average growing season in the Tucson area approximates 250 days.

The distribution of precipitation through the year is such that more than 50 percent of the annual amount usually falls between July 1 and September 15 and a secondary maximum from December through March provides over 20 percent of the yearly precipitation. During the July-September period scattered convective or orographic showers and thunderstorms occur that often fill dry washes to overflowing. On occasion, brief, torrential downpours cause spectacular and destructive flash floods in sections of the metropolitan area, sometimes from short-period falls of over 1.50 inches. Hail rarely falls in thunderstorms, and sleet is an almost unknown form of precipitation. The December through March precipitation is more general and occurs as prolonged rainstorms that provide much needed replenishment of ground water. During these storms, snow often falls on the higher mountains, but snow in Tucson itself is infrequent, particularly in accumulations exceeding an inch in depth.

Relative humidity shows a pronounced daily oscillation in line with the usual large daily range in temperature. From near the first of the year, the average relative humidity decreases steadily until July and the beginning of the thunderstorm season, when it shows a marked increase. By the middle of September, and end of the thunderstorm season, it decreases again, resuming the upward climb in late November. Only occasionally during the summer is relative humidity high enough to produce appreciable physical discomfort, and then only for short periods. During the hot season, relative humidity values may fall below 10 percent during afternoons, and sometimes below 5 percent. The low average wet bulb temperature during hot weather makes evaporative air coolers effective most of the time.

Tucson lies in the zone receiving more sunshine than any other section of the United States; the persistence of the bright sunshine is one of the most noteworthy features of this desert climate. Cloudless days are commonplace, and average cloudiness, much of it being very thin cirriform clouds, is low.

Surface winds are generally light, with no important seasonal changes in either velocities or prevailing direction. Occasional windstorms cause localized duststorms, particularly in the outlying sections of Tucson where the ground has been disturbed in numerous development areas. During the spring months, winds may briefly be strong enough to cause some damage to trees and buildings. Wind velocities and directions are influenced to an important extent by the surrounding mountains, as well as by the general slope of the terrain. With weak pressure gradients, local winds tend to be in the SE quadrant during the night and early morning hours, veering to NW during the day. Highest velocities usually occur with winds from the SW and E to S.

While dust and haze of local origin are frequently visible, their effect on the general clarity of the atmosphere is not great. Visibility values are normally high; and fog is extremely rare.

METEOROLOGICAL DATA FOR THE CURRENT YEAR

Station: TUCSON, ARIZONA INTERNATIONAL AIRPORT Standard time used: MOUNTAIN Latitude: 32° 07' N Longitude: 110° 56' W Elevation (ground): 2584 feet Year: 1971

Month	Temperature: Averages: Daily maximum	Daily minimum	Monthly	Extremes: Highest	Date	Lowest	Date	Degree days (Base 65°): Heating	Cooling	Precipitation: Total	Greatest in 24 hrs.	Date	Snow, Ice pellets: Total	Greatest in 24 hrs.	Date	Relative humidity: Hour 05 (Local time)	Hour 11 (Local time)	Hour 17 (Local time)	Hour 23 (Local time)	Wind &: Resultant: Direction	Resultant: Speed	Average speed	Fastest mile: Speed	Fastest mile: Direction #	Fastest mile: Date	Percent of possible sunshine	Average sky cover sunrise to sunset	Number of days: Sunrise to sunset: Clear	Partly cloudy	Cloudy	Precipitation .01 inch or more	Snow, Ice pellets 1.0 inch or more	Thunderstorms	Heavy fog	Temperatures: Maximum: 90° and above ‡	32° and below	Minimum: 32° and below	0° and below	Average daily solar radiation - langleys
JAN	65.6	35.4	50.5	85	19	17	6	445	6	0.04	0.04	2	T	T	3	52	30	21	45	15	2.6	8.1	28	SW	2	93	2.8	20	7	4	1	0	0	0	0	0	11	0	315
FEB	66.6	37.9	52.3	80	15+	27	4	350	0	0.50	0.34	17-18	T	T	20	49	28	21	38	19	3.3	9.5	37	W	3	88	3.2	16	8	4	3	0	0	0	0	6	0	391
MAR	76.4	43.1	59.8	90	30+	22	3	200	45	T	T	13	0.0	0.0		31	16	11	20	22	2.5	10.3	36	SW	13	97	2.4	22	6	3	0	0	0	0	2	0	4	0	523
APR	78.4	47.1	62.8	92	11	39	20+	111	51	0.56	0.50	15	0.0	0.0		40	20	15	28	20	4.0	10.4	29	SW	25+	93	2.1	21	7	2	2	0	0	0	2	0	0	0	590
MAY	85.1	53.5	69.3	94	25	46	19+	12	152	0.01	0.01	12	0.0	0.0		33	17	12	23	22	4.4	10.0	34	W	17+	95	2.0	24	4	3	1	0	0	0	10	0	0	0	676
JUN	96.8	65.6	81.2	105	22+	50	3	0	493	T	T	17 +	0.0	0.0		31	16	11	21	24	3.5	8.8	38	E	24	93	1.9	24	3	3	0	0	0	0	27	0	0	0	649
JUL	100.2	74.7	87.5	108	11	68	16	0	706	2.18	0.75	30-31	0.0	0.0		56	32	26	46	21	2.8	9.3	71	SE	16	85	4.1	17	10	4	8	0	14	0	31	0	0	0	678
AUG	91.9	70.6	81.3	97	29+	67	12+	0	514	3.29	1.00	3	0.0	0.0		78	49	43	68	18	2.4	8.3	40	SE	3	74	5.5	7	16	8	15	0	23	0	23	0	0	0	591
SEP	92.1	66.1	79.1	101	15+	55	23	0	430	1.75	0.65	8	0.0	0.0		63	38	33	54	17	3.7	9.1	42	W	18+	88	2.3	23	4	3	5	0	5	0	18	0	0	0	535
OCT	76.3	52.0	64.2	89	14+	26	30	120	101	1.18	0.97	16-17	0.0	0.0		68	41	38	60	15	3.9	9.6	35	S	24	76	3.3	19	5	7	7	0	3	0	0	0	1	0	414
NOV	70.4	43.2	56.8	86	11	35	22+	249	12	0.69	0.66	15-16	0.0	0.0		64	37	31	58	15	3.2	7.7	29	E	3	75	4.5	15	5	10	2	0	0	0	0	0	0	0	330
DEC	58.4	35.8	47.1	78	24	27	17+	548	0	1.97	0.83	4	6.8	6.8	8	81	56	49	78	15	3.5	7.7	39	E	18	64	5.5	13	3	15	6	1	0	1	0	0	10	0	244
YEAR	79.9	52.1	66.0	108	JUL. 11	17	JAN. 6	2035	2510	12.17	1.00	AUG. 3	6.8	6.8	DEC. 8	54	32	26	45	19	2.9	9.1	71	SE	JUL. 16	86	3.3	221	78	66	50	1	45	1	113	0	32	0	495

NORMALS, MEANS, AND EXTREMES

Month	Temperature: Normal: Daily maximum	Daily minimum	Monthly	Extremes: Record highest	Year	Record lowest	Year	Normal heating degree days (Base 65°)	Precipitation: Normal total	Maximum monthly	Year	Minimum monthly	Year	Maximum in 24 hrs.	Year	Snow, Ice pellets: Mean total	Maximum monthly	Year	Maximum in 24 hrs.	Year	Relative humidity: Hour 05 (Local time)	Hour 11 (Local time)	Hour 17 (Local time)	Hour 23 (Local time)	Wind &: Mean speed	Prevailing direction	Fastest mile: Speed	Direction #	Year	Pct. of possible sunshine	Mean sky cover sunrise to sunset	Mean number of days: Sunrise to sunset: Clear	Partly cloudy	Cloudy	Precipitation .01 inch or more	Snow, Ice pellets 1.0 inch or more	Thunderstorms	Heavy fog	Temperatures: Max.: 90° and above ‡	32° and below	Min.: 32° and below	0° and below	Average daily solar radiation - langleys
(a)	(b)	(b)	(b)	31		31		(b)	(b)	31		31		31		31	31		30		31	31	31	31	26	15	24	24		24	30	31	31	31	31	31	31	31	31	31	31	31	31	15
J	62.6	37.0	49.8	87	1953	16	1949	471	0.82	2.37	1957	T	1970+	1.40	1946	0.3	4.7	1949	3.5	1949	62	39	33	56	7.9	SE	40	E	1962+	82	4.7	14	7	10	4	*	*	*	0	0	7	0	313
F	66.0	39.8	52.9	92	1957	20	1955+	344	0.84	2.27	1941	0.01	1961	1.49	1942	0.2	3.9	1965	3.9	1965	59	34	27	49	8.0	SE	59	E	1952	83	4.4	13	6	9	4	*	*	*	0	5	0	386
M	72.2	43.8	58.0	92	1950	20	1965	242	0.53	2.26	1952	0.00	1956	1.19	1952	0.3	5.7	1964	5.7	1964	52	28	22	41	8.5	SE	41	SE	1955	86	4.5	14	8	9	4	*	*	*	0	2	0	506
A	81.1	50.6	65.9	102	1943	27	1945	75	0.27	1.66	1951	0.00	1960+	0.75	1952	T	1.0	1956	1.0	1956	42	21	16	31	8.8	SE	46	SE	1952	91	3.4	17	7	6	2	*	1	0	4	0	*	0	634
M	89.4	57.5	73.5	107	1958+	38	1950	6	0.13	0.89	1943	0.00	1964+	0.89	1943	0.0	0.0		0.0		33	16	12	23	8.6	SE	42	NE	1965	94	2.7	20	7	4	1	0	1	0	18	0	0	0	698
J	98.2	67.1	82.7	111	1970+	47	1955	0	0.29	1.46	1954	0.00	1969+	1.27	1954	0.0	0.0		0.0		32	17	13	23	8.5	SSE	50	SE	1961	93	2.2	22	6	2	1	0	2	0	28	0	0	0	695
J	98.5	74.1	86.3	111	1958	63	1960+	0	2.06	5.20	1958	0.27	1947	3.93	1958	0.0	0.0		0.0		57	33	28	47	8.2	SE	71	SE	1971	77	5.3	10	12	9	10	0	14	0	29	0	0	0	604
A	94.7	71.5	83.1	109	1944	61	1956	0	2.88	7.93	1955	0.46	1953	2.48	1961	0.0	0.0		0.0		67	40	34	55	7.6	SE	54	NE	1969+	80	4.7	12	12	7	10	0	14	0	28	0	0	0	577
S	93.3	67.4	80.4	107	1950+	44	1965	0	1.00	5.11	1964	0.00	1953	3.05	1964	0.0	0.0		0.0		55	31	27	44	8.1	SE	54	SE	1960	87	2.8	20	6	4	4	0	5	0	24	0	0	0	527
O	83.2	56.8	70.0	101	1955	26	1971	25	0.64	2.62	1957	0.00	1952	1.86	1951	T	T	1959	T	1959	52	29	25	43	8.2	SE	47	SE	1948	90	2.7	20	7	4	3	0	2	0	9	0	*	0	440
N	71.9	44.2	58.1	90	1947	24	1958	231	0.62	1.90	1952	0.00	1970+	1.86	1968	0.2	6.4	1958	6.4	1958	54	31	28	48	8.1	SE	55	E	1951	85	3.5	17	7	6	3	*	*	*	1	0	339
D	64.9	38.9	51.9	84	1954	18	1954	406	0.92	5.02	1965	0.00	1958	1.54	1967	0.4	6.8	1971	6.8	1971	62	39	35	57	7.8	SE	44	W	1949	79	4.5	13	6	10	4	*	*	*	0	5	0	276
YR	81.3	54.1	67.7	111	JUN. 1970+	16	JAN. 1949	1800	11.00	7.93	AUG. 1955	0.00	NOV. 1970+	3.93	JUL. 1958	1.4	6.8	DEC. 1971	6.8	DEC. 1971	52	30	25	43	8.2	SE	71	SE	JUL. 1971	86	3.8	194	91	80	50	1	40	1	141	0	21	0	500

Means and extremes above are from existing and comparable exposures. Annual extremes have been exceeded at other sites in the locality as follows: Highest temperature 112 in June 1902; lowest temperature 6 in January 1913.

(a) Length of record, years, based on January data. Other months may be for more or fewer years if there have been breaks in the record.
(b) Climatological standard normals (1931-1960).
* Less than one half.
\+ Also on earlier dates, months, or years.
T Trace, an amount too small to measure.
Below zero temperatures are preceded by a minus sign.
The prevailing direction for wind in the Normals, Means, and Extremes table is from records through 1963.
‡ ≥ 70° at Alaskan stations.

Unless otherwise indicated, dimensional units used in this bulletin are: temperature in degrees F.; precipitation, including snowfall, in inches; wind movement in miles per hour; and relative humidity in percent. Heating degree day totals are the sums of negative departures of average daily temperatures from 65° F. Cooling degree day totals are the sums of positive departures of average daily temperatures from 65° F. Sleet was included in snowfall totals beginning with July 1948. The term "ice pellets" includes solid grains of ice (sleet) and particles consisting of snow pellets encased in a thin layer of ice. Heavy fog reduces visibility to 1/4 mile or less.

Sky cover is expressed in a range of 0 for no clouds or obscuring phenomena to 10 for complete sky cover. The number of clear days is based on average cloudiness 0-3, partly cloudy days 4-7, and cloudy days 8-10 tenths.

Solar radiation data are the averages of direct and diffuse radiation on a horizontal surface. The langley denotes one gram calorie per square centimeter.

& Figures instead of letters in a direction column indicate direction in tens of degrees from true North; i.e., 09-East, 18-South, 27-West, 36-North, and 00-Calm. .Resultant wind is the vector sum of wind directions and speeds divided by the number of observations. If figures appear in the direction column under "Fastest mile" the corresponding speeds are fastest observed 1-minute values.

To 8 compass points only.

AVERAGE TEMPERATURE

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Annual
1932	43.3	54.6	57.4	63.5	71.7	79.6	85.5	85.2	80.6	67.8	60.0	47.2	66.4
1933	47.7	47.5	57.8	60.6	67.1	82.4	87.4	85.8	81.6	72.0	59.4	52.2	66.8
1934	49.4	56.4	63.9	69.0	78.4	79.8	87.8	83.6	79.6	70.6	56.7	52.3	69.0
1935	52.1	55.0	55.0	64.7	67.6	82.0	85.7	82.3	78.3	68.8	54.6	51.5	66.5
1936	48.8	53.2	59.0	66.9	75.3	83.8	86.8	83.8	77.6	68.6	59.9	50.8	67.9
1937	41.2	52.9	56.0	62.8	73.8	81.2	86.3	86.0	81.8	71.0	59.4	54.3	67.2
1938	52.4	54.2	57.6	65.5	71.3	81.8	84.4	83.3	81.2	70.0	54.8	53.0	67.5
1939	50.4	45.5	59.2	67.2	74.0	82.6	87.2	84.6	79.4	67.5	62.2	56.2	68.0
#1940	52.6	52.8	59.6	65.4	76.0	83.4	87.2	84.4	80.8	70.7	56.8	56.5	68.9
1941	52.6	56.5	56.9	59.8	72.9	80.2	86.4	83.2	79.4	67.2	60.6	52.0	67.3
1942	53.0	50.8	55.8	63.6	73.1	82.9	89.8	85.2	81.6	69.4	63.2	54.2	68.5
1943	52.8	58.7	61.8	70.4	76.3	83.2	88.0	83.9	82.0	70.8	61.6	52.5	70.2
1944	50.4	50.7	56.4	63.0	73.4	80.6	87.4	86.4	79.6	72.8	55.9	52.3	67.4
1945	50.7	53.6	54.6	63.4	73.6	78.9	86.5	84.2	80.9	71.6	58.5	50.4	67.2
1946	48.0	52.0	59.4	70.6	73.0	85.4	86.0	84.0	80.9	65.9	54.8	55.6	68.0
1947	48.4	57.8	59.6	64.8	76.8	82.1	88.2	83.7	83.0	70.4	54.2	48.2	68.1
#1948	51.5	50.8	54.0	68.0	75.1	83.4	86.8	85.2	82.6	71.1	53.6	51.2	67.8
1949	43.0	50.2	57.6	67.4	73.4	83.0	85.0	84.2	82.2	66.4	64.3	50.8	67.3
1950	50.4	57.2	60.7	69.2	71.6	81.6	82.8	84.7	78.3	76.8	63.0	56.9	69.4
1951	50.3	53.7	57.4	64.4	74.0	80.5	88.8	84.9	83.2	72.5	58.5	51.5	68.3
1952	51.7	51.6	52.7	65.1	76.8	83.4	86.0	85.3	83.3	76.4	56.4	50.1	68.2
1953	53.9	52.2	60.6	65.2	68.9	84.1	86.8	86.4	82.9	71.0	61.6	48.6	68.5
1954	53.5	60.3	59.3	71.5	75.9	83.1	86.8	83.4	82.9	74.2	62.7	53.3	70.6
1955	46.7	48.8	59.6	64.4	71.8	82.3	84.6	81.8	81.2	74.3	58.5	55.5	67.4
1956	56.1	48.7	60.2	64.2	73.8	86.2	85.4	84.0	84.3	70.2	57.8	52.5	68.8
1957	53.8	61.1	59.6	66.2	71.2	85.3	88.1	84.2	81.3	67.9	54.3	54.9	69.0
#1958	51.4	55.8	54.2	64.5	79.1	84.9	86.9	84.5	80.5	71.9	57.8	55.6	68.9
1959	53.8	51.5	58.2	69.2	72.5	85.4	86.6	81.8	80.2	69.7	58.5	51.4	68.2
1960	46.8	47.8	61.0	65.7	71.9	83.5	86.0	84.2	81.2	67.3	59.2	49.1	67.0
1961	52.5	53.0	58.2	66.2	72.9	84.7	86.1	81.8	77.1	68.5	54.4	50.5	67.1
1962	49.0	54.7	53.3	70.1	71.7	80.3	84.9	87.0	81.3	70.6	61.5	54.0	68.2
1963	48.3	57.5	57.7	64.0	77.3	80.5	87.6	82.3	82.4	73.2	59.3	52.7	68.6
1964	47.5	47.7	54.8	63.2	73.2	82.0	86.2	81.6	76.3	72.1	55.2	52.4	66.0
1965	53.6	51.1	55.1	64.5	70.1	77.6	85.0	84.0	76.8	71.9	62.6	52.1	67.1
1966	47.7	47.8	60.1	66.8	76.1	82.8	85.3	82.9	78.3	68.1	61.1	52.4	67.4
1967	51.4	55.6	62.1	62.1	71.9	80.7	85.4	84.6	80.7	71.6	62.9	48.6	68.1
1968	52.4	59.1	58.7	63.2	73.3	83.5	84.9	81.3	80.7	71.7	58.3	50.6	68.1
1969	55.5	53.1	54.3	66.6	74.9	80.7	86.1	86.3	81.2	66.8	58.6	52.4	68.0
1970	50.0	57.0	55.9	61.1	75.2	83.4	87.2	84.8	76.4	65.1	60.1	51.8	67.3
1971	50.5	52.3	59.8	62.8	69.3	81.2	87.5	81.3	79.1	64.2	56.8	47.1	66.0
RECORD MEAN	50.3	53.1	57.7	64.5	72.6	81.9	86.1	83.9	80.0	69.4	58.2	51.2	67.4
MAX	64.5	67.6	73.1	80.8	89.6	98.7	99.2	96.6	94.2	85.1	73.4	65.3	82.3
MIN	36.0	38.5	42.3	48.1	55.6	65.0	72.9	71.2	65.7	53.6	43.0	37.1	52.4

TOTAL DEGREE DAYS

TUCSON, ARIZONA

Season	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	Total
1934-35	0	0	0	18	276	394	395	276	310	63	41	0	1773
1935-36	0	0	0	56	317	413	493	341	246	83	6	0	1955
1936-37	0	0	0	36	171	444	738	344	281	95	0	0	2109
1937-38	0	0	0	0	176	333	389	302	233	83	22	0	1538
1938-39	0	0	0	20	327	368	455	542	218	32	0	0	1962
1939-40	0	0	0	29	120	280	385	352	169	61	0	0	1396
1940-41	0	0	0	36	255	269	383	241	241	175	93	0	1633
1941-42	0	0	0	59	159	405	372	399	285	93	6	0	1778
1942-43	0	0	0	31	82	328	375	190	125	48	0	0	1179
1943-44	0	0	0	43	118	386	458	414	269	95	4	0	1787
1944-45	0	0	0	2	287	392	448	315	324	137	1	0	1906
1945-46	0	0	2	7	206	451	526	370	196	22	0	0	1780
1946-47	0	0	0	51	308	304	513	205	175	76	2	0	1634
1947-48	0	0	0	19	337	518	417	408	341	41	0	0	2081
#1948-49	0	0	0	23	344	428	683	414	230	64	0	0	2186
1949-50	0	0	0	78	56	442	445	216	154	22	21	0	1434
1950-51	0	0	0	0	72	242	448	321	230	81	25	0	1419
1951-52	0	0	0	18	187	413	404	386	383	69	0	0	1860
1952-53	0	0	0	0	275	456	339	352	161	64	38	0	1685
1953-54	0	0	0	30	152	499	352	127	179	5	6	0	1350
1954-55	0	0	0	13	91	364	560	445	175	74	13	0	1735
1955-56	0	0	0	0	198	288	268	468	167	84	0	0	1473
1956-57	0	0	0	47	223	378	340	128	167	50	18	0	1351
1957-58	0	0	0	41	314	306	416	252	329	100	0	0	1758
#1958-59	0	0	0	27	215	284	340	370	205	8	10	0	1459
1959-60	0	0	0	45	189	416	556	493	136	68	5	0	1908
1960-61	0	0	0	37	183	486	381	331	206	41	9	0	1674
1961-62	0	0	0	61	312	444	491	285	357	5	7	0	1962
1962-63	0	0	0	13	137	336	515	215	234	79	0	0	1529
1963-64	0	0	0	2	186	372	533	497	321	107	27	0	2045
1964-65	0	0	0	5	293	383	348	383	305	114	21	0	1852
1965-66	0	0	8	33	110	396	532	473	166	26	0	0	1744
1966-67	0	0	0	20	126	386	416	256	115	113	20	0	1452
1967-68	0	0	0	14	89	502	384	170	200	91	0	0	1450
1968-69	0	0	0	4	204	440	288	328	339	34	35	0	1672
1969-70	0	0	0	55	188	384	455	224	274	132	8	0	1720
1970-71	0	0	0	58	143	403	445	350	200	111	12	0	1722
1971-72	0	0	0	120	249	548							

TOTAL PRECIPITATION

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Annual
1932	0.74	1.27	0.40	0.32	T	0.16	2.58	1.61	0.23	1.62	0.00	2.01	10.94
1933	0.93	0.24	0.00	0.03	0.00	0.10	1.60	2.23	1.62	2.00	0.47	0.38	9.60
1934	0.50	0.30	0.39	0.03	0.05	0.14	1.16	2.41	1.07	T	0.50	2.04	8.59
1935	1.25	2.43	1.46	T	0.14	T	0.87	5.61	0.88	0.00	1.89	1.24	15.77
1936	0.96	0.92	0.55	0.07	T	0.06	2.82	3.03	1.51	0.34	1.13	0.85	12.24
1937	1.62	0.23	0.63	0.01	0.25	T	2.06	1.29	1.43	0.05	0.19	0.67	8.43
1938	0.65	0.88	0.43	0.08	0.11	2.07	0.78	2.37	0.50	0.00	0.09	0.93	8.89
1939	0.35	1.60	0.69	0.04	0.00	T	0.61	1.24	1.53	0.18	0.54	0.27	7.05
#1940	0.45	1.42	0.04	0.21	0.52	1.19	0.68	3.51	1.89	0.17	1.75	3.07	14.90
1941	1.43	2.27	1.46	1.06	0.74	T	2.51	1.99	1.20	0.53	0.65	2.01	15.85
1942	0.50	1.92	0.23	0.79	0.00	0.00	0.68	0.90	1.78	0.60	T	0.47	7.87
1943	0.44	0.39	1.27	0.03	0.89	0.13	1.09	3.04	3.59	0.25	0.00	0.79	11.91
1944	0.36	1.10	1.01	0.56	0.37	0.04	1.77	1.78	2.08	1.13	1.78	1.55	13.53
1945	0.58	0.47	0.53	0.11	0.00	0.00	2.84	4.31	0.14	1.13	0.00	0.47	10.58
1946	2.22	0.22	0.50	0.14	0.00	0.04	2.44	3.61	2.26	0.82	1.10	0.46	13.81
1947	0.14	0.02	0.39	T	0.04	0.05	0.27	2.24	0.47	0.80	0.70	0.41	5.53
#1948	T	2.00	0.29	T	0.00	0.06	3.02	1.08	1.11	0.56	0.06	0.93	9.11
1949	1.19	0.20	0.19	0.38	0.00	0.02	1.42	1.92	0.81	0.52	0.17	0.84	7.66
1950	0.30	1.48	0.26	T	0.01	1.24	3.72	0.86	1.15	T	T	0.27	9.29
1951	1.12	0.13	0.12	1.66	0.01	T	1.49	2.66	0.34	1.91	1.27	0.99	11.70
1952	0.24	0.08	2.26	1.51	0.02	0.30	3.25	1.56	0.80	0.00	1.90	0.73	12.65
1953	0.06	0.96	0.60	0.06	T	0.03	2.87	0.46	0.00	T	0.18	0.12	5.34
1954	0.78	0.75	1.01	0.00	0.47	1.46	2.03	2.00	3.05	0.02	0.00	0.06	11.63
1955	1.89	0.19	0.03	T	0.03	0.03	5.10	7.93	0.05	0.32	T	0.33	15.90
1956	1.08	0.54	0.00	0.31	T	0.36	2.77	1.12	0.37	0.27	T	0.22	7.04
1957	2.37	0.36	0.93	0.16	0.33	0.17	1.25	3.92	T	2.62	0.56	0.89	13.56
#1958	T	1.15	1.82	0.48	0.02	0.51	5.20	0.91	0.21	1.21	1.09	0.00	12.60
1959	0.03	0.28	T	0.01	0.00	T	3.92	2.79	T	0.70	0.29	1.97	9.99
1960	2.01	0.42	0.25	0.00	0.08	0.25	0.73	2.09	1.20	0.71	0.07	0.93	8.74
1961	0.95	0.01	0.41	T	0.00	0.26	1.81	4.28	0.51	0.65	0.44	1.57	10.89
1962	1.39	0.33	0.25	T	0.00	0.25	1.38	0.48	2.86	0.22	0.49	0.93	8.58
1963	0.59	0.81	0.34	0.32	T	T	1.66	2.86	1.45	0.60	1.26	0.08	9.97
1964	0.14	0.13	0.81	0.67	0.00	0.01	4.82	3.90	5.11	0.91	0.68	0.81	17.99
1965	0.45	0.64	0.27	0.23	T	0.01	2.13	1.12	0.82	0.07	0.77	5.02	11.53
1966	1.74	2.25	0.19	0.12	0.11	0.02	2.57	3.31	3.53	0.32	0.06	0.19	14.41
1967	0.04	0.13	0.41	0.29	0.62	0.42	2.72	2.00	1.35	1.03	0.48	3.44	12.93
1968	0.18	0.99	1.79	0.62	T	0.00	1.97	1.12	T	0.09	1.86	0.32	8.94
1969	0.74	0.50	0.34	0.60	0.46	0.00	1.51	2.57	1.31	0.03	1.06	0.82	9.94
1970	T	0.34	1.13	0.45	0.03	0.33	2.53	1.43	3.58	1.73	0.00	0.43	11.98
1971	0.04	0.50	T	0.56	0.01	T	2.18	3.29	1.75	1.18	0.69	1.97	12.17
RECORD MEAN	0.80	0.82	0.70	0.37	0.19	0.26	2.21	2.19	1.28	0.57	0.78	1.05	11.22

TOTAL SNOWFALL

Season	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	Total

Record mean values above (not adjusted for instrument location changes listed in the Station Location table) are means for the period beginning in 1900.

# Indicates a break in the data sequence during the year, or season, due to a station move or relocation of instruments. See Station Location table. Temperature and precipitation are from the University of Arizona location through May 1940 and from Airport locations thereafter. Heating Degree Days from Airport locations for the entire period of the table.

STATION LOCATION

TUCSON, ARIZONA

Location	Occupied from	Occupied to	Airline distance and direction from previous location	Latitude North	Longitude West	Elevation above Sea level: Ground at temperature site	Elevation above Ground: Wind instruments	Extreme thermometers	Psychrometer	Telepsychrometer	Tipping bucket rain gage	Weighing rain gage	8" rain gage	Hygrothermometer	Elevation above Sea level: Pyranometer	Remarks
COOPERATIVE																
University of Arizona	10-1891	Present		32° 14'	110° 57'	2391	a40	b5	b5				3		# 2440	a - 45 ft. to September, 1894. b - 11 ft. to September, 1894. # - Added June, 1946.
AIRPORT																
Tucson Municipal (Later Davis-Monthan Air Force Base)	1/22/30	10/14/48		32° 11'	110° 55'	2553	c33	g5	g5		f14	d14	e14			Army Signal Service to Nov. 1932. c - Installed 6/17/40 d - Installed 6/17/40 at 3 ft. and moved to roof 7/23/47. e - Unknown to 6/17/40, 5 ft. to 7/23/47. f - Installed 10/1/47. g - Unknown prior to 6/17/40.
Tucson Municipal	10/14/48	10/15/58	4.9 mi.SW	32° 08'	110° 57'	2558	33	5	5	4	5		5			New Airport
Tucson Municipal ††	10/15/58	Present	4500 ft. E	32° 07'	110° 56'	2584	20	5	5	5	3		4			†† Tucson International Airport effective 3/13/63.

Requests for additional information should be directed to the National Weather Service Office for which this summary was issued.

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U.S. DEPARTMENT OF COMMERCE
NATIONAL CLIMATIC CENTER
FEDERAL BUILDING
ASHEVILLE, N.C. 28801

A UNITED STATES DEPARTMENT OF COMMERCE PUBLICATION

LOCAL CLIMATOLOGICAL DATA
ANNUAL SUMMARY WITH COMPARATIVE DATA

EL PASO, TEXAS

1971

U.S. DEPARTMENT OF COMMERCE NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION ENVIRONMENTAL DATA SERVICE

NARRATIVE CLIMATOLOGICAL SUMMARY

The city of El Paso is located in the extreme west point of Texas at an elevation of about 3,700 feet in the business district, with the Weather Bureau station located on a mesa at about 200 feet higher elevation. The climate of the region is characterized by the abundance of sunshine throughout the year, high but no extreme daytime summer temperatures, with very low humidity, scanty rainfall, and a relatively cool winter season typical of arid areas.

Rainfall throughout the year is light, insufficient for any growth except desert vegetation, and irrigation is necessary for crops, gardens, and lawns. Dry periods of several months' duration without appreciable rainfall are not unusual. More than half of the precipitation occurs in the summer season from brief, but at times heavy, thunderstorms. Small amounts of snow fall nearly every winter, but snow cover rarely amounts to more than an inch and seldom remains on the ground for more than a few hours.

Daytime summer temperatures are high, frequently above 90° and occasionally above 100°, but summer nights are usually comfortable, with minimum temperatures usually in the sixties. The average number of days with temperatures 90° or higher is 102 per year, and with 100° or higher 10 per year. The highest temperature on record is 109° on June 21, 1960, and July 3, 1960. It should be noted that when temperatures are high the relative humidity is generally quite low. A 20-year tabulation of observations with temperatures above 90° shows that in April, May, and June the humidity averaged from 10 to 14 percent, while in July, August, and September it averaged 22 to 24 percent. This low humidity aids the efficiency of evaporative air coolers, which are widely used in homes and public buildings and are quite effective in cooling the air to comfortable temperatures.

Winter daytime temperatures are mild, rising to 55° to 60° on the average. At night they drop below freezing about half the time in December and January, and the average number of days with temperatures 32° or lower is 51 per year. Temperatures below 10° are rare, having occurred on only 28 days in over 80 years of record, although an extreme of 8° below zero has been recorded. The flat, irrigated land of the Rio Grande Valley in the vicinity of El Paso is noticeably cooler, particularly at night, than the airport or the City proper, both in summer and winter. This results in more comfortable temperatures in summer, but increases the severity of frosts in winter. The cooler air in the Valley also causes marked short-period fluctuations of temperature and dewpoint at the airport with changes in wind direction, especially during the early morning hours.

The Franklin Mountains begin within the City limits and extend northward for about 16 miles; peaks of these mountains range from 4,687 to 7,152 feet above sea level. They add noticeably to the gustiness of the winds during high velocities, and cause changes in direction during periods of light winds.

Dust and sandstorms are the most unpleasant features of the weather in El Paso. While wind velocities are not excessively high, the soil surface is dry and loose and natural vegetation is sparse, so moderately strong winds raise considerable dust and sand. A tabulation of dust-storms, for a period of 20 years, shows definitely that they are most frequent in March and April, and comparatively rare in the fall months, although they do occur at all times of the year. The highest monthly average is in March, nearly 40 hours a month with visibility reduced to 6 miles or less by dust.

Prevailing winds are from the north in winter and south in summer, with the prevailing direction for the year north by a small margin.

METEOROLOGICAL DATA FOR THE CURRENT YEAR

Station: EL PASO, TEXAS INTERNATIONAL AIRPORT Standard time used: MOUNTAIN Latitude: 31° 48' N Longitude: 106° 24' W Elevation (ground): 3918 feet Year: 1971

Month	Temperature: Averages: Daily maximum	Daily minimum	Monthly	Extremes: Highest	Date	Lowest	Date	Degree days (Base 65°): Heating	Cooling	Precipitation: Total	Greatest in 24 hrs.	Date	Snow, Ice pellets: Total	Greatest in 24 hrs.	Date	Relative humidity: Hour 05 (Local time)	Hour 11 (Local time)	Hour 17 (Local time)	Hour 23 (Local time)	Wind &: Resultant: Direction	Resultant: Speed	Average speed	Fastest mile: Speed	Fastest mile: Direction #	Fastest mile: Date	Percent of possible sunshine	Average sky cover sunrise to sunset	Number of days: Sunrise to sunset: Clear	Partly cloudy	Cloudy	Precipitation .01 inch or more	Snow, Ice pellets 1.0 inch or more	Thunderstorms	Heavy fog	Temperatures: Maximum ‡: 90° and above	32° and below	Minimum: 32° and below	0° and below	Average daily solar radiation - langleys
JAN	61.1	28.1	44.6	75	31+	3	8	625	0	0.17	0.07	3-4	3.8	1.5	3-4	53	34	26	43	27	1.8	7.9	45	W	3	86	4.0	14	9	8	4	2	0	0	0	0	20	0	325
FEB	63.7	33.1	48.4	78	15	13	8	457	0	0.04	0.03	18	T	T	20	37	25	19	29	26	5.7	10.3	56	SW	3	95	3.4	15	11	2	2	0	0	0	0	0	13	0	433
MAR	73.6	42.6	58.1	88	27	14	3	254	45	0.00	0.00		0.0	0.0		23	16	12	18	28	6.3	11.6	48	W	5	99	2.4	22	9	0	0	0	0	0	0	0	7	0	565
APR	77.1	48.0	62.6	89	11+	36	7	110	45	0.42	0.34	14	T	T	19 +	33	21	15	26	27	3.5	11.1	39	W	21	95	2.8	19	7	4	3	0	1	0	0	0	0	0	623
MAY	86.1	58.1	72.1	94	26+	46	13	6	235	T	T	11	0.0	0.0		28	16	12	17	25	6.2	11.3	49	SW	4	94	3.4	17	7	7	0	0	1	0	13	0	0	0	691
JUN	95.3	66.8	81.1	101	28+	53	5+	0	492	0.01	0.01	20	0.0	0.0		34	18	14	22	22	2.2	8.4	37	NE	20+	94	2.6	22	6	2	1	0	2	0	28	0	0	0	709
JUL	94.4	70.1	82.3	100	18+	62	2	0	543	2.34	1.65	2-3	0.0	0.0		59	35	27	44	12	2.7	7.9	43	W	22	88	3.5	16	11	4	8	0	9	0	28	0	0	0	665
AUG	88.5	65.4	77.0	93	23	60	7+	0	375	1.59	0.62	9	0.0	0.0		73	44	38	55	12	2.6	7.3	40	N	8	84	4.4	12	18	1	9	0	9	0	13	0	0	0	586
SEP	86.8	60.2	73.5	96	16	44	20	31	293	0.96	0.78	23	0.0	0.0		63	37	29	49	14	1.2	7.9	35	E	5	87	3.1	19	9	2	6	0	5	0	18	0	0	0	500
OCT	74.8	50.1	62.5	84	14+	35	20	112	43	1.07	0.54	25	0.0	0.0		68	43	36	56	26	1.0	8.1	35	W	26	73	4.1	15	10	6	8	0	5	0	0	0	0	0	398
NOV	65.4	38.7	52.1	77	5	31	24+	381	0	0.14	0.13	15	0.0	0.0		62	38	33	55	34	1.9	6.9	33	W	28	82	4.2	15	9	6	2	0	0	0	0	0	3	0	339
DEC	56.4	32.9	44.7	71	26+	23	30	624	0	0.50	0.21	8-9	1.0	1.0	1	75	53	45	66	29	1.2	7.7	56	SW	14	69	5.9	7	12	12	9	1	1	1	0	0	12	0	269
YEAR	76.9	49.5	63.2	101	JUN. 28+	3	JAN. 8	2600	2071	7.24	1.65	JUL. 2-3	4.8	1.5	JAN. 3-4	51	32	26	40	26	1.9	8.9	56	SW	DEC. 14+	88	3.7	193	118	54	52	3	33	1	100	4	55	0	509

NORMALS, MEANS, AND EXTREMES

Month	Temperature: Normal: Daily maximum	Daily minimum	Monthly	Extremes Ø: Record highest	Year	Record lowest	Year	Normal heating degree days (Base 65°)	Precipitation: Normal total	Maximum monthly	Year	Minimum monthly	Year	Maximum in 24 hrs.	Year	Snow, Ice pellets: Mean total	Maximum monthly	Year	Maximum in 24 hrs.	Year	Relative humidity: Hour 05 (Local time)	Hour 11 (Local time)	Hour 17 (Local time)	Hour 23 (Local time)	Wind &: Mean speed	Prevailing direction	Fastest mile: Speed	Direction #	Year	Pct. of possible sunshine	Mean sky cover sunrise to sunset	Mean number of days: Sunrise to sunset: Clear	Partly cloudy	Cloudy	Precipitation .01 inch or more	Snow, Ice pellets 1.0 inch or more	Thunderstorms	Heavy fog	Temperatures: Max. ‡: 90° and above	32° and below	Min.: 32° and below	0° and below	Average daily solar radiation - langleys
(a)	(b)	(b)	(b)	12		12		(b)	32			32		32		32	32		32		11	11	11	11	29	15	32	32		29	29	29	29	29	32	32	32	32	11	11	11	11	22
J	56.3	29.5	42.9	80	1970	-8	1962	685	0.46	1.84	1949	0.00	1967+	0.61	1960	1.3	8.3	1949	4.2	1949	59	41	31	50	9.3	N	61	SW	1943	78	4.6	14	8	9	3	1	*	1	0	1	20	*	337
F	62.4	35.7	49.1	79	1962	11	1963	445	0.41	1.42	1944	0.00	1943	0.87	1956	0.8	8.9	1956	7.2	1936	50	35	25	40	10.3	N	69	W	1960	82	4.1	14	7	7	3	*	*	*	0	*	12	0	432
M	69.4	40.3	54.9	88	1971+	14	1971	319	0.35	2.26	1958	T	1966+	1.72	1941	0.4	7.3	1958	7.3	1958	44	30	21	33	12.1	WSW	70	SW	1950+	84	4.4	15	8	8	3	0	1	*	0	0	6	0	551
A	78.2	48.5	63.4	98	1965	33	1968	105	0.29	1.23	1942	0.00	1955+	1.08	1966	T	T	1971+	T	1971+	33	21	14	24	12.2	WSW	66	W	1958+	87	3.6	16	8	6	2	0	1	*	1	0	0	0	661
M	86.9	56.9	71.9	101	1969	31	1967	0	0.40	1.92	1941	0.00	1962	1.23	1941						35	20	13	24	11.2	WSW	70	NW	1950+	89	3.2	19	8	4	2	0	2	*	15	0	0	*	0	723
J	95.4	66.5	81.0	106	1968	51	1968+	0	0.69	2.67	1966	T	1969+	1.45	1966	0.0	0.0		0.0		41	25	18	30	10.3	S	68	N	1947	89	2.8	20	7	3	3	0	5	0	26	0	0	0	0	731
J	94.9	68.9	81.9	106	1963	62	1971+	0	1.29	5.53	1968	0.17	1965	2.63	1968	0.0	0.0		0.0		58	39	29	43	9.1	SSE	68	NE	1966	79	4.5	12	13	6	8	0	10	0	28	0	0	0	0	672
A	93.0	67.7	80.4	105	1969	58	1970+	0	1.19	4.11	1957	T	1962	2.00	1957	0.0	0.0		0.0		59	41	32	47	8.6	S	63	N	1948	81	4.2	14	12	5	7	0	10	0	23	0	0	0	0	632
S	87.5	61.4	74.5	98	1970+	44	1971	0	1.14	6.29	1958	T	1959+	2.89	1941	0.0	0.0		0.0		63	45	34	50	8.5	S	52	SW	1970	82	3.1	19	7	4	5	0	4	*	10	0	0	0	0	398
O	78.8	50.0	64.4	92	1969+	25	1970	84	0.85	4.31	1945	0.00	1952	1.77	1945	0.0	0.0		0.0		56	34	26	45	8.4	N	49	W	1956	84	3.0	19	7	5	4	0	2	*	1	0	*	0	463
N	66.3	36.1	51.2	81	1966	18	1970	414	0.33	1.63	1961	0.00	1964+	1.19	1943	0.9	7.8	1961	7.8	1961	57	38	32	49	8.8	N	57	W	1944	83	3.5	17	6	7	2	*	*	*	0	0	6	0	359
D	57.5	30.7	44.1	75	1970	11	1964	648	0.49	1.73	1960	0.00	1955+	1.05	1946	1.0	10.1	1960	7.1	1951	64	45	37	55	8.7	N	66	W	1970+	77	4.2	16	7	8	4	*	*	*	0	*	17	0	306
YR	77.2	49.4	63.3	106	JUN. 1968+	-8	JAN. 1962	2700	7.89	6.29	SEP. 1958	0.00	JAN. 1967+	2.89	SEP. 1941	4.4	10.1	DEC. 1960	7.8	NOV. 1961	52	34	26	41	9.8	N	70	NW	MAY 1950+	83	3.8	195	98	72	44	2	36	2	103	1	61	*	522

Ø Beginning Sept. 1, 1960.
Means and extremes above are from existing and comparable exposures. Annual extremes have been exceeded at other sites in the locality as follows: Highest temperature 109 in June and July 1960; maximum monthly precipitation 8.18 in July 1881; maximum precipitation in 24 hours 6.50 in July 1881; maximum snowfall in 24 hours 8.4 in November 1906.

(a) Length of record, years, based on January data. Other months may be for more or fewer years if there have been breaks in the record.
(b) Climatological standard normals (1931-1960).
* Less than one half.
\+ Also on earlier dates, months, or years.
T Trace, an amount too small to measure.
Below zero temperatures are preceded by a minus sign.
The prevailing direction for wind in the Normals, Means, and Extremes table is from records through 1963.
‡ For 70° at Alaskan stations.

Unless otherwise indicated, dimensional units used in this bulletin are: temperature in degrees F.; precipitation, including snowfall, in inches; wind movement in miles per hour; and relative humidity in percent. Heating degree day totals are the sums of negative departures of average daily temperatures from 65° F. Cooling degree day totals are the sums of positive departures of average daily temperatures from 65° F. Sleet was included in snowfall totals beginning with July 1948. The term "Ice pellets" includes solid grains of ice (sleet) and particles consisting of snow pellets encased in a thin layer of ice. Heavy fog reduces visibility to 1/4 mile or less.

Sky cover is expressed in a range of 0 for no clouds or obscuring phenomena to 10 for complete sky cover. The number of clear days is based on average cloudiness 0-3, partly cloudy days 4-7, and cloudy days 8-10 tenths.

Solar radiation data are the averages of direct and diffuse radiation on a horizontal surface. The langley denotes one gram calorie per square centimeter.

& Figures instead of letters in a direction column indicate direction in tens of degrees from true North; i.e., 09 - East, 18 - South, 27 - West, 36 - North, and 00 - Calm. Resultant wind is the vector sum of wind directions and speeds divided by the number of observations. If figures appear in the direction column under "Fastest mile" the corresponding speeds are fastest observed 1-minute values.

To 8 compass points only.

AVERAGE TEMPERATURE

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Annual
1932	42.8	53.2	52.2	65.1	73.2	81.0	83.0	80.8	73.9	62.6	53.2	43.2	63.7
1933	43.7	46.6	58.9	60.5	70.6	80.0	84.0	82.0	79.8	68.6	55.4	50.1	65.0
1934	45.4	53.8	58.0	68.0	76.8	83.1	84.8	83.8	77.8	69.4	55.4	48.5	67.1
1935	48.8	48.6	58.6	65.3	68.4	81.2	84.0	81.6	73.4	67.1	53.4	46.5	64.7
#1936	45.5	51.2	58.0	65.8	74.2	82.4	82.6	80.8	73.7	63.4	50.6	46.8	64.6
1937	42.4	49.3	52.8	64.4	74.4	82.4	84.4	84.3	76.9	66.8	55.2	47.4	65.1
1938	47.2	53.8	57.4	63.8	73.1	81.2	80.6	81.0	73.8	68.6	49.8	48.4	64.9
1939	45.8	43.6	58.2	65.6	75.0	83.6	83.1	80.7	77.2	64.4	51.5	49.4	64.8
1940	42.6	50.4	58.4	63.6	73.8	79.2	83.4	79.6	77.2	66.0	50.8	50.4	64.6
1941	46.7	53.0	53.8	60.2	73.7	78.6	80.9	79.8	74.4	65.2	53.3	48.2	64.0
#1942	47.7	48.2	54.1	63.6	73.5	83.6	83.6	79.4	73.5	64.8	58.1	47.7	64.8
1943	44.4	51.2	55.8	67.2	72.6	79.6	80.7	84.0	73.8	63.8	51.2	43.6	64.0
1944	40.8	49.4	54.0	61.6	71.7	79.4	82.3	80.0	72.6	65.6	51.4	44.7	62.8
1945	45.8	51.3	54.2	61.8	73.2	79.0	81.7	81.5	75.8	63.8	54.9	45.4	64.0
1946	41.0	48.5	55.8	67.8	71.6	82.6	82.0	81.8	76.8	66.2	49.8	47.0	64.2
1947	40.0	49.7	55.4	61.4	73.5	79.4	83.6	80.0	76.4	68.0	49.4	43.0	63.3
1948	40.6	48.8	50.8	67.4	74.6	82.2	83.2	82.2	76.0	64.4	47.9	47.8	63.8
1949	36.1	48.2	57.0	62.1	72.5	80.6	81.6	80.1	74.7	62.7	55.7	44.0	62.9
1950	49.2	53.4	58.0	65.9	72.1	82.5	79.6	80.6	74.4	70.7	54.0	49.5	65.8
1951	44.2	47.6	54.5	61.3	73.1	80.8	85.6	82.5	77.9	67.8	51.0	46.4	64.4
1952	49.2	47.5	50.7	63.0	72.0	82.7	81.3	83.6	76.2	65.4	49.5	44.1	63.8
1953	50.3	48.1	58.7	64.4	68.8	84.1	83.5	82.1	76.3	64.2	53.8	39.5	64.5
1954	47.0	52.6	54.9	68.6	73.2	81.2	83.2	79.3	78.5	67.9	54.5	46.0	65.6
1955	42.3	45.4	55.8	64.8	71.6	79.8	79.7	80.1	76.8	66.3	54.4	49.4	63.9
1956	49.7	44.9	57.5	61.8	75.7	83.9	82.0	79.9	77.4	67.5	48.4	44.6	64.4
1957	49.3	57.6	57.0	62.4	69.5	81.9	83.9	80.5	74.5	62.4	49.0	46.4	64.5
1958	42.9	51.6	51.2	63.3	74.2	83.5	84.5	82.6	74.0	62.5	53.3	47.0	64.2
1959	47.9	49.3	54.0	65.0	73.9	83.0	82.9	81.0	77.9	66.1	50.3	46.3	64.8
#1960	42.4	46.3	59.7	66.3	73.7	85.0	81.9	82.5	75.6	63.5	52.9	38.8	64.0
1961	41.0	47.9	56.3	64.1	74.1	80.8	82.8	80.5	74.5	63.5	47.8	46.3	63.3
1962	40.5	53.5	50.9	67.3	74.1	80.0	81.3	84.0	73.9	64.9	53.7	45.2	64.1
1963	40.5	49.2	56.4	66.5	74.9	81.1	84.9	80.3	76.2	66.4	53.5	42.7	64.4
1964	39.3	40.8	53.6	63.2	73.9	81.5	84.5	82.6	75.2	63.4	51.8	44.0	62.8
1965	48.0	46.7	52.1	65.3	71.8	78.2	84.2	81.1	74.0	63.0	56.8	45.7	63.9
1966	40.1	42.9	56.4	65.1	74.5	79.5	83.6	78.7	73.4	62.1	54.5	42.4	62.8
1967	41.6	48.0	59.6	65.1	70.9	79.1	83.0	78.6	73.3	63.7	53.1	41.5	63.1
1968	42.4	50.4	53.0	61.4	73.0	81.0	79.1	76.5	72.4	65.0	51.0	41.3	62.2
1969	48.6	48.4	49.4	65.8	72.1	81.5	84.9	85.7	77.1	67.7	52.5	48.6	65.2
1970	46.9	52.3	55.6	63.5	72.2	79.7	82.8	81.4	74.2	59.5	51.9	48.0	64.0
1971	44.6	48.4	58.1	62.6	72.1	81.1	82.3	77.0	73.5	62.5	52.1	44.7	63.2
RECORD MEAN	44.8	49.3	55.5	63.9	72.3	80.8	82.0	80.3	74.9	64.7	52.6	45.2	63.9
MAX	57.3	62.3	68.9	77.5	85.9	94.2	93.8	91.9	86.8	77.7	65.7	57.3	76.6
MIN	32.2	36.3	42.1	50.2	58.6	67.3	70.1	68.7	63.0	51.6	39.4	33.1	51.1

TOTAL DEGREE DAYS

EL PASO, TEXAS

Season	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	Total
1932-33	0	0	22	117	357	680	661	519	196	144	27	0	2723
1933-34	0	0	0	3	286	465	608	315	231	31	1	0	1940
1934-35	0	0	0	17	290	512	503	462	213	53	69	0	2119
#1935-36	0	0	16	86	353	570	604	397	221	88	3	0	2338
1936-37	0	0	36	111	434	563	705	441	378	80	8	0	2756
1937-38	0	0	0	41	297	548	557	314	239	134	10	0	2140
1938-39	0	0	0	36	452	513	598	600	218	82	5	0	2504
1939-40	0	0	0	72	404	484	696	420	218	93	5	0	2392
1940-41	0	0	0	58	422	452	567	333	349	152	15	0	2348
1941-42	0	0	0	73	349	524	537	473	337	97	1	0	2391
#1942-43	0	0	7	69	216	537	639	389	289	52	5	0	2203
1943-44	0	0	14	61	412	664	748	451	339	112	10	0	2811
1944-45	0	0	1	49	412	629	594	379	334	148	1	0	2547
1945-46	0	0	28	84	310	607	742	462	287	13	5	0	2538
1946-47	0	0	4	38	453	555	773	428	308	148	1	0	2708
1947-48	0	0	0	32	473	684	758	472	444	47	0	0	2910
1948-49	0	0	2	102	512	533	899	473	257	152	0	0	2930
1949-50	0	0	0	139	277	653	484	320	221	42	7	0	2143
1950-51	0	0	0	0	323	456	634	480	322	131	27	0	2373
1951-52	0	0	0	21	414	569	482	499	437	94	14	0	2530
1952-53	0	0	0	47	459	642	450	468	211	69	64	0	2410
1953-54	0	0	0	86	329	784	551	338	316	17	13	0	2434
1954-55	0	0	0	46	308	580	696	543	284	64	2	0	2523
1955-56	0	0	0	34	317	477	468	578	238	132	0	0	2244
1956-57	0	0	0	65	494	624	478	205	242	102	19	0	2229
1957-58	0	0	4	127	476	570	677	370	422	116	3	0	2765
1958-59	0	0	16	120	343	549	523	434	335	86	3	0	2409
1959-60	0	0	0	33	439	573	691	534	176	58	10	0	2514
#1960-61	0	0	0	86	357	806	735	473	266	97	1	0	2821
1961-62	0	0	0	82	513	575	754	318	433	36	3	0	2714
1962-63	0	0	0	65	333	608	753	438	279	41	0	0	2517
1963-64	0	0	0	17	341	683	789	695	354	99	3	0	2981
1964-65	0	0	0	76	391	643	521	504	397	54	7	2	2595
1965-66	0	0	4	107	240	592	769	612	264	59	4	0	2651
1966-67	0	0	2	126	307	695	718	469	173	56	25	0	2571
1967-68	0	0	2	106	352	720	691	415	377	128	0	0	2791
1968-69	0	0	0	61	414	728	503	464	477	43	24	0	2714
1969-70	0	0	0	62	371	504	556	348	286	94	33	0	2254
1970-71	0	0	39	180	388	519	625	457	254	110	6	0	2578
1971-72	0	0	31	112	381	624							

TOTAL PRECIPITATION

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Annual
1932	0.17	0.68	0.03	T	1.46	0.15	2.28	2.14	2.85	0.53	0.00	0.65	10.94
1933	0.19	0.23	T	0.09	0.04	2.14	1.34	0.27	0.99	0.60	0.04	0.00	5.93
1934	0.01	0.12	0.24	0.05	0.37	0.01	0.19	0.60	0.17	0.44	0.21	0.32	2.73
1935	0.24	0.47	0.14	0.02	0.17	0.09	0.16	1.72	1.24	0.14	0.92	0.34	5.65
#1936	0.57	0.06	T	0.11	0.56	0.34	0.68	1.94	3.52	0.32	1.32	0.51	9.93
1937	0.12	0.32	0.48	T	0.19	1.05	0.39	0.36	0.48	1.71	0.22	0.91	6.23
1938	1.22	0.17	0.49	T	0.02	2.82	0.60	0.20	2.31	0.19	T	0.28	8.30
#1939	0.65	0.08	0.44	0.45	0.01	T	0.60	0.91	0.90	0.93	0.75	0.19	5.91
1940	0.47	0.53	0.01	0.01	1.21	0.84	0.67	0.35	0.26	0.69	1.17	0.32	6.53
1941	0.59	0.55	1.97	1.18	1.92	0.18	0.77	1.42	5.19	1.55	0.49	0.48	16.29
1942	0.06	0.65	0.01	1.23	T	0.05	1.08	1.86	0.64	1.61	T	1.26	8.45
1943	0.25	0.00	0.07	T	T	1.63	0.92	0.44	1.36	T	1.53	0.82	7.02
1944	0.45	1.42	0.15	T	0.39	1.67	1.52	1.04	0.25	1.30	0.41	0.48	9.08
1945	0.11	0.17	0.64	T	T	0.03	0.47	0.84	0.12	4.31	0.00	0.05	6.74
1946	1.23	T	0.04	0.36	1.23	0.20	0.71	1.19	1.51	0.41	0.03	1.31	8.22
1947	0.87	T	0.66	0.06	0.68	0.53	0.97	1.63	0.02	0.35	0.53	0.82	7.12
1948	0.25	0.63	0.04	0.11	T	0.96	0.82	1.82	0.03	0.18	T	0.86	5.70
1949	1.84	0.22	0.04	0.05	0.39	0.51	1.18	0.43	1.74	1.50	T	0.86	8.76
1950	0.29	0.26	T	T	0.10	0.11	3.57	0.16	1.32	0.94	0.00	0.00	6.75
1951	0.33	0.63	0.59	0.45	T	T	2.48	0.72	0.04	0.43	0.12	0.68	6.47
1952	0.02	0.96	0.92	1.08	0.46	1.14	1.88	1.06	0.07	0.00	0.23	0.15	7.97
1953	0.00	0.34	0.12	0.71	0.27	0.53	0.99	0.42	T	0.65	T	0.39	4.42
1954	0.10	T	0.09	0.19	1.26	0.23	0.88	2.37	0.95	0.30	0.00	0.02	6.39
1955	0.59	0.05	0.18	0.00	0.26	0.18	3.70	0.70	0.16	0.73	0.15	0.00	6.70
1956	0.35	1.06	T	0.05	T	1.19	1.10	0.61	0.43	0.01	T	0.64	5.44
1957	0.24	0.46	0.33	0.09	0.10	0.02	2.64	4.11	0.11	2.34	0.74	0.02	11.20
1958	0.74	1.11	2.26	0.05	0.40	1.66	1.36	1.14	6.29	1.98	0.20	T	17.19
1959	0.21	T	0.07	0.15	0.30	0.46	0.40	2.99	T	0.58	0.14	0.29	4.99
1960	0.72	0.37	0.21	0.02	0.04	0.76	3.61	0.77	0.01	0.77	0.11	1.73	9.12
1961	0.41	T	0.29	0.01	T	0.27	2.18	1.40	0.69	0.18	1.63	0.63	7.69
1962	0.94	0.58	0.24	0.10	0.00	T	1.82	T	3.54	0.55	0.21	0.30	8.28
1963	0.13	0.53	T	T	0.71	0.05	0.52	1.03	0.64	0.55	0.76	T	4.92
1964	T	T	0.99	0.08	0.02	T	0.18	0.76	2.40	0.40	0.00	0.52	5.35
1965	0.19	0.59	0.03	0.01	0.11	0.66	0.17	0.49	2.12	0.18	0.12	0.74	5.41
1966	0.38	0.20	T	1.08	0.04	2.67	1.17	1.85	1.79	0.01	0.01	0.04	9.24
1967	0.00	0.04	0.17	0.03	0.05	1.41	0.84	0.54	1.54	0.09	0.23	0.78	5.72
1968	0.47	1.11	0.85	0.10	T	0.03	5.53	1.71	0.53	0.11	1.35	0.23	12.02
1969	0.05	0.08	0.17	T	0.28	T	1.14	0.28	0.43	0.59	0.63	0.69	4.34
1970	0.03	0.55	0.47	T	0.71	0.73	1.41	0.41	1.01	0.68	T	0.06	6.06
1971	0.17	0.04	0.00	0.42	T	0.01	2.34	1.59	0.96	1.07	0.14	0.50	7.24
RECORD MEAN	0.42	0.40	0.34	0.26	0.35	0.60	1.70	1.44	1.20	0.79	0.44	0.50	8.44

TOTAL SNOWFALL

Season	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	Total
1932-33	0.0	0.0	0.0	0.0	0.0	0.1	T	0.1	0.0	T	0.0	0.0	0.2
1933-34	0.0	0.0	0.0	0.0	0.0	0.0	T	T	T	0.0	0.0	0.0	T
1934-35	0.0	0.0	0.0	0.0	0.0	T	0.0	1.3	1.2	0.0	T	0.0	2.5
#1935-36	0.0	0.0	0.0	0.0	0.0	T	T	0.0	0.0	0.0	0.0	0.0	T
1936-37	0.0	0.0	0.0	0.0	T	0.0	0.0	0.6	0.0	0.0	0.0	0.0	0.6
1937-38	0.0	0.0	0.0	0.0	0.0	1.2	0.0	0.0	0.0	0.0	0.0	0.0	1.2
1938-39	0.0	0.0	0.0	0.0	0.0	0.0	T	0.5	T	T	0.0	0.0	0.5
1939-40	0.0	0.0	0.0	0.0	0.0	T	3.6	T	0.0	0.0	0.0	0.0	3.6
1940-41	0.0	0.0	0.0	0.0	0.0	0.0	0.0	T	T	0.0	0.0	0.0	T
1941-42	0.0	0.0	0.0	0.0	0.0	T	0.0	T	0.1	0.0	0.0	0.0	0.1
#1942-43	0.0	0.0	0.0	0.0	0.0	0.0	1.5	0.0	0.0	0.0	0.0	0.0	1.5
1943-44	0.0	0.0	0.0	0.0	4.2	T	T	T	T	0.0	0.0	0.0	4.2
1944-45	0.0	0.0	0.0	0.0	T	0.0	T	T	T	T	0.0	0.0	T
1945-46	0.0	0.0	0.0	0.0	0.0	T	6.0	T	T	0.0	0.0	0.0	6.0
1946-47	0.0	0.0	0.0	0.0	T	0.8	5.3	0.0	3.8	0.0	0.0	0.0	9.9
1947-48	0.0	0.0	0.0	0.0	0.0	0.6	2.4	0.6	T	0.0	0.0	0.0	3.6
1948-49	0.0	0.0	0.0	0.0	0.0	T	8.3	T	T	T	0.0	0.0	8.3
1949-50	0.0	0.0	0.0	0.0	0.0	T	T	T	T	0.0	0.0	0.0	T
1950-51	0.0	0.0	0.0	0.0	0.0	0.0	3.8	1.8	T	T	0.0	0.0	5.6
1951-52	0.0	0.0	0.0	0.0	0.0	7.1	T	1.0	T	T	0.0	0.0	8.1
1952-53	0.0	0.0	0.0	0.0	T	T	0.0	T	0.0	0.0	0.0	0.0	T
1953-54	0.0	0.0	0.0	0.0	T	2.2	T	0.0	0.0	0.0	0.0	0.0	2.2
1954-55	0.0	0.0	0.0	0.0	0.6	T	T	0.8	0.0	0.0	0.0	0.0	1.4
1955-56	0.0	0.0	0.0	0.0	0.0	0.0	8.9	0.0	T	0.0	0.0	0.0	8.9
1956-57	0.0	0.0	0.0	0.0	0.0	2.3	T	0.0	T	0.0	0.0	0.0	2.3
1957-58	0.0	0.0	0.0	0.0	4.1	0.0	2.0	0.0	7.3	T	0.0	0.0	13.4
1958-59	0.0	0.0	0.0	0.0	0.8	0.0	0.0	T	T	0.0	0.0	0.0	0.8
1959-60	0.0	0.0	0.0	0.0	0.0	T	T	2.1	T	T	0.0	0.0	2.1
1960-61	0.0	0.0	0.0	0.0	0.0	10.1	T	0.0	T	0.0	0.0	0.0	10.1
1961-62	0.0	0.0	0.0	0.0	7.8	T	1.6	0.0	T	0.0	0.0	0.0	9.4
1962-63	0.0	0.0	0.0	0.0	0.0	0.0	0.8	5.3	0.0	0.0	0.0	0.0	6.1
1963-64	0.0	0.0	0.0	0.0	0.0	T	0.0	T	T	0.0	0.0	0.0	T
1964-65	0.0	0.0	0.0	0.0	0.0	T	0.0	0.3	T	0.0	0.0	0.0	0.3
1965-66	0.0	0.0	0.0	0.0	0.0	T	0.4	T	T	0.0	0.0	0.0	0.4
1966-67	0.0	0.0	0.0	0.0	0.0	T	0.0	T	0.0	T	0.0	0.0	T
1967-68	0.0	0.0	0.0	0.0	0.0	5.6	2.1	2.3	0.8	0.0	0.0	0.0	10.8
1968-69	0.0	0.0	0.0	0.0	7.0	T	0.0	0.0	T	0.0	0.0	0.0	7.0
1969-70	0.0	0.0	0.0	0.0	6.0	1.9	0.3	1.7	T	0.0	0.0	0.0	9.9
1970-71	0.0	0.0	0.0	0.0	0.0	0.0	3.8	T	0.0	T	0.0	0.0	3.8
1971-72	0.0	0.0	0.0	0.0	0.0	1.0							

Record mean values above (not adjusted for instrument location changes listed in the Station Location table) are means for the period beginning in 1887 for temperature and 1879 for precipitation.

# Indicates a break in the data sequence during the year, or season, due to a station move or relocation of instruments. See Station Location table. Temperature, degree day, and snowfall data are from City Office locations through November 1942, precipitation through 1939.

STATION LOCATION

EL PASO, TEXAS

Location	Occupied from	Occupied to	Airline distance and direction from previous location	Latitude North	Longitude West	Elevation above Sea level: Ground at temperature site	Elevation above Ground: Wind instruments	Extreme thermometers	Psychrometer	Telepsychrometer	Tipping bucket rain gage	Weighing rain gage	8" rain gage	Hygrothermometer	Elevation above Sea level: Pyranometer	Remarks
CITY OFFICE																
San Francisco Street between Santa Fe and El Paso Streets	11- 6-77	8-12-80		31° 47'	106° 30'	3720	22	17	17				11			
One door east of above office	8-12-80	11- 1-81	1 door E	31° 47'	106° 30'	3720	27									
Corner San Francisco & Santa Fe Streets	11- 1-81	11- 1-82	1/2 blk. W	31° 47'	106° 30'	3720	21	5	5				2			
State Nat'l. Bank Bldg. 1 door W of SW cor. San Antonio & Oregon Streets	11- 1-82	4- 1-88	700 ft. E	31° 47'	106° 30'	3720	37	21	21				34			Maximum temperature too high in early years, due to exposure of thermometers on northwest wall of building.
Sheldon Hotel, SW cor. St. Louis (later *Mills*) and Oregon Streets	4- 1-88	8- 8-94	400 ft. NW	31° 47'	106° 30'	3720	80	68	68		62		62			
Govt. Bldg., SE cor. St. Louis and Oregon Streets	8- 8-94	12-29-07	100 ft. NE	31° 47'	106° 30'	3720	110	10	10		2		2			Thermometer shelter and rain gages in San Jacinto Plaza.
El Paso and Southwestern Building, SE corner Stanton & Franklin Sts.	12-29-07	6-30-25	1100 ft. NNE	31° 47'	106° 30'	3731	133	111	110		102		102			
Mills Bldg., NW corner Oregon and Mills Sts.	7- 1-25	4-28-36	1100 ft. SSW	31° 47'	106° 30'	3720	175	153	152		145		145			
U. S. Court Hse., NE cor. San Antonio and Kansas Streets	4-28-36	12-19-42	1500 ft. E	31° 47'	106° 30'	3711	101	82	82		75		75			
AIRPORT STATION																
American Airlines Admn. Bldg., Municipal AP	11-20-31	12-14-42		31° 48'	106° 24'	3913	54	6	6			3	3			
Admn. Bldg., International AP (formerly Municipal Airport)	12-14-42	4- 1-64	2000 ft. E	31° 48'	106° 24'	a3918	b20	c32	c31		29	30	29	d5	e3950	Ground exposure for temperature and precipitation instruments to 5-17-44. a - 3920 ft. to 9-1-60. b - 85 ft. to 5-1-61. c - 37 ft. 5-17-44 to 4-23-59. d - Commissioned 4000 ft. N of thermometer site 9-1-60. e - Added 5-30-49.
FAA-WB Building International Airport	4- 1-64	Present	.3 mi. SE	31° 48'	106° 24'	3918	f20				25	26	25	f5	3954	f - Not moved

Requests for additional information should be directed to the National Weather Service Office for which this summary was issued.

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A UNITED STATES DEPARTMENT OF COMMERCE PUBLICATION

LOCAL CLIMATOLOGICAL DATA
ANNUAL SUMMARY WITH COMPARATIVE DATA

ALBUQUERQUE, NEW MEXICO

1971

U.S. DEPARTMENT OF COMMERCE NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION ENVIRONMENTAL DATA SERVICE

NARRATIVE CLIMATOLOGICAL SUMMARY

'Arid Continental' characterizes the climate of Albuquerque and vicinity in a minimum number of words. With an average annual rainfall of just over eight inches there is generally insufficient natural moisture to maintain the growth of any but the most hardy desert vegetation. However, successful farming is carried on in the valley by irrigation and considerable fruit and produce are raised. In the mountains east of the City precipitation is considerably heavier. At Tijeras Ranger Station, about 15 miles east of Albuquerque, the average annual rainfall is more than 15 inches. Some dryland farming is carried on in this mountain area and native vegetation shows the effect of the heavier rainfall with good native grass cover and timbered mountains. The average monthly precipitation at Albuquerque varies from less than one-half inch during the winter months, November through March, to over an inch and a quarter during the months of July and August. With normally less than two inches of moisture, the winters are generally very dry. A considerable portion of this meager winter precipitation falls in the form of snow, but the monthly fall exceeds 3 inches infrequently and there are normally only four days a year when as much as one inch of snow occurs. Snow rarely remains on the ground in the valley for more than 24 hours but in the nearby mountains, snow cover is normal from the middle of December until early spring and a modern ski resort operates during the winter months just 25 miles from the City. The July-September period furnishes almost half of the annual moisture with most of the rain falling in the form of brief but at times rather heavy thundershowers. Prolonged rainy spells are practically unknown. These summer showers do not materially interfere with outdoor activities but do have a considerable moderating effect on summer daytime temperatures.

Temperatures in Albuquerque are those characteristic of high altitude, dry, continental climates. The average daily range of temperature is relatively high but extreme temperatures are rare as testified by the fact that there is normally less than one day a year when the temperature reaches 100° or drops to zero. Daytime temperatures during the winter average near 50° with only a few days on which the temperature does not rise above the freezing mark. In the summer, daytime maxima average less than 90° except in July and with the large daily range, the nights normally are comfortably cool. The air is normally dry with an average annual relative humidity of approximately 43%. "Muggy" days are unknown and the usual humidity during the warmer part of the day is about 30%, dropping down to less than 20% in June, the least humid month of the year.

Another feature of the climate is the large number of clear days and the high percentage of sunshine. Sunshine is recorded during more than three-fourths of the hours from sunrise to sunset and this high percentage carries through the winter months when clear, sunny weather predominates. Wind movement throughout the year averages around nine miles per hour, but during the late winter and spring months the average is somewhat higher and occasional windy and dusty days occur. These occasional dust storms are the most discomforting part of Albuquerque's climate. However there are on an average only 46 days during the year when the maximum wind speed reaches 32 miles per hour. Tornadoes rarely occur in the vicinity of Albuquerque.

METEOROLOGICAL DATA FOR THE CURRENT YEAR

Station: ALBUQUERQUE, NEW MEXICO — SUNPORT-KIRTLAND AFB — Standard time used: MOUNTAIN — Latitude: 35° 03' N — Longitude: 106° 37' W — Elevation (ground): 5311 feet — Year: 1971

Month	Temperature: Averages: Daily maximum	Daily minimum	Monthly	Extremes: Highest	Date	Lowest	Date	Degree days (Base 65°): Heating	Cooling	Precipitation: Total	Greatest in 24 hrs.	Date	Snow, Ice pellets: Total	Greatest in 24 hrs.	Date	Relative humidity: Hour 05 (Local time)	Hour 11 (Local time)	Hour 17 (Local time)	Hour 23 (Local time)	Wind &: Resultant: Direction	Speed	Average speed	Fastest mile: Speed	Direction #	Date	Percent of possible sunshine	Average sky cover sunrise to sunset	Number of days: Sunrise to sunset: Clear	Partly cloudy	Cloudy	Precipitation .01 inch or more	Snow, Ice pellets 1.0 inch or more	Thunderstorms	Heavy fog	Temperatures: Maximum: ‡ 90° and above	32° and below	Minimum: 32° and below	0° and below	Average daily solar radiation - langleys
JAN	48.2	18.9	33.6	69	31	-17	7	968	0	0.27	0.26	3	3.0	3.0	3	69	50	36	59	02	2.7	8.0	34	E	3	87	3.8	18	5	8	2	1	0	0	0	5	26	5	330
FEB	53.0	24.7	38.9	69	17	13	28	725	0	0.21	0.21	20-21	2.3	2.3	20-21	53	33	26	42	33	3.1	10.9	47	SW	3	82	4.0	13	8	7	2	1	0	0	0	1	25	0	411
MAR	64.2	31.2	47.7	85	26	10	7	533	5	0.03	0.03	1-2	0.5	0.5	1-2	40	21	15	30	31	4.7	11.6	45	W	17	84	3.6	14	13	4	2	0	0	0	0	0	18	0	536
APR	69.0	37.6	53.3	85	11	28	1	343	0	0.78	0.35	15	T	T	22 +	47	26	20	35	20	2.4	11.6	45	E	5	82	3.7	16	7	7	4	0	1	2	0	0	3	0	611
MAY	77.9	45.4	61.7	88	26	34	19	122	26	0.16	0.08	6	0.0	0.0		39	19	12	25	23	3.3	12.5	47	SW	29	85	3.9	14	10	7	4	0	3	0	0	0	0	0	720
JUN	90.5	57.1	73.8	99	26	42	4	5	277	0.02	0.01	29 +	0.0	0.0		32	17	11	21	20	1.6	10.8	43	SW	18	82	3.2	20	7	3	2	0	3	0	18	0	0	0	744
JUL	92.6	63.6	78.1	104	13	57	31+	0	414	1.05	0.41	19-20	0.0	0.0		57	33	29	46	13	3.3	10.3	47	E	29	79	4.3	13	14	4	10	0	11	0	21	0	0	0	679
AUG	87.3	60.4	73.9	91	31+	53	8	0	282	0.87	0.35	16-17	0.0	0.0		71	40	35	55	13	1.7	8.9	44	E	14	74	3.9	15	13	3	9	0	11	0	7	0	0	0	600
SEP	80.5	52.2	66.4	94	14+	37	19+	101	149	1.44	0.57	22-23	T	T	18	57	36	28	47	12	2.3	10.7	50	E	16	79	2.9	18	8	4	8	0	3	0	11	0	0	0	509
OCT	67.1	40.5	53.8	79	14+	25	30	341	0	1.15	0.89	24-25	T	T	26	66	40	34	54	20	1.5	9.9	58	S	29	78	3.4	20	4	7	5	0	1	0	0	0	6	0	396
NOV	57.6	32.8	45.2	72	5	21	20	587	0	0.67	0.33	16-17	T	T	29 +	68	47	39	61	36	1.5	8.1	38	NW	27	77	4.4	14	5	11	5	0	3	0	0	0	12	0	300
DEC	41.7	22.0	31.9	55	25	5	16	1022	0	1.40	0.47	13-14	6.8	5.2	13-14	85	70	62	79	06	1.3	8.4	38	E	1	57	5.5	13	3	15	7	2	0	4	0	5	29	0	220
YEAR	69.1	40.5	54.8	104	JUL. 13	-17	JAN. 7	4747	1153	8.05	0.89	OCT. 24-25	12.6	5.2	DEC. 13-14	57	36	29	46	23	0.2	10.1	58	S	OCT. 29	79	3.9	188	97	80	60	4	33	9	57	11	121	5	505

NORMALS, MEANS, AND EXTREMES

Month	Temperature: Normal: Daily maximum	Daily minimum	Monthly	Extremes: Record highest	Year	Record lowest	Year	Normal heating degree days (Base 65°)	Precipitation: Normal total	Maximum monthly	Year	Minimum monthly	Year	Maximum in 24 hrs.	Year	Snow, Ice pellets: Mean total	Maximum monthly	Year	Maximum in 24 hrs.	Year	Relative humidity: Hour 05 (Local time)	Hour 11 (Local time)	Hour 17 (Local time)	Hour 23 (Local time)	Wind &: Mean speed	Prevailing direction #	Fastest mile: Speed	Direction #	Year	Pct. of possible sunshine	Mean sky cover sunrise to sunset	Mean number of days: Sunrise to sunset: Clear	Partly cloudy	Cloudy	Precipitation .01 inch or more	Snow, Ice pellets 1.0 inch or more	Thunderstorms	Heavy fog	Temperatures: Max. ‡ 90° and above	32° and below	Min. 32° and below	0° and below	Average daily solar radiation - langleys
(a)	(b)	(b)	(b)	12		12		(b)	(b)	32		32		32		32	32		32		11	11	11	11	32	15	32	32		32	32	32	32	32	32	32	32	32	11	11	11	11	23
J	46.4	23.5	35.0	69	1971	-17	1971	930	0.41	1.17	1941	T	1970+	0.87	1962	1.9	6.0	1951	4.6	1966	66	47	36	56	7.8	N	61	E	1949	73	4.8	13	8	10	3	1	*	1	0	3	29	1	301
F	52.2	27.5	39.9	72	1963	1	1964	703	0.38	1.42	1948	0.04	1959	0.48	1957	1.8	8.2	1964	4.2	1946	62	43	31	51	8.8	N	68	NW	1944	74	4.8	12	7	9	4	1	*	1	0	1	23	0	384
M	58.8	32.7	45.8	85	1971	9	1966	595	0.48	1.71	1958	T	1966+	0.77	1968	1.7	7.3	1958	6.8	1942	53	32	24	41	10.0	SE	80	NW	1943	74	5.0	12	10	9	4	1	1	1	0	*	19	0	504
A	69.1	42.2	55.7	89	1965	23	1970	288	0.47	1.97	1942	T	1967+	1.66	1969	0.3	4.6	1949	3.0	1944	45	25	18	33	10.9	S	72	S	1946	77	4.6	13	9	8	3	*	2	*	0	0	4	0	606
M	78.3	51.9	65.1	94	1969+	28	1967	81	0.75	3.07	1941	T	1945+	1.14	1969	T	T	1951	T	1951	42	23	16	30	10.4	S	72	W	1950	80	4.1	15	10	6	4	0	4	0	3	0	*	0	694
J	88.6	61.1	74.9	102	1969	42	1971	0	0.57	1.71	1967	T	1964+	1.64	1952	0.0	0.0		0.0		44	24	17	31	9.9	S	82	SE	1946	83	3.2	18	8	4	4	0	5	*	16	0	0	0	729
J	91.2	65.8	78.5	104	1971	54	1964	0	1.20	3.33	1968	0.14	1958	1.77	1961	0.0	0.0		0.0		61	36	28	48	9.0	SE	68	E	1945	76	4.5	12	15	4	9	0	12	*	24	0	0	0	675
A	88.0	64.3	76.2	99	1969+	52	1968	0	1.33	3.30	1967	T	1962	1.22	1967	0.0	0.0		0.0		66	40	31	52	8.1	SE	61	SE	1951	76	4.2	14	13	4	9	0	12	*	16	0	0	0	620
S	82.3	57.6	70.0	94	1971	37	1971+	12	0.95	1.99	1940	T	1957	1.92	1955	T	T	1971+	T	1971+	57	41	31	52	8.5	SE	62	SE	1945+	81	3.3	18	7	5	6	0	5	*	3	0	0	0	537
O	70.7	45.3	58.0	87	1963	25	1971+	229	0.75	2.88	1960	0.00	1952	1.80	1969	T	0.5	1970	0.5	1970	57	36	28	46	8.2	SE	66	N	1959	80	3.4	18	8	5	5	0	3	*	0	0	2	0	435
N	56.1	31.1	43.6	72	1971+	13	1968	642	0.38	1.45	1940	0.00	1949	0.76	1940	1.2	9.3	1940	5.3	1946	63	43	35	53	7.7	N	57	NW	1948+	78	3.9	16	7	7	3	1	1	0	*	14	0	323
D	48.3	25.6	37.0	68	1966	4	1968	868	0.46	1.85	1959	0.00	1956+	1.35	1958	2.8	14.7	1959	14.2	1958	69	52	44	60	7.5	N	90	SE	1943	71	4.6	14	8	9	4	1	*	1	0	2	28	0	270
YR	69.2	44.1	56.6	104	JUL. 1971	-17	JAN. 1971	4348	8.13	3.33	JUL. 1968	0.00	DEC. 1956+	1.92	SEP. 1955	9.7	14.7	DEC. 1959	14.2	DEC. 1958	57	37	28	46	8.9	SE	90	SE	DEC. 1943	77	4.2	175	110	80	58	4	43	5	61	6	120	1	507

Means and extremes above are from existing and comparable exposures. Annual extremes have been exceeded at other sites in the locality as follows:
Maximum monthly precipitation 8.15 in June 1852 (measured by Medical Officers of Army at Army Post near plaza).

(a) Length of record, years, based on January data. Other months may be for more or fewer years if there have been breaks in the record.
(b) Climatological standard normals (1931-1960).
• Less than one half.
+ Also on earlier dates, months, or years.
T Trace, an amount too small to measure.
Below zero temperatures are preceded by a minus sign.
The prevailing direction for wind in the Normals, Means, and Extremes table is from records through 1963.
‡ ≥ 70° at Alaskan stations.

Unless otherwise indicated, dimensional units used in this bulletin are: temperature in degrees F.; precipitation, including snowfall, in inches; wind movement in miles per hour; and relative humidity in percent. Heating degree day totals are the sums of negative departures of average daily temperatures from 65° F. Cooling degree day totals are the sums of positive departures of average daily temperatures from 65° F. Sleet was included in snowfall totals beginning with July 1948. The term "Ice pellets" includes solid grains of ice (sleet) and particles consisting of snow pellets encased in a thin layer of ice. Heavy fog reduces visibility to 1/4 mile or less.

Sky cover is expressed in a range of 0 for no clouds or obscuring phenomena to 10 for complete sky cover. The number of clear days is based on average cloudiness 0-3, partly cloudy days 4-7, and cloudy days 8-10 tenths.

Solar radiation data are the averages of direct and diffuse radiation on a horizontal surface. The langley denotes one gram calorie per square centimeter.

& Figures instead of letters in a direction column indicate direction in tens of degrees from true North; i.e., 09 - East, 18 - South, 27 - West, 36 - North, and 00 - Calm. Resultant wind is the vector sum of wind directions and speeds divided by the number of observations. If figures appear in the direction column under "Fastest mile" the corresponding speeds are fastest observed 1-minute values.

To 8 compass points only.

AVERAGE TEMPERATURE

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Annual
#1932	29.4	43.9	43.8	55.1	63.4	71.6	76.7	75.8	66.6	54.0	44.4	31.6	54.7
1933	32.4	31.9	47.2	48.6	59.8	72.2	77.8	73.4	70.8	58.2	44.1	38.8	54.6
1934	35.4	43.9	49.3	56.7	67.1	72.0	79.5	77.2	67.2	58.7	44.4	36.0	57.3
1935	37.4	38.6	46.2	54.1	58.0	72.0	77.2	74.6	66.2	56.6	41.9	34.7	54.8
1936	32.6	39.9	47.1	55.4	65.0	74.3	77.0	76.4	66.2	55.2	42.0	35.2	55.5
1937	26.4	37.3	43.4	54.0	64.5	70.8	76.8	77.8	69.9	58.0	45.6	37.8	55.2
1938	36.0	40.4	46.2	54.4	62.8	73.2	75.9	76.7	67.4	57.6	38.0	37.7	55.5
#1939	34.4	30.0	46.2	56.0	65.5	74.3	76.2	75.7	70.6	56.0	44.2	40.0	55.8
1940	35.2	39.2	49.0	54.4	65.5	73.4	78.2	74.2	68.4	58.8	41.4	39.2	56.4
1941	36.0	42.8	45.0	50.6	63.8	70.2	76.0	75.1	67.3	56.6	45.5	37.7	55.6
1942	37.0	36.2	43.3	54.8	64.4	74.8	78.8	75.8	68.6	57.8	48.1	40.8	56.7
1943	38.6	43.6	48.2	60.9	65.8	74.0	79.0	78.4	70.2	56.8	44.3	32.1	57.7
1944	29.2	40.0	44.4	52.2	63.9	73.3	76.4	76.3	68.6	58.7	43.0	36.2	55.2
1945	36.8	43.0	48.0	52.3	66.2	72.6	78.4	78.2	70.6	58.6	45.2	33.4	56.7
1946	33.5	40.2	47.9	61.3	64.0	77.5	78.3	75.9	71.3	56.3	41.6	40.4	57.4
1947	33.0	42.2	47.4	54.5	67.0	72.8	80.2	76.0	72.6	60.4	40.4	34.6	56.8
1948	33.7	37.6	40.9	59.3	66.7	73.8	79.6	77.6	71.4	57.2	40.6	38.2	56.4
1949	30.3	37.2	47.9	55.5	64.8	73.7	77.7	76.3	71.8	56.2	50.7	34.1	56.4
1950	37.5	44.8	47.9	58.5	65.7	76.1	76.8	76.3	67.9	65.8	48.3	42.3	59.0
1951	36.6	39.8	46.3	54.8	66.5	74.7	82.6	76.6	71.9	58.8	42.2	36.2	57.2
1952	39.0	39.4	42.3	55.9	66.4	78.1	78.2	79.9	70.7	61.0	40.1	33.7	57.0
1953	42.2	38.7	48.8	55.1	61.5	78.1	80.0	77.7	73.0	59.2	46.3	32.8	57.8
1954	38.4	46.8	46.0	62.8	67.0	76.4	81.3	76.6	72.8	61.4	48.7	36.1	59.5
1955	33.8	34.8	47.4	55.1	63.9	73.9	77.0	76.9	72.5	61.1	45.1	40.0	56.8
1956	41.1	36.0	49.2	55.3	69.6	78.9	78.4	76.3	74.1	60.3	41.0	36.3	58.1
1957	39.9	48.1	47.3	54.2	61.9	74.8	79.1	76.0	70.3	56.6	40.3	38.5	57.3
#1958	35.3	43.5	42.8	53.0	68.6	78.5	79.6	78.9	69.2	56.9	46.0	41.5	57.8
1959	34.3	39.5	45.9	57.0	65.1	77.0	78.6	76.2	70.6	56.8	43.9	38.2	56.9
#1960	33.0	36.5	49.9	57.9	64.7	76.6	78.7	78.4	71.8	56.5	46.5	33.9	57.1
1961	33.9	40.6	47.0	54.5	65.9	75.8	76.7	75.2	65.6	56.8	40.3	34.1	55.5
1962	31.6	42.3	41.2	58.1	64.1	72.7	76.3	77.6	69.4	58.1	46.9	36.9	56.3
1963	29.4	40.5	45.2	57.7	68.0	74.6	81.4	75.9	72.5	61.5	45.7	34.8	57.3
1964	30.0	29.1	41.5	51.7	65.8	73.6	78.2	76.8	69.3	59.4	43.7	35.5	54.5
1965	38.8	39.4	44.6	54.8	61.7	69.4	77.9	75.4	66.6	58.0	48.4	35.8	55.9
1966	30.1	33.2	45.6	54.6	67.2	72.8	79.8	75.7	68.4	56.8	46.7	34.3	55.4
1967	33.2	40.5	52.0	57.8	63.8	71.5	79.2	74.5	68.4	58.2	46.1	32.4	56.5
1968	36.8	43.3	46.7	53.4	62.7	75.2	76.1	72.4	68.0	58.3	42.8	30.0	55.5
1969	38.0	38.5	41.1	57.4	66.2	73.6	80.2	79.0	70.0	53.8	41.4	39.1	56.6
1970	34.5	42.8	44.1	52.5	66.2	72.7	79.6	77.8	67.5	52.6	44.5	36.4	56.0
1971	33.6	38.9	47.7	53.3	61.7	73.8	78.1	73.9	66.4	53.8	45.2	31.9	54.8
RECORD MEAN	34.6	39.5	46.2	54.9	63.8	73.2	77.1	75.1	68.4	56.8	43.9	35.1	55.7
MAX	47.1	52.7	60.5	69.8	79.0	88.7	90.9	88.6	82.3	71.1	57.5	47.3	69.6
MIN	22.0	26.3	31.9	39.9	48.6	57.7	63.3	61.6	54.5	42.4	30.3	22.9	41.8

TOTAL DEGREE DAYS

ALBUQUERQUE, NEW MEXICO

Season	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	Total
#1932-33	0	0	43	341	621	1039	1008	928	552	487	192	3	5214
1933-34	0	0	0	212	625	810	917	590	488	254	44	1	3941
1934-35	0	3	28	198	618	898	856	740	580	327	236	3	4487
1935-36	0	0	64	267	691	937	1003	724	556	289	67	6	4604
1936-37	0	0	87	301	692	925	1196	778	672	345	67	10	5073
1937-38	0	0	11	221	583	844	904	688	582	335	123	2	4293
1938-39	0	0	5	240	810	843	946	976	583	267	36	0	4706
#1939-40	0	0	14	280	626	775	925	748	497	318	61	0	4244
1940-41	0	0	13	195	712	798	898	622	619	420	102	15	4394
1941-42	0	0	51	263	584	846	862	805	672	307	89	0	4479
1942-43	0	0	16	228	504	749	819	599	519	163	60	0	3657
1943-44	0	0	14	250	624	1019	1115	727	639	386	85	3	4862
1944-45	0	0	21	200	660	888	875	621	618	379	41	11	4314
1945-46	0	0	53	206	593	982	979	697	532	125	76	0	4243
1946-47	0	0	12	273	704	763	991	637	543	318	48	9	4298
1947-48	0	0	0	172	735	942	970	791	746	185	61	3	4605
1948-49	0	0	13	245	733	836	1074	777	530	299	63	3	4573
1949-50	0	0	6	290	426	958	845	560	522	195	50	0	3852
1950-51	0	0	27	20	495	697	874	699	572	301	81	5	3771
1951-52	0	0	3	200	680	888	800	738	693	264	58	6	4330
1952-53	0	0	13	134	740	965	700	732	500	298	200	0	4282
1953-54	0	0	0	185	554	989	818	503	581	96	59	2	3787
1954-55	0	0	3	151	483	889	961	840	538	292	90	2	4249
1955-56	0	0	1	139	590	764	736	836	483	288	20	0	3857
1956-57	0	0	0	195	715	880	771	468	543	317	123	3	4015
#1957-58	0	0	3	269	739	817	914	596	679	354	24	0	4395
1958-59	0	0	35	249	562	722	948	706	587	249	60	0	4118
#1959-60	0	0	20	250	628	823	987	819	462	211	82	0	4282
1960-61	0	0	3	256	548	956	956	678	551	308	65	0	4321
1961-62	0	0	43	248	731	951	1030	629	730	214	78	2	4656
1962-63	0	0	22	208	534	863	1098	680	605	219	7	2	4238
1963-64	0	0	0	124	573	931	1076	1036	722	391	85	3	4941
1964-65	2	0	20	173	632	909	805	709	624	300	128	24	4326
1965-66	0	0	56	217	492	895	1074	882	595	305	53	0	4569
1966-67	0	0	15	247	541	942	980	682	396	211	109	0	4123
1967-68	0	0	13	220	557	1003	870	623	559	343	107	8	4303
1968-69	2	0	12	208	660	1080	831	735	735	228	84	0	4575
1969-70	0	0	1	348	701	795	938	612	644	367	63	11	4480
1970-71	0	0	58	380	605	878	968	725	533	343	122	5	4617
1971-72	0	0	101	341	587	1022							

TOTAL PRECIPITATION

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Annual
#1932	0.45	0.40	0.27	0.34	1.41	0.09	2.01	2.20	0.78	1.46	0.00	0.37	9.78
1933	0.08	0.01	0.09	0.39	0.23	3.81	2.04	2.42	1.12	0.24	0.91	0.05	11.39
1934	0.06	0.04	0.01	0.13	0.72	0.37	0.61	2.10	1.08	0.24	0.84	0.78	6.98
1935	0.91	0.20	0.03	0.48	0.91	1.40	0.19	3.74	1.19	0.26	1.37	0.36	11.04
1936	0.55	0.12	0.11	0.09	0.27	0.43	0.67	0.62	2.05	0.17	T	0.13	5.21
1937	0.21	0.11	0.63	0.42	2.78	1.91	1.02	0.22	0.87	0.79	0.01	0.48	9.45
1938	0.12	0.49	0.22	0.20	0.02	1.51	1.45	0.17	2.36	0.63	0.02	0.36	7.55
#1939	0.70	0.32	0.67	0.86	0.14	T	2.33	0.54	1.19	0.83	0.78	0.10	8.46
1940	0.52	0.58	0.48	0.21	1.71	1.32	0.62	3.25	1.99	0.36	1.45	0.87	13.36
1941	1.17	0.20	1.00	1.20	3.07	0.90	2.15	1.07	1.85	2.67	0.37	0.23	15.88
1942	0.13	0.54	0.39	1.97	T	0.22	0.20	1.42	1.55	0.73	T	1.10	8.25
1943	0.25	0.26	0.23	0.06	1.41	1.20	1.19	1.33	0.39	0.22	0.14	0.94	7.62
1944	0.46	0.42	0.49	0.91	0.57	0.85	1.58	1.44	0.65	0.86	0.56	0.76	9.55
1945	0.34	0.32	0.50	0.77	T	T	1.09	2.27	0.26	0.43	T	0.35	6.33
1946	0.25	0.33	1.03	0.26	0.31	0.07	2.28	1.49	0.57	1.02	0.54	0.12	8.27
1947	0.02	0.14	0.03	0.03	0.48	0.23	0.38	1.45	0.67	0.31	0.45	1.05	5.24
1948	0.18	1.42	0.41	0.33	0.94	0.57	0.45	0.51	0.80	0.60	0.11	0.11	6.44
1949	0.61	0.29	0.65	0.67	1.35	0.32	2.21	0.72	0.87	0.14	0.00	0.59	8.42
1950	0.02	0.38	0.04	0.27	0.06	0.23	2.00	0.08	1.01	0.01	T	0.00	4.10
1951	0.41	0.27	0.29	0.38	0.10	0.02	0.85	2.22	0.05	0.37	0.14	0.28	5.38
1952	0.20	0.17	0.59	0.76	0.65	1.64	1.91	1.10	0.34	0.00	0.53	0.20	8.09
1953	T	0.43	0.74	0.69	0.03	0.35	0.53	0.59	0.06	0.46	0.91	0.29	5.08
1954	0.20	0.07	0.24	T	0.51	0.01	1.45	0.65	0.77	0.25	0.22	0.14	4.51
1955	0.29	0.18	T	0.04	0.53	0.33	1.60	1.32	1.94	0.06	T	0.22	6.51
1956	0.46	0.49	T	T	0.18	0.43	1.49	0.62	0.02	0.34	0.03	0.00	4.06
1957	0.78	0.59	0.52	0.38	0.35	0.04	2.48	1.32	T	2.59	1.24	0.32	10.61
#1958	0.21	0.27	1.71	0.62	0.43	0.22	0.14	1.74	1.34	1.72	0.37	1.35	10.12
1959	0.17	0.04	0.42	0.43	0.80	0.78	0.73	2.79	0.36	1.70	0.07	1.85	10.14
1960	0.34	0.38	0.44	0.19	0.71	0.91	0.47	0.78	0.56	2.88	0.07	0.39	8.12
1961	0.23	0.10	0.61	0.73	0.01	0.11	2.70	1.69	1.09	0.47	0.48	0.65	8.87
1962	1.01	0.11	0.18	0.07	0.01	0.19	1.24	T	0.71	0.75	0.61	0.51	5.39
1963	0.29	0.24	0.55	0.14	0.03	0.11	1.43	3.00	0.63	0.76	0.29	T	7.47
1964	0.07	1.12	0.13	0.61	0.35	T	1.87	0.98	1.57	0.04	0.21	0.49	7.44
1965	0.47	0.60	0.49	0.49	0.19	0.99	1.65	0.61	1.18	0.89	0.33	1.42	9.31
1966	0.42	0.30	T	0.04	0.02	1.66	1.63	1.06	1.04	0.54	0.09	0.01	6.81
1967	0.01	0.44	0.25	T	0.04	1.71	0.61	3.30	0.79	0.18	0.15	0.56	8.04
1968	0.01	0.98	1.48	0.51	0.99	0.05	3.33	1.49	0.30	0.12	0.59	0.82	10.67
1969	0.08	0.34	0.41	1.76	1.31	0.59	0.94	0.95	1.08	2.37	0.01	0.72	10.56
1970	T	0.27	0.42	0.05	0.33	0.40	1.22	2.24	0.79	0.25	0.08	0.23	6.28
1971	0.27	0.21	0.03	0.78	0.16	0.02	1.05	0.87	1.44	1.15	0.67	1.40	8.05
RECORD MEAN	0.36	0.35	0.41	0.56	0.63	0.59	1.44	1.31	0.91	0.80	0.42	0.46	8.24

TOTAL SNOWFALL

Season	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	Total
#1932-33	0.0	0.0	0.0	0.4	0.0	2.0	0.6	T	0.9	0.6	0.0	0.0	4.5
1933-34	0.0	0.0	0.0	0.0	0.2	0.2	0.1	T	T	0.0	0.0	0.0	0.5
1934-35	0.0	0.0	0.0	0.0	3.0	0.0	T	1.8	T	0.0	2.0	0.0	6.8
1935-36	0.0	0.0	0.0	T	T	1.2	6.8	0.3	0.1	0.7	T	0.0	9.1
1936-37	0.0	0.0	T	0.0	0.0	1.5	4.0	T	4.4	1.5	0.0	0.0	11.4
1937-38	0.0	0.0	0.0	0.0	0.0	1.0	T	2.5	T	0.1	T	0.0	3.6
1938-39	0.0	0.0	0.0	T	0.1	0.1	1.0	3.0	0.5	0.2	0.0	0.0	4.9
#1939-40	0.0	0.0	0.0	0.0	T	0.3	T	3.7	T	T	0.0	0.0	4.0
1940-41	0.0	0.0	0.0	0.0	0.0	9.3	0.5	0.9	0.5	2.0	T	0.0	13.2
1941-42	0.0	0.0	0.0	0.0	0.0	0.4	2.0	2.1	3.0	7.1	T	0.0	14.6
1942-43	0.0	0.0	0.0	0.0	0.0	T	T	1.0	T	T	0.0	0.0	1.0
1943-44	0.0	0.0	0.0	0.0	0.0	T	4.0	4.9	T	1.0	3.0	0.0	12.9
1944-45	0.0	0.0	0.0	0.0	T	1.0	1.0	2.0	T	2.0	0.0	0.0	6.0
1945-46	0.0	0.0	T	0.0	0.0	2.6	3.8	4.2	6.0	0.0	0.0	0.0	16.6
1946-47	0.0	0.0	0.0	0.0	6.5	T	0.3	T	T	T	0.0	0.0	6.8
1947-48	0.0	0.0	0.0	0.0	5.7	5.1	3.1	6.1	1.0	0.0	0.0	0.0	21.0
1948-49	0.0	0.0	0.0	0.0	T	0.2	2.8	2.4	3.0	4.6	0.0	0.0	13.0
1949-50	0.0	0.0	0.0	T	0.0	5.0	T	T	T	T	0.0	0.0	5.0
1950-51	0.0	0.0	0.0	0.0	T	0.0	6.0	1.0	T	T	T	0.0	7.0
1951-52	0.0	0.0	0.0	0.0	T	3.0	T	T	2.0	T	0.0	0.0	5.0
1952-53	0.0	0.0	0.0	0.0	2.7	0.9	T	3.8	T	0.0	0.0	0.0	7.4
1953-54	0.0	0.0	0.0	0.0	7.5	3.7	2.9	T	T	0.0	0.0	0.0	14.1
1954-55	0.0	0.0	0.0	0.0	0.0	1.4	3.0	1.2	T	0.0	0.0	0.0	5.6
1955-56	0.0	0.0	0.0	0.0	T	1.0	2.9	4.5	0.0	T	0.0	0.0	8.4
1956-57	0.0	0.0	0.0	0.0	T	0.0	1.5	T	T	T	0.0	0.0	1.5
1957-58	0.0	0.0	0.0	T	T	2.9	2.3	0.5	7.3	T	0.0	0.0	13.0
1958-59	0.0	0.0	0.0	T	2.2	14.2	1.7	0.6	4.8	T	0.0	0.0	23.5
1959-60	0.0	0.0	0.0	T	0.0	14.7	1.8	0.8	2.8	0.0	0.0	0.0	20.1
1960-61	0.0	0.0	0.0	0.0	0.0	2.5	0.6	0.4	3.0	T	0.0	0.0	6.5
1961-62	0.0	0.0	0.0	T	3.4	2.4	4.0	T	0.2	0.0	0.0	0.0	10.0
1962-63	0.0	0.0	0.0	0.0	T	1.0	2.5	0.8	2.5	0.0	0.0	0.0	6.8
1963-64	0.0	0.0	0.0	0.0	T	T	0.5	8.2	1.3	T	0.0	0.0	10.0
1964-65	0.0	0.0	0.0	0.0	T	0.3	1.4	3.6	T	T	0.0	0.0	5.3
1965-66	0.0	0.0	0.0	0.0	T	3.0	5.4	1.0	0.0	T	0.0	0.0	9.4
1966-67	0.0	0.0	0.0	0.0	T	T	T	1.0	1.1	T	0.0	0.0	2.1
1967-68	0.0	0.0	0.0	0.0	0.2	1.0	2.8	T	2.0	1.4	T	0.0	7.4
1968-69	0.0	0.0	0.0	0.0	T	T	7.4	T	1.8	5.5	T	0.0	14.7
1969-70	0.0	0.0	0.0	0.0	T	1.1	T	2.7	3.3	0.0	0.0	0.0	7.1
1970-71	0.0	0.0	0.0	0.5	T	0.5	3.0	2.3	0.5	T	0.0	0.0	6.8
1971-72	0.0	0.0	T	T	T	6.8							

Record mean values above (not adjusted for instrument location changes listed in the Station Location table) are means for the period beginning in 1893.

# Indicates a break in the data sequence during the year, or season, due to a station move or relocation of instruments. See Station Location table. Precipitation Data are from Univ. of New Mexico location for 1/93-12/05, 7/06-9/06, 5/07-2/08, 4/08-8/08, 11/08, 1/09-2/09, 4/09-4/10, 9/18-3/31; 1216 W Central Ave. location for 1/06-6/06, 10/06-4/07, 8/07,3/08, 9/08-10/08, 12/08, 3/09, 5/10-4/15, 7/15-9/15, 1/16; and Rio Grande Ind. School location for 5/15-6/15, 10/15-12/15 and 2/16-7/16. Temperature data are from Univ. of New Mexico location for 1/93-5/10; Rio Grande Ind. School location for 5/15-12/18; and Univ. of New Mexico location for 1/19-3/31.

STATION LOCATION

ALBUQUERQUE, NEW MEXICO

Location	Occupied from	Occupied to	Airline distance and direction from previous location	Latitude North	Longitude West	Elevation above Sea level: Ground at temperature site	Elevation above Ground: Wind instruments	Extreme thermometers	Psychrometer	Telepsychrometer	Tipping bucket rain gage	Weighing rain gage	8" rain gage	Hygrothermometer	Elevation above Sea level: Pyranometer	Remarks
COOPERATIVE																
4th and W. Gold Avenue	1-1892	12-1892		35° 05'	106° 39'								3			
University of New Mex.	1-1893	5-1910	1.5 mi. E	35° 05'	106° 37'	5150		?					39			
1216 W. Central Avenue	1-1906	1-1916	2 mi. W	35° 05'	106° 40'	4960							3			Precipitation only. Record intermittent.
Rio Grande Industrial School	5-1915	12/31/18	5 mi. S	35° 01'	106° 40'	4950		4					3			Temperature only after July 1916.
5th and W. Central Ave.	8-1916	8-1918	5 mi. N	35° 05'	106° 39'	4960							3			
University of New Mex.	9-1918	3-1931	1.5 mi. E	35° 05'	106° 37'	5150	59	48	48				39			
CITY																
Kimo Theatre Building 419 W. Central Avenue	4/01/31	1/23/33	1.5 mi. W	35° 05'	106° 39'	4960	66	52	51		45		45			Office moved 1000 feet SW to Federal Building 6/29/32, but instruments not moved.
AIRPORT																
TWA Airport West of City	1/23/33	7/31/39	3.8 mi. W	35° 05'	106° 43'	5100	39	6	5		15		15			
Administration Building Municipal Airport	7/31/39	6/23/58	6 mi.ESE	35° 03'	106° 37'	5310	48	6	5		3	5	3		5348	
Administration Building Municipal Airport	6/23/58	2/04/60	A			5310	48	16	15		13	15	13		5348	A - Instrument relocation to roof 33 feet SSE of ground site.
Administration Building Municipal Airport	2/04/60	3/16/65	B	35° 03'	106° 37'	5311	a23	17	17		13	15	13	5	5348	B - Instrument relocations and commissioning of hygrothermometer. a - Direct reading equipment 48 feet to 3/1/60; other wind equipment continued at 48 feet.
FAA/Weather Bureau Building, Albuquerque Sunport-Kirkland AFB	3/16/65	Present	350 ft. SW	35° 03'	106° 37'	5311	b23	16	16		17	17	d17	b5	c5337	b - Not moved 3/16/65. c - 5327 to 1/22/66. d - 13 feet to 4/16/66.

Requests for additional information should be directed to the National Weather Service Office for which this summary was issued.

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U.S. DEPARTMENT OF COMMERCE
NATIONAL CLIMATIC CENTER
FEDERAL BUILDING
ASHEVILLE, N.C. 28801

A UNITED STATES DEPARTMENT OF COMMERCE PUBLICATION

LOCAL CLIMATOLOGICAL DATA
ANNUAL SUMMARY WITH COMPARATIVE DATA

ELY, NEVADA

1971

U.S. DEPARTMENT OF COMMERCE NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION ENVIRONMENTAL DATA SERVICE

NARRATIVE CLIMATOLOGICAL SUMMARY

Ely, Nevada, is located within but near the southern rim of the Great Basin. The neighboring terrain consists of alternate mountain ranges and sagebrush covered valleys. Principal cover on the mountains is juniper, pinion, and, at higher elevations, white fir and white pine.

Valley floors in this region are near 6,000 feet above sea-level. This high elevation is conducive to sharp night-time radiation, which produces pleasant summer nights but also reduces the season that is free from freezing temperatures to, on the average, about 74 days.

Owing to the normally low (yearly average less than 10 inches) precipitation, farming is limited to areas that can be irrigated from mountain streams or wells. The livestock industry is predominant in agriculture. Cultivated crops consist almost entirely of grains and forage.

The mountain ranges provide fairly good summer pastures for cattle which find enough food also for a good portion of the winter in dry or snow-softened desert plants. All stock, however, has to be finished for market in the feed-yards.

Sheep share the mountain pastures with cattle in the summer, and as winter approaches move out on the wide flat valleys. These browsers eat snow for water and consume a wide variety of desert plants, including the lowly sagebrush. It is not uncommon for bands of sheep to spend an entire winter without supplemental feed.

The Ely weather station is near the center of Steptoe Valley, which is five miles wide at this point. The mountains of the Egan Range to the west and the Schell Creek Range to the east range up to 4,000 feet above the station elevation and prevent strong surface winds from these directions. A very pronounced drainage wind sweeps down the valley during the morning hours. More precipitation is noted near the mountains than is measured in the center of the valley.

METEOROLOGICAL DATA FOR THE CURRENT YEAR

Station: ELY, NEVADA — YELLAND FIELD — Standard time used: PACIFIC — Latitude: 39° 17' N — Longitude: 114° 51' W — Elevation (ground): 6253 feet — Year: 1971

Month	Temperature: Averages: Daily maximum	Daily minimum	Monthly	Extremes: Highest	Date	Lowest	Date	Degree days (Base 65°): Heating	Cooling	Precipitation: Total	Greatest in 24 hrs.	Date	Snow, Ice pellets: Total	Greatest in 24 hrs.	Date	Relative humidity: Hour 04 (Local time)	Hour 10 (Local time)	Hour 16 (Local time)	Hour 22 (Local time)	Wind &: Resultant Direction	Resultant Speed	Average speed	Fastest mile: Speed	# Direction	Date	Percent of possible sunshine	Average sky cover sunrise to sunset	Number of days: Sunrise to sunset: Clear	Partly cloudy	Cloudy	Precipitation .01 inch or more	Snow, Ice pellets 1.0 inch or more	Thunderstorms	Heavy fog	Temperatures: Maximum ‡ 90° and above	32° and below	Minimum 32° and below	0° and below	Average daily solar radiation - langleys
JAN	38.5	9.8	24.2	57	18+	-26	5	1259	0	0.63	0.54	12-13	8.8	6.5	12-13	72	67	61	74	20	5.5	10.9	39	N	2	69	6.0	11	5	15	4	3	0	0	0	8	31	7	253
FEB	42.3	17.5	29.9	59	13	0	27	979	0	0.57	0.18	2	7.7	3.3	17	74	57	48	71	28	2.3	9.7	40	N	20	71	6.0	7	12	9	7	4	1	0	0	5	28	1	347
MAR	50.0	19.3	34.7	69	29	-10	2	933	0	0.20	0.10	14-15	4.1	2.7	14-15	70	40	31	59	24	3.7	9.9	41	SW	26	89	5.6	10	10	11	6	2	0	0	0	2	27	2	465
APR	56.3	26.3	41.3	69	16+	12	1	705	0	1.31	0.49	23-24	13.1	5.0	24	69	45	36	58	22	3.4	10.1	35	SW	10	76	6.1	9	7	14	7	3	0	0	0	1	27	0	505
MAY	60.8	33.2	47.0	74	25+	20	18	549	0	2.89	0.70	4-5	6.3	5.4	4-5	76	47	46	67	20	4.1	10.0	42	SE	27	69	6.8	6	10	15	14	1	7	0	0	0	16	0	557
JUN	77.7	40.4	59.1	91	22	29	2+	183	8	0.09	0.07	10	0.0	0.0		66	28	25	49	22	4.7	9.3	42	S	10	86	3.9	14	12	4	3	0	4	0	2	0	3	0	710
JUL	88.5	47.8	68.2	96	14	39	11+	18	122	0.17	0.08	18-19	0.0	0.0		56	24	19	38	22	3.1	8.9	32	SE	1	81	4.1	15	11	5	5	0	9	0	12	0	0	0	687
AUG	86.1	50.6	68.4	94	13	42	24	4	117	0.25	0.16	7	0.0	0.0		65	31	26	48	20	3.6	9.1	35	SW	17	75	5.8	5	18	8	6	0	12	0	6	0	0	0	570
SEP	72.2	32.8	52.5	87	13+	16	28	369	2	0.39	0.18	30	2.2	2.2	30	53	29	19	41	20	4.3	10.8	33	SE	29	91	1.7	23	6	1	3	1	2	0	0	0	16	0	580
OCT	57.3	23.2	40.3	78	11+	-3	30	760	0	1.08	0.43	24-25	9.7	3.6	27-28	76	49	41	63	20	2.9	10.7	32	S	15	72	4.6	14	8	9	10	4	1	0	0	2	27	1	346
NOV	46.1	17.8	32.0	61	4+	2	1	983	0	0.59	0.21	28	6.0	2.4	28	77	60	53	75	20	4.5	10.3	34	S	12	69	5.5	10	10	10	6	2	1	0	0	3	27	0	272
DEC	33.1	4.7	18.9	47	20+	-11	31	1422	0	1.25	0.45	24	13.6	3.9	27-28	79	70	69	81	19	5.8	11.5	43	SE	22+	60	6.7	5	9	17	13	6	0	0	0	15	30	12	
YEAR	59.1	27.0	43.1	96	JUL. 14	-26	JAN. 5	8164	249	9.42	0.70	MAY 4-5	71.5	6.5	JAN. 12-13	69	46	40	60	21	3.8	10.1	43	SE	DEC. 22+	76	5.2	129	118	118	84	26	37	0	20	36	232	23	

NORMALS, MEANS, AND EXTREMES

Month	Temperature: Normal: Daily maximum	Daily minimum	Monthly	Extremes: Record highest	Year	Record lowest	Year	Normal heating degree days (Base 65°)	Precipitation: Normal total	Maximum monthly	Year	Minimum monthly	Year	Maximum in 24 hrs.	Year	Snow, Ice pellets: Mean total	Maximum monthly	Year	Maximum in 24 hrs.	Year	Relative humidity: Hour 04 (Local time)	Hour 10 (Local time)	Hour 16 (Local time)	Hour 22 (Local time)	Wind &: Mean speed	# Prevailing direction	Fastest mile: Speed	Direction	#	Year	Pct. of possible sunshine	Mean sky cover sunrise to sunset	Mean number of days: Sunrise to sunset: Clear	Partly cloudy	Cloudy	Precipitation .01 inch or more	Snow, Ice pellets 1.0 inch or more	Thunderstorms	Heavy fog	Temperatures: Max. ‡ 90° and above	32° and below	Min. 32° and below	0° and below	Average daily solar radiation - langleys
(a)	(b)	(b)	(b)	33		33		(b)	(b)	33		33		33		33	33		33		19	19	19	19	33	11	28	28			33	28	33	33	33	33	33	33	33	33	33	33	18
J	36.8	8.7	22.8	68	1951	-27	1949	1308	0.78	1.92	1952	T	1948	0.95	1952	8.6	24.8	1967	13.1	1943	70	59	55	69	10.7	S	66	SE	1952	65	6.2	9	7	15	7	2	*	*	0	8	31	7	245
F	39.8	13.3	26.6	66	1963	-25	1949	1075	0.70	2.19	1969	0.07	1964	1.54	1969	6.9	19.9	1959	10.4	1956	75	59	51	72	10.7	S	56	S	1954	66	6.3	7	7	14	7	2	*	*	0	5	27	4	335
M	47.2	19.7	33.5	73	1966	-13	1952	977	0.85	2.40	1952	0.07	1955	0.86	1954	8.9	24.8	1958	10.6	1954	72	47	41	65	10.9	S	59	SE	1951	71	6.1	8	9	14	8	3	*	*	0	3	30	1	463
A	57.6	27.5	42.6	78	1962+	-5	1963	672	0.95	2.77	1964	0.16	1966+	1.04	1947	6.4	24.5	1963	10.7	1970	68	40	34	57	11.1	S	59	S	1951	67	6.1	8	9	13	8	2	1	*	0	*	24	*	553
M	66.7	33.8	50.3	87	1954+	7	1950	456	0.85	3.05	1967	T	1948	1.42	1955	1.8	10.8	1964	7.2	1964	65	33	30	53	11.0	S	74	S	1948	70	6.0	7	12	12	7	1	4	*	0	*	13	0	624
J	77.2	40.0	58.6	99	1954	19	1950	225	0.50	3.53	1963	T	1946+	1.50	1963	0.3	5.6	1939	5.6	1939	59	29	25	44	10.8	S	63	SW	1952	79	4.4	13	10	7	5	*	5	*	2	0	4	0	689
J	86.8	48.1	67.5	97	1960	30	1968+	28	0.65	1.81	1970	T	1948+	1.22	1952	0.0	0.0		0.0		51	23	22	39	10.4	S	50	S	1957	80	3.9	14	12	5	5	0	8	0	9	0	*	0	659
A	85.1	47.1	66.1	95	1969+	24	1960	43	0.49	1.58	1945	T	1962+	0.69	1957	0.0	0.0		0.0		57	27	23	42	10.7	S	57	E	1954	81	3.8	14	13	4	5	0	8	0	5	0	1	0	600
S	76.9	38.1	57.5	93	1950	15	1968	234	0.56	2.23	1967	T	1953+	1.25	1963	0.1	2.2	1971	2.2	1971	56	28	22	43	10.6	S	57	S	1953	83	3.1	18	7	5	4	*	3	*	1	0	8	0	522
O	63.1	28.7	45.9	84	1967	-3	1971	592	0.73	1.76	1941	0.00	1952	1.09	1968	1.9	9.7	1971	7.3	1954	63	36	29	53	10.5	S	65	S	1950	75	4.1	15	8	8	5	1	1	*	0	*	22	*	389
N	49.1	18.2	33.7	71	1956+	-15	1964	939	0.59	1.82	1960	T	1959	1.29	1960	4.7	15.3	1946	10.4	1967	71	51	45	67	10.2	S	51	S	1954	67	5.7	10	8	12	5	1	*	*	0	3	28	1	275
D	40.8	12.7	26.8	67	1958	-22	1951	1184	0.68	2.11	1966	T	1962	1.12	1966	7.8	22.3	1968	12.7	1970	72	59	55	71	10.3	S	61	SE	1952	64	6.1	9	8	14	6	3	*	*	0	7	30	5	220
YR	60.6	28.0	44.3	99	JUN. 1954	-27	JAN. 1949	7733	8.33	3.53	JUN. 1963	0.00	OCT. 1952	1.54	FEB. 1969	47.4	24.8	JAN. 1967+	13.1	JAN. 1943	65	41	36	56	10.6	S	74	S	MAY 1948	73	5.2	132	110	123	72	15	33	2	16	27	218	19	465

(a) Length of record, years, based on January data. Other months may be for more or fewer years if there have been breaks in the record.
(b) Climatological standard normals (1931-1960).
• Less than one half.
\+ Also on earlier dates, months, or years.
T Trace, an amount too small to measure.
Below zero temperatures are preceded by a minus sign.
The prevailing direction for wind in the Normals, Means, and Extremes table is from records through 1963.
‡ ≥ 70° at Alaskan stations.

Unless otherwise indicated, dimensional units used in this bulletin are: temperature in degrees F.; precipitation, including snowfall, in inches; wind movement in miles per hour; and relative humidity in percent. Heating degree day totals are the sums of negative departures of average daily temperatures from 65° F. Cooling degree day totals are the sums of positive departures of average daily temperatures from 65° F. Sleet was included in snowfall totals beginning with July 1948. The term "Ice pellets" includes solid grains of ice (sleet) and particles consisting of snow pellets encased in a thin layer of ice. Heavy fog reduces visibility to 1/4 mile or less.

Sky cover is expressed in a range of 0 for no clouds or obscuring phenomena to 10 for complete sky cover. The number of clear days is based on average cloudiness 0-3, partly cloudy days 4-7, and cloudy days 8-10 tenths.

Solar radiation data are the averages of direct and diffuse radiation on a horizontal surface. The langley denotes one gram calorie per square centimeter.

& Figures instead of letters in a direction column indicate direction in tens of degrees from true North; i.e., 09 - East, 18 - South, 27 - West, 36 - North, and 00 - Calm. Resultant wind is the vector sum of wind directions and speeds divided by the number of observations. If figures appear in the direction column under "Fastest mile" the corresponding speeds are fastest observed 1-minute values.

To 8 compass points only.

AVERAGE TEMPERATURE

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Annual
1938										44.8	28.6	27.3	
1939	21.1	14.7	34.5	45.8	51.8	57.4	67.4	66.3	57.1	44.4	37.7	34.0	44.4
1940	26.4	31.2	38.3	43.4	55.4	62.6	68.1	68.1	56.3	47.1	31.9	30.4	46.6
1941	27.2	34.7	36.2	36.2	51.4	55.8	65.1	63.0	51.1	41.8	34.6	28.6	43.8
1942	23.4	23.8	30.6	41.6	46.0	57.4	70.1	65.6	55.7	45.6	35.0	31.2	43.8
1943	25.3	28.8	36.8	48.1	49.8	54.8	66.6	65.8	59.3	46.8	36.2	27.1	45.4
1944	18.7	23.0	29.5	38.0	51.0	53.4	65.2	63.8	57.0	47.4	30.4	25.5	41.9
1945	25.6	29.0	27.6	37.4	49.0	53.4	67.2	65.3	55.0	48.0	32.6	24.6	42.9
1946	21.2	25.8	35.4	45.2	48.3	59.8	67.6	66.5	56.2	39.8	29.8	30.0	43.8
1947	20.0	34.8	37.6	41.2	53.5	55.8	67.3	65.5	58.4	48.3	29.0	24.8	44.7
1948	28.8	24.0	26.4	42.8	48.8	57.4	66.2	64.5	57.1	44.9	30.4	18.9	42.5
1949	3.8	15.0	31.8	46.0	50.0	57.6	66.3	64.5	59.0	43.0	41.4	23.4	42.0
1950	20.2	33.0	33.7	42.4	47.3	56.7	65.9	63.8	54.8	51.1	39.0	34.8	45.2
1951	25.3	29.3	32.3	43.5	50.3	56.8	67.3	64.8	57.6	43.0	31.8	18.4	43.4
1952	17.6	19.9	22.4	43.0	52.1	57.3	66.5	67.5	59.3	50.6	26.9	24.6	42.3
1953	33.5	30.7	35.1	39.8	42.7	57.5	69.1	65.2	59.7	45.9	37.9	24.1	45.1
1954	27.2	34.3	31.8	46.1	54.0	57.7	69.6	64.0	56.5	46.0	38.8	25.8	46.0
1955	14.6	17.9	31.4	39.3	47.8	57.6	65.2	67.7	56.8	47.3	31.6	28.6	42.2
1956	31.9	19.5	35.8	41.3	50.5	60.5	65.6	62.9	59.8	44.2	30.6	26.8	44.1
1957	18.7	34.3	35.9	41.0	47.5	60.0	67.0	66.5	56.4	43.5	29.1	30.6	44.2
1958	27.5	33.9	30.2	38.2	54.1	59.5	65.7	68.6	57.8	47.5	34.6	33.9	46.0
1959	28.8	26.0	35.6	44.8	47.4	63.3	69.4	65.5	53.5	46.1	34.4	25.9	45.0
1960	19.0	23.3	39.3	43.2	50.3	62.6	68.0	65.4	60.6	46.3	35.3	26.6	45.0
1961	27.0	31.7	34.0	41.4	50.2	62.4	68.4	66.1	52.6	43.4	30.5	25.1	44.4
1962	20.4	29.4	29.3	47.4	49.0	59.6	65.5	65.8	58.9	48.7	38.0	29.7	45.2
1963	22.9	36.8	32.3	36.1	54.3	53.7	66.5	65.3	59.8	50.7	34.3	27.6	45.0
1964	19.3	22.3	27.9	39.6	48.6	56.6	68.4	64.7	54.4	49.6	29.3	26.0	42.2
1965	29.4	27.8	32.4	41.9	45.9	55.2	65.5	63.6	50.5	49.2	37.6	24.5	43.6
1966	20.1	22.5	36.7	42.6	55.5	60.6	68.6	66.3	59.1	45.7	38.1	27.0	45.2
1967	26.2	28.4	38.4	34.7	49.2	54.6	68.1	68.1	57.9	47.7	37.6	17.6	44.1
1968	23.1	35.8	36.7	38.0	49.3	59.4	68.4	61.1	54.5	46.7	34.8	23.8	44.3
1969	31.2	25.9	26.2	43.2	56.9	57.4	68.5	69.6	60.7	40.4	35.1	29.8	45.4
1970	29.3	35.0	32.9	34.8	50.7	58.1	67.3	68.1	52.2	41.1	36.0	21.7	43.9
1971	24.2	29.9	34.7	41.3	47.0	59.1	68.2	68.4	52.5	40.3	32.0	18.9	43.1
RECORD MEAN	23.7	27.7	33.0	41.5	50.2	57.9	67.3	65.7	56.6	45.8	34.0	26.4	44.2
MAX	38.0	41.1	46.9	56.5	66.5	76.0	86.5	84.4	75.8	63.3	49.1	40.6	60.4
MIN	9.3	14.2	19.1	26.5	33.8	39.8	48.0	46.9	37.4	28.3	18.9	12.2	27.9

TOTAL DEGREE DAYS

ELY, NEVADA

Season	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	Total
1938-39					1093	1169	1361	1406	945	577	410	237	
1939-40	18	22	237	639	819	960	1192	981	826	648	293	132	6767
1940-41	19	19	260	554	997	1073	1172	848	897	864	422	276	7401
1941-42	55	81	418	717	906	1130	1289	1158	1066	706	587	228	8341
1942-43	1	59	282	605	894	1043	1230	1010	873	508	469	311	7285
1943-44	40	52	170	566	866	1173	1437	1216	1105	806	436	352	8219
1944-45	36	59	246	544	1039	1226	1222	1011	1155	832	496	349	8215
1945-46	23	43	311	531	973	1254	1363	1097	917	598	519	163	7792
1946-47	5	18	268	782	1055	1084	1397	846	851	714	357	275	7652
1947-48	22	60	221	518	1081	1247	1125	1187	1198	667	504	227	8057
1948-49	35	63	247	628	1036	1430	1836	1400	1030	569	464	224	8962
1949-50	16	73	183	679	705	1291	1382	889	960	672	542	255	7647
1950-51	35	54	319	423	776	929	1221	992	1008	641	449	241	7088
1951-52	4	48	214	672	991	1439	1463	1300	1312	654	394	224	8715
1952-53	20	9	176	439	1138	1248	973	954	920	749	687	225	7538
1953-54	6	43	160	585	809	1262	1166	854	1024	560	331	248	7048
1954-55	8	82	253	580	781	1208	1557	1313	1034	765	525	219	8325
1955-56	66	2	263	542	994	1121	1019	1312	901	704	444	146	7514
1956-57	36	82	159	637	1025	1176	1432	855	893	712	535	176	7718
1957-58	12	33	252	659	1074	1058	1154	864	1068	796	332	173	7475
1958-59	34	3	227	534	903	958	1115	1085	901	598	537	98	6993
1959-60	11	51	342	580	909	1205	1418	1200	792	649	447	86	7690
1960-61	10	75	137	574	883	1183	1170	925	953	702	454	128	7194
1961-62	6	19	368	661	1029	1230	1381	987	1098	522	490	176	7967
1962-63	29	49	177	500	802	1091	1299	786	1007	861	322	335	7258
1963-64	20	35	152	435	913	1152	1411	1230	1143	755	500	251	7997
1964-65	17	74	314	470	1064	1203	1097	1037	1006	684	586	285	7837
1965-66	27	76	429	485	814	1248	1387	1188	869	664	291	154	7632
1966-67	9	35	177	592	801	1169	1193	1019	817	904	485	313	7514
1967-68	3	10	210	530	814	1462	1293	840	870	802	483	182	7499
1968-69	10	151	316	559	900	1268	1039	1087	1198	649	244	229	7650
1969-70	26	7	127	757	892	1084	1100	834	990	900	435	234	7386
1970-71	12	7	376	734	863	1334	1259	979	933	705	549	183	7934
1971-72	18	4	369	760	983	1422							

TOTAL PRECIPITATION

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Annual
1938											0.42	0.43	
1939	0.83	0.56	0.87	1.57	0.60	0.94	1.42	0.53	1.47	1.69	0.07	0.07	10.62
1940	0.95	1.12	0.51	1.76	0.07	0.70	0.03	0.05	2.07	1.06	0.19	0.15	8.66
1941	0.35	0.60	0.93	2.63	1.84	1.45	1.55	0.75	0.19	1.76	0.67	0.80	13.52
1942	0.63	0.27	1.03	0.59	0.69	T	0.15	0.17	T	0.40	0.61	0.06	4.60
1943	1.00	0.50	0.44	1.58	0.11	1.10	0.17	0.27	0.35	1.55	0.29	0.91	8.27
1944	0.53	0.56	0.99	1.16	0.52	1.15	T	T	0.11	0.43	1.60	0.44	7.49
1945	0.23	0.63	2.01	1.31	1.04	2.39	0.43	1.58	1.03	1.48	0.87	0.23	13.23
1946	0.62	0.08	1.22	0.97	1.21	T	1.18	0.54	0.01	1.46	1.60	0.67	9.56
1947	0.14	0.28	0.21	1.79	1.17	0.49	T	0.48	1.04	0.81	0.20	0.30	6.91
1948	T	0.89	0.87	0.62	T	0.92	T	0.26	0.26	0.47	0.10	0.92	5.31
1949	0.78	0.48	0.53	0.36	1.53	0.57	0.63	0.18	0.36	0.61	0.42	0.43	6.88
1950	0.45	0.13	0.88	0.16	0.87	0.04	0.87	0.06	0.98	0.63	0.54	0.42	6.03
1951	0.13	0.08	0.20	0.94	0.48	0.36	1.33	1.05	0.10	0.32	0.76	1.54	7.29
1952	1.92	0.87	2.40	1.77	0.36	0.51	1.51	0.19	0.03	0.00	0.43	0.99	10.98
1953	0.51	0.14	0.52	0.45	0.49	0.33	1.13	0.74	T	0.57	0.10	0.24	5.22
1954	0.94	0.54	1.37	0.54	0.28	0.19	0.32	0.05	1.48	0.47	1.12	0.59	7.89
1955	1.00	0.76	0.07	0.21	1.74	0.76	0.47	1.21	0.16	0.04	0.66	1.68	8.76
1956	0.99	0.94	0.34	0.63	1.61	0.38	0.18	T	0.65	0.54	0.04	0.06	6.36
1957	1.01	0.17	1.14	0.53	2.68	0.41	0.66	0.71	0.02	0.77	0.54	0.50	9.14
1958	0.53	1.08	2.25	0.69	0.58	0.33	0.12	0.49	0.79	T	0.53	0.17	7.58
1959	0.17	1.43	0.31	0.46	1.07	0.17	0.16	0.44	0.99	0.15	T	0.62	5.97
1960	0.80	0.70	0.77	0.67	0.79	0.21	0.26	0.19	0.98	0.37	1.82	0.33	7.89
1961	0.15	0.36	1.21	0.80	0.64	0.56	0.64	1.14	0.41	0.52	0.36	0.48	7.27
1962	0.81	1.51	1.09	0.18	1.26	0.45	0.62	T	0.10	1.06	0.28	T	7.36
1963	0.11	0.49	0.84	2.12	0.40	3.53	0.01	0.29	2.18	0.37	0.60	0.20	11.14
1964	1.41	0.07	1.24	2.77	1.17	2.44	0.02	0.58	0.09	0.19	0.93	1.79	12.70
1965	0.46	0.64	0.46	0.74	0.54	1.25	1.12	1.52	1.56	0.27	0.93	1.28	10.77
1966	0.23	0.31	0.16	0.16	0.46	0.14	0.16	0.61	1.34	0.10	0.30	2.11	6.08
1967	1.86	0.10	0.37	1.38	3.05	2.83	0.84	0.41	2.23	0.13	0.84	0.69	14.73
1968	0.15	0.92	0.67	1.26	1.00	1.12	1.32	1.04	0.10	1.44	0.22	0.79	10.03
1969	1.24	2.19	0.41	0.98	0.28	2.80	0.55	0.34	0.37	0.91	0.79	0.59	11.45
1970	0.11	0.14	0.59	1.55	0.01	1.09	1.81	1.45	0.45	0.23	1.69	1.57	10.69
1971	0.63	0.57	0.20	1.31	2.89	0.09	0.17	0.25	0.39	1.08	0.59	1.25	9.42
RECORD MEAN	0.66	0.61	0.82	1.05	0.95	0.90	0.60	0.53	0.68	0.66	0.63	0.69	8.78

TOTAL SNOWFALL

Season	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	Total
1938-39					5.8	6.5	13.8	8.6	5.8	4.8	1.5	5.6	
1939-40	0.0	0.0	0.0	3.1	T	0.1	6.4	7.1	1.7	6.5	0.0	0.0	24.9
1940-41	0.0	0.0	T	T	2.8	1.0	3.9	1.7	4.6	12.2	2.0	0.2	28.4
1941-42	0.0	0.0	T	5.6	6.1	11.8	5.5	3.2	11.7	2.0	1.2	0.0	47.1
1942-43	0.0	0.0	0.0	1.0	8.3	1.4	15.7	7.2	1.2	3.0	T	T	37.8
1943-44	0.0	0.0	0.0	T	0.4	7.6	11.2	9.9	20.3	5.8	0.0	T	55.2
1944-45	0.0	0.0	T	0.6	T	8.3	3.8	7.4	20.4	8.5	2.1	0.0	51.1
1945-46	0.0	0.0	T	T	10.5	4.7	11.0	1.5	11.6	T	T	0.0	39.3
1946-47	0.0	0.0	T	5.6	15.3	4.4	2.6	3.3	1.2	1.3	T	T	33.7
1947-48	0.0	0.0	T	T	1.0	4.0	T	9.0	16.1	2.8	T	0.0	32.9
1948-49	0.0	0.0	0.0	0.0	1.3	18.9	16.7	11.1	5.5	0.0	T	T	53.5
1949-50	0.0	0.0	0.0	6.1	1.1	10.1	6.4	1.2	7.8	2.1	7.5	0.2	42.5
1950-51	0.0	0.0	0.0	T	1.3	2.1	1.7	1.3	1.4	4.3	T	T	12.1
1951-52	0.0	0.0	0.0	T	11.5	14.4	17.8	9.8	23.5	1.0	T	T	78.0
1952-53	0.0	0.0	0.0	0.0	5.3	7.3	5.1	1.8	2.8	1.2	0.5	T	24.0
1953-54	0.0	0.0	0.0	2.2	T	6.8	10.9	4.8	16.6	1.0	T	0.2	42.5
1954-55	0.0	0.0	0.0	7.8	3.8	6.3	16.3	13.3	T	4.3	0.7	1.7	54.2
1955-56	0.0	0.0	T	0.0	5.8	13.4	7.5	18.8	3.2	4.7	6.2	0.0	59.6
1956-57	0.0	0.0	0.0	1.1	1.6	0.4	18.5	T	12.2	5.9	3.8	0.0	43.5
1957-58	0.0	0.0	0.0	0.6	10.0	4.0	9.1	12.6	24.8	7.5	0.0	0.0	68.6
1958-59	0.0	0.0	0.8	T	5.3	1.8	2.0	19.9	3.3	0.3	3.9	0.0	37.3
1959-60	0.0	0.0	0.1	1.2	T	10.6	9.9	8.3	5.1	4.5	2.6	0.0	42.3
1960-61	0.0	0.0	0.0	3.9	2.4	4.9	0.5	5.0	18.5	7.3	4.1	0.0	46.6
1961-62	0.0	0.0	T	6.6	4.6	5.5	13.9	5.9	15.0	0.3	T	0.0	51.8
1962-63	0.0	0.0	0.0	T	1.1	T	T	2.1	7.7	24.5	0.7	T	36.1
1963-64	0.0	0.0	0.0	0.0	5.0	3.5	19.3	1.2	17.4	21.8	10.8	T	79.0
1964-65	0.0	0.0	T	T	12.9	17.9	6.6	9.0	4.6	6.8	1.0	0.0	58.8
1965-66	0.0	0.0	T	2.0	5.5	12.7	3.5	4.2	1.6	1.4	T	0.0	30.9
1966-67	0.0	0.0	0.0	T	1.0	7.1	24.8	2.1	4.4	12.8	3.6	0.8	56.6
1967-68	0.0	0.0	0.0	0.0	12.7	11.8	2.4	8.6	9.5	16.7	0.7	0.0	62.4
1968-69	0.0	0.0	T	3.5	1.9	22.3	8.3	19.1	6.3	3.9	0.0	0.0	65.3
1969-70	0.0	0.0	0.0	2.2	2.9	2.6	1.0	0.9	4.2	19.9	0.0	T	33.7
1970-71	0.0	0.0	0.0	T	8.0	17.5	8.8	7.7	4.1	13.1	6.3	0.0	65.5
1971-72	0.0	0.0	2.2	9.7	6.0	13.6							

Record mean values above (not adjusted for instrument location changes listed in the Station Location table) are means for the period beginning in 1939.

# Indicates a break in the data sequence during the year, or season, due to a station move or relocation of instruments. See Station Location table.

STATION LOCATION

ELY, NEVADA

Location	Occupied from	Occupied to	Airline distance and direction from previous location	Latitude North	Longitude West	Elevation above Sea level: Ground at temperature site	Elevation above Ground: Wind instruments	Extreme thermometers	Psychrometer	Telepsychrometer	Tipping bucket rain gage	Weighing rain gage	8" rain gage	Hygrothermometer	Elevation above Sea level: Pyranometer	Remarks
Yelland Field	10-12-38	9- 8-61		39° 17'	114° 51'	6257	46	6	6		3	3	3		6262	
Yelland Field FAA-WB Building	9- 8-61	Present	400 ft. NNW	39° 17'	114° 51'	6253	20	4	4		3	3	3		6279	Wind equipment moved 3000 feet north to center of field.

Requests for additional information should be directed to the National Weather Service Office for which this summary was issued.

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USCOMM-NOAA-ASHEVILLE - 600

A UNITED STATES DEPARTMENT OF COMMERCE PUBLICATION

LOCAL CLIMATOLOGICAL DATA
ANNUAL SUMMARY WITH COMPARATIVE DATA

RENO, NEVADA

1971

U.S. DEPARTMENT OF COMMERCE NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION ENVIRONMENTAL DATA SERVICE

NARRATIVE CLIMATOLOGICAL SUMMARY

At an elevation of 4,400 feet above mean sea level, Reno is located at the west edge of Truckee Meadows in a semiarid plateau lying in the lee of the Sierra Nevada Mountain Range. To the west, the Sierras rise to elevations of 9,000 to 11,000 feet, and hills to the eastward reach 6,000 or 7,000 feet. The Truckee River, flowing from the Sierras eastward through Reno, drains into Pyramid Lake to the northeast.

While temperatures on the whole are mild, the daily range between maximum and minimum is considerable, often exceeding 45°. Even when afternoon maxima reach the upper 90's a light wrap is needed shortly after sunset. Nights with minimum temperature over 60° are rare. Afternoon temperatures in mid-winter are moderate, and on an average only 6 days a year fail to reach a temperature above freezing.

More than half the city's precipitation, falling largely as mixed rain and snow, occurs from December to March. Although there is an average of nearly 24 inches of snow a year, it is seldom that snow lies on the ground for more than 3 to 4 days at a time. Summer rain comes mainly as brief thundershowers in the middle and late afternoons. While precipitation is scare, abundant water is available from the high altitude reservoirs in the Sierra Nevada, where precipitation is heavy.

Humidity is very low during the summer months, and moderately low during the winter. Fogs are rare, and are usually confined to the early morning hours of mid-winter. Sunshine is abundant throughout the year.

METEOROLOGICAL DATA FOR THE CURRENT YEAR

Station: RENO, NEVADA INTERNATIONAL AIRPORT Standard time used: PACIFIC Latitude: 39° 30' N Longitude: 119° 47' W Elevation (ground): 4404 feet Year: 1971

Month	Temperature: Averages: Daily maximum	Daily minimum	Monthly	Extremes: Highest	Date	Lowest	Date	Degree days (Base 65°): Heating	Cooling	Precipitation: Total	Greatest in 24 hrs.	Date	Snow, Ice pellets: Total	Greatest in 24 hrs.	Date	Relative humidity: Hour 04 (Local time)	Hour 10 (Local time)	Hour 16 (Local time)	Hour 22 (Local time)	Wind &: Resultant: Direction	Resultant: Speed	Average speed	Fastest mile: Speed	Fastest mile: Direction #	Fastest mile: Date	Percent of possible sunshine	Average sky cover sunrise to sunset	Number of days: Sunrise to sunset: Clear	Partly cloudy	Cloudy	Precipitation .01 inch or more	Snow, Ice pellets 1.0 inch or more	Thunderstorms	Heavy fog	Temperatures: Maximum: ‡ 90° and above	32° and below	Minimum: 32° and below	0° and below	Average daily solar radiation - langleys
JAN	45.9	20.0	33.0	66	18	-11	3	985	0	0.75	0.35	12-13	11.4	5.6	12-13	82	73	52	76	21	1.4	4.1	42	W	13	67	5.4	10	9	12	5	3	0	1	0	6	27	5	224
FEB	52.5	21.3	36.9	71	13	10	26	780	0	0.33	0.21	19	4.9	3.0	19	73	55	36	57	30	2.8	5.5	33	NW	28	60	6.0	6	9	13	6	2	0	0	0	6	27	0	287
MAR	56.1	25.6	40.9	76	29	0	5	739	0	1.54	0.62	12	7.0	6.7	4-5	71	52	33	53	25	2.4	7.1	49	SW	25	69	6.0	7	12	12	6	2	0	1	0	1	24	1	395
APR	62.4	29.4	45.9	78	5	20	22	567	0	0.59	0.40	25	3.3	2.1	23-24	74	43	31	56	28	3.2	7.8	40	SW	10	63	5.7	8	11	11	4	1	0	0	0	0	24	0	464
MAY	65.0	36.8	50.9	79	15	25	18	429	0	2.38	0.94	20-21	6.3	6.3	20-21	78	51	43	65	32	2.8	7.1	36	NE	20	59	6.5	8	6	17	13	2	6	0	0	0	7	0	465
JUN	79.4	40.0	59.7	90	22+	29	2	164	11	0.09	0.05	1	0.0	0.0		70	38	26	44	28	2.4	5.5	29	W	17	83	3.5	18	6	6	2	0	0	0	4	0	2	0	597
JUL	92.5	50.5	71.5	102	28	39	11	9	217	1.06	0.64	30-31	0.0	0.0		73	33	24	43	29	2.6	5.1	36	E	16	93	2.1	24	5	2	6	0	8	0	20	0	0	0	591
AUG	92.7	48.7	70.7	100	10	37	22	13	197	0.09	0.07	26	0.0	0.0		66	28	18	38	28	2.4	5.6	34	SW	28	93	2.5	22	7	2	2	0	3	0	26	0	0	0	525
SEP	78.1	34.8	56.5	96	13	23	19	264	15	0.10	0.10	29	T	T	29-30	58	26	19	40	28	1.5	6.5	37	W	29	95	1.3	25	4	1	1	0	0	0	5	0	11	0	455
OCT	64.4	27.2	45.8	87	13	8	29	588	0	0.44	0.30	16	5.1	3.7	16	72	42	29	56	31	1.6	5.4	33	SW	23	80	4.1	16	9	6	3	1	0	0	0	22	0	309
NOV†	53.5	21.4	37.5	72	4	13	17	819	0	0.24	0.12	13	0.2	0.2	13	74	55	38	62	23	0.5	5.6	42	W	28	†65	5.4	11	5	14	4	0	0	0	0	27	0	194
DEC†	†40.2	12.9	26.6	61	5	-1	30	1184	0	2.97	1.39	24-25	25.6	14.9	24-25	76	63	53	70	24	1.1	5.2	38	SW	12	58	6.5	7	8	16	7	5	0	3	0	8	31	3	145
YEAR	65.2	30.7	48.0	102	JUL. 28	-11	JAN. 3	6541	440	10.58	1.39	DEC. 24-25	63.8	14.9	DEC. 24-25	72	47	34	55	28	1.8	5.9	49	SW	MAR. 25	75	4.6	162	91	112	59	16	17	5	55	15	202	9	388

† DATA CORRECTED AFTER PUBLICATION OF THE MONTHLY ISSUE.

NORMALS, MEANS, AND EXTREMES

Month	Temperature: Normal: Daily maximum	Daily minimum	Monthly	Extremes: Record highest	Year	Record lowest	Year	Normal heating degree days (Base 65°)	Precipitation: Normal total	Maximum monthly	Year	Minimum monthly	Year	Maximum in 24 hrs.	Year	Snow, Ice pellets: Mean total	Maximum monthly	Year	Maximum in 24 hrs.	Year	Relative humidity: Hour 04 (Local time)	Hour 10 (Local time)	Hour 16 (Local time)	Hour 22 (Local time)	Wind &: Mean speed	Prevailing direction	Fastest mile: Speed	Direction #	Year	Pct. of possible sunshine	Mean sky cover sunrise to sunset	Mean number of days: Sunrise to sunset: Clear	Partly cloudy	Cloudy	Precipitation .01 inch or more	Snow, Ice pellets 1.0 inch or more	Thunderstorms	Heavy fog	Temperatures: Max.: ‡ 90° and above	32° and below	Min.: 32° and below	0° and below	Average daily solar radiation - langleys
(a)	(b)	(b)	(b)	8		8		(b)	(b)	30		30		30		29	30		30		8	8	8	8	29	15	12	12		29	29	29	29	29	29	29	29	8	8	8	8	6
J	44.6	16.2	30.4	70	1967	-11	1971	1073	1.19	4.13	1969	T	1966	2.37	1943	6.6	20.0	1956	12.0	1956	72	65	48	68	6.1	S	80	SW	1968	65	6.2	9	7	15	6	2	0	2	0	2	27	1	200
F	49.8	21.4	35.6	74	1967+	0	1968	823	1.02	3.69	1962	T	1967	1.55	1962	4.9	23.5	1969	13.9	1959	70	56	35	60	6.0	S	54	SW	1960	69	6.0	8	7	13	5	2	*	1	0	*	25	*	282
M	57.3	25.6	41.5	83	1966	0	1971	729	0.68	2.02	1952	0.04	1966	1.21	1943	5.2	29.0	1952	16.9	1952	65	45	31	52	7.5	WNW	80	SW	1968	74	5.8	9	9	13	6	2	*	*	0	*	27	*	403
A	65.4	30.5	48.0	88	1966	15	1970	510	0.54	2.04	1958	T	1962+	1.64	1958	1.5	7.5	1958	7.3	1958	65	38	28	49	7.9	WNW	47	W	1960	79	5.6	9	10	11	4	1	*	*	0	0	22	0	504
M	71.5	36.3	53.9	95	1970+	18	1964	357	0.52	2.89	1963	T	1970+	1.29	1963	1.1	14.1	1964	9.0	1962	66	35	26	46	7.6	WNW	39	W	1968	79	4.9	12	10	9	5	*	2	*	1	0	7	0	579
J	80.3	39.8	60.1	100	1970+	29	1971+	189	0.37	1.31	1965	0.00	1959+	0.79	1969	T	0.2	1970	0.2	1970	70	37	27	46	7.1	WNW	42	NW	1966	83	3.6	16	8	6	3	0	3	0	6	0	1	0	580
J	89.4	45.9	67.7	103	1970	33	1965	43	0.27	1.06	1971	0.00	1951+	0.80	1949	0.0	0.0		0.0		68	30	20	39	6.5	WNW	44	SW	1962	92	2.1	23	6	2	3	0	4	*	22	0	0	0	617
A	88.3	42.7	65.5	103	1970+	29	1968	87	0.17	1.65	1965	0.00	1957+	0.97	1965	0.0	0.0		0.0		70	33	21	41	6.1	WNW	43	SW	1968	93	2.1	24	5	2	2	0	3	*	21	0	*	0	554
S	81.2	36.4	58.8	96	1971	20	1965	204	0.23	1.02	1950	0.00	1964+	0.80	1950	T	T	1971+	T	1971+	70	35	22	47	5.4	WNW	42	W	1970+	91	2.3	22	5	3	2	0	1	*	4	0	7	0	465
O	69.0	29.4	49.2	91	1965	8	1971	490	0.51	2.14	1945	T	1966+	1.55	1962	0.4	5.1	1971	3.7	1971	71	40	25	54	5.3	WNW	50	S	1962	82	4.0	16	7	8	2	*	*	*	0	22	0	337
N	55.7	20.8	38.3	76	1969+	8	1964	801	0.57	2.04	1946	0.00	1959	1.23	1949	1.7	8.7	1961	6.7	1961	74	58	44	66	5.1	S	52	SW	1967	70	5.6	10	7	13	5	1	0	1	0	23	0	206
D	47.3	16.4	31.9	70	1969	-3	1968	1026	1.08	5.25	1955	0.01	1947	2.16	1955	5.0	25.6	1971	14.9	1971	73	65	55	69	5.1	SW	68	SW	1968	62	6.3	8	8	15	6	2	0	3	0	5	28	1	166
YR	66.7	30.1	48.4	103	AUG. 1970+	-11	JAN. 1971	6332	7.15	5.25	DEC. 1955	0.00	SEP. 1964+	2.37	JAN. 1943	26.4	29.0	MAR. 1952	16.9	MAR. 1952	70	45	32	53	6.3	WNW	80	SW	MAR. 1968+	80	4.5	166	89	110	49	9	13	8	54	8	189	2	408

Means and extremes above are from existing and comparable exposures. Annual extremes have been exceeded at other sites in the locality as follows: Highest temperature 106 in July 1931; lowest temperature -19 in January 1890; maximum monthly precipitation 6.76 in January 1916; maximum precipitation in 24 hours 2.71 in January 1903; maximum monthly snowfall 65.7 in January 1916; maximum snowfall in 24 hours 22.5 in January 1916.

(a) Length of record, years, based on January data. Other months may be for more or fewer years if there have been breaks in the record.
(b) Climatological standard normals (1931-1960).
* Less than one half.
\+ Also on earlier dates, months, or years.
T Trace, an amount too small to measure.
Below zero temperatures are preceded by a minus sign. The prevailing direction for wind in the Normals, Means, and Extremes table is from records through 1963.
‡ ≥ 70° at Alaskan stations.

Unless otherwise indicated, dimensional units used in this bulletin are: temperature in degrees F.; precipitation, including snowfall, in inches; wind movement in miles per hour; and relative humidity in percent. Heating degree day totals are the sums of negative departures of average daily temperatures from 65° F. Cooling degree day totals are the sums of positive departures of average daily temperatures from 65° F. Sleet was included in snowfall totals beginning with July 1948. The term "ice pellets" includes solid grains of ice (sleet) and particles consisting of snow pellets encased in a thin layer of ice. Heavy fog reduces visibility to 1/4 mile or less.

Sky cover is expressed in a range of 0 for no clouds or obscuring phenomena to 10 for complete sky cover. The number of clear days is based on average cloudiness 0-3, partly cloudy days 4-7, and cloudy days 8-10 tenths.

Solar radiation data are the averages of direct and diffuse radiation on a horizontal surface. The langley denotes one gram calorie per square centimeter.

& Figures instead of letters in a direction column indicate direction in tens of degrees from true North; i.e., 09 - East, 18 - South, 27 - West, 36 - North, and 00 - Calm. Resultant wind is the vector sum of wind directions and speeds divided by the number of observations. If figures appear in the direction column under "Fastest mile" the corresponding speeds are fastest observed 1-minute values.

To 8 compass points only.

AVERAGE TEMPERATURE

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Annual
1932	29.8	32.2	45.0	47.4	55.4	66.8	70.2	70.2	66.5	52.6	46.4	29.0	51.0
1933	30.3	28.7	43.0	48.0	50.1	65.2	75.8	72.3	63.6	59.6	43.8	39.6	51.7
#1934	39.6	42.0	52.4	55.0	60.2	62.5	71.6	73.3	63.4	54.0	44.9	35.3	54.5
1935	33.8	39.6	37.9	47.7	55.6	67.1	69.4	72.2	67.1	49.9	35.3	33.8	50.8
1936	38.0	36.0	44.8	52.6	57.6	64.6	74.3	71.4	61.6	53.9	41.8	33.3	52.5
1937	15.8	35.6	43.3	46.4	59.2	63.8	73.2	71.1	64.6	54.2	45.0	36.8	50.8
1938	36.4	33.2	38.6	49.0	56.2	65.4	71.6	70.8	65.2	50.6	37.6	37.0	51.0
1939	36.2	32.8	45.3	54.8	58.6	64.1	73.2	74.3	63.0	52.2	45.0	41.2	53.4
1940	34.6	40.4	44.9	50.2	61.4	70.6	70.8	73.6	60.2	54.7	40.0	37.8	53.3
1941	38.0	41.8	44.3	46.4	56.6	61.8	72.8	68.0	58.0	49.6	44.1	37.2	51.6
#1942	28.5	34.9	40.8	47.6	51.8	61.9	73.3	71.3	60.4	51.6	42.0	36.6	50.1
1943	34.4	39.8	43.9	50.8	55.0	57.2	70.4	65.0	64.0	50.2	40.2	30.1	50.1
1944	32.6	35.1	39.6	43.8	55.0	57.4	67.3	66.0	61.2	52.8	38.1	33.4	48.5
1945	33.2	37.2	37.4	45.6	53.4	60.4	71.2	67.6	60.2	53.6	40.2	33.4	49.4
1946	33.6	34.6	40.6	49.2	55.7	60.4	69.3	69.9	59.3	45.4	38.0	35.2	49.3
1947	31.5	42.0	43.2	48.5	60.3	60.3	66.6	66.1	61.4	51.6	35.5	32.4	50.0
1948	36.0	32.5	36.4	44.7	52.0	62.2	67.8	65.2	60.4	50.8	38.2	27.0	47.8
#1949	14.0	30.2	40.2	51.6	54.7	62.8	68.8	65.2	60.9	47.8	44.2	31.6	47.7
1950	29.3	39.0	39.2	48.0	54.0	60.4	70.0	68.1	59.4	53.3	45.5	38.6	50.4
1951	33.1	36.5	38.4	49.7	53.8	63.3	70.0	66.5	62.3	46.8	40.1	30.5	49.3
1952	26.2	35.7	34.0	47.8	55.4	59.0	70.4	67.3	61.9	54.2	34.5	34.0	48.4
1953	40.3	35.5	40.3	45.4	47.8	57.0	70.5	65.6	64.0	49.1	42.3	32.7	49.2
1954	35.3	39.9	37.3	50.4	59.0	60.0	69.4	63.6	57.7	49.6	41.4	32.2	49.7
1955	24.8	32.1	38.7	41.4	53.4	62.3	66.7	69.5	59.9	50.7	39.4	35.6	47.9
1956	34.1	27.6	41.4	46.2	54.9	61.7	68.6	64.8	61.3	47.7	36.8	30.5	48.0
1957	25.8	38.9	42.4	45.7	53.5	64.9	68.6	65.0	61.5	46.8	36.6	35.2	48.7
1958	34.3	41.2	37.0	45.1	59.2	61.4	68.4	72.0	60.2	52.6	38.7	37.7	50.7
#1959	36.5	33.9	42.6	50.3	51.3	65.3	72.9	66.8	57.4	51.8	39.6	29.4	49.8
1960	27.5	36.1	44.3	48.2	51.7	65.2	70.4	65.5	61.0	48.9	40.1	32.1	49.3
1961	33.4	40.7	41.6	47.0	53.4	66.6	69.4	69.1	55.9	49.7	36.5	31.7	49.6
1962	26.7	34.1	39.6	50.1	51.5	61.7	67.0	61.5	60.8	51.2	40.8	33.9	48.3
#1963	28.2	44.4	40.5	41.8	57.2	59.0	65.1	64.7	63.3	52.4	40.2	35.1	49.3
1964	32.5	34.2	37.7	45.3	51.9	61.3	70.7	66.9	58.1	55.3	38.0	36.0	49.0
1965	33.6	40.1	43.2	49.6	54.0	59.2	66.1	65.8	54.9	52.4	41.6	29.9	49.2
1966	33.4	34.8	43.4	50.2	60.7	63.7	65.7	67.5	58.7	49.6	41.0	34.0	50.2
1967	37.0	40.3	40.6	40.3	54.9	59.9	69.6	71.0	62.6	51.0	42.7	28.3	49.8
1968	31.7	42.4	42.4	44.6	52.8	62.9	73.0	64.5	59.6	50.6	40.8	31.4	49.7
1969	37.0	34.2	40.7	48.4	58.1	62.0	70.8	68.8	63.4	45.3	39.0	36.7	50.4
1970	37.3	42.0	41.4	44.1	58.0	65.1	73.0	71.5	57.2	48.0	45.4	29.2	51.0
1971	33.0	36.9	40.9	45.9	50.9	59.7	71.5	70.7	56.5	45.8	37.5	26.6	48.0
RECORD MEAN	32.0	36.6	41.3	47.6	54.8	62.4	70.2	68.6	60.7	51.0	41.1	33.4	49.9
MAX	43.7	48.8	54.7	62.4	70.0	79.2	89.1	87.5	79.0	67.8	55.5	45.2	65.2
MIN	20.2	24.3	27.8	32.7	39.6	45.6	51.3	49.6	42.4	34.1	26.6	21.5	34.6

TOTAL DEGREE DAYS

RENO, NEVADA

Season	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	Total
1932-33	12	22	42	384	559	1116	1075	1017	680	511	472	64	5954
#1933-34	0	0	74	181	636	790	787	642	391	300	164	126	4091
1934-35	5	1	132	340	603	920	966	710	840	519	298	24	5358
1935-36	32	0	28	468	891	968	838	840	628	370	239	102	5404
1936-37	14	0	134	344	696	982	1526	824	674	558	196	98	6046
1937-38	0	6	75	337	600	874	886	892	818	479	282	72	5321
1938-39	10	0	48	444	823	870	894	900	611	304	215	112	5231
1939-40	0	0	100	396	598	736	940	714	624	502	124	29	4763
1940-41	0	0	191	320	748	842	837	648	642	560	270	120	5178
1941-42	12	28	216	475	622	861	1129	844	748	523	417	113	5988
#1942-43	5	46	142	417	692	878	950	700	656	431	321	243	5481
1943-44	4	56	53	459	740	1084	1007	868	790	635	310	241	6247
1944-45	17	39	149	380	804	978	989	778	857	580	359	161	6091
1945-46	0	26	190	353	741	977	974	852	752	476	289	150	5780
1946-47	10	13	170	605	809	923	1041	645	675	498	160	156	5705
1947-48	27	42	136	415	884	1010	902	942	886	612	403	127	6386
#1948-49	33	36	163	438	806	1175	1577	976	767	403	323	114	6811
1949-50	12	47	139	534	619	1037	1102	724	794	503	338	170	6019
1950-51	5	18	201	355	579	810	980	795	818	452	348	104	5465
1951-52	15	37	92	558	742	1062	1198	843	955	509	290	187	6488
1952-53	4	12	107	330	907	952	755	819	759	579	527	235	5986
1953-54	4	42	67	485	675	993	916	695	854	432	201	193	5557
1954-55	9	83	217	470	700	1007	1238	916	808	702	355	124	6629
1955-56	50	8	201	437	762	905	952	1077	723	556	309	123	6103
1956-57	20	43	116	528	838	1063	1211	724	693	572	348	78	6234
1957-58	1	45	116	556	845	916	943	658	861	589	176	139	5845
1958-59	20	0	155	377	782	839	875	867	686	435	415	58	5509
#1959-60	6	44	244	404	757	1096	1156	832	638	497	405	42	6121
1960-61	5	78	127	493	742	1015	970	674	721	531	352	55	5763
1961-62	9	7	267	470	848	1024	1178	858	780	440	409	118	6408
1962-63	7	110	127	422	718	957	1134	572	750	691	237	182	5907
#1963-64	38	62	82	389	738	921	1002	887	840	585	400	135	6079
1964-65	6	28	203	296	802	892	968	695	667	454	336	174	5521
1965-66	34	31	298	383	694	1079	974	838	664	439	135	105	5674
1966-67	45	45	184	473	715	951	859	685	750	737	317	177	5938
1967-68	1	3	87	429	663	1132	1025	650	694	606	369	113	5772
1968-69	0	91	180	441	721	1033	861	856	745	494	208	104	5734
1969-70	5	12	79	605	772	871	851	638	724	622	216	90	5485
1970-71	0	0	234	519	585	1102	985	780	739	567	429	164	6104
1971-72	9	13	264	588	819	1184							

TOTAL PRECIPITATION

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Annual
1932	1.56	0.90	0.20	0.21	0.24	1.40	0.04	T	0.04	0.09	0.02	0.45	5.15
1933	2.22	0.20	0.34	0.06	0.66	0.01	0.25	0.79	0.00	1.65	0.04	2.06	8.28
#1934	0.45	0.31	0.09	0.95	1.35	0.62	T	0.19	0.13	1.09	0.38	0.27	5.83
1935	1.10	0.56	0.81	1.64	0.28	0.01	0.02	0.04	T	0.06	1.28	0.62	6.42
1936	0.62	3.01	0.04	0.04	T	0.77	0.10	0.48	0.12	0.20	0.03	1.49	6.90
1937	1.90	1.71	0.06	0.21	0.02	0.03	0.36	0.00	0.05	0.20	1.11	1.70	7.35
1938	0.66	3.87	2.06	0.31	0.27	1.31	0.24	T	0.07	0.29	0.19	0.11	9.38
1939	1.32	0.23	0.90	0.11	0.64	0.06	0.62	0.48	0.84	0.82	0.06	0.34	6.42
1940	3.72	1.57	0.82	0.80	0.03	0.79	0.50	0.00	0.56	0.48	0.77	1.71	11.75
1941	0.61	0.89	0.26	0.48	0.16	0.48	0.20	0.73	T	1.11	0.32	2.69	7.93
#1942	1.41	0.68	0.53	0.27	0.30	0.08	T	T	0.02	0.07	0.96	0.56	4.88
1943	4.05	0.56	1.81	0.44	T	0.18	0.60	T	T	0.32	0.29	0.76	9.01
1944	0.77	1.48	1.13	0.20	0.37	0.18	0.28	0.00	0.07	0.64	1.58	0.27	6.97
1945	0.29	1.88	0.97	0.31	0.24	0.97	0.10	0.23	0.00	2.14	0.17	1.58	8.84
1946	0.19	0.33	0.97	0.05	0.17	0.00	0.84	T	0.10	0.51	2.04	0.39	5.59
1947	0.16	0.51	0.12	0.03	0.30	0.07	0.00	0.12	T	0.17	0.06	0.01	1.55
1948	0.01	0.30	0.07	0.67	1.25	0.52	0.00	0.08	0.01	0.17	T	0.72	3.80
1949	0.76	0.32	0.74	0.29	1.64	0.13	0.80	0.11	0.18	0.11	1.28	0.17	6.53
1950	1.54	0.30	0.96	0.50	0.20	0.73	0.04	0.07	1.02	1.56	1.43	1.26	9.61
1951	0.98	0.43	0.24	1.07	0.71	0.67	0.00	0.13	0.37	0.96	0.61	1.95	8.12
1952	1.89	0.62	2.02	1.63	0.02	0.09	0.72	0.01	0.67	0.04	0.50	1.68	9.89
1953	0.81	0.22	0.34	0.41	1.20	0.77	0.21	0.17	0.05	0.10	0.17	0.12	4.57
1954	0.86	1.49	1.81	0.21	0.02	0.24	0.08	T	0.00	T	0.74	1.49	6.94
1955	0.64	0.63	0.25	0.17	1.03	T	0.35	T	0.62	0.04	0.21	5.25	9.19
1956	2.58	0.53	0.05	1.38	0.75	0.02	0.49	T	0.35	0.89	T	0.05	7.09
1957	1.20	0.80	0.26	0.21	0.83	0.06	0.03	0.00	0.61	1.27	0.58	1.52	7.37
1958	0.78	1.70	1.76	2.04	0.25	0.45	0.22	0.56	0.49	T	0.38	0.24	8.87
#1959	0.64	2.80	0.07	T	1.84	0.00	0.05	0.09	0.04	T	0.00	0.45	5.98
1960	1.21	1.19	0.59	0.05	T	T	0.87	T	T	0.18	1.45	0.24	5.78
1961	0.80	0.30	0.40	0.27	0.91	0.56	0.30	0.47	0.39	0.15	0.64	0.18	5.37
1962	0.35	3.69	0.84	T	1.40	0.04	0.38	0.08	0.10	1.55	0.02	0.60	9.05
1963	2.51	1.09	0.41	0.82	2.89	1.10	T	0.17	0.18	0.24	1.44	0.08	10.93
1964	0.68	0.01	0.72	0.53	1.79	0.29	0.13	0.02	0.00	0.04	0.63	2.89	7.73
1965	1.64	0.01	0.98	0.27	0.18	1.31	0.35	1.65	0.50	0.02	1.62	1.19	9.72
1966	T	0.20	0.04	0.03	0.33	0.03	T	0.02	0.10	T	1.07	1.45	3.27
1967	2.11	T	1.93	0.95	0.47	0.59	0.57	1.22	0.82	0.04	0.22	0.55	9.47
1968	1.11	0.92	0.84	0.02	0.30	0.16	0.05	0.13	0.15	0.01	0.73	1.03	5.45
1969	4.13	1.74	0.07	0.10	0.20	1.29	0.17	T	0.01	0.40	0.04	2.07	10.22
1970	1.73	0.32	0.19	0.60	T	0.88	0.05	0.02	0.01	0.03	1.47	1.65	6.95
1971	0.75	0.33	1.54	0.59	2.38	0.09	1.06	0.09	0.10	0.44	0.24	2.97	10.58
RECORD MEAN	1.40	1.06	0.77	0.48	0.66	0.38	0.28	0.25	0.28	0.41	0.64	1.09	7.70

TOTAL SNOWFALL

Season	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	Total
1932-33	0.0	0.0	0.0	T	0.0	2.8	28.5	2.5	0.5	T	0.1	0.0	34.4
#1933-34	0.0	0.0	0.0	T	0.6	2.8	T	T	0.0	T	0.0	0.0	3.4
1934-35	0.0	0.0	T	0.0	T	1.1	10.1	2.1	8.0	T	0.0	0.0	21.3
1935-36	0.0	0.0	0.0	T	14.0	1.2	T	11.2	0.4	T	0.0	0.0	26.8
1936-37	0.0	0.0	0.0	0.0	0.2	14.3	26.6	6.0	T	0.1	0.0	0.0	47.2
1937-38	0.0	0.0	0.0	0.0	T	0.9	1.7	32.4	1.5	T	2.2	0.0	38.7
1938-39	0.0	0.0	0.0	T	0.4	T	2.0	1.7	2.0	1.0	T	T	7.1
1939-40	0.0	0.0	0.0	T	0.0	0.3	5.8	0.9	0.7	T	0.0	0.0	7.7
1940-41	0.0	0.0	0.0	0.0	0.5	2.3	0.6	T	0.6	1.4	T	0.0	5.4
1941-42	0.0	0.0	0.0	0.0	T	21.0	0.8	1.7	2.0	T	T	0.0	25.5
#1942-43	0.0	0.0	0.0	T	0.3	0.4	3.0	6.3	3.1	T	T	0.0	13.1
1943-44	0.0	0.0	0.0	0.0	1.6	6.9	6.6	13.8	3.6	1.5	T	T	34.0
1944-45	0.0	0.0	0.0	0.0	1.3	2.1	1.0	6.4	15.4	T	T	0.0	26.2
1945-46	0.0	0.0	0.0	0.0	0.6	5.8	2.0	4.7	7.6	T	T	0.0	20.7
1946-47	0.0	0.0	0.0	T	4.4	1.0	4.3	T	T	T	T	0.0	9.7
1947-48	0.0	0.0	0.0	0.0	3.0	1.0	T	3.4	0.2	0.8	T	0.0	8.4
1948-49	0.0	0.0	T	T	T	8.6	14.4	8.1	2.7	0.0	T	0.0	33.8
1949-50	0.0	0.0	0.0	1.1	1.0	3.3	13.7	0.1	1.2	1.7	T	T	22.1
1950-51	0.0	0.0	0.0	0.0	T	T	10.5	3.6	2.5	T	T	0.0	16.6
1951-52	0.0	0.0	0.0	T	3.1	8.5	18.1	0.6	29.0	0.0	0.0	0.0	59.3
1952-53	0.0	0.0	T	0.0	1.2	6.8	0.4	2.0	0.4	3.0	T	0.0	13.8
1953-54	0.0	0.0	0.0	T	1.3	2.1	3.7	7.4	13.1	0.8	0.0	T	28.4
1954-55	0.0	0.0	0.0	T	T	4.0	7.8	5.6	0.2	1.5	2.5	0.0	21.6
1955-56	0.0	0.0	0.0	0.0	2.7	9.2	20.0	3.4	0.7	1.0	T	0.0	37.0
1956-57	0.0	0.0	0.0	1.9	T	0.4	4.4	T	0.4	0.1	0.0	0.0	7.2
1957-58	0.0	0.0	0.0	2.0	3.1	3.1	1.0	4.6	10.0	7.5	0.0	0.0	31.3
1958-59	0.0	0.0	0.0	0.0	4.1	T	0.5	22.1	0.1	0.0	0.1	0.0	26.9
#1959-60	0.0	0.0	T	0.0	0.0	1.8	15.4	3.0	T	0.6	T	0.0	20.8
1960-61	0.0	0.0	0.0	0.4	2.0	T	2.6	T	1.1	0.6	0.0	0.0	6.7
1961-62	0.0	0.0	0.0	T	8.7	0.7	3.5	13.3	12.3	T	9.0	0.0	47.5
1962-63	0.0	0.0	0.0	T	T	T	1.7	0.0	3.4	5.9	T	T	11.0
1963-64	0.0	0.0	0.0	0.0	3.1	1.0	4.7	1.0	9.2	6.6	14.1	0.0	39.7
1964-65	0.0	0.0	0.0	0.0	5.2	8.0	5.2	T	4.6	T	T	0.0	23.0
1965-66	0.0	0.0	0.0	T	2.2	9.8	T	1.4	0.4	T	0.0	0.0	13.8
1966-67	0.0	0.0	0.0	0.0	0.0	T	5.8	12.4	T	15.6	6.8	1.5	42.1
1967-68	0.0	0.0	0.0	0.0	T	1.9	12.4	2.2	3.5	T	T	0.0	20.0
1968-69	0.0	0.0	0.0	0.0	1.3	9.1	10.7	23.5	1.9	0.3	T	0.0	46.8
1969-70	0.0	0.0	0.0	0.0	T	2.8	T	0.6	1.8	2.3	T	0.2	7.7
1970-71	0.0	0.0	0.0	0.2	T	15.4	11.4	4.9	7.0	3.3	6.3	0.0	48.5
1971-72	0.0	0.0	T	5.1	0.2	25.6							

Record mean values above (not adjusted for instrument location changes listed in the Station Location table) are means for the period beginning in 1888 for temperature and 1870 for precipitation.

# Indicates a break in the data sequence during the year, or season, due to a station move or relocation of instruments. See Station Location table. Data are from Cooperative locations through November 10, 1905, from City Office locations through August 1942, and from Airport locations thereafter.

STATION LOCATION

RENO, NEVADA

Location	Occupied from	Occupied to	Airline distance and direction from previous location	Latitude North	Longitude West	Elevation above Ground: Sea level	Ground: Wind instruments	Ground: Extreme thermometers	Ground: Psychrometer	Ground: Telepsychrometer	Ground: Tipping bucket rain gage	Ground: Weighing rain gage	Ground: 8" rain gage	Ground: Hygrothermometer	Sea level: Pyranometer	Remarks
COOPERATIVE																
Southern Pacific Depot Cor. Comm. & Lake Sts.	12- 1-70	12-31-87		39° 31.8'	119° 48.4'	4493							4			Daily rainfall records by Southern Pacific Co. Agent.
Univ. of Nevada Campus Admn. Bldg. (Morril Hall)	1- 1-88	11-10-05	0.7 mi. NNW	39° 32.7'	119° 48.5'	4558		5					4			Max., min. and rainfall records of University of Nevada.
CITY OFFICE																
Thoma-Biglow Building 1st & Virginia Streets	11-11-05	2-28-10	0.7 mi. SSE	39° 31.7'	119° 48.5'	4496	63	56	56		47		47			
IOOF Building 2nd & N Center Streets	3- 1-10	2-28-34	0.1 mi. NE	39° 31.7'	119° 48.5'	4495	81	74	74		67		67			
Post Office Building S Virginia & Mill Sts.	3- 1-34	8-31-42	0.2 mi. S	39° 31.7'	119° 48.5'	4493	76	61	61		53		53			
AIRPORT STATION																
Hubbard Field (later changed to United Airlines Airport)	1- 8-31	5-31-49	3.5 mi. SSE	39° 29.6'	119° 46.6'	4397	52	20	20		5	5	4			
CAA Building Reno Municipal Airport	6- 1-49	10-23-59	60 ft. S	39° 29.6'	119° 46.6'	4397	53	6	6		4	a5	a3			Name changed from United Airlines Airport 12-1-53. a - Shielded 10-25-57.
Federal Facilities Bldg. Municipal Airport †	10-23-59	Present	0.8 mi. NNW	39° 30.0'	119° 46.6'	4404	20	6	6			5	4	b4	c4418	b - Commissioned 11-3-59 about 3/4 mile SE of office and moved 2350 ft. N by W 11-16-63 to site about 1800 ft. ESE of office. c - Commissioned 12-1-65.

† International Airport effective 2-3-70

Requests for additional information should be directed to the National Weather Service Office for which this summary was issued.

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