OKLAHOMA
MONTHLY SUMMARY
JULY 1990

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JULY 1990 OKLAHOMA SUMMARY

July began in the midst of a heat wave that affected the whole state, causing at least five deaths. However, a series of cool-air intrusions during the last two-thirds of the month produced a final state-averaged temperature (80.4 degrees Fahrenheit) for the month that was approximately 2 degrees below normal. Temperatures in excess of 100 degrees were widespread during the first 12 days of the month but were reported on only 5 days thereafter. The highest temperature reported in the state during the month was 108 degrees, reported at Great Salt Plains Dam on July 3, 4 and 5. The lowest temperature reported was 45 degrees at Jefferson and Buffalo on July 14. Overall the month was the 28th coolest since 1892.

Precipitation for the state averaged just below normal (2.88 inches versus a normal of 2.95), but the distribution was anything but uniform. The average precipitation across each of the three southernmost climate divisions (CDs) was more than 140% of normal. On the otherhand, CDs 2 (north central) and 3 (northeast) received only about 50% of their normal rainfall, the second consecutive month of much-below normal precipitation in those areas. According to available official reports, monthly total precipitation across the state varied from 9.52" at Ashland in Pittsburg County to 0.24" at Tulsa.

A strong pool of very warm air remained entrenched across the state at the beginning of the month, continuing the hot, dry weather of June. Isolated heavy thunderstorms were reported on the afternoon and evening of July 5. Officials in Peggs (Cherokee County) reported thunderstorm winds of 75 miles per hour with 2 inches of rain falling in less than 2 hours. Boswell in Choctaw County reported 1.46 inches in the 24 hours ending the morning of July 6.

The hot air persisted until a vigorous cold front moved through the state on July 11 producing scattered thunderstorms en route. Several stations reported daily rainfall in excess of 2 inches, including Ashland with 2.9. The front brought with it considerably cooler air which dominated the state for the next week. No stations in the state reported triple-digit temperatures for seven days and morning low temperatures in the 40s and 50s were common. A series of weak disturbances in the upper atmosphere produced scattered showers and thunderstorms during the period.

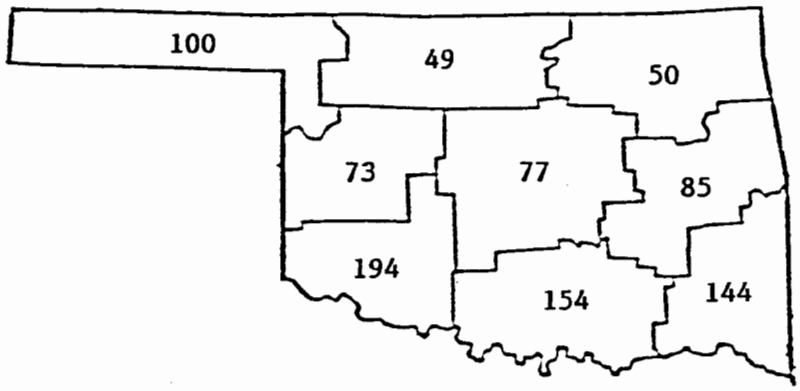
Another cold front entered the Panhandle the night of July 20, moving slowly through the state over the next three days. One-day rainfall reports associated with the progression of the front included 4 inches at Ashland, 3.68 inches at Lawton and 3.51 inches at Ada. Scattered showers and thunderstorms, associated with another series of weak disturbances aloft, persisted over the next few days. On the afternoon of July 25 a highly localized deluge struck Lawton in the form of an afternoon thunderstorm. Various unofficial reports throughout the city ranged from 1.97 to a monumental 11 inches at the local television station. Official reporting gauges in the area received "only" 2.87 inches (Lawton) and 2.14 inches (Fort Sill). Some flooding was reported, but widespread damage from high water was avoided. Fanshawe and Tuskahoma, both in southeastern Oklahoma, reported rainfall in excess of 4 inches from storms later that evening.

Temperatures in excess of 100 degrees returned to the state from July 27 through 30. The high temperatures were not general across the state but were reported at such diverse locations as Buffalo in the northwest, Marietta in the extreme south and Jay Tower in the northeast. Just for good measure, Guthrie and Mannford in the interior of the state also attained the century mark during that period.

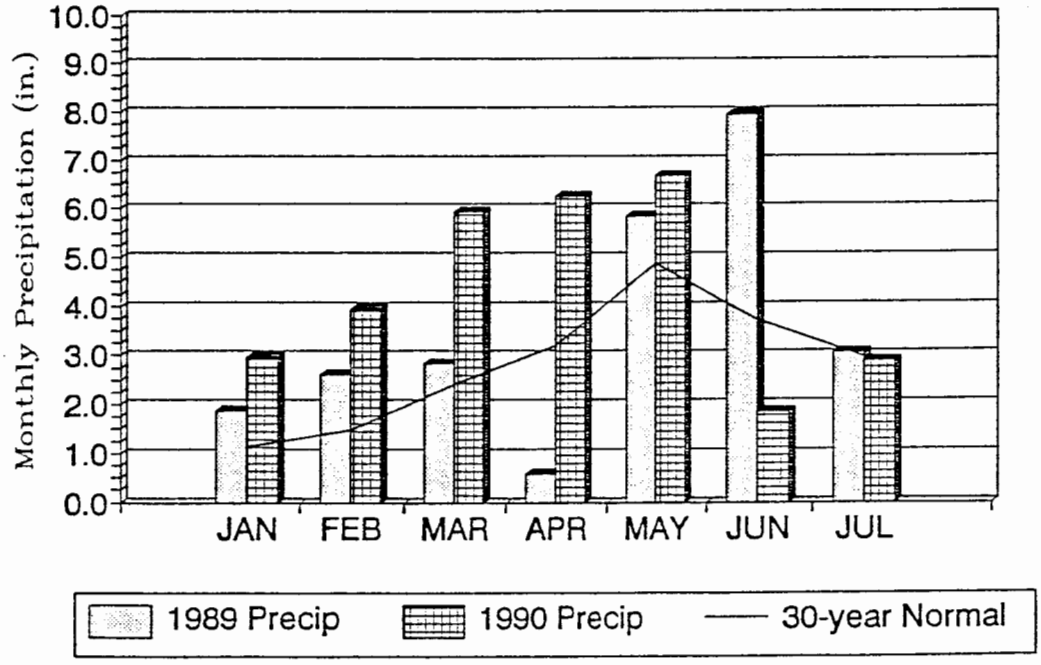
Another cold front moved through the state on July 29 and 30, producing substantial but spotty rainfall, mainly in the south and the northwest.

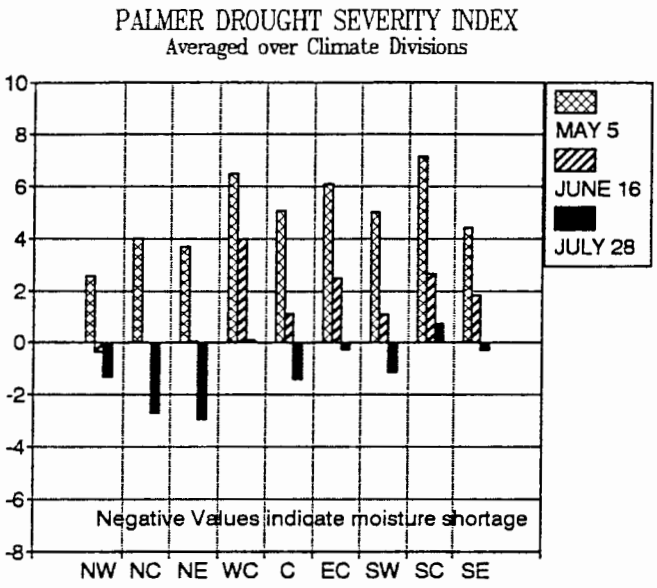
Howard L. Johnson

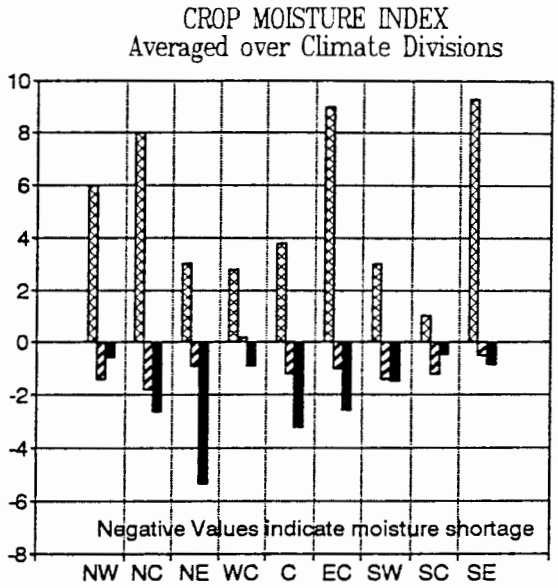
July 1990 percent of normal precipitation.



Comparison of Monthly Precipitation
Statewide Average for Oklahoma







Many indices have been developed over the years to assist the analyst in determining the state of water supplies relative to water needs. Values of two indices applicable to agricultural needs are presented above to illustrate the variation, both in time and space, of the availability of water. The Palmer Drought Severity Index, on the left, is a measure of long-term (months or years) agricultural water supplies (i.e., precipitation) in relation to seasonal climate and crop requirements. The Crop Moisture Index, on the right, measures short-term (week-to-week) agricultural moisture conditions. Neither index is exact and both are subject to interpretation, but certain general statements hold true for both. Positive values indicate a surplus of water. Negative values indicate a shortage. The more negative the index and the longer it stays that way, the more serious the water shortages are likely to be. Values of either index in the neighborhood of -4 are indicative of existing or potential problems for agricultural interests.

In the charts above, values of each index as averaged over selected stations in each climate division are shown at 6-week intervals. The hot, dry weather the state experienced in June drove both indices downward from the large positive values associated with the very wet first four months of the year. Whereas most regions of the state appear to have ample moisture for their needs, continued dry weather in the north central and northeastern climate divisions are indicative of developing shortages. The central and east central divisions also have been short of moisture, at least on a short-term basis.

TABLE OF 1989/1990 COMPARISONS

Station	July Temperatures (F) 1989	1990	July Precipitation (in.) 1989	1990
Arnett	77.7	77.1	1.23	2.83
Enid	80.1	81.6	4.11	2.03
Mutual	78.0	79.4	1.29	1.54
Tulsa	80.5	83.5	3.98	.24
Elk City	79.5	79.4	1.02	2.11
Oklahoma City	79.7	80.8	1.95	2.44
McAlester	78.9	80.1	1.72	4.10
Altus Irr Sta	82.3	81.5	1.97	3.94
Durant	79.1	80.4	8.49	3.47
Ada	79.5	79.9	2.25	7.98
Antlers	79.1	79.9	6.01	4.25

EXTREMES

Variable	Station	Division	Observation	Date
Minimum temperature (F)	Buffalo	1	45	14
	Jefferson	2	45	14
Maximum temperature (F)	GSP Dam	2	108	*
Maximum 24-hour precipitation	Fanshawe	9	4.52"	26

* extreme high temperature occurred 3rd, 4th, and 5th of July at GSP Dam

JULY 1990 SUMMARY FOR NORTHWEST DIVISION (CD1)

NAME	ID	CD	MEAN TEMP	DEV NUM OBS	DEV FROM NORM	MAX TEMP	MAX DAY	MIN TEMP	MIN DAY	HEAT DEG DAY	DEV FROM NORM	COOL DEG DAY	DEV FROM NORM	TOT PPT	DEV NUM OBS	DEV FROM NORM	MAX 24-HR	MAX DAY
ARNETT	332	1	77.1	31	-3.7	100.	11	52.	15	.0	.0	375.0	-115.0	2.832	31	.74	1.07	29
BEAVER	593	1	78.4	31	-3.1	103.	5	45.	15	3.5	3.5	418.0	-94.0	3.820	31	.95	.98	16
BOISE CITY 2 E	908	1	74.8	31	-3.2	101.	3	49.	13	.0	.0	303.5	-99.5	6.293	31	3.69	1.60	21
BUFFALO	1243	1	81.3	31	-2.1	106.	4	45.	14	.0	.0	506.5	-63.5	2.070	31	-1.25	.80	27
FARGO	3070	1	*****	0	*****	****	0	****	0	******	******	******	******	3.230	31	1.04	1.50	29
GAGE FAA APT	3407	1	78.7	31	-2.8	101.	4	47.	14	.5	.5	425.5	-86.5	.702	31	-1.41	.39	28
GATE	3489	1	80.8	30	*****	105.	5	50.	13	.5	******	474.0	******	2.651	31	*****	1.03	28
GOODWELL RES ST	3628	1	77.5	31	-1.9	103.	2	47.	14	6.0	6.0	392.0	-54.0	2.461	31	-.42	.73	21
GUYMON	3835	1	78.4	29	*****	104.	1	47.	14	1.5	******	389.0	******	3.721	31	*****	1.72	20
HOOKER	4298	1	78.3	31	-2.0	103.	5	48.	14	3.0	3.0	415.5	-58.5	2.673	31	-.26	.93	21
KENTON	4766	1	75.3	31	-3.3	101.	2	51.	13	5.0	5.0	323.0	-99.0	4.595	31	1.70	.72	20
LAVERNE	5045	1	*****	0	*****	****	0	****	0	******	******	******	******	2.670	31	.18	1.19	28
OPTIMA LAKE	6740	1	78.6	31	*****	103.	4	46.	14	4.0	******	425.0	******	1.610	31	*****	.96	21
RANGE	7412	1	*****	0	*****	****	0	****	0	******	******	******	******	1.391	31	*****	1.13	20
REGNIER	7534	1	*****	0	*****	****	0	****	0	******	******	******	******	4.192	31	1.69	.84	11
TURPIN 4 SSE	9017	1	78.4	29	*****	102.	4	48.	14	3.5	******	391.0	******	3.100	31	*****	1.05	21

JULY 1990 SUMMARY FOR NORTH CENTRAL DIVISION (CD2)

NAME	ID	CD	MEAN TEMP	DEV NUM OBS	DEV FROM NORM	MAX TEMP	MAX DAY	MIN TEMP	MIN DAY	HEAT DEG DAY	DEV FROM NORM	COOL DEG DAY	DEV FROM NORM	TOT PPT	DEV NUM OBS	DEV FROM NORM	MAX 24-HR	MAX DAY
ALVA	193	2	81.9	31	*****	106.	4	52.	14	.0	******	523.5	******	3.650	31	*****	2.10	28
VANCE AFB	302	2	*****	0	*****	****	0	****	0	******	******	******	******	2.012	31	*****	.81	21
BILLINGS	755	2	81.4	31	*****	105.	4	52.	14	.0	******	508.0	******	.491	31	-3.03	.40	29
BLACKWELL 2E	818	2	81.5	31	*****	106.	3	49.	14	.0	******	511.0	******	.551	31	*****	.22	29
BRAMAN	1075	2	*****	0	*****	****	0	****	0	******	******	******	******	.585	30	*****	.46	22
CHEROKEE	1724	2	82.1	30	-1.6	106.	4	50.	14	.0	.0	513.5	-66.5	5.580	31	2.82	2.50	28
ENID	2912	2	81.6	31	-1.9	104.	4	53.	14	.0	.0	514.5	-59.5	2.030	31	-1.15	.73	21
FREEDOM	3358	2	80.3	31	*****	104.	4	49.	14	.5	******	475.0	******	2.781	31	*****	1.08	29
GREAT SALT PLNS	3740	2	83.4	31	*****	108.	5	54.	14	.0	******	571.0	******	2.510	25	*****	.89	21
HARDY	3909	2	*****	0	*****	****	0	****	0	******	******	******	******	3.601	31	*****	2.65	28
HELENA 1 SSE	4019	2	79.9	31	*****	105.	6	50.	14	.5	******	462.0	******	2.031	31	-1.05	.90	28
JEFFERSON	4573	2	81.2	31	-2.4	107.	4	45.	14	.0	.0	501.0	-76.0	1.810	31	-2.11	.77	20
LAMONT	5013	2	*****	0	*****	****	0	****	0	******	******	******	******	1.540	31	*****	.88	21
MEDFORD	5768	2	*****	0	*****	****	0	****	0	******	******	******	******	1.391	31	*****	.90	20
MORRISON	6065	2	*****	0	*****	****	0	****	0	******	******	******	******	1.450	31	*****	.47	29
MUTUAL	6139	2	79.4	31	-3.2	104.	11	48.	15	2.0	2.0	449.0	-97.0	1.541	31	-1.02	.48	28
NEWKIRK	6278	2	81.3	31	-1.2	102.	4	52.	14	.0	.0	505.0	-38.0	1.910	31	-1.64	1.42	29
ORIENTA	6751	2	*****	0	*****	****	0	****	0	******	******	******	******	.990	31	*****	.54	27
PERRY	7012	2	82.3	26	*****	103.	5	56.	16	.0	******	451.0	******	1.140	26	*****	.70	11
PONCA CITY FAA	7201	2	81.6	31	-.9	103.	3	51.	14	.0	.0	513.5	-32.5	2.102	31	-2.00	.71	28
RED ROCK 1 NNE	7505	2	*****	0	*****	****	0	****	0	******	******	******	******	.880	31	-2.84	.58	12
WAYNOKA	9404	2	80.7	31	-2.8	104.	4	48.	14	.0	.0	488.0	-86.0	4.540	31	1.99	2.21	29
WOODWARD	9760	2	*****	0	*****	****	0	****	0	******	******	******	******	1.604	31	*****	.80	28

JULY 1990 SUMMARY FOR NORTHEAST DIVISION (CD3)

NAME	ID	CD	MEAN TEMP	NUM OBS	DEV FROM NORM	MAX TEMP	MAX DAY	MIN TEMP	MIN DAY	HEAT DEG DAY	DEV FROM NORM	COOL DEG DAY	DEV FROM NORM	TOT PPT	NUM OBS	DEV FROM NORM	MAX 24-HR	MAX DAY
BARNSDALL	535	3	79.7	30	*****	100.	3	52.	15	.0	******	440.5	******	1.781	31	-1.42	.69	22
BARTLESVILLE 2W	548	3	80.6	31	-1.4	102.	3	55.	14	.0	.0	484.5	-42.5	2.491	31	-.50	1.99	22
BIXBY	782	3	80.4	31	-1.4	102.	4	54.	15	.0	.0	478.5	-42.5	.890	31	-2.32	.81	22
BURBANK	1256	3	*****	0	*****	****	0	****	0	******	******	******	******	2.634	31	*****	1.20	28
CHELSEA 4 S	1717	3	*****	0	*****	****	0	****	0	******	******	******	******	1.250	31	*****	.91	22
CLAREMORE	1828	3	79.7	31	-1.9	101.	6	52.	15	.5	.5	457.5	-57.5	1.956	31	-1.12	.98	22
CLEVELAND 5 WSW	1902	3	80.9	28	*****	102.	10	54.	14	.0	******	445.0	******	1.920	31	*****	.83	22
FORAKER	3250	3	*****	0	*****	****	0	****	0	******	******	******	******	4.863	31	1.39	2.48	29
HOLLOW	4258	3	*****	0	*****	****	0	****	0	******	******	******	******	1.680	31	-2.07	.90	11
HOMINY	4289	3	*****	0	*****	****	0	****	0	******	******	******	******	2.042	31	-1.38	1.08	22
HULAH DAM	4393	3	81.3	22	*****	102.	4	53.	16	.0	******	357.5	******	1.614	31	-1.33	.66	29
JAY TOWER	4567	3	79.5	30	*****	100.	30	52.	14	.0	******	435.5	******	.880	31	*****	.40	21
KANSAS 1 ESE	4672	3	79.0	30	*****	96.	28	54.	14	.0	******	419.5	******	.654	31	*****	.30	22
KEYSTONE DAM	4812	3	80.7	31	*****	101.	4	55.	14	1.0	******	488.5	******	.372	31	*****	.26	22
LENAPAH	5118	3	*****	0	*****	****	0	****	0	******	******	******	******	1.962	31	*****	1.31	22
MANNFORD 6 NW	5522	3	82.7	29	*****	106.	3	54.	14	.0	******	514.5	******	.640	29	*****	.41	22
MARAMEC	5540	3	*****	0	*****	****	0	****	0	******	******	******	******	2.240	31	-.88	1.43	22
MIAMI	5855	3	78.0	31	-3.1	96.	5	54.	15	.0	.0	404.0	-95.0	1.171	31	-2.76	.58	22
NOWATA	6485	3	80.0	31	-2.1	99.	3	56.	15	.0	.0	464.5	-65.5	2.241	31	-.70	1.12	31
ONETA 1 WNW	6713	3	*****	0	*****	****	0	****	0	******	******	******	******	.764	31	*****	.71	22
PAWHUSKA	6935	3	79.8	31	-2.0	99.	3	53.	15	.0	.0	459.0	-62.0	1.892	31	-1.56	.74	21
PAWHUSKA	6937	3	*****	0	*****	****	0	****	0	******	******	******	******	1.582	31	*****	.69	22
PAWNEE	6940	3	*****	0	*****	****	0	****	0	******	******	******	******	3.710	31	.58	1.10	22
PRYOR 6 N	7309	3	76.7	22	*****	97.	11	52.	15	1.0	******	257.5	******	.847	30	*****	.70	22
RALSTON	7390	3	81.4	31	*****	102.	10	53.	14	.0	******	508.5	******	2.092	31	-1.40	1.30	28
RAMONA 4 N	7394	3	*****	0	*****	****	0	****	0	******	******	******	******	.780	31	*****	.69	12
SKIATOOK	8258	3	*****	0	*****	****	0	****	0	******	******	******	******	.410	31	-3.00	.21	22
SPAVINAW	8380	3	80.5	31	*****	99.	3	55.	14	.0	******	481.0	******	.774	31	-2.96	.77	22
TULSA WSO APT	8992	3	83.5	31	.3	103.	3	60.	14	.0	.0	573.0	9.0	.246	31	-3.26	.15	22
UPPER SPAVINAW	9101	3	78.1	31	*****	103.	7	52.	15	.0	******	405.5	******	1.266	31	*****	.98	22
VINITA 2 N	9203	3	79.6	31	-1.5	97.	10	53.	14	.0	.0	452.5	-46.5	2.470	31	-.91	1.32	21
WAGONER	9247	3	81.1	31	-1.3	99.	3	56.	14	.0	.0	498.5	-40.5	.852	31	-2.65	.85	22
WANN	9298	3	*****	0	*****	****	0	****	0	******	******	******	******	2.430	29	*****	1.42	22
WYNONA	9792	3	83.3	31	*****	103.	3	60.	15	.0	******	567.0	******	1.975	31	*****	1.11	22

JULY 1990 SUMMARY FOR WEST CENTRAL DIVISION (CD4)

NAME	ID	CD	MEAN TEMP	NUM OBS	DEV FROM NORM	MAX TEMP	MAX DAY	MIN TEMP	MIN DAY	HEAT DEG DAY	DEV FROM NORM	COOL DEG DAY	DEV FROM NORM	TOT PPT	NUM OBS	DEV FROM NORM	MAX 24-HR	MAX DAY
CANTON DAM	1445	4	79.1	31	-3.8	103.	4	51.	14	1.0	1.0	437.0	-118.0	1.301	31	-1.11	.37	21
CHEYENNE	1738	4	*****	0	*****	****	0	****	0	******	******	******	******	.800	31	*****	.80	22
CLINTON	1909	4	80.9	31	-2.4	105.	10	54.	14	.0	.0	494.0	-73.0	1.853	31	-.67	1.00	16
COLONY	2039	4	*****	0	*****	****	0	****	0	******	******	******	******	3.212	31	*****	1.20	29
CORDELL	2125	4	*****	0	*****	****	0	****	0	******	******	******	******	1.004	31	-1.52	.40	30
ELK CITY 1 E	2849	4	79.4	31	*****	101.	5	53.	14	.0	******	446.5	******	2.112	31	-.30	1.26	22
ERICK 4 E	2944	4	78.6	31	-3.3	100.	10	51.	14	.0	.0	420.5	-103.5	2.100	31	-.03	1.08	22
GEARY	3497	4	78.4	31	-4.6	100.	3	53.	14	.0	.0	415.0	-143.0	1.080	31	-1.39	.38	22
HAMMON 1 NNE	3871	4	78.3	31	-4.7	100.	11	50.	14	6.0	6.0	418.5	-139.5	1.201	31	-.95	.47	30
LEEDEY	5090	4	*****	0	*****	****	0	****	0	******	******	******	******	.670	31	-1.30	.26	30
MACKIE 4 NNW	5463	4	*****	0	*****	****	0	****	0	******	******	******	******	.290	31	*****	.17	16
MORAVIA 2 NNE	6035	4	*****	0	*****	****	0	****	0	******	******	******	******	1.121	31	-1.17	.38	22
OKEENE	6629	4	80.4	31	-3.5	103.	4	53.	14	.0	.0	476.0	-110.0	2.300	31	-.04	.62	21
RETROP	7565	4	*****	0	*****	****	0	****	0	******	******	******	******	2.430	31	*****	1.05	19
REYDON	7579	4	79.0	29	*****	101.	10	48.	14	.0	******	407.0	******	1.021	29	*****	.50	15
SAYRE	7952	4	*****	0	*****	****	0	****	0	******	******	******	******	.680	31	-1.39	.17	22
SWEETWATER 2 E	8652	4	*****	0	*****	****	0	****	0	******	******	******	******	3.292	31	*****	1.82	30
TALOGA	8708	4	79.5	31	-2.7	102.	4	49.	14	.0	.0	448.5	-84.5	3.201	31	.58	1.70	30
THOMAS	8815	4	*****	0	*****	****	0	****	0	******	******	******	******	2.200	31	*****	1.77	29
VICI	9172	4	*****	0	*****	****	0	****	0	******	******	******	******	.660	31	*****	.51	15
WATONGA	9364	4	79.9	31	*****	103.	4	51.	13	2.5	******	465.5	******	2.311	31	.07	.86	29
WEATHERFORD	9422	4	80.8	31	-2.2	105.	5	54.	13	.0	.0	490.5	-67.5	.907	31	-1.58	.40	16

JULY 1990 SUMMARY FOR CENTRAL DIVISION (CD5)

NAME	ID	CD	MEAN TEMP	NUM OBS	DEV FROM NORM	MAX TEMP	MAX DAY	MIN TEMP	MIN DAY	HEAT DEG DAY	DEV FROM NORM	COOL DEG DAY	DEV FROM NORM	TOT PPT	NUM OBS	DEV FROM NORM	MAX 24-HR	MAX DAY
AMBER	200	5	*****	0	*****	****	0	****	0	******	******	******	******	3.890	31	*****	2.94	22
ARCADIA	288	5	*****	0	*****	****	0	****	0	******	******	******	******	1.260	31	*****	.36	26
TINKER AFB	325	5	*****	0	*****	****	0	****	0	******	******	******	******	1.444	30	*****	1.11	22
BLANCHARD 2 SSW	830	5	80.6	31	*****	100.	3	56.	14	.0	******	483.5	******	2.592	31	*****	2.02	22
BRISTOW	1144	5	80.7	31	-1.5	102.	3	54.	15	.0	.0	488.0	-45.0	1.025	31	-2.53	.66	31
CHANDLER	1684	5	80.3	31	-2.5	101.	3	54.	14	.0	.0	474.0	-78.0	1.200	31	-2.14	.75	19
CHICKASHA EX ST	1750	5	80.7	31	-2.3	102.	4	54.	14	.0	.0	487.0	-71.0	2.471	31	-.05	1.48	22
COX CITY 1 E	2196	5	*****	0	*****	****	0	****	0	******	******	******	******	3.960	31	*****	1.80	22
CRESCENT	2242	5	*****	0	*****	****	0	****	0	******	******	******	******	3.830	31	*****	2.10	22
CUSHING	2318	5	80.3	31	-2.1	100.	4	55.	14	.0	.0	473.0	-66.0	1.930	31	-1.79	1.10	31
EL RENO 1 N	2818	5	80.6	31	-1.9	101.	4	54.	14	.0	.0	483.5	-59.5	.870	31	-1.90	.21	30
GUTHRIE	3821	5	82.5	31	-.6	106.	6	55.	14	.0	.0	542.0	-19.0	.821	31	-2.02	.29	22
HENNESSEY 2 SE	4055	5	81.2	31	-2.5	106.	4	52.	14	.0	.0	503.5	-76.5	2.010	31	-.50	.79	29
INGALLS	4489	5	*****	0	*****	****	0	****	0	******	******	******	******	1.283	31	*****	.88	22
KINGFISHER 2 SE	4861	5	80.3	31	-3.4	102.	4	51.	14	.0	.0	475.5	-104.5	2.080	31	-.49	1.02	22
KONAWA	4915	5	*****	0	*****	****	0	****	0	******	******	******	******	4.980	31	2.45	2.97	22
MARSHALL	5589	5	*****	0	*****	****	0	****	0	******	******	******	******	1.840	31	-.75	.62	11
MEEKER 4 W	5779	5	79.8	30	-2.5	99.	3	53.	14	.0	.0	443.0	-93.0	1.250	30	*****	.70	25
NORMAN 3 S	6386	5	81.2	31	*****	104.	5	58.	14	.0	******	501.0	******	3.582	31	.35	2.27	22
OILTON 2 SE	6616	5	*****	0	*****	****	0	****	0	******	******	******	******	.980	31	*****	.66	18
OKEMAH	6638	5	80.6	31	-1.5	101.	3	57.	15	.0	.0	482.5	-47.5	3.621	31	.24	2.50	22
OKLAHOMA CITY WS	6661	5	80.8	31	-1.3	101.	3	58.	14	.0	.0	489.5	-40.5	2.443	31	-.60	1.41	19
PERKINS	7003	5	*****	0	*****	****	0	****	0	******	******	******	******	1.730	31	-1.80	.92	22
PIEDMONT	7068	5	*****	0	*****	****	0	****	0	******	******	******	******	.580	31	*****	.18	22
PRAGUE	7264	5	*****	0	*****	****	0	****	0	******	******	******	******	1.711	31	-1.50	1.30	22
PURCELL 5 SW	7327	5	80.1	31	-2.7	101.	5	54.	14	.0	.0	468.5	-83.5	3.060	31	.06	2.00	22
SEMINOLE	8042	5	80.6	31	-3.1	101.	3	56.	14	.0	.0	484.5	-95.5	2.250	31	-.70	1.38	22
SHAWNEE	8110	5	*****	0	*****	****	0	****	0	******	******	******	******	1.570	31	-1.09	.65	26
STELLA	8479	5	*****	0	*****	****	0	****	0	******	******	******	******	3.030	31	*****	2.35	22
STILLWATER 2 W	8501	5	80.2	31	-1.9	101.	6	53.	14	.0	.0	471.5	-58.5	1.450	31	-2.34	.50	22
STROUD 1 N	8563	5	*****	0	*****	****	0	****	0	******	******	******	******	2.283	31	*****	1.75	31
TECUMSEH	8751	5	*****	0	*****	****	0	****	0	******	******	******	******	2.452	31	*****	1.02	22
TROUSDALE	8960	5	*****	0	*****	****	0	****	0	******	******	******	******	3.760	31	*****	2.47	22
UNION CITY 1 SE	9086	5	*****	0	*****	****	0	****	0	******	******	******	******	1.200	31	-.94	.71	22
WELTY 1 SSE	9479	5	*****	0	*****	****	0	****	0	******	******	******	******	2.800	31	*****	2.00	31
WEWOKA	9575	5	*****	0	*****	****	0	****	0	******	******	******	******	1.692	31	-1.10	1.00	22

JULY 1990 SUMMARY FOR EAST CENTRAL DIVISION (CD6)

NAME	ID	CD	MEAN TEMP	NUM OBS	DEV FROM NORM	MAX TEMP	DAY	MIN TEMP	DAY	HEAT DEG DAY	DEV FROM NORM	COOL DEG DAY	DEV FROM NORM	TOT PPT	NUM OBS	DEV FROM NORM	MAX 24-HR	DAY
ASHLAND	364	6	*****	0	*****	****	0	****	0	******	******	******	******	9.520	31	*****	4.00	22
BEGGS	631	6	*****	0	*****	****	0	****	0	******	******	******	******	3.160	31	*****	2.76	31
BOYNTON	1027	6	*****	0	*****	****	0	****	0	******	******	******	******	2.021	31	*****	1.50	22
CALVIN	1391	6	*****	0	*****	****	0	****	0	******	******	******	******	3.013	31	-.54	1.85	21
CHECOTAH	1711	6	*****	0	*****	****	0	****	0	******	******	******	******	5.121	31	1.66	2.46	31
CLAYTON 11 WNW	1858	6	*****	0	*****	****	0	****	0	******	******	******	******	7.330	31	*****	3.35	22
DEWAR 2 NE	2485	6	*****	0	*****	****	0	****	0	******	******	******	******	4.350	31	.81	3.43	22
DUSTIN	2690	6	*****	0	*****	****	0	****	0	******	******	******	******	3.390	31	*****	2.20	31
EUFAULA	2993	6	81.7	30	*****	101.	3	60.	15	.0	******	499.5	******	3.260	30	*****	1.50	22
HANNA	3884	6	79.8	31	*****	100.	3	52.	15	.0	******	459.0	******	2.031	31	-1.13	.96	22
HARTSHORNE	3946	6	*****	0	*****	****	0	****	0	******	******	******	******	3.980	31	*****	1.30	26
HASKELL	3956	6	*****	0	*****	****	0	****	0	******	******	******	******	2.500	31	-.68	2.40	22
HOLDENVILLE	4235	6	80.1	29	*****	99.	3	56.	15	.0	******	438.0	******	3.570	29	*****	1.84	31
LAKE EUFAULA	4975	6	81.9	31	*****	103.	4	56.	13	.0	******	524.0	******	2.510	31	*****	1.19	26
LYONS 2 N	5437	6	*****	0	*****	****	0	****	0	******	******	******	******	1.421	31	-1.80	.52	5
MARBLE CITY	5546	6	*****	0	*****	****	0	****	0	******	******	******	******	2.123	31	*****	.73	22
MCALESTER FAA	5664	6	80.1	31	-2.6	101.	3	54.	15	.0	.0	469.0	-105.0	4.102	31	.69	1.37	22
MCCURTAIN 1 SE	5693	6	82.4	31	*****	105.	3	52.	15	.0	******	540.0	******	2.872	31	-.94	1.33	22
MUSKOGEE	6130	6	80.2	30	-2.4	101.	4	57.	17	.0	.0	457.0	-89.0	1.911	31	-1.19	1.83	22
OKMULGEE W W	6670	6	78.9	25	*****	102.	4	52.	15	.0	******	347.0	******	4.061	31	1.01	2.60	31
OKTAHA 2 NE	6678	6	*****	0	*****	****	0	****	0	******	******	******	******	2.320	31	*****	2.05	22
QUINTON	7372	6	*****	0	*****	****	0	****	0	******	******	******	******	3.032	31	-.77	1.53	22
SALLISAW 2 NE	7862	6	80.4	31	-1.7	101.	3	50.	15	.0	.0	478.0	-52.0	1.004	31	-2.55	.90	23
SCIPIO	7979	6	*****	0	*****	****	0	****	0	******	******	******	******	3.710	31	*****	1.21	22
SCRAPER	7993	6	*****	0	*****	****	0	****	0	******	******	******	******	1.390	31	*****	1.15	22
SHORT	8170	6	*****	0	*****	****	0	****	0	******	******	******	******	1.780	31	*****	.97	22
STILWELL 1 NE	8506	6	78.9	31	*****	98.	4	53.	15	.0	******	429.5	******	.854	31	-2.88	.38	22
TAHLEQUAH	8677	6	80.2	31	-.5	101.	3	54.	14	.0	.0	472.5	-14.5	1.361	31	-2.03	.74	22
WEBBERS FALLS	9445	6	80.0	31	-2.1	100.	4	54.	15	.0	.0	466.5	-63.5	2.701	31	-.45	2.01	22
WESTVILLE	9523	6	*****	0	*****	****	0	****	0	******	******	******	******	1.120	31	*****	.53	22
WETUMKA 3 NE	9571	6	*****	0	*****	****	0	****	0	******	******	******	******	1.664	31	-1.53	.72	23

JULY 1990 SUMMARY FOR SOUTHWEST DIVISION (CD7)

NAME	ID	CD	MEAN TEMP	NUM OBS	DEV FROM NORM	MAX TEMP	DAY	MIN TEMP	DAY	HEAT DEG DAY	DEV FROM NORM	COOL DEG DAY	DEV FROM NORM	TOT PPT	NUM OBS	DEV FROM NORM	MAX 24-HR	DAY
ALTUS IRR STA	179	7	81.5	31	-3.1	105.	3	55.	14	.0	.0	512.5	-95.5	3.940	31	2.02	1.70	22
ALTUS DAM	184	7	81.5	31	*****	104.	6	55.	14	.0	******	513.0	******	2.461	31	-.14	.76	22
ANADARKO	224	7	80.4	24	*****	102.	5	52.	14	.0	******	369.5	******	3.930	25	*****	3.19	22
APACHE	260	7	*****	0	*****	****	0	****	0	******	******	******	******	4.330	31	*****	2.02	22
ALTUS AFB	447	7	*****	0	*****	****	0	****	0	******	******	******	******	6.290	31	*****	2.14	25
CARNEGIE 2 ENE	1504	7	81.1	31	-2.6	104.	3	51.	15	.0	.0	498.0	-82.0	2.530	31	-.03	1.73	22
CHATTANOOGA	1706	7	82.3	29	*****	105.	5	59.	13	.0	******	502.0	******	4.530	29	*****	.92	12
DUNCAN 12 W	2668	7	*****	0	*****	****	0	****	0	******	******	******	******	3.840	31	*****	1.30	22
FREDERICK	3353	7	79.7	23	*****	101.	6	55.	16	.0	******	337.0	******	5.021	24	*****	1.80	31
GRANDFIELD 4 NW	3709	7	*****	0	*****	****	0	****	0	******	******	******	******	3.550	31	1.49	1.70	23
HOBART FAA APT	4204	7	80.7	31	-2.8	103.	3	52.	14	.0	.0	487.0	-87.0	2.522	31	.03	1.62	22
HOLLIS	4249	7	80.8	27	*****	102.	6	56.	14	.0	******	426.0	******	7.400	27	*****	3.89	21
LAWTON	5063	7	80.9	31	-2.8	102.	12	60.	14	.0	.0	491.5	-88.5	8.410	31	5.90	3.68	21
FORT SILL	5068	7	80.4	31	*****	100.	11	59.	14	.0	******	477.0	******	6.422	31	3.91	2.14	25
LOOKEBA 2 ENE	5329	7	*****	0	*****	****	0	****	0	******	******	******	******	3.720	31	*****	1.73	22
MANGUM RES STA	5509	7	79.7	31	-4.2	105.	3	54.	14	.0	.0	455.5	-130.5	2.430	31	-.26	.80	30
RANDLETT 9 E	7403	7	*****	0	*****	****	0	****	0	******	******	******	******	5.160	31	*****	1.89	12
ROOSEVELT	7727	7	*****	0	*****	****	0	****	0	******	******	******	******	6.070	31	3.70	3.26	31
SEDAN	8016	7	*****	0	*****	****	0	****	0	******	******	******	******	5.100	31	*****	2.81	22
VINSON 3 WNW	9212	7	*****	0	*****	****	0	****	0	******	******	******	******	5.850	31	3.89	2.87	31
WALTERS	9278	7	81.7	23	*****	102.	14	56.	14	.0	******	384.0	******	2.320	23	*****	1.02	14
WICHITA MT WLR	9629	7	79.5	31	-3.1	101.	12	54.	15	.0	.0	449.5	-96.5	8.080	31	5.59	2.40	31
WILLOW	9668	7	*****	0	*****	****	0	****	0	******	******	******	******	1.880	31	*****	.43	22

JULY 1990 SUMMARY FOR SOUTH CENTRAL DIVISION (CD8)

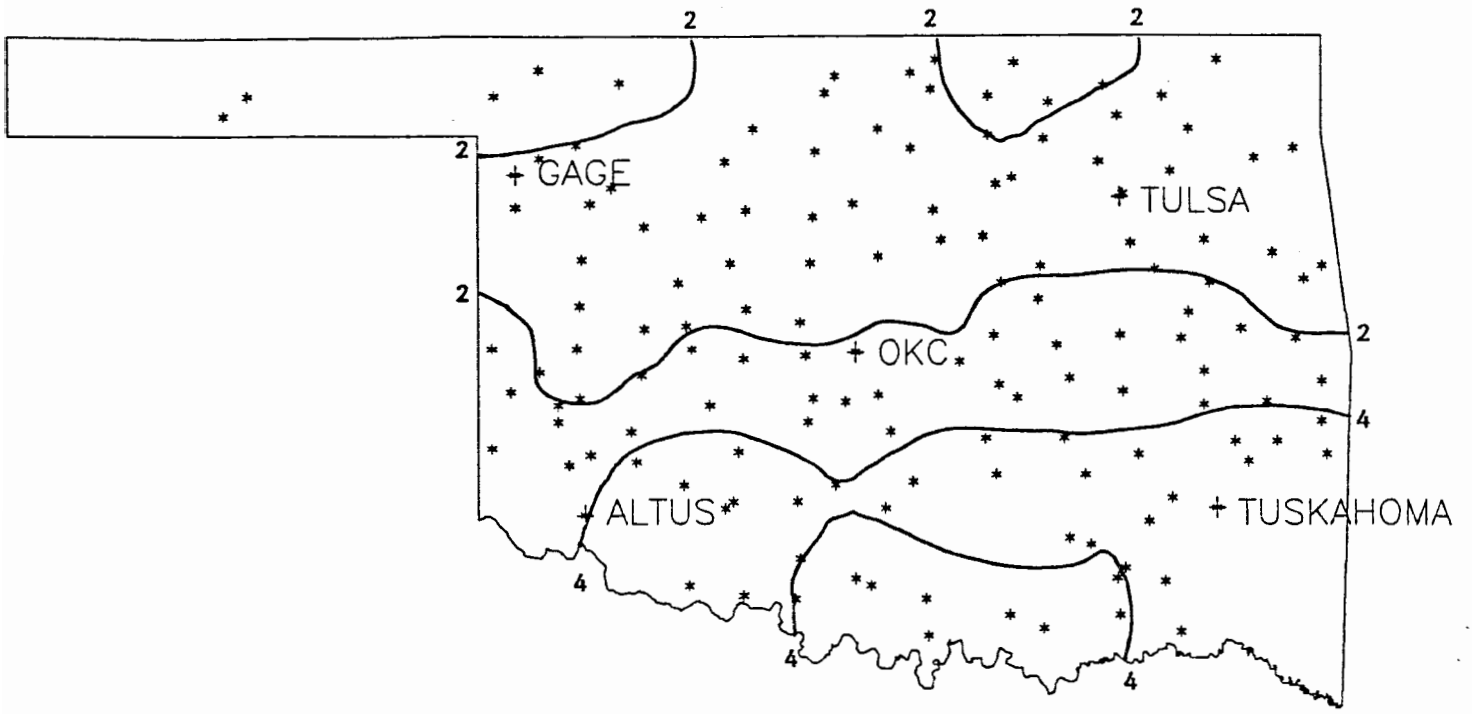
NAME	ID	CD	MEAN TEMP	NUM OBS	DEV FROM NORM	MAX TEMP	MAX DAY	MIN TEMP	MIN DAY	HEAT DEG DAY	DEV FROM NORM	COOL DEG DAY	DEV FROM NORM	TOT PPT	NUM OBS	DEV FROM NORM	MAX 24-HR	MAX DAY
ADA	17	8	79.9	31	-2.8	99.	3	56.	14	.0	.0	462.0	-87.0	7.980	31	5.29	3.51	22
ALLEN	147	8	*****	0	*****	****	0	****	0	******	******	******	******	3.950	31	*****	2.50	22
ARDMORE	292	8	80.7	31	-4.1	99.	11	58.	14	.0	.0	486.5	-127.5	2.811	31	.51	.73	22
ATOKA DAM	394	8	81.3	31	*****	105.	4	59.	15	.0	******	504.0	******	3.580	31	*****	.80	23
BOKCHITO	917	8	*****	0	*****	****	0	****	0	******	******	******	******	1.920	31	*****	1.00	23
CANEY	1437	8	80.8	31	*****	100.	11	59.	14	.0	******	489.5	******	1.990	31	*****	1.12	12
CENTRAHOMA	1648	8	*****	0	*****	****	0	****	0	******	******	******	******	6.400	31	*****	2.40	25
CHICKASAW NRA	1745	8	79.2	31	*****	99.	6	55.	14	.0	******	441.5	******	2.370	31	*****	1.33	12
COMANCHE	2054	8	*****	0	*****	****	0	****	0	******	******	******	******	2.900	31	*****	1.12	12
DAISY 4 ENE	2354	8	*****	0	*****	****	0	****	0	******	******	******	******	2.412	31	-1.91	.96	22
DURANT USDA	2678	8	80.3	31	*****	100.	12	58.	15	.0	******	475.5	******	3.470	31	.93	1.38	25
ELMORE CITY	2872	8	*****	0	*****	****	0	****	0	******	******	******	******	3.640	31	*****	1.83	22
FARRIS 3 WNW	3083	8	*****	0	*****	****	0	****	0	******	******	******	******	4.010	31	*****	2.36	12
GRADY	3688	8	*****	0	*****	****	0	****	0	******	******	******	******	4.481	31	*****	2.30	12
HEALDTON	4001	8	80.6	31	*****	102.	11	58.	14	.0	******	485.0	******	2.930	31	.56	1.71	12
KETCHUM RANCH	4780	8	*****	0	*****	****	0	****	0	******	******	******	******	4.680	31	*****	1.70	22
KINGSTON	4865	8	*****	0	*****	****	0	****	0	******	******	******	******	2.051	31	-.28	.90	12
LEHIGH	5108	8	*****	0	*****	****	0	****	0	******	******	******	******	4.270	31	*****	1.40	23
LINDSAY 2 W	5216	8	81.1	16	*****	100.	11	56.	14	.0	******	258.0	******	2.670	17	*****	2.20	31
LOCO 6 SE	5247	8	*****	0	*****	****	0	****	0	******	******	******	******	3.881	31	*****	1.33	19
MADILL	5468	8	81.4	31	-2.3	99.	11	58.	14	.0	.0	508.0	-72.0	3.060	31	.78	1.20	22
MARIETTA	5563	8	81.0	31	-2.6	100.	29	60.	14	.0	.0	497.0	-80.0	3.260	31	1.12	1.40	12
MARLOW 1 WSW	5581	8	81.0	31	*****	106.	11	53.	14	.0	******	496.5	******	4.530	31	1.96	1.82	22
MCGEE CREEK DAM	5713	8	80.6	31	*****	100.	12	56.	15	.0	******	484.0	******	3.970	31	*****	1.94	12
PAULS VALLEY	6926	8	80.1	31	-4.0	101.	5	56.	14	.0	.0	469.0	-123.0	5.871	31	3.54	1.63	30
TISHOMINGO NWLR	8884	8	80.3	27	*****	102.	11	56.	14	.0	******	413.0	******	1.660	28	*****	1.27	23
TUSSY	9032	8	*****	0	*****	****	0	****	0	******	******	******	******	3.970	31	*****	2.16	12
WAURIKA	9395	8	81.9	31	-2.8	103.	5	58.	14	.0	.0	525.0	-86.0	3.570	31	1.29	1.87	12
WAURIKA DAM	9399	8	81.4	28	*****	103.	12	59.	16	.0	******	460.5	******	5.110	28	*****	2.10	12

JULY 1990 SUMMARY FOR SOUTHEAST DIVISION (CD9)

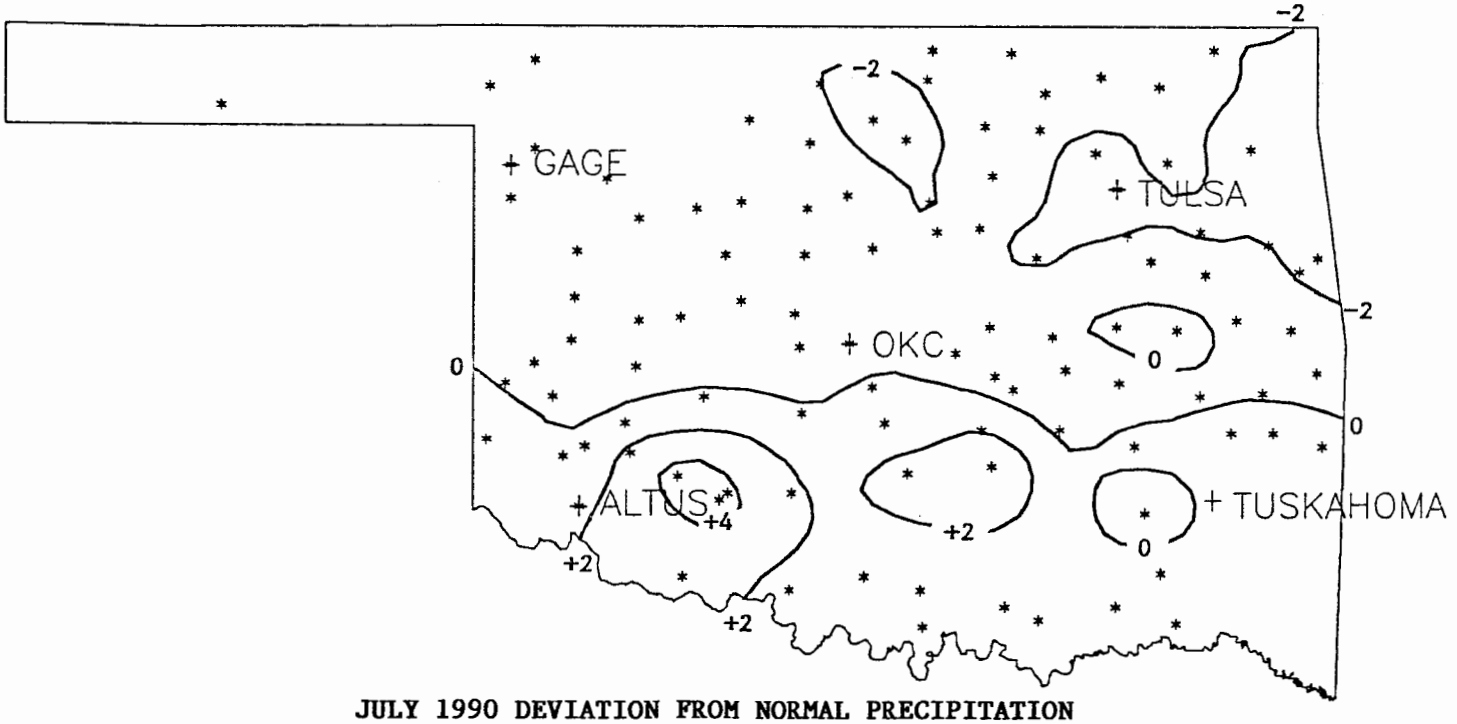
NAME	ID	CD	MEAN TEMP	NUM OBS	DEV FROM NORM	MAX TEMP	MAX DAY	MIN TEMP	MIN DAY	HEAT DEG DAY	DEV FROM NORM	COOL DEG DAY	DEV FROM NORM	TOT PPT	NUM OBS	DEV FROM NORM	MAX 24-HR	MAX DAY
ANTLERS	256	9	79.9	31	-2.1	101.	3	53.	15	.0	.0	461.5	-65.5	4.250	31	1.08	1.70	12
BENGAL	670	9	*****	0	*****	****	0	****	0	******	******	******	******	6.320	31	*****	3.92	26
BOSWELL 4 NNW	980	9	80.8	31	*****	100.	11	55.	15	.0	******	488.5	******	3.323	31	.67	1.46	6
BROKEN BOW 1 N	1162	9	*****	0	*****	****	0	****	0	******	******	******	******	3.451	31	-.42	1.75	12
BROKEN BOW DAM	1168	9	79.7	31	*****	102.	10	54.	15	.0	******	455.0	******	3.610	31	*****	1.95	11
CARNASAW TWR	1499	9	*****	0	*****	****	0	****	0	******	******	******	******	3.730	31	-.41	2.12	12
CARTER TWR	1544	9	*****	0	*****	****	0	****	0	******	******	******	******	3.460	31	-.93	.98	23
FANSHAWE	3065	9	*****	0	*****	****	0	****	0	******	******	******	******	7.020	31	2.99	4.52	26
FLAGPOLE TWR	3169	9	*****	0	*****	****	0	****	0	******	******	******	******	8.540	31	*****	4.38	25
HEAVENER 1 SE	4008	9	*****	0	*****	****	0	****	0	******	******	******	******	3.995	31	.43	2.50	26
HEE MT TWR	4017	9	*****	0	*****	****	0	****	0	******	******	******	******	7.730	31	*****	3.66	12
HUGO	4384	9	80.9	31	-2.1	100.	4	56.	15	.0	.0	494.0	-64.0	5.101	31	2.05	1.66	24
POTEAU W W	7254	9	80.2	31	*****	102.	3	53.	14	.0	******	470.0	******	4.391	31	*****	1.51	25
SPIRO	8416	9	*****	0	*****	****	0	****	0	******	******	******	******	2.650	31	-1.14	.88	26
TUSKAHOMA	9023	9	80.6	31	*****	103.	9	49.	15	.0	******	483.0	******	7.750	31	*****	4.39	26
VALLIANT 3 W	9118	9	*****	0	*****	****	0	****	0	******	******	******	******	5.880	31	2.30	2.15	12
WILBURTON 9 ENE	9634	9	80.2	31	-1.8	102.	9	49.	15	.0	.0	471.5	-55.5	5.805	31	1.47	3.80	25

JULY 1990 CLIMATE DIVISION SUMMARY

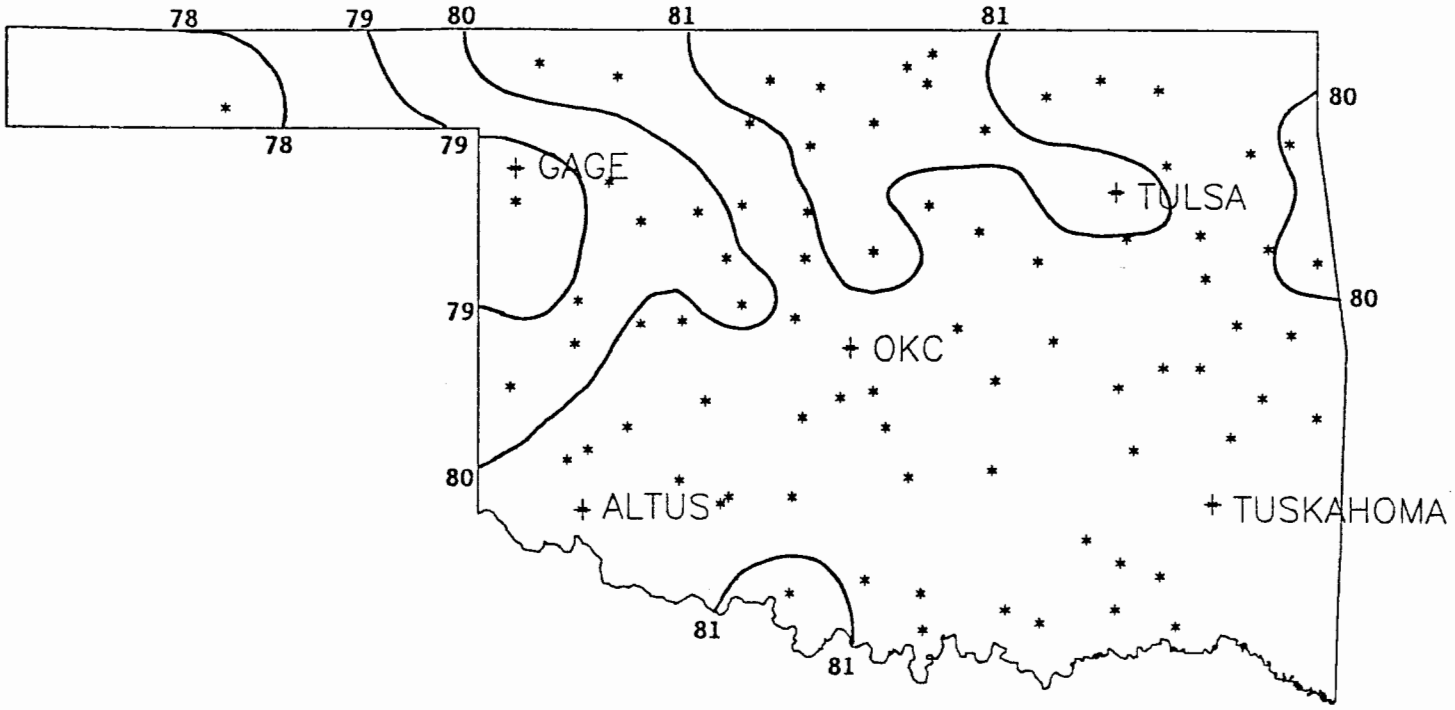
CLIMATE DIV	MEAN TEMP	NUM STA	DEV FROM NORM	MAX TEMP	DAY	MIN TEMP	DAY	HEAT DEGREE DAYS	DEV FROM NORM	COOL DEGREE DAYS	DEV FROM NORM	TOT PPT	NUM STA	DEV FROM NORM	MAX 24-HR	DAY
1	78.1	10	-2.4	106.0	4	45.0	14	2.3	2.3	405.8	-72.8	3.00	16	.38	1.72	20
2	81.3	13	-1.9	108.0	5	45.0	14	.2	.2	502.7	-60.3	2.12	20	-1.18	2.65	28
3	80.3	17	-1.5	106.0	3	52.0	15	.1	.1	471.6	-49.2	1.66	31	-1.67	2.48	29
4	79.5	10	-3.4	105.0	5	48.0	14	.9	.9	451.2	-103.7	1.65	21	-.66	1.82	30
5	80.7	16	-2.1	106.0	4	51.0	14	.0	.0	484.4	-65.9	2.24	34	-.74	2.97	22
6	80.6	10	-1.5	105.0	3	50.0	15	.0	.0	479.5	-53.5	2.98	29	-.43	4.00	22
7	80.7	8	-3.4	105.0	3	51.0	15	.0	.0	485.5	-105.7	4.59	18	2.19	3.89	21
8	80.7	13	-3.2	106.0	11	53.0	14	.0	.0	486.4	-100.7	3.77	26	1.19	3.51	22
9	80.3	7	-2.0	103.0	9	49.0	15	.0	.0	474.8	-62.5	5.12	17	1.43	4.52	26



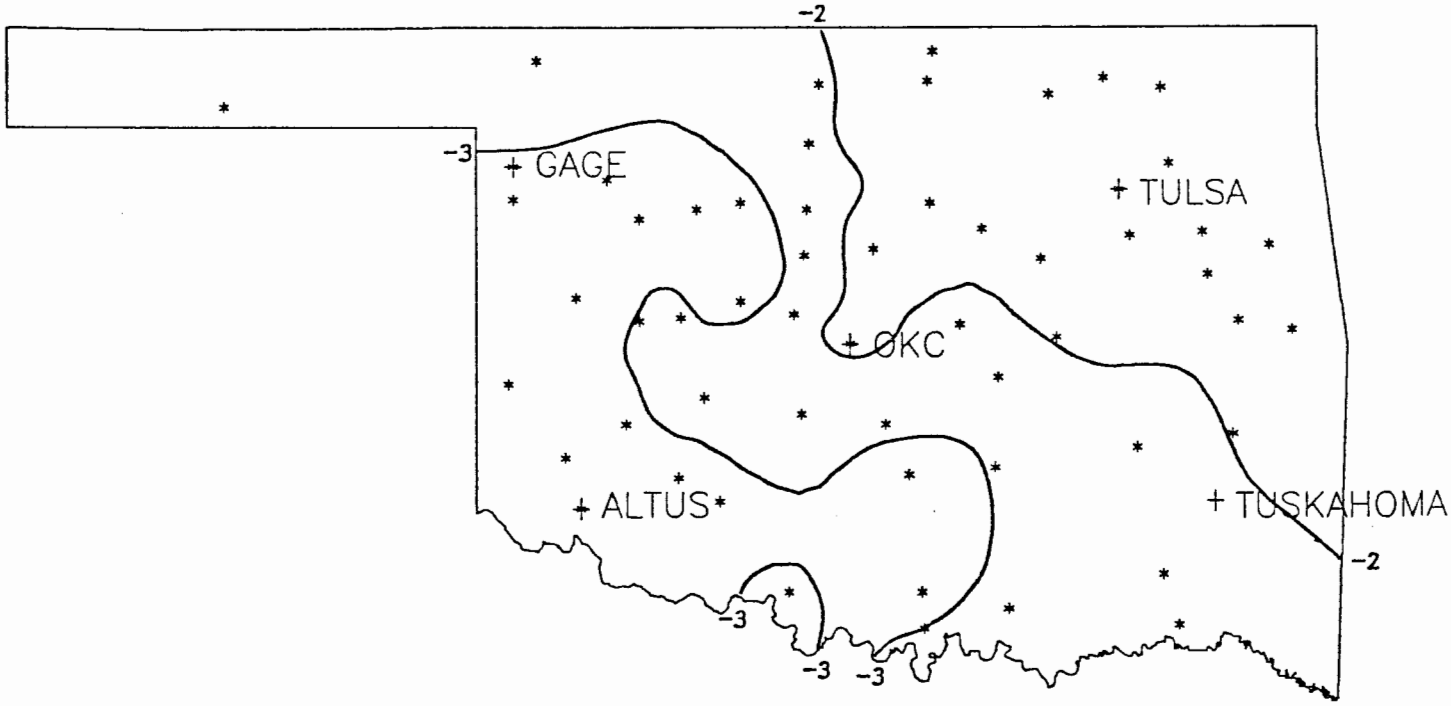
JULY 1990 TOTAL PRECIPITATION
(Inches)



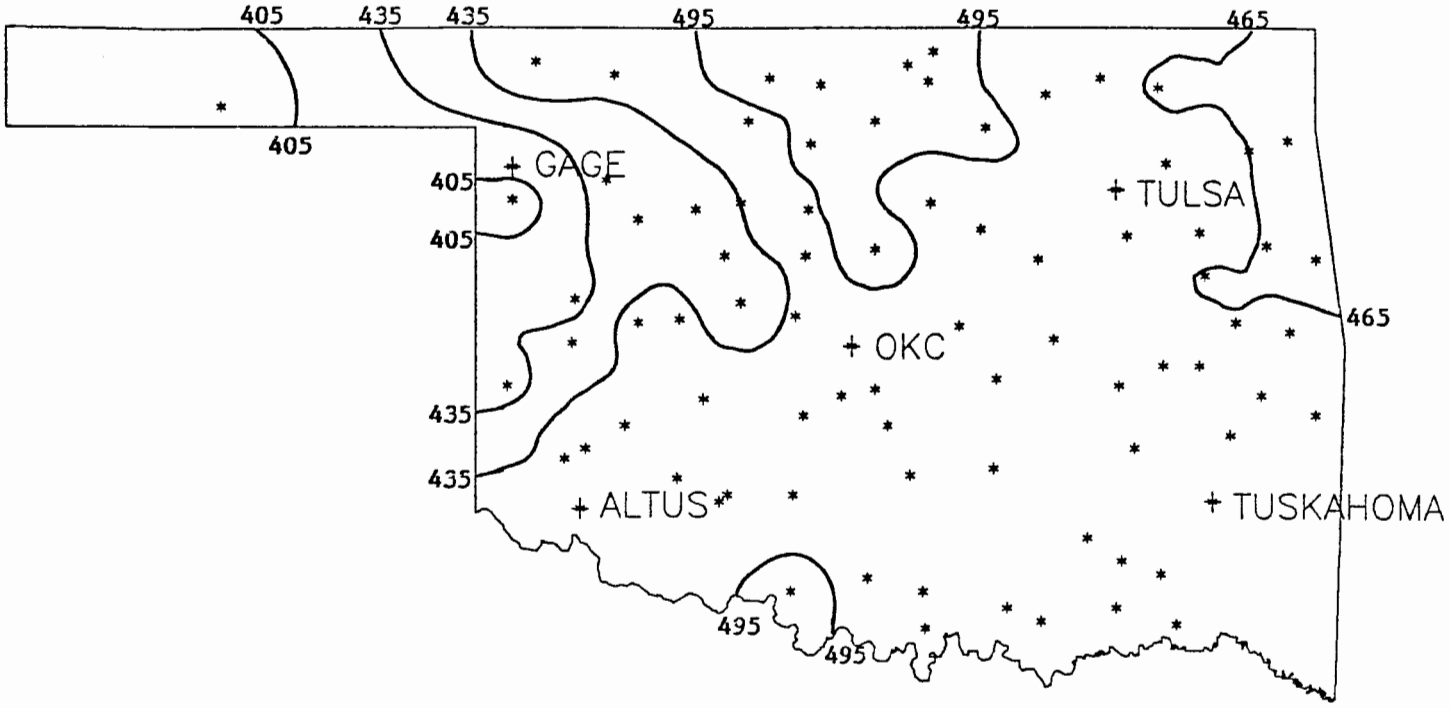
JULY 1990 DEVIATION FROM NORMAL PRECIPITATION
(Inches)



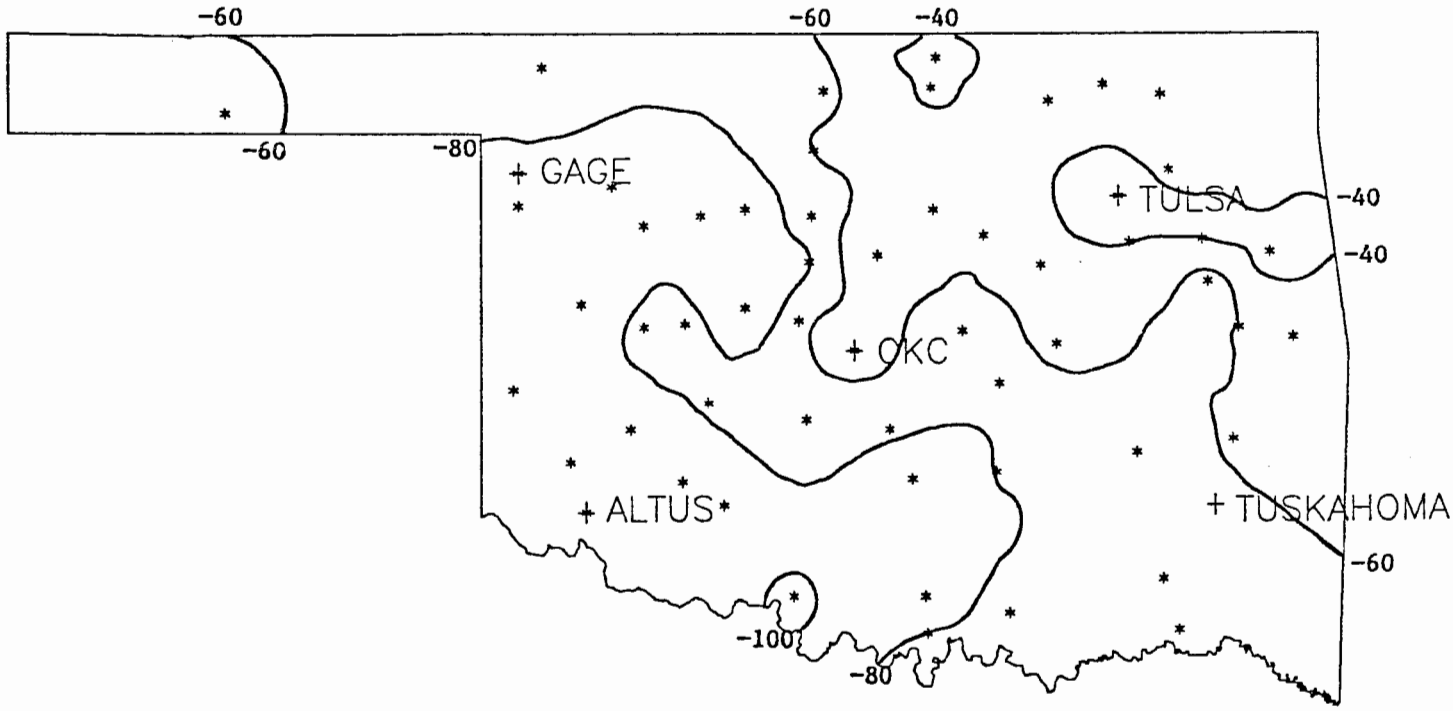
JULY 1990 AVERAGE MONTHLY TEMPERATURES
(Degrees F)



JULY 1990 DEVIATION FROM NORMAL TEMPERATURES
(Degrees F)

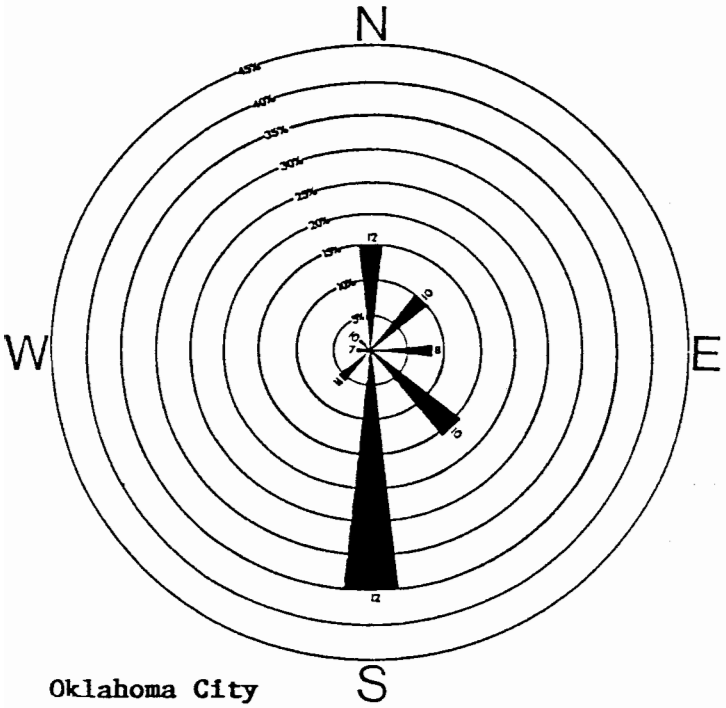


JULY 1990 COOLING DEGREE DAYS

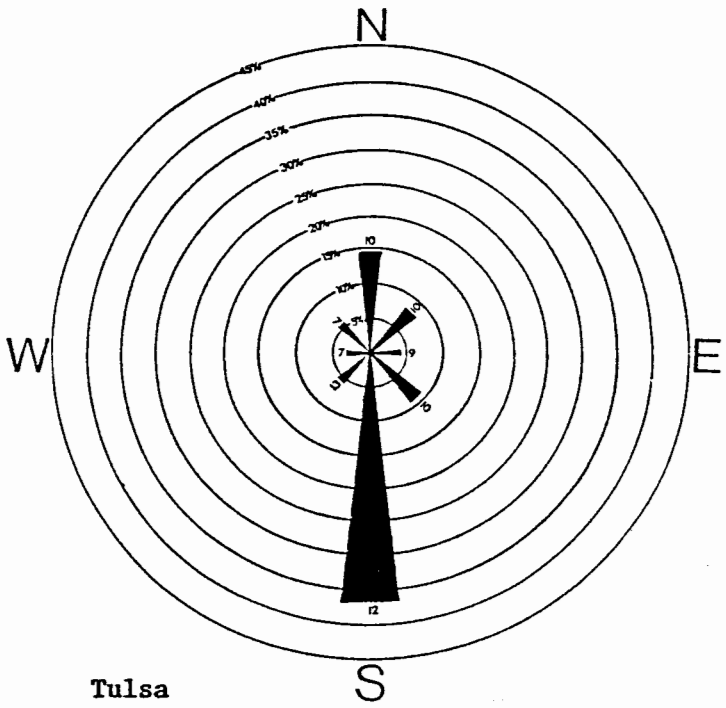


JULY 1990 DEVIATION FROM NORMAL COOLING DEGREE DAYS

September wind roses for Oklahoma City and Tulsa for 10-year (1965-1974) mean winds (data adapted from NOAA Airport Climatology Series). Percents represent the percentages for winds coming from a direction. The numbers at the end of the bars indicate the average speed (miles per hour) of winds from that direction.



Oklahoma City



Tulsa

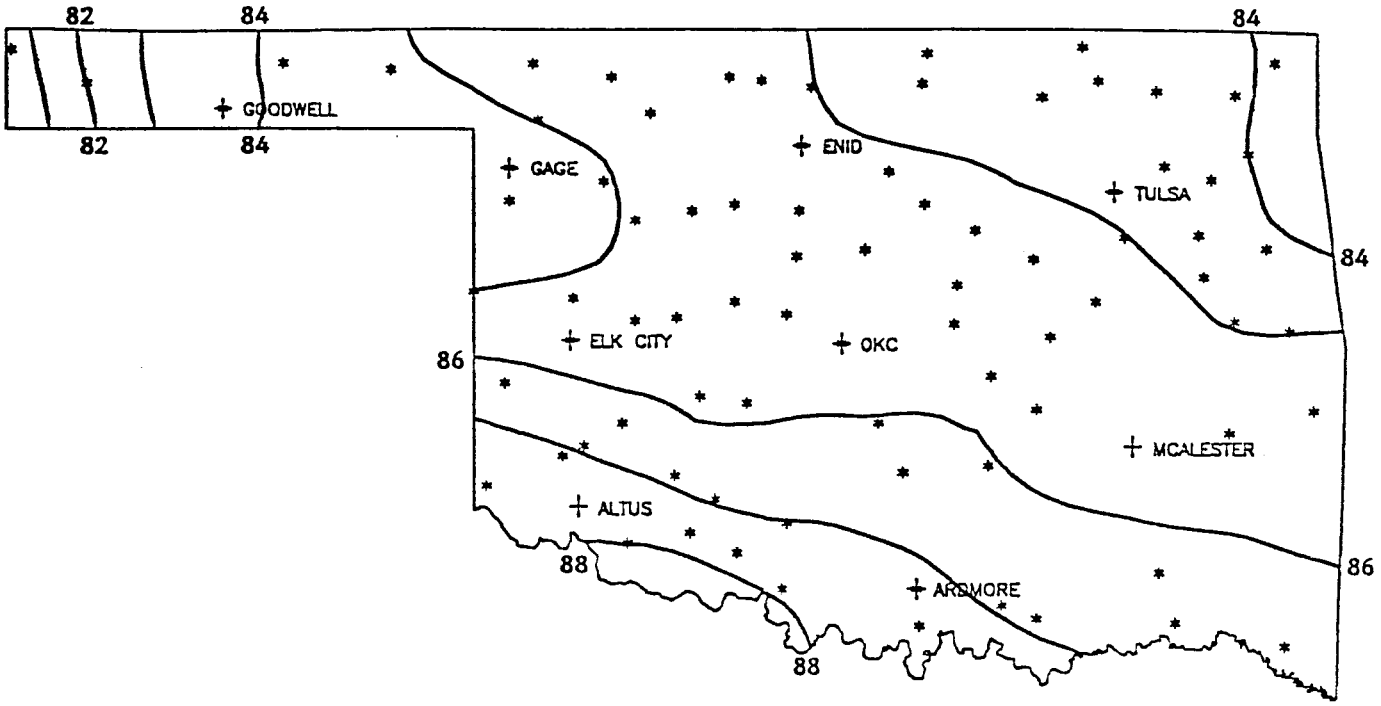
SEPTEMBER 1990 SUNRISE AND SUNSET

Oklahoma City

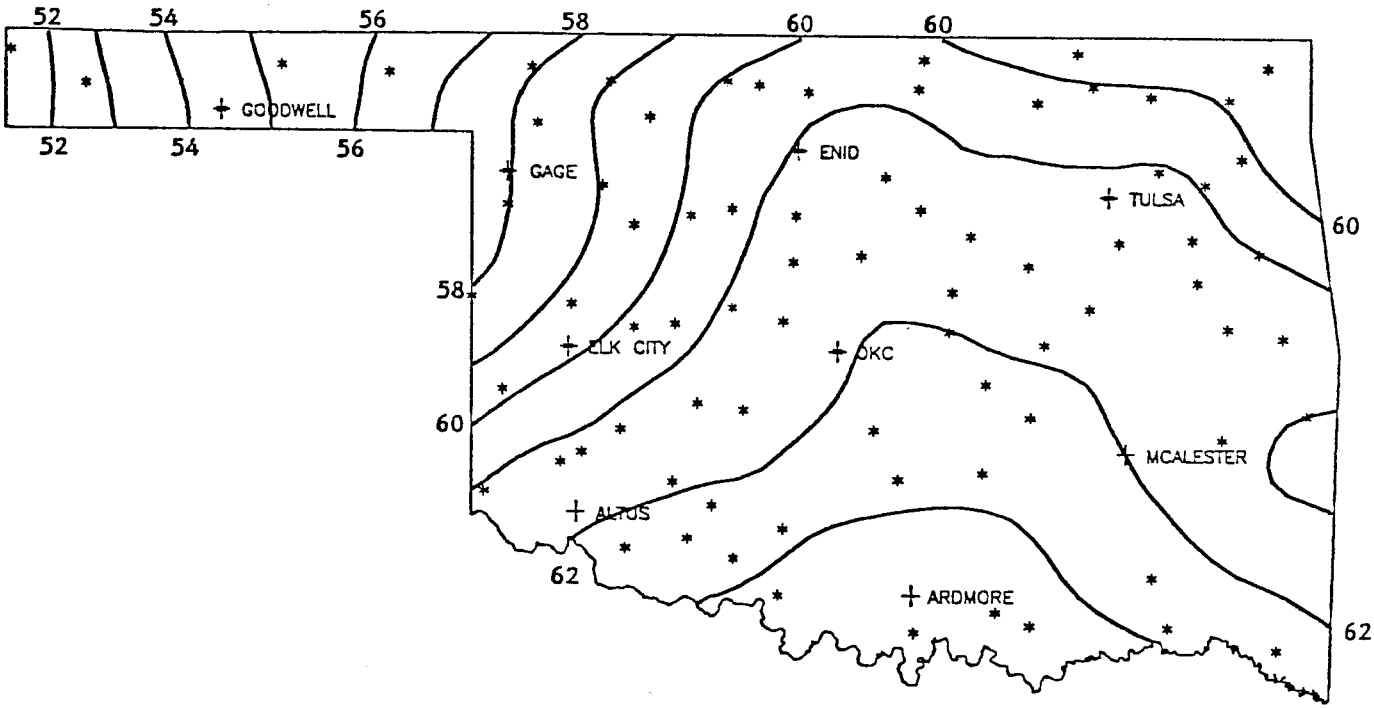
DATE	SUNRISE	SUNSET	DAYLIGHT
900901	7: 2AM	7:59PM LT	12:58
900902	7: 2AM	7:58PM LT	12:56
900903	7: 3AM	7:56PM LT	12:53
900904	7: 4AM	7:55PM LT	12:51
900905	7: 4AM	7:54PM LT	12:49
900906	7: 5AM	7:52PM LT	12:47
900907	7: 6AM	7:51PM LT	12:45
900908	7: 7AM	7:49PM LT	12:43
900909	7: 7AM	7:48PM LT	12:41
900910	7: 8AM	7:46PM LT	12:38
900911	7: 9AM	7:45PM LT	12:36
900912	7: 9AM	7:44PM LT	12:34
900913	7:10AM	7:42PM LT	12:32
900914	7:11AM	7:41PM LT	12:30
900915	7:12AM	7:39PM LT	12:28
900916	7:12AM	7:38PM LT	12:25
900917	7:13AM	7:36PM LT	12:23
900918	7:14AM	7:35PM LT	12:21
900919	7:15AM	7:33PM LT	12:19
900920	7:15AM	7:32PM LT	12:16
900921	7:16AM	7:30PM LT	12:14
900922	7:17AM	7:29PM LT	12:12
900923	7:18AM	7:27PM LT	12:10
900924	7:18AM	7:26PM LT	12: 8
900925	7:19AM	7:24PM LT	12: 5
900926	7:20AM	7:23PM LT	12: 3
900927	7:21AM	7:21PM LT	12: 1
900928	7:21AM	7:20PM LT	11:59
900929	7:22AM	7:19PM LT	11:57
900930	7:23AM	7:17PM LT	11:54

Tulsa

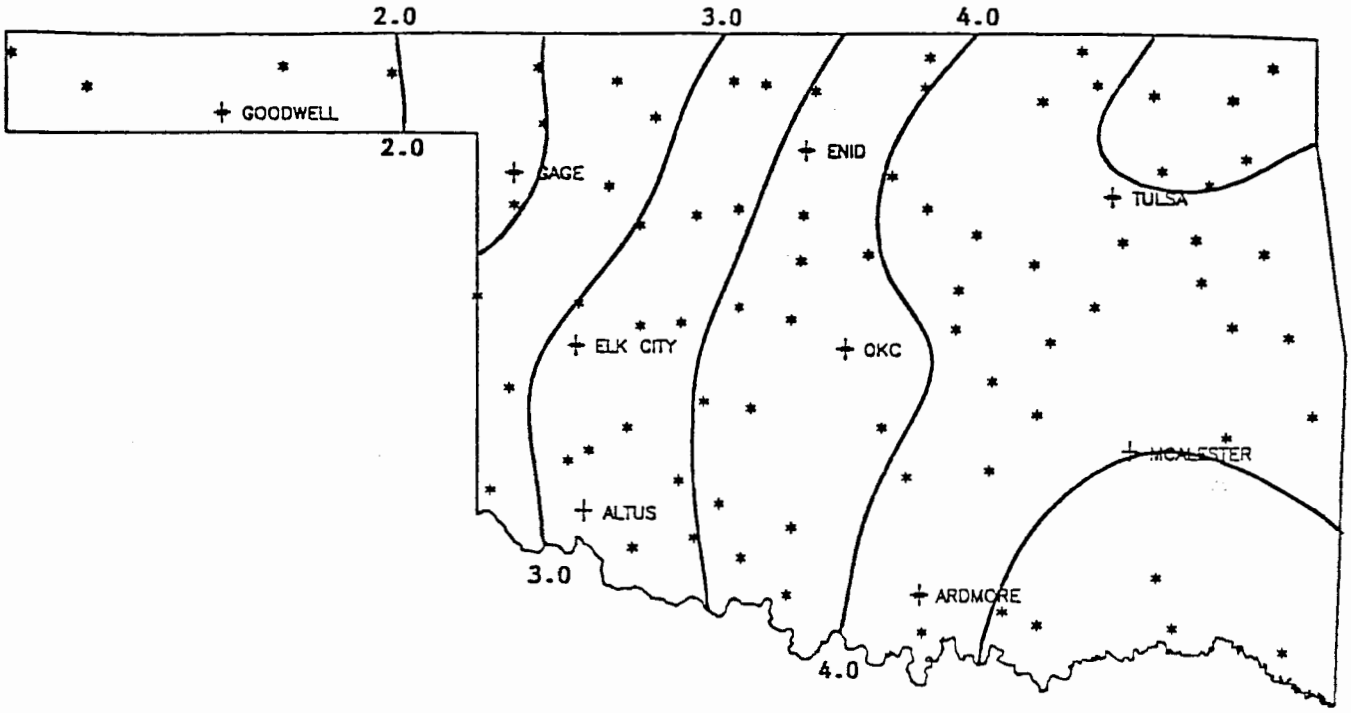
DATE	SUNRISE	SUNSET	DAYLIGHT
900901	6:54AM	7:53PM LT	12:59
900902	6:55AM	7:52PM LT	12:57
900903	6:56AM	7:50PM LT	12:55
900904	6:56AM	7:49PM LT	12:53
900905	6:57AM	7:48PM LT	12:50
900906	6:58AM	7:46PM LT	12:48
900907	6:59AM	7:45PM LT	12:46
900908	6:59AM	7:43PM LT	12:44
900909	7: 0AM	7:42PM LT	12:42
900910	7: 1AM	7:40PM LT	12:39
900911	7: 2AM	7:39PM LT	12:37
900912	7: 2AM	7:37PM LT	12:35
900913	7: 3AM	7:36PM LT	12:33
900914	7: 4AM	7:34PM LT	12:30
900915	7: 5AM	7:33PM LT	12:28
900916	7: 5AM	7:31PM LT	12:26
900917	7: 6AM	7:30PM LT	12:24
900918	7: 7AM	7:28PM LT	12:21
900919	7: 8AM	7:27PM LT	12:19
900920	7: 8AM	7:25PM LT	12:17
900921	7: 9AM	7:24PM LT	12:15
900922	7:10AM	7:22PM LT	12:12
900923	7:11AM	7:21PM LT	12:10
900924	7:11AM	7:19PM LT	12: 8
900925	7:12AM	7:18PM LT	12: 5
900926	7:13AM	7:16PM LT	12: 3
900927	7:14AM	7:15PM LT	12: 1
900928	7:15AM	7:13PM LT	11:59
900929	7:15AM	7:12PM LT	11:56
900930	7:16AM	7:10PM LT	11:54



30-YEAR MEAN SEPTEMBER MAXIMUM TEMPERATURE



30-YEAR MEAN SEPTEMBER DAILY MINIMUM TEMPERATURE



30-YEAR MEAN SEPTEMBER PRECIPITATION

30- and 90-DAY NATIONAL WEATHER SERVICE OUTLOOK

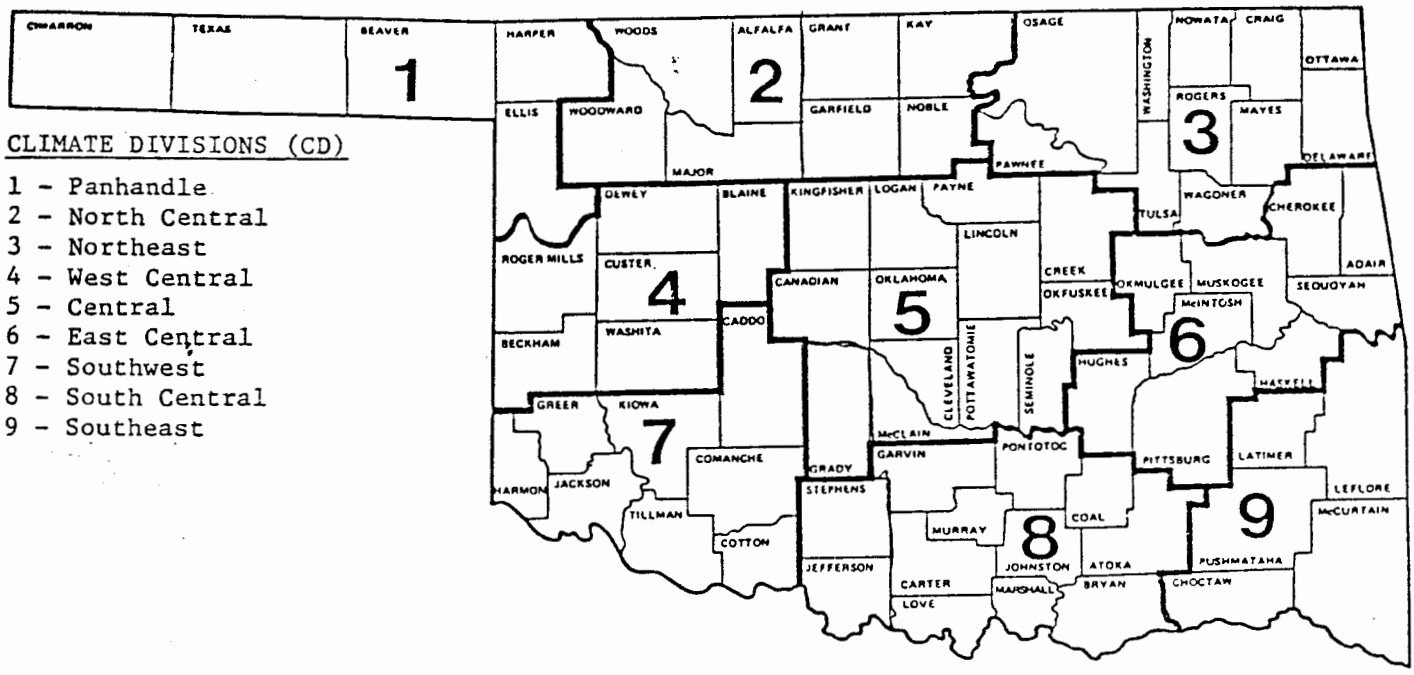
30-DAY OUTLOOK (MID-AUGUST TO MID-SEPTEMBER)

Precipitation - Near Normal Statewide
Temperature - Near Normal Statewide

90-DAY OUTLOOK (AUGUST-OCTOBER)

Precipitation - Near Normal Statewide
Temperature - Near Normal Statewide

O K L A H O M A



CLIMATE DIVISIONS (CD)

1 - Panhandle
2 - North Central
3 - Northeast
4 - West Central
5 - Central
6 - East Central
7 - Southwest
8 - South Central
9 - Southeast

EXPLANATION OF TABLES

Two kinds of tables appear in this summary. The first is a set of tables containing all reporting stations grouped by climate division. The figure above shows the locations of the climate divisions. Each table contains the following information for each station:

Station Name:

Station Identification Number: These are usually assigned by the National Climatic Data Center.

Climate Division: See the figure above.

Number of Temperature Observations: These are the actual number of temperature reports recorded at the station during the current month. Missing observations may result in artificially high or low mean monthly temperatures.

Deviation from Normal: The deviation of the observed mean monthly temperature from the monthly station normal. A positive value indicates the month was warmer than normal. A negative value indicates the month was cooler than normal. Normal monthly temperatures may be calculated by subtracting the deviation from the observed temperature.

Maximum Daily Maximum: The maximum daily maximum temperature observed during the current month and year and the day which it occurred.

Minimum Daily Minimum: The minimum daily minimum temperature observed during the current month and year and the day which it occurred.

Heating Degree Days: HDD are calculated each day of the month for which there is a temperature report and summed. They are a qualitative measure of how much heat was required to maintain a comfortable indoor temperature. Missing observations may result in an artificially high or low value. For February 1984 HDD would be calculated as:

$$\sum_{i=1}^{29} 65-((TMAX_i + TMIN_i)/2)$$

Deviation from Normal Heating Degree Days: A positive value indicates higher than normal heating requirements for the month as a whole. A negative value indicates lower than normal heating requirements for the month as a whole. Normal HDD may be calculated by subtracting the deviation from observed HDD.

Cooling Degree Days: CDD are calculated each day of the month for which there is a temperature report and summed. They are a proxy measure of how much cooling was required to maintain a comfortable indoor temperature. Missing observations may result in an artificially high or low value. For June, CDD would be calculated as:

$$\sum_{i=1}^{30} ((TMAX_i + TMIN_i)/2)-65$$

Deviation from Normal Cooling Degree Days: A positive value indicates higher than normal cooling requirements for the month as a whole. A negative value indicates lower than normal cooling requirements for the month as a whole. Normal cooling degree days may be found by subtracting the deviation from the observed cooling degree days.

Total Precipitation: Often incorrectly referred to as mean precipitation, this value is the sum of all precipitation reported during the month at a station. If snow occurred, it is to be melted and its water equivalent recorded.

Number of Precipitation Observations: The number of days a rain or no-rain observation was reported. Missing observations frequently result in artificially low total precipitation values.

Deviation from Normal Precipitation: A positive value indicates more rain than normal was received. A negative value indicates less than was expected rainfall was received. Normal rainfall may be calculated by subtracting the deviation from monthly total.

Maximum 24-Hour Report and Day: The maximum amount of precipitation recorded during the station's 24-hour observation period for the current month and year and the day on which it was recorded.

The second set of tables contain similar information but are the average or extreme over all the stations reporting in each climate division.

EXPLANATION OF MAPS

To give a Statewide perspective, a series of maps is produced each month from the information contained in the station tables. Each map is calculated using between 50 and 200 observations. Only stations with complete monthly records are used. Each observation is put into one of three categories and assigned a plus (+), minus (-), or a dot (.). The minus is the lowest numeric category, the dot is the middle and the plus the highest numeric category. If a map location has no report, a value is estimated. Each map is accompanied by its own legend. The categories will vary from month to month throughout the year. The categories for the deviations from normal maps will always remain constant. This is to facilitate comparisons between months and across years.

SEPTEMBER 1990

CLIMATE CALENDAR

The data on this calendar are for Oklahoma City. Normal values are calculated for the period 1948-1987. Extremes are found for the period of record (1924-present).

Normal	1	Actual
89.2	max	
66.2	min	
.163	pcpn	
0	HDD	
13	CDD	
Highest Max		105-1939
Lowest Max		69-1932
Lowest Min		53-1956
Highest Min		77-1936
Greatest pcpn		2.53-1974

Normal	2	Actual
88.6	max	
66.2	min	
.108	pcpn	
0	HDD	
13	CDD	
Highest Max		104-1939
Lowest Max		68-1967
Lowest Min		52-1974
Highest Min		78-1936
Greatest pcpn		2.04-1969

Normal	3	Actual
89.8	max	
65.6	min	
.267	pcpn	
0	HDD	
13	CDD	
Highest Max		105-1947
Lowest Max		71-1974
Lowest Min		47-1974
Highest Min		80-1939
Greatest pcpn		3.16-1926

Normal	4	Actual
88.7	max	
66.3	min	
.075	pcpn	
0	HDD	
13	CDD	
Highest Max		106-1947
Lowest Max		66-1961
Lowest Min		46-1974
Highest Min		79-1936
Greatest pcpn		1.74-1940

Normal	5	Actual
88.2	max	
65.9	min	
.056	pcpn	
0	HDD	
12	CDD	
Highest Max		103-1931
Lowest Max		64-1962
Lowest Min		47-1974
Highest Min		77-1939
Greatest pcpn		.70-1926

Normal	6	Actual
88.9	max	
66.0	min	
.032	pcpn	
0	HDD	
13	CDD	
Highest Max		106-1947
Lowest Max		72-1962
Lowest Min		51-1974
Highest Min		76-1936
Greatest pcpn		.75-1973

Normal	7	Actual
88.1	max	
65.8	min	
.077	pcpn	
0	HDD	
12	CDD	
Highest Max		102-1936
Lowest Max		66-1962
Lowest Min		52-1950
Highest Min		77-1936
Greatest pcpn		.86-1951

Normal	8	Actual
87.8	max	
64.7	min	
.027	pcpn	
0	HDD	
12	CDD	
Highest Max		98-1936
Lowest Max		75-1957
Lowest Min		48-1957
Highest Min		77-1936
Greatest pcpn		2.66-1940

Normal	9	Actual
87.4	max	
64.6	min	
.068	pcpn	
0	HDD	
11	CDD	
Highest Max		99-1936
Lowest Max		67-1928
Lowest Min		51-1962
Highest Min		77-1936
Greatest pcpn		1.22-1951

Normal	10	Actual
86.2	max	
63.6	min	
.088	pcpn	
0	HDD	
10	CDD	
Highest Max		100-1936
Lowest Max		64-1928
Lowest Min		47-1962
Highest Min		77-1938
Greatest pcpn		1.98-1934

Normal	11	Actual
87.2	max	
63.3	min	
.038	pcpn	
0	HDD	
11	CDD	
Highest Max		98-1930
Lowest Max		70-1928
Lowest Min		48-1940
Highest Min		77-1936
Greatest pcpn		1.69-1943

Normal	12	Actual
85.5	max	
63.4	min	
.178	pcpn	
0	HDD	
10	CDD	
Highest Max		102-1930
Lowest Max		64-1989
Lowest Min		48-1959
Highest Min		78-1930
Greatest pcpn		3.03-1961

Normal	13	Actual
84.3	max	
61.9	min	
.164	pcpn	
0	HDD	
9	CDD	
Highest Max		102-1965
Lowest Max		53-1989
Lowest Min		49-1989
Highest Min		78-1978
Greatest pcpn		1.16-1989

Normal	14	Actual
83.6	max	
62.1	min	
.211	pcpn	
1	HDD	
9	CDD	
Highest Max		102-1965
Lowest Max		58-1975
Lowest Min		47-1961
Highest Min		77-1931
Greatest pcpn		3.61-1957

Normal	15	Actual
83.0	max	
62.7	min	
.097	pcpn	
1	HDD	
9	CDD	
Highest Max		100-1965
Lowest Max		58-1949
Lowest Min		47-1961
Highest Min		78-1931
Greatest pcpn		2.30-1982

Normal	16	Actual
83.3	max	
62.1	min	
.128	pcpn	
0	HDD	
8	CDD	
Highest Max		101-1978
Lowest Max		66-1966
Lowest Min		47-1979
Highest Min		76-1965
Greatest pcpn		1.15-1969

Normal	17	Actual
82.4	max	
62.0	min	
.130	pcpn	
1	HDD	
8	CDD	
Highest Max		99-1931
Lowest Max		58-1973
Lowest Min		46-1981
Highest Min		78-1978
Greatest pcpn		1.42-1936

Normal	18	Actual
84.7	max	
61.6	min	
.070	pcpn	
1	HDD	
9	CDD	
Highest Max		99-1952
Lowest Max		53-1971
Lowest Min		42-1981
Highest Min		78-1978
Greatest pcpn		1.17-1971

Normal	19	Actual
84.1	max	
62.5	min	
.064	pcpn	
0	HDD	
9	CDD	
Highest Max		98-1954
Lowest Max		56-1971
Lowest Min		44-1971
Highest Min		76-1978
Greatest pcpn		1.49-1942

Normal	20	Actual
84.0	max	
61.0	min	
.093	pcpn	
1	HDD	
8	CDD	
Highest Max		100-1954
Lowest Max		56-1983
Lowest Min		41-1971
Highest Min		76-1931
Greatest pcpn		.99-1946

Normal	21	Actual
81.4	max	
60.3	min	
.101	pcpn	
1	HDD	
7	CDD	
Highest Max		97-1980
Lowest Max		61-1934
Lowest Min		39-1983
Highest Min		76-1931
Greatest pcpn		1.48-1957

Normal	22	Actual
82.3	max	
59.7	min	
.290	pcpn	
1	HDD	
7	CDD	
Highest Max		96-1956
Lowest Max		64-1972
Lowest Min		45-1975
Highest Min		76-1931
Greatest pcpn		7.53-1970

Normal	23	Actual
82.1	max	
59.6	min	
.028	pcpn	
1	HDD	
7	CDD	
Highest Max		93-1984
Lowest Max		59-1989
Lowest Min		42-1989
Highest Min		75-1931
Greatest pcpn		1.47-1988

Normal	24	Actual
81.3	max	
59.3	min	
.188	pcpn	
1	HDD	
7	CDD	
Highest Max		98-1939
Lowest Max		56-1974
Lowest Min		36-1989
Highest Min		74-1931
Greatest pcpn		3.87-1959

Normal	25	Actual
81.0	max	
59.4	min	
.060	pcpn	
1	HDD	
6	CDD	
Highest Max		97-1938
Lowest Max		53-1926
Lowest Min		41-1989
Highest Min		74-1933
Greatest pcpn		.95-1955

Normal	26	Actual
80.1	max	
58.4	min	
.156	pcpn	
1	HDD	
6	CDD	
Highest Max		98-1977
Lowest Max		46-1936
Lowest Min		39-1942
Highest Min		73-1981
Greatest pcpn		1.74-1973

Normal	27	Actual
80.2	max	
58.5	min	
.122	pcpn	
1	HDD	
6	CDD	
Highest Max		96-1953
Lowest Max		48-1926
Lowest Min		38-1942
Highest Min		70-1971
Greatest pcpn		1.75-1936

Normal	28	Actual
79.8	max	
57.8	min	
.030	pcpn	
2	HDD	
6	CDD	
Highest Max		103-1953
Lowest Max		53-1926
Lowest Min		41-1936
Highest Min		73-1977
Greatest pcpn		2.88-1945

Normal	29	Actual
80.0	max	
56.9	min	
.108	pcpn	
2	HDD	
6	CDD	
Highest Max		98-1953
Lowest Max		47-1945
Lowest Min		41-1976
Highest Min		71-1933
Greatest pcpn		2.90-1986

Normal	30	Actual
79.5	max	
55.2	min	
.096	pcpn	
3	HDD	
5	CDD	
Highest Max		100-1977
Lowest Max		54-1985
Lowest Min		37-1972
Highest Min		72-1977
Greatest pcpn		1.79-1986

SEPTEMBER AVERAGES

Temperature	:	73.3°F
Precipitation	:	3.31"
Heating Degree Days:		19
Cooling Degree Days:		275