OKLAHOMA
MONTHLY SUMMARY
MAY 1993

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MONTHLY SUMMARY FOR MAY 1993

Extremely heavy rains and resultant widespread flooding during the Mother's Day weekend produced the most dramatic weather story in May, a month that was notable for its violent weather. Wet, cool weather dominated Oklahoma during most of the month. The statewide averaged precipitation for the month was 7.72 inches, 2.86 inches above normal and the 10th highest May total since 1892. Temperatures averaged 66.6 degrees, 2.1 degrees below normal. Through the first five months of 1993, Oklahoma precipitation reporting stations had received an average of 19.54 inches (5.79 inches above normal). The year-to-date temperature average of 49.6 degrees is 2.1 degrees below normal. Thus far, 1993 ranks as the 6th wettest and 11 coolest year on record. The months of March, April and May represent the state's 12th wettest and 10th coolest spring. Spring precipitation total was 14.43 inches (3.67 inches above normal). The average temperature was 57.3 degrees (2.7 degrees below normal).

Thunderstorms associated with a cold front and an associated low pressure center developed on the afternoon of the 1st, producing tornadoes in Woodward and Harper Counties, wind damage in Lawton and large hail in several areas of western Oklahoma. Large hail was reported later that same evening in the northeast near Claremore. Over 5 inches of rain fell on Drumright overnight with resulting flash flooding causing extensive damage to the downtown area. Heavy thunderstorms continued in eastern Oklahoma through the 2nd.

A slow-moving trough of low pressure in the upper atmosphere and a related surface frontal system moved through the state from the 5th through the 10th, generating widespread very strong thunderstorms that produced several tornadoes and inundated much of the state. Two large tornadoes were reported in rural Texas County on the 5th, destroying a farm house and killing some cattle. Minor flooding was reported overnight in Okmulgee County. A brief tornado was reported in the vicinity of Lone Grove on the 6th. Ardmore reported 5.2 inches of rain and a state highway was closed north of Healdton after 6 to 7 inches of water covered the roadway. Large hail was reported in Carter, Marshall and Bryan Counties. Madill reported 5.03 inches of precipitation.

Heavy rains on the 8th led to local flooding in several small watersheds and overburdened the already strained stream systems of central Oklahoma. Several creeks in Oklahoma City flooded in response to 7 inches of rain in the southern portions of the city, forcing evacuation of nearly 1000 homes. Flood waters forced evacuation of about 300 residents of Guthrie and Kingfisher. Cottonwood Creek in Guthrie reached a record flood stage. The Cimarron river overflowed its banks in Kingfisher, Logan and Payne Counties. Other tributary streams such as Black Bear Creek near Pawnee overflowed in response to the high level of the Cimarron.

Daily precipitation amounts reported the morning of the 9th included 6.97 inches at Piedmont, 6.56 inches at Lookeba and 6.55 inches at Guthrie. Ardmore received 6.48 inches between 5PM on the 8th and 5PM on the 9th. The Bryan County communities of Durant (7.5 inches) and Bokchito (7 inches) reported heavy precipitation for the 24-hour period ending the morning of the 10th. Bird Creek flooded portions of Skiatook and Sperry as a result of heavy rains in Osage County, including over 6 inches at Hominy and Barnsdall.

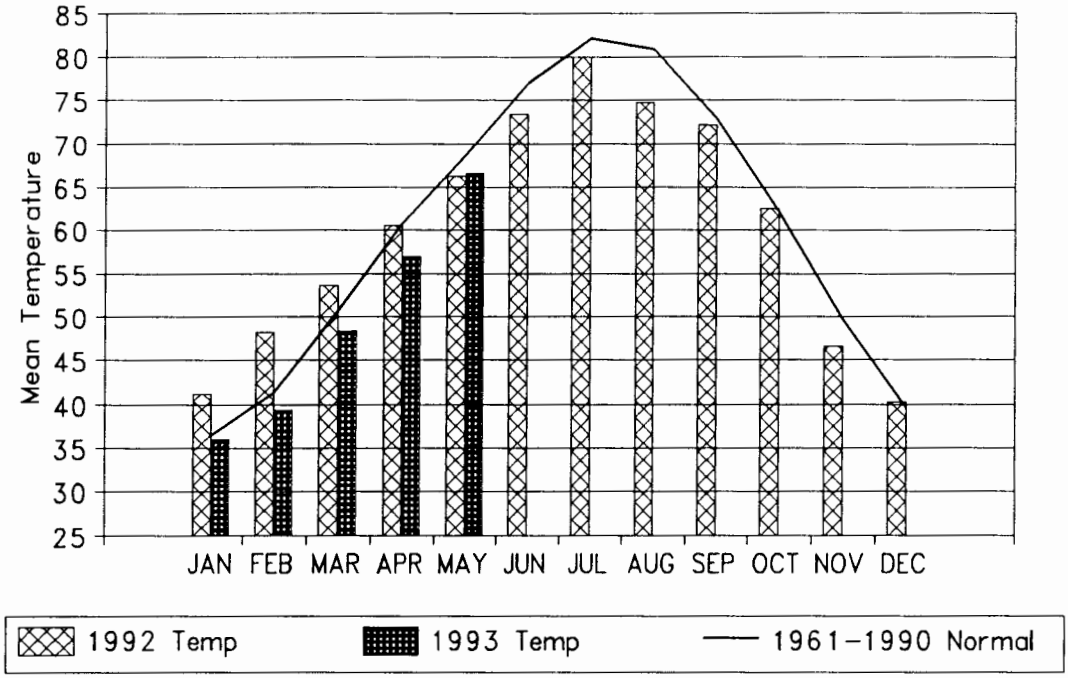
Flooding was reported along the Cimarron, Deep Fork, Neosho, Illinois, Arkansas, Poteau, Caney, North Canadian, Chikaskia, Salt Fork of the Arkansas, North Fork of the Red and Washita Rivers. Local flooding was reported in Bryan County. More than 2700 single family dwellings, mobile homes and apartments were damaged in the weekend flooding. The Federal Emergency Management Agency declared 13 Oklahoma counties to be flood disaster areas. There were five weather-related deaths, all drownings, over the weekend.

The weather for the remainder of the month was more typical of May and much less dramatic. Thunderstorms on the 17th caused considerable wind damage, including hangar doors blown open by 94-mile-per-hour winds at Altus and several roofs blown off of buildings in Nowata. Newkirk, Canton Dam and Leedey all reported over two inches of rain.

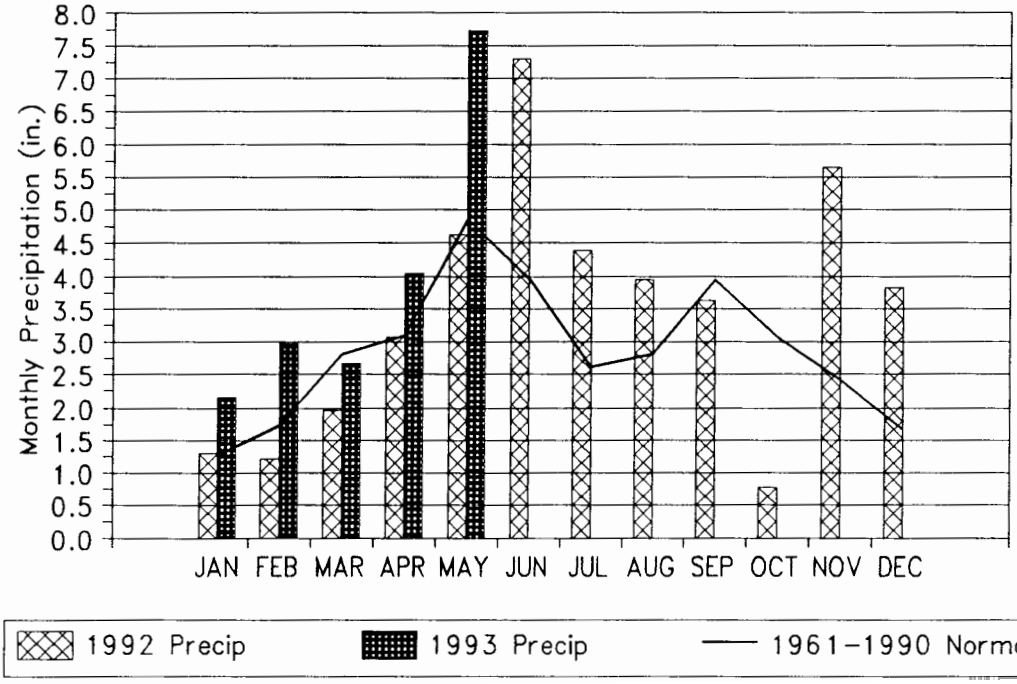
Locally heavy rains and local flooding were reported on the 23rd in Cleveland, McClain and Jefferson Counties. Waurika, Madill, Healdton, Atoka Dam, Lehigh, Norman and Blanchard all reported more than 2 inches of rain. Thunderstorms pounded the state again Memorial Day weekend, although severe weather was minimal. Hardy, Ralston and Upper Spavinaw each reported daily rainfall amounts in excess of two inches. Large hail was reported in Roger Mills County on the 29th, a tornado was spotted east of Jay on the 30th and one and one-half inch hail was reported near Boise City on the 31st.

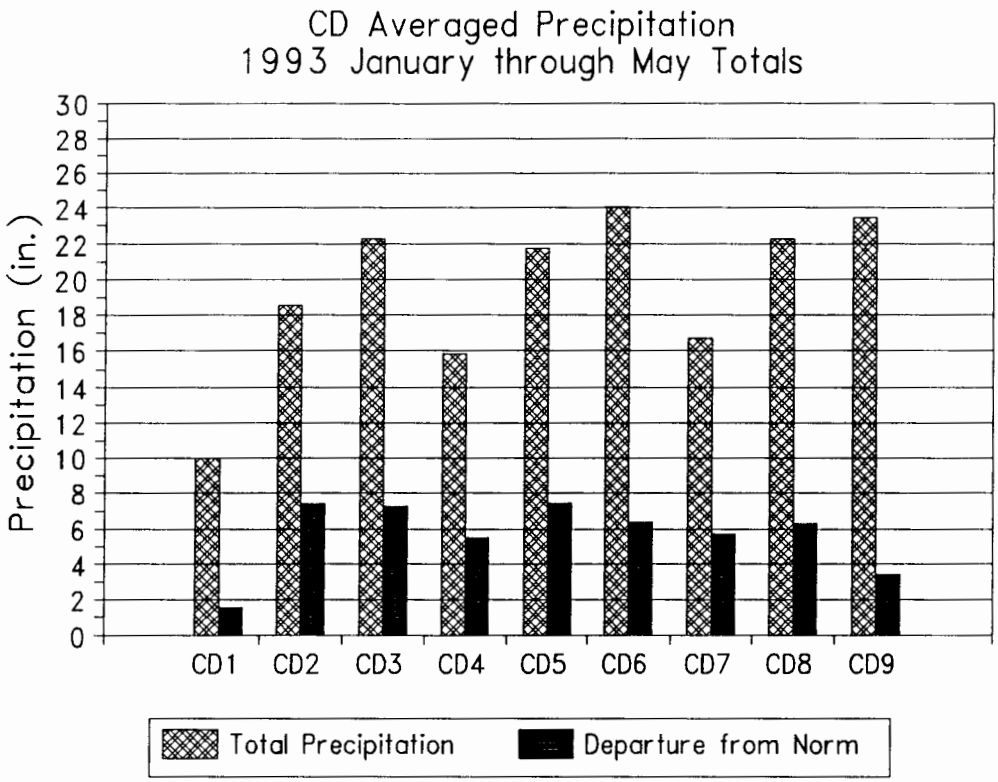
Howard L. Johnson

1992 and 1993 STATEWIDE TEMPERATURES
Monthly Averages

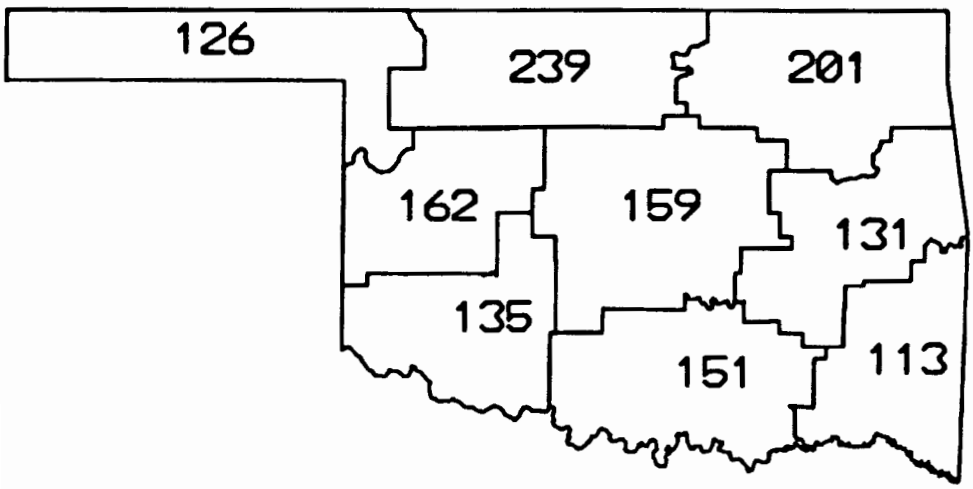


1992 and 1993 STATEWIDE PRECIPITATION
Monthly Totals





CD PERCENT OF NORMAL PRECIPITATION



MAY 1993

EXTREME VALUES OF TEMPERATURE AND PRECIPITATION IN EACH CLIMATE DIVISION
MAY, 1993

CD	MAX TEMP	DATE	LOCATION	MIN TEMP	DATE	LOCATION	24-HOUR PRECIP	DATE	LOCATION	MONTHLY PRECIP	LOCATION
1	94	27	BUFFALO	33	2	KENTON	2.10	8	ARNETT	6.09	GAGE FAA APT
2	91	30	ALVA	39	3	FT SUPPLY	4.85	9	MORRISON	14.81	GREAT SALT PLAIN
3	90	2	UPPER SPAVIN	42	14	CLAREMORE	5.65	8	CLEVELAND	14.13	WYNONA
	90	5	UPPER SPAVIN	42	14	JAY TOWER					
				42	15	PRYOR					
				42	14	UPPER SPAVIN					
				42	14	VINITA					
4	91	30	REYDON	38	3	ERICK	4.93	9	WEATHERFORD	11.51	GEARY
	91	31	WEATHERFORD								
5	91	30	GUTHRIE	43	14	BRISTOW	6.97	9	PIEDMONT	11.92	GUTHRIE
	91	31	GUTHRIE	43	14	PURCELL					
6	89	15	MCALESTER	40	14	STILWELL	5.33	9	MUSKOGEE	8.91	TAHLEQUAH
	89	30	MCCURTAIN								
7	92	31	ALTUS DAM	41	3	HOLLIS	6.56	9	LOOKEBA	11.93	LOOKEBA
	92	30	CHATTANOOGA	41	3	MANGUM					
	92	30	HOLLIS								
8	90	17	DURANT	42	14	CHICKASAW	7.50	10	DURANT	13.91	ARDMORE
	90	17	WAURIKA DAM								
9	89	17	IDABEL	42	14	WILBURTON	6.20	10	BOSWELL	10.81	FANSHAWE

TABLE OF 1992/1993 COMPARISONS

	May Temperature (°F)		May Precipitation (in.)	
Station	1992	1993	1992	1993
Arnett	63.1	63.1	6.50	6.05
Enid	65.7	66.7	3.63	9.20
Mutual	66.0	63.5	3.36	8.58
Tulsa	67.5	66.6	4.24	7.00
Elk City	65.6	67.1	2.58	5.10
Oklahoma City	66.5	66.0	4.88	10.90
McAlester	66.9	69.4	5.05	4.99
Altus Irr Sta	68.1	68.8	5.62	7.87
Durant	67.8	67.5	7.50	11.33
Ada	66.2	66.6	7.80	3.68
Antlers	67.7	68.8	4.27	0.82

EXTREMES

Variable	Station	Division	Observation	Date
Minimum temperature (°F)	Kenton	1	33	02
Maximum temperature (°F)	Buffalo	1	94	27
Maximum 24-hour precipitation	Durant	8	7.50"	10

MAY 1993 SUMMARY FOR NORTHWEST DIVISION (CD1)

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
ARNETT	332	1	63.1	31	-2.6	87.	31	40.	3	116.5	30.5	58.5	-49.5	6.050	31	1.92	2.10	8
BEAVER	593	1	64.5	31	-.4	90.	29	37.	4	89.0	-9.0	74.0	-21.0	3.360	31	.32	1.92	1
BOISE CITY 2 E	908	1	62.6	31	-.7	89.	28	35.	1	111.5	-8.5	38.0	-30.0	3.421	31	.84	.70	9
BUFFALO	1243	1	67.2	31	-1.0	94.	27	39.	3	66.0	9.0	134.5	-21.5	4.050	31	-.31	1.25	1
FARGO	3070	1	*****	0	*****	****	0	****	0	******	******	******	******	5.540	31	1.85	1.53	2
GAGE FAA APT	3407	1	65.0	31	-2.2	91.	30	37.	3	86.5	21.5	85.5	-47.5	6.088	31	2.74	2.07	1
GATE	3489	1	65.4	31	-.9	93.	28	40.	3	92.0	5.0	105.5	-21.5	2.963	31	-.07	1.41	1
GOODWELL RES ST	3628	1	62.5	31	-.7	89.	28	35.	4	123.5	-2.5	44.5	-26.5	2.391	31	-.72	.40	1
GUYMON	3835	1	65.6	25	*****	92.	27	37.	3	65.5	******	79.5	******	2.820	26	*****	.89	1
HOOKER	4298	1	63.8	31	-1.3	91.	28	40.	3	110.0	16.0	72.0	-25.0	2.512	31	-.45	.70	2
KENTON	4766	1	63.2	29	*****	88.	27	33.	2	86.0	******	35.0	******	1.580	30	*****	.96	24
LAVERNE	5045	1	*****	0	*****	****	0	****	0	******	******	******	******	3.202	31	-.09	1.42	1
OPTIMA LAKE	6740	1	64.5	31	*****	92.	28	37.	3	111.5	******	95.0	******	2.804	31	*****	1.47	1
REGNIER	7534	1	*****	0	*****	****	0	****	0	******	******	******	******	3.271	31	1.02	1.10	24
TURPIN 4 SSE	9017	1	64.1	31	*****	91.	28	40.	3	105.0	******	77.0	******	3.391	31	*****	1.26	1

MAY 1993 SUMMARY FOR NORTH CENTRAL DIVISION (CD2)

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
ALVA	193	2	66.5	31	*****	91.	30	46.	4	60.5	******	105.5	******	11.160	31	*****	2.45	1
VANCE AFB	302	2	*****	0	*****	****	0	****	0	******	******	******	******	10.384	31	*****	3.26	9
BILLINGS	755	2	64.1	31	-3.5	85.	31	44.	14	101.5	37.5	73.0	-72.0	11.484	31	6.97	3.20	8
BLACKWELL 2E	818	2	64.8	31	-2.7	85.	30	44.	20	76.5	20.5	71.5	-62.5	11.060	31	6.32	2.45	8
BRAMAN	1075	2	*****	0	*****	****	0	****	0	******	******	******	******	7.354	31	*****	1.51	10
CEDARDALE	1620	2	*****	0	*****	****	0	****	0	******	******	******	******	8.865	30	*****	2.00	9
CHEROKEE	1724	2	66.5	28	*****	90.	30	47.	10	58.5	******	100.5	******	14.420	31	10.53	2.97	1
ENID	2912	2	66.7	31	-2.4	87.	31	47.	20	58.0	28.0	110.0	-47.0	9.200	31	4.40	2.70	9
FT SUPPLY DAM	3304	2	64.4	31	-1.5	89.	31	39.	3	101.5	26.5	82.0	-21.0	4.763	31	1.07	1.64	2
FREEDOM	3358	2	63.8	31	-4.9	89.	31	40.	14	115.0	75.0	76.5	-78.5	6.832	31	3.35	1.92	1
GREAT SALT PLNS	3740	2	64.7	31	-3.1	90.	31	45.	1	87.5	30.5	78.0	-65.0	14.812	31	10.96	3.58	1
HARDY	3909	2	*****	0	*****	****	0	****	0	******	******	******	******	10.732	31	*****	2.34	29
HELENA 1 SSE	4019	2	63.9	31	-2.6	89.	31	46.	20	95.5	17.5	60.0	-65.0	11.123	31	7.10	3.00	9
JEFFERSON	4573	2	68.1	27	*****	89.	30	46.	20	25.5	******	109.0	******	8.372	31	3.85	2.55	3
LAMONT	5013	2	*****	0	*****	****	0	****	0	******	******	******	******	9.811	31	*****	1.72	9
MEDFORD	5768	2	*****	0	*****	****	0	****	0	******	******	******	******	10.632	31	*****	2.07	8
MORRISON	6065	2	*****	0	*****	****	0	****	0	******	******	******	******	9.940	31	*****	4.85	9
MUTUAL	6139	2	63.5	31	-2.5	88.	31	43.	3	107.5	26.5	60.5	-51.5	8.580	31	4.56	2.07	2
NEWKIRK	6278	2	65.2	31	-2.9	85.	30	43.	19	78.0	28.0	85.0	-61.0	13.271	31	8.38	2.97	8
ORIENTA	6751	2	*****	0	*****	****	0	****	0	******	******	******	******	10.680	31	6.90	2.80	9
PERRY	7012	2	67.8	31	-1.4	89.	30	49.	19	41.5	4.5	127.0	-40.0	8.341	31	3.07	3.92	9
PONCA CITY FAA	7201	2	66.6	31	-1.2	88.	30	46.	20	60.0	-8.0	109.0	-46.0	12.384	31	7.82	3.47	8
RED ROCK 1 NNE	7505	2	*****	0	*****	****	0	****	0	******	******	******	******	8.300	31	3.69	3.38	9
WAYNOKA	9404	2	65.6	31	-3.3	89.	30	42.	3	72.0	34.0	89.5	-69.5	12.270	31	8.17	2.71	1
WOODWARD	9760	2	*****	0	*****	****	0	****	0	******	******	******	******	3.031	31	-.93	1.31	8

MAY 1993 SUMMARY FOR NORTHEAST DIVISION (CD3)

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
BARNSDALL	535	3	65.7	31	-2.9	84.	15	43.	14	65.0	32.0	86.0	-59.0	12.718	31	7.92	4.94	9
BARTLESVILLE 2W	548	3	66.5	31	-2.2	86.	15	45.	20	52.0	17.0	98.0	-51.0	9.512	31	5.11	3.55	9
BIXBY	782	3	65.3	31	-2.3	87.	31	44.	15	72.0	22.0	81.5	-49.5	7.540	31	2.54	2.60	9
BURBANK	1256	3	*****	0	*****	****	0	****	0	******	******	******	******	9.261	31	4.53	2.59	8
CHELSEA 4 S	1717	3	*****	0	*****	****	0	****	0	******	******	******	******	9.830	31	*****	4.14	9
CLAREMORE	1828	3	65.1	31	-1.9	84.	16	42.	14	79.0	12.0	82.0	-47.0	11.450	31	6.81	4.73	9
CLEVELAND 5 WSW	1902	3	68.0	12	*****	85.	30	45.	22	11.0	******	47.0	******	13.780	31	*****	5.65	8
FORAKER	3250	3	*****	0	*****	****	0	****	0	******	******	******	******	12.111	31	7.01	2.62	30
HOLLOW	4258	3	*****	0	*****	****	0	****	0	******	******	******	******	12.312	31	7.29	3.12	9
HOMINY	4289	3	*****	0	*****	****	0	****	0	******	******	******	******	11.942	31	7.39	4.84	9
HULAH DAM	4393	3	65.6	29	*****	85.	16	46.	19	66.5	******	85.0	******	10.310	31	5.77	4.23	9
JAY TOWER	4567	3	65.4	31	*****	86.	16	42.	14	75.0	******	86.0	******	8.640	31	*****	3.00	9
KANSAS 1 ESE	4672	3	64.8	31	-2.4	82.	15	43.	14	68.5	14.5	62.0	-60.0	7.337	31	1.95	3.05	9
KEYSTONE DAM	4812	3	65.1	30	-2.2	83.	31	43.	14	79.0	23.0	82.0	-45.0	6.814	31	1.82	2.60	9
LENAPAH	5118	3	*****	0	*****	****	0	****	0	******	******	******	******	10.400	31	*****	3.75	9
MANNFORD 6 NW	5522	3	65.3	29	*****	85.	30	45.	14	63.0	******	73.0	******	8.590	31	3.77	3.88	8
MARAMEC	5540	3	*****	0	*****	****	0	****	0	******	******	******	******	13.650	31	8.86	5.48	9
MIAMI	5855	3	65.4	31	-1.3	84.	16	45.	15	52.0	-22.0	65.0	-61.0	9.820	31	4.81	3.36	9
NOWATA	6485	3	65.4	30	-2.7	84.	16	45.	15	58.5	9.5	71.5	-73.5	7.702	31	3.22	1.69	10
ONETA 1 WNW	6713	3	*****	0	*****	****	0	****	0	******	******	******	******	7.320	31	*****	3.16	9
PAWHUSKA	6935	3	66.0	31	-2.0	84.	31	44.	19	60.5	14.5	92.0	-47.0	12.561	31	7.72	4.40	9
PAWNEE	6940	3	*****	0	*****	****	0	****	0	******	******	******	******	9.980	31	5.08	4.20	9
PRYOR 6 N	7309	3	65.2	26	*****	88.	5	42.	15	67.0	******	71.0	******	7.482	31	2.81	3.60	9
RALSTON	7390	3	66.3	31	-2.5	86.	30	45.	14	55.5	15.5	94.5	-63.5	10.012	31	5.25	3.22	9
RAMONA 4 N	7394	3	*****	0	*****	****	0	****	0	******	******	******	******	7.582	31	*****	4.40	9
SKIATOOK	8258	3	*****	0	*****	****	0	****	0	******	******	******	******	7.310	31	2.62	3.08	9
SPAVINAW	8380	3	67.2	31	-1.5	85.	16	45.	14	48.0	7.0	116.0	-40.0	8.292	31	3.52	3.13	9
TULSA WSO APT	8992	3	66.6	31	-2.7	84.	30	46.	14	53.5	12.5	102.5	-71.5	7.006	31	1.41	2.96	9
UPPER SPAVINAW	9101	3	65.3	31	*****	90.	5	42.	14	84.0	******	94.0	******	8.733	31	*****	2.75	9
VINITA 2 N	9203	3	65.4	29	*****	83.	15	42.	14	46.5	******	58.0	******	9.111	31	4.00	2.95	9
WAGONER	9247	3	67.1	31	-1.9	83.	31	45.	14	55.0	21.0	120.5	-37.5	7.980	31	3.03	3.81	9
WANN	9298	3	*****	0	*****	****	0	****	0	******	******	******	******	12.001	31	*****	3.53	9
WYNONA	9792	3	*****	0	*****	****	0	****	0	******	******	******	******	14.133	31	*****	4.85	9

MAY 1993 SUMMARY FOR WEST CENTRAL DIVISION (CD4)

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
CANTON DAM	1445	4	64.2	31	-3.2	86.	31	46.	10	92.5	38.5	68.0	-60.0	9.971	31	5.63	2.80	9
CHEYENNE	1738	4	*****	0	*****	****	0	****	0	******	******	******	******	3.510	31	-.52	1.69	11
CLINTON	1909	4	67.0	31	-2.5	89.	30	41.	3	47.0	17.0	110.0	-60.0	6.942	31	2.01	3.15	9
COLONY	2039	4	*****	0	*****	****	0	****	0	******	******	******	******	9.513	31	*****	4.50	9
CORDELL	2125	4	*****	0	*****	****	0	****	0	******	******	******	******	7.032	31	2.34	3.58	9
ELK CITY 1 E	2849	4	67.1	30	-1.5	89.	31	43.	3	51.0	24.0	114.5	-24.5	5.103	31	.53	1.16	8
ERICK 4 E	2944	4	67.1	31	-1.2	89.	30	38.	3	47.0	7.0	112.0	-30.0	5.370	31	1.28	1.42	8
GEARY	3497	4	69.1	31	.8	90.	30	53.	14	27.5	-10.5	154.5	14.5	11.510	31	7.01	4.67	9
HAMMON 1 NNE	3871	4	63.5	30	-3.4	86.	18	41.	3	103.0	41.0	57.0	-64.0	5.571	30	*****	1.26	2
LEEDEY	5090	4	*****	0	*****	****	0	****	0	******	******	******	******	7.250	31	2.83	2.06	18
MACKIE 4 NNW	5463	4	*****	0	*****	****	0	****	0	******	******	******	******	5.800	31	*****	1.98	18
MORAVIA 2 NNE	6035	4	*****	0	*****	****	0	****	0	******	******	******	******	6.321	31	1.65	3.01	9
OKEENE	6629	4	66.4	31	-2.9	88.	30	46.	14	52.0	22.0	95.5	-67.5	8.540	31	4.10	2.25	9
RETROP	7565	4	*****	0	*****	****	0	****	0	******	******	******	******	6.790	31	*****	4.35	9
REYDON	7579	4	70.0	31	3.0	91.	30	46.	3	23.5	-37.5	177.0	54.0	4.910	31	.98	1.41	2
SAYRE	7952	4	*****	0	*****	****	0	****	0	******	******	******	******	6.710	31	2.38	1.75	9
SWEETWATER 2 E	8652	4	*****	0	*****	****	0	****	0	******	******	******	******	1.300	31	*****	.85	22
TALOGA	8708	4	65.3	31	-2.3	90.	30	43.	10	72.5	21.5	82.0	-50.0	8.473	31	3.73	3.65	9
THOMAS	8815	4	*****	0	*****	****	0	****	0	******	******	******	******	6.960	31	*****	3.08	9
VICI	9172	4	*****	0	*****	****	0	****	0	******	******	******	******	6.930	31	2.52	1.76	2
WATONGA	9364	4	65.7	31	-2.7	87.	30	46.	14	64.0	28.0	86.5	-55.5	8.870	31	4.25	3.02	9
WEATHERFORD	9422	4	66.0	31	-2.3	91.	31	46.	3	62.5	25.5	94.0	-45.0	9.031	31	4.42	4.93	9

MAY 1993 SUMMARY FOR CENTRAL DIVISION (CD5)

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
AMBER	200	5	*****	0	*****	****	0	****	0	******	******	******	******	6.720	31	*****	3.20	9
ARCADIA	288	5	*****	0	*****	****	0	****	0	******	******	******	******	8.912	31	*****	5.97	9
TINKER AFB	325	5	*****	0	*****	****	0	****	0	******	******	******	******	6.054	30	*****	3.25	9
BLANCHARD 2 SSW	830	5	67.4	31	-2.2	88.	30	45.	19	36.5	15.5	112.0	-52.0	7.341	31	2.39	1.98	23
BRISTOW	1144	5	66.8	31	-2.4	86.	15	43.	14	54.5	27.5	109.5	-47.5	5.635	31	.13	2.38	9
CHANDLER	1684	5	67.5	31	-1.7	87.	31	46.	19	33.0	6.0	112.0	-45.0	7.620	31	2.34	4.42	9
CHICKASHA EX ST	1750	5	67.2	31	-3.2	89.	30	48.	14	41.5	28.5	110.5	-70.5	8.400	31	3.72	3.85	9
COX CITY 1 E	2196	5	*****	0	*****	****	0	****	0	******	******	******	******	6.880	31	*****	3.36	9
CRESCENT	2242	5	*****	0	*****	****	0	****	0	******	******	******	******	10.610	31	*****	5.95	9
CUSHING	2318	5	65.1	30	-2.9	84.	17	50.	21	72.0	23.0	74.5	-67.5	9.951	31	4.55	4.70	9
EL RENO 1 N	2818	5	67.3	31	-1.4	88.	30	47.	14	40.0	14.0	111.0	-30.0	8.530	31	3.12	4.48	9
GUTHRIE	3821	5	68.6	31	-1.1	91.	31	47.	14	35.5	7.5	148.0	-26.0	11.921	31	6.95	6.55	9
HENNESSEY 4 ESE	4055	5	65.4	21	*****	85.	29	47.	20	51.0	******	59.5	******	11.761	31	7.02	5.55	9
INGALLS	4489	5	*****	0	*****	****	0	****	0	******	******	******	******	9.215	31	*****	4.12	9
KINGFISHER 2 SE	4861	5	66.2	29	*****	89.	30	48.	19	49.5	******	85.0	******	9.870	31	5.24	4.40	9
KONAWA	4915	5	*****	0	*****	****	0	****	0	******	******	******	******	5.502	31	-.20	2.62	9
MARSHALL	5589	5	*****	0	*****	****	0	****	0	******	******	******	******	9.360	31	4.48	3.71	9
MEEKER 4 W	5779	5	65.8	31	-3.2	84.	30	46.	19	63.5	34.5	87.0	-66.0	9.010	31	3.44	4.36	8
MULHALL	6110	5	*****	0	*****	****	0	****	0	******	******	******	******	9.870	31	*****	5.53	9
NORMAN 3 S	6386	5	66.6	31	-3.1	89.	30	45.	14	51.5	36.5	101.0	-60.0	7.030	31	1.87	2.45	9
OILTON 2 SE	6616	5	*****	0	*****	****	0	****	0	******	******	******	******	11.574	31	*****	4.27	8
OKEMAH	6638	5	67.9	31	-1.1	88.	15	49.	14	37.0	13.0	128.0	-20.0	6.361	31	1.06	2.03	9
OKLAHOMA CTY WS	6661	5	66.0	31	-2.4	88.	30	48.	19	56.0	25.0	85.5	-50.5	10.903	31	5.68	6.64	8
PERKINS	7003	5	*****	0	*****	****	0	****	0	******	******	******	******	10.180	31	4.69	4.87	9
PIEDMONT	7068	5	*****	0	*****	****	0	****	0	******	******	******	******	11.260	31	*****	6.97	9
PRAGUE	7264	5	*****	0	*****	****	0	****	0	******	******	******	******	3.062	31	-2.23	.67	23
PURCELL 5 SW	7327	5	67.6	31	-2.4	89.	31	43.	14	31.5	17.5	112.5	-56.5	8.853	31	3.28	3.40	9
SEMINOLE	8042	5	68.5	31	-2.1	87.	18	46.	14	32.0	17.0	141.0	-48.0	5.370	31	.14	1.93	9
SHAWNEE	8110	5	*****	0	*****	****	0	****	0	******	******	******	******	5.590	31	-.08	2.11	9
STELLA	8479	5	*****	0	*****	****	0	****	0	******	******	******	******	9.200	30	*****	4.13	8
STILLWATER 2 W	8501	5	66.1	31	-1.6	88.	31	45.	14	61.0	12.0	94.0	-39.0	9.470	31	4.34	4.75	9
STROUD 1 N	8563	5	*****	0	*****	****	0	****	0	******	******	******	******	8.731	31	*****	3.54	9
TECUMSEH	8751	5	*****	0	*****	****	0	****	0	******	******	******	******	6.850	31	*****	2.14	9
TROUSDALE	8960	5	*****	0	*****	****	0	****	0	******	******	******	******	5.440	31	*****	1.72	9
UNION CITY 1 SE	9086	5	*****	0	*****	****	0	****	0	******	******	******	******	8.792	31	3.20	4.73	9
WELTY 1 SSE	9479	5	*****	0	*****	****	0	****	0	******	******	******	******	6.403	31	*****	2.20	9
WEWOKA	9575	5	*****	0	*****	****	0	****	0	******	******	******	******	8.240	31	3.03	4.30	9

MAY 1993 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	******	******	******	******	6.465	31	*****	2.40	9
BEGGS	631	6	*****	0	*****	****	0	****	0	******	******	******	******	6.901	31	*****	2.30	8
BOYNTON	1027	6	*****	0	*****	****	0	****	0	******	******	******	******	8.514	31	*****	3.30	9
CALVIN	1391	6	*****	0	*****	****	0	****	0	******	******	******	******	1.831	31	-3.85	.95	24
CHECOTAH	1711	6	*****	0	*****	****	0	****	0	******	******	******	******	8.354	31	2.93	2.82	9
CLAYTON 14 WNW	1858	6	*****	0	*****	****	0	****	0	******	******	******	******	7.182	31	*****	3.27	10
DEWAR 2 NE	2485	6	*****	0	*****	****	0	****	0	******	******	******	******	6.760	31	1.53	2.45	9
DUSTIN	2690	6	*****	0	*****	****	0	****	0	******	******	******	******	8.460	31	*****	3.00	9
EUFAULA	2993	6	68.3	31	-2.1	87.	15	46.	14	35.0	18.0	138.0	-46.0	7.330	31	1.65	2.60	9
HANNA	3884	6	67.7	31	-1.8	87.	15	45.	14	44.5	26.5	128.5	-29.5	6.804	31	.79	2.06	9
HARTSHORNE	3946	6	*****	0	*****	****	0	****	0	******	******	******	******	6.700	31	*****	2.85	10
HASKELL	3956	6	*****	0	*****	****	0	****	0	******	******	******	******	8.503	31	3.29	2.62	9
HOLDENVILLE	4235	6	67.8	31	-1.6	86.	17	44.	14	35.0	15.0	123.0	-33.0	6.281	31	.89	1.79	9
LAKE EUFAULA	4975	6	67.4	31	*****	87.	31	48.	14	51.0	******	125.5	******	7.752	31	*****	2.62	9
LYONS 2 N	5437	6	*****	0	*****	****	0	****	0	******	******	******	******	8.832	31	3.22	4.52	9
MARBLE CITY	5546	6	*****	0	*****	****	0	****	0	******	******	******	******	8.116	31	*****	2.72	10
MCALESTER FAA	5664	6	69.4	31	.3	89.	15	44.	14	28.5	-6.5	165.0	3.0	4.985	31	-.91	1.76	10
MCCURTAIN 1 SE	5693	6	69.0	31	-.7	89.	30	46.	14	35.0	9.0	159.0	-12.0	6.687	31	.65	2.52	10
MUSKOGEE	6130	6	67.6	31	-1.5	86.	30	45.	14	48.5	15.5	130.0	-30.0	8.400	31	3.28	5.33	9
OKMULGEE W W	6670	6	65.5	28	*****	85.	16	47.	14	64.5	******	78.5	******	7.611	30	*****	2.50	9
OKTAHA 2 NE	6678	6	*****	0	*****	****	0	****	0	******	******	******	******	6.910	31	*****	2.61	9
QUINTON	7372	6	*****	0	*****	****	0	****	0	******	******	******	******	6.614	31	.72	2.34	10
SALLISAW 2 NE	7862	6	67.2	31	-2.2	87.	30	43.	14	44.0	17.0	112.5	-51.5	5.633	31	-.18	2.17	9
SCIPIO	7979	6	*****	0	*****	****	0	****	0	******	******	******	******	5.790	31	*****	1.72	10
SCRAPER	7993	6	*****	0	*****	****	0	****	0	******	******	******	******	7.700	31	*****	3.20	10
SHORT	8170	6	*****	0	*****	****	0	****	0	******	******	******	******	5.333	31	*****	2.23	10
STILWELL 1 NE	8506	6	65.8	31	-1.6	83.	15	40.	14	65.0	13.0	89.0	-37.0	8.211	31	2.54	2.82	9
TAHLEQUAH	8677	6	65.8	31	-2.2	85.	30	42.	14	60.0	-2.0	85.5	-69.5	8.910	31	3.53	3.95	9
WEBBERS FALLS	9445	6	65.8	31	-2.7	87.	31	43.	15	71.0	29.0	96.5	-53.5	6.870	31	1.23	2.26	10
WESTVILLE	9523	6	*****	0	*****	****	0	****	0	******	******	******	******	8.254	31	*****	2.76	9
WETUMKA 3 NE	9571	6	*****	0	*****	****	0	****	0	******	******	******	******	7.940	31	2.65	3.75	9

MAY 1993 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	68.8	31	-2.8	91.	30	42.	3	34.5	22.5	153.0	-63.0	7.870	31	3.64	2.03	9
ALTUS DAM	184	7	67.9	31	-2.2	92.	31	42.	3	56.0	35.0	145.0	-34.0	6.990	31	2.58	3.48	9
ANADARKO	224	7	66.7	29	*****	88.	31	46.	14	39.5	******	88.0	******	5.362	30	*****	2.30	9
APACHE	260	7	*****	0	*****	****	0	****	0	******	******	******	******	5.130	31	.12	2.00	9
ALTUS AFB	447	7	*****	0	*****	****	0	****	0	******	******	******	******	7.845	31	*****	2.67	9
CARNEGIE 2 ENE	1504	7	68.0	30	-1.8	91.	30	46.	19	27.5	10.5	118.5	-47.5	6.611	30	*****	2.63	9
CHATTANOOGA	1706	7	69.5	29	*****	92.	30	45.	3	22.5	******	152.5	******	4.042	29	*****	2.12	9
DUNCAN 11 W	2668	7	*****	0	*****	****	0	****	0	******	******	******	******	5.164	31	*****	2.17	8
FREDERICK	3353	7	67.1	31	-3.2	89.	31	45.	3	53.5	34.5	118.0	-65.0	4.780	31	.48	2.10	2
GRANDFIELD 4 NW	3709	7	*****	0	*****	****	0	****	0	******	******	******	******	3.180	31	-1.23	2.20	9
HEADRICK	3998	7	*****	0	*****	****	0	****	0	******	******	******	******	5.702	31	*****	2.02	9
HOBART FAA APT	4204	7	66.9	31	-3.0	89.	30	42.	3	51.5	28.5	109.0	-66.0	8.913	31	4.41	4.08	9
HOLLIS	4249	7	69.0	31	-2.2	92.	30	41.	3	32.0	15.0	156.5	-52.5	4.482	31	.96	1.87	9
LAWTON	5063	7	68.1	31	-1.9	90.	31	49.	14	39.0	24.0	136.5	-33.5	4.321	31	-.60	1.57	9
FORT SILL	5068	7	68.0	31	*****	89.	30	50.	14	33.5	******	125.5	******	5.905	31	*****	1.81	23
LOOKEBA 2 ENE	5329	7	*****	0	*****	****	0	****	0	******	******	******	******	11.930	31	7.12	6.56	9
MANGUM RES STA	5509	7	67.1	31	-4.3	90.	30	41.	3	39.0	25.0	104.5	-108.5	5.840	31	1.59	2.71	9
RANDLETT 9 E	7403	7	*****	0	*****	****	0	****	0	******	******	******	******	6.771	31	*****	3.78	9
ROOSEVELT	7727	7	*****	0	*****	****	0	****	0	******	******	******	******	6.800	31	1.95	2.68	9
SEDAN	8016	7	*****	0	*****	****	0	****	0	******	******	******	******	7.230	31	*****	3.62	9
SNYDER	8299	7	*****	0	*****	****	0	****	0	******	******	******	******	4.063	31	-.62	1.93	9
VINSON 3 WNW	9212	7	*****	0	*****	****	0	****	0	******	******	******	******	5.260	31	1.29	1.40	9
WALTERS	9278	7	68.8	31	-2.7	90.	30	48.	3	23.0	14.0	139.5	-71.5	2.920	31	-2.20	.86	3
WICHITA MT WLR	9629	7	65.3	30	-2.9	89.	31	43.	14	75.5	43.5	85.5	-45.5	5.552	31	.57	1.72	9
WILLOW	9668	7	*****	0	*****	****	0	****	0	******	******	******	******	8.941	31	*****	4.14	9

MAY 1993 SUMMARY FOR SOUTH CENTRAL DIVISION (CD8)

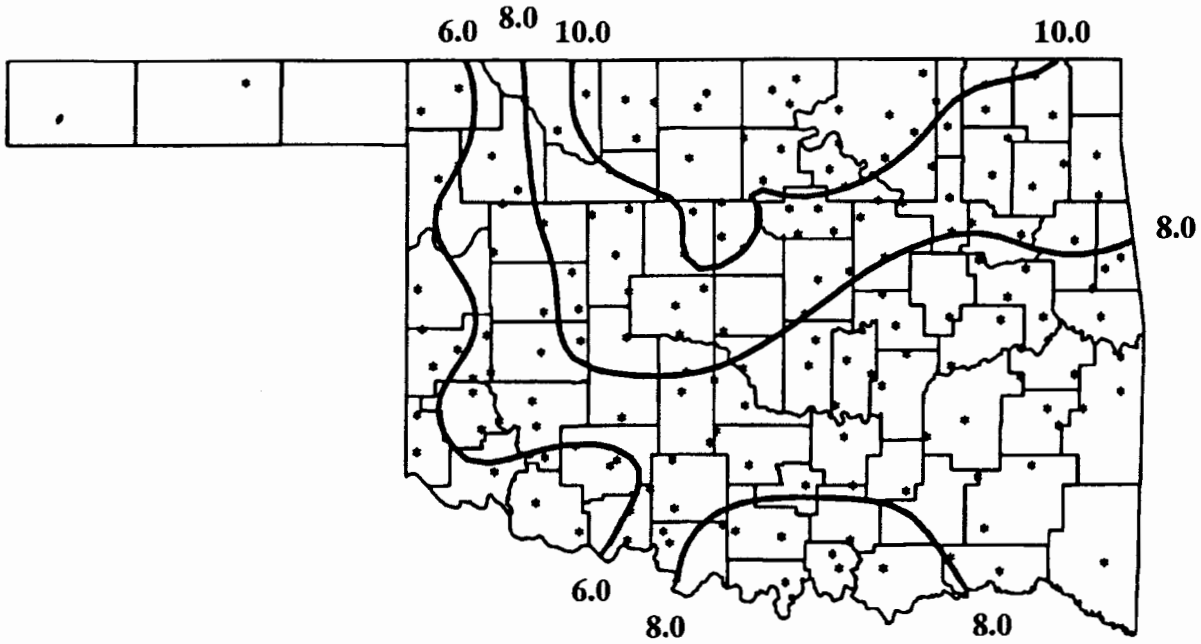
NAME	ID	CD	MEAN TEMP	NUM OBS	DEV FROM NORM	MAX TEMP	DAY	MIN TEMP	DAY	HEAT DEG DAY	DEV FROM NORM	COOL DEG DAY	DEV FROM NORM	TOT PPT	NUM OBS	DEV FROM NORM	MAX 24-HR	DAY
ADA	17	8	66.6	31	-3.0	85.	17	46.	14	38.5	18.5	89.5	-73.5	3.683	31	-1.94	1.78	9
ALLEN	147	8	*****	0	*****	****	0	****	0	******	******	******	******	5.110	31	*****	1.76	10
ARDMORE	292	8	68.6	30	-3.4	87.	16	49.	10	23.0	18.0	129.5	-92.5	13.912	31	8.93	6.48	9
ATOKA DAM	394	8	67.4	21	*****	89.	17	49.	14	27.0	******	77.5	******	8.153	23	*****	3.98	10
BOKCHITO	917	8	*****	0	*****	****	0	****	0	******	******	******	******	8.330	31	*****	7.00	10
CANEY	1437	8	69.9	31	*****	85.	30	55.	3	15.5	******	167.0	******	8.880	31	*****	4.20	9
CENTRAHOMA	1648	8	*****	0	*****	****	0	****	0	******	******	******	******	7.250	31	*****	3.00	9
CHICKASAW NRA	1745	8	66.3	31	-2.7	85.	18	42.	14	61.5	43.5	100.5	-41.5	5.551	31	-.20	2.92	9
COLEMAN	2011	8	*****	0	*****	****	0	****	0	******	******	******	******	7.390	31	*****	4.25	9
COMANCHE	2054	8	*****	0	*****	****	0	****	0	******	******	******	******	6.710	31	1.70	3.02	9
DAISY 4 ENE	2354	8	*****	0	*****	****	0	****	0	******	******	******	******	8.762	31	1.85	3.42	10
DUNCAN	2660	8	66.2	22	*****	85.	31	47.	10	32.5	******	59.5	******	5.463	30	*****	2.26	9
DURANT USDA	2678	8	67.5	31	-2.2	90.	17	48.	4	38.5	18.5	116.5	-49.5	11.330	31	5.75	7.50	10
ELMORE CITY	2872	8	*****	0	*****	****	0	****	0	******	******	******	******	4.427	31	*****	1.55	8
FARRIS 3 WNW	3083	8	*****	0	*****	****	0	****	0	******	******	******	******	8.500	31	3.13	4.73	10
GRADY	3688	8	*****	0	*****	****	0	****	0	******	******	******	******	4.610	31	*****	1.74	9
HEALDTON	4001	8	69.4	23	*****	89.	16	45.	13	10.5	******	112.5	******	11.872	31	6.78	4.51	9
KETCHUM RANCH	4780	8	*****	0	*****	****	0	****	0	******	******	******	******	5.610	31	*****	2.65	9
KINGSTON	4865	8	*****	0	*****	****	0	****	0	******	******	******	******	9.230	31	3.94	3.40	10
LEHIGH	5108	8	*****	0	*****	****	0	****	0	******	******	******	******	8.954	31	*****	3.15	10
LINDSAY 2 W	5216	8	67.7	31	-2.3	87.	30	46.	4	29.5	15.5	114.5	-54.5	6.913	31	1.47	3.87	9
LOCO 6 SE	5247	8	*****	0	*****	****	0	****	0	******	******	******	******	7.940	31	*****	3.60	9
MADILL	5468	8	68.3	31	-2.6	88.	15	46.	14	23.0	14.0	126.0	-65.0	9.021	31	3.67	5.03	8
MARIETTA	5563	8	69.3	31	-1.4	89.	16	51.	14	17.5	6.5	149.5	-38.5	8.532	31	3.60	5.50	9
MARLOW 1 WSW	5581	8	66.4	31	-3.1	87.	31	43.	10	47.0	31.0	90.5	-65.5	7.300	31	2.15	3.58	9
MCGEE CREEK DAM	5713	8	68.1	31	*****	89.	16	48.	14	36.5	******	132.0	******	8.334	31	*****	4.69	10
PAULS VALLEY	6926	8	68.3	31	-2.3	87.	30	44.	14	26.0	9.0	127.5	-63.5	5.191	31	-.55	2.10	10
PONTOTOC	7214	8	*****	0	*****	****	0	****	0	******	******	******	******	7.240	31	1.55	3.90	8
TISHOMINGO NWLR	8884	8	67.6	20	*****	89.	4	49.	10	20.0	******	71.5	******	10.481	31	5.44	5.70	9
TUSSY	9032	8	*****	0	*****	****	0	****	0	******	******	******	******	5.550	31	*****	2.19	9
WAURIKA	9395	8	69.1	31	-2.6	89.	16	48.	10	15.0	7.0	141.0	-75.0	9.031	31	4.63	4.48	9
WAURIKA DAM	9399	8	68.2	31	*****	90.	17	48.	10	35.0	******	133.0	******	9.760	31	*****	4.58	9

MAY 1993 SUMMARY FOR SOUTHEAST DIVISION (CD9)

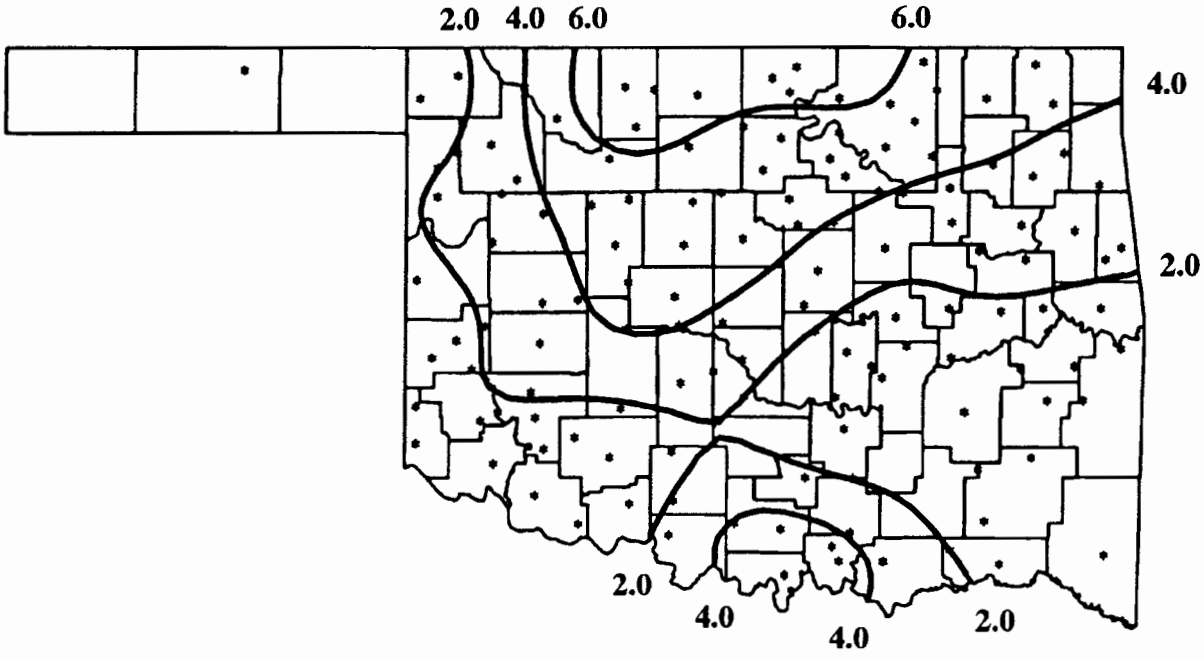
NAME	ID	CD	MEAN TEMP	NUM OBS	DEV FROM NORM	MAX TEMP	DAY	MIN TEMP	DAY	HEAT DEG DAY	DEV FROM NORM	COOL DEG DAY	DEV FROM NORM	TOT PPT	NUM OBS	DEV FROM NORM	MAX 24-HR	DAY
ANTLERS	256	9	68.8	31	-.9	86.	26	46.	14	30.0	14.0	146.5	-14.5	.820	31	-5.38	.45	18
BATTIEST 1 SSW	567	9	66.3	25	*****	83.	30	45.	21	32.5	******	66.0	******	7.412	31	*****	3.39	10
BEAR MT TWR	584	9	66.5	22	*****	85.	17	50.	2	29.5	******	62.0	******	5.031	30	*****	2.52	10
BENGAL	670	9	*****	0	*****	****	0	****	0	******	******	******	******	8.400	31	*****	3.15	10
BOSWELL 4 NNW	980	9	68.2	31	-1.7	87.	15	47.	14	32.5	18.5	132.5	-33.5	10.017	31	4.35	6.20	10
BROKEN BOW 1 N	1162	9	*****	0	*****	****	0	****	0	******	******	******	******	6.870	31	.55	3.36	10
BROKEN BOW DAM	1168	9	66.9	31	-2.1	88.	18	50.	27	31.5	3.5	90.5	-61.5	5.680	27	*****	2.85	10
CARNASAW TWR	1499	9	*****	0	*****	****	0	****	0	******	******	******	******	6.012	31	-.78	3.40	10
CARTER TWR	1544	9	*****	0	*****	****	0	****	0	******	******	******	******	1.730	14	*****	1.14	24
FANSHAWE	3065	9	*****	0	*****	****	0	****	0	******	******	******	******	10.810	31	4.18	4.02	3
HEAVENER 1 SE	4008	9	*****	0	*****	****	0	****	0	******	******	******	******	10.612	31	4.11	3.68	10
HEE MT TWR	4017	9	*****	0	*****	****	0	****	0	******	******	******	******	7.680	31	.97	2.92	10
HUGO	4384	9	69.1	31	-1.9	87.	30	51.	16	17.5	7.5	146.0	-50.0	6.803	31	.82	4.36	10
IDABEL	4451	9	68.5	31	-1.2	89.	17	50.	14	23.5	4.5	133.0	-31.0	8.042	31	2.14	3.59	10
JADIE TOWER	4560	9	*****	0	*****	****	0	****	0	******	******	******	******	4.810	31	*****	2.03	24
POTEAU W W	7254	9	67.6	31	*****	87.	15	43.	14	32.0	******	113.0	******	5.852	31	*****	3.53	9
SMITHVILLE 1 W	8285	9	66.2	22	*****	83.	30	44.	21	33.5	******	59.0	******	7.606	31	.64	3.50	10
SPIRO	8416	9	*****	0	*****	****	0	****	0	******	******	******	******	5.690	31	-.03	2.45	10
TUSKAHOMA	9023	9	68.0	31	-1.7	85.	30	43.	14	37.0	21.0	131.0	-31.0	8.271	31	1.57	3.97	10
VALLIANT 3 W	9118	9	*****	0	*****	****	0	****	0	******	******	******	******	6.310	31	.13	3.33	10
WILBURTON 9 ENE	9634	9	68.1	31	-.8	88.	30	42.	14	36.0	-2.0	131.0	-28.0	5.782	31	-.31	2.63	9

MAY 1993 CLIMATE DIVISION SUMMARY

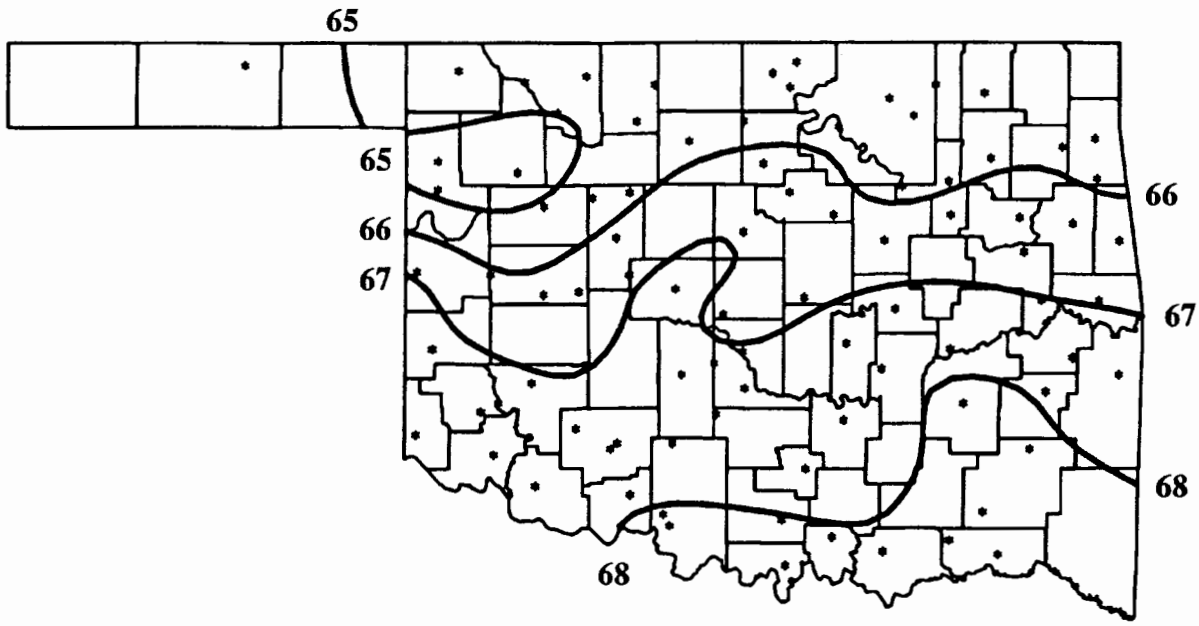
CLIMATE DIV	MEAN TEMP	NUM STA	DEV FROM NORM	MAX TEMP	DAY	MIN TEMP	DAY	HEAT DEGREE DAYS	DEV FROM NORM	COOL DEGREE DAYS	DEV FROM NORM	TOT PPT	NUM STA	DEV FROM NORM	MAX 24-HR	DAY
1	64.3	10	-.9	94.0	27	33.0	2	101.2	5.9	78.4	-21.0	3.77	13	.58	2.10	8
2	65.2	13	-2.8	91.0	30	39.0	3	81.2	28.0	86.7	-57.5	9.96	24	5.68	4.85	9
3	65.8	15	-2.1	90.0	5	42.0	14	63.8	12.7	88.9	-51.5	9.79	33	4.94	5.65	8
4	66.5	11	-1.8	91.0	31	38.0	3	58.4	17.6	104.6	-37.7	6.99	21	2.55	4.93	9
5	67.0	14	-2.1	91.0	31	43.0	14	46.1	18.9	109.0	-47.5	8.32	35	3.08	6.97	9
6	67.4	11	-1.5	89.0	30	40.0	14	47.0	13.8	123.0	-33.3	7.10	30	1.52	5.33	9
7	67.7	11	-2.6	92.0	30	41.0	3	42.3	24.8	126.5	-57.0	6.16	22	1.60	6.56	9
8	68.0	13	-2.3	90.0	17	42.0	14	31.3	16.8	124.4	-54.0	7.85	30	2.49	7.50	10
9	68.2	8	-1.3	89.0	17	42.0	14	30.0	7.7	127.9	-32.1	7.10	18	.74	6.20	10



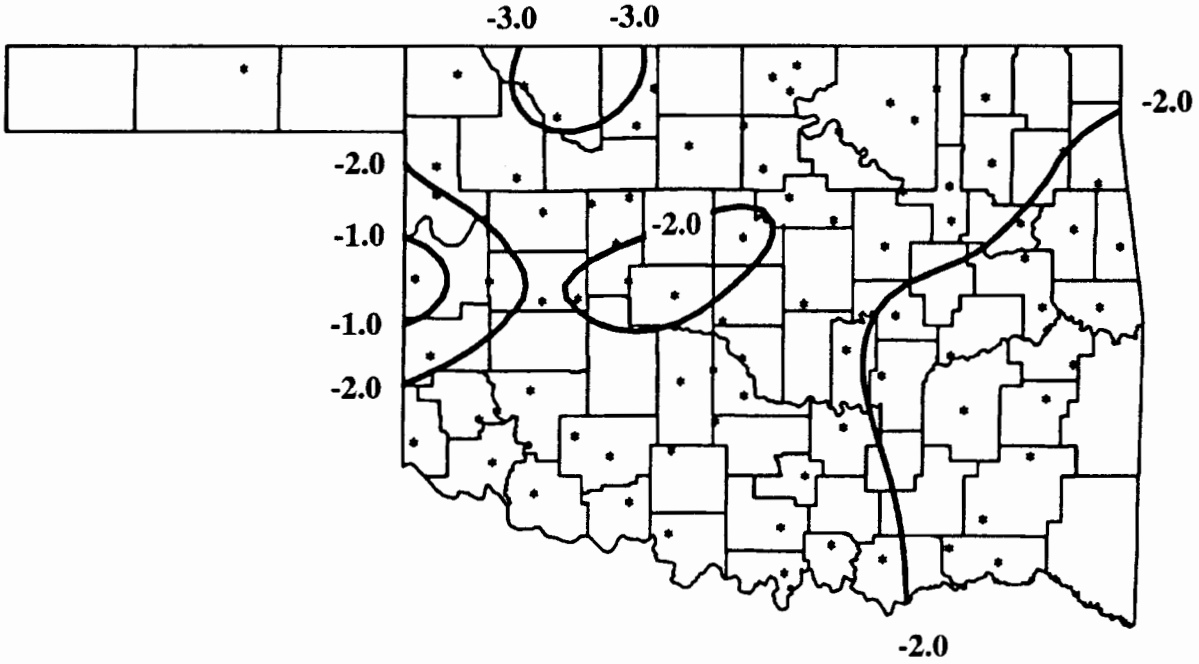
MAY 1993 TOTAL PRECIPITATION
(Inches)



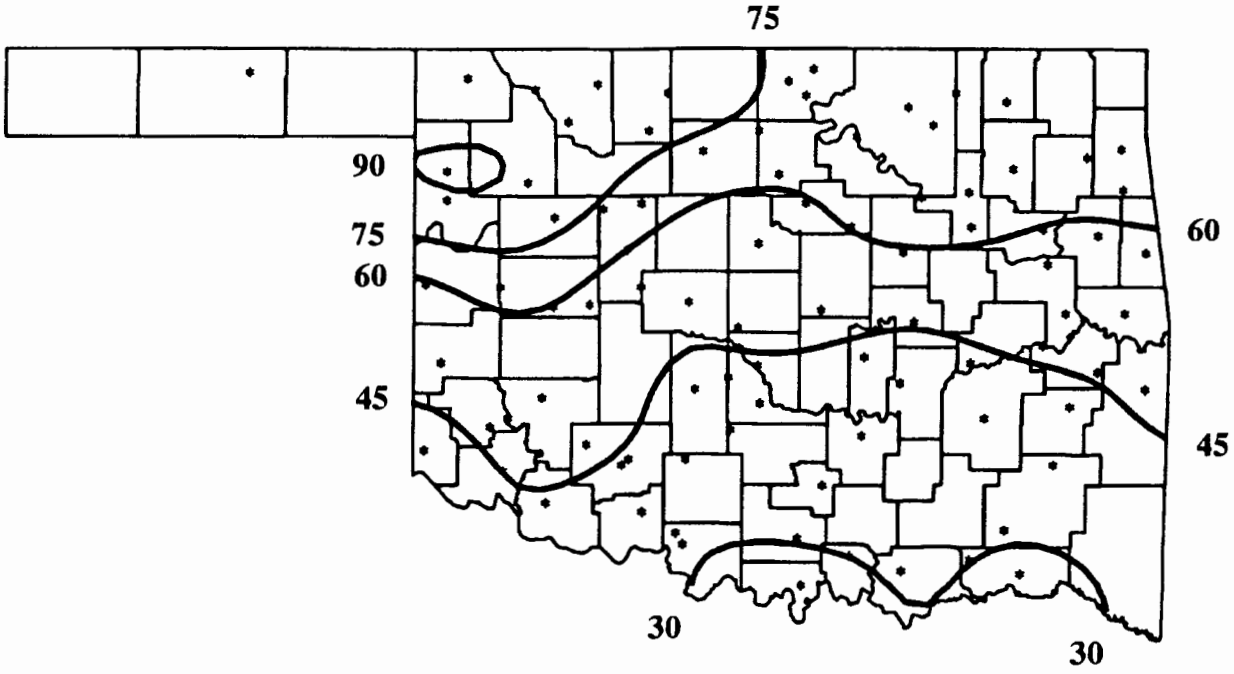
MAY 1993 DEVIATION FROM NORMAL PRECIPITATION
(Inches)



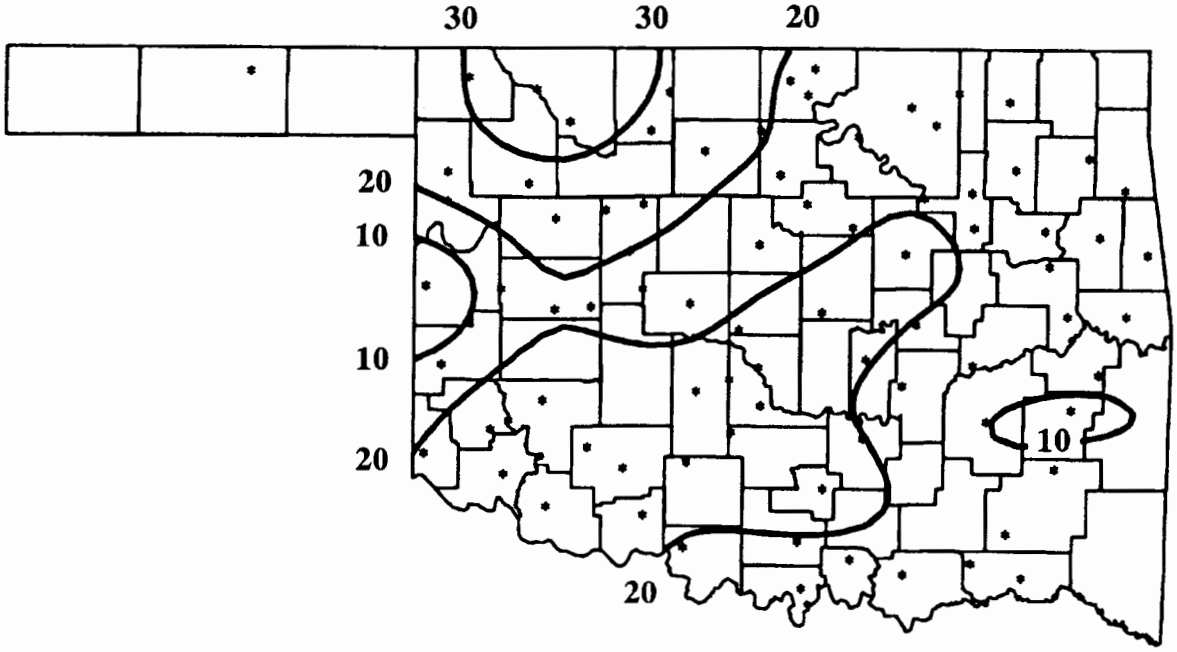
MAY 1993 AVERAGE MONTHLY TEMPERATURES
(Degrees F)



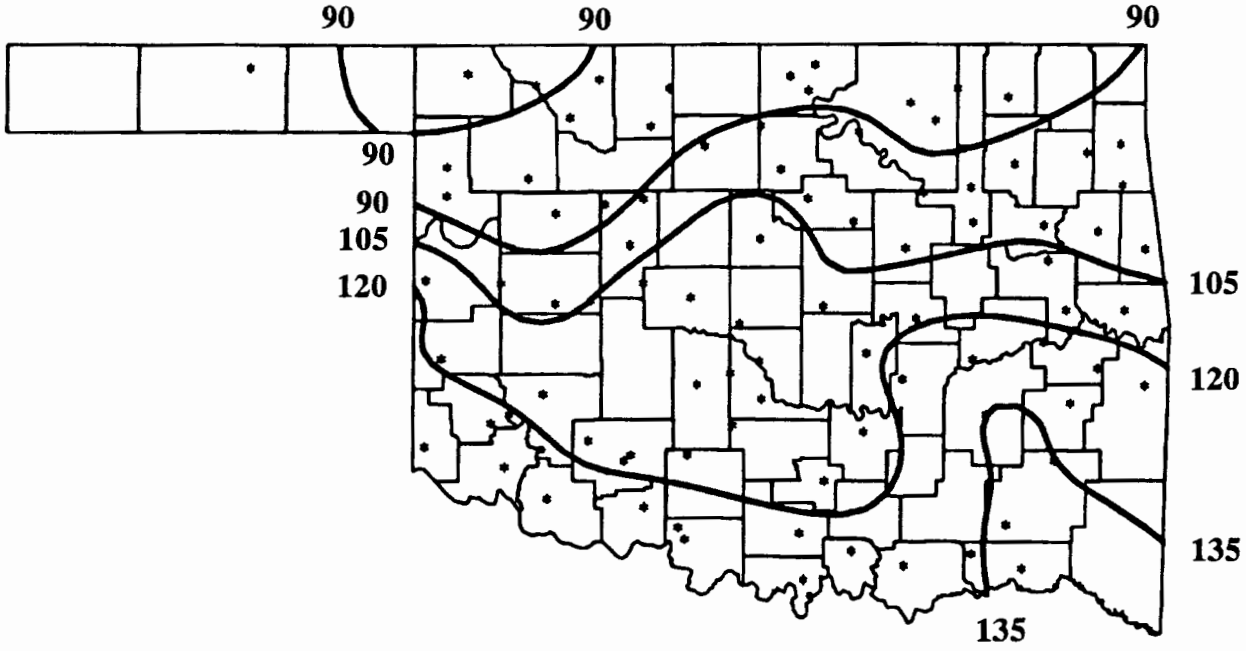
MAY 1993 DEVIATION FROM NORMAL TEMPERATURES
(Degrees F)



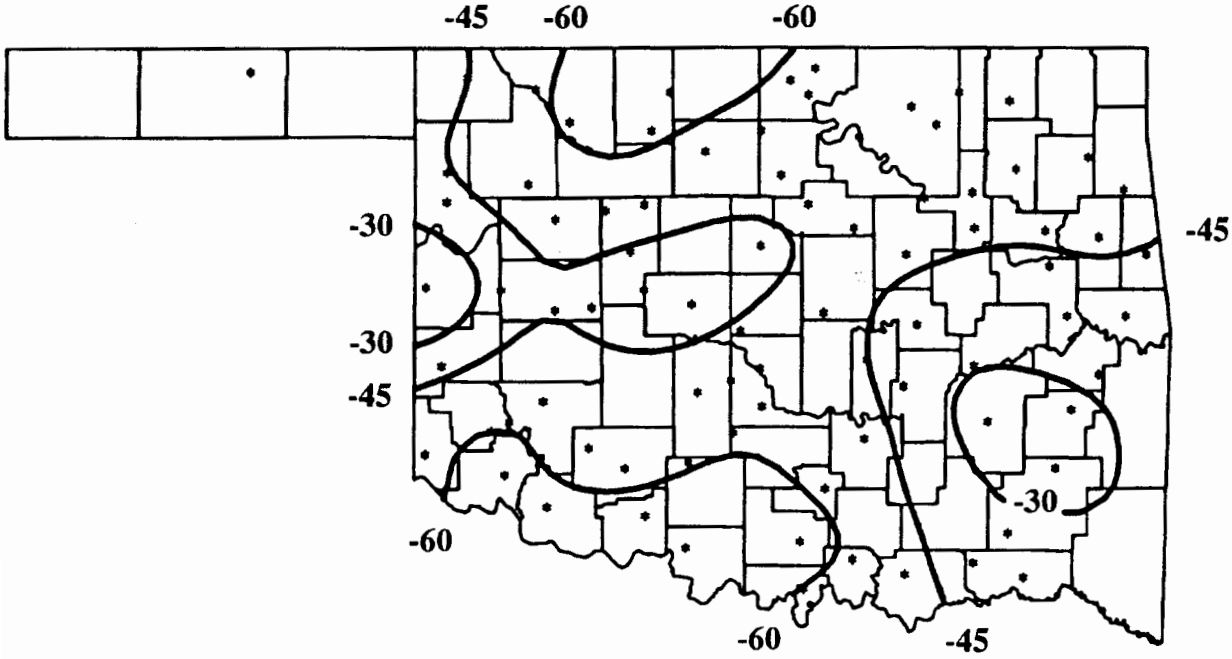
MAY 1993 HEATING DEGREE DAYS



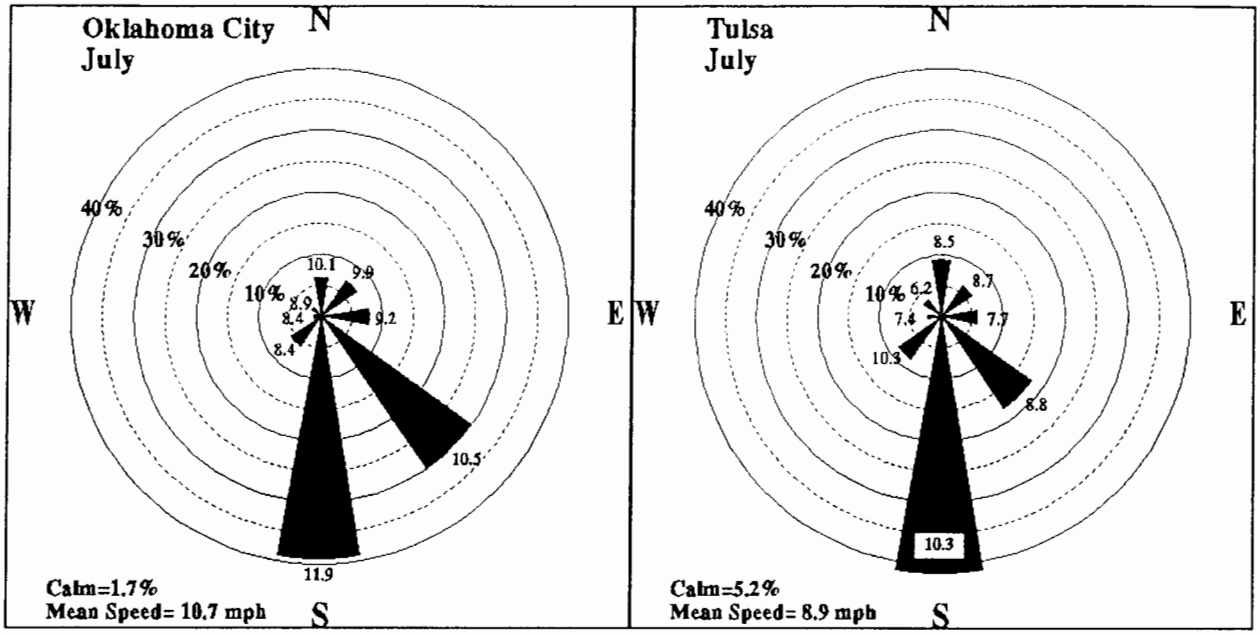
MAY 1993 DEVIATION FROM NORMAL HEATING DEGREE DAYS



MAY 1993 COOLING DEGREE DAYS



MAY 1993 DEVIATION FROM NORMAL COOLING DEGREE DAYS



July Wind Roses for Oklahoma City and Tulsa. Percents represent the frequency of winds from each direction. The numbers at the ends of the bars indicate the average wind speed (miles per hour) from that direction.

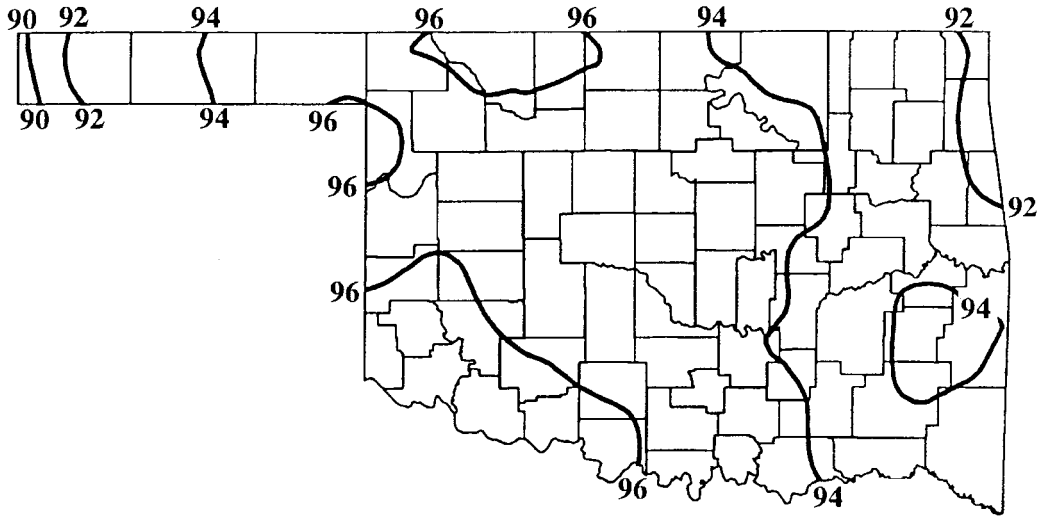
JULY 1993 SUNRISE AND SUNSET

OKLAHOMA CITY

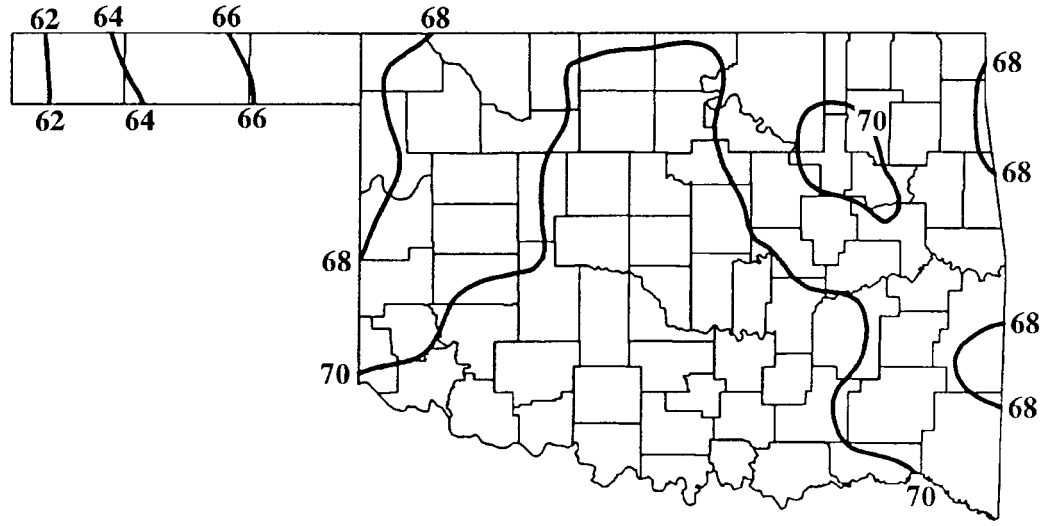
DATE	SUNRISE	SUNSET	DAYLIGHT
93 7 1	6:21AM	8:47PM CDT	14 hrs 27 mins
93 7 2	6:21AM	8:47PM CDT	14 hrs 26 mins
93 7 3	6:22AM	8:47PM CDT	14 hrs 26 mins
93 7 4	6:22AM	8:47PM CDT	14 hrs 25 mins
93 7 5	6:22AM	8:47PM CDT	14 hrs 25 mins
93 7 6	6:23AM	8:47PM CDT	14 hrs 24 mins
93 7 7	6:23AM	8:47PM CDT	14 hrs 23 mins
93 7 8	6:24AM	8:47PM CDT	14 hrs 23 mins
93 7 9	6:24AM	8:46PM CDT	14 hrs 22 mins
93 710	6:25AM	8:46PM CDT	14 hrs 21 mins
93 711	6:25AM	8:46PM CDT	14 hrs 20 mins
93 712	6:26AM	8:46PM CDT	14 hrs 20 mins
93 713	6:27AM	8:45PM CDT	14 hrs 19 mins
93 714	6:27AM	8:45PM CDT	14 hrs 18 mins
93 715	6:28AM	8:45PM CDT	14 hrs 17 mins
93 716	6:28AM	8:44PM CDT	14 hrs 16 mins
93 717	6:29AM	8:44PM CDT	14 hrs 15 mins
93 718	6:30AM	8:43PM CDT	14 hrs 14 mins
93 719	6:30AM	8:43PM CDT	14 hrs 13 mins
93 720	6:31AM	8:42PM CDT	14 hrs 12 mins
93 721	6:32AM	8:42PM CDT	14 hrs 10 mins
93 722	6:32AM	8:41PM CDT	14 hrs 9 mins
93 723	6:33AM	8:41PM CDT	14 hrs 8 mins
93 724	6:34AM	8:40PM CDT	14 hrs 7 mins
93 725	6:34AM	8:40PM CDT	14 hrs 5 mins
93 726	6:35AM	8:39PM CDT	14 hrs 4 mins
93 727	6:36AM	8:38PM CDT	14 hrs 3 mins
93 728	6:36AM	8:38PM CDT	14 hrs 1 mins
93 729	6:37AM	8:37PM CDT	14 hrs 0 mins
93 730	6:38AM	8:36PM CDT	13 hrs 58 mins
93 731	6:38AM	8:35PM CDT	13 hrs 57 mins

TULSA

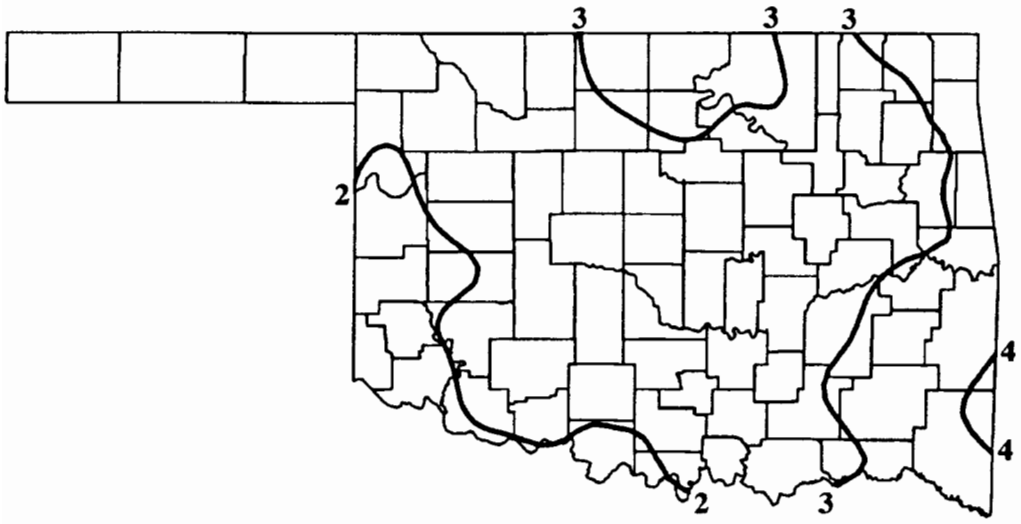
DATE	SUNRISE	SUNSET	DAYLIGHT
93 7 1	6:12AM	8:43PM CDT	14 hrs 31 mins
93 7 2	6:12AM	8:43PM CDT	14 hrs 30 mins
93 7 3	6:13AM	8:43PM CDT	14 hrs 30 mins
93 7 4	6:13AM	8:42PM CDT	14 hrs 29 mins
93 7 5	6:14AM	8:42PM CDT	14 hrs 29 mins
93 7 6	6:14AM	8:42PM CDT	14 hrs 28 mins
93 7 7	6:14AM	8:42PM CDT	14 hrs 28 mins
93 7 8	6:15AM	8:42PM CDT	14 hrs 27 mins
93 7 9	6:16AM	8:42PM CDT	14 hrs 26 mins
93 710	6:16AM	8:41PM CDT	14 hrs 25 mins
93 711	6:17AM	8:41PM CDT	14 hrs 25 mins
93 712	6:17AM	8:41PM CDT	14 hrs 24 mins
93 713	6:18AM	8:41PM CDT	14 hrs 23 mins
93 714	6:18AM	8:40PM CDT	14 hrs 22 mins
93 715	6:19AM	8:40PM CDT	14 hrs 21 mins
93 716	6:20AM	8:39PM CDT	14 hrs 20 mins
93 717	6:20AM	8:39PM CDT	14 hrs 19 mins
93 718	6:21AM	8:39PM CDT	14 hrs 18 mins
93 719	6:22AM	8:38PM CDT	14 hrs 17 mins
93 720	6:22AM	8:38PM CDT	14 hrs 15 mins
93 721	6:23AM	8:37PM CDT	14 hrs 14 mins
93 722	6:24AM	8:36PM CDT	14 hrs 13 mins
93 723	6:24AM	8:36PM CDT	14 hrs 12 mins
93 724	6:25AM	8:35PM CDT	14 hrs 10 mins
93 725	6:26AM	8:35PM CDT	14 hrs 9 mins
93 726	6:26AM	8:34PM CDT	14 hrs 8 mins
93 727	6:27AM	8:33PM CDT	14 hrs 6 mins
93 728	6:28AM	8:32PM CDT	14 hrs 5 mins
93 729	6:28AM	8:32PM CDT	14 hrs 3 mins
93 730	6:29AM	8:31PM CDT	14 hrs 2 mins
93 731	6:30AM	8:30PM CDT	14 hrs 0 mins



July Normal Daily Maximum Temperatures (°F)



July Normal Daily Minimum Temperatures (°F)



July Normal Monthly Precipitation (inches)

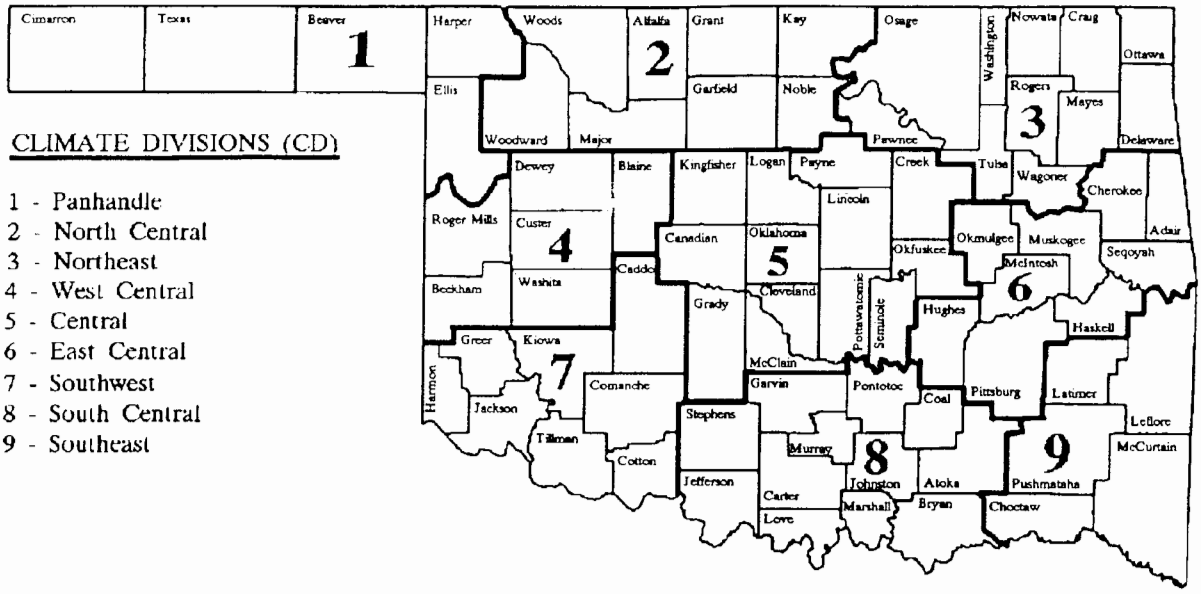
90-DAY NATIONAL WEATHER SERVICE OUTLOOK

(JUNE 1993 - AUGUST 1993)

Precipitation - Above Normal Statewide

Temperature - Much Below Normal Northeast
Below Normal Elsewhere

OKLAHOMA



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 the average temperature for the day exceeds 65 degrees. Daily values are summed to arrive at a monthly total. 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 the average temperature for the day is less than 65 degrees. Daily values are summed to give a monthly total. 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 that 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.

OKLAHOMA CITY CLIMATE CALENDAR

July 1993

The data on this calendar are for Oklahoma City. Normal values are calculated for the period 1961-1990. Extremes are found for the period of record (1891-present).

Normal 1	Actual	Normal 2	Actual	Normal 3	Actual	Normal 4	Actual	Normal 5	Actual	Normal 6	Actual	Normal 7	Actual
90.3 max		92.0 max		92.6 max		91.3 max		91.4 max		92.0 max		92.5 max	
69.5 min		70.3 min		71.2 min		70.0 min		69.5 min		69.9 min		70.3 min	
.19 ppt		.08 ppt		.06 ppt		.07 ppt		.10 ppt		.07 ppt		.06 ppt	
0 hdd		0 hdd		0 hdd		0 hdd		0 hdd		0 hdd		0 hdd	
15 cdd		16 cdd		17 cdd		16 cdd		15 cdd		16 cdd		16 cdd	
Highest Max	103-1917	Highest Max	105-1980	Highest Max	105-1980	Highest Max	104-1931	Highest Max	103-1911	Highest Max	105-1953	Highest Max	105-1970
Lowest Max	67-1951	Lowest Max	72-1924	Lowest Max	75-1908	Lowest Max	73-1915	Lowest Max	77-1958	Lowest Max	73-1958	Lowest Max	76-1960
Lowest Min	57-1951	Lowest Min	58-1924	Lowest Min	57-1906	Lowest Min	57-1924	Lowest Min	55-1915	Lowest Min	55-1972	Lowest Min	57-1952
Highest Min	86-1937	Highest Min	78-1980	Highest Min	79-1953	Highest Min	80-1980	Highest Min	80-1933	Highest Min	80-1953	Highest Min	78-1909
Greatest ppt	5.06-1913	Greatest ppt	1.70-1922	Greatest ppt	2.97-1947	Greatest ppt	1.37-1900	Greatest ppt	3.21-1979	Greatest ppt	1.84-1929	Greatest ppt	2.03-1895

Normal 8	Actual	Normal 9	Actual	Normal 10	Actual	Normal 11	Actual	Normal 12	Actual	Normal 13	Actual	Normal 14	Actual
92.8 max		93.1 max		93.4 max		93.1 max		92.9 max		92.6 max		92.8 max	
70.5 min		70.5 min		70.4 min		70.8 min		70.7 min		69.9 min		69.8 min	
.03 ppt		.04 ppt		.05 ppt		.04 ppt		.08 ppt		.12 ppt		.06 ppt	
0 hdd		0 hdd		0 hdd		0 hdd		0 hdd		0 hdd		0 hdd	
17 cdd		17 cdd		17 cdd		17 cdd		17 cdd		16 cdd		16 cdd	
Highest Max	105-1964	Highest Max	106-1964	Highest Max	104-1933	Highest Max	107-1933	Highest Max	107-1954	Highest Max	106-1954	Highest Max	107-1954
Lowest Max	70-1905	Lowest Max	71-1905	Lowest Max	66-1895	Lowest Max	67-1895	Lowest Max	62-1953	Lowest Max	73-1953	Lowest Max	80-1926
Lowest Min	57-1958	Lowest Min	56-1891	Lowest Min	56-1905	Lowest Min	58-1905	Lowest Min	56-1953	Lowest Min	56-1975	Lowest Min	57-1950
Highest Min	78-1970	Highest Min	80-1933	Highest Min	80-1933	Highest Min	81-1933	Highest Min	82-1933	Highest Min	81-1934	Highest Min	80-1934
Greatest ppt	1.32-1959	Greatest ppt	2.14-1898	Greatest ppt	1.90-1945	Greatest ppt	2.65-1906	Greatest ppt	1.80-1926	Greatest ppt	2.10-1963	Greatest ppt	1.29-1992

Normal 15	Actual	Normal 16	Actual	Normal 17	Actual	Normal 18	Actual	Normal 19	Actual	Normal 20	Actual	Normal 21	Actual
92.5 max		92.8 max		93.2 max		93.6 max		93.4 max		93.3 max		93.1 max	
70.6 min		70.8 min		70.9 min		71.8 min		71.4 min		70.9 min		70.7 min	
.08 ppt		.04 ppt		.15 ppt		.06 ppt		.06 ppt		.05 ppt		.14 ppt	
0 hdd		0 hdd		0 hdd		0 hdd		0 hdd		0 hdd		0 hdd	
17 cdd		17 cdd		17 cdd		18 cdd		17 cdd		17 cdd		17 cdd	
Highest Max	108-1936	Highest Max	106-1980	Highest Max	106-1980	Highest Max	108-1936	Highest Max	109-1936	Highest Max	107-1936	Highest Max	107-1939
Lowest Max	71-1891	Lowest Max	74-1967	Lowest Max	80-1950	Lowest Max	72-1967	Lowest Max	74-1953	Lowest Max	77-1944	Lowest Max	78-1970
Lowest Min	59-1967	Lowest Min	61-1891	Lowest Min	63-1992	Lowest Min	62-1911	Lowest Min	63-1898	Lowest Min	60-1970	Lowest Min	54-1970
Highest Min	82-1936	Highest Min	79-1939	Highest Min	79-1943	Highest Min	81-1936	Highest Min	82-1936	Highest Min	79-1934	Highest Min	80-1981
Greatest ppt	2.30-1921	Greatest ppt	3.54-1900	Greatest ppt	1.71-1959	Greatest ppt	1.53-1893	Greatest ppt	2.77-1916	Greatest ppt	1.48-1897	Greatest ppt	1.47-1950

Normal 22	Actual	Normal 23	Actual	Normal 24	Actual	Normal 25	Actual	Normal 26	Actual	Normal 27	Actual	Normal 28	Actual
92.8 max		92.4 max		93.5 max		94.1 max		93.7 max		93.7 max		92.7 max	
71.0 min		70.1 min		71.0 min		71.8 min		72.0 min		71.3 min		70.8 min	
.10 ppt		.17 ppt		.08 ppt		.07 ppt		.08 ppt		.25 ppt		.20 ppt	
0 hdd		0 hdd		0 hdd		0 hdd		0 hdd		0 hdd		0 hdd	
17 cdd		16 cdd		17 cdd		18 cdd		18 cdd		18 cdd		17 cdd	
Highest Max	107-1974	Highest Max	104-1981	Highest Max	106-1943	Highest Max	106-1977	Highest Max	106-1978	Highest Max	105-1986	Highest Max	108-1985
Lowest Max	73-1947	Lowest Max	77-1989	Lowest Max	73-1947	Lowest Max	76-1906	Lowest Max	75-1959	Lowest Max	75-1959	Lowest Max	75-1981
Lowest Min	57-1970	Lowest Min	55-1970	Lowest Min	61-1970	Lowest Min	58-1911	Lowest Min	63-1911	Lowest Min	64-1900	Lowest Min	64-1900
Highest Min	79-1981	Highest Min	79-1981	Highest Min	78-1934	Highest Min	83-1934	Highest Min	79-1981	Highest Min	78-1939	Highest Min	80-1986
Greatest ppt	2.49-1899	Greatest ppt	3.02-1960	Greatest ppt	2.92-1975	Greatest ppt	1.96-1906	Greatest ppt	0.88-1978	Greatest ppt	5.60-1981	Greatest ppt	1.80-1963

Normal 29	Actual	Normal 30	Actual	Normal 31	Actual
93.4 max		93.5 max		92.7 max	
71.0 min		71.2 min		70.8 min	
.16 ppt		.04 ppt		.06 ppt	
0 hdd		0 hdd		0 hdd	
17 cdd		17 cdd		17 cdd	
Highest Max	109-1986	Highest Max	108-1986	Highest Max	107-1980
Lowest Max	76-1892	Lowest Max	73-1925	Lowest Max	76-1925
Lowest Min	61-1971	Lowest Min	57-1971	Lowest Min	53-1971
Highest Min	79-1966	Highest Min	80-1986	Highest Min	73-1943
Greatest ppt	2.02-1975	Greatest ppt	0.71-1933	Greatest ppt	1.07-1978

JULY AVERAGES

TEMPERATURE	:	81.8°F
PRECIPITATION	:	2.84"
HEATING DEGREE DAYS	:	0
COOLING DEGREE DAYS	:	520

TULSA CLIMATE CALENDAR

July 1993

The data on this calendar are for Tulsa. Normal values are calculated for the period 1948-1991. Temperature extremes are for the period 1905-1992; precipitation extremes are for the period 1948-1992.

Normal 1	Actual	Normal 2	Actual	Normal 3	Actual	Normal 4	Actual	Normal 5	Actual	Normal 6	Actual	Normal 7	Actual
91.0 max		93.0 max		93.0 max		92.0 max		92.0 max		93.0 max		93.0 max	
71.0 min		72.0 min		72.0 min		72.0 min		70.0 min		71.0 min		72.0 min	
.10 ppt		.07 ppt		.14 ppt		.10 ppt		.10 ppt		.10 ppt		.07 ppt	
0 hdd		0 hdd		0 hdd		0 hdd		0 hdd		0 hdd		0 hdd	
16 cdd		17 cdd		18 cdd		17 cdd		16 cdd		17 cdd		18 cdd	
Highest Max 106-1917		Highest Max 105-1933		Highest Max 107-1911		Highest Max 108-1911		Highest Max 108-1911		Highest Max 105-1917		Highest Max 103-1917	
Lowest Max 73-1951		Lowest Max 78-1951		Lowest Max 81-1972		Lowest Max 76-1972		Lowest Max 77-1972		Lowest Max 78-1960		Lowest Max 79-1958	
Lowest Min 57-1924		Lowest Min 54-1924		Lowest Min 54-1924		Lowest Min 56-1924		Lowest Min 53-1915		Lowest Min 55-1972		Lowest Min 58-1967	
Highest Min 82-1980		Highest Min 83-1980		Highest Min 80-1983		Highest Min 85-1980		Highest Min 82-1990		Highest Min 82-1980		Highest Min 84-1980	
Greatest ppt .90-1959		Greatest ppt 1.41-1972		Greatest ppt 1.89-1960		Greatest ppt 1.30-1960		Greatest ppt 1.55-1950		Greatest ppt 1.52-1965		Greatest ppt .97-1953	

Normal 8	Actual	Normal 9	Actual	Normal 10	Actual	Normal 11	Actual	Normal 12	Actual	Normal 13	Actual	Normal 14	Actual
93.0 max		94.0 max		94.0 max		94.0 max		94.0 max		93.0 max		94.0 max	
72.0 min		72.0 min		72.0 min		73.0 min		73.0 min		72.0 min		72.0 min	
.04 ppt		.05 ppt		.12 ppt		.10 ppt		.13 ppt		.12 ppt		.15 ppt	
0 hdd		0 hdd		0 hdd		0 hdd		0 hdd		0 hdd		0 hdd	
18 cdd		18 cdd		18 cdd		18 cdd		18 cdd		18 cdd		18 cdd	
Highest Max 106-1917		Highest Max 107-1925		Highest Max 105-1933		Highest Max 107-1954		Highest Max 109-1954		Highest Max 111-1954		Highest Max 112-1954	
Lowest Max 81-1958		Lowest Max 73-1950		Lowest Max 75-1950		Lowest Max 72-1963		Lowest Max 66-1953		Lowest Max 76-1953		Lowest Max 77-1961	
Lowest Min 61-1958		Lowest Min 59-1952		Lowest Min 59-1961		Lowest Min 59-1905		Lowest Min 59-1975		Lowest Min 54-1975		Lowest Min 54-1957	
Highest Min 81-1980		Highest Min 82-1980		Highest Min 84-1980		Highest Min 82-1969		Highest Min 84-1980		Highest Min 85-1980		Highest Min 85-1954	
Greatest ppt .60-1953		Greatest ppt .85-1949		Greatest ppt 1.17-1962		Greatest ppt 2.30-1963		Greatest ppt 1.35-1953		Greatest ppt 1.57-1961		Greatest ppt 1.35-1951	

Normal 15	Actual	Normal 16	Actual	Normal 17	Actual	Normal 18	Actual	Normal 19	Actual	Normal 20	Actual	Normal 21	Actual
92.0 max		93.0 max		94.0 max		95.0 max		95.0 max		94.0 max		94.0 max	
73.0 min		73.0 min		73.0 min		74.0 min		74.0 min		72.0 min		73.0 min	
.22 ppt		.12 ppt		.09 ppt		.04 ppt		.02 ppt		.06 ppt		.09 ppt	
0 hdd		0 hdd		0 hdd		0 hdd		0 hdd		0 hdd		0 hdd	
18 cdd		18 cdd		18 cdd		20 cdd		20 cdd		19 cdd		19 cdd	
Highest Max 111-1936		Highest Max 109-1980		Highest Max 110-1936		Highest Max 113-1936		Highest Max 113-1936		Highest Max 109-1936		Highest Max 109-1939	
Lowest Max 78-1959		Lowest Max 72-1967		Lowest Max 82-1950		Lowest Max 74-1967		Lowest Max 83-1950		Lowest Max 78-1970		Lowest Max 77-1950	
Lowest Min 54-1967		Lowest Min 57-1967		Lowest Min 59-1967		Lowest Min 54-1984		Lowest Min 61-1947		Lowest Min 56-1971		Lowest Min 55-1970	
Highest Min 85-1980		Highest Min 87-1980		Highest Min 82-1980		Highest Min 84-1954		Highest Min 83-1980		Highest Min 82-1981		Highest Min 83-1954	
Greatest ppt 3.91-1961		Greatest ppt 2.55-1967		Greatest ppt 1.85-1989		Greatest ppt .77-1987		Greatest ppt 1.37-1988		Greatest ppt 1.06-1966		Greatest ppt 1.77-1959	

Normal 22	Actual	Normal 23	Actual	Normal 24	Actual	Normal 25	Actual	Normal 26	Actual	Normal 27	Actual	Normal 28	Actual
94.0 max		94.0 max		94.0 max		94.0 max		94.0 max		94.0 max		93.0 max	
73.0 min		73.0 min		73.0 min		74.0 min		74.0 min		73.0 min		73.0 min	
.17 ppt		.10 ppt		.11 ppt		.14 ppt		.10 ppt		.29 ppt		.16 ppt	
0 hdd		0 hdd		0 hdd		0 hdd		0 hdd		0 hdd		0 hdd	
19 cdd		19 cdd		19 cdd		19 cdd		19 cdd		19 cdd		18 cdd	
Highest Max 109-1974		Highest Max 107-1936		Highest Max 110-1934		Highest Max 108-1934		Highest Max 105-1978		Highest Max 106-1936		Highest Max 109-1936	
Lowest Max 77-1959		Lowest Max 79-1960		Lowest Max 76-1962		Lowest Max 80-1950		Lowest Max 75-1959		Lowest Max 76-1977		Lowest Max 80-1968	
Lowest Min 57-1970		Lowest Min 58-1970		Lowest Min 60-1927		Lowest Min 54-1911		Lowest Min 60-1905		Lowest Min 59-1971		Lowest Min 61-1920	
Highest Min 85-1954		Highest Min 83-1954		Highest Min 80-1983		Highest Min 81-1986		Highest Min 81-1981		Highest Min 81-1986		Highest Min 83-1986	
Greatest ppt 3.12-1960		Greatest ppt 1.85-1973		Greatest ppt 1.95-1973		Greatest ppt 2.20-1967		Greatest ppt 1.33-1959		Greatest ppt 7.54-1963		Greatest ppt 2.72-1976	

Normal 29	Actual	Normal 30	Actual	Normal 31	Actual
94.0 max		94.0 max		94.0 max	
73.0 min		72.0 min		72.0 min	
.08 ppt		.15 ppt		.09 ppt	
0 hdd		0 hdd		0 hdd	
19 cdd		18 cdd		18 cdd	
Highest Max 110-1986		Highest Max 110-1986		Highest Max 108-1980	
Lowest Max 79-1981		Lowest Max 79-1971		Lowest Max 81-1979	
Lowest Min 60-1969		Lowest Min 55-1971		Lowest Min 51-1971	
Highest Min 81-1986		Highest Min 85-1980		Highest Min 81-1958	
Greatest ppt 1.24-1950		Greatest ppt 3.78-1981		Greatest ppt 1.04-1979	

JULY AVERAGES

TEMPERATURE	:	83.0°F
PRECIPITATION	:	3.42"
HEATING DEGREE DAYS	:	0
COOLING DEGREE DAYS	:	564