OKLAHOMA
MONTHLY SUMMARY
REVISED
JULY 1999

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MONTHLY SUMMARY FOR JULY 1999

Less than normal precipitation and a late-in-the-month heat wave helped bring about a slightly warmer-than-normal July. According to preliminary data from the National Weather Service, statewide precipitation averaged 1.41 inches during the month, 1.21 inches less than normal, giving 1999 the 18th driest July since 1892. Accompanying temperatures averaged 82.7 degrees, 0.6 degree higher than normal, to rank this as the 39th warmest July in 108 years. Precipitation was below normal in each of the state's nine climate divisions although southeastern portions of the state suffered most. Locally heavy rainstorms produced greater than normal monthly precipitation at a handful of stations. Despite the turn to drier weather in July, 1999 remains a wet year, with the state receiving 26.42 inches of precipitation, averaged statewide, since January. Precipitation during the first seven months of the year exceeded normal by 6.10 inches to give 1999 the 11th wettest January-through-July on record. The average temperature through July, 60.5 degrees, is 0.8 degree greater than normal and 34th highest on the all-time list.

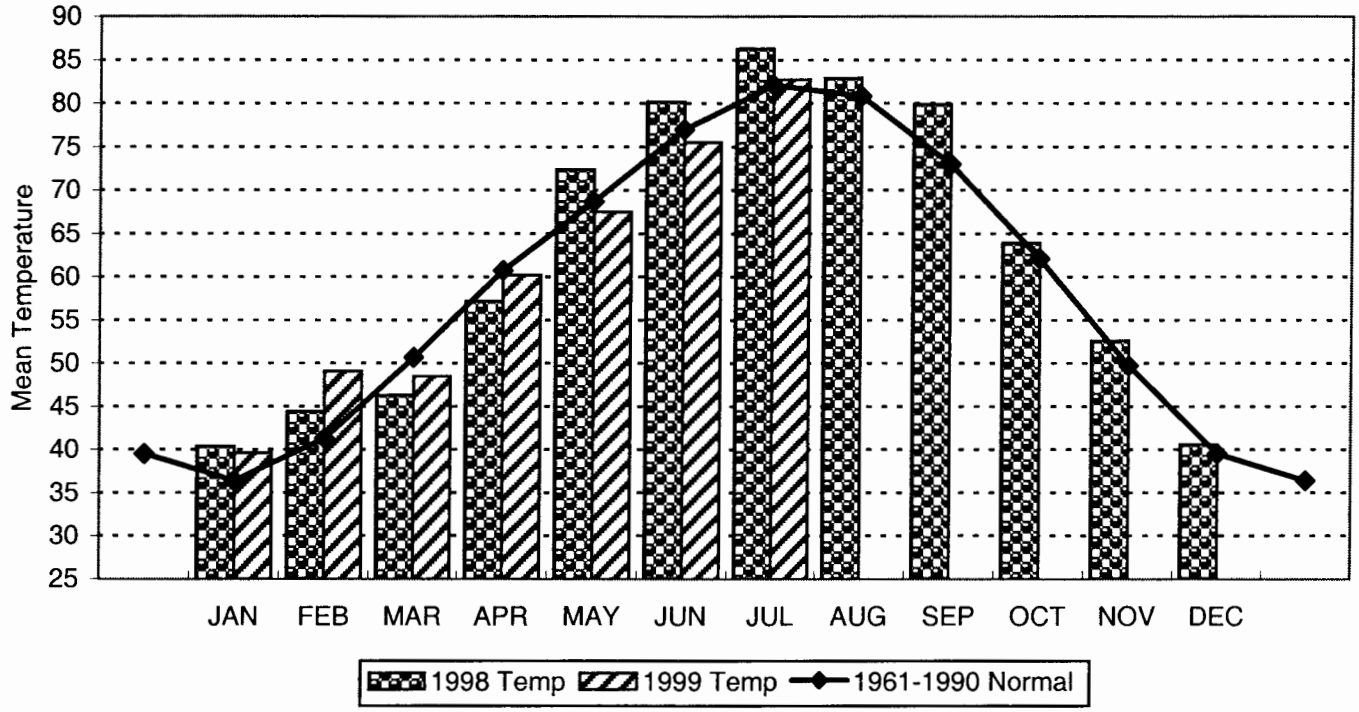
The rainy weather from June carried over into July in much of northern and eastern Oklahoma, leading to the cancellation of several 4th of July events. High water in many of the state's lakes limited camping activities over the long holiday weekend, despite temperatures that ranged from the mid-80s to the mid-90s across the state. Sporadic, locally heavy rainstorms were reported the first 10 days of the month. Cleveland (Pawnee County) reported 4.96 inches of rain on the 10th. Other reports of daily precipitation exceeding three inches included: Colony (Washita) 3.85 inches on the 10th, the El Reno Mesonet site (Canadian) 3.48 inches on the 9th, Waynoka (Woods) 3.30 inches on the 8th, Blanchard (McClain) 3.19 inches on the 10th, and Jefferson (Grant) 3.09 inches on the 9th.

Precipitation was largely replaced by blue skies across the state from the 11th through the end of the month. Temperatures rose concurrently with the increased sunshine as daytime highs of 105 degrees or higher appeared frequently from the 24th through the 31st while even the state's coolest locations recorded temperatures in the mid-90s. Hollis (Harmon), Hobart (Kiowa), Freedom (Woods), and Buffalo (Harper) each recorded a daily maximum temperature of 109 degrees on the 30th. The extreme heat at the end of the month combined with a humidity that was high by Oklahoma standards to produce a dangerous heat wave condition. Eight people died from heat-related causes during the last week of July.

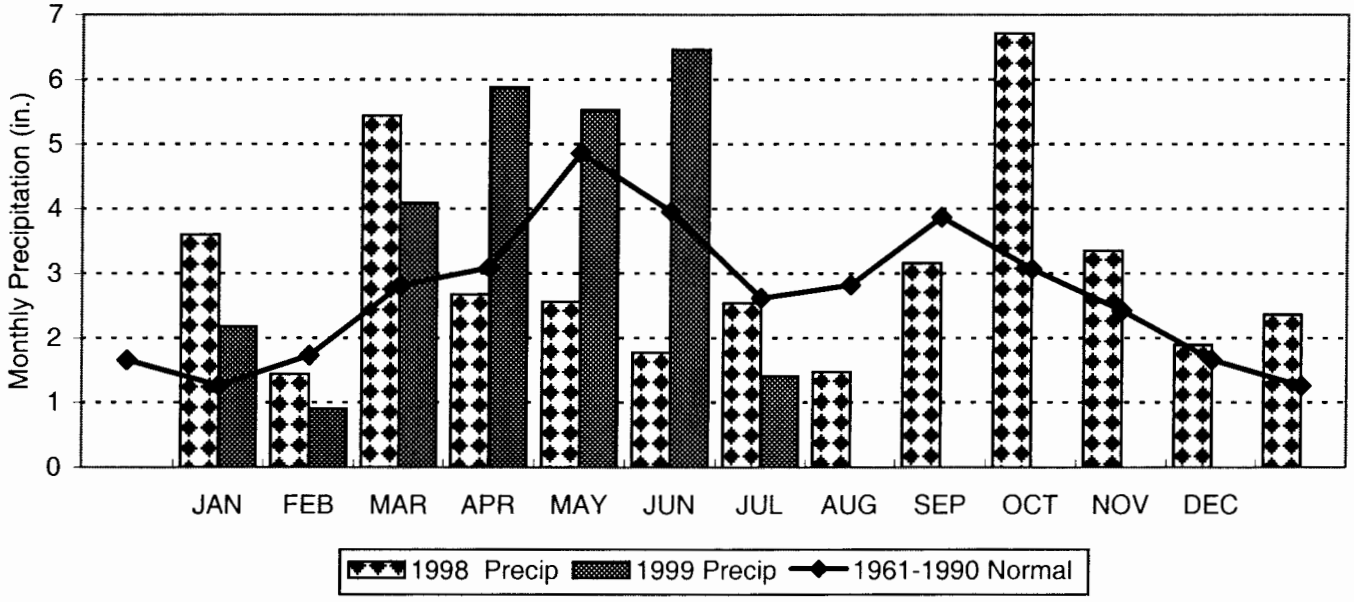
Severe weather was rare during the month due to the limited number and extent of the summer thunderstorms. Wind damage and hail were reported at a number of locations in north central and northeastern Oklahoma on the first. The Mesonet site at Medford (Grant) recorded a peak wind of 71 miles per hour, the highest wind speed reported during the month. Cimarron County on the 5th, McCurtain, Hughes, and Mayes counties on the 7th, and Noble County on the 30th each had reports of hail or damaging thunderstorm winds. Local flooding was reported in Enid (Garfield) and near Meno (Major) on the 9th.

Howard L. Johnson

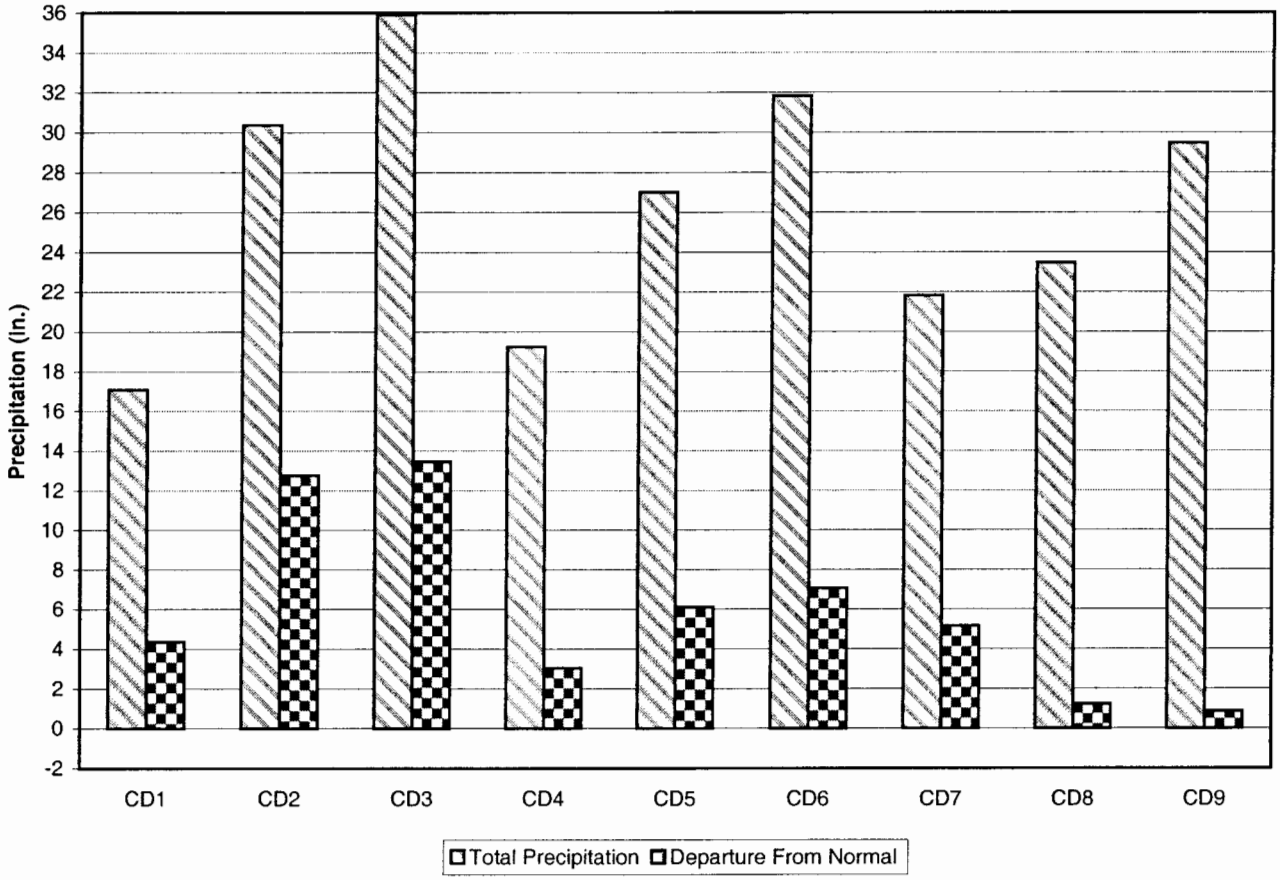
1998 and 1999 STATEWIDE TEMPERATURES
Monthly Averages

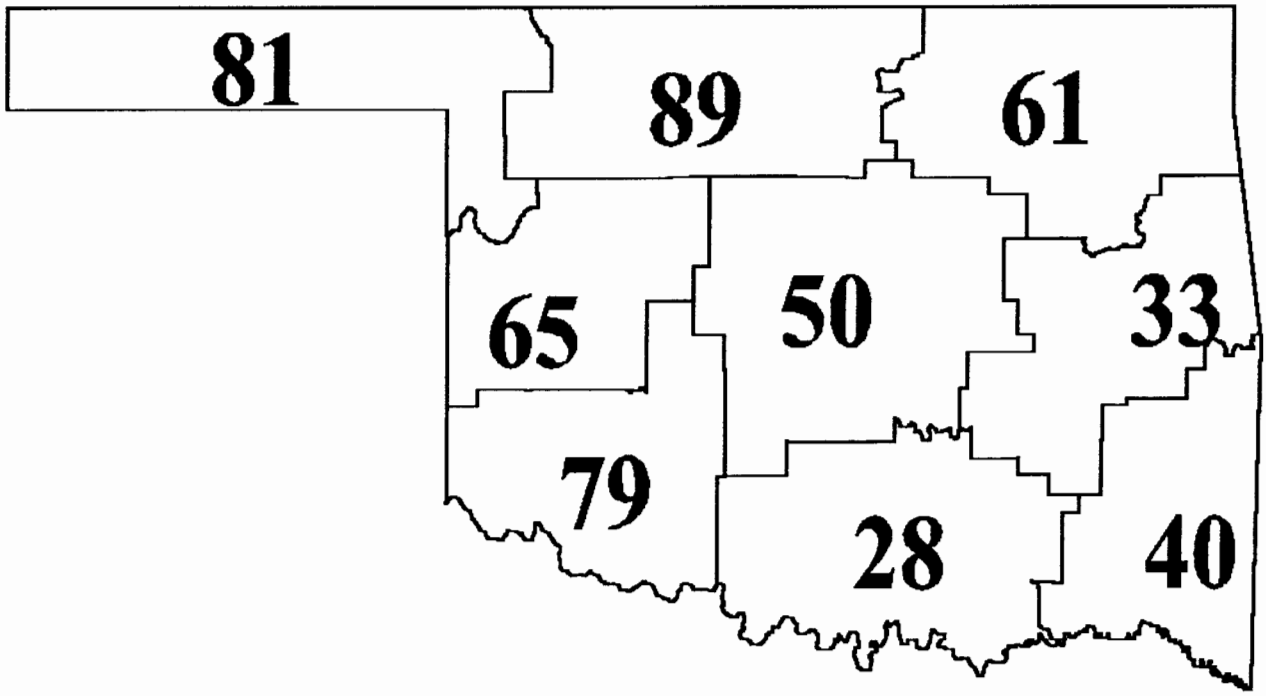


1998 and 1999 STATEWIDE PRECIPITATION
Monthly Totals



CD Averaged Precipitation January through July 1999





CD PERCENT OF NORMAL PRECIPITATION

July 1999

EXTREME VALUES OF TEMPERATURE AND PRECIPITATION IN EACH CLIMATE DIVISION
JULY, 1999

CD	MAX TEMP	DATE	LOCATION	MIN TEMP	DATE	LOCATION	24-HOUR PRECIP	DATE	LOCATION	MONTHLY PRECIP	LOCATION
1	109	30	BUFFALO	51	11	BEAVER	1.98	17	TURPIN	2.79	BOISE CITY
				51	12	GOODWELL					
				51	11	GUYMON					
				51	12	GUYMON					
2	109	30	FREEDOM	50	11	FT SUPPLY	3.30	8	WAYNOKA	5.17	BLACKWELL
3	105	29	BARTLESVILLE	54	13	RALSTON	4.96	10	CLEVELAND	5.67	CLEVELAND
	105	29	UPPER SPAV								
4	106	30	OKEENE	56	11	HAMMON	3.85	10	COLONY	3.85	COLONY
	106	31	TALOGA	56	12	HAMMON					
				56	13	HAMMON					
5	106	30	CHICKASHA	54	13	BRISTOW	3.19	10	BLANCHARD	3.19	BLANCHARD
6	106	30	WEBBERS FALLS	54	12	STILWELL	2.21	20	LAKE EUFAULA	3.61	SHORT
				54	13	STILWELL					
7	109	30	HOBART	54	10	WICHITA MT	2.70	10	SEDAN	3.73	SEDAN
	109	30	HOLLIS								
	109	31	HOLLIS								
8	108	30	MARLOW	59	11	MARLOW	2.14	10	CANEY	2.88	ATOKA DAM
				59	13	PAULS VALLEY					
9	105	31	HUGO	57	13	WILBURTON	2.57	1	SPIRO	3.82	SPIRO
	105	31	WILBURTON								

TABLE OF 1998/1999 COMPARISONS

	JULY Temperature (°F)		JULY Precipitation (in.)	
Station	**1998**	**1999**	**1998**	**1999**
Arnett	82.8	79.5	3.19	2.12
Enid	85.3	85.5	3.32	0.00
Tulsa	85.4	84.4	4.31	0.40
Elk City	85.6	81.1	1.12	1.60
Oklahoma City	88.0	82.2	0.02	1.94
McAlester	89.3	82.8	0.19	0.03
Altus Irr Station	89.1	84.2	0.34	1.73
Ardmore	90.3	84.9	0.00	0.49
Idabel	86.9	****	1.45	****

EXTREMES

VARIABLE	STATION	DIVISON	OBSERVATION	DATE
Minimum temperature (°F)	Ft. Supply	2	50	11
Maximum temperature (°F)	Buffalo	1	109	30
	Freedom	2	109	30
	Hobart	7	109	30
	Hollis	7	109	30
	Hollis	7	109	31
Maximum 24-hour Precipitation	Cleveland	3	4.96"	10

JULY 1999 SUMMARY FOR PANHANDLE 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	79.5	31	-0.9	102	31	54	11	0	0	451	-27	2.120	31	0.23	1.88	10
BEAVER	593	1	80.8	31	0.1	106	31	51	11	0	0	489	2	2.380	31	-0.48	1.45	17
BOISE CITY	908	1	78.1	31	0.2	101	25	52	11	0	0	407	7	2.791	31	0.04	0.90	6
BUFFALO	1243	1	84.4	31	1.2	109	30	55	10	0	0	601	37	1.000	31	-1.99	1.00	9
FARGO	3070	1	*****	0 *	****	****	0	****	0	******	******	******	******	2.500	31	0.46	1.78	10
GAGE	3407	1	82.4	31	0.5	106	30	52	11	0	0	541	17	1.473	31	-0.40	1.47	10
GATE	3489	1	81.9	30	0.1	107	31	55	11	0	0	508	-13	0.371	29	*****	0.37	10
GOODWELL	3628	1	79.3	25 *	****	104	26	51	12	0	******	359	******	0.120	25	*****	0.12	17
GUYMON	3835	1	80.9	31 *	****	104	31	51	12	0	******	492	******	0.510	31	*****	0.23	27
HOOKER	4298	1	81.5	31	1.5	105	30	53	11	0	0	511	46	0.330	31	-1.96	0.31	17
KENTON	4766	1	77.7	27 *	****	99	2	54	11	0	******	344	******	1.771	30	*****	0.54	17
LAVERNE	5045	1	*****	0 *	****	****	0	****	0	******	******	******	******	0.601	31	-1.93	0.57	10
RANGE	7412	1	*****	0 *	****	****	0	****	0	******	******	******	******	0.000	31	*****	0.00	31
REGNIER	7534	1	*****	0 *	****	****	0	****	0	******	******	******	******	2.080	31	-0.26	0.98	6
TURPIN	9017	1	81.3	25 *	****	104	31	53	12	0	******	409	******	2.110	25	*****	1.98	17

JULY 1999 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	83.6	30 *	****	108	31	60	11	0	******	558	******	1.100	30	*****	0.65	10
VANCE AFB	302	2	*****	0 *	****	****	0	****	0	******	******	******	******	1.120	31	*****	1.09	10
BILLINGS	755	2	81.9	30	-1.4	104	30	58	13	0	0	509	-59	2.600	30	*****	1.75	10
BLACKWELL 2E	818	2	82.0	29 *	****	104	30	59	13	0	******	493	******	5.170	30	*****	2.25	1
BRAMAN	1075	2	*****	0 *	****	****	0	****	0	******	******	******	******	3.620	31	*****	2.08	1
CEDARDALE	1620	2	*****	0 *	****	****	0	****	0	******	******	******	******	2.190	31	*****	2.19	10
CHEROKEE	1724	2	83.1	31	-1	107	31	60	11	0	0	560	-32	0.750	31	-1.99	0.75	10
ENID	2912	2	85.5	24 *	****	105	31	66	12	0	******	493	******	0.000	26	*****	0.00	31
FT SUPPLY	3304	2	81.2	31	0.5	104	30	50	11	0	0	504	17	1.190	31	-1.00	1.17	9
FREEDOM	3358	2	82.6	29 *	****	109	30	57	13	0	******	510	******	0.940	31	-1.42	0.82	9
GREAT SALT P	3740	2	83.4	31	0.4	107	31	60	13	0	0	571	13	2.911	31	0.22	1.65	10
HARDY	3909	2	*****	0 *	****	****	0	****	0	******	******	******	******	4.280	31	*****	2.80	1
HELENA	4019	2	82.6	31	0.7	105	31	61	12	0	0	546	22	2.500	31	-0.12	2.31	10
JEFFERSON	4573	2	83.9	31	0.4	106	29	59	13	0	0	586	12	4.051	31	0.72	3.09	9
LAMONT	5013	2	*****	0 *	****	****	0	****	0	******	******	******	******	3.220	31	*****	2.45	10
MEDFORD	5768	2	*****	0 *	****	****	0	****	0	******	******	******	******	3.650	31	*****	2.00	9
MORRISON	6065	2	*****	0 *	****	****	0	****	0	******	******	******	******	4.510	31	*****	2.36	1
MUTUAL	6139	2	82.5	31	0.7	108	31	56	11	0	0	541	20	0.710	31	-1.64	0.68	10
NEWKIRK	6278	2	82.3	31	-0.2	102	30	61	13	0	0	537	-7	4.930	31	1.65	1.99	2
ORIENTA	6751	2	*****	0 *	****	****	0	****	0	******	******	******	******	1.640	31	-0.96	1.62	9
PERRY	7012	2	83.9	31	1.2	104	31	61	14	0	0	587	38	2.380	31	-0.71	2.05	10
PONCA CITY	7201	2	84.8	31	2.3	105	29	57	1	0	0	613	70	2.031	31	-1.67	1.02	1
RED ROCK	7505	2	*****	0 *	****	****	0	****	0	******	******	******	******	2.100	31	-0.79	1.60	9
WAYNOKA	9404	2	84.2	31	1	105	31	59	12	0	0	594	30	3.300	31	0.87	3.30	8
WOODWARD	9760	2	*****	0 *	****	****	0	****	0	******	******	******	******	0.680	31	-1.91	0.68	10

JULY 1999 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	82.6	31	0.4	102	29	56	13	0	0	546	13	0.330	31	-2.60	0.30	10
BARTLESVILLE	548	3	83.2	31	1.1	105	29	57	13	0	0	563	33	1.580	31	-1.02	1.22	2
BIXBY	782	3	82.6	28 *	****	103	30	56	17	0	******	494	******	0.100	28	*****	0.10	7
BURBANK	1256	3	*****	0 *	****	****	0	****	0	******	******	******	******	2.091	31	-1.15	1.09	1
CLAREMORE	1828	3	81.1	31	-0.1	101	30	57	14	0	0	500	-3	1.480	31	-1.49	1.06	2
CLEVELAND 2	1902	3	78.2	21 *	****	94	23	57	14	0	******	277	******	5.670	23	*****	4.96	10
FORAKER	3250	3	*****	0 *	****	****	0	****	0	******	******	******	******	3.660	31	0.59	2.30	10
HOLLOW	4258	3	*****	0 *	****	****	0	****	0	******	******	******	******	1.050	31	-2.11	0.70	2
HOMINY	4289	3	*****	0 *	****	****	0	****	0	******	******	******	******	2.950	31	-0.12	1.58	2
CHELSEA	1717	3	*****	0 *	****	****	0	****	0	******	******	******	******	1.710	31	*****	1.08	2
KANSAS	4672	3	80.3	27 *	****	100	29	57	13	0	******	413	******	0.152	28	*****	0.15	1
LENAPAH	5118	3	*****	0 *	****	****	0	****	0	******	******	******	******	1.350	31	*****	0.87	2
MANNFORD	5522	3	82.4	29 *	****	104	29	61	7	0	******	505	******	2.010	30	*****	1.59	10
MARAMEC	5540	3	*****	0 *	****	****	0	****	0	******	******	******	******	3.350	31	0.56	2.36	10
NOWATA	6485	3	84.6	19 *	****	103	30	67	1	0	******	373	******	1.260	31	-1.57	1.01	2
PAWHUSKA	6935	3	82.4	31	0.8	102	29	56	13	0	0	539	24	2.150	31	-1.03	2.10	10
PAWNEE	6940	3	*****	0 *	****	****	0	****	0	******	******	******	******	2.900	31	0.17	2.15	10
PRYOR	7309	3	81.6	31	0.9	101	30	58	13	0	0	514	27	1.511	31	-1.24	1.01	2
RALSTON	7390	3	81.6	31	-0.3	103	29	54	13	0	0	516	-9	2.750	31	-0.19	1.24	10
SKIATOOK	8258	3	*****	0 *	****	****	0	****	0	******	******	******	******	1.280	31	-1.86	1.18	2
SPAVINAW	8380	3	83.3	31	1.3	101	25	60	12	0	0	566	39	1.761	31	-1.26	1.37	2
TULSA	8992	3	84.4	31	1.1	104	29	58	13	0	0	601	34	0.403	31	-2.69	0.39	1
UPPER SPAV	9101	3	84.3	31 *	****	105	29	59	13	0	******	597	******	1.770	31	*****	1.36	2
VINITA	9203	3	76.6	12 *	****	91	19	57	12	0	******	139	******	0.000	12	*****	0.00	21
WAGONER	9247	3	83.6	31	1.7	102	29	60	13	0	0	577	53	0.120	31	-2.71	0.12	7
WANN	9298	3	*****	0 *	****	****	0	****	0	******	******	******	******	1.840	31	*****	1.48	2
WYNONA	9792	3	*****	0 *	****	****	0	****	0	******	******	******	******	2.011	31	*****	1.42	2

JULY 1999 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	83.3	31	1.2	105	31	59	13	0	0	568	38	1.560	31	-0.79	1.56	10
CLINTON	1909	4	83.0	31	-0.8	105	31	59	11	0	0	557	-26	1.630	31	-0.46	1.63	10
COLONY	2039	4	*****	0 *	****	****	0	****	0	******	******	******	******	3.850	31	*****	3.85	10
CORDELL	2125	4	83.0	31	-0.2	105	31	60	11	0	0	559	-5	0.530	31	-1.40	0.53	10
ELK CITY	2849	4	81.1	31	-0.8	105	31	57	12	0	0	500	-24	1.600	31	-0.29	0.82	10
ERICK	2944	4	81.7	31	0	104	31	57	13	0	0	519	1	1.340	31	-0.35	1.34	10
GEARY	3497	4	82.9	27 *	****	103	30	60	12	0	******	483	******	0.000	27	*****	0.00	31
HAMMON	3871	4	81.3	30	-0.7	102	31	56	13	0	0	488	-39	0.470	30	*****	0.47	10
LEEDEY	5090	4	*****	0 *	****	****	0	****	0	******	******	******	******	0.280	31	-1.50	0.28	10
MACKIE	5463	4	*****	0 *	****	****	0	****	0	******	******	******	******	0.320	31	*****	0.32	10
MORAVIA	6035	4	*****	0 *	****	****	0	****	0	******	******	******	******	1.900	31	0.14	1.85	10
OKEENE	6629	4	84.5	31	1	106	30	62	13	0	0	605	31	1.240	31	-1.12	1.24	10
RETROP	7565	4	*****	0 *	****	****	0	****	0	******	******	******	******	1.070	31	*****	0.77	10
REYDON	7579	4	82.9	17 *	****	103	31	68	6	0	******	305	******	0.000	17	*****	0.00	31
SAYRE	7952	4	*****	0 *	****	****	0	****	0	******	******	******	******	1.310	31	-0.36	1.26	10
SWEETWATER	8652	4	*****	0 *	****	****	0	****	0	******	******	******	******	0.050	31	*****	0.05	10
TALOGA	8708	4	82.7	31	0.7	106	31	58	12	0	0	550	23	1.030	31	-1.20	1.03	10
THOMAS	8815	4	*****	0 *	****	****	0	****	0	******	******	******	******	2.060	31	*****	2.06	9
VICI	9172	4	*****	0 *	****	****	0	****	0	******	******	******	******	0.880	31	-1.28	0.88	10
WATONGA	9364	4	83.6	31	1.2	104	30	61	13	0	0	577	38	1.480	31	-0.79	1.26	10
WEATHERFORD	9422	4	83.2	31	1.1	105	31	60	11	0	0	564	34	1.180	31	-0.92	1.18	9

JULY 1999 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	******	******	******	******	1.450	31	*****	1.45	10
ARCADIA	288	5	*****	0 *	****	****	0	****	0	******	******	******	******	1.250	31	*****	1.25	9
BLANCHARD	830	5	82.7	31	0.1	103	30	61	13	0	0	548	2	3.191	31	0.62	3.19	10
BRISTOW	1144	5	81.9	31	-0.1	103	29	54	13	0	0	525	-3	0.370	31	-2.37	0.30	1
CHANDLER	1684	5	81.7	28 *	****	101	31	57	13	0	******	467	******	1.000	30	*****	1.00	10
CHICKASHA EXP	1750	5	84.1	31	1.2	106	30	60	13	0	0	594	39	0.480	31	-1.61	0.48	10
COX CITY	2196	5	*****	0 *	****	****	0	****	0	******	******	******	******	1.300	31	*****	0.69	10
CRESCENT	2242	5	*****	0 *	****	****	0	****	0	******	******	******	******	2.170	31	*****	2.07	10
CUSHING	2318	5	82.4	30	0.5	102	31	60	13	0	0	523	-2	0.252	30	*****	0.25	1
EDMOND	2788	5	*****	0 *	****	****	0	****	0	******	******	******	******	1.190	31	*****	1.19	8
EL RENO	2818	5	83.5	31	1.2	103	31	63	13	0	0	573	37	2.950	31	0.67	2.90	10
GUTHRIE	3821	5	81.5	31	-1.8	103	31	55	13	0	0	512	-56	1.900	31	-0.43	1.75	10
HENNESSEY	4055	5	82.1	31	-1.2	105	29	58	13	0	0	530	-37	1.330	31	-1.22	0.98	10
INGALLS	4489	5	*****	0 *	****	****	0	****	0	******	******	******	******	2.350	31	*****	1.55	10
KINGFISHER	4861	5	82.4	31	-1	103	31	61	13	0	0	539	-31	3.120	31	1.07	2.91	10
KONAWA	4915	5	*****	0 *	****	****	0	****	0	******	******	******	******	0.000	31	-2.02	0.00	31
MARSHALL	5589	5	*****	0 *	****	****	0	****	0	******	******	******	******	1.430	31	-0.84	1.33	10
MEEKER	5779	5	79.1	31	-2.8	99	30	55	13	0	0	437	-87	1.460	31	-0.79	1.30	10
MULHALL	6110	5	*****	0 *	****	****	0	****	0	******	******	******	******	1.370	31	*****	1.37	10
NORMAN NWS	6386	5	82.2	31	0	103	30	59	13	0	0	534	1	1.070	31	-1.69	0.99	10
OKEMAH	6638	5	83.8	31	2.2	103	29	62	13	0	0	584	69	0.190	31	-2.97	0.19	1
OKLAHOMA CTY	6659	5	*****	0 *	****	****	0	****	0	******	******	******	******	2.061	31	*****	2.00	10
OKLAHOMA CTY	6661	5	82.2	31	0.2	104	30	59	13	0	0	534	7	1.941	31	-0.67	1.41	9
PERKINS	7003	5	*****	0 *	****	****	0	****	0	******	******	******	******	1.400	31	-1.26	1.36	10
PIEDMONT	7068	5	*****	0 *	****	****	0	****	0	******	******	******	******	0.980	31	*****	0.82	11
PRAGUE	7264	5	*****	0 *	****	****	0	****	0	******	******	******	******	0.291	31	-2.67	0.17	10
SEMINOLE	8042	5	82.9	31	-0.5	103	29	59	12	0	0	554	-16	0.000	31	-2.52	0.00	31
SHAWNEE	8110	5	*****	0 *	****	****	0	****	0	******	******	******	******	0.000	31	-2.17	0.00	31
STELLA	8479	5	*****	0 *	****	****	0	****	0	******	******	******	******	1.980	31	*****	1.08	1
STILLWATER	8501	5	82.6	28 *	****	102	30	59	13	0	******	493	******	1.932	31	-0.97	1.85	10
STROUD	8563	5	*****	0 *	****	****	0	****	0	******	******	******	******	1.310	31	*****	1.21	10
TECUMSEH	8751	5	*****	0 *	****	****	0	****	0	******	******	******	******	0.000	31	*****	0.00	31
TROUSDALE	8960	5	82.0	31 *	****	101	31	56	13	0	******	527	******	0.140	31	*****	0.14	1
WELTY	9479	5	*****	0 *	****	****	0	****	0	******	******	******	******	0.100	31	*****	0.10	1
WEWOKA	9575	5	*****	0 *	****	****	0	****	0	******	******	******	******	1.090	31	-1.28	1.09	1

JULY 1999 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	******	******	******	******	1.890	31	*****	1.89	1
CALVIN	1391	6	*****	0 *	****	****	0	****	0	******	******	******	******	0.000	31	-3.07	0.00	31
CHECOTAH	1711	6	*****	0 *	****	****	0	****	0	******	******	******	******	0.300	31	-2.74	0.25	1
CLAYTON	1858	6	*****	0 *	****	****	0	****	0	******	******	******	******	0.540	31	*****	0.54	1
DEWAR	2485	6	*****	0 *	****	****	0	****	0	******	******	******	******	0.301	31	-3.08	0.30	1
DUSTIN	2690	6	*****	0 *	****	****	0	****	0	******	******	******	******	0.220	31	*****	0.22	1
EUFAULA	2993	6	85.5	31	2.2	105	24	64	13	0	0	637	70	0.000	31	-3.29	0.00	31
HANNA	3884	6	82.0	31	0.2	100	31	57	13	0	0	526	5	0.271	31	-2.54	0.27	1
HASKELL	3956	6	*****	0 *	****	****	0	****	0	******	******	******	******	0.000	31	-2.61	0.00	31
HOLDENVILLE	4235	6	82.8	31	0.9	102	30	60	14	0	0	552	28	0.550	31	-2.23	0.50	8
LAKE EUFAULA	4975	6	80.6	27 *	****	98	31	63	13	0	******	422	******	2.610	27	*****	2.21	20
LYONS	5437	6	*****	0 *	****	****	0	****	0	******	******	******	******	0.870	31	-2.04	0.35	11
MARBLE CITY	5546	6	*****	0 *	****	****	0	****	0	******	******	******	******	0.730	26	*****	0.73	8
MCALESTER	5664	6	82.8	31	0.9	102	31	58	13	0	0	553	29	0.031	31	-2.64	0.02	10
MCCURTAIN	5693	6	83.3	31	0.9	103	31	60	13	0	0	566	27	3.532	31	0.36	2.00	1
MUSKOGEE	6130	6	81.8	30	-0.4	101	30	61	13	0	0	504	-29	0.001	30	*****	0.00	7
OKMULGEE	6670	6	*****	0 *	****	****	0	****	0	******	******	******	******	******	0	*****	*****	0
OKTAHA	6678	6	*****	0 *	****	****	0	****	0	******	******	******	******	0.240	31	*****	0.24	1
SALLISAW	7862	6	81.8	31	0	100	31	61	13	0	0	520	-2	2.001	31	-1.00	1.70	1
SCIPIO	7979	6	*****	0 *	****	****	0	****	0	******	******	******	******	0.990	31	*****	0.99	1
SHORT	8170	6	*****	0 *	****	****	0	****	0	******	******	******	******	3.610	31	*****	1.48	1
STILWELL	8506	6	79.4	31	-0.5	98	28	54	13	0	0	447	-16	0.300	31	-2.75	0.30	1
TAHLEQUAH	8677	6	79.8	31	-0.7	98	29	56	12	0	0	460	-22	2.391	31	-0.59	1.62	8
WEBBERS FALL	9445	6	83.1	25 *	****	106	30	60	14	0	******	452	******	1.320	25	*****	1.32	1
WETUMKA	9571	6	*****	0 *	****	****	0	****	0	******	******	******	******	0.952	31	-1.97	0.95	1

JULY 1999 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	179	7	84.2	31	-0.3	108	31	60	11	0	0	595	-10	1.730	31	-0.03	1.37	10
ALTUS DAM	184	7	85.8	31	1.6	108	31	63	11	0	0	645	50	1.960	31	0.05	1.91	10
ANADARKO	224	7	81.4	29 *	****	103	31	59	13	0	******	476	******	2.000	29	*****	2.00	10
APACHE	260	7	*****	0 *	****	****	0	****	0	******	******	******	******	2.000	31	-0.03	2.00	10
ALTUS AFB	447	7	*****	0 *	****	****	0	****	0	******	******	******	******	1.341	31	*****	1.34	10
CARNEGIE	1504	7	*****	0 *	****	****	0	****	0	******	******	******	******	2.610	31	0.61	2.61	10
CHATTANOOGA	1706	7	84.6	27 *	****	108	31	61	11	0	******	528	******	1.240	27	*****	1.17	10
DUNCAN 11 W	2668	7	*****	0 *	****	****	0	****	0	******	******	******	******	0.210	31	*****	0.21	1
FREDERICK	3353	7	84.4	29 *	****	107	31	63	11	0	******	564	******	0.400	29	*****	0.40	9
HEADRICK	3998	7	*****	0 *	****	****	0	****	0	******	******	******	******	2.530	31	*****	1.84	10
HOBART	4204	7	85.0	31	1.3	109	30	60	11	0	0	620	40	1.990	31	-0.09	1.95	10
HOLLIS	4249	7	84.4	31	0.2	109	31	59	11	0	0	602	7	2.400	31	0.78	2.28	10
LAWTON	5063	7	84.1	31	0.6	106	31	63	11	0	0	594	20	1.050	31	-0.85	1.05	10
LOOKEBA	5329	7	*****	0 *	****	****	0	****	0	******	******	******	******	0.750	31	-1.14	0.75	10
MANGUM	5509	7	82.8	31	-1.4	104	31	59	12	0	0	552	-44	1.250	31	-0.78	1.04	10
RANDLETT	7403	7	*****	0 *	****	****	0	****	0	******	******	******	******	0.000	31	*****	0.00	31
ROOSEVELT	7727	7	*****	0 *	****	****	0	****	0	******	******	******	******	1.780	31	-0.28	1.35	10
SEDAN	8016	7	*****	0 *	****	****	0	****	0	******	******	******	******	3.730	31	*****	2.70	10
SNYDER	8299	7	*****	0 *	****	****	0	****	0	******	******	******	******	0.710	26	*****	0.61	9
VINSON	9212	7	*****	0 *	****	****	0	****	0	******	******	******	******	2.060	31	0.43	2.01	10
WALTERS	9278	7	84.6	31	0.5	106	31	62	11	0	0	609	17	0.080	31	-2.28	0.08	1
WICHITA MT	9629	7	80.6	31	-1.6	103	31	54	10	0	0	484	-50	1.530	31	-0.78	1.33	10
WILLOW	9668	7	*****	0 *	****	****	0	****	0	******	******	******	******	0.950	31	*****	0.95	10

JULY 1999 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	82.6	31	0.4	101	28	60	14	0	0	547	14	0.350	31	-2.06	0.16	5
ALLEN	147	8	*****	0 *	****	****	0	****	0	******	******	******	******	0.250	31	*****	0.25	8
ARDMORE	292	8	84.9	31	0.9	104	31	67	12	0	0	618	29	0.490	31	-1.64	0.39	12
ATOKA DAM	394	8	83.9	21 *	****	104	30	65	13	0	******	397	******	2.880	21	*****	1.20	6
BOKCHITO	917	8	*****	0 *	****	****	0	****	0	******	******	******	******	1.200	31	*****	0.95	11
CANEY	1437	8	*****	0 *	****	****	0	****	0	******	******	******	******	2.560	31	*****	2.14	10
CENTRAHOMA	1648	8	81.2	28 *	****	101	30	61	14	0	******	453	******	1.650	28	*****	1.50	1
CHICKASAW	1745	8	81.9	31	-0.2	102	31	60	13	0	0	524	-7	1.880	31	-0.79	1.47	10
COLEMAN	2011	8	*****	0 *	****	****	0	****	0	******	******	******	******	2.730	31	*****	2.00	9
COMANCHE	2054	8	83.4	31 *	****	102	31	65	11	0	******	570	******	0.000	31	-1.95	0.00	31
DAISY	2354	8	*****	0 *	****	****	0	****	0	******	******	******	******	1.111	31	-2.32	0.57	1
DUNCAN	2660	8	82.6	31	-0.5	103	31	61	2	0	0	545	-17	0.030	31	-2.22	0.03	1
ELMORE CITY	2872	8	*****	0 *	****	****	0	****	0	******	******	******	******	0.000	31	*****	0.00	31
GRADY	3688	8	*****	0 *	****	****	0	****	0	******	******	******	******	0.000	31	*****	0.00	31
HEALDTON	4001	8	83.0	31	0.1	104	31	62	13	0	0	557	2	0.040	31	-1.93	0.04	1
HENNEPIN	4052	8	*****	0 *	****	****	0	****	0	******	******	******	******	0.420	31	*****	0.42	1
KETCHUM RAN	4780	8	*****	0 *	****	****	0	****	0	******	******	******	******	0.000	31	*****	0.00	31
KINGSTON	4865	8	*****	0 *	****	****	0	****	0	******	******	******	******	0.080	31	-2.03	0.08	9
LEHIGH	5108	8	*****	0 *	****	****	0	****	0	******	******	******	******	0.650	31	*****	0.30	11
LINDSAY	5216	8	82.6	31	-0.1	103	30	62	13	0	0	546	-4	2.000	31	-0.06	2.00	9
LOCO	5247	8	*****	0 *	****	****	0	****	0	******	******	******	******	0.200	31	*****	0.20	1
MADILL	5468	8	85.0	31	1.7	104	30	65	13	0	0	621	54	0.160	31	-2.03	0.08	11
MARIETTA	5563	8	82.4	31	-0.8	101	31	63	14	0	0	540	-25	0.640	31	-1.47	0.64	11
MARLOW	5581	8	85.0	31	2.7	108	30	59	11	0	0	619	83	0.320	31	-2.00	0.28	1
MCGEE CREEK	5713	8	82.7	31 *	****	103	30	65	13	0	******	550	******	1.480	31	*****	0.79	8
PAULS VALLEY	6926	8	82.2	31	-1.1	105	31	59	13	0	0	535	-33	0.460	31	-1.80	0.46	1
PONTOTOC	7214	8	*****	0 *	****	****	0	****	0	******	******	******	******	0.100	31	-2.44	0.06	7
TUSSY	9032	8	*****	0 *	****	****	0	****	0	******	******	******	******	0.000	31	*****	0.00	31
WAURIKA	9395	8	86.0	31	1.7	107	31	63	11	0	0	651	53	0.000	31	-1.81	0.00	31

JULY 1999 SUMMARY FOR SOUTHEAST DIVISION (CD9)

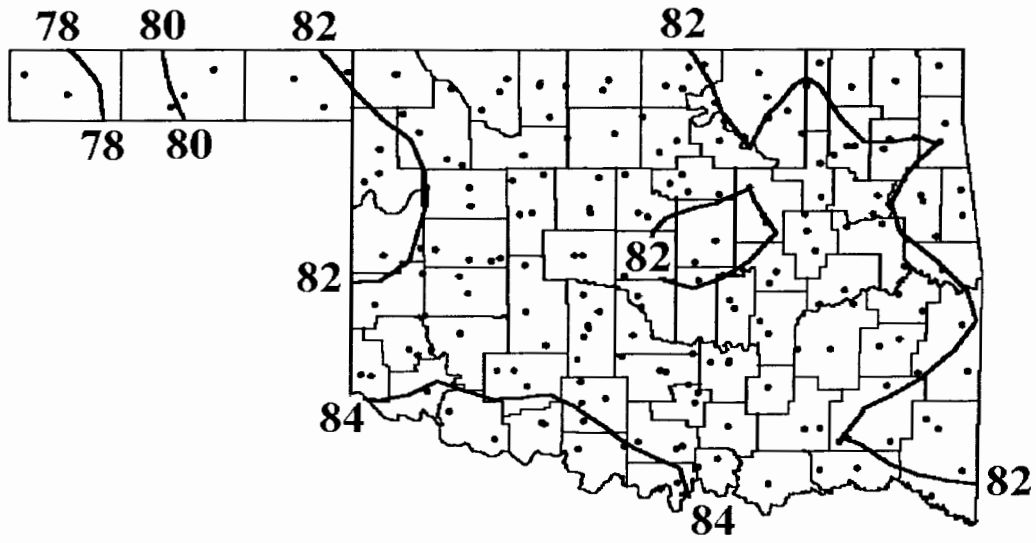
NAME	ID	CD	MEAN TEMP	NUM OBS	DEV FROM NORM	MAX TEMP	DAY	MIN TEMP	DAY	HEAT DEG DAY	DEV FROM NORM	COOL DEG DAY	DEV FROM NORM	TOT PPT	NUM OBS	DEV FROM NORM	MAX 24-HR	DAY
ANTLERS	256	9	81.7	31	0.4	101	30	61	2	0	0	517	12	0.220	31	-3.05	0.22	7
BATTIEST	567	9	80.4	30 *	****	101	30	62	13	0	******	463	******	0.560	30	*****	0.31	1
BENGAL	670	9	*****	0 *	****	****	0	****	0	******	******	******	******	1.320	31	*****	1.25	1
BOSWELL	980	9	82.0	31	0.1	100	31	65	13	0	0	529	5	0.220	31	-2.30	0.17	1
BROKEN BOW	1162	9	*****	0 *	****	****	0	****	0	******	******	******	******	1.250	31	-2.28	0.99	8
CARNASAW	1499	9	*****	0 *	****	****	0	****	0	******	******	******	******	2.160	31	-1.85	1.40	11
CARTER TWR	1544	9	*****	0 *	****	****	0	****	0	******	******	******	******	0.900	31	-3.09	0.55	11
FANSHAWE	3065	9	*****	0 *	****	****	0	****	0	******	******	******	******	0.760	31	-2.85	0.38	8
HEAVENER	4008	9	*****	0 *	****	****	0	****	0	******	******	******	******	1.510	31	-1.93	1.51	10
HUGO	4384	9	79.9	30	-2.4	105	31	59	20	0	0	449	-88	0.440	31	-2.35	0.20	5
PAGE	6842	9	80.3	30 *	****	100	30	61	15	0	******	461	******	0.451	30	*****	0.31	1
POTEAU	7254	9	82.8	31 *	****	104	31	62	12	0	******	552	******	1.781	31	*****	1.78	7
SMITHVILLE	8285	9	79.1	28 *	****	98	31	61	13	0	******	394	******	0.420	28	*****	0.40	1
SPIRO	8416	9	*****	0 *	****	****	0	****	0	******	******	******	******	3.820	31	0.58	2.57	1
TUSKAHOMA	9023	9	82.8	31	1.1	104	29	62	14	0	0	552	34	2.670	31	-1.04	1.34	8
VALLIANT	9118	9	*****	0 *	****	****	0	****	0	******	******	******	******	1.551	31	-1.91	1.43	11
WILBURTON	9634	9	81.9	31	0.7	105	31	57	13	0	0	525	23	0.190	31	-3.57	0.10	19
WISTER	9724	9	84.8	4 *	****	95	4	72	1	0	******	79	******	2.020	31	*****	1.88	1

JULY 1999 CLIMATE DIVISION SUMMARY

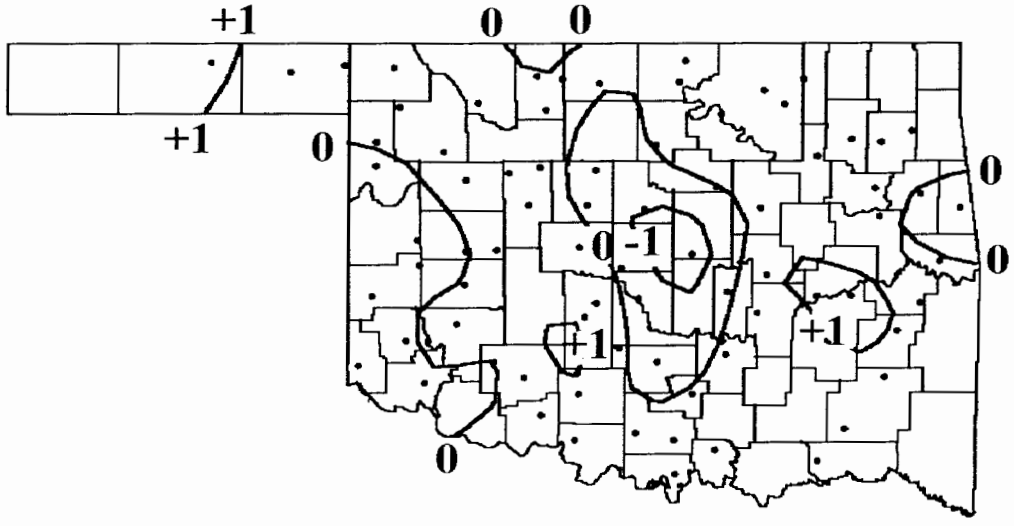
CD	MEAN TEMP	NUM OBS	DEV FROM NORM	MAX TEMP	DAY	MIN TEMP	DAY	HEAT DEG DAY	DEV FROM NORM	COOL DEG DAY	DEV FROM NORM	TOT PPT	NUM OBS	DEV FROM NORM	MAX 24-HR	DAY
1	81.2	8	1	109	30	51	12	0	0	500	28	1.440	11	-1.05	1.98	17
2	83.1	12	0.4	109	30	50	11	0	0	559	10	2.510	21	-0.31	3.30	8
3	82.8	10	1.2	105	29	54	13	0	0	552	38	1.790	22	-1.14	4.96	10
4	82.7	10	0.4	106	31	56	13	0	0	549	11	1.290	18	-0.71	3.85	10
5	82.3	14	0	106	30	54	13	0	0	537	-1	1.270	33	-1.26	3.19	10
6	82.1	9	0.5	106	30	54	13	0	0	529	13	0.950	20	-1.96	2.21	20
7	83.9	8	0.2	109	31	54	10	0	0	587	6	1.580	19	-0.42	2.70	10
8	83.4	13	0.4	108	30	59	13	0	0	571	14	0.640	27	-1.66	2.14	10
9	81.5	8	0.2	105	31	57	13	0	0	506	1	1.390	15	-2.12	2.57	1

MESONET MONTHLY SUMMARY FOR JULY 1999

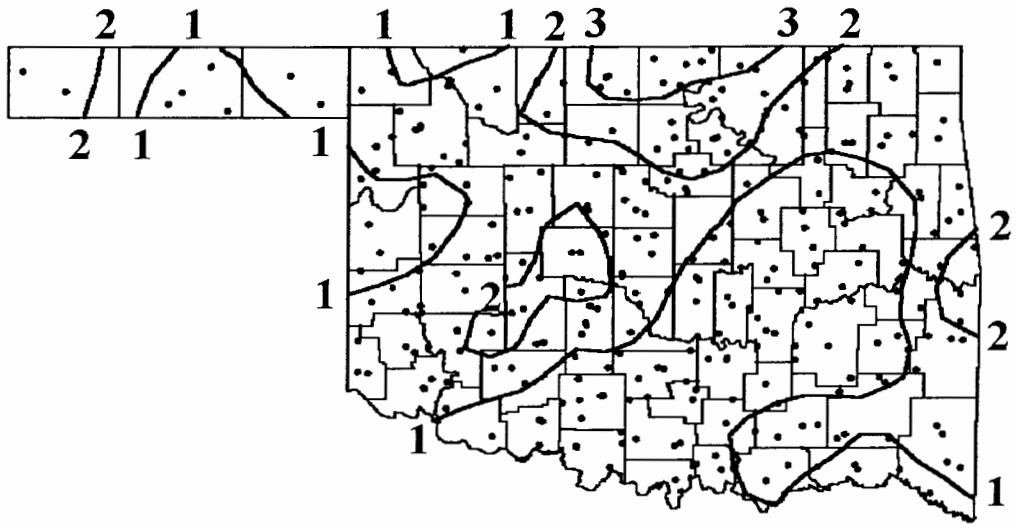
NAME	MEAN TEMP	MAX TEMP	MAX DAY	MIN TEMP	MIN DAY	HDD	CDD	TOT PPT	MAX 24-HR	MAX DAY	NAME	MEAN TEMP	MAX TEMP	MAX DAY	MIN TEMP	MIN DAY	HDD	CDD	TOT PPT	MAX 24-HR	MAX DAY
											PANHANDLE										
Arnett	81.6	105	30	55	11	0	515	0.24	0.17	10	Goodwell	79.6	102	30	52	11	0	453	0.20	0.07	9
Beaver	81.7	106	30	52	11	0	516	2.38	1.58	16	Hooker	81.4	106	24	55	11	0	507	0.28	0.18	16
Boise City	76.7	99	25	52	11	0	362	2.79	1.10	31	Kenton	77.7	101	2	54	11	0	394	3.02	1.00	5
Buffalo	84.0	108	30	55	11	0	588	1.21	0.76	10	Slapout	80.9	106	30	53	11	0	494	1.28	0.61	9
											NORTH CENTRAL										
Alva	83.3	106	30	58	11	0	567	1.40	0.50	10	May Ranch	*****	***	**	***	**	****	****	0.62	0.26	9
Blackwell	82.7	105	29	59	13	0	529	4.03	1.67	1	Medford	83.8	106	30	60	13	0	583	3.68	1.94	9
Breckenridge	82.9	103	28	60	13	0	554	2.24	1.45	9	Newkirk	81.8	101	29	59	13	0	469	3.60	2.06	1
Cherokee	84.4	108	30	61	11	0	600	2.10	0.91	1	Red Rock	82.1	103	29	58	13	0	529	2.13	1.17	9
Fairview	85.3	108	30	60	11	0	628	1.09	0.86	10	Seiling	83.3	106	30	58	11	0	567	1.03	0.60	9
Freedom	82.9	107	30	57	11	0	538	0.71	0.37	10	Woodward	82.1	103	30	56	11	0	531	1.26	0.63	10
Lahoma	82.9	106	30	60	13	0	553	2.37	1.69	9											
											NORTHEAST										
Bixby	82.5	101	29	58	13	0	543	0.23	0.12	4	Nowata	81.6	103	29	55	13	0	514	1.51	1.08	1
Catoosa	83.4	105	29	57	13	0	571	1.07	1.06	1	Pawnee	82.1	102	29	58	13	0	531	2.54	1.43	9
Claremore	81.8	103	28	57	12	0	520	1.38	1.34	1	Pryor	81.7	103	29	58	12	0	516	1.84	1.04	1
Copan	82.0	104	29	58	12	0	509	2.29	1.33	1	Skiatook	82.0	100	29	59	13	0	527	1.93	1.36	1
Foraker	80.2	100	29	58	13	0	472	3.50	1.92	9	Tullahassee	83.1	102	29	57	12	0	562	0.07	0.07	7
Jay	80.7	104	29	54	12	0	488	1.19	1.10	1	Vinita	80.0	101	29	56	13	0	451	1.07	0.86	1
Miami	81.1	100	29	58	13	0	498	1.83	1.00	1	Wynona	81.6	101	29	57	13	0	513	2.20	1.35	1
											WEST CENTRAL										
Bessie	86.0	107	30	70	6	0	462	0.69	0.47	10	Putnam	82.9	105	24	58	11	0	555	0.32	0.31	10
Butler	83.3	106	30	58	12	0	568	0.79	0.62	10	Retrop	83.9	107	30	58	11	0	584	0.70	0.69	10
Camargo	82.1	105	30	55	12	0	530	0.34	0.33	10	Watonga	83.6	106	30	60	11	0	576	1.42	0.94	9
Cheyenne	81.9	103	30	55	11	0	524	0.10	0.10	10	Weatherford	83.4	107	30	59	11	0	570	2.21	1.39	10
Erick	81.9	106	30	56	11	0	523	1.90	1.90	10											
											CENTRAL										
Acme	83.2	104	30	62	11	0	564	0.40	0.40	10	Minco	81.5	101	30	62	13	0	511	3.68	2.21	10
Bowlegs	81.9	101	29	56	13	0	522	0.00	0.00	1	Ninnekah	84.5	107	30	61	13	0	606	0.38	0.38	10
Bristow	81.4	101	29	54	13	0	508	0.08	0.08	10	Norman	82.5	104	30	59	13	0	525	0.96	0.96	10
Chandler	81.2	99	30	59	13	0	503	1.07	0.77	9	Oilton	81.4	100	29	55	13	0	508	0.14	0.06	10
Chickasha	83.4	104	30	60	13	0	569	0.42	0.42	10	Okemah	81.8	101	29	56	13	0	520	0.02	0.02	4
El Reno	80.3	101	29	59	12	0	444	4.23	3.48	9	Perkins	83.5	104	29	60	13	0	573	1.80	1.33	9
Guthrie	82.8	103	30	60	13	0	552	2.03	1.07	9	Shawnee	82.8	103	30	57	13	0	552	0.05	0.04	10
Kingfisher	84.2	104	30	60	13	0	594	2.67	1.94	9	Spencer	82.4	102	28	59	13	0	506	0.50	0.50	10
Marena	81.3	101	29	58	13	0	505	1.79	1.33	9	Stillwater	82.3	101	28	58	13	0	536	1.77	1.31	9
Marshall	83.6	105	28	59	13	0	576	1.34	0.90	9	Washington	82.1	105	30	61	13	0	531	1.15	1.15	10
											EAST CENTRAL										
Calvin	81.8	101	24	57	13	0	521	0.20	0.17	29	Preston	82.7	102	29	61	13	0	550	0.05	0.05	10
Cookson	81.2	101	29	56	13	0	503	0.89	0.61	10	Sallisaw	82.6	103	29	61	13	0	546	0.13	0.13	10
Eufaula	83.2	102	29	59	13	0	563	0.00	0.00	1	Stigler	82.5	101	29	61	13	0	542	0.13	0.13	7
Haskell	81.8	102	29	58	13	0	520	0.00	0.00	1	Stuart	81.8	100	24	59	13	0	521	0.00	0.00	1
Hectorville	82.8	103	29	59	13	0	553	0.07	0.05	6	Tahlequah	80.3	100	29	56	12	0	475	0.65	0.58	7
McAlester	82.5	102	24	58	13	0	541	0.10	0.10	10	Webbers Falls	84.3	104	29	61	13	0	599	0.47	0.47	7
Okmulgee	82.1	102	29	56	13	0	531	0.00	0.00	1	Westville	80.2	100	29	56	12	0	472	0.24	0.14	1
											SOUTHWEST										
Altus	83.9	103	24	61	11	0	584	1.36	0.70	10	Hollis	83.3	108	31	60	11	0	568	1.98	1.50	10
Apache	82.3	103	30	61	13	0	519	1.48	1.48	10	Mangum	82.1	105	30	60	11	0	529	1.74	1.59	10
Fort Cobb	82.2	101	30	62	13	0	463	1.86	1.14	9	Medicine Park	82.1	103	30	62	11	0	529	2.45	2.37	10
Grandfield	85.2	108	31	58	11	0	627	0.09	0.09	10	Tipton	85.7	108	30	61	11	0	640	0.87	0.87	10
Hinton	82.6	106	30	61	11	0	545	0.94	0.62	10	Walters	86.1	108	30	62	11	0	655	0.05	0.04	9
Hobart	83.8	107	30	60	11	0	582	2.02	1.30	9											
											SOUTH CENTRAL										
Ada	82.7	103	28	58	13	0	548	0.57	0.31	7	Madill	84.4	103	24	65	11	0	600	0.77	0.77	10
Ardmore	84.0	102	24	64	13	0	587	0.78	0.72	10	Pauls Valley	83.5	104	29	62	13	0	572	0.03	0.02	7
Burneyville	84.7	104	24	61	13	0	610	0.03	0.03	10	Ringling	84.6	105	24	64	11	0	608	0.00	0.00	1
Byars	82.3	101	29	60	13	0	536	0.01	0.01	1	Sulphur	82.5	101	24	61	13	0	543	0.05	0.03	10
Centrahoma	81.3	101	28	58	13	0	504	0.06	0.04	7	Tishomingo	82.3	103	30	63	13	0	536	0.10	0.08	10
Durant	83.1	101	24	66	13	0	560	1.89	1.88	10	Vanoss	82.8	103	30	58	13	0	551	0.06	0.06	7
Ketchum Ranch	83.9	105	30	62	11	0	584	0.00	0.00	1	Waurika	84.9	106	30	63	11	0	617	0.00	0.00	1
Lane	82.1	100	29	65	13	0	529	0.79	0.72	10											
											SOUTHWEST										
Antlers	81.3	101	24	61	13	0	506	2.98	2.17	7	Idabel	82.8	101	24	63	12	0	551	0.25	0.23	10
Broken Bow	81.9	100	29	63	12	0	524	1.55	0.86	7	Mt Herman	80.2	97	24	63	12	0	472	2.41	2.33	7
Clayton	*****	***	**	***	**	****	****	0.30	0.30	7	Talihina	82.9	104	31	61	13	0	555	0.01	0.01	8
Cloudy	80.8	100	29	64	12	0	490	0.11	0.07	7	Wilburton	82.9	103	29	58	13	0	553	0.00	0.00	1
Hugo	83.4	101	24	66	12	0	533	0.59	0.39	10	Wister	81.5	103	31	61	13	0	510	0.40	0.23	19



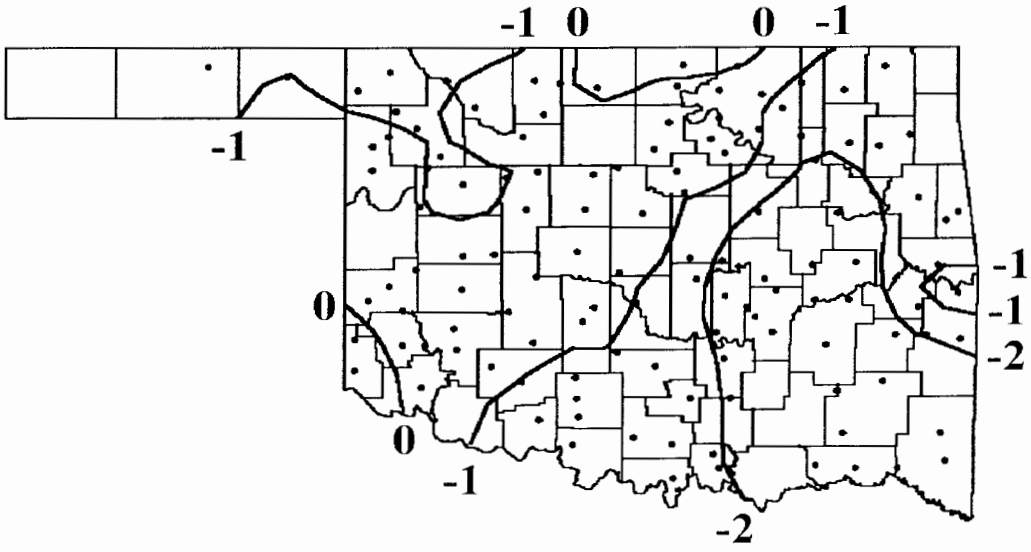
JULY 1999 AVERAGE MONTHLY TEMPERATURE (F)



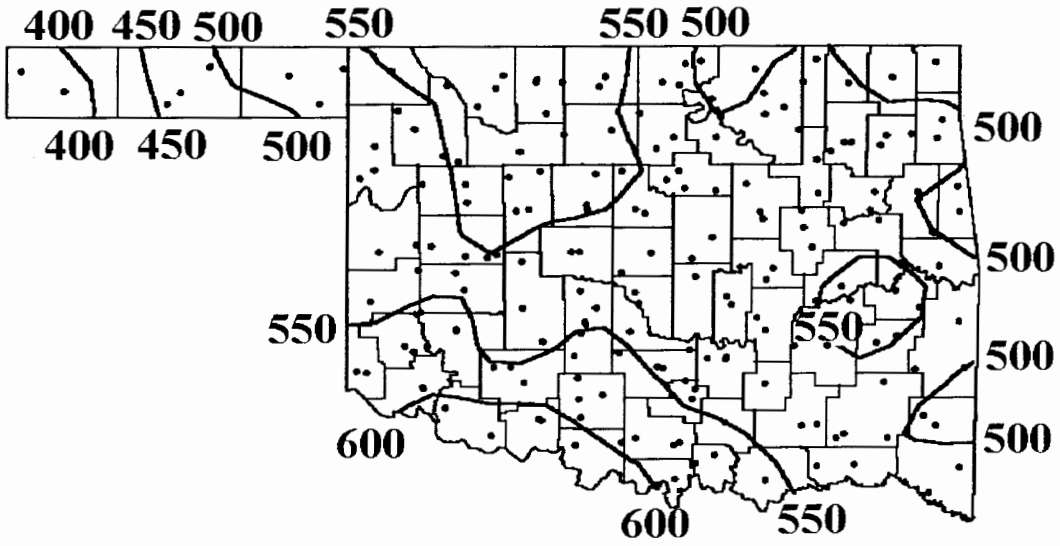
JULY 1999 DEPARTURE FROM NORMAL TEMPERATURE (F)



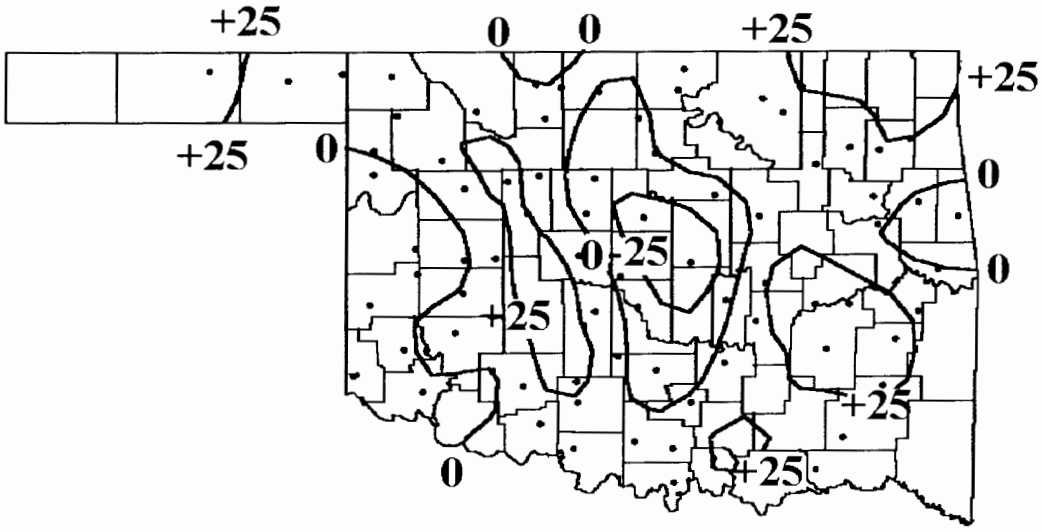
JULY 1999 TOTAL PRECIPITATION (INCHES)



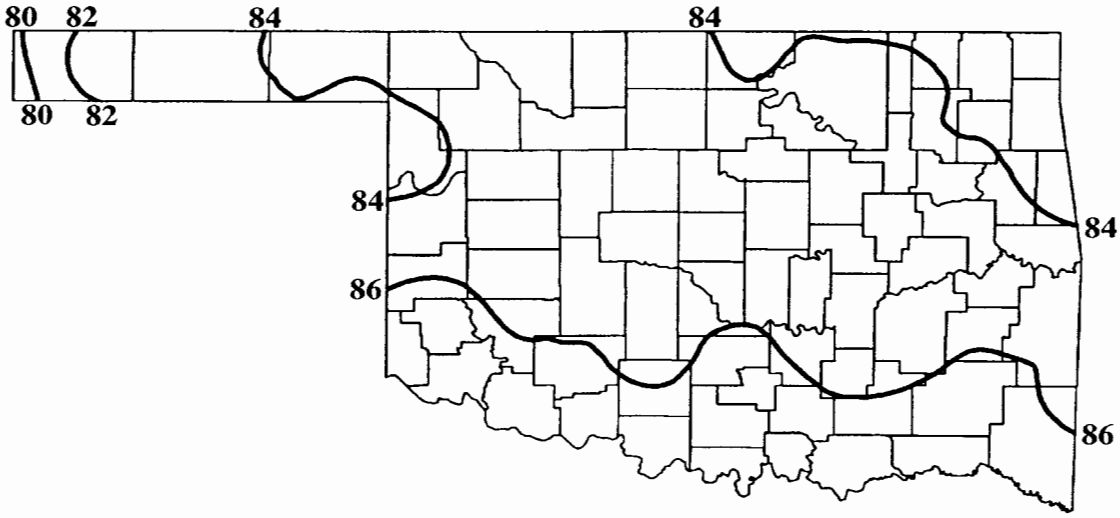
JULY 1999 DEPARTURE FROM NORMAL PRECIPITATION (INCHES)



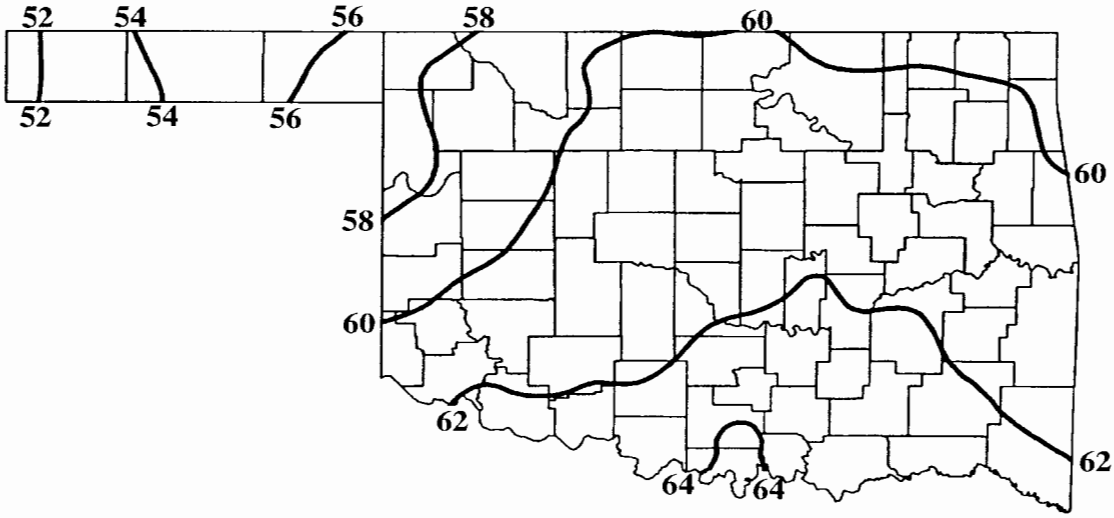
JULY 1999 ACCUMULATED COOLING DEGREE DAYS (F)



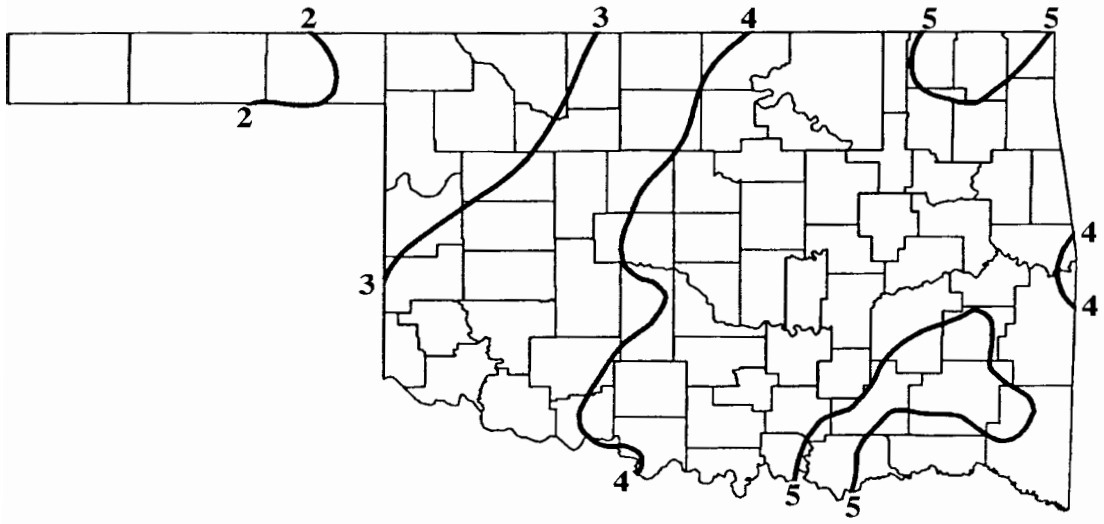
JULY 1999 DEPARTURE FROM NORMAL COOLING DEGREE DAYS (F)



SEPTEMBER NORMAL DAILY MAXIMUM TEMPERATURE (F)



SEPTEMBER NORMAL DAILY MINIMUM TEMPERATURE (F)

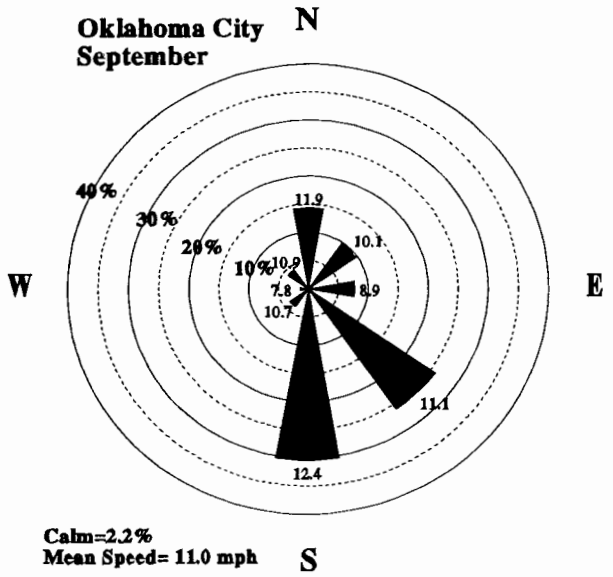


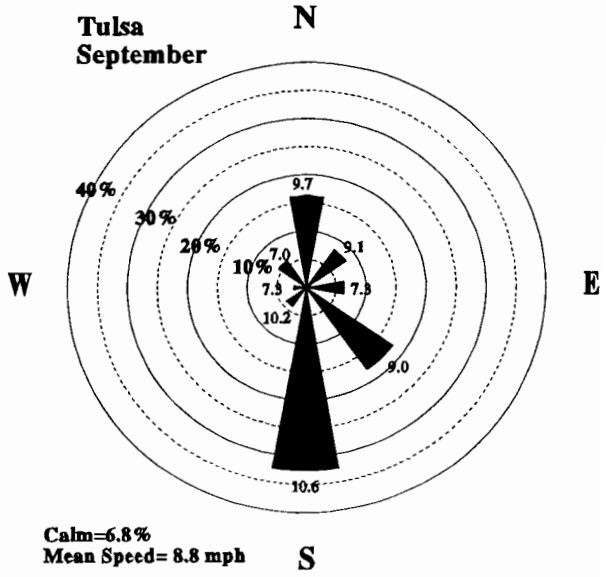
SEPTEMBER NORMAL MONTHLY PRECIPITATION (INCHES)

OUTLOOK FOR SEPTEMBER 1999 THROUGH NOVEMBER 1999

BASED ON SEASONAL OUTLOOK PROVIDED BY THE CLIMATE PREDICTION CENTER

TEMPERATURE:	**BELOW NORMAL TEMPERATURE NORTHEAST CORNER OF STATE** **NORMAL TEMPERATURE ELSEWHERE**
PRECIPITATION:	**NORMAL PRECIPITATION STATEWIDE**





September Wind Roses for Oklahoma City and Tulsa. The frequencey (percent) of winds from each direction is represented by length of its bar. The numbers at the ends of the bars indicate the average wind speed from that directon in miles per hour.

SEPTEMBER SUNRISE/SUNSET TIMES FOR 1999

ALL TIMES ARE CENTRAL STANDARD TIME

OKLAHOMA CITY

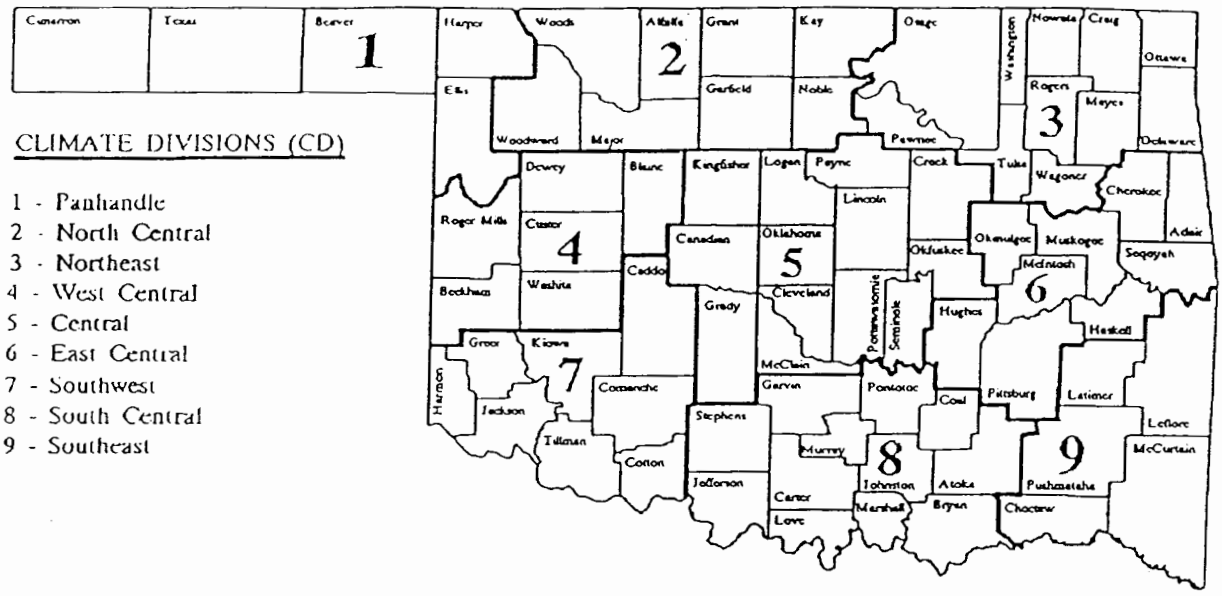
DATE	SUNRISE	SUNSET
9/1/99	602	1858
9/2/99	603	1856
9/3/99	604	1855
9/4/99	604	1853
9/5/99	605	1852
9/6/99	606	1851
9/7/99	607	1849
9/8/99	607	1848
9/9/99	608	1846
9/10/99	609	1845
9/11/99	610	1843
9/12/99	610	1842
9/13/99	611	1841
9/14/99	612	1839
9/15/99	613	1838
9/16/99	613	1836
9/17/99	614	1835
9/18/99	615	1833
9/19/99	616	1832
9/20/99	616	1830
9/21/99	617	1829
9/22/99	618	1827
9/23/99	619	1826
9/24/99	619	1824
9/25/99	620	1823
9/26/99	621	1822
9/27/99	622	1820
9/28/99	622	1819
9/29/99	623	1817
9/30/99	624	1816

TULSA

DATE	SUNRISE	SUNSET
9/1/99	555	1852
9/2/99	556	1850
9/3/99	557	1849
9/4/99	557	1848
9/5/99	558	1846
9/6/99	559	1845
9/7/99	600	1843
9/8/99	601	1842
9/9/99	601	1840
9/10/99	602	1839
9/11/99	603	1837
9/12/99	604	1836
9/13/99	604	1834
9/14/99	605	1833
9/15/99	606	1832
9/16/99	607	1830
9/17/99	608	1829
9/18/99	608	1827
9/19/99	609	1826
9/20/99	610	1824
9/21/99	611	1823
9/22/99	611	1821
9/23/99	612	1820
9/24/99	613	1818
9/25/99	614	1817
9/26/99	615	1815
9/27/99	615	1814
9/28/99	616	1812
9/29/99	617	1811
9/30/99	618	1809

ADD ONE HOUR FOR CENTRAL DAYLIGHT TIME

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 is less than 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 exceeds 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

DATA COURTESY OF NATIONAL WEATHER SERVICE NORMAN

The data on this calendar is for Oklahoma City.
Normal values are calculated for the period 1961-1990.
Temperature extremes are for the period 1891-1997.
Precipitation extremes are for the period 1891-1997.

SEPTEMBER

Day	Avg. Temp	Avg. High	Record High	Year	Lowest Max	Year	1999	Avg. Low	Highest Min	Year	Record Low	Year	1999	Avg. Ppt.	Greatest Ppt.	Year	1999
1	78.1	89.8	105	1951	69	1994		66.4	80	1951	53	1956		0.15	2.53	1974	
2	77.4	88.5	105	1951	68	1967		66.4	78	1961	52	1974		0.12	4.08	1991	
3	77.8	89.8	105	1947	71	1974		65.8	80	1939	47	1974		0.25	3.16	1926	
4	77.5	88.7	106	1947	66	1961		66.4	79	1970	46	1974		0.07	1.74	1940	
5	77.3	88.5	103	1931	64	1962		66.1	77	1939	47	1974		0.05	1.65	1992	
6	77.6	89.2	106	1947	71	1918		66.0	76	1970	51	1974		0.03	2.20	1895	
7	77.1	88.2	102	1936	66	1962		66.0	77	1936	49	1898		0.07	1.37	1905	
8	76.5	88.1	101	1922	73	1995		65.0	80	1896	48	1957		0.03	3.16	1993	
9	76.0	87.5	99	1970	67	1929		64.6	77	1896	51	1962		0.06	1.88	1891	
10	74.9	86.3	101	1936	64	1929		63.6	77	1938	47	1962		0.09	2.40	1925	
11	75.2	87.0	100	1909	60	1898		63.4	77	1936	48	1940		0.04	2.36	1906	
12	74.3	85.2	102	1930	64	1989		63.3	78	1930	45	1898		0.22	3.03	1961	
13	72.8	83.9	102	1965	53	1989		61.8	78	1978	45	1902		0.18	1.88	1985	
14	72.7	83.3	102	1965	58	1975		62.1	77	1965	47	1993		0.20	3.61	1957	
15	72.8	83.2	100	1965	57	1903		62.5	76	1956	44	1993		0.12	2.35	1925	
16	72.9	83.6	101	1978	59	1903		62.2	76	1965	44	1993		0.12	1.97	1991	
17	72.2	82.3	99	1972	58	1973		62.2	78	1978	44	1903		0.14	1.42	1936	
18	73.2	84.5	99	1952	53	1971		62.0	78	1978	42	1981		0.09	3.10	1923	
19	73.2	83.9	98	1954	56	1971		62.5	76	1978	44	1971		0.07	1.81	1942	
20	72.5	83.8	100	1954	52	1896		61.1	76	1954	41	1971		0.17	3.82	1990	
21	71.1	81.6	97	1980	59	1995		60.7	76	1931	39	1983		0.14	2.04	1990	
22	71.0	82.3	96	1956	58	1995		59.8	76	1931	41	1995		0.27	7.53	1970	
23	70.0	81.1	97	1931	58	1925		59.0	75	1931	38	1995		0.06	1.47	1988	
24	69.4	80.4	98	1939	56	1974		58.3	74	1958	36	1989		0.17	3.87	1959	
25	69.8	80.9	97	1939	53	1926		58.7	74	1933	41	1989		0.06	1.41	1893	
26	69.3	80.3	98	1977	46	1926		58.2	72	1923	35	1912		0.15	1.74	1973	
27	69.5	80.5	96	1953	47	1927		58.5	72	1923	38	1942		0.11	1.75	1936	
28	69.0	80.0	104	1953	53	1984		58.0	73	1977	37	1896		0.05	2.88	1945	
29	68.3	79.8	98	1953	47	1945		56.9	71	1933	39	1916		0.10	2.90	1986	
30	67.2	79.2	100	1977	54	1985		55.1	72	1977	36	1895		0.09	1.79	1986	
MONTH	73.2	84.4	106	1947	46	1926		62.1	80	1951	35	1912		3.47	7.53	1970	

*The most tornadoes reported in September for Oklahoma was 16 in 1992.

TULSA CLIMATE CALENDAR
DATA COURTESY OF NATIONAL WEATHER SERVICE TULSA

The data on this calendar is for Tulsa.
Normal values are calculated for the period 1961-1990.
Temperature extremes are for the period 1905-1998.
Precipitation extremes are for the period 1888-1998.

SEPTEMBER

Day	Avg. Temp	Avg. High	Record High	Year	Lowest Max	Year	1999	Avg. Low	Highest Min	Year	Record Low	Year	1999	Avg. Ppt.	Greatest Ppt.	Year	1999
1	78	88	105	1985	48	1967		68	79	1936	69	1994		0.14	2.24	1974	
2	78	88	109	1939	51	1974		67	82	1936	68	1974		0.14	2.38	1934	
3	77	88	109	1939	47	1974		67	82	1995	70	1974		0.14	3.27	1962	
4	77	87	107	1998	46	1974		67	79	1947	66	1967		0.15	6.39	1940	
5	77	87	107	1913	49	1974		67	79	1985	70	1962		0.15	1.62	1926	
6	76	87	107	1907	52	1974		66	80	1998	69	1962		0.15	4.05	1971	
7	76	86	106	1936	50	1918		66	79	1985	65	1986		0.15	1.90	1905	
8	76	86	103	1925	50	1956		66	78	1983	66	1995		0.16	2.26	1941	
9	75	86	102	1909	51	1943		65	76	1991	70	1941		0.16	2.67	1951	
10	75	85	105	1936	48	1968		65	75	1991	72	1940		0.16	1.40	1905	
11	75	85	103	1909	45	1940		65	79	1936	72	1940		0.16	2.18	1925	
12	75	85	102	1930	48	1959		65	78	1936	68	1989		0.16	1.75	1989	
13	74	84	103	1965	49	1960		64	78	1936	55	1989		0.16	2.45	1993	
14	74	84	103	1965	46	1961		64	78	1931	57	1989		0.16	2.15	1957	
15	74	84	103	1956	42	1993		63	79	1956	60	1949		0.16	2.87	1962	
16	73	83	103	1956	44	1993		63	77	1956	66	1996		0.17	5.78	1971	
17	73	83	104	1931	44	1981		63	79	1978	61	1971		0.17	1.76	1923	
18	73	83	100	1952	42	1981		62	80	1978	56	1971		0.17	2.39	1971	
19	72	83	100	1954	45	1991		62	79	1954	58	1971		0.17	4.30	1974	
20	72	82	102	1954	39	1938		62	81	1910	64	1995		0.16	1.98	1915	
21	72	82	98	1980	38	1918		61	78	1980	57	1995		0.16	3.50	1902	
22	71	81	99	1921	37	1995		61	75	1931	58	1995		0.16	3.78	1970	
23	71	81	101	1931	37	1995		60	74	1931	60	1994		0.16	2.25	1997	
24	70	81	99	1931	37	1989		60	76	1958	58	1974		0.16	2.33	1945	
25	70	81	99	1939	43	1926		60	75	1986	58	1913		0.16	2.07	1959	
26	70	80	96	1938	37	1912		59	73	1998	48	1926		0.16	2.37	1996	
27	70	80	96	1954	35	1942		59	73	1977	51	1926		0.15	2.94	1920	
28	69	80	102	1953	38	1908		58	73	1986	55	1984		0.15	1.93	1945	
29	68	79	98	1953	37	1916		58	73	1955	55	1945		0.15	4.45	1986	
30	68	79	99	1979	35	1984		57	72	1977	59	1959		0.15	1.85	1959	
MONTH	73.3	83.6	109	1939	35	1984		63	82	1995	48	1926		0.16	6.39	1940	

*The average number of tornadoes reported in September for Oklahoma is 2.1.