

OKLAHOMA MONTHLY SUMMARY OCTOBER 1993

TABLE OF CONTENTS

October 1993 Oklahoma Summary.....	2
Table of October 1992/1993 Comparisons.....	5
October 1993 Data Summary Tables.....	6
October 1993 State Map Summary.....	11
December Climatological Normals.....	15
90-Day National Weather Service Outlook.....	17
Explanation of Tables and Maps.....	18
December 1993 Oklahoma City Climate Calendar.....	20
December 1993 Tulsa Climate Calendar.....	21

MONTHLY SUMMARY FOR OCTOBER 1993

A record setting cold wave during the last week of October put a major chill on Halloween trick-or-treating for the second time in three years. The cold air brought with it a rare October snowfall and a few reports of single-digit temperatures, including the all-time lowest temperature ever reported during October in the state's recorded history, 3 degrees above zero at Freedom on the morning of the 31st. The statewide average temperature of 58.1 degrees was 4 degrees below normal for the month, making this the coolest October since 1976 and the eighth coolest October, overall. The average temperature for the year-to-date is 62.1 degrees, 1.3 degrees below normal and the 10th lowest average since record keeping began in 1892.

Precipitation was slight over most of the state, averaging 1.78 inches, statewide. This October was the 30th driest on record with the total falling short of the normal value by 1.29 inches. Southeastern Oklahoma received some very heavy rains from the 15th through the 20th, resulting in some local flooding. As a result, monthly precipitation amounts in that region were generally above normal. Statewide average total precipitation for the year-to-date is 34.92 inches, 4.77 inches above normal. The first nine months of 1993 were the 20th wettest of the 102 comparable time periods on record for the state.

Pleasant autumn weather prevailed over the state most of the month. High temperatures in the 90s were reported several times, mainly in the west during the first eight days. Thunderstorms produced large hail in some areas of eastern Oklahoma on the evening of the 1st. Several locations reported in excess of an inch of precipitation, led by Fanshawe (LeFlore County) with an even two inches.

Another round of thunderstorms, preceding an advancing cold front, produced a possible tornado near Jay and another northeast of Tahlequah on the 8th. Reports of large hail were received from several counties in southern and eastern parts of the state. Broken Bow reported 2.24 inches of precipitation ending early on the 9th. Daily minimum temperatures at several reporting stations in northwestern Oklahoma were in the 20s and lower 30s on the 10th, 11th and 12th after passage of the front.

Thunderstorms produced large hail in south central and southwestern Oklahoma and in the Panhandle on the 12th. Roosevelt (Kiowa County) and Marietta (Love County) each reported 1.64 inches of precipitation. Daytime temperatures reached the upper 80s in southern Oklahoma from the 15th through the 18th, while thunderstorms in central Oklahoma on the 15th and eastern Oklahoma on the 16th produced large hail. Lyons (Adair County) reported 3.09 inches of precipitation on the 16th and the Tahlequah report from the 17th noted 2.44 inches.

Heavy rains in the southeast on the 18th, 19th and 20th produced flash flooding along the Glover River and other streams. Broken Bow reported precipitation on four consecutive days (17th through the 20th) totaling 10.14 inches, including a daily amount of 5.37 inches on the 20th. Hugo received 6.16 inches during the same period.

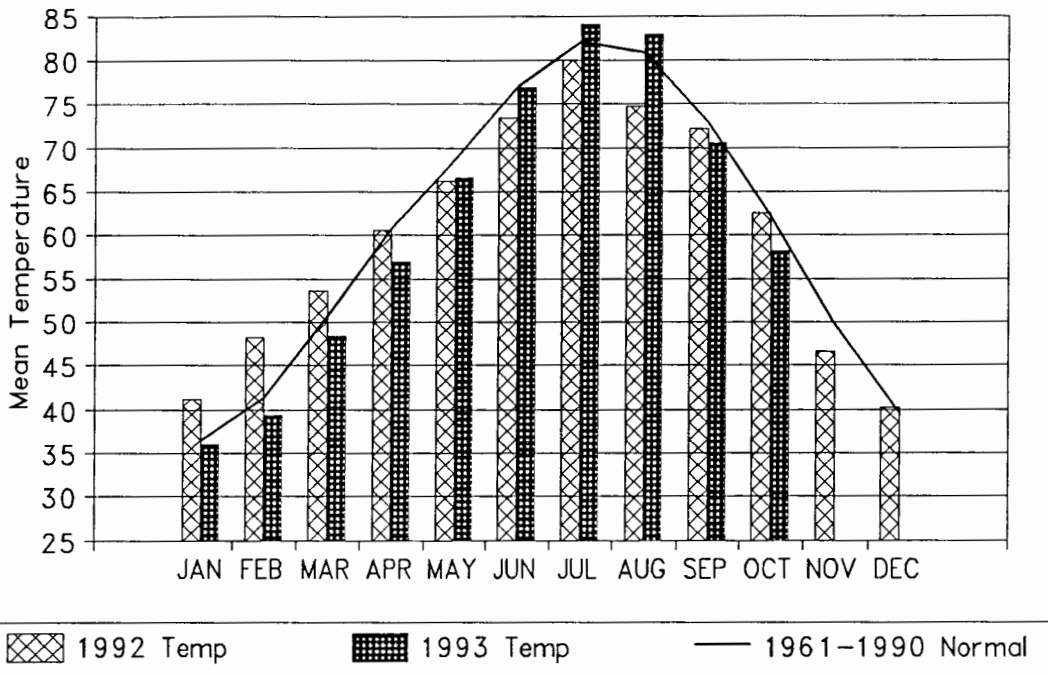
Cooler air prevailed during the remainder of the month as the state's lowest daily minimum temperatures, mostly in western Oklahoma, were in the 20s every day from the 21st to the end of the month. Kenton (Cimarron County) reported snow flurries on the 26th as daytime temperatures in the Panhandle climbed only to the low 40s.

The major outbreak of cold air ripped through the state on the 29th, producing a record October low temperature of 6 degrees and one and one-half inches of snow at Kenton. As the system moved further into the state, Kansas (Delaware County) reported 2 inches of snow and Tulsa received .3 inch of snow, the earliest measurable snowfall ever reported there. Snow, often mixed with sleet or rain, was reported as far south as Marietta and Kingston (Marshall County).

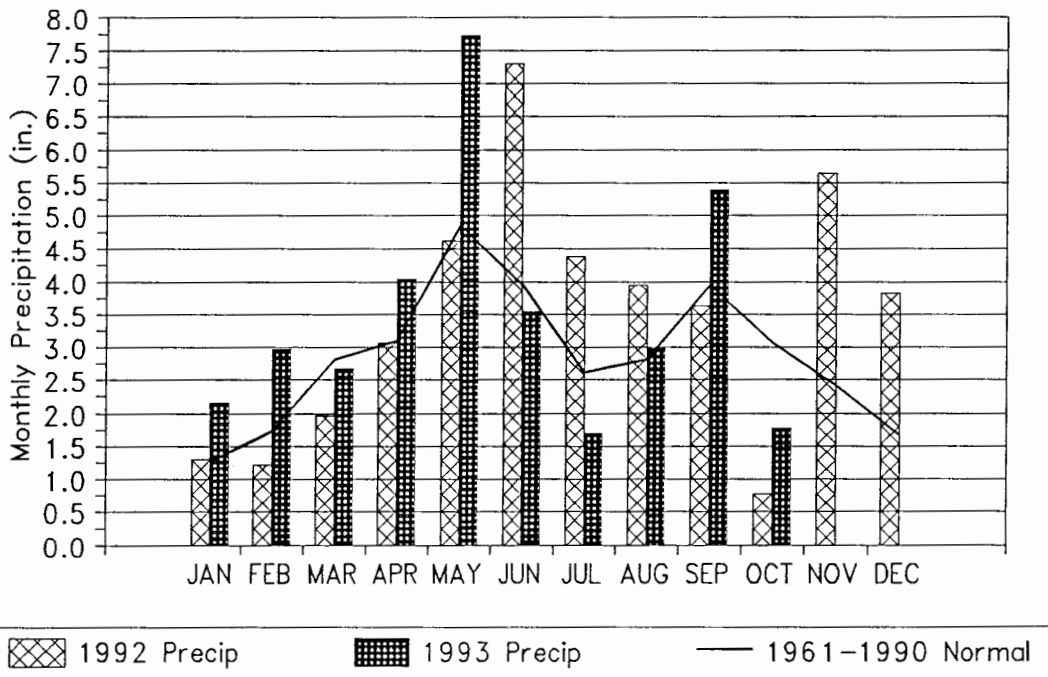
The temperature at Freedom (Woods County) on the morning of the 31st dropped to 3 degrees, breaking the state low temperature record for October that had been established only two days previously. Waynoka (Woods County) reported an 8 degree temperature the same day. The pre-1993 record for the state in October was 9 degrees at Hurley (Cimarron County) in 1917.

Howard L. Johnson

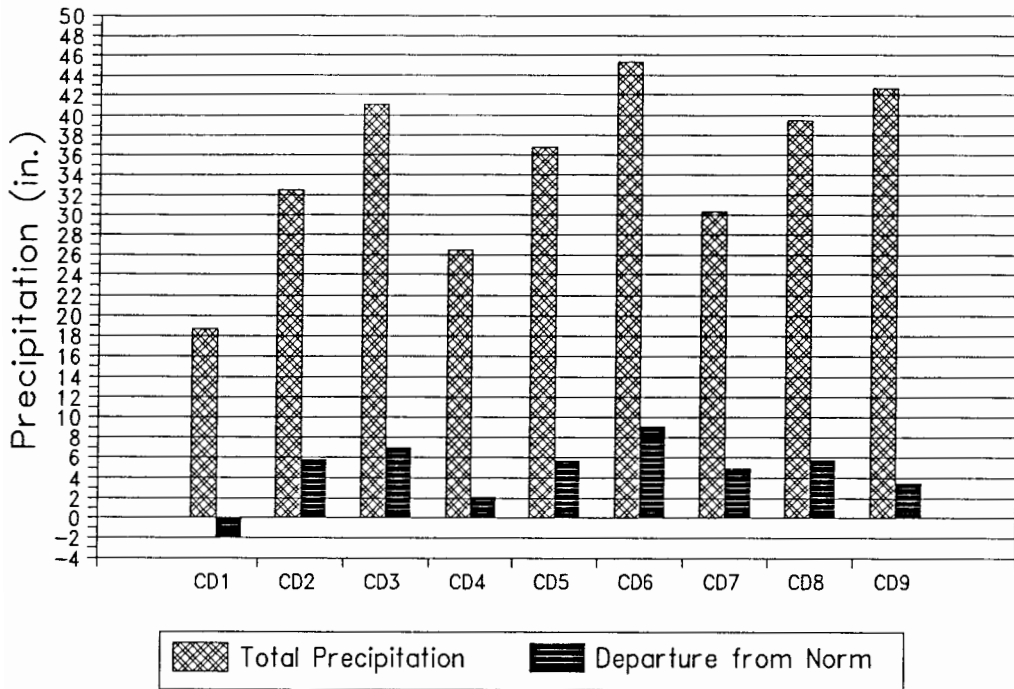
1992 and 1993 STATEWIDE TEMPERATURES Monthly Averages



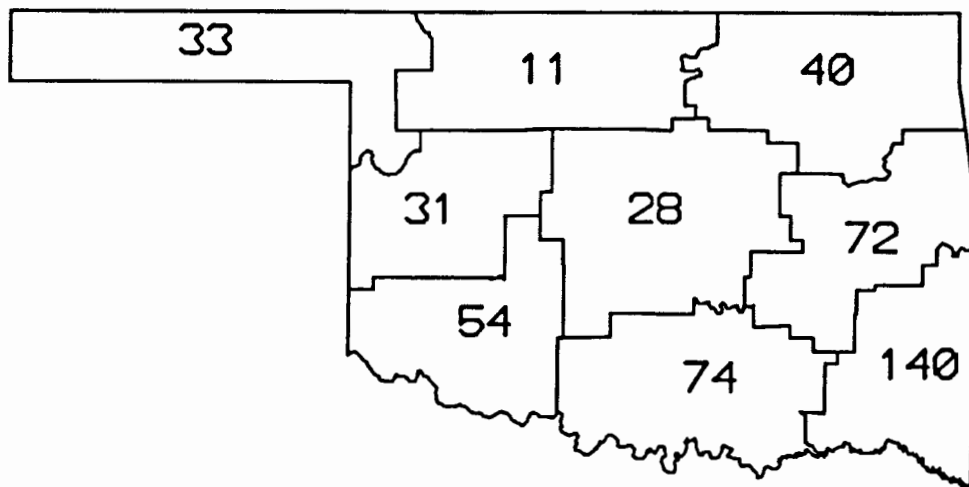
1992 and 1993 STATEWIDE PRECIPITATION Monthly Totals



CD Averaged Precipitation 1993 January through October Totals



CD PERCENT OF NORMAL PRECIPITATION



OCTOBER 1993

-5-
 EXTREME VALUES OF TEMPERATURE AND PRECIPITATION IN EACH CLIMATE DIVISION
 OCTOBER 1993

CD	MAX			MIN			24-HOUR			MONTHLY	
	TEMP	DATE	LOCATION	TEMP	DATE	LOCATION	PRECIP	DATE	LOCATION	PRECIP	LOCATION
1	97	1	GATE	6	30	KENTON	.54	17	REGNIER	1.16	HOOKER
2	95	15	MUTUAL	8	31	WAYNOKA	.78	8	MORRISON	.93	MORRISON
3	86	2	PRYOR	13	31	MANNFORD	1.80	16	BIXBY	3.05	KANSAS
	86	6	RALSTON	13	31	MIAMI					
	86	7	RALSTON	13	31	RALSTON					
4	93	1	FT SUPPLY DAM	9	31	TALOGA	1.66	8	GEARY	1.76	GEARY
5	97	3	HENNESSEY	12	31	PURCELL	1.80	20	ARCADIA	3.01	ARCADIA
6	88	2	LAKE EUFAULA	17	31	OKMULGEE	3.09	16	LYONS	6.14	LYONS
7	93	1	CHATTANOOGA	12	31	ALTUS DAM	1.64	13	ROOSEVELT	2.22	FREDERICK
				12	31	CARNEGIE					
8	89	6	MARLOW	14	31	MARLOW	3.73	19	MADILL	6.76	MARIETTA
	89	1	WAURIKA								
9	95	7	ANTLERS	18	30	POTEAU	5.37	20	BROKEN BOW	16.87	CARNASAW TWR
				18	31	TUSKAHOMA					

TABLE OF 1992/1993 COMPARISONS

Station	October Temperature (°F)		October Precipitation (in.)	
	1992	1993	1992	1993
Arnett	59.9	54.6	0.77	0.24
Enid	61.7	58.6	0.76	0.20
Mutual	60.4	56.5	0.12	0.18
Tulsa	61.4	57.6	0.69	0.98
Elk City	62.3	59.3	trace	0.51
Oklahoma City	62.3	57.1	1.12	0.47
McAlester	66.2	61.0	0.64	3.17
Altus Irr Sta	65.5	60.8	0.01	0.94
Durant	64.4	59.3	0.39	4.40
Ada	64.2	58.8	0.59	0.95
Hugo	64.7	61.2	0.12	7.96

EXTREMES

Variable	Station	Division	Observation	Date
Minimum temperature (°F)	Kenton	1	6	30
Maximum temperature (°F)	Gate	1	97	1
	Hennessey	5	97	3
Maximum 24-hour precipitation	Broken Bow	9	5.37"	20

OCTOBER 1993 SUMMARY FOR NORTHWEST DIVISION (CD1)

NAME	ID	CD	DEV				MIN		HEAT		DEV		COOL		DEV		TOT	NUM	DEV	MAX	DAY
			MEAN	NUM	FROM	MAX	TEMP	DAY	DEG	FROM	DEG	FROM	DEG	FROM	PPT	OBS					
ARNETT	332	1	54.6	31	-4.2	90.	1	14.	31	346.0	123.0	25.0	-6.0	.244	31	-1.59	.12	18			
BEAVER	593	1	54.6	31	-3.0	96.	7	13.	31	358.5	111.5	36.0	19.0	.330	31	-.86	.12	17			
BOISE CITY 2 E	908	1	55.3	31	-1.9	90.	1	9.	30	323.0	69.0	23.5	10.5	.470	31	-.39	.20	17			
BUFFALO	1243	1	58.3	31	-3.3	94.	1	13.	31	247.0	91.0	38.5	-12.5	.420	31	-1.52	.10	17			
FARGO	3070	1	*****	0	*****	****	0	****	0	*****	*****	*****	*****	.262	31	-1.38	.15	18			
GAGE FAA APT	3407	1	56.3	31	-4.1	89.	6	10.	31	302.0	117.0	33.0	-9.0	.281	31	-1.28	.15	17			
GATE	3489	1	56.8	31	-2.5	97.	1	16.	30	293.5	88.5	40.5	12.5	.350	31	-1.06	.17	20			
GOODWELL RES ST	3628	1	53.5	31	-3.3	93.	1	11.	30	373.5	105.5	16.5	2.5	.631	31	-.33	.31	17			
GUYMON	3835	1	59.7	23	*****	91.	6	13.	30	149.5	*****	28.0	*****	.400	26	*****	.16	18			
HOOKER	4298	1	54.6	31	-3.6	95.	1	13.	30	349.0	109.0	26.5	-2.5	1.163	31	.22	.49	18			
KENTON	4766	1	53.9	31	-1.8	94.	1	6.	30	358.5	59.5	15.5	4.5	.700	30	*****	.39	17			
LAVERNE	5045	1	*****	0	*****	****	0	****	0	*****	*****	*****	*****	.482	31	-.93	.30	18			
OPTIMA LAKE	6740	1	54.3	31	*****	95.	1	12.	30	359.0	*****	27.0	*****	.622	31	*****	.33	17			
REGNIER	7534	1	*****	0	*****	****	0	****	0	*****	*****	*****	*****	.820	31	.06	.54	17			
TURPIN 4 SSE	9017	1	54.0	31	*****	95.	1	13.	31	371.0	*****	28.5	*****	.540	31	*****	.35	18			

OCTOBER 1993 SUMMARY FOR NORTH CENTRAL DIVISION (CD2)

NAME	ID	CD	DEV				MIN		HEAT		DEV		COOL		DEV		TOT	NUM	DEV	MAX	DAY
			MEAN	NUM	FROM	MAX	TEMP	DAY	DEG	FROM	DEG	FROM	DEG	FROM	PPT	OBS					
ALVA	193	2	58.6	31	*****	91.	6	14.	31	245.0	*****	46.5	*****	.070	31	*****	.04	18			
VANCE AFB	302	2	*****	0	*****	****	0	****	0	*****	*****	*****	*****	.224	31	*****	.10	8			
BILLINGS	755	2	56.2	31	-4.7	87.	7	11.	31	307.5	140.5	34.5	-5.5	.045	31	-2.68	.04	30			
BLACKWELL 2E	818	2	57.1	31	-4.1	88.	6	15.	31	275.0	119.0	30.5	-8.5	.386	31	-2.31	.28	16			
BRAMAN	1075	2	*****	0	*****	****	0	****	0	*****	*****	*****	*****	.193	31	*****	.13	8			
CEDARDALE	1620	2	*****	0	*****	****	0	****	0	*****	*****	*****	*****	.225	31	*****	.17	8			
CHEROKEE	1724	2	58.8	30	-3.4	92.	1	14.	31	240.5	106.5	54.5	7.5	.000	30	*****	.00	31			
ENID	2912	2	58.6	31	-3.8	88.	1	17.	31	251.0	114.0	53.5	-2.5	.200	31	-2.91	.13	8			
FT SUPPLY DAM	3304	2	56.1	31	-2.8	93.	1	15.	30	309.5	98.5	34.0	12.0	.395	30	*****	.20	18			
FREEDOM	3358	2	54.3	31	-6.7	94.	1	10.	31	363.5	202.5	31.0	-6.0	.182	31	-1.68	.17	18			
GREAT SALT PLNS	3740	2	57.4	31	-3.2	91.	1	14.	31	274.5	97.5	39.5	-1.5	.102	31	-1.96	.04	8			
HARDY	3909	2	*****	0	*****	****	0	****	0	*****	*****	*****	*****	.463	31	*****	.22	15			
HELENA 1 SSE	4019	2	56.1	31	-3.7	90.	1	12.	31	313.5	120.5	37.5	6.5	.173	31	-1.92	.13	8			
JEFFERSON	4573	2	58.4	31	-3.6	90.	6	11.	31	252.0	110.0	47.0	-2.0	.231	31	-2.42	.11	7			
LAMONT	5013	2	*****	0	*****	****	0	****	0	*****	*****	*****	*****	.083	31	*****	.04	8			
MEDFORD	5768	2	*****	0	*****	****	0	****	0	*****	*****	*****	*****	.210	31	*****	.09	7			
MORRISON	6065	2	*****	0	*****	****	0	****	0	*****	*****	*****	*****	.930	31	*****	.78	8			
MUTUAL	6139	2	56.5	31	-2.9	95.	15	13.	31	312.5	109.5	47.5	18.5	.180	31	-1.50	.09	18			
NEWKIRK	6278	2	57.7	31	-3.9	86.	6	15.	31	270.0	123.0	43.0	2.0	.113	31	-3.12	.08	16			
ORIENTA	6751	2	*****	0	*****	****	0	****	0	*****	*****	*****	*****	.080	31	-1.80	.06	8			
PERRY	7012	2	60.7	31	-2.1	89.	6	17.	31	210.0	83.0	75.5	16.5	.720	31	-2.06	.46	8			
PONCA CITY FAA	7201	2	58.9	31	-1.8	88.	6	17.	31	240.5	69.5	52.5	14.5	.286	31	-2.63	.10	16			
RED ROCK 1 NNE	7505	2	*****	0	*****	****	0	****	0	*****	*****	*****	*****	.201	31	-2.59	.20	8			
WAYNOKA	9404	2	57.2	31	-4.5	89.	6	8.	31	280.5	115.5	40.0	-23.0	.230	31	-1.52	.13	18			
WOODWARD	9760	2	*****	0	*****	****	0	****	0	*****	*****	*****	*****	.252	31	-1.62	.18	18			

OCTOBER 1993 SUMMARY FOR NORTHEAST DIVISION (CD3)

NAME	ID	CD	DEV				HEAT				COOL				DEV			
			MEAN TEMP	NUM OBS	FROM NORM	MAX TEMP	MIN DAY	DEG DAY	DEV FROM NORM	COOL DEG	DEV FROM NORM	TOT PPT	NUM OBS	FROM NORM	MAX 24-HR	DAY		
BARNSDALL	535	3	55.8	30	-5.6	83.	7	14.	31	298.5	139.5	21.5	-28.5	1.033	31	-2.16	.56	16
BARTLESVILLE 2W	548	3	57.3	31	-4.3	84.	7	16.	31	269.0	119.0	31.5	-13.5	.673	31	-2.63	.27	8
BIXBY	782	3	56.8	31	-3.7	85.	2	19.	31	276.0	99.0	20.5	-17.5	2.400	31	-1.30	1.80	16
BURBANK	1256	3	*****	0	*****	****	0	****	0	*****	*****	*****	*****	.604	31	-2.49	.27	8
CHELSEA 4 S	1717	3	*****	0	*****	****	0	****	0	*****	*****	*****	*****	1.650	31	*****	.84	16
CLAREMORE	1828	3	56.1	31	-4.3	85.	2	17.	31	296.0	115.0	21.5	-17.5	1.440	31	-2.12	.70	16
CLEVELAND 5 WSW	1902	3	57.5	31	*****	84.	6	17.	31	266.5	*****	34.0	*****	.920	31	*****	.50	16
FORAKER	3250	3	*****	0	*****	****	0	****	0	*****	*****	*****	*****	.521	31	-2.92	.36	16
HOLLOW	4258	3	*****	0	*****	****	0	****	0	*****	*****	*****	*****	.811	31	-2.82	.16	2
HOMINY	4289	3	*****	0	*****	****	0	****	0	*****	*****	*****	*****	1.402	31	-1.56	.86	2
HULAH DAM	4393	3	58.6	20	*****	84.	8	33.	25	147.0	*****	19.5	*****	.170	24	*****	.17	16
JAY TOWER	4567	3	56.2	31	*****	82.	8	20.	31	290.5	*****	18.0	*****	2.870	31	*****	1.20	2
KANSAS 1 ESE	4672	3	56.0	31	-5.4	82.	1	16.	30	299.5	136.5	19.5	-31.5	3.052	31	-1.09	1.15	2
KEYSTONE DAM	4812	3	58.8	21	*****	84.	4	33.	23	150.0	*****	20.5	*****	.781	27	*****	.28	16
LENAPAH	5118	3	*****	0	*****	****	0	****	0	*****	*****	*****	*****	.860	21	*****	.43	16
MANNFORD 6 NW	5522	3	58.0	31	-4.1	85.	6	13.	31	261.0	117.0	44.0	-10.0	.820	31	-2.26	.26	16
MARAMEC	5540	3	*****	0	*****	****	0	****	0	*****	*****	*****	*****	.880	31	-2.14	.45	16
MIAMI	5855	3	53.7	30	-6.2	82.	8	13.	31	343.0	146.0	5.0	-34.0	.831	31	-2.90	.29	2
NOWATA	6485	3	56.5	30	-4.8	82.	7	17.	31	279.0	119.0	24.5	-20.5	2.145	30	*****	1.45	16
ONETA 1 WNW	6713	3	*****	0	*****	****	0	****	0	*****	*****	*****	*****	2.740	31	*****	1.55	16
PAWHUSKA	6935	3	56.9	31	-4.3	84.	6	15.	31	283.5	126.5	32.0	-7.0	.993	30	*****	.43	8
PAWNEE	6940	3	*****	0	*****	****	0	****	0	*****	*****	*****	*****	.654	31	-2.18	.57	8
PRYOR 6 N	7309	3	54.7	26	*****	86.	2	17.	31	279.0	*****	11.0	*****	1.131	29	*****	.40	16
RALSTON	7390	3	56.7	31	-4.9	86.	7	13.	31	292.5	150.5	35.0	-2.0	.981	31	-1.91	.85	8
RAMONA 4 N	7394	3	*****	0	*****	****	0	****	0	*****	*****	*****	*****	.300	31	*****	.28	10
SKIATOOK	8258	3	*****	0	*****	****	0	****	0	*****	*****	*****	*****	.550	31	-2.63	.26	17
SPAVINAW	8380	3	59.2	31	-3.9	83.	5	19.	31	225.5	98.5	46.0	-22.0	1.531	31	-2.16	.58	16
TULSA WSO APT	8992	3	57.6	31	-4.6	85.	1	20.	31	268.5	124.5	39.5	-17.5	.982	31	-2.68	.58	16
UPPER SPAVINAW	9101	3	57.0	26	*****	85.	7	20.	31	231.0	*****	22.5	*****	2.102	29	*****	.60	17
VINITA 2 N	9203	3	54.9	28	*****	82.	8	15.	31	299.0	*****	15.5	*****	1.960	29	*****	.80	8
WAGONER	9247	3	58.6	31	-4.3	83.	1	20.	31	236.5	100.5	39.0	-32.0	2.901	31	-1.22	1.05	16
WANN	9298	3	*****	0	*****	****	0	****	0	*****	*****	*****	*****	.981	31	*****	.66	17
WYNONA	9792	3	*****	0	*****	****	0	****	0	*****	*****	*****	*****	1.520	31	*****	.71	16

OCTOBER 1993 SUMMARY FOR WEST CENTRAL DIVISION (CD4)

NAME	ID	CD	DEV				HEAT				COOL				DEV			
			MEAN TEMP	NUM OBS	FROM NORM	MAX TEMP	MIN DAY	DEG DAY	DEV FROM NORM	COOL DEG	DEV FROM NORM	TOT PPT	NUM OBS	FROM NORM	MAX 24-HR	DAY		
CANTON DAM	1445	4	57.1	29	*****	88.	1	20.	31	267.0	*****	37.0	*****	.322	30	*****	.12	20
CHEYENNE	1738	4	*****	0	*****	****	0	****	0	*****	*****	*****	*****	.000	31	-2.08	.00	31
CLINTON	1909	4	58.7	31	-3.8	88.	6	15.	31	245.5	117.5	50.5	-.5	.674	31	-2.15	.60	7
COLONY	2039	4	*****	0	*****	****	0	****	0	*****	*****	*****	*****	1.752	31	*****	1.48	8
CORDELL	2125	4	*****	0	*****	****	0	****	0	*****	*****	*****	*****	1.142	31	-1.38	.90	8
ELK CITY 1 E	2849	4	59.3	24	*****	87.	6	17.	30	186.5	*****	48.5	*****	.512	24	*****	.29	8
ERICK 4 E	2944	4	58.1	31	-3.4	92.	1	13.	31	260.5	118.5	47.0	14.0	.451	31	-1.71	.17	8
FT SUPPLY DAM	3304	4	56.7	30	-2.3	93.	1	15.	30	284.5	73.5	34.0	12.0	.395	30	*****	.20	18
GEARY	3497	4	59.7	31	-2.0	88.	6	21.	30	214.0	62.0	51.0	2.0	1.760	31	-.48	1.66	8
HAMMON 1 NNE	3871	4	55.2	31	-4.3	91.	1	12.	31	332.5	129.5	30.0	-3.0	.102	31	-1.88	.10	18
LEEDEY	5090	4	*****	0	*****	****	0	****	0	*****	*****	*****	*****	.570	31	-1.33	.39	8
MACKIE 4 NNW	5463	4	*****	0	*****	****	0	****	0	*****	*****	*****	*****	.050	31	*****	.03	13
MORAVIA 2 NNE	6035	4	*****	0	*****	****	0	****	0	*****	*****	*****	*****	1.601	31	-.79	1.43	8
OKEENE	6629	4	58.4	31	-4.4	88.	6	13.	31	253.5	128.5	47.5	-9.5	.360	31	-2.09	.26	8
RETROP	7565	4	*****	0	*****	****	0	****	0	*****	*****	*****	*****	1.320	31	*****	1.05	8
REYDON	7579	4	59.1	29	*****	90.	1	13.	31	225.0	*****	53.0	*****	.100	31	-1.55	.04	17
SAYRE	7952	4	*****	0	*****	****	0	****	0	*****	*****	*****	*****	.530	31	-1.63	.21	8
SWEETWATER 2 E	8652	4	*****	0	*****	****	0	****	0	*****	*****	*****	*****	.200	31	*****	.20	12
TALOGA	8708	4	57.1	31	-3.6	88.	6	9.	31	278.5	115.5	33.0	4.0	.100	31	-1.90	.06	16
THOMAS	8815	4	*****	0	*****	****	0	****	0	*****	*****	*****	*****	.350	31	*****	.35	8
VICI	9172	4	*****	0	*****	****	0	****	0	*****	*****	*****	*****	.401	31	-1.56	.20	17
WATONGA	9364	4	58.4	31	-3.3	88.	6	13.	31	249.5	102.5	44.0	-1.0	.321	31	-2.06	.24	8
WEATHERFORD	9422	4	58.7	31	-2.0	90.	1	18.	31	242.0	75.0	48.0	14.0	.952	31	-1.74	.92	7

OCTOBER 1993 SUMMARY FOR CENTRAL DIVISION (CD5)

NAME	ID	CD	DEV					HEAT		DEV		COOL		DEV		TOT PPT	NUM OBS	DEV		24-HR	DAY
			MEAN TEMP	NUM OBS	FROM NORM	MAX TEMP	MIN TEMP	DAY	DEG DAY	FROM NORM	DEG DAY	FROM NORM	DEG DAY	FROM NORM	FROM NORM			MAX	DAY		
AMBER	200	5	*****	0	*****	****	0	****	0	*****	*****	*****	*****	.760	31	*****	.31	8			
ARCADIA	288	5	*****	0	*****	****	0	****	0	*****	*****	*****	*****	3.010	31	*****	1.80	20			
TINKER AFB	325	5	*****	0	*****	****	0	****	0	*****	*****	*****	*****	.255	31	*****	.16	20			
BLANCHARD 2 SSW	830	5	59.0	31	-4.4	87.	1	18.	31	230.5	109.5	43.5	-27.5	.940	31	-2.43	.32	8			
BRISTOW	1144	5	58.1	31	-4.9	85.	6	16.	31	250.0	119.0	37.0	-32.0	1.671	31	-1.48	1.05	16			
CHANDLER	1684	5	59.6	29	*****	86.	6	24.	31	209.0	*****	51.0	*****	.580	31	-2.44	.27	16			
CHICKASHA EX ST1750	5	57.8	31	-5.2	88.	8	14.	31	262.5	137.5	40.0	-23.0	.800	31	-2.45	.35	20				
COX CITY 1 E	2196	5	*****	0	*****	****	0	****	0	*****	*****	*****	*****	.350	31	*****	.21	8			
CRESCENT	2242	5	*****	0	*****	****	0	****	0	*****	*****	*****	*****	1.080	31	*****	.58	8			
CUSHING	2318	5	57.2	31	-4.4	85.	7	20.	31	275.0	121.0	33.0	-16.0	1.170	31	-1.72	1.10	16			
EL RENO 1 N	2818	5	59.1	24	*****	86.	6	17.	31	188.5	*****	47.5	*****	.720	31	-1.80	.57	8			
GUTHRIE	3821	5	59.6	31	-3.5	88.	6	17.	31	228.5	109.5	62.0	2.0	.873	31	-1.84	.40	16			
HENNESSEY 4 ESE4055	5	57.7	28	*****	97.	3	14.	31	256.0	*****	52.0	*****	.401	29	*****	.35	8				
INGALLS	4489	5	*****	0	*****	****	0	****	0	*****	*****	*****	*****	1.203	31	*****	.65	16			
KINGFISHER 2 SE4861	5	57.9	31	-4.9	88.	6	16.	31	262.0	138.0	42.0	-14.0	.620	31	-1.71	.41	8				
KONAWA	4915	5	*****	0	*****	****	0	****	0	*****	*****	*****	*****	1.080	31	-2.99	.74	20			
MARSHALL	5589	5	*****	0	*****	****	0	****	0	*****	*****	*****	*****	.460	31	-2.29	.46	8			
MEEKER 4 W	5779	5	56.8	27	*****	84.	6	18.	31	262.0	*****	39.5	*****	1.010	28	*****	.79	8			
MULHALL	6110	5	*****	0	*****	****	0	****	0	*****	*****	*****	*****	1.030	31	*****	.72	8			
NORMAN 3 S	6386	5	57.7	31	-5.6	87.	6	15.	31	267.0	155.0	42.0	-17.0	.801	31	-2.43	.36	20			
OILTON 2 SE	6616	5	*****	0	*****	****	0	****	0	*****	*****	*****	*****	.470	31	*****	.47	15			
OKEMAH	6638	5	59.7	31	-3.4	86.	16	20.	31	216.0	91.0	52.5	-14.5	1.760	31	-2.08	.95	2			
OKLAHOMA CTY WS6661	5	57.1	31	-4.9	87.	6	16.	31	275.5	138.5	31.5	-12.5	.471	31	-2.76	.20	7				
PERKINS	7003	5	*****	0	*****	****	0	****	0	*****	*****	*****	*****	1.530	31	-1.44	.92	16			
PIEDMONT	7068	5	*****	0	*****	****	0	****	0	*****	*****	*****	*****	.680	31	*****	.45	8			
PRAGUE	7264	5	*****	0	*****	****	0	****	0	*****	*****	*****	*****	.680	31	-3.15	.40	20			
PURCELL 5 SW	7327	5	58.7	31	-4.5	86.	16	12.	31	250.5	131.5	54.5	-8.5	1.420	31	-2.52	.70	20			
SEMINOLE	8042	5	60.0	31	-4.4	93.	8	18.	31	214.0	120.0	58.5	-16.5	.652	31	-3.20	.60	20			
SHAWNEE	8110	5	*****	0	*****	****	0	****	0	*****	*****	*****	*****	.652	31	-3.42	.45	20			
STELLA	8479	5	*****	0	*****	****	0	****	0	*****	*****	*****	*****	.760	31	*****	.40	20			
STILLWATER 2 W	8501	5	56.7	31	-3.8	86.	7	15.	31	294.5	126.5	38.0	10.0	.663	31	-2.17	.40	8			
STROUD 1 N	8563	5	*****	0	*****	****	0	****	0	*****	*****	*****	*****	.812	31	*****	.45	16			
TECUMSEH	8751	5	*****	0	*****	****	0	****	0	*****	*****	*****	*****	.790	31	*****	.56	20			
TROUSDALE	8960	5	*****	0	*****	****	0	****	0	*****	*****	*****	*****	.790	31	*****	.75	2			
UNION CITY 1 SE9086	5	*****	0	*****	****	0	****	0	*****	*****	*****	*****	.640	31	-2.63	.43	8				
WELTY 1 SSE	9479	5	*****	0	*****	****	0	****	0	*****	*****	*****	*****	1.662	31	*****	1.26	2			
WEWOKA	9575	5	*****	0	*****	****	0	****	0	*****	*****	*****	*****	.750	31	-2.96	.54	20			

OCTOBER 1993 SUMMARY FOR EAST CENTRAL DIVISION (CD6)

NAME	ID	CD	DEV					HEAT		DEV		COOL		DEV		TOT PPT	NUM OBS	DEV		24-HR	DAY
			MEAN TEMP	NUM OBS	FROM NORM	MAX TEMP	MIN TEMP	DAY	DEG DAY	FROM NORM	DEG DAY	FROM NORM	DEG DAY	FROM NORM	FROM NORM			MAX	DAY		
ASHLAND	364	6	*****	0	*****	****	0	****	0	*****	*****	*****	*****	2.100	31	*****	1.30	20			
BEGGS	631	6	*****	0	*****	****	0	****	0	*****	*****	*****	*****	2.910	31	*****	1.37	16			
BOYNTON	1027	6	*****	0	*****	****	0	****	0	*****	*****	*****	*****	2.850	28	*****	1.15	19			
CALVIN	1391	6	*****	0	*****	****	0	****	0	*****	*****	*****	*****	.330	31	-3.77	.33	1			
CHECOTAH	1711	6	*****	0	*****	****	0	****	0	*****	*****	*****	*****	2.022	31	-2.21	.94	20			
CLAYTON 14 WNW	1858	6	*****	0	*****	****	0	****	0	*****	*****	*****	*****	4.122	31	*****	1.32	20			
DEWAR 2 NE	2485	6	*****	0	*****	****	0	****	0	*****	*****	*****	*****	.550	31	-3.41	.50	20			
DUSTIN	2690	6	*****	0	*****	****	0	****	0	*****	*****	*****	*****	1.400	31	*****	.75	20			
EUFULA	2993	6	60.1	31	-4.5	87.	1	23.	31	201.0	98.0	49.0	-42.0	3.830	31	-.29	1.94	20			
HANNA	3884	6	58.8	31	-4.2	86.	16	19.	31	233.5	115.5	41.0	-15.0	1.322	31	-2.83	.85	20			
HARTSHORNE	3946	6	*****	0	*****	****	0	****	0	*****	*****	*****	*****	2.540	31	*****	1.17	19			
HASKELL	3956	6	*****	0	*****	****	0	****	0	*****	*****	*****	*****	2.960	31	-1.11	1.34	16			
HOLDENVILLE	4235	6	58.9	31	-4.7	86.	16	18.	31	232.5	116.5	42.5	-30.5	1.300	31	-2.90	.69	20			
LAKE EUFAULA	4975	6	59.4	30	*****	88.	2	25.	30	203.0	*****	34.0	*****	2.901	30	*****	1.40	20			
LYONS 2 N	5437	6	*****	0	*****	****	0	****	0	*****	*****	*****	*****	6.141	31	2.66	3.09	16			
MARBLE CITY	5546	6	*****	0	*****	****	0	****	0	*****	*****	*****	*****	2.974	31	*****	1.20	20			
MCALESTER FAA	5664	6	61.0	31	-2.1	87.	6	20.	31	193.0	63.0	67.5	-3.5	3.172	31	-1.41	1.65	20			
MCCURTAIN 1 SE	5693	6	60.1	31	-3.6	87.	1	20.	31	207.0	92.0	54.5	-20.5	4.132	31	.23	1.85	2			
MUSKOGEE	6130	6	59.0	31	-3.6	84.	1	26.	31	223.5	89.5	36.5	-23.5	1.000	31	-3.15	.64	19			
OKMULGEE W W	6670	6	56.0	31	-5.7	85.	7	17.	31	299.5	143.5	19.0	-35.0	1.891	31	-2.12	.80	2			
OKTAHA 2 NE	6678	6	*****	0	*****	****	0	****	0	*****	*****	*****	*****	2.390	31	*****	.97	16			
QUINTON	7372	6	*****	0	*****	****	0	****	0	*****	*****	*****	*****	4.242	31	.14	1.65	2			
SALLISAW 2 NE	7862	6	58.0	31	-5.2	86.	1	18.	31	243.5	118.5	28.0	-41.0	5.151	31	.71	2.00	2			
SCIPIO	7979	6	*****	0	*****	****	0	****	0	*****	*****	*****	*****	2.020	31	*****	.97	20			
SHORT	8170	6	*****	0	*****	****	0	****	0	*****	*****	*****	*****	4.091	31	*****	1.53	17			
TAHLEQUAH	8677	6	57.3	31	-4.5	85.	5	20.	31	271.0	114.0	31.5	-26.5	5.471	31	1.26	2.44	17			
WEBBERS FALLS	9445	6	56.8	31	-4.6	87.	2	19.	31	278.0	125.0	25.0	-16.0	3.480	31	-1.04	1.83	20			
WESTVILLE	9523	6	*****	0	*****	****	0	****	0	*****	*****	*****	*****	5.493	31	*****	1.52	17			
WETUMKA 3 NE	9571	6	*****	0	*****	****	0	****	0	*****	*****	*****	*****	2.110	31	-1.73	1.30	2			

OCTOBER 1993 SUMMARY FOR SOUTHWEST DIVISION (CD7)

NAME	ID	CD	DEV					HEAT		DEV		COOL		DEV		TOT	NUM	DEV		MAX	DAY
			MEAN	NUM	FROM	MAX	MIN	DEG	DEG	FROM	DEG	DEG	FROM	FROM	NORM			FROM	NORM		
ALTUS IRR STA	179	7	60.8	31	-3.8	89.	6	17.	31	190.5	90.5	59.5	-28.5	.940	31	-1.43	.51	13			
ALTUS DAM	184	7	57.1	31	-5.4	91.	1	12.	31	295.0	163.0	49.5	-5.5	1.360	31	-1.38	.90	13			
ANADARKO	224	7	59.6	26	*****	87.	1	29.	29	178.5	*****	37.0	*****	.850	31	-1.85	.32	13			
APACHE	260	7	*****	0	*****	*****	0	****	0	*****	*****	*****	*****	1.440	31	-1.37	.73	13			
ALTUS AFB	447	7	*****	0	*****	*****	0	****	0	*****	*****	*****	*****	.544	30	*****	.40	13			
CARNEGIE 2 ENE	1504	7	58.9	31	-4.1	90.	6	12.	31	250.0	132.0	61.0	5.0	1.531	31	-.86	.62	8			
CHATTANOOGA	1706	7	61.0	31	-3.3	93.	1	16.	31	208.5	116.5	84.5	13.5	.951	31	-1.77	.50	20			
DUNCAN 11 W	2668	7	*****	0	*****	*****	0	****	0	*****	*****	*****	*****	1.160	31	*****	.77	19			
FREDERICK	3353	7	58.8	31	-4.5	89.	2	21.	31	238.5	113.5	47.5	-24.5	2.220	31	-.43	.85	20			
GRANDFIELD 4 NW	3709	7	*****	0	*****	*****	0	****	0	*****	*****	*****	*****	1.530	31	-1.34	.76	20			
HEADRICK	3998	7	*****	0	*****	*****	0	****	0	*****	*****	*****	*****	1.371	31	*****	1.00	12			
HOBART FAA APT	4204	7	58.9	31	-4.0	87.	6	18.	31	249.0	122.0	58.5	-3.5	1.421	31	-1.23	.79	13			
HOLLIS	4249	7	59.5	31	-3.8	91.	6	17.	31	223.0	105.0	51.5	-13.5	1.570	31	-.60	1.03	13			
LAWTON	5063	7	58.9	31	-3.7	90.	2	20.	31	237.5	107.5	49.0	-7.0	1.370	31	-1.61	.53	13			
FORT SILL	5068	7	59.2	31	*****	90.	1	20.	31	238.5	*****	58.0	*****	1.363	31	*****	.56	12			
LOOKEBA 2 ENE	5329	7	*****	0	*****	*****	0	****	0	*****	*****	*****	*****	1.381	31	-1.35	1.13	8			
MANGUM RES STA	5509	7	59.3	31	-4.5	89.	6	14.	31	228.5	118.5	52.5	-20.5	1.010	31	-1.65	.42	13			
RANDLETT 9 E	7403	7	*****	0	*****	*****	0	****	0	*****	*****	*****	*****	1.800	31	*****	.93	20			
ROOSEVELT	7727	7	*****	0	*****	*****	0	****	0	*****	*****	*****	*****	1.900	31	-.66	1.64	13			
SEDAN	8016	7	*****	0	*****	*****	0	****	0	*****	*****	*****	*****	1.361	31	*****	.95	13			
SNYDER	8299	7	*****	0	*****	*****	0	****	0	*****	*****	*****	*****	1.332	31	-1.20	.62	13			
VINSON 3 WNW	9212	7	*****	0	*****	*****	0	****	0	*****	*****	*****	*****	2.041	31	-.16	.93	8			
WALTERS	9278	7	60.0	31	-4.6	90.	1	21.	31	221.5	118.5	65.5	-24.5	1.500	31	-1.74	.87	20			
WICHITA MT WLR	9629	7	57.5	31	-4.0	88.	16	17.	31	269.5	115.5	38.5	-7.5	1.263	31	-1.72	.70	13			
WILLOW	9668	7	*****	0	*****	*****	0	****	0	*****	*****	*****	*****	1.710	31	*****	.81	8			

OCTOBER 1993 SUMMARY FOR SOUTH CENTRAL DIVISION (CD8)

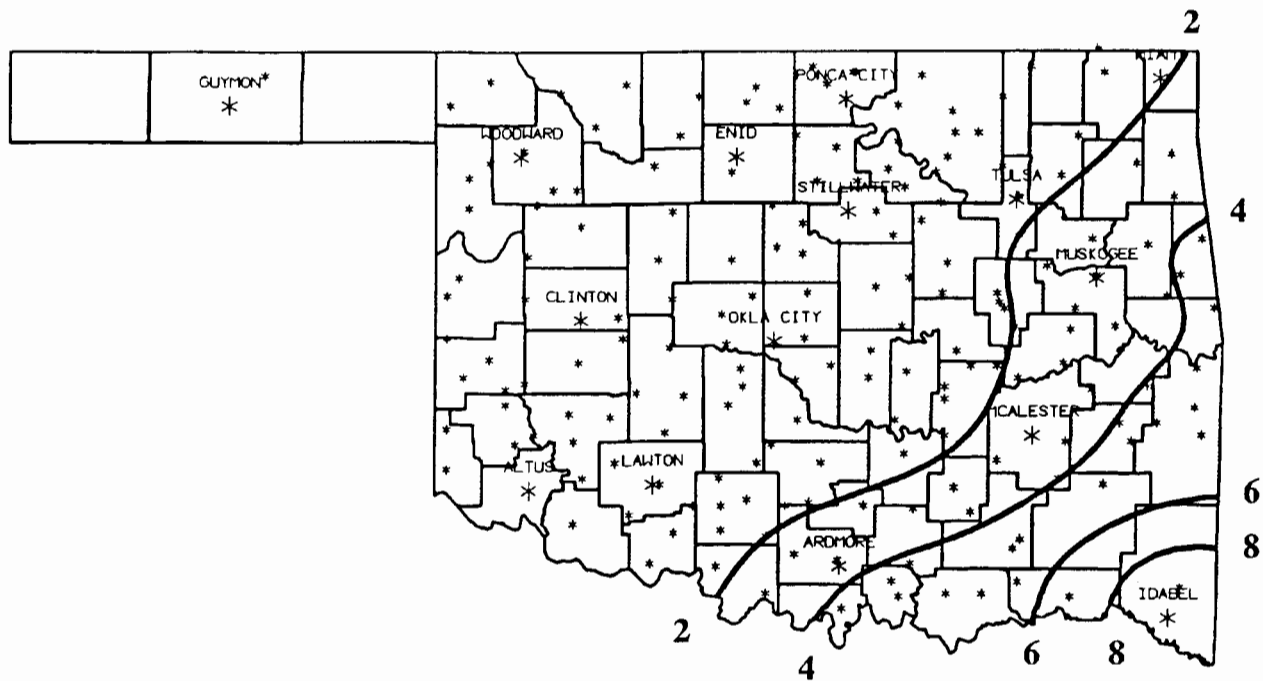
NAME	ID	CD	DEV					HEAT		DEV		COOL		DEV		TOT	NUM	DEV		MAX	DAY
			MEAN	NUM	FROM	MAX	MIN	DEG	DEG	FROM	DEG	DEG	FROM	FROM	NORM			FROM	NORM		
ADA	17	8	58.8	31	-4.8	85.	1	18.	31	232.0	104.0	40.5	-43.5	.951	31	-3.29	.57	20			
ALLEN	147	8	*****	0	*****	*****	0	****	0	*****	*****	*****	*****	1.320	31	*****	.75	2			
ARDMORE	292	8	61.1	31	-5.0	87.	16	20.	31	192.5	113.5	73.0	-40.0	2.850	31	-.99	1.02	19			
ATOKA DAM	394	8	62.1	21	*****	87.	4	33.	28	101.0	*****	41.0	*****	3.700	21	*****	1.37	20			
BOKCHITO	917	8	*****	0	*****	*****	0	****	0	*****	*****	*****	*****	4.240	31	*****	1.41	18			
CANEY	1437	8	67.9	4	*****	87.	1	50.	3	4.0	*****	15.5	*****	.000	5	*****	.00	5			
CENTRAHOMA	1648	8	*****	0	*****	*****	0	****	0	*****	*****	*****	*****	2.300	31	*****	1.50	20			
CHICKASAW NRA	1745	8	58.7	31	-3.7	86.	17	15.	31	242.0	114.0	47.0	-1.0	1.601	31	-2.92	.79	20			
COLEMAN	2011	8	*****	0	*****	*****	0	****	0	*****	*****	*****	*****	1.700	31	*****	1.50	19			
COMANCHE	2054	8	*****	0	*****	*****	0	****	0	*****	*****	*****	*****	1.370	31	-1.80	.95	20			
DAISY 4 ENE	2354	8	*****	0	*****	*****	0	****	0	*****	*****	*****	*****	3.371	30	*****	1.74	19			
DUNCAN	2660	8	59.2	31	-4.0	87.	2	19.	31	221.0	99.0	42.0	-24.0	2.230	31	-1.13	.89	20			
DURANT USDA	2678	8	59.3	31	-4.1	87.	7	20.	31	228.5	112.5	50.5	-15.5	4.400	31	.22	1.28	20			
FARRIS 3 WNW	3083	8	*****	0	*****	*****	0	****	0	*****	*****	*****	*****	6.400	31	2.16	1.46	18			
GRADY	3688	8	*****	0	*****	*****	0	****	0	*****	*****	*****	*****	2.670	31	*****	1.30	13			
HEALDTON	4001	8	60.4	31	-3.6	87.	6	18.	31	203.5	101.5	59.5	-11.5	2.960	31	-.62	1.45	13			
HENNEPIN	4052	8	*****	0	*****	*****	0	****	0	*****	*****	*****	*****	1.460	31	*****	.91	20			
KETCHUM RANCH	4780	8	*****	0	*****	*****	0	****	0	*****	*****	*****	*****	1.390	31	*****	.95	19			
KINGSTON	4865	8	*****	0	*****	*****	0	****	0	*****	*****	*****	*****	5.210	31	.94	2.05	20			
LEHIGH	5108	8	*****	0	*****	*****	0	****	0	*****	*****	*****	*****	2.953	31	*****	1.80	20			
LINDSAY 2 W	5216	8	58.4	31	-5.0	87.	1	16.	31	260.0	150.0	54.0	-6.0	1.481	31	-2.17	.73	20			
LOCO 6 SE	5247	8	*****	0	*****	*****	0	****	0	*****	*****	*****	*****	2.080	31	*****	.94	20			
MADILL	5468	8	60.8	27	*****	88.	17	22.	31	164.5	*****	50.5	*****	5.330	31	1.03	3.73	19			
MARIETTA	5563	8	61.5	31	-3.7	88.	16	20.	31	191.0	108.0	82.5	-7.5	6.760	31	3.06	1.80	20			
MARLOW 1 WSW	5581	8	60.4	31	-3.0	89.	6	14.	31	215.0	97.0	72.0	4.0	1.250	31	-2.33	.70	20			
MCGEE CREEK DAM	5713	8	60.5	31	*****	88.	2	23.	31	194.5	*****	53.5	*****	5.290	31	*****	1.41	18			
PAULS VALLEY	6926	8	59.7	31	-4.3	86.	16	17.	31	225.5	125.5	61.5	-7.5	1.250	31	-2.68	1.15	20			
PONTOTOC	7214	8	*****	0	*****	*****	0	****	0	*****	*****	*****	*****	2.390	31	-1.82	1.22	19			
TISHOMINGO NWLR	8884	8	61.2	21	*****	88.	16	29.	29	119.0	*****	39.5	*****	6.320	31	1.95	1.88	20			
TUSSY	9032	8	*****	0	*****	*****	0	****	0	*****	*****	*****	*****	1.460	31	*****	.92	20			
WAURIKA	9395	8	59.0	31	-6.1	89.	1	19.	31	235.5	149.5	48.0	-41.0	.132	31	-2.83	.09	19			
WAURIKA DAM	9399	8	61.3	27	*****	88.	7	28.	30	149.0	*****	49.5	*****	1.710	27	*****	.91	20			

OCTOBER 1993 SUMMARY FOR SOUTHEAST DIVISION (CD9)

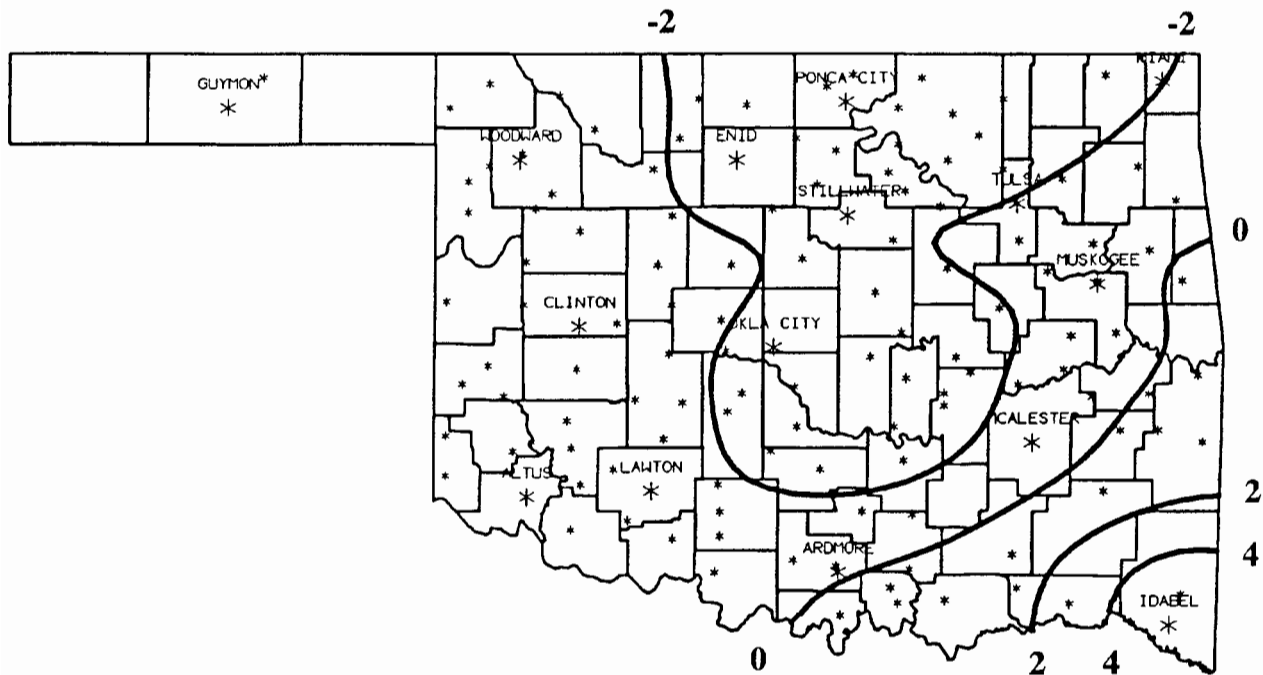
NAME	ID	CD	DEV						HEAT		DEV		COOL		DEV		TOT PPT	NUM OBS	DEV	
			MEAN TEMP	NUM OBS	FROM NORM	MAX TEMP	MIN DAY	TEMP DAY	DEG DAY	FROM NORM	DEG DAY	FROM NORM	DEG DAY	FROM NORM	MAX 24-HR	DAY				
ANTLERS	256	9	61.3	29	*****	95.	7	21.	31	169.0	*****	63.0	*****	.000	31	-4.58	.00	31		
BATTIEST 1 SSW	567	9	57.0	31	*****	85.	1	19.	31	268.0	*****	19.5	*****	11.640	31	*****	4.02	20		
BEAR MT TWR	584	9	59.8	31	-4.5	89.	2	24.	31	210.0	101.0	47.5	-40.5	12.150	30	*****	3.77	20		
BENGAL	670	9	*****	0	*****	*****	0	****	0	*****	*****	*****	*****	4.231	31	*****	1.23	20		
BOSWELL 4 NNW	980	9	59.5	31	-4.3	88.	1	20.	31	233.5	127.5	61.5	-7.5	3.803	31	-.39	1.30	20		
BROKEN BOW 1 N	1162	9	*****	0	*****	*****	0	****	0	*****	*****	*****	*****	13.830	31	9.50	5.37	20		
BROKEN BOW DAM	1168	9	60.4	31	-2.2	90.	8	25.	31	180.0	49.0	37.5	-19.5	14.910	31	10.59	5.35	19		
CARNASAW TWR	1499	9	*****	0	*****	*****	0	****	0	*****	*****	*****	*****	16.870	31	12.27	5.27	20		
CARTER TWR	1544	9	*****	0	*****	*****	0	****	0	*****	*****	*****	*****	12.950	31	7.89	4.65	20		
FANSHAW	3065	9	*****	0	*****	*****	0	****	0	*****	*****	*****	*****	5.380	31	1.49	2.00	2		
HEAVENER 1 SE	4008	9	*****	0	*****	*****	0	****	0	*****	*****	*****	*****	5.112	31	1.04	2.08	19		
HEE MT TWR	4017	9	*****	0	*****	*****	0	****	0	*****	*****	*****	*****	12.402	31	7.20	4.45	19		
HUGO	4384	9	61.2	31	-3.6	88.	1	22.	31	185.0	93.0	67.0	-19.0	7.960	31	3.72	2.90	20		
IDABEL	4451	9	60.5	31	-2.9	89.	2	23.	31	193.0	78.0	55.0	-10.0	10.161	31	5.69	4.98	20		
POTEAU W W	7254	9	57.4	31	*****	86.	5	18.	30	264.5	*****	27.5	*****	4.552	31	*****	1.37	2		
SMITHVILLE 1 W	8285	9	56.1	30	-5.0	85.	1	21.	31	278.5	118.5	12.5	-26.5	14.254	30	*****	3.60	20		
SPIRO	8416	9	*****	0	*****	*****	0	****	0	*****	*****	*****	*****	4.230	31	.41	1.46	20		
TUSKAHOMA	9023	9	59.5	31	-4.3	86.	1	18.	31	226.0	118.0	55.0	-15.0	5.341	31	1.13	1.46	20		
VALLIANT 3 W	9118	9	*****	0	*****	*****	0	****	0	*****	*****	*****	*****	10.012	31	6.01	5.14	20		
WILBURTON 9 ENE	9634	9	58.3	31	-4.0	87.	1	19.	31	245.0	105.0	37.5	-19.5	4.290	31	-.02	1.40	1		

OCTOBER 1993 CLIMATE DIVISION SUMMARY

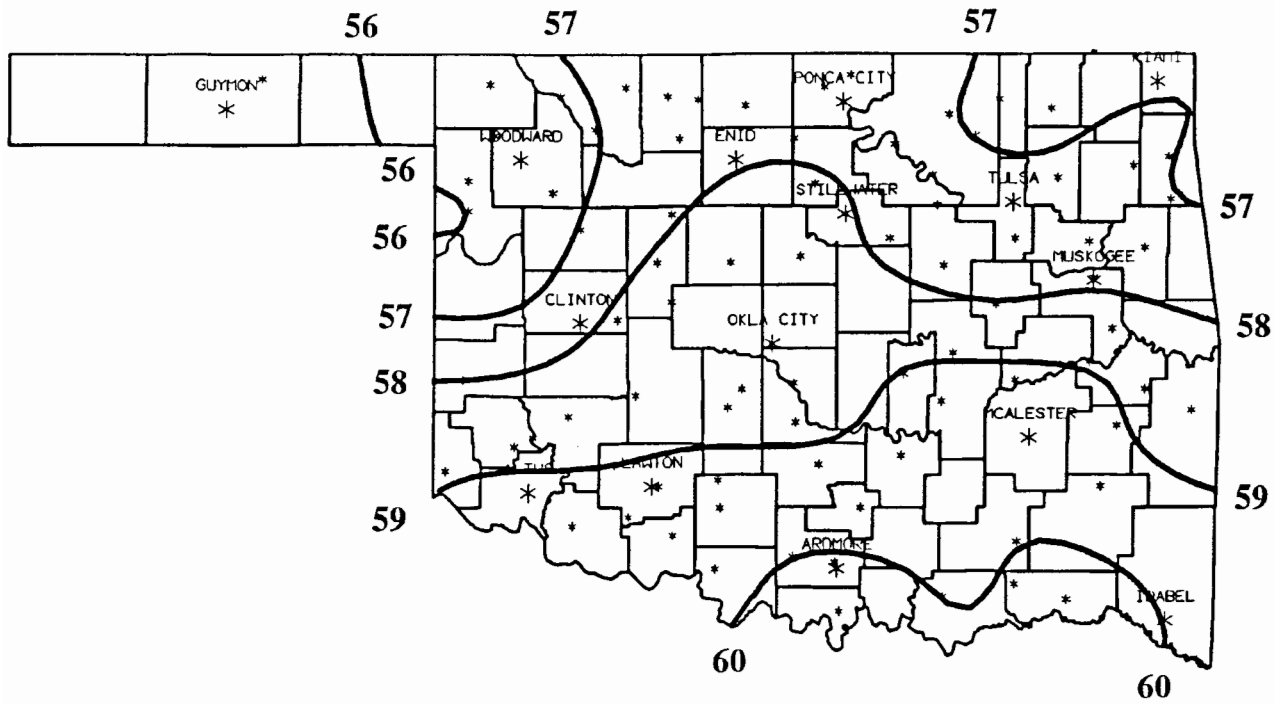
CLIMATE DIV	MEAN TEMP	NUM STA	DEV			HEAT DEGREE			COOL DEGREE			TOT PPT	NUM STA	DEV		
			FROM NORM	MAX TEMP	MIN DAY	FROM NORM	DEGREE DAYS	FROM NORM	DEGREE DAYS	FROM NORM	DEGREE DAYS			FROM NORM	MAX 24-HR	DAY
1	55.1	11	-3.3	97.0	1	6.0	30	334.6	103.9	28.2	2.0	.51	13	-.78	.54	17
2	57.5	15	-3.6	95.0	15	8.0	31	276.4	112.6	44.5	2.3	.25	23	-2.08	.78	8
3	56.9	15	-4.3	86.0	7	13.0	31	279.0	113.9	28.8	-17.3	1.32	25	-2.09	1.80	16
4	57.9	9	-3.3	93.0	1	9.0	31	262.3	103.6	42.8	2.3	.64	20	-1.53	1.66	8
5	58.3	12	-4.4	97.0	3	12.0	31	252.2	124.4	44.5	-12.7	.93	35	-2.32	1.80	20
6	58.7	11	-4.2	88.0	2	17.0	31	235.0	104.3	39.0	-25.8	2.93	27	-1.19	3.09	16
7	59.2	12	-4.1	93.0	1	12.0	31	237.5	118.3	56.3	-8.9	1.43	24	-1.23	1.64	13
8	59.7	12	-4.3	89.0	1	14.0	31	220.1	114.7	57.0	-18.4	2.85	28	-1.06	3.73	19
9	59.0	10	-4.3	95.0	7	18.0	31	228.4	108.2	42.0	-24.4	8.20	18	3.78	5.37	20



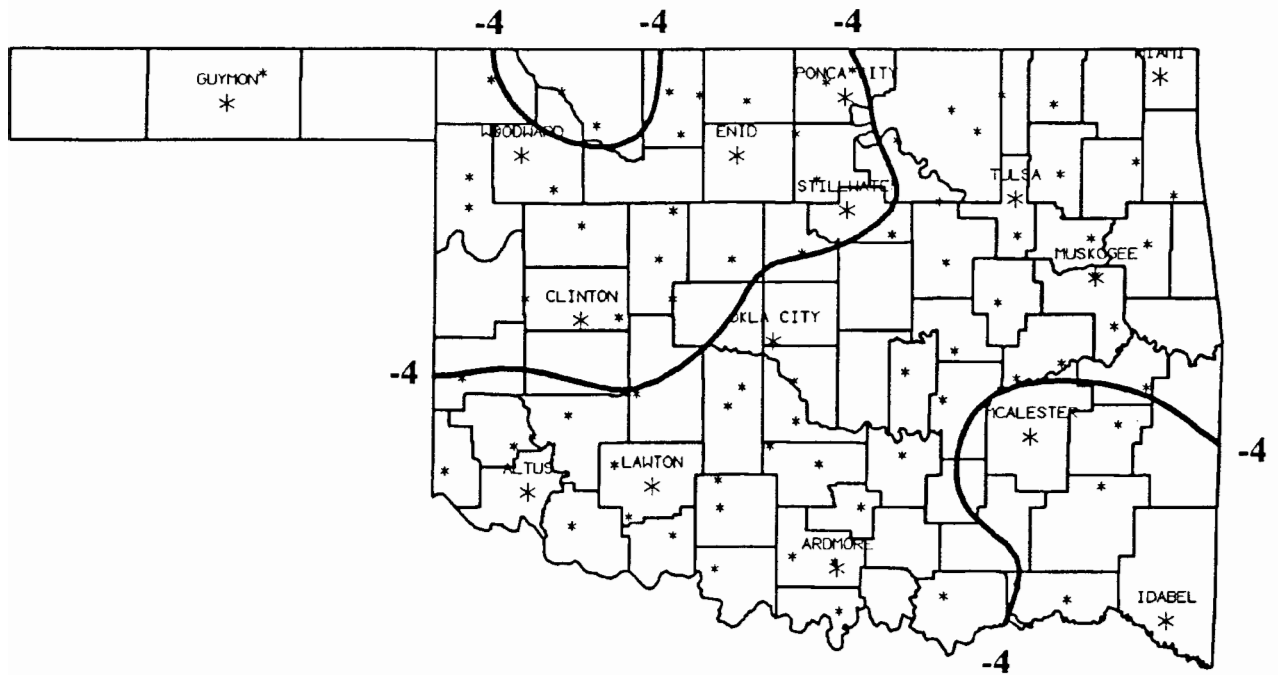
OCTOBER 1993 TOTAL PRECIPITATION
(Inches)



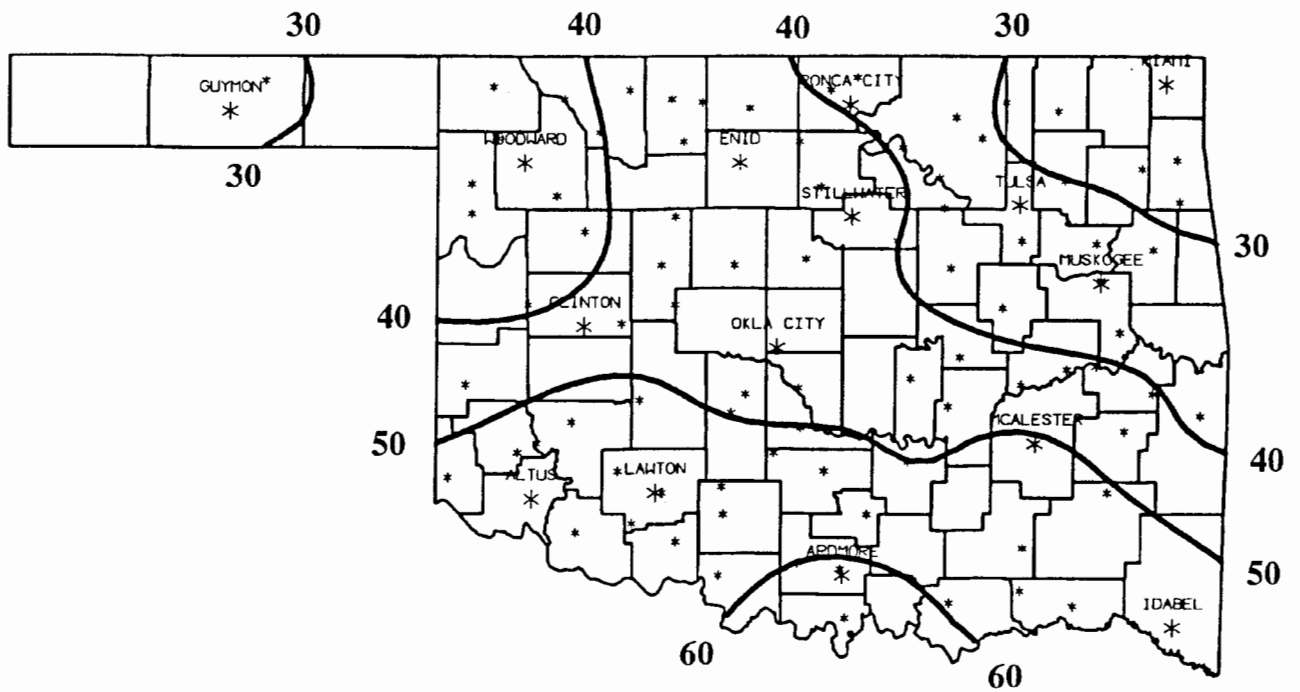
OCTOBER 1993 DEVIATION FROM NORMAL PRECIPITATION
(Inches)



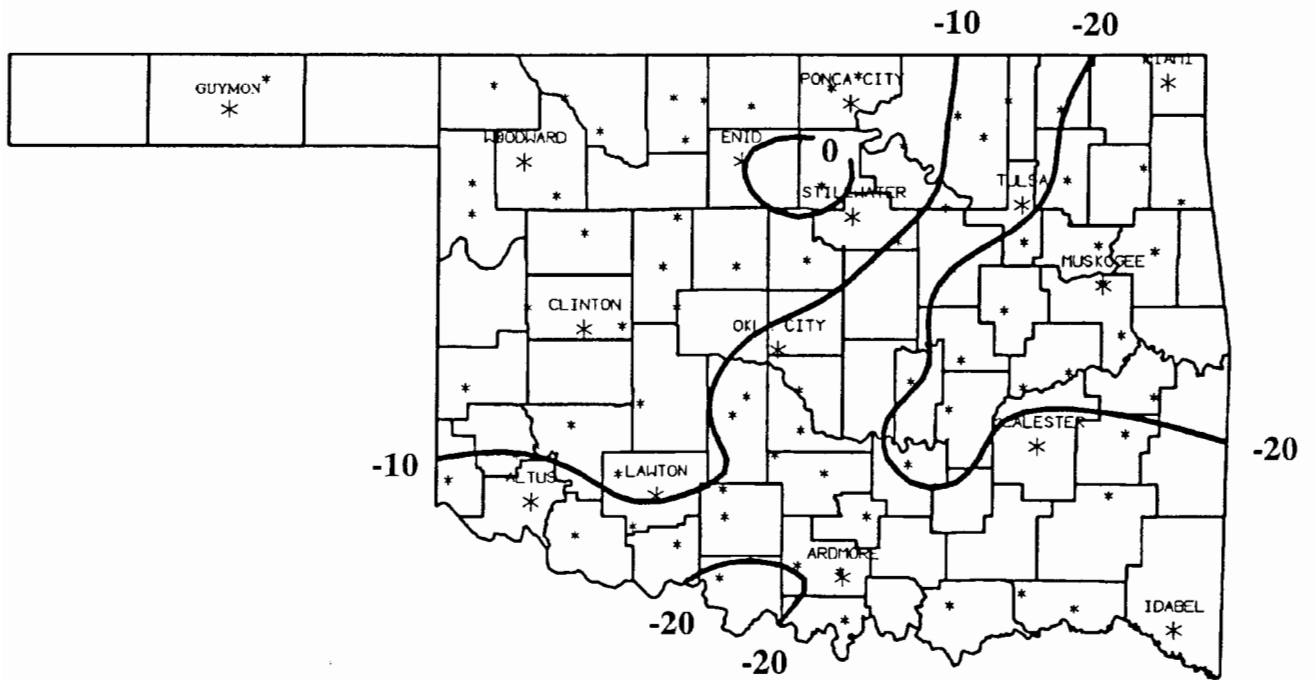
OCTOBER 1993 AVERAGE MONTHLY TEMPERATURES
(Degrees F)



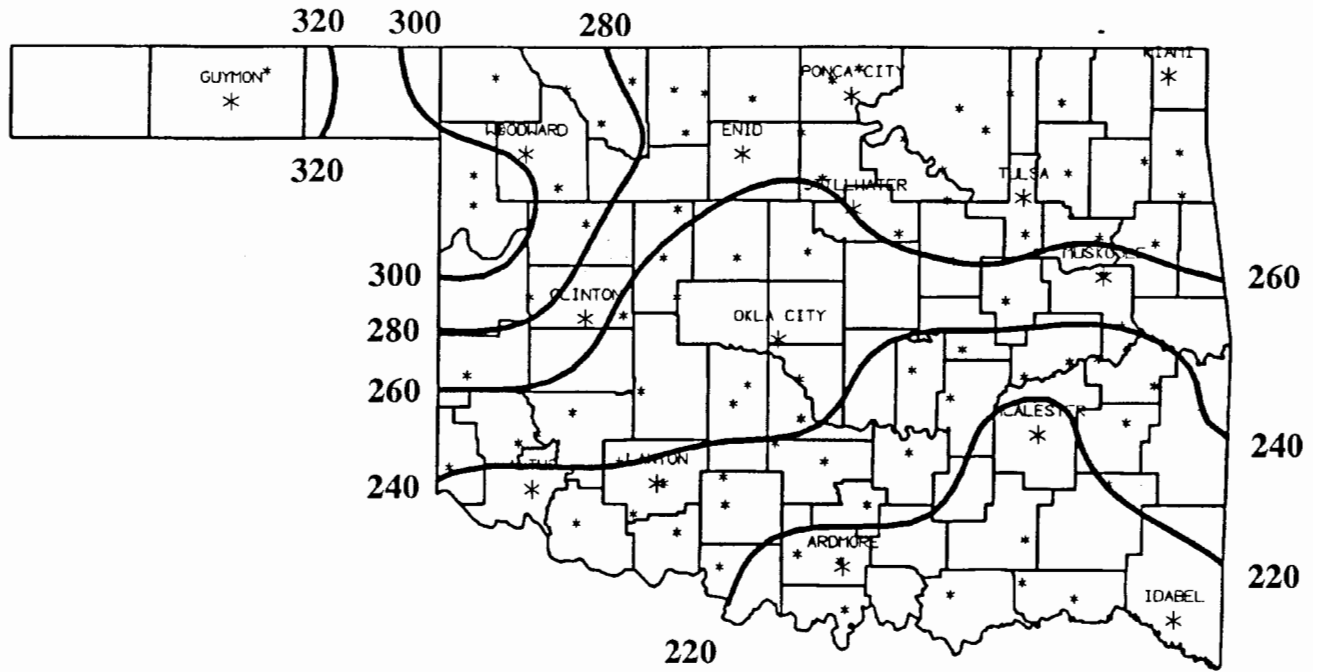
OCTOBER 1993 DEVIATION FROM NORMAL TEMPERATURES
(Degrees F)



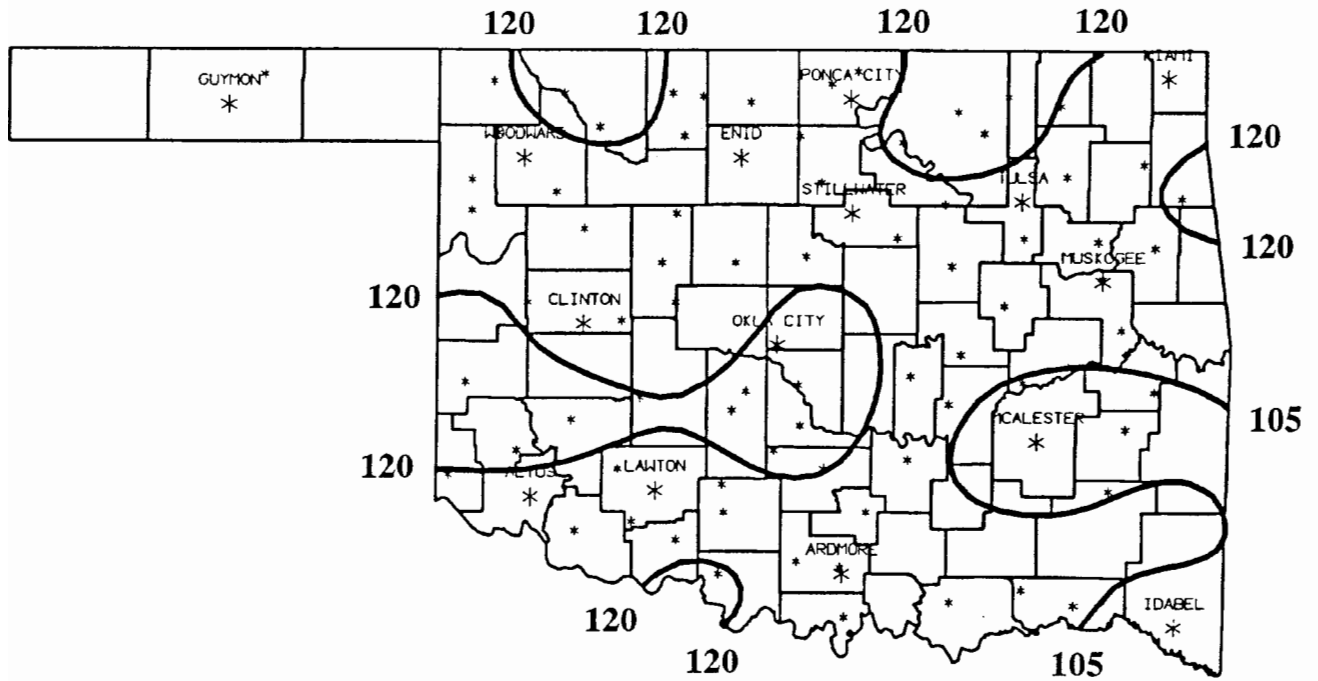
OCTOBER 1993 COOLING DEGREE DAYS



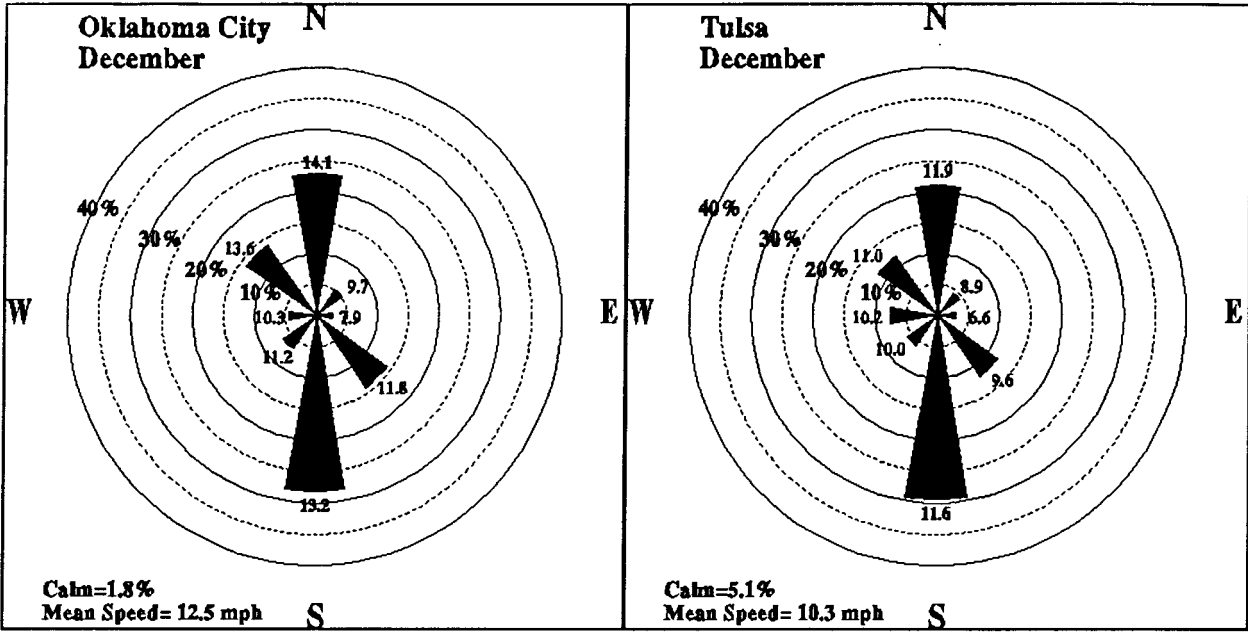
OCTOBER 1993 DEVIATION FROM NORMAL COOLING DEGREE DAYS



OCTOBER 1993 HEATING DEGREE DAYS



OCTOBER 1993 DEVIATION FROM NORMAL HEATING DEGREE DAYS



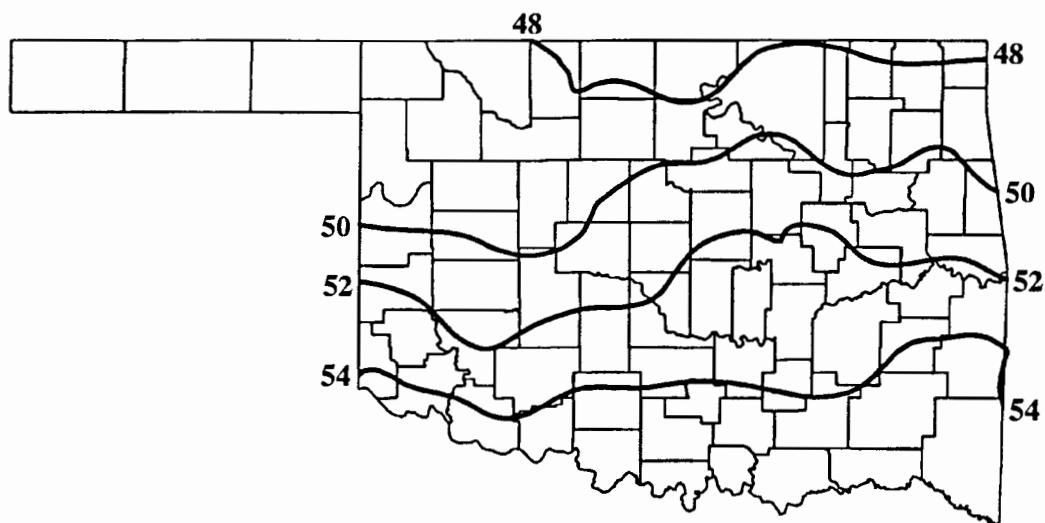
December Wind Roses for Oklahoma City and Tulsa. Percents represent the frequency of winds from each direction. The numbers at the ends of the bars indicate the average wind speed (miles per hour) from that direction.

DECEMBER 1993 SUNRISE AND SUNSET

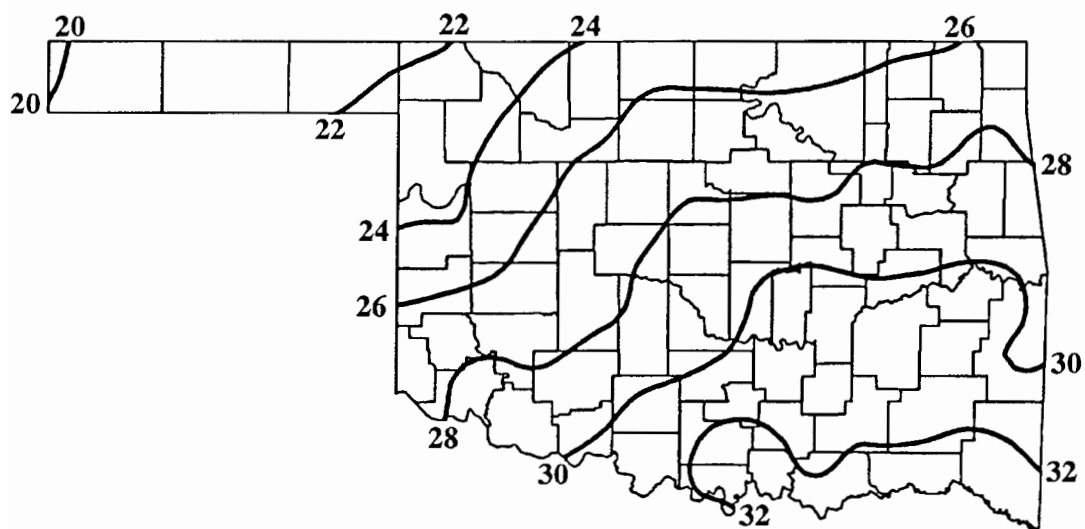
OKLAHOMA CITY

TULSA

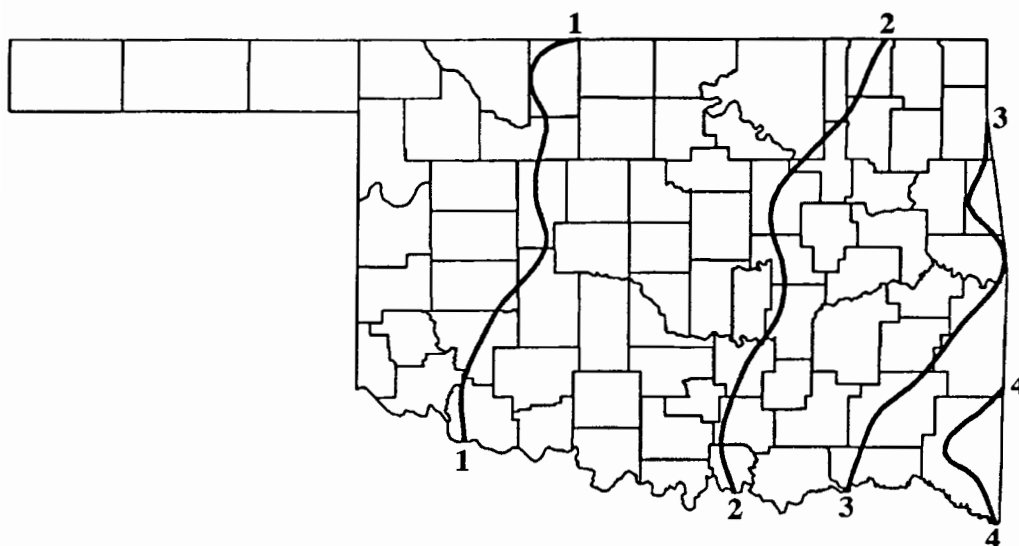
DATE	SUNRISE	SUNSET	DAYLIGHT	DATE	SUNRISE	SUNSET	DAYLIGHT
9312 1	7:19AM	5:21PM cst	10 hrs 1 mins	9312 1	7:14AM	5:12PM cst	9 hrs 58 mins
9312 2	7:20AM	5:21PM cst	10 hrs 0 mins	9312 2	7:15AM	5:12PM cst	9 hrs 57 mins
9312 3	7:21AM	5:21PM cst	10 hrs 0 mins	9312 3	7:16AM	5:12PM cst	9 hrs 56 mins
9312 4	7:22AM	5:20PM cst	9 hrs 59 mins	9312 4	7:17AM	5:12PM cst	9 hrs 55 mins
9312 5	7:23AM	5:20PM cst	9 hrs 58 mins	9312 5	7:18AM	5:12PM cst	9 hrs 54 mins
9312 6	7:23AM	5:20PM cst	9 hrs 57 mins	9312 6	7:19AM	5:12PM cst	9 hrs 53 mins
9312 7	7:24AM	5:20PM cst	9 hrs 56 mins	9312 7	7:19AM	5:12PM cst	9 hrs 52 mins
9312 8	7:25AM	5:20PM cst	9 hrs 55 mins	9312 8	7:20AM	5:12PM cst	9 hrs 52 mins
9312 9	7:26AM	5:21PM cst	9 hrs 55 mins	9312 9	7:21AM	5:12PM cst	9 hrs 51 mins
931210	7:27AM	5:21PM cst	9 hrs 54 mins	931210	7:22AM	5:12PM cst	9 hrs 50 mins
931211	7:27AM	5:21PM cst	9 hrs 54 mins	931211	7:22AM	5:12PM cst	9 hrs 50 mins
931212	7:28AM	5:21PM cst	9 hrs 53 mins	931212	7:23AM	5:12PM cst	9 hrs 49 mins
931213	7:29AM	5:21PM cst	9 hrs 53 mins	931213	7:24AM	5:12PM cst	9 hrs 48 mins
931214	7:29AM	5:21PM cst	9 hrs 52 mins	931214	7:25AM	5:13PM cst	9 hrs 48 mins
931215	7:30AM	5:22PM cst	9 hrs 52 mins	931215	7:25AM	5:13PM cst	9 hrs 48 mins
931216	7:31AM	5:22PM cst	9 hrs 51 mins	931216	7:26AM	5:13PM cst	9 hrs 47 mins
931217	7:31AM	5:22PM cst	9 hrs 51 mins	931217	7:26AM	5:13PM cst	9 hrs 47 mins
931218	7:32AM	5:23PM cst	9 hrs 51 mins	931218	7:27AM	5:14PM cst	9 hrs 47 mins
931219	7:32AM	5:23PM cst	9 hrs 51 mins	931219	7:28AM	5:14PM cst	9 hrs 46 mins
931220	7:33AM	5:23PM cst	9 hrs 50 mins	931220	7:28AM	5:15PM cst	9 hrs 46 mins
931221	7:33AM	5:24PM cst	9 hrs 50 mins	931221	7:29AM	5:15PM cst	9 hrs 46 mins
931222	7:34AM	5:24PM cst	9 hrs 50 mins	931222	7:29AM	5:15PM cst	9 hrs 46 mins
931223	7:34AM	5:25PM cst	9 hrs 50 mins	931223	7:30AM	5:16PM cst	9 hrs 46 mins
931224	7:35AM	5:25PM cst	9 hrs 50 mins	931224	7:30AM	5:16PM cst	9 hrs 46 mins
931225	7:35AM	5:26PM cst	9 hrs 50 mins	931225	7:31AM	5:17PM cst	9 hrs 46 mins
931226	7:36AM	5:26PM cst	9 hrs 51 mins	931226	7:31AM	5:17PM cst	9 hrs 46 mins
931227	7:36AM	5:27PM cst	9 hrs 51 mins	931227	7:31AM	5:18PM cst	9 hrs 47 mins
931228	7:36AM	5:27PM cst	9 hrs 51 mins	931228	7:32AM	5:19PM cst	9 hrs 47 mins
931229	7:37AM	5:28PM cst	9 hrs 51 mins	931229	7:32AM	5:19PM cst	9 hrs 47 mins
931230	7:37AM	5:29PM cst	9 hrs 52 mins	931230	7:32AM	5:20PM cst	9 hrs 48 mins
931231	7:37AM	5:29PM cst	9 hrs 52 mins	931231	7:32AM	5:20PM cst	9 hrs 48 mins



December Normal Daily Maximum Temperatures (°F)



December Normal Daily Minimum Temperatures (°F)



December Normal Monthly Precipitation (inches)

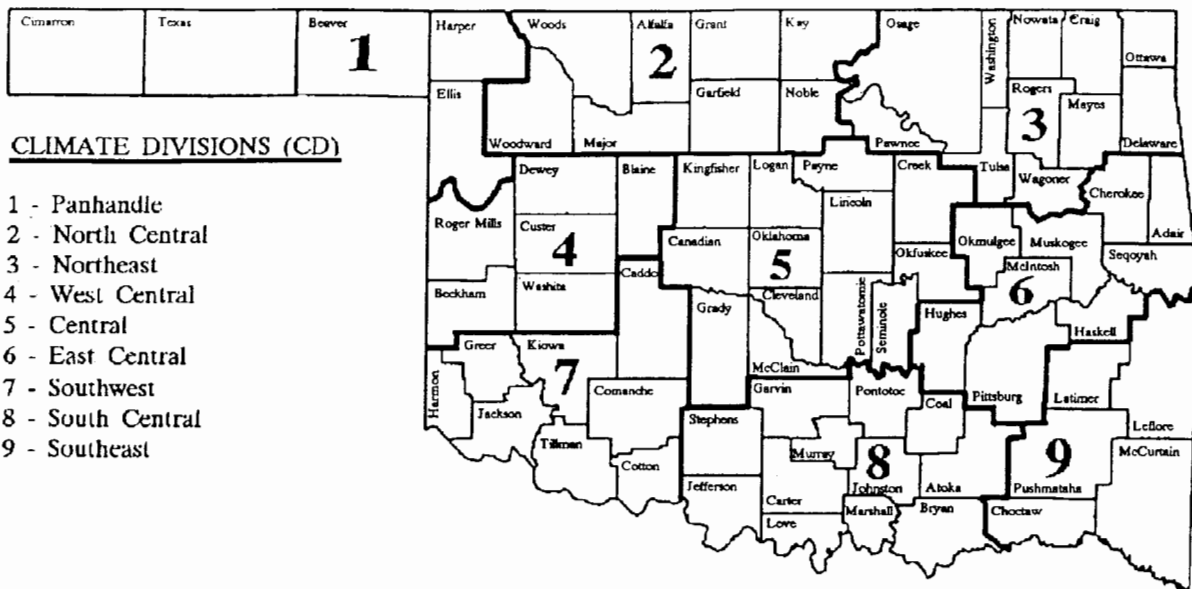
90-DAY NATIONAL WEATHER SERVICE OUTLOOK

(NOVEMBER 1993 - JANUARY 1994)

Precipitation - Greater Than Normal Statewide

Temperature - Much Below Normal West
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 than normal cooling requirements for the month as a whole. A negative value indicates lower than normal cooling requirements for the month as a whole. Normal cooling degree days may be found by subtracting the deviation from the observed cooling degree days.

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

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

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

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

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

TULSA CLIMATE CALENDAR

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.

December 1993

Normal		Actual		Normal		Actual		Normal		Actual		Normal		Actual		Normal		Actual												
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
55.0 34.0 .02 20 0 Highest Max 77-1950 Lowest Max 26-1985 Lowest Min 14-1985 Highest Min 59-1982 Greatest ppt .51-1982	56.0 34.0 .03 20 0 Highest Max 76-1956 Lowest Max 24-1985 Lowest Min 11-1985 Highest Min 58-1951 Greatest ppt .73-1963	56.0 33.0 .04 20 0 Highest Max 77-1916 Lowest Max 93-1964 Lowest Min 16-1929 Highest Min 49-1962 Greatest ppt .84-1973	55.0 34.0 .05 20 0 Highest Max 77-1905 Lowest Max 27-1972 Lowest Min 20-1945 Highest Min 55-1960 Greatest ppt .82-1960	56.0 34.0 .07 20 0 Highest Max 77-1989 Lowest Max 32-1992 Lowest Min 10-1050 Highest Min 61-1980 Greatest ppt 1.11-1975	51.0 31.0 .06 24 0 Highest Max 77-1966 Lowest Max 18-1972 Lowest Min 3-1960 Highest Min 64-1980 Greatest ppt 1.15-1974	52.0 31.0 .04 24 0 Highest Max 80-1966 Lowest Max 26-1950 Lowest Min 4-1960 Highest Min 53-1991 Greatest ppt .77-1980	50.0 30.0 .08 25 0 Highest Max 73-1991 Lowest Max 24-1978 Lowest Min -3-1917 Highest Min 46-1987 Greatest ppt 1.01-1956	48.0 29.0 .04 26 0 Highest Max 73-1915 Lowest Max 23-1977 Lowest Min 0-1917 Highest Min 46-1994 Greatest ppt 1.12-1971	50.0 29.0 .20 25 0 Highest Max 73-1929 Lowest Max 23-1972 Lowest Min 3-1919 Highest Min 54-1965 Greatest ppt 1.73-1960	50.0 30.0 .04 25 0 Highest Max 76-1929 Lowest Max 29-1976 Lowest Min 4-1917 Highest Min 50-1991 Greatest ppt .49-1954	48.0 28.0 .02 27 0 Highest Max 73-1924 Lowest Max 20-1962 Lowest Min 3-1962 Highest Min 44-1991 Greatest ppt .58-1991	47.0 27.0 .07 28 0 Highest Max 80-1948 Lowest Max 22-1968 Lowest Min 4-1917 Highest Min 44-1975 Greatest ppt 2.33-1984	49.0 28.0 .15 26 0 Highest Max 74-1933 Lowest Max 26-1963 Lowest Min 4-1958 Highest Min 64-1948 Greatest ppt 3.02-1971	48.0 28.0 .04 27 0 Highest Max 77-1948 Lowest Max 19-1961 Lowest Min -1-1989 Highest Min 47-1957 Greatest ppt .64-1984	50.0 28.0 .05 26 0 Highest Max 77-1908 Lowest Max 21-1989 Lowest Min 3-1989 Highest Min 48-1977 Greatest ppt .85-1961	50.0 29.0 .03 25 0 Highest Max 78-1908 Lowest Max 23-1964 Lowest Min 2-1932 Highest Min 46-1957 Greatest ppt 1.05-1990	49.0 29.0 .04 26 0 Highest Max 72-1939 Lowest Max 23-1981 Lowest Min 4-1984 Highest Min 44-1978 Greatest ppt .55-1973	50.0 29.0 .11 25 0 Highest Max 70-1967 Lowest Max 9-1983 Lowest Min -1-1924 Highest Min 55-1978 Greatest ppt 1.90-1987	49.0 28.0 .05 27 0 Highest Max 75-1966 Lowest Max 10-1083 Lowest Min 3-1924 Highest Min 49-1967 Greatest ppt 1.44-1991	48.0 27.0 .03 27 0 Highest Max 70-1979 Lowest Max 17-1963 Lowest Min 0-1989 Highest Min 44-1979 Greatest ppt .47-1949	50.0 30.0 .05 25 0 Highest Max 71-1982 Lowest Max 7-1989 Lowest Min -6-1989 Highest Min 55-1979 Greatest ppt 1.51-1966	50.0 30.0 .05 25 0 Highest Max 73-1982 Lowest Max 7-1989 Lowest Min -8-1989 Highest Min 60-1982 Greatest ppt .71-1973	50.0 29.0 .05 25 0 Highest Max 80-1965 Lowest Max 5-1983 Lowest Min -2-1983 Highest Min 54-1982 Greatest ppt 2.80-1965	49.0 27.0 .14 27 0 Highest Max 73-1922 Lowest Max 12-1983 Lowest Min -2-1983 Highest Min 51-1971 Greatest ppt 1.29-1987	48.0 28.0 .04 27 0 Highest Max 69-1971 Lowest Max 23-1983 Lowest Min 9-1914 Highest Min 54-1971 Greatest ppt .97-1987	48.0 29.0 .12 26 0 Highest Max 77-1946 Lowest Max 29-1983 Lowest Min 8-1925 Highest Min 47-1984 Greatest ppt 1.25-1954	47.0 29.0 .02 27 0 Highest Max 74-1928 Lowest Max 25-1983 Lowest Min 0-1924 Highest Min 62-1984 Greatest ppt .30-1954	46.0 27.0 .05 26 0 Highest Max 77-1961 Lowest Max 16-1990 Lowest Min 2-1983 Highest Min 58-1965 Greatest ppt .35-1974	46.0 27.0 .05 26 0 Highest Max 77-1961 Lowest Max 16-1990 Lowest Min 2-1983 Highest Min 58-1965 Greatest ppt .35-1974	

DECEMBER AVERAGES

TEMPERATURE : 39.6°F
 PRECIPITATION : 1.98"
 HEATING DEGREE DAYS : 781
 COOLING DEGREE DAYS : 0