



# NOVEMBER 2003

## LOCAL CLIMATOLOGICAL DATA

NOAA, National Climatic Data Center

# OAK RIDGE, TN

OAK RIDGE (OQT)  
 Lat: 36°01' N Long: 84°14' W Elev (Ground): 913 Feet  
 Time Zone: EASTERN WBAN: 53868 ISSN #: -

NOVEMBER 2003  
OAK RIDGE, TN

DATE	TEMPERATURE °F						DEG DAYS BASE 65°		WEATHER	SNOW/ICE ON GND(IN)		PRECIPITATION (INCHES)		PRESSURE (INCHES OF HG)		WIND SPEED = MPH DIR = TENS OF DEGREES								DATE										
	MAXIMUM	MINIMUM	AVERAGE	DEP FROM NORMAL	AVERAGE DEW PT	AVERAGE WET BULB	HEATING	COOLING		0700 LST	1300 LST	2400 LST	2400 LST	AVERAGE STATION	AVERAGE SEA LEVEL	RESULTANT SPEED	RES DIR	AVERAGE SPEED	MAXIMUM															
																			5-SEC		2-MIN													
																			SPEED	DIR	SPEED	DIR												
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24											
01	79	49	64	12	53	56	1	0	FG+ BR				0.00	29.34	30.31	0.2	04	.6	8	13	7	13	01											
02	82	49	66	14	52	56	0	1	FG+ BR				0.00	29.27	30.24	0.3	17	.6	9	19	7	19	02											
03	82*	47	65	13	50	54	0	0	FG+ BR				0.00	29.20	30.16	0.0	00	.1	7	07	6	07	03											
04	79	48	64	13	55	59	1	0	BR				0.00	29.13	30.08	0.9	27	1.4	15	28	10	26	04											
05	76	64	70*	19	66	67	0	5	RA FG BR				0.62	29.12	30.06	0.5	20	3.0	15	26	9	22	05											
06	71	61	66	15	63	65	0	1	RA FG+ BR				1.14	29.13	30.08	0.7	06	2.3	14	01	10	01	06											
07	61	51	56	6	49	52	9	0					0.00	29.27	30.24	5.5	05	6.2	15	08	13	07	07											
08	62	44	53	3	34	43	12	0					0.00	29.40	30.39	6.6	04	7.3	18	01	13	02	08											
09	62	38	50	0	33	42	15	0					0.00	29.48	30.47	2.3	06	3.5	15	06	13	06	09											
10	63	41	52	3	40	46	13	0					0.00	29.40	30.39	1.2	20	1.6	10	28	7	19	10											
11	68	50	59	10	45	52	6	0	RA			T	0.00	29.24	30.21	1.0	23	4.7	16	21	12	20	11											
12	73	60	67	18	55	59	0	2	RA BR				0.34	29.06	30.01	4.2	24	6.1	25	22	17	22	12											
13	61	36	49	1	17	35	16	0					0.00	29.33	30.32	4.8	32	6.7	22	30	15	29	13											
14	52	29	41	-7	24	34	24	0					0.00	29.35	30.37	0.3	15	1.1	13	06	9	06	14											
15	46	41	44	-4	37	41	21	0	RA				0.08	29.22	30.21	0.5	08	1.2	8	06	7	07	15											
16	55	46	51	3	49	50	14	0	RA BR				0.54	29.19	30.18	0.2	24	1.1	9	27	7	26	16											
17	65	55	60	13	57	58	5	0	FG BR				0.00	29.20	30.17	1.1	06	1.3	8	07	7	07	17											
18	74	55	65	18	57	60	0	0	RA FG+ BR				1.51	28.93	29.88	2.6	18	4.2	30*	26	20	20	18											
19	63	44	54	7	49	53	11	0	RA BR				0.52	28.80	29.75	1.9	27	3.9	23	36	18	35	19											
20	65	37	51	5	39	44	14	0					0.00	29.12	30.10	0.4	14	1.2	9	17	8	17	20											
21	69	37	53	7	41	46	12	0	FG+ BR				0.00	29.16	30.14	1.1	18	1.4	12	19	9	19	21											
22	70	38	54	8	44	48	11	0	BR				0.00	29.14	30.13	1.3	20	1.8	12	20	8	17	22											
23	71	42	57	12	47	52	8	0	BR				0.00	29.07	30.04	3.9	22	5.3	23	19	16	19	23											
24	67	29	48	3	36	42	17	0	RA BR				0.55	29.05	30.02	5.2	25	8.0	29	21	20*	20	24											
25	48	27*	38	-7	26	32	27	0					0.00	29.15	30.17	2.4	07	3.0	14	05	13	08	25											
26	51	34	43	-1	32	39	22	0					0.00	29.16	30.16	0.5	23	1.0	9	23	7	22	26											
27	52	44	48	4	45	47	17	0	RA BR				0.24	29.07	30.06	0.6	17	1.5	10	24	8	32	27											
28	62	31	47	3	35	40	18	0	RA SN BR				0.35	28.98	29.97	4.4	28	6.2	25	29	18	30	28											
29	43	31	37*	-7	21	30	28	0	SN				T	29.27	30.29	4.7	25	6.5	20	29	14	27	29											
30	56	29	43	0	25	35	22	0					0.00	29.27	30.28	2.3	24	5.1	16	21	13	21	30											
										64.3		42.9	53.6	■ ■	42.5	47.9	11.5	0.3	< MONTHLY AVERAGES		TOTALS-->			5.89	29.18	30.16	0.5	26	3.3	<- MONTHLY AVERAGES				
										5.3	6.5	5.9	■ ■	<-----DEPARTURE FROM NORMAL----->										1.03	SUNSHINE, CLOUD, & VISIBILITY TABLES ON PAGE 3									
DEGREE DAYS										GREATEST 24-HR PRECIPITATION: 2.03 DATE: 18-19										SEA LEVEL PRESSURE DATE TIME														
MONTHLY TOTAL DEPARTURE										GREATEST 24-HR SNOWFALL: DATE: DATE:										MAXIMUM MINIMUM : 30.55 09 0953 : 29.59 19 0453														
SEASON TO DATE TOTAL DEPARTURE										GREATEST SNOW DEPTH: DATE: DATE:										PRECIPITATION ≥ 0.01 INCH : 10														
HEATING: 344 -174 564 -214										NUMBER OF DAYS WITH → MAXIMUM TEMP ≥ 90: 0 MINIMUM TEMP ≤ 32: 6										PRECIPITATION ≥ 0.10 INCH : 9														
COOLING: 9 8 1343 42										MAXIMUM TEMP ≤ 32 : 0 MINIMUM TEMP ≤ 0 : 0										SNOWFALL ≥ 1.0 INCH :														
										THUNDERSTORMS : 0										HEAVY FOG : 6														

# HOURLY PRECIPITATION

(WATER EQUIVALENT IN INCHES)

# OAK RIDGE, TN

NOVEMBER 2003 OQT WBAN # 53868

DATE	FOR HOUR (LST) ENDING AT												DATE	FOR HOUR (LST) ENDING AT												DATE	Sum if Different (See Note)	2400 LST	
	1	2	3	4	5	6	7	8	9	10	11	12		13	14	15	16	17	18	19	20	21	22	23	24			Water	Equiv.
01													01												01		0.00		
02													02												02		0.00		
03													03												03		0.00		
04													04												04		0.00		
05			0.01	0.04	0.03	0.01		T	0.04	T	T	0.28	05	T	T		T	T			0.01		0.03	0.17	05		0.62		
06	0.02	T	0.04	T	0.08	0.24	0.22	0.12	0.06	0.06			06	0.24	0.06										06		1.14		
07													07												07		0.00		
08													08												08		0.00		
09													09												09		0.00		
10													10												10		0.00		
11					T	T							11												11		T		
12													12			T	T	0.01	0.01	0.05	0.26	0.01			12		0.34		
13													13												13		0.00		
14													14												14		0.00		
15				T	T	T	0.03	0.01	0.01	T			15		T	T	T	T	0.01	0.01	T	T	T	0.01	15		0.08		
16	T	T	0.02	0.02	0.03	0.02	0.02	0.05	0.20	0.07	0.04	0.03	16						0.01			0.03	T		16		0.54		
17													17				T	T							17		0.00		
18													18		T		T	T	0.29	0.20	0.14	0.08	0.15	0.32	0.33	18		1.51	
19	0.07	0.23	0.09	0.04	T		0.01					0.04	19	0.04	T										19		0.52		
20													20												20		0.00		
21													21												21		0.00		
22													22												22		0.00		
23													23												23		0.00		
24						0.12	0.24	0.15	0.04	T	T		24												24		0.55		
25													25												25		0.00		
26													26												26		0.00		
27	0.01	0.01	0.02	0.03	0.07	0.08	T	0.01	0.08	0.03	0.01	0.07	27	0.14	T	T								0.01	0.01	27		0.24	
28													28													28		0.35	
29	T	T		T									29								T	T	T		29		T		
30													30												30		0.00		

## MAXIMUM SHORT DURATION PRECIPITATION (See Note)

Time Period (Minutes)	5	10	15	20	30	45	60	80	100	120	150	180
Precipitation (Inches)	.17	.24	.26	.27	.29	.36	.47	.57	.62	.65	.73	.81
Ending Date	06	06	06	06	06	18	18	18	18	18	18	18
Ending Time (Hour/Min)	1251	1252	1257	1304	1310	2330	2325	2334	2337	2337	2337	2337

Date and time are not entered for TRACE amounts.

Note : The sum of the hourly totals is given when it differs from the daily total. NWS does not edit ASOS hourly values but may edit daily and monthly totals. Hourly, daily, and monthly totals are printed as reported by the ASOS site.

# REFERENCE NOTES & SUPPLEMENTAL SUMMARIES

\* = Extreme for the month (last occurrence if more than one)  
 T = Trace precipitation amount  
 + = also occurs on earlier date  
 FG+ = Heavy fog, visibility .25 miles or less  
 BLANK entries denote missing or unreported data

Resultant wind is the vector sum of the wind speeds and directions divided by the number of observations.

Wind direction is recorded in tens of degrees (2 digits) clockwise from true north. '00' = calm, 'VR' = variable.

Precipitation is for the 24-hour period ending at the time indicated in the column heading.

Water Equivalent of snow on the ground is reported only when the depth is 2 or more inches.

NORMALS ARE FOR THE YEARS 1971–2000

## WEATHER NOTATIONS

QUALIFIER	WEATHER PHENOMENA		
	PRECIPITATION	OBSCURATION	OTHER
BC Patches	DZ Drizzle	BR Mist	DS Duststorm
BL Blowing	GR Hail	DU Widespread Dust	FC Funnel Cloud
DR Low Drifting	GS Small Hail and/or Snow Pellets	FG Fog	+FC Tornado Waterspout
FZ Freezing	IC Ice Crystals	FU Smoke	PO Well-Developed Dust/Sand Whirls
MI Shallow	PL Ice Pellets	HZ Haze	SQ Squalls
PR Partial	RA Rain	PY Spray	SS Sandstorm
SH Shower(s)	SG Snow Grains	SA Sand	GL Glaze
TS Thunderstorm	SN Snow	VA Volcanic Ash	
VC In the Vicinity	UP Unknown Precipitation		

Intensity (as indicated on pages 4 to 6):  
 '+ ' = Heavy    ' ' = Moderate    '- ' = Light

# OAK RIDGE, TN NOVEMBER 2003

Ceilometer (30-second) data are used to derive cloudiness at or below 12,000 feet. This cloudiness is the mean cloud cover detected during sunrise to sunset (SR–SS), or midnight to midnight (MN–MN).

Satellite data are used to derive cloudiness above 12,000 feet. Effective Cloud Amount is based on the cloud cover and the transparency of the clouds within the satellite field of view (approx. 31x31 miles).

Sky Condition is based on the sum (not to exceed 8) of the sunrise to sunset cloud cover below and above 12,000 feet. Both ceilometer and satellite data must be present to compute Sky Condition. Clear = 0–2 oktas, Partly Cloudy = 3–6 oktas, Cloudy = 7–8 oktas.

A Heating (Cooling) Degree Day is the difference between the average daily temperature and 65 degrees F. The HDD season begins July 1, the CDD season begins January 1.

Dew Point is the temperature to which the air must be cooled to achieve 100% relative humidity. Wet Bulb is the temperature the air would have if cooled to saturation at constant pressure by evaporation of water into it.

Snow Depth, Snowfall, and Sunshine data may come from nearby sites that the National Weather Service deems Climatologically representative of this site.

## ADDITIONAL NOTES:

DATE	SUNSHINE		CLOUDINESS (OKTAS)				VISIBILITY (MILES)		RESERVED
	TOTAL MINUTES	PERCENT POSSIBLE	SR–SS		MN–MN		MINIMUM	MAXIMUM	
			CEILOMETER	SATELLITE	CEILOMETER	SATELLITE			
01							< .25	10.00	
02							< .25	10.00	
03							< .25	10.00	
04							6.00	10.00	
05							.50	10.00	
06							.25	10.00	
07							10.00	10.00	
08							10.00	10.00	
09							10.00	10.00	
10							10.00	10.00	
11							10.00	10.00	
12							1.50	10.00	
13							10.00	10.00	
14							10.00	10.00	
15							9.00	10.00	
16							1.00	10.00	
17							.50	10.00	
18							.25	10.00	
19							1.50	10.00	
20							10.00	10.00	
21							< .25	10.00	
22							2.50	10.00	
23							2.50	10.00	
24							2.00	10.00	
25							10.00	10.00	
26							10.00	10.00	
27							.75	10.00	
28							1.25	10.00	
29							8.00	10.00	
30							10.00	10.00	
<b>MONTHLY AVGS</b>							5.30	10.00	
<b>SUNSHINE (MINUTES)</b>									
Total:                      Possible: Percent Possible:									
<b>NUMBER OF DAYS WITH:</b>									
<b>SKY CONDITION</b>									
CLR   PTLY CLDY   CLOUDY   MISSING 30									
<b>MINIMUM VISIBILITY (MILES)</b>									
<=0.25    <=3.0    >=7.0 6            13           13									



OBSERVATIONS AT 3-HOURLY INTERVALS

OAK RIDGE, TN

NOVEMBER 2003

OQT

WBAN # 53868

Table with multiple columns: HOUR (LST), SKY COVER, CEILING 100'S OF FT, SATELLITE, OBSERVATION TIME (LST), EFF CLD AMT, VISIBILITY (MILES), WEATHER, TEMPERATURE (°F) [DRY BULB, DEW POINT, WET BULB], RELATIVE HUMIDITY (PCT), WIND [SPEED (MPH), DIRECTION TENS OF DEG], PRESSURE (INCHES, HG) [STATION, SEA LEVEL], and a duplicate set of these columns for a second 24-hour period.

# OBSERVATIONS AT 3-HOURLY INTERVALS

# OAK RIDGE, TN

NOVEMBER 2003

QQT

WBAN # 53868

HOUR (LST)	SKY COVER		CEILING 100'S OF FT	SATELLITE		OBSERVATION TIME (LST)	EFF CLD AMT Oktas	VISIBILITY (MILES)	WEATHER	TEMPERATURE °F				WIND		PRESSURE (INCHES, HG)		
	SKY COVER	CEILING		OBSERVATION	EFF CLD AMT					VISIBILITY	WEATHER	DRY BULB	DEW POINT	WET BULB	RELATIVE HUMIDITY (PCT)	SPEED (MPH)	DIRECTION TENS OF DEG	STATION
SUNRISE: 0723									NOV 25	SUNSET: 1725								
01	CLR	NC						10.00		28	23	26	81	3	04	29.21	30.23	
04	CLR	NC						10.00		27	24	26	89	0	00	29.19	30.21	
07	CLR	NC						10.00		28	24	27	85	5	07	29.18	30.21	
10	CLR	NC						10.00		36	25	32	64	9	05	29.22	30.24	
13	CLR	NC						10.00		43	25	36	49	3	VR	29.15	30.16	
16	CLR	NC						10.00		48	24	38	39	3	22	29.09	30.10	
19	CLR	NC						10.00		40	30	36	68	0	00	29.08	30.10	
22	CLR	NC						10.00		39	30	35	70	0	00	29.10	30.11	

SUNRISE: 0724									NOV 26	SUNSET: 1724								
01	CLR	NC						10.00		35	31	33	85	0	00	29.09	30.10	
04	CLR	NC						10.00		38	30	35	73	0	00	29.11	30.11	
07	CLR	NC						10.00		36	30	34	79	0	00	29.15	30.16	
10	CLR	NC						10.00		42	33	38	71	0	00	29.20	30.21	
13	CLR	NC						10.00		49	30	41	48	3	VR	29.17	30.17	
16	FEW	NC						10.00		51	30	42	45	0	00	29.14	30.14	
19	CLR	NC						10.00		47	36	42	66	0	00	29.17	30.17	
22	FEW	NC						10.00		46	38	42	73	0	00	29.20	30.20	

SUNRISE: 0725									NOV 27	SUNSET: 1724								
01	CLR	NC						10.00		45	39	42	80	0	00	29.15	30.14	
04	OVC	070						10.00		46	39	43	77	0	00	29.13	30.12	
07	CLR	NC						10.00		45	39	42	80	0	00	29.10	30.10	
10	OVC	075						10.00		49	39	44	69	6	22	29.14	30.14	
13	OVC	021						3.00	-RA BR	49	47	48	93	5	VR	29.06	30.04	
16	OVC	010						4.00	BR	51	50	51	96	0	00	29.03	30.01	
19	OVC	005						4.00	BR	51	50	51	96	0	00	29.04	30.02	
22	OVC	003						2.50	-RA BR	52	51	52	97	0	00	28.99	29.97	

SUNRISE: 0726									NOV 28	SUNSET: 1724								
01	OVC	007						2.00	BR	52	51	52	97	0	00	28.92	29.89	
04	OVC	024						1.50	RA BR	53	51	52	93	0	00	28.80	29.77	
07	OVC	042						10.00	-RA	52	47	49	83	6	VR	28.82	29.79	
10	OVC	033						7.00	RA	44	37	41	76	6	VR	29.00	29.98	
13	OVC	070						10.00		43	36	40	76	8	27	28.99	29.97	
16	BKN	060						10.00		43	26	36	51	6	28	29.00	29.98	
19	OVC	060						10.00		36	21	31	55	13	29	29.10	30.10	
22	OVC	030						4.00	-SN	32	25	29	75	6	31	29.15	30.16	

SUNRISE: 0727									NOV 29	SUNSET: 1723								
01	OVC	040						8.00	-SN	31	22	28	69	12	26	29.17	30.19	
04	OVC	043						10.00		31	20	27	64	5	VR	29.22	30.23	
07	OVC	037						10.00		31	20	27	64	6	25	29.28	30.30	
10	FEW	NC						10.00		32	20	28	61	6	VR	29.34	30.37	
13	FEW	NC						10.00		40	22	33	49	7	VR	29.33	30.35	
16	CLR	NC						10.00		42	21	34	43	7	20	29.29	30.31	
19	CLR	NC						10.00		38	22	32	53	5	21	29.27	30.29	
22	CLR	NC						10.00		35	24	31	64	5	VR	29.26	30.29	

SUNRISE: 0728									NOV 30	SUNSET: 1723								
01	CLR	NC						10.00		32	24	29	73	5	26	29.25	30.27	
04	CLR	NC						10.00		32	24	29	73	0	00	29.29	30.31	
07	CLR	NC						10.00		31	23	28	72	3	VR	29.35	30.37	
10	CLR	NC						10.00		39	24	33	55	8	25	29.34	30.36	
13	CLR	NC						10.00		51	25	40	36	7	VR	29.26	30.27	
16	CLR	NC						10.00		56	25	43	30	7	VR	29.20	30.20	
19	CLR	NC						10.00		46	28	39	50	5	26	29.21	30.22	
22	CLR	NC						10.00		44	26	37	49	6	23	29.24	30.24	

**3-HOURLY OBSERVATION NOTES**

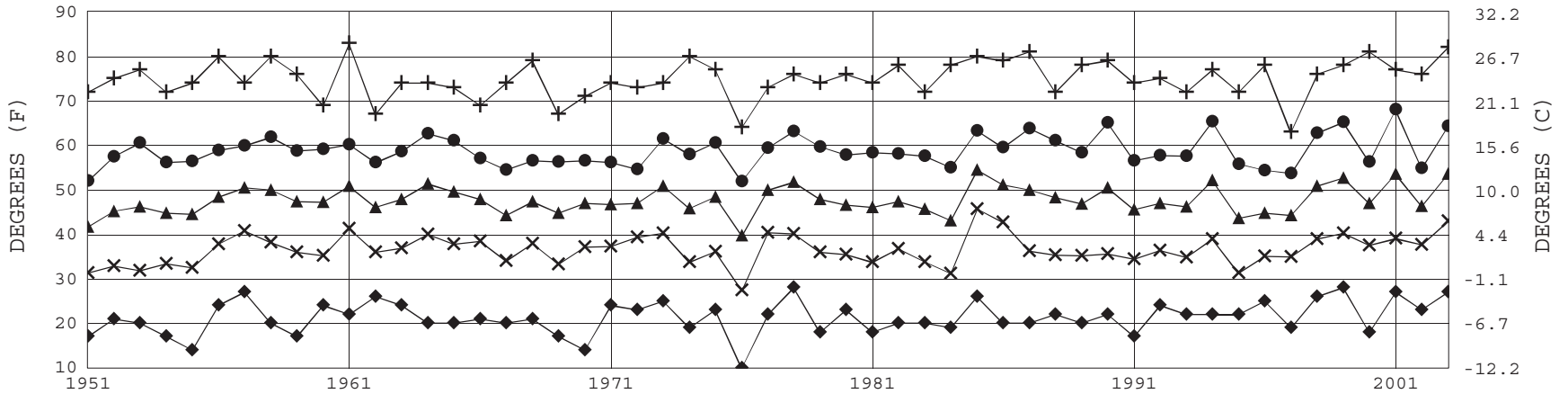
Sky Cover is the amount of the sky obscured. CLR or SKC = 0, FEW = 1/8-2/8, SCT = 3/8-4/8, BKN = 5/8-7/8, OVC = 8/8, VV = Vertical Visibility = 8/8. Ceiling is reported in hundreds of feet above ground level for clouds at or below 12,000 feet. NC= No ceiling detected. & = Original observation contained additional weather elements. See page 3 for additional notes.

### SUMMARY BY HOUR

HOUR (LST)	AVERAGES										RESULTANT WIND (MPH)	
	CEILOMETER	EFF CLD AMT	DRY BULB	DEW POINT	WET BULB	RELATIVE HUMIDITY	PRESSURE (INCHES, HG)		VISIBILITY (MILES)	WIND SPEED (MPH)	SPEED	DIRECTION
							STATION	SEA LEVEL				
01			49	43	46	80	29.17	30.15	8.50	2	1	25
02			48	42	46	81	29.17	30.15	8.38	2	1	28
03			48	42	45	83	29.17	30.15	8.09	1	0	0
04			48	42	45	82	29.17	30.15	7.48	2	0	0
05			47	42	45	83	29.17	30.15	7.47	1	1	17
06			47	42	45	85	29.18	30.17	7.14	2	1	28
07			46	42	44	86	29.20	30.18	7.00	2	0	0
08			47	42	45	85	29.21	30.20	7.23	2	0	0
09			49	43	46	80	29.23	30.21	7.57	3	1	2
10			52	43	48	73	29.23	30.22	8.63	3	0	0
11			55	43	49	66	29.23	30.21	9.50	2	1	32
12			57	43	50	61	29.21	30.19	9.33	3	1	25
13			59	43	51	59	29.19	30.16	9.28	3	1	27
14			60	43	52	55	29.17	30.14	9.65	4	3	25
15			61	42	52	52	29.15	30.13	9.67	5	1	22
16			61	42	52	52	29.15	30.13	9.48	4	2	21
17			60	42	51	55	29.15	30.13	9.51	4	2	22
18			57	43	50	62	29.16	30.14	9.17	2	1	28
19			54	43	49	69	29.17	30.15	9.15	2	1	31
20			53	43	48	73	29.17	30.16	9.18	2	0	0
21			51	43	48	74	29.18	30.16	9.12	2	0	0
22			50	43	47	76	29.18	30.17	8.97	1	0	0
23			50	43	47	77	29.18	30.16	8.72	1	0	0
24			49	42	46	77	29.17	30.15	8.89	1	0	0



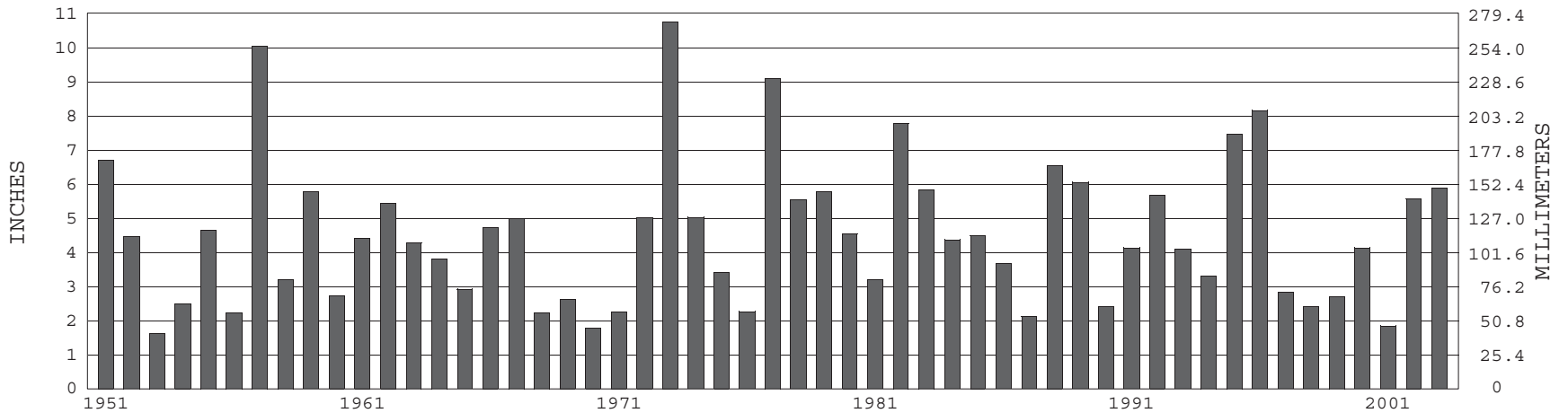
### OAK RIDGE, TN NOVEMBER TEMPERATURES



+ Extreme Max.      ● Mean Max.      ▲ Mean      × Mean Min.      ◆ Extreme Min.

Long-Term (1951-2003) Mean: 47.7      1961-1990 Normal: 47.7

### OAK RIDGE, TN NOVEMBER PRECIPITATION



Long-Term (1951-2003) Mean Monthly Total: 4.53

1961-1990 Normal: 4.86



NOVEMBER 2003

OAK RIDGE, TN

# LOCAL CLIMATOLOGICAL DATA

NOAA, National Climatic Data Center

*I certify that this is an official publication of the National Oceanic and Atmospheric Administration (NOAA). It is compiled using information from weather observing sites operated by NOAA – National Weather Service / Department Of Transportation – Federal Aviation Administration and received at the National Climatic Data Center (NCDC), Asheville, North Carolina 28801.*

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