

Funding provided by NOAA  
Sectoral Applications Research Project

# CLIMATE PRODUCTS

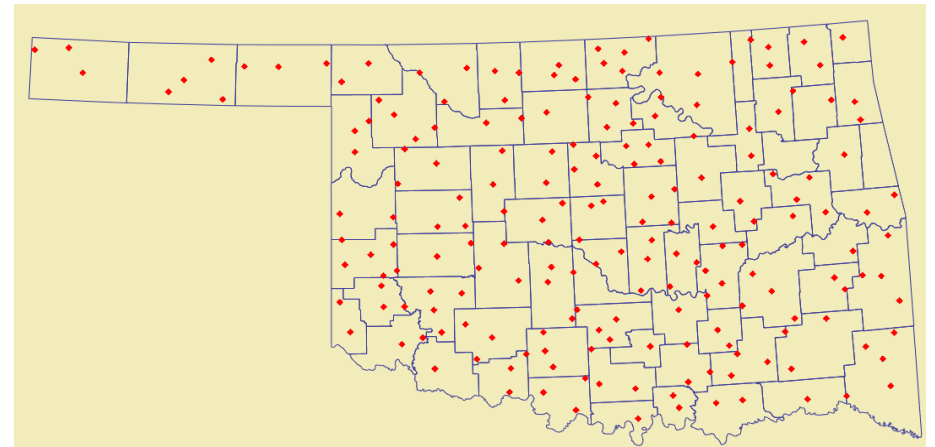
Basic Climatology  
Oklahoma Climatological Survey



# OBSERVING NETWORKS

# Cooperative Observer Data (COOP)

- What is it?
  - ▣ Volunteers record temperature and precipitation observations once a day
  - ▣ Observations are either mailed on written forms or entered through the computer or a telephone system
  - ▣ Data are collected by the National Climatic Data Center (NCDC), where they are quality-assured
  - ▣ Typically takes 4-5 months before data are declared “official”
- What is observed?
  - ▣ Daily Maximum and Minimum Temperatures
  - ▣ Precipitation (liquid)
  - ▣ Snowfall, Snow Depth
- Where is it recorded?
  - ▣ ~8000 sites nationwide
  - ▣ ~200 active sites in Oklahoma
  - ▣ Dates back to before 1900



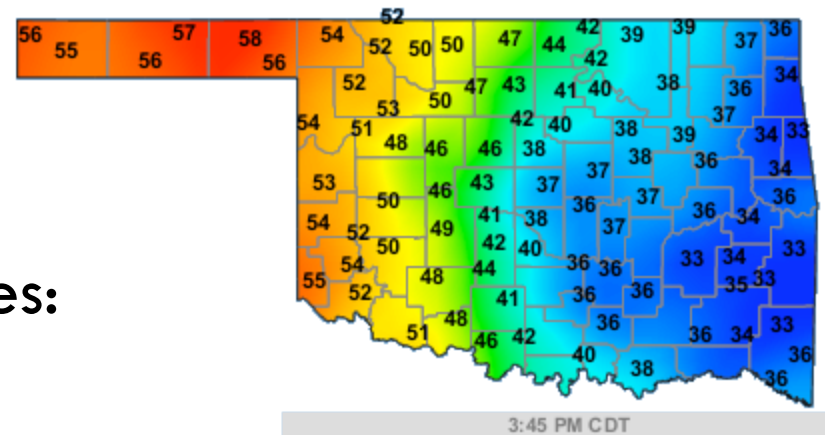
# NWS – ASOS and AWOS

- Automated Surface Observing System (ASOS)
  - 882 NWS/FAA stations in the United States
  - Generally dating back to ~1940s
  - Hourly weather observations
- Automated Weather Observing System (AWOS)
  - Operated by the Federal Aviation Administration (FAA)
  - About 600 FAA stations in the United States
  - Older than ASOS
  - Usually do not report special observations (e.g., time of wind shifts)
- The original observations relate to WEATHER, not CLIMATE. But if we look at this information over a much longer period of time, we can see climate trends.



# Oklahoma Mesonet

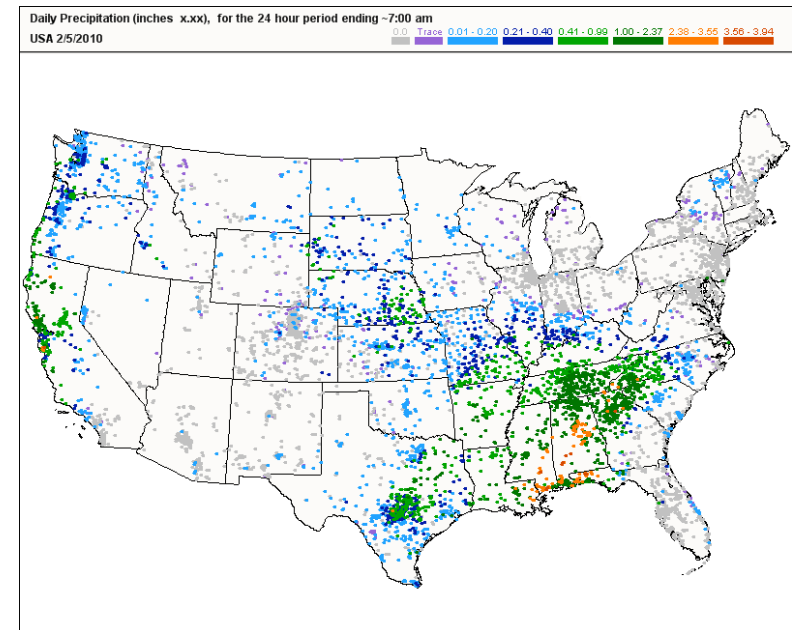
- County-level, real-time
- 120 stations in Oklahoma
- Commissioned in 1994
- Data reported every 5 minutes:
  - Temperature
  - Rainfall
  - Humidity
  - Winds
  - Sunshine (solar radiation)
  - Pressure
  - Soil temperature, soil moisture



<http://www.mesonet.org>

# CoCoRaHS

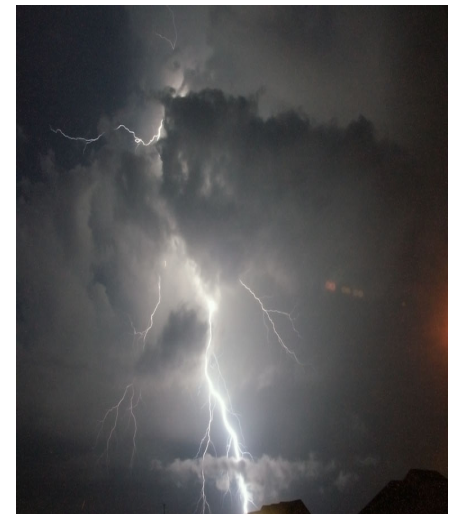
- Community Collaborative Rain, Hail and Snow Network
- Volunteer observers report rain, snow, and hail each day
  - ▣ Online “journal” allows tracking over time, comparing with neighbors
- Established in Colorado in 1998
- Currently 11,000+ observers in all 50 states
- Goal: a raingauge every mile
  - ▣ Need County Coordinators!



<http://www.cocorahs.org>

# Storm Reports

- NOAA Storm Data publication (monthly – OFFICIAL RECORDS):  
<http://www7.ncdc.noaa.gov/IPS/sd/sd.html>
- NCDC Storm Events Database (usually 90-120 days behind the current month):  
<http://www4.ncdc.noaa.gov/cgi-win/wwcgi.dll?wwEvent~Storms>
- Storm Prediction Center (unofficial reports usually up within a day or so):  
<http://www.spc.noaa.gov/> (Reports tab)
- Local Storm Reports (issued by National Weather Service offices as events are reported)
- Contact your State Climate Office for assistance:  
<http://www.stateclimate.org/>



# SOME USEFUL CLIMATE WEBSITES



# NOAA Climate Prediction Center

[www.cpc.noaa.gov](http://www.cpc.noaa.gov)

1 and 3 month outlooks

Short-term outlooks

U.S. Hazards Assessments

U.S. Drought Assessment  
(also see [www.drought.gov](http://www.drought.gov))

ENSO (El Nino/La Nina)

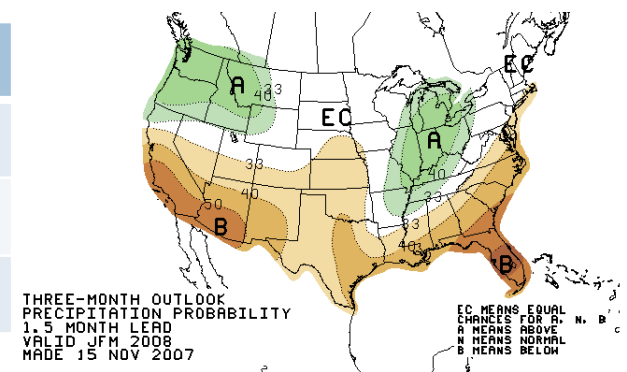
The screenshot shows the NOAA Climate Prediction Center website. The top navigation bar includes 'Home', 'Site Map', and 'News'. A search bar is located on the left. The main content area features a 'Climate News' section with several headlines. Below this is a grid of product links, including '6-10 Day Outlook' (Temperature, Precipitation), 'One Month Outlook' (Temperature, Precipitation), '8-14 Day Outlook' (Temperature, Precipitation), and 'Three Month Outlook' (Temperature, Precipitation). There are also links for 'U.S. Hazards Assessment' (Temp./Wind, Precip., Soil/Wildfire Composite) and 'U.S. Drought Assessment' (Drought Monitor, Drought Outlook). A map of the United States is displayed, showing a 6-10 day outlook for temperature probability. The map is shaded in blue and orange, with a legend indicating 'DRYER THAN NORMAL' (blue) and 'WETTER THAN NORMAL' (orange). The legend also notes 'VALUES INDICATE % OF BELOW (OR ABOVE) NORMAL UNCHANGED AREAS ARE NEAR-NORMAL'. Below the map, there is a 'Related Products' section listing various outlook and assessment products. At the bottom, there is a 'Local Climate Water & Weather Topics' section with a list of links.



# Interpreting Seasonal Outlooks

- A=Above, B=Below, N=Near Normal, EC=Equal Chances
- EC indicates a 33.3% chance of conditions falling into one of the three categories (above, near normal, or below)
- A (B) indicates that the forecaster thinks that conditions will be above (below) normal
  - ▣ Does not forecast how much above normal
- Any contours show an increased confidence in the forecast trend

	Above	Near Normal	Below
Equal Chances	33.3	33.3	33.3
40% Above	40.0	33.3	26.7
50% Below	16.7	33.3	50.0



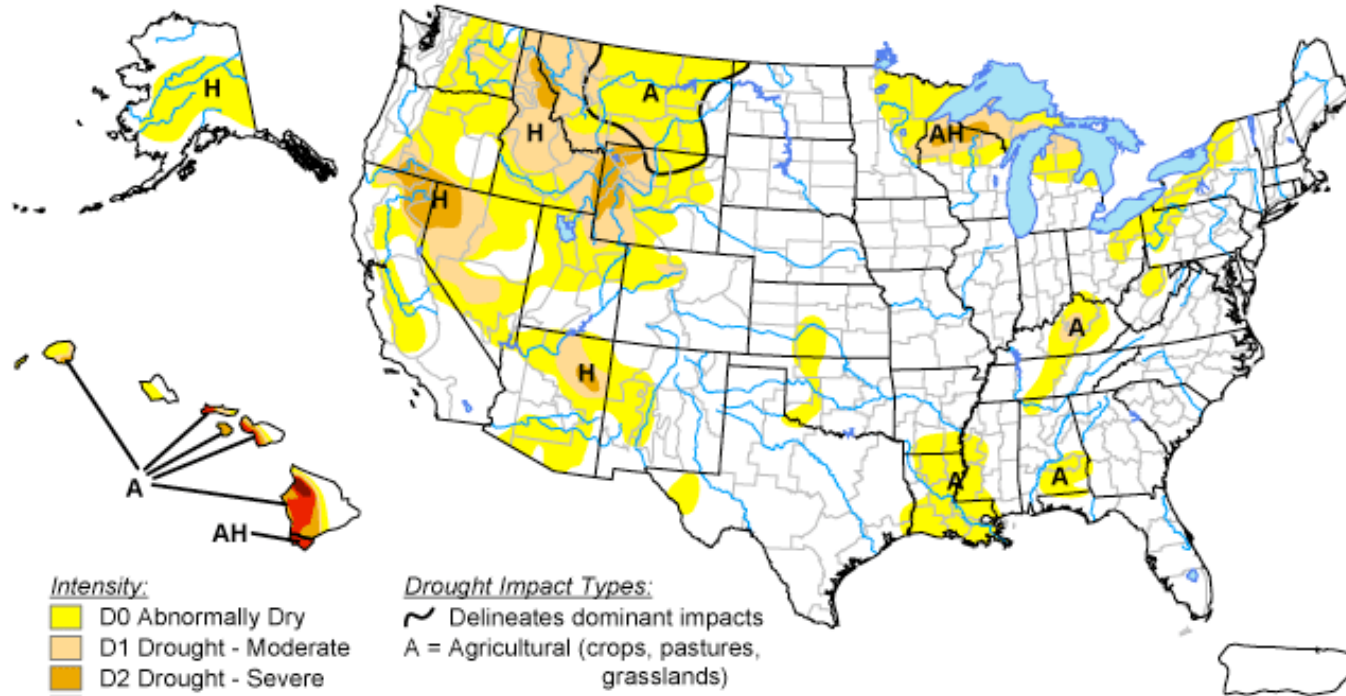
# Drought Monitor

[www.drought.gov](http://www.drought.gov)

## U.S. Drought Monitor

April 13, 2010

Valid 8 a.m. EDT



### Intensity:

- D0 Abnormally Dry
- D1 Drought - Moderate
- D2 Drought - Severe
- D3 Drought - Extreme
- D4 Drought - Exceptional

### Drought Impact Types:

- ~ Delineates dominant impacts
- A = Agricultural (crops, pastures, grasslands)
- H = Hydrological (water)

The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. See accompanying text summary for forecast statements.

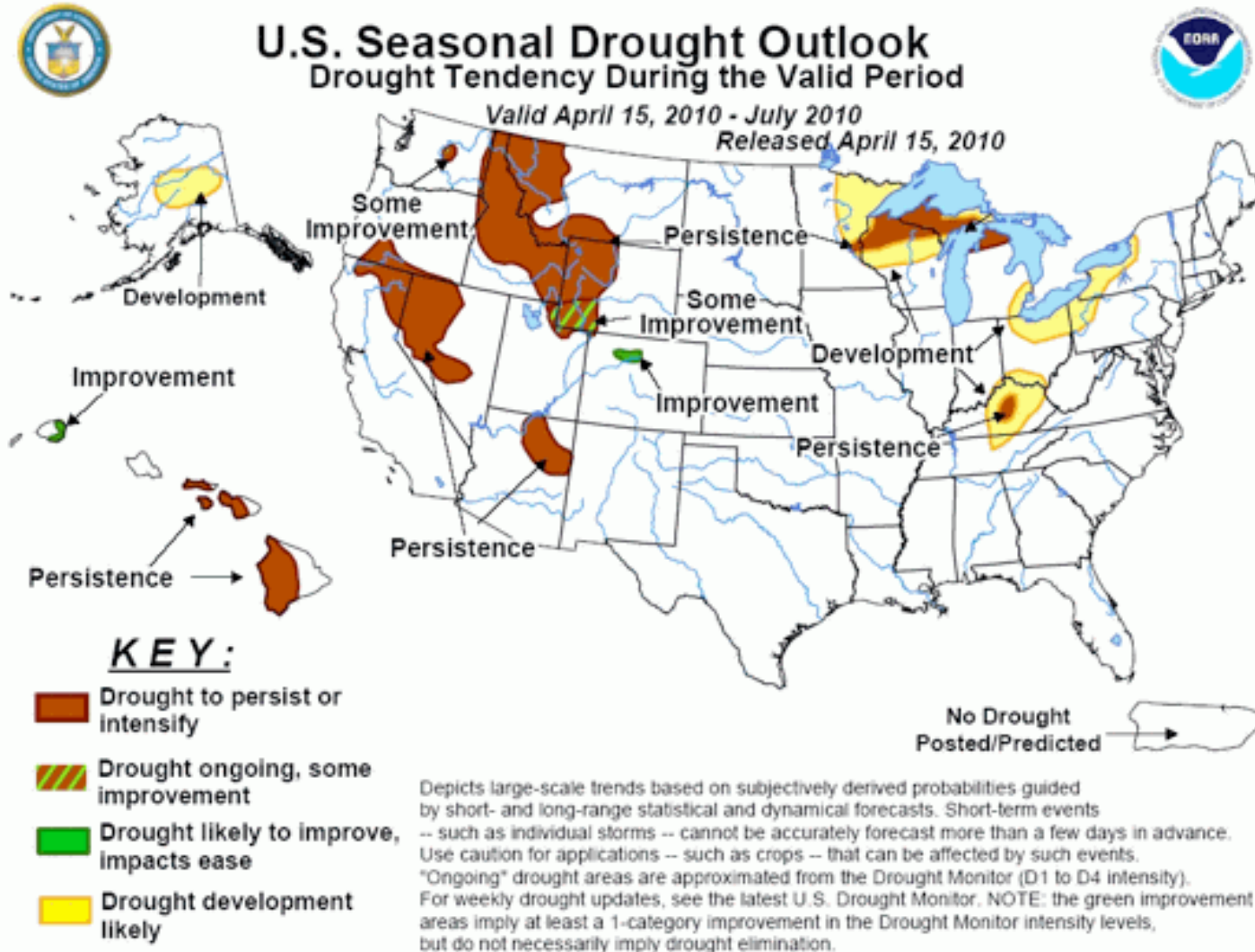
<http://drought.unl.edu/dm>



Released Thursday, April 15, 2010  
Author: David Miskus, CPC/NCEP/NWS/NOAA

# Drought Outlook

[www.drought.gov](http://www.drought.gov)



# National Weather Service

Norman: [www.srh.noaa.gov/oun/](http://www.srh.noaa.gov/oun/)

Tulsa: [www.srh.noaa.gov/tsa/](http://www.srh.noaa.gov/tsa/)

Enhanced Page  
(current concerns)

Data!

Point-and-click  
Forecasts

**National Weather Service Weather Forecast Office**  
**Norman, OK**

Home Site Map News Organization Search for:  NWS All NOAA Go

Local forecast by "City, St" or Zip Code  
City, St  Go  
XML RSS Feeds

Current News  
Nationalwide  
Outlooks  
Enhanced Page  
Hazardous Weather Outlook

Forecasts  
Local  
Forecast Discussion  
Activity Planner  
Graphical  
Fire Weather  
Aviation Weather  
Air Quality

Current Weather  
Observations  
Satellite Images  
Rivers/Lakes  
Oklahoma Mesonet  
West Texas Mesonet

Radar Imagery  
Nationalwide  
Central Oklahoma  
SW OK/NW TX  
Northern Oklahoma  
Southern Plains  
Pick a Radar

Climate  
Local  
National  
More...

Weather Safety  
Get Prepared  
Weather Radio  
SKYWARN  
Storm Spotter Training

Top News of the Day  
Click [HERE](#) for the Enhanced Page and Graphcasts

Watches & Warnings Observations Forecast Graphics Rivers & Lakes Climate Submit a Storm Report

Click on the map below for the latest forecast.

Read watches, warnings & advisories  
Zoom Out

Flood Warning  
Flood Advisory  
Hazardous Weather Outlook

Latest Conditions in **OKC, Will Rogers World Airport, OK** Choose Your Front Page City

Apr 19 **1:52 pm** **60°F** (16°C)  
Overcast

Select A City:

Graphical Forecasts Radar Satellite Weather Map

LOCATION	TIME[cdt]	WEATHER	TEMP	DEWPT	RH %	WIND mph	PRESSURE	SUNRISE/SUNSET
<a href="#">Oklahoma City</a>	01:52 PM	Overcast	60°F	46°F	60%	E 3	30.13 in	6:54 AM/8:06 PM
<a href="#">Wiley Post</a>	01:53 PM	Overcast	59°F	46°F	62%	NE 6	30.13 in	6:54 AM/8:06 PM



# NWS – Climate Section

Observed Weather | Climate Locations | Climate Prediction | Climate Resources | Local Data/Records | Astronomical | NOWData

## Observed Weather Reports

**1. Product »**

- Daily Climate Report (CLI)
- Preliminary Monthly Climate Data (CF6)
- Record Event Report (RER)
- Monthly Weather Summary (CLM)
- State Summary (Temp/Precip)

[Storm Event Database \(SPC\)](#)  
[Storm Data \(NCDC\)](#)

**2. Location »**

Oklahoma City Will Roger  
Wichita Falls Sheppard Fi

**3. Timeframe »**

- Most Recent
- Archived Data:

April 18th, 2010  
April 17th, 2010  
April 16th, 2010  
April 15th, 2010  
April 14th, 2010  
April 13th, 2010

**4. View »**

**Go**

**Product Description:**

DAILY CLIMATE REPORT - issued daily:  
Detailed daily weather statistics (usually for yesterday), including temperature, precipitation, degree days, wind, humidity, sunrise/sunset, and record temperature data for the following day. Precipitation data includes both calendar year and water year totals, percent of normal values, and comparisons to normal. This product is available for up to 2 months.

# Daily Climate Report (CLI)

## Climatological Report (Daily)

000  
CDUS44 KOUN 190633  
CLIOKC

CLIMATE REPORT  
NATIONAL WEATHER SERVICE NORMAN OK  
131 AM CDT MON APR 19 2010

.....

...THE OKLAHOMA CITY CLIMATE SUMMARY FOR APRIL 18 2010...

CLIMATE NORMAL PERIOD 1971 TO 2000  
CLIMATE RECORD PERIOD 1890 TO 2010

WEATHER ITEM	OBSERVED VALUE	TIME (LST)	RECORD VALUE	YEAR	NORMAL VALUE	DEPARTURE FROM NORMAL	LAST YEAR
.....							
TEMPERATURE (F)							
YESTERDAY							
MAXIMUM	53	212 AM	96	1925	72	-19	72
MINIMUM	48	1159 PM	30	1953	49	-1	49
AVERAGE	51				60	-9	61
PRECIPITATION (IN)							
YESTERDAY	0.93		2.97	1942	0.10	0.83	0.12
MONTH TO DATE	2.38				1.63	0.75	1.64
SINCE MAR 1	3.34				4.53	-1.19	4.17
SINCE JAN 1	8.58				7.37	1.21	5.58
SNOWFALL (IN)							
YESTERDAY	0.0		0.0	MM	0.0	0.0	0.0
MONTH TO DATE	T				T	0.0	0.0
SINCE JUL 1	23.2				8.6	14.6	3.1
DEGREE DAYS							
HEATING							
YESTERDAY	14				6	8	4
MONTH TO DATE	79				141	-62	182
SINCE MAR 1	557				587	-30	543
SINCE JUL 1	3795				3563	232	3232
COOLING							
YESTERDAY	0				1	-1	0
MONTH TO DATE	31				17	14	2
SINCE MAR 1	40				24	16	25
SINCE JAN 1	40				25	15	26

WIND (MPH)  
HIGHEST WIND SPEED 16 HIGHEST WIND DIRECTION E (70)  
HIGHEST GUST SPEED 20 HIGHEST GUST DIRECTION NE (60)  
AVERAGE WIND SPEED 10.1

SKY COVER  
AVERAGE SKY COVER 1.0

WEATHER CONDITIONS  
THE FOLLOWING WEATHER WAS RECORDED YESTERDAY.  
RAIN  
LIGHT RAIN  
FOG

RELATIVE HUMIDITY (PERCENT)  
HIGHEST 96 300 AM  
LOWEST 77 600 PM  
AVERAGE 87

.....

THE OKLAHOMA CITY CLIMATE NORMALS FOR TODAY

	NORMAL	RECORD	YEAR
MAXIMUM TEMPERATURE (F)	72	94	1987
MINIMUM TEMPERATURE (F)	49	35	1953

SUNRISE AND SUNSET  
APRIL 19 2010.....SUNRISE 653 AM CDT SUNSET 807 PM CDT  
APRIL 20 2010.....SUNRISE 652 AM CDT SUNSET 807 PM CDT

- INDICATES NEGATIVE NUMBERS.  
R INDICATES RECORD WAS SET OR TIED.  
MM INDICATES DATA IS MISSING.  
T INDICATES TRACE AMOUNT.



# Monthly Climate Data (f6)

## WFO Monthly/Daily Climate Data

000  
 CXUS54 KOUN 010800  
 CF60KC  
 PRELIMINARY LOCAL CLIMATOLOGICAL DATA (WS FORM: F-6)

STATION: OKLAHOMA CITY  
 MONTH: DECEMBER  
 YEAR: 2009  
 LATITUDE: 35 24 N  
 LONGITUDE: 97 36 W

TEMPERATURE IN F:		:PCPN:		SNOW: WIND		:SUNSHINE: SKY				:PK WND									
1	2	3	4	5	6A	6B	7	8	9	10	11	12	13	14	15	16	17	18	
12Z	12Z	12Z	12Z	12Z	12Z	12Z	12Z	12Z	12Z	12Z	12Z	12Z	12Z	12Z	12Z	12Z	12Z	12Z	
12Z	12Z	12Z	12Z	12Z	12Z	12Z	12Z	12Z	12Z	12Z	12Z	12Z	12Z	12Z	12Z	12Z	12Z	12Z	
12Z	12Z	12Z	12Z	12Z	12Z	12Z	12Z	12Z	12Z	12Z	12Z	12Z	12Z	12Z	12Z	12Z	12Z	12Z	
12Z	12Z	12Z	12Z	12Z	12Z	12Z	12Z	12Z	12Z	12Z	12Z	12Z	12Z	12Z	12Z	12Z	12Z	12Z	
53	31	42	-1	23	0	0.08	0.0	0	5.8	18	190	M	M	6			23	170	
44	34	39	-4	26	0	0.35	T	0	16.6	30	340	M	M	7	1		39	360	
38	24	31	-12	34	0	0.00	0.0	0	10.5	20	330	M	M	5			24	10	
37	19	28	-14	37	0	0.00	0.0	0	6.4	13	270	M	M	1			16	270	
48	21	35	-7	30	0	0.00	0.0	0	15.5	24	160	M	M	4			31	170	
47	31	39	-3	26	0	0.00	0.0	0	16.1	25	190	M	M	10			32	180	
35	25	30	-11	35	0	T	0.0	0	11.0	24	350	M	M	10	168		30	350	
41	21	31	-10	34	0	0.02	0.0	0	13.2	37	320	M	M	9	168		47	320	
27	14	21	-20	44	0	0.00	0.0	0	15.4	30	320	M	M	1			37	320	
35	11	23	-18	42	0	0.00	0.0	0	4.1	8	130	M	M	2			21	30	
39	17	28	-12	37	0	0.00	0.0	0	6.5	14	160	M	M	4			16	160	
49	25	37	-3	28	0	0.00	0.0	0	13.8	22	180	M	M	9	1		26	190	
70	37	54	14	11	0	0.00	0.0	0	12.2	26	210	M	M	6	12		32	220	
54	23	39	-1	26	0	0.00	0.0	0	16.0	29	340	M	M	6	8		35	320	
35	17	26	-13	39	0	0.00	0.0	0	11.4	22	360	M	M	3			30	350	
53	17	35	-4	30	0	0.00	0.0	0	9.1	20	200	M	M	1			24	190	
58	27	43	4	22	0	0.00	0.0	0	9.9	20	190	M	M	2			24	190	
58	34	46	7	19	0	0.00	0.0	0	13.7	23	340	M	M	1			28	330	
42	23	33	-6	32	0	0.00	0.0	0	10.3	23	340	M	M	3	18		26	350	
60	22	41	3	24	0	0.00	0.0	0	7.0	17	260	M	M	1	18		21	250	
64	30	47	9	18	0	0.00	0.0	0	11.1	22	180	M	M	3			26	190	
58	42	50	12	15	0	0.00	0.0	0	11.3	17	130	M	M	7	1		22	180	
55	36	46	8	19	0	0.00	0.0	0	13.3	28	360	M	M	10	18		33	360	
36	21	29	-9	36	0	0.95	13.5	0	35.1	49	340	M	M	9	1469		62	330	
36	19	28	-10	37	0	0.00	0.0	14	16.8	31	280	M	M	1			39	270	
37	21	29	-8	36	0	0.00	0.0	10	11.3	23	290	M	M	1			28	280	
36	22	29	-8	36	0	0.00	0.0	10	9.2	23	330	M	M	5			26	330	
43	19	31	-6	34	0	0.00	0.0	7	5.3	13	340	M	M	2			15	330	
36	25	31	-6	34	0	0.07	0.5	5	6.0	16	180	M	M	9	1		18	190	
44	32	38	1	27	0	T		6	10.0	18	200	M	M	9	12		22	190	
36	25	31	-6	34	0	0.00	0.0	5	10.6	20	350	M	M	8	18		22	350	
SM	1404	765		925	0	1.47		14.0	364.5				M		155				
AV	45.3	24.7							11.8	FASTST	M	M	5				MAX(MPH)		
								MISC	----	# 49	340							# 62	330

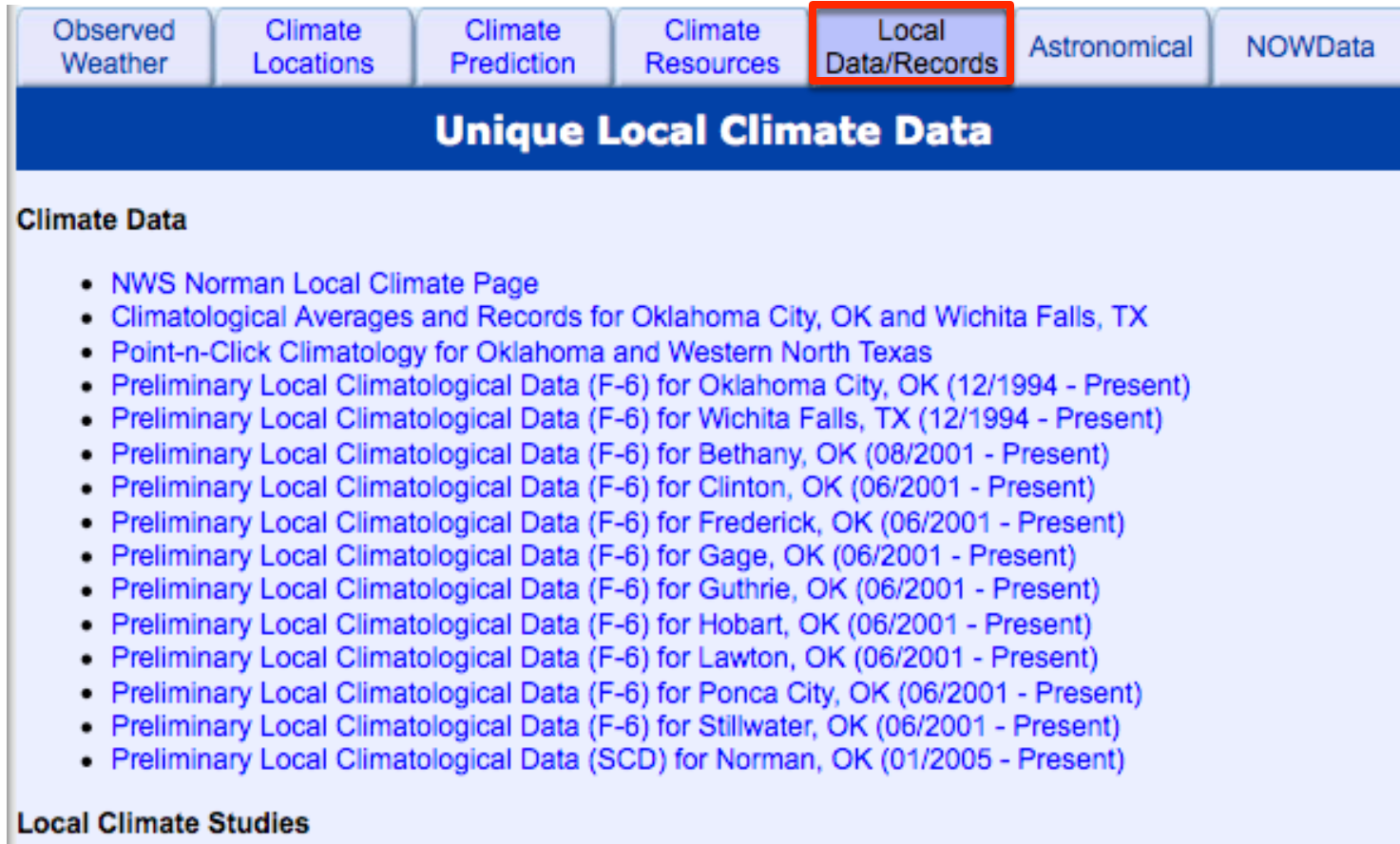
NOTES:  
 # LAST OF SEVERAL OCCURRENCES  
 COLUMN 17 PEAK WIND IN M.P.H.

PRELIMINARY LOCAL CLIMATOLOGICAL DATA (WS FORM: F-6) , PAGE 2

STATION: OKLAHOMA CITY  
 MONTH: DECEMBER  
 YEAR: 2009  
 LATITUDE: 35 24 N  
 LONGITUDE: 97 36 W

[TEMPERATURE DATA]	[PRECIPITATION DATA]	SYMBOLS USED IN COLUMN 16
AVERAGE MONTHLY: 35.0	TOTAL FOR MONTH: 1.47	1 = FOG OR MIST
DPTR FM NORMAL: -4.5	DPTR FM NORMAL: -0.42	2 = FOG REDUCING VISIBILITY
HIGHEST: 70 ON 13	GRTST 24HR 0.95 ON 24-24	TO 1/4 MILE OR LESS
LOWEST: 11 ON 10		3 = THUNDER
	SNOW, ICE PELLETS, HAIL	4 = ICE PELLETS
	TOTAL MONTH: 14.0 INCHES	5 = HAIL
	GRTST 24HR 13.5 ON 24-24	6 = FREEZING RAIN OR DRIZZLE
	GRTST DEPTH: 14 ON 25	7 = DUSTSTORM OR SANDSTORM:
		VSBY 1/2 MILE OR LESS
		8 = SMOKE OR HAZE
[NO. OF DAYS WITH]	[WEATHER - DAYS WITH]	9 = BLOWING SNOW
		X = TORNADO
MAX 32 OR BELOW: 1	0.01 INCH OR MORE: 5	
MAX 90 OR ABOVE: 0	0.10 INCH OR MORE: 2	
MIN 32 OR BELOW: 26	0.50 INCH OR MORE: 1	
MIN 0 OR BELOW: 0	1.00 INCH OR MORE: 0	
[HDD (BASE 65) ]		
TOTAL THIS MO. 925	CLEAR (SCALE 0-3) 13	
DPTR FM NORMAL 145	PTCLDY (SCALE 4-7) 10	
TOTAL FM JUL 1 1558	CLOUDY (SCALE 8-10) 8	
DPTR FM NORMAL 114		
[CDD (BASE 65) ]		
TOTAL THIS MO. 0		
DPTR FM NORMAL 0	[PRESSURE DATA]	
TOTAL FM JAN 1 1854	HIGHEST SLP M ON M	
DPTR FM NORMAL -53	LOWEST SLP 29.40 ON 8	
[REMARKS]		
#FINAL-12-09#		

# NWS – Climate Section



The screenshot shows a navigation menu with the following items: Observed Weather, Climate Locations, Climate Prediction, Climate Resources, Local Data/Records (highlighted with a red box), Astronomical, and NOWData. Below the menu is a blue header with the text "Unique Local Climate Data". Underneath, there is a section titled "Climate Data" containing a list of 15 bullet points, each representing a different local climate data resource. At the bottom of the screenshot, there is a section titled "Local Climate Studies".

Observed Weather   Climate Locations   Climate Prediction   Climate Resources   **Local Data/Records**   Astronomical   NOWData

**Unique Local Climate Data**

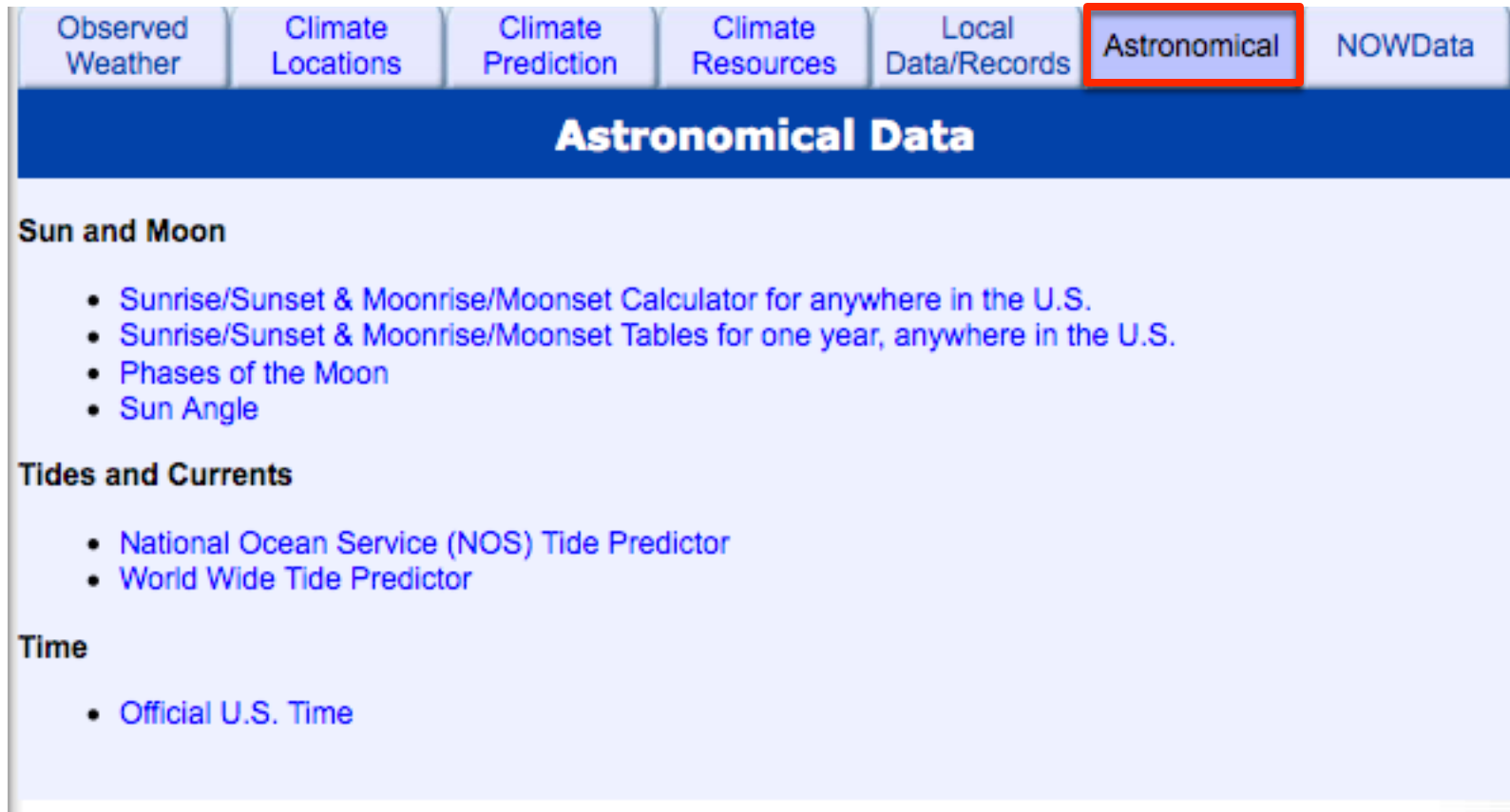
**Climate Data**

- [NWS Norman Local Climate Page](#)
- [Climatological Averages and Records for Oklahoma City, OK and Wichita Falls, TX](#)
- [Point-n-Click Climatology for Oklahoma and Western North Texas](#)
- [Preliminary Local Climatological Data \(F-6\) for Oklahoma City, OK \(12/1994 - Present\)](#)
- [Preliminary Local Climatological Data \(F-6\) for Wichita Falls, TX \(12/1994 - Present\)](#)
- [Preliminary Local Climatological Data \(F-6\) for Bethany, OK \(08/2001 - Present\)](#)
- [Preliminary Local Climatological Data \(F-6\) for Clinton, OK \(06/2001 - Present\)](#)
- [Preliminary Local Climatological Data \(F-6\) for Frederick, OK \(06/2001 - Present\)](#)
- [Preliminary Local Climatological Data \(F-6\) for Gage, OK \(06/2001 - Present\)](#)
- [Preliminary Local Climatological Data \(F-6\) for Guthrie, OK \(06/2001 - Present\)](#)
- [Preliminary Local Climatological Data \(F-6\) for Hobart, OK \(06/2001 - Present\)](#)
- [Preliminary Local Climatological Data \(F-6\) for Lawton, OK \(06/2001 - Present\)](#)
- [Preliminary Local Climatological Data \(F-6\) for Ponca City, OK \(06/2001 - Present\)](#)
- [Preliminary Local Climatological Data \(F-6\) for Stillwater, OK \(06/2001 - Present\)](#)
- [Preliminary Local Climatological Data \(SCD\) for Norman, OK \(01/2005 - Present\)](#)

**Local Climate Studies**

Summaries, studies, and resources produced by the local office

# NWS – Climate Section



The screenshot shows a navigation menu with the following items: Observed Weather, Climate Locations, Climate Prediction, Climate Resources, Local Data/Records, **Astronomical** (highlighted with a red box), and NOWData. Below the menu is a blue header for 'Astronomical Data' and three sections of links: 'Sun and Moon', 'Tides and Currents', and 'Time'.

Observed Weather	Climate Locations	Climate Prediction	Climate Resources	Local Data/Records	<b>Astronomical</b>	NOWData
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## Astronomical Data

### Sun and Moon

- [Sunrise/Sunset & Moonrise/Moonset Calculator for anywhere in the U.S.](#)
- [Sunrise/Sunset & Moonrise/Moonset Tables for one year, anywhere in the U.S.](#)
- [Phases of the Moon](#)
- [Sun Angle](#)

### Tides and Currents

- [National Ocean Service \(NOS\) Tide Predictor](#)
- [World Wide Tide Predictor](#)

### Time

- [Official U.S. Time](#)

# NWS – Climate Section


Observed Weather	Climate Locations	Climate Prediction	Climate Resources	Local Data/Records	Astronomical	<b>NOWData</b>
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## NOWData - NOAA Online Weather Data

<b>1. Product »</b> <input type="radio"/> Daily data for a month <input type="radio"/> Daily almanac <input checked="" type="radio"/> Monthly avgs/totals <input type="radio"/> Monthly occurrences <input type="radio"/> Monthly extremes <input type="radio"/> Daily extremes <input type="radio"/> Daily/monthly normals <input type="radio"/> Record extremes <input type="radio"/> First/last dates	<b>2. Location »</b> Oklahoma City Area Wichita Falls Area Copper Breaks St, TX Dundee 6 Nnw, TX Lake Kemp, TX Quanah 2 Sw, TX Truscott 3 W, TX Wichita Falls Mu, TX Altus Irig Res S, OK Altus Dam, OK	<b>3. Variable »</b> <input checked="" type="radio"/> Max Temperature <input type="radio"/> Min Temperature <input type="radio"/> Avg Temperature <input type="radio"/> Precipitation <input type="radio"/> Snowfall <input type="radio"/> Snow Depth <input type="radio"/> Heating Degree Days <input type="radio"/> Cooling Degree Days <input type="radio"/> Growing Degree Days	<b>4. Year »</b> <input checked="" type="radio"/> Current year <input type="radio"/> Last year <input type="radio"/> 1971-2000	<b>5. View »</b> <input type="button" value="Go"/>
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**Product Description:**  
MONTHLY AVERAGES/TOTALS - calculates averages or totals, as appropriate, for the selected variable for each month of the year. This product is available for the current year, the previous year, or an average of the years 1971 through 2000. Additional stations and years of data are available from the Regional Climate Centers and the National Climatic Data Center.

[- NCDC Map Services -](#)  
[- Common questions -](#)  
[- Submit a question/comment -](#)

Powered by   
NOAA Regional Climate Centers

# National Climatic Data Center

<http://www.ncdc.noaa.gov/oa/climate/severeweather/extremes.html>



NOAA Satellite and Information Service  
National Environmental Satellite, Data, and Information Service (NESDIS)




National Climatic  
Data Center  
U.S. Department of Commerce



[DOC](#) > [NOAA](#) > [NESDIS](#) > [NCDC](#)

Search Field:

Search NCDC

<a href="#">U.S. Hurricanes</a>	<a href="#">Heavy Precipitation</a>	<a href="#">Temperature Extremes &amp; Drought</a>	<a href="#">U.S. Tornadoes</a>
<a href="#">Billion \$\$ Weather Disasters</a>			<a href="#">Worldwide Weather &amp; Climate Events</a>
<a href="#">Global Climate Change</a>			<a href="#">Historical Global Extremes</a>
<a href="#">El Nino/ La Nina</a>			<a href="#">Satellite Images &amp; Posters</a>
<a href="#">Climate Monitoring</a>	<a href="#">U.S. Local Storm Events Data</a>	<a href="#">Climatic Data</a>	<a href="#">U.S. Radar Composites</a>



# National Climatic Data Center

## Storm Events Database

**Enter Search Parameters for Oklahoma**

**Begin Date:**  [\\* 01/01/1950 thru 12/31/2008](#)

**End Date:**  *If Different from Begin Date*

**County:**

**Event Type:**

---

**Limit Search Results**

**Tornados :**

**Hail, Size of at Least:**  **Inches**

**High Wind Speed of at Least:**  **Knots**

**Number of Injuries :**

**Number Of Deaths**

**Amount of Property Damage \$:**

**Amount of Crop Damage \$:**

## Storm Events

### for Oklahoma

List Storms

Reset

New State

All States

### Fujita Tornado Scale

**F0:** 40-72 mph (35-62 kt)  
**F1:** 73-112 mph (63-97 kt)  
**F2:** 113-157 mph (98-136 kt)  
**F3:** 158-206 mph (137-179 kt)  
**F4:** 207-260 mph (180-226 kt)  
**F5:** 261-318 mph (227-276 kt)

# National Climatic Data Center

## Climate Monitoring Reports

The screenshot displays the NOAA National Climatic Data Center (NCDC) website. At the top, there are logos for NOAA Satellite and Information Service (NESDIS) and the National Climatic Data Center (U.S. Department of Commerce). A navigation bar includes links for DOC, NOAA, NESDIS, and NCDC, along with a search field and a 'Search NCDC' button. The main heading is 'NCDC Climate Monitoring Reports and Products'. A left sidebar lists categories: Current Events, Data & Products, Purchase, and Climate Info. The main content area features a vertical list of report and product links, each with a right-pointing arrow.

**NOAA Satellite and Information Service**  
National Environmental Satellite, Data, and Information Service (NESDIS)

**National Climatic Data Center**  
U.S. Department of Commerce

[DOC](#) > [NOAA](#) > [NESDIS](#) > [NCDC](#)      Search Field:       Search NCDC

### NCDC Climate Monitoring Reports and Products

- Current Events**
  - About NCDC
  - In the Spotlight
  - What's New
- Data & Products**
  - Products and Services
  - Find a Station
  - Search by Map
  - Free Data
  - Data Access tools
  - CD-ROM Products
  - Climate Inventories
  - Metadata
  - Help/FAQ
- Purchase**
  - Most Popular
  - Subscriptions
  - Order Status
  - Online Store
- Climate Info**
  - Regional Climate Centers
  - Research
  - Monitoring
  - Extremes
  - Global Hazards

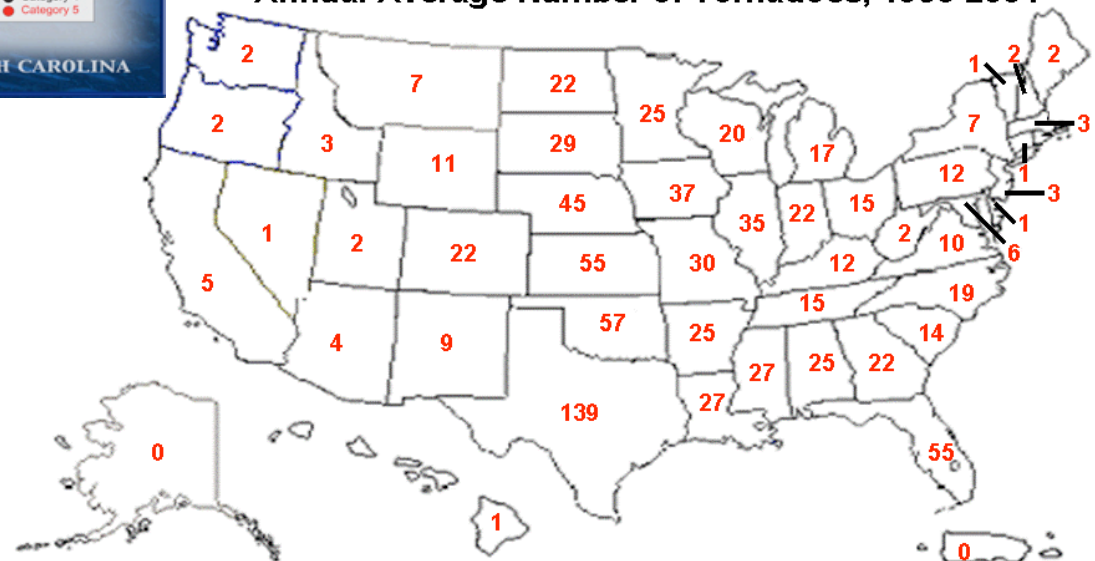
<a href="#">State of the Climate</a>	▶
<a href="#">Special Reports</a>	▶
<a href="#">BAMS Annual State of the Climate Reports</a>	
<a href="#">U.S. Products</a>	▶
<a href="#">Download U.S. Temp/Prcp/Drought Data</a>	▶
<a href="#">U.S. and Global Extremes</a>	▶
<a href="#">Global Products</a>	▶
<a href="#">Hurricanes/Tropical Storms</a>	▶
<a href="#">Tornadoes</a>	▶
<a href="#">Climate and Network Monitoring</a>	▶
<a href="#">Drought Monitoring</a>	▶
<a href="#">Snow Data</a>	▶
<a href="#">Other Products</a>	▶

# National Climatic Data Center

## Hurricanes and Tornadoes



Annual Average Number of Tornadoes, 1953-2004

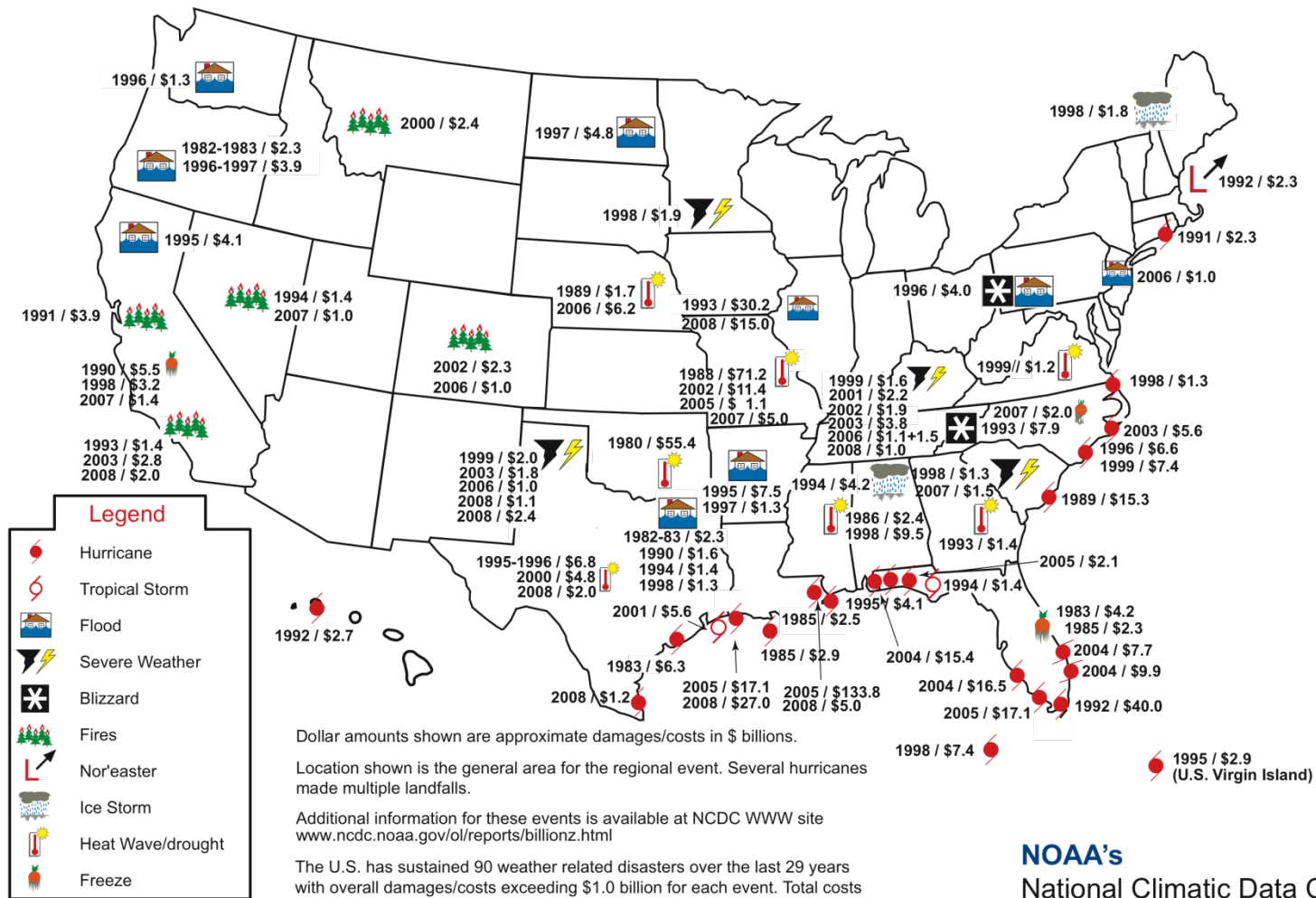




# National Climatic Data Center

## Weather Disasters

### Billion Dollar Weather Disasters 1980 - 2008



1996 / \$1.3  
 1982-1983 / \$2.3  
 1996-1997 / \$3.9  
 1995 / \$4.1  
 1991 / \$3.9  
 1990 / \$5.5  
 1998 / \$3.2  
 2007 / \$1.4  
 1993 / \$1.4  
 2003 / \$2.8  
 2008 / \$2.0  
 2000 / \$2.4  
 1997 / \$4.8  
 1998 / \$1.9  
 1989 / \$1.7  
 2006 / \$6.2  
 1993 / \$30.2  
 2008 / \$15.0  
 1998 / \$1.8  
 1992 / \$2.3  
 1991 / \$2.3  
 2006 / \$1.0  
 1996 / \$4.0  
 1999 / \$1.2  
 1998 / \$1.3  
 1999 / \$1.6  
 2001 / \$2.2  
 2002 / \$1.9  
 2003 / \$3.8  
 2006 / \$1.1+1.5  
 2008 / \$1.0  
 1998 / \$1.3  
 2007 / \$2.0  
 1993 / \$7.9  
 2003 / \$5.6  
 1996 / \$6.6  
 1999 / \$7.4  
 1989 / \$15.3  
 1994 / \$4.2  
 1998 / \$9.5  
 1993 / \$1.4  
 1994 / \$1.4  
 2005 / \$2.1  
 1983 / \$4.2  
 1985 / \$2.3  
 2004 / \$7.7  
 2004 / \$9.9  
 1992 / \$40.0  
 1998 / \$7.4  
 1995 / \$2.9 (U.S. Virgin Island)  
 1999 / \$2.0  
 2003 / \$1.8  
 2006 / \$1.0  
 2008 / \$1.1  
 2008 / \$2.4  
 1980 / \$55.4  
 1995 / \$7.5  
 1997 / \$1.3  
 1982-83 / \$2.3  
 1990 / \$1.6  
 1994 / \$1.4  
 1998 / \$1.3  
 1995-1996 / \$6.8  
 2000 / \$4.8  
 2008 / \$2.0  
 2001 / \$5.6  
 1983 / \$6.3  
 2005 / \$17.1  
 2008 / \$27.0  
 2005 / \$133.8  
 2008 / \$5.0  
 1994 / \$16.5  
 2004 / \$15.4  
 2005 / \$17.1

# Oklahoma Climate Survey

<http://climate.ocs.ou.edu>

April 19, 2010

Oklahoma Climate Data Pages

- Normals & Extremes
- County Climate Summaries
- Rainfall & Drought Update
- Monthly Summaries
- Seasonal Summaries
- Annual Summaries
- Climate Event Summaries
- Weather Timeline
- Climate Trends
- Coop Data

→ **oklahoma climate data**



## Climate Services

Climate services are more than simply providing climate data. Climate Services provide context, interpretation, and analysis to meet the needs of individuals in their daily decision-making activities. OCS provides routine, written summaries of weather and climate events as well as one-on-one interaction with Oklahomans to meet their particular needs. Our staff of climatologists document particular circumstances to resolve insurance claims, provide analyses of mean and extreme climate patterns for planning construction activities, and assist agencies in planning for Oklahoma's seasonal and longer-term climate variability and change. Services range from answering questions on the telephone or e-mail to developing detailed reports. **Call us** with your questions!

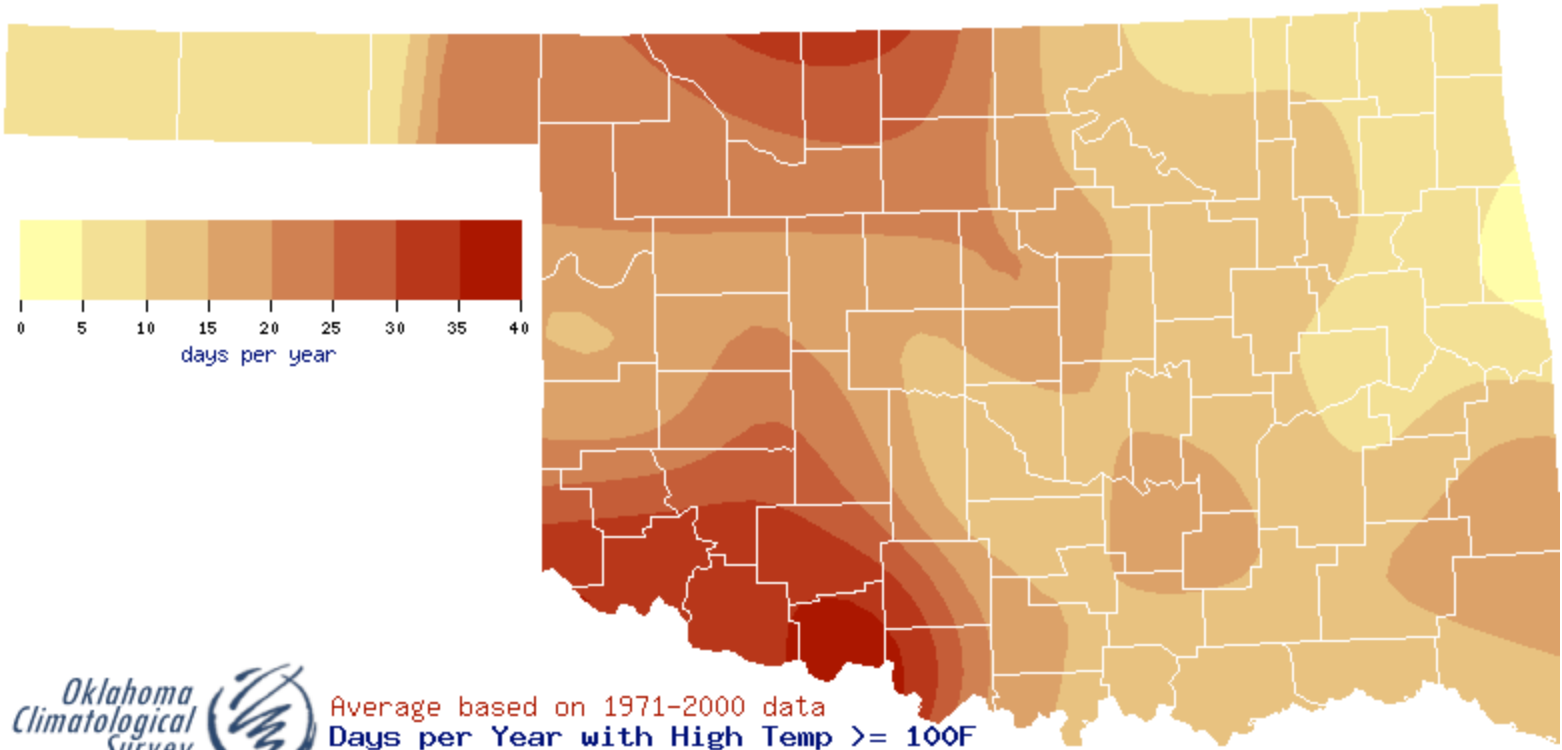


A division of The Oklahoma Climatological Survey

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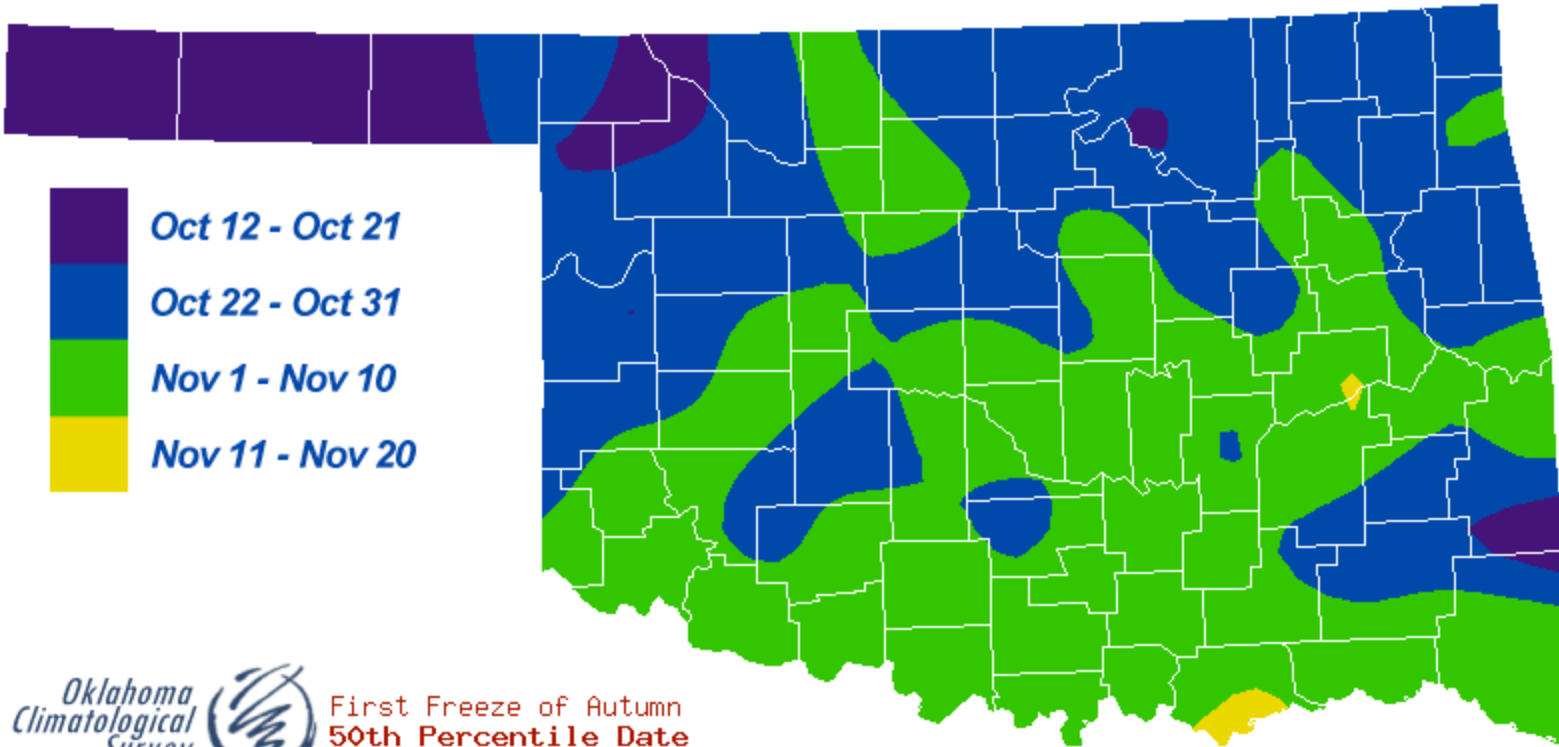
# Normals & Extremes

## Days over 100 degrees



# Normals & Extremes

## First Freeze of Autumn

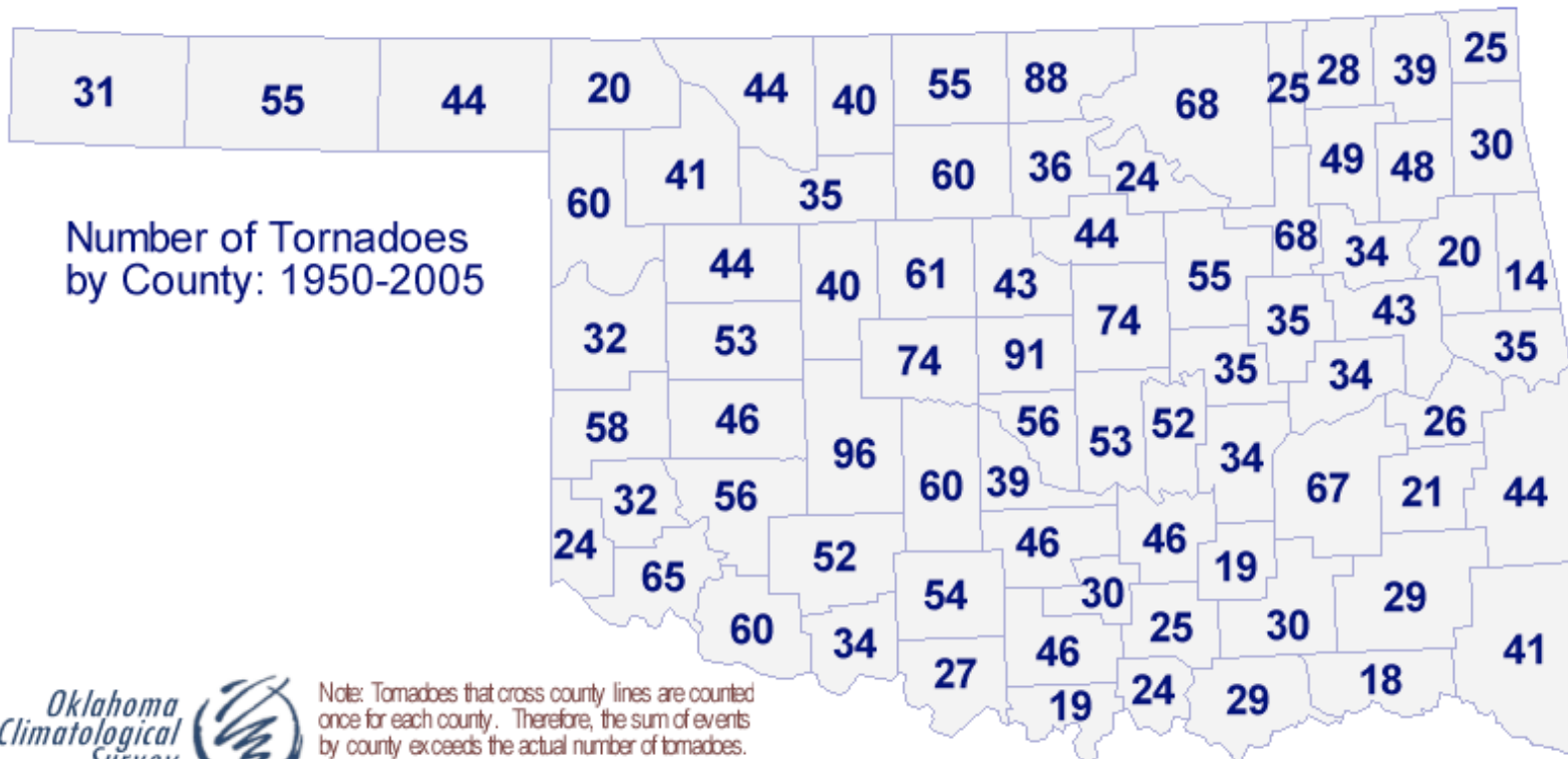


First Freeze of Autumn  
**50th Percentile Date**  
(c) 2002 Oklahoma Climatological Survey

1971-2000

# Normals & Extremes

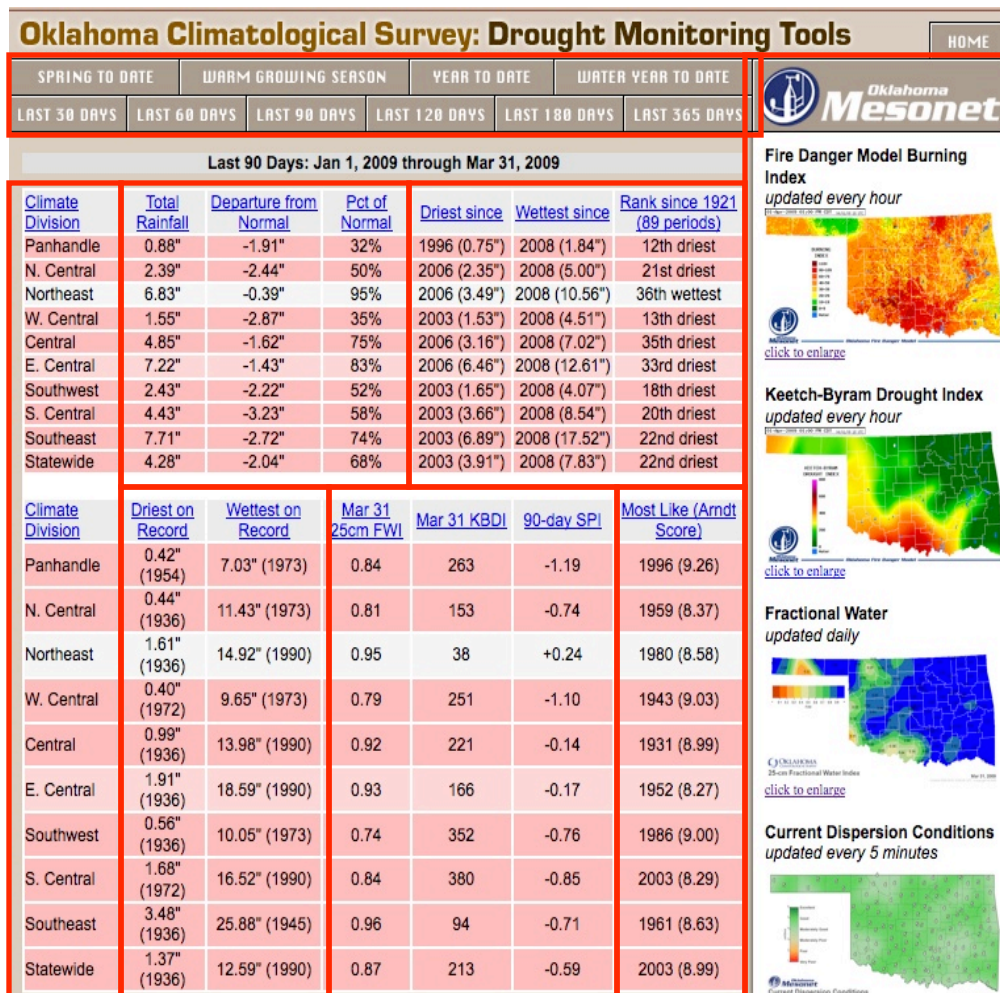
## Tornadoes by county



Note: Tornadoes that cross county lines are counted once for each county. Therefore, the sum of events by county exceeds the actual number of tornadoes.

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# Rainfall and Drought Update



Choose from ten drought "seasons"

Sorted by climate division

Basic statistics

Historical perspective & rankings

"Specialized" indices

Analog years ("most like current season")

Related fire danger and smoke management products



# OCS Publications

- Monthly Summaries
- Oklahoma Climate (Seasonal Summaries)
- Climate Event Summaries
  - Ice Storm
  - Tornado
  - Drought
- County Climate Summaries
- OCS/Mesonet Ticker

**OKLAHOMA MONTHLY CLIMATE SUMMARY**  
**OCTOBER 2007**

**OKLAHOMA CLIMATOLOGICAL SURVEY**

Okahoma's rainy 2007 seemingly came to an end following the second month in a row of below normal precipitation. Even though October was the 49th wettest on record statewide since 1895, a deficit of almost a half of an inch remained at month's end. October's month-end was uncharacteristic, however, marking as the 21st wettest on record. There were some heavy rains during the month associated with a couple of waves of severe weather. There were no tornadoes reported in October - the most severe storm being high winds and large hail. In one instance, a wind at the Tulsa Oktoberfest celebration was downed by winds gusting to 50 mph in the area, injuring 20. A W9 high wind gust was recorded at the Oklahoma Mesonet site outside of Tulsa associated with the same storm system.

Description	Extreme	Station	Date
High Temperature	90°F	Beaver	Oct 1
		Buffalo	Oct 20
		Waukena	Oct 4
Low Temperature	27°F	Buffalo	Oct 28
High Precipitation	2.31 in.	Nevada	
Low Precipitation	0.00 in.	Beale City	
		Goodwin	
		Hosker	
		Kearney	

**Precipitation**  
While the statewide average precipitation total three inches, a few areas had more substantial totals. Oklahoma had a surplus of more than an inch by wettest on record for that area. Parts of central Oklahoma were also above normal for the month, with stations receiving 6-7 inches of rainfall. The few western Oklahomans, on the other hand, string any moisture in their rain gauges. Of the 16 in the Panhandle, four received no rainfall. The Panhandle averaged about a quarter of an inch, more than normal, ending as the 11th driest November on record. That continues an extended dry period in the region, which in some areas has not broken for the year, the 24th driest such period on record for statewide average precipitation has topped a 90 wettest on record for the January-October period. Oklahoma, on the other hand, is still an exceptional year on record thus far with a surplus of more through October.

**Temperature**  
The entire state was above normal for the month. Particularly was especially so with its 90 wettest on record. The statewide average temperature, under 64 degrees, more than two degrees above year to date pace to finish with above normal, just over 63 degrees for the January-October period warmest on record.

**OKLAHOMA CLIMATE**  
Spring 2007

**Flowers Frogs Fire Fury**

**SPRING TORNADOES & ENSO**  
Oklahoma Mesonet Sits in OKC

**Enhanced Fujita Scale**

**Winter 2004-2007 Summary**  
Weather Watch and Urban Farmer

**Oklahoma Ice Storm: December 3, 2002**

**OKLAHOMA CLIMATOLOGICAL SURVEY**  
WWW.OCS.OSU.EDU

**TEMPERATURE**  
Average Annual: 60 degrees  
Average Maximum: 72 degrees  
Average Minimum: 47 degrees  
Highest: 111 degrees (Jefferson, August 11, 1936)  
Lowest: -23 degrees (Jefferson, February 13, 1905)  
Days of 90 Degrees or Higher: 86  
Days of 30 Degrees or Lower: 28

**PRECIPITATION**  
Average Annual: 33.73 inches  
Days With Precipitation: 16  
Wettest Year: 54.23 inches in 1987  
Driest Year: 13.59 inches in 1976  
Greatest Daily Rainfall: 10.00 inches (Jefferson, October 11, 1973)

**OTHER FACTS**  
Average Wind Speed: 10 mph  
Sunshine: 60.30%  
Average Humidity: 69%  
Thunderstorm Days: 51  
Hail Events: 4 per year  
Tornadoes (1950-2003): 56

**WINTER WEATHER**  
Average Annual Snowfall  
Days with snow on ground  
Greatest Seasonal Snowfall  
Greatest Daily Snowfall  
(Medford, March 13, 1911)  
Last Freeze in Spring: Apr  
First Freeze in Autumn: Oct  
Growing Season: 203 Day

**Grant County Climate Summary**

**THE TICKER**  
"We don't make this stuff up!"

... Day by Day ... November 29 in Mesonet History ...

Find a particular day's Ticker.

If you're a bit off, don't worry, because just like horseshoes, "almost" counts on the Ticker home page!

Record Maximum 79 F IDAB 2006  
Record Minimum 8 F TDFP 2001  
Record Rainfall 3.85" TALL 2006

November 29 | 29 | 2007 | Get Ticker

... Search the Ticker Archives ...

Search for word(s): [ ] Search!

Search for articles containing ( ) all ( ) any of these words  
 Case-Sensitive Search

... News and Links of Interest ...

[ Consecutive days with less than 0.25" rainfall ] | [ Consecutive days with less than 0.10" rainfall ]

... The Most Recent Ticker ...

MESONET TICKER ... MESONET TICKER ... MESONET TICKER ... MESONET TICKER ...  
November 26, 2007 November 26, 2007 November 26, 2007 November 26, 2007

An Answer to that Mapping Question

Been sitting around since Thursday night, trying to figure out what caused the peculiarly strong temperature gradient along the Red River in extreme southwestern Oklahoma!

<http://ticker.mesonet.osu.edu/archives/20071123/mmmn.htm>


C'mon, admit it, you've been riveted for days, formulating hypotheses, holding heated discussions with your extended family about nighttime cooling, shooting patrid plates at the heavens, waiting for vindication.

Have you urgently tried to reconcile the midnight cooling at Mangum and friends?

[http://ticker.mesonet.osu.edu/archives/20071123/mmmn\\_met\\_eit](http://ticker.mesonet.osu.edu/archives/20071123/mmmn_met_eit)

# OCS Publications—Monthly Summary

- [http://climate.mesonet.org/monthly\\_summary.html](http://climate.mesonet.org/monthly_summary.html)
- Overview and daily highlights
- Severe weather reports
- Statewide maps of precipitation, temperature, departures from normal, and soil moisture
- Mesonet station summaries
- Climate division comparisons (OK is divided into 9 regions, assuming similar climates within each region)
- Next month's outlook
- Drought Monitor and Outlook; seasonal forecast



**OKLAHOMA MONTHLY CLIMATE SUMMARY**  
**OCTOBER 2007**

OKLAHOMA CLIMATOLOGICAL SURVEY

Oklahoma's rainy 2007 seemingly came to an end following the second month in a row of below normal precipitation. Even though October was the 49th wettest on record statewide since 1895, a deficit of almost a half of an inch remained at month's end. October's warmth was undeniable, however, ranking as the 21st warmest on record. There were some heavy rains during the month associated with a couple of bouts of severe weather. There were no tornadoes reported in October -- the main severe threats being high winds and large hail. In one instance, a tent at the Tulsa Oktoberfest celebration was destroyed by winds gusting to 85 mph in the area, injuring 50. A 90 mph wind gust was recorded at the Oklahoma Mesonet site outside of Tulsa associated with that same storm system.

**Precipitation**

While the statewide average precipitation total was just under three inches, a few areas had more substantial totals. Northeast Oklahoma had a surplus of more than an inch to rank as the 29th wettest on record for that area. Parts of central and east central Oklahoma were also above normal for the month, with some stations receiving 6-7 inches of rainfall. The Panhandle and far western Oklahoma, on the other hand, struggled to collect any moisture in their rain gauges. Of the six Mesonet sites in the Panhandle, four received no rainfall. The Panhandle region averaged about a quarter of an inch, more than an inch below normal, ranking as the 11th driest November on record for that area. That continues an extended dry period for the Panhandle region, which is now more than four inches below normal for the year, the 24th driest such period on record for that area. The statewide average precipitation has slipped a bit and is now the 9th wettest on record for the January-October period. Central Oklahoma, on the other hand, is still experiencing their wettest year on record thus far with a surplus of more than 16 inches through October.

**Temperature**

The entire state was above normal for the month, but the Panhandle was especially so with its 9th warmest October on record. The statewide average temperature came in at just under 64 degrees, more than two degrees above normal. The year is still on pace to finish with above normal temperatures at just over 63 degrees for the January-October period, the 39th warmest on record.

**October 2007 Statewide Extremes**

Description	Extreme	Station	Date
High Temperature	96°F	Beaver Buffalo Waurika	Oct. 1 Oct. 20 Oct. 4
Low Temperature	29°F	Buffalo	Oct. 26
High Precipitation	7.31 in.	Newkirk	
Low Precipitation	0.00 in.	Beale City Goodwell Hooker Kennon	

**October Daily Highlights**

**October 1-3:** The month began with a cold front in the early morning hours sweeping through northwestern Oklahoma before stalling in central portions of the state. The front generated showers and thunderstorms in the southeast later that day. High temperatures ahead of the front were in the 90s with 80s behind the front. The boundary retreated overnight on the second as a warm front. Low temperatures were 10-15 degrees above normal in the 60s and 70s. The front swept to the south once again that afternoon and once again showers and thunderstorms formed ahead of it. Some of the storms exceeded severe limits with winds measured at 75 mph by the Medicine Park Mesonet site. The front managed to push across the rest of the state overnight on the third bringing more rain and cooler weather. Low temperatures that morning dropped to 34 degrees at Buffalo. High temperatures that afternoon rebounded into the 80s. Most of the heavy rainfall during this period was confined to east central Oklahoma where more than three inches fell in localized areas.

**October 4-5:** The next two days were dominated by surface high pressure. Highs were mainly in the 80s and 90s with winds gusting to 35-40 mph from the south. Low temperature held in the 60s and 70s with the aid of the strong winds.



# OCS Publications—Seasonal Summary

- [http://climate.mesonet.org/seasonal\\_summary.html](http://climate.mesonet.org/seasonal_summary.html)
- *Oklahoma Climate*
- Published in March, June, September, December
- Built around a theme (e.g., fall weather)
  - Historical perspective of Oklahoma climate or event
  - Feature articles on OCS outreach, research, climate services, etc.
  - Photos from the field
  - Seasonal summary
  - Agriculture articles
  - Classroom activity/interpretation



# OCS Publications—Event Summaries

➤ [http://climate.mesonet.org/event\\_summary.html](http://climate.mesonet.org/event_summary.html)

- Overview of federally-declared disasters
  - The meteorology of the event
  - Impacts
  - Historical perspective
  
- Climate Event Summaries have been prepared for:
  - January 28-30, 2002: Oklahoma Ice Storm
  - The Oklahoma Drought of 2001-2002
  - Oklahoma Ice Storm: December 3, 2002
  - May 8-9, 2003 Central Oklahoma Tornadoes

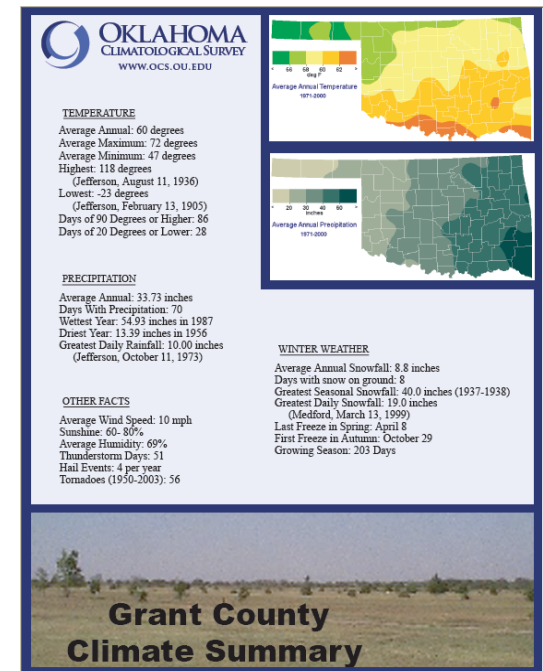


Oklahoma Climatological Survey

Oklahoma Climatological Survey  
100 East Blvd. St., Suite 1210  
Norman, OK 73019-1022  
tel. 405.325.2541  
fax 405.325.2500  
e-mail: [ocsl@okstate.edu](mailto:ocsl@okstate.edu)  
web: [www.ocs.okstate.edu](http://www.ocs.okstate.edu)  
Publication ES 2003-01  
Published February 14, 2003

# County Climate Summaries

- Historical summaries for each county
- Quick Facts 1-page overview of normals & extremes
- PDF summary and tables for county, including month-by-month temperatures, rainfall, snowfall, tornado records, etc.
- Station summaries for Coop and Mesonet sites
  - All long-term stations within county listed
  - Similar tables to PDF summary, but for each site
  - Includes ranges of “likely” conditions; not just monthly averages
  - Freeze/Frost dates for each site



# Weather Timeline

## Time Line 1980-1989

**1980:** Oklahoma Climatological Survey established at the University of Oklahoma.

**1980** Summer heat wave: daily maximum temperature at Oklahoma City exceeded 100 degrees 50 times during the season.

**1980** Driest July of century with a statewide-averaged precipitation of 0.41 inch.

**1981 October 10-17:** Remnants of Hurricane Norma produce as much as 18 inches of rain in 36 hours in south central Oklahoma (Kingston-Madill-Tishomingo).

**1982:** 101 tornadoes, 3rd most in one year since 1950.

**1983 October 17-23:** Remnants of Hurricane Tico produce up to 10-15 inches of rain, extensive flooding, from Rush Springs to Shawnee. Damages estimated at \$84M, including \$77M to agriculture.

**1983:** 92 tornadoes, 5th most in one year since 1950.

**1982-1983:** 193 tornadoes, 2nd greatest number of tornadoes in consecutive years.

**1983** Coldest April of century with a statewide-averaged temperature of 54.0 degrees.

**1983** Coldest December of century with a statewide averaged temperature of 26.5 degrees. Oklahoma City temperature did not exceed freezing from 17th through the 31st.

**1984 May 26-27:** Tulsa Memorial Day flood – more than 12 inches of rain overnight, subsequent flooding left 14 dead, destroyed or damaged 5,500 homes and over 7,000 vehicles. In reaction to this disaster, Tulsa launched a massive flood prevention and warning system that remains among the most effective public safety programs in the nation.

**1984** Wettest December of century with a statewide-averaged precipitation of 4.98 inches.

**1986** Driest January of century with a statewide averaged precipitation of 0.04 inches.

**1986 September 30-October 4:** Remnants of Hurricane Paine produce rains of around 10 inches in western and central Oklahoma and as much as 20 inches in north central Oklahoma. Major flooding on Arkansas River and its tributaries. Flooding was reported in 52 counties, damages estimated at \$350M, half of that to agriculture.

**1987 May 29-30:** Intense thunderstorm producing 5 to 11 inches of rain produced flash flooding in Chickasha, Lindsey, and Pauls Valley.

**1987 mid-December through early January 1988:** Series of winter storms. December 13-15: 8 to 14 inches of snow over northwest half of state, drifting up to 4 feet. December 25-27: Intense ice storm along 40-mile-wide stretch from Duncan to Norman to Tulsa and on to Miami left 75,000 homes without power, one-third of those for as long as a week. Ice accumulations of one to two inches on power lines and trees led to \$10M in damages. Flooding occurred on rivers just southeast of the ice storm. January 5-7, 1988: Heavy snow – 10 inches over much of the state with some areas receiving 16 to 18 inches. Rooftop drifts of two to three feet caused extensive damage.

**1988:** 17 tornadoes, fewest in one year during 1950-1999 period.

**1988** Driest May of century with a statewide-averaged precipitation of 1.30 inches.

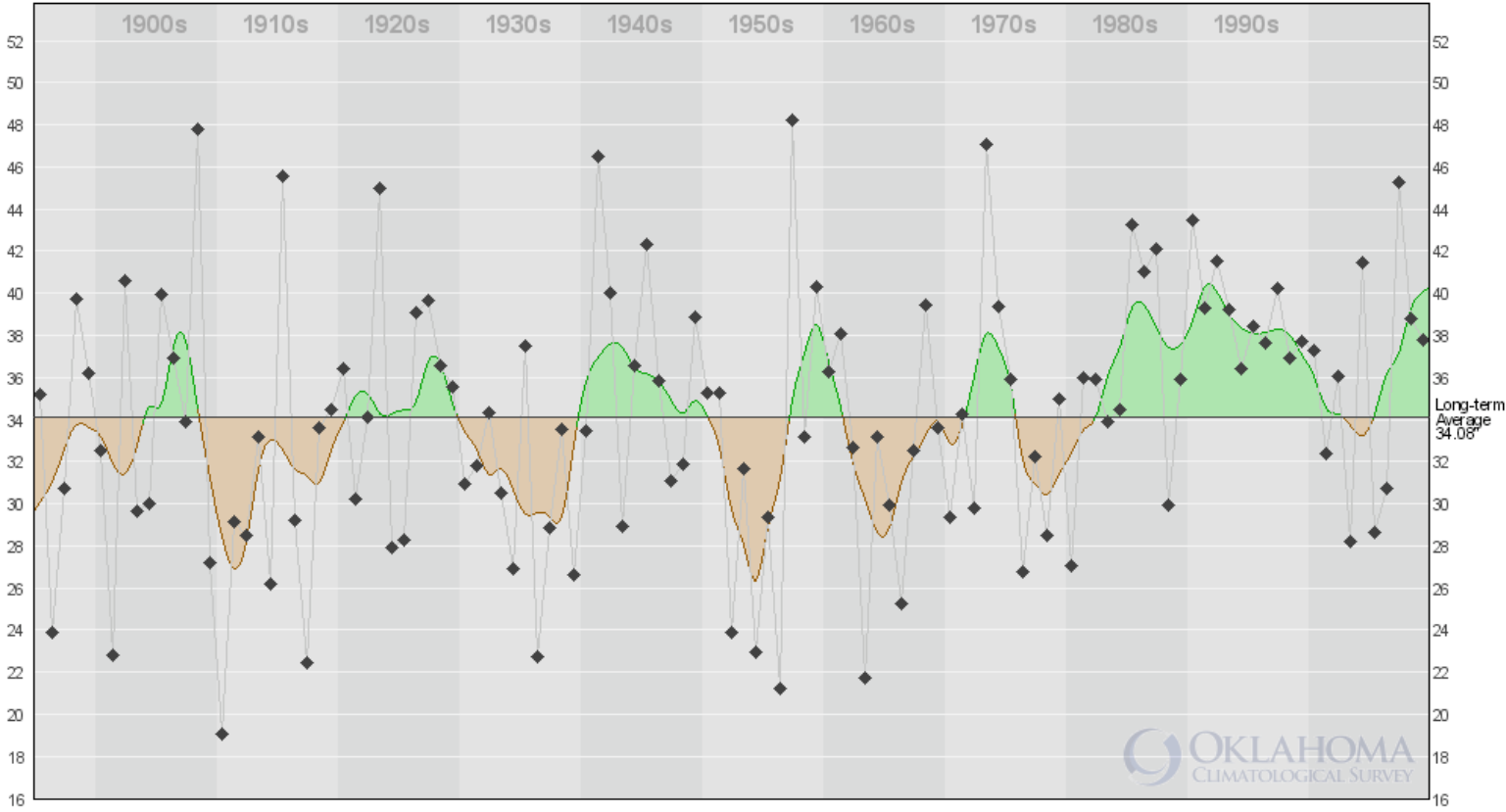
**1989** Driest April of century with a statewide-averaged precipitation of 0.58 inch.

**1988-89:** 37 tornadoes, fewest in consecutive years since 1950.

**1989** Cold outbreak March 3, temperatures fall over 50 degrees in a few hours, severe thunderstorms form over the cold air.

# Climate Trends

## Annual Precipitation, 1895-2009



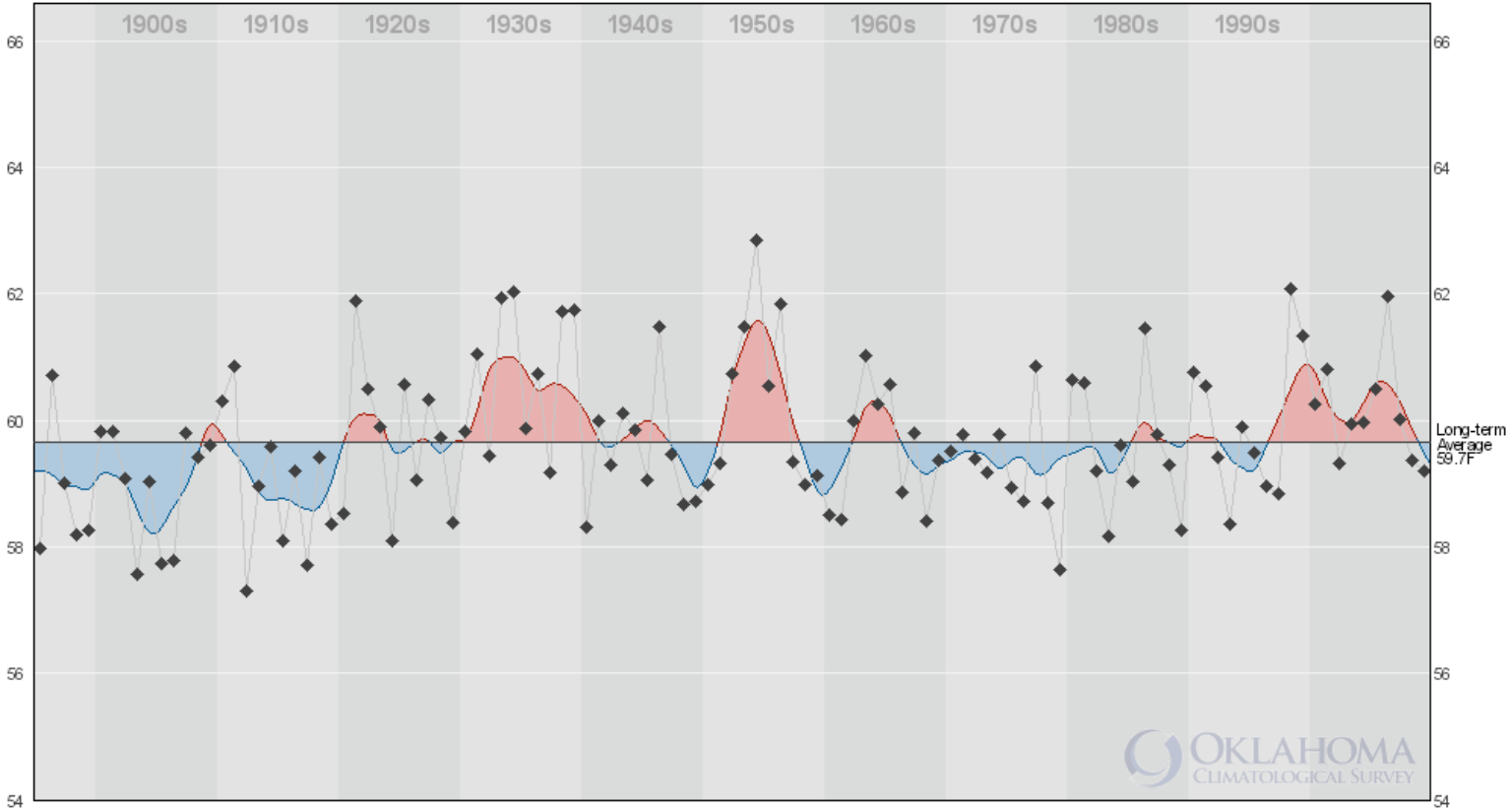
Annual Precipitation History with 5-year Tendencies  
Oklahoma Statewide: 1895-2009



- Wetter historical periods
- Drier historical periods
- Individual Annual precipitation value

# Climate Trends

## Annual Temperature, 1895-2009



Annual Temperature History with 5-year Tendencies  
Oklahoma Statewide: 1895-2009



- Warmer historical periods
- Cooler historical periods
- Individual Annual temperature value

# Cooperative Observer Data

## Time Series

### JEFFERSON

Grant County, North Central Climate Division (CD 2)  
36.72 N, 97.78 W, 1044 ft.

August 2000	TMAX (F)	TMIN (F)	PRCP (in)
Aug 1, 2000	90	61	
Aug 2, 2000	94	62	
Aug 3, 2000	95	63	
Aug 4, 2000	97	70	
Aug 5, 2000	104	74	
Aug 6, 2000	103	74	
Aug 7, 2000	103	75	
Aug 8, 2000	106	77	
Aug 9, 2000	106	77	
Aug 10, 2000	103	73	
Aug 11, 2000	101	74	
Aug 12, 2000	104	73	
Aug 13, 2000	104	72	
Aug 14, 2000	106	71	
Aug 15, 2000	100	68	
Aug 16, 2000	103	67	
Aug 17, 2000	103	71	
Aug 18, 2000	102	66	
Aug 19, 2000	88	64	0.19
Aug 20, 2000	105	67	
Aug 21, 2000	103	69	
Aug 22, 2000	105	69	
Aug 23, 2000	104	72	

### JEFFERSON

Grant County, North Central Climate Division (CD 2)  
36.72 N, 97.78 W, 1044 ft.

2000	TAVG (F)	TMAX (F)	TMIN (F)	PRCP (in)	SNOW (in)
Jan 2000	37.4	50.0	24.7	0.56	8.0
Feb 2000	45.8	59.7	31.8	1.84	0.0
Mar 2000	n/a	65.0	n/a	6.27	n/a
Apr 2000	59.1	73.7	44.6	1.70	0.0
May 2000	71.6	85.3	58.0	3.24	0.0
Jun 2000	75.8	88.4	63.2	3.84	0.0
Jul 2000	n/a	96.0	n/a	2.71	0.0
Aug 2000	86.7	102.6	70.8	0.19	0.0
Sep 2000	74.8	92.7	57.0	0.02	0.0
Oct 2000	62.9	75.2	50.5	4.81	0.0
Nov 2000	41.4	53.5	29.2	2.25	0.0
Dec 2000	27.2	38.6	15.7	1.17	n/a

# Cooperative Observer Data

## A Month in Time

August 2000						
Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
<b>Monthly Data:</b> Avg High: <b>103</b> Avg Low: <b>71</b> Avg Temp: <b>87</b>	<b>Monthly Data:</b> Precip: <b>0.19</b> Snow: <b>None</b>	<b>1</b> Max Temp: <b>90</b> Min Temp: <b>61</b> Precip: <b>0.00</b>	<b>2</b> Max Temp: <b>94</b> Min Temp: <b>62</b> Precip: <b>0.00</b>	<b>3</b> Max Temp: <b>95</b> Min Temp: <b>63</b> Precip: <b>0.00</b>	<b>4</b> Max Temp: <b>97</b> Min Temp: <b>70</b> Precip: <b>0.00</b>	<b>5</b> Max Temp: <b>104</b> Min Temp: <b>74</b> Precip: <b>0.00</b>
<b>6</b> Max Temp: <b>103</b> Min Temp: <b>74</b> Precip: <b>0.00</b>	<b>7</b> Max Temp: <b>103</b> Min Temp: <b>75</b> Precip: <b>0.00</b>	<b>8</b> Max Temp: <b>106</b> Min Temp: <b>77</b> Precip: <b>0.00</b>	<b>9</b> Max Temp: <b>106</b> Min Temp: <b>77</b> Precip: <b>0.00</b>	<b>10</b> Max Temp: <b>103</b> Min Temp: <b>73</b> Precip: <b>0.00</b>	<b>11</b> Max Temp: <b>101</b> Min Temp: <b>74</b> Precip: <b>0.00</b>	<b>12</b> Max Temp: <b>104</b> Min Temp: <b>73</b> Precip: <b>0.00</b>
<b>13</b> Max Temp: <b>104</b> Min Temp: <b>72</b> Precip: <b>0.00</b>	<b>14</b> Max Temp: <b>106</b> Min Temp: <b>71</b> Precip: <b>0.00</b>	<b>15</b> Max Temp: <b>100</b> Min Temp: <b>68</b> Precip: <b>0.00</b>	<b>16</b> Max Temp: <b>103</b> Min Temp: <b>67</b> Precip: <b>0.00</b>	<b>17</b> Max Temp: <b>103</b> Min Temp: <b>71</b> Precip: <b>0.00</b>	<b>18</b> Max Temp: <b>102</b> Min Temp: <b>66</b> Precip: <b>0.00</b>	<b>19</b> Max Temp: <b>88</b> Min Temp: <b>64</b> Precip: <b>0.19</b>
<b>20</b> Max Temp: <b>105</b> Min Temp: <b>67</b> Precip: <b>0.00</b>	<b>21</b> Max Temp: <b>103</b> Min Temp: <b>69</b> Precip: <b>0.00</b>	<b>22</b> Max Temp: <b>105</b> Min Temp: <b>69</b> Precip: <b>0.00</b>	<b>23</b> Max Temp: <b>104</b> Min Temp: <b>72</b> Precip: <b>0.00</b>	<b>24</b> Max Temp: <b>104</b> Min Temp: <b>72</b> Precip: <b>0.00</b>	<b>25</b> Max Temp: <b>106</b> Min Temp: <b>72</b> Precip: <b>0.00</b>	<b>26</b> Max Temp: <b>107</b> Min Temp: <b>72</b> Precip: <b>0.00</b>
<b>27</b> Max Temp: <b>110</b> Min Temp: <b>75</b> Precip: <b>0.00</b>	<b>28</b> Max Temp: <b>110</b> Min Temp: <b>75</b> Precip: <b>0.00</b>	<b>29</b> Max Temp: <b>107</b> Min Temp: <b>76</b> Precip: <b>0.00</b>	<b>30</b> Max Temp: <b>106</b> Min Temp: <b>71</b> Precip: <b>0.00</b>	<b>31</b> Max Temp: <b>103</b> Min Temp: <b>72</b> Precip: <b>0.00</b>	<b>Key:</b> All Temps deg F All Precip inches	



# Cooperative Observer Data

## Climate Calendar

Shown as August 2005						
Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
<b>Periods of Record</b>	<b>1</b> T Avgs: <b>96/69</b>	<b>2</b> T Avgs: <b>96/69</b>	<b>3</b> T Avgs: <b>96/69</b>	<b>4</b> T Avgs: <b>95/69</b>	<b>5</b> T Avgs: <b>96/69</b>	<b>6</b> T Avgs: <b>97/69</b>
Temps 1894-2003	Sig Prcp Freq: <b>13%</b>	Sig Prcp Freq: <b>19%</b>	Sig Prcp Freq: <b>11%</b>	Sig Prcp Freq: <b>17%</b>	Sig Prcp Freq: <b>11%</b>	Sig Prcp Freq: <b>19%</b>
Precip 1894-2003	Extremes:	Extremes:	Extremes:	Extremes:	Extremes:	Extremes:
Snow 1894-2003	High T 111 (1934)	High T 110* (1918)	High T 112* (1918)	High T 111* (1918)	High T 112 (1929)	High T 114 (1964)
	Low T 51 (1936)	Low T 54* (1913)	Low T 55 (1974)	Low T 52 (1894)	Low T 53 (1894)	Low T 53 (1990)
	Precip 2.81 (1995)	Precip 3.19 (1927)	Precip 1.81 (1927)	Precip 1.00 (1911)	Precip 1.38 (1992)	Precip 5.88 (1898)
<b>7</b> T Avgs: <b>97/69</b>	<b>8</b> T Avgs: <b>96/69</b>	<b>9</b> T Avgs: <b>96/69</b>	<b>10</b> T Avgs: <b>96/68</b>	<b>11</b> T Avgs: <b>95/68</b>	<b>12</b> T Avgs: <b>95/68</b>	<b>13</b> T Avgs: <b>95/68</b>
Sig Prcp Freq: <b>14%</b>	Sig Prcp Freq: <b>13%</b>	Sig Prcp Freq: <b>14%</b>	Sig Prcp Freq: <b>14%</b>	Sig Prcp Freq: <b>16%</b>	Sig Prcp Freq: <b>15%</b>	Sig Prcp Freq: <b>17%</b>
Extremes:	Extremes:	Extremes:	Extremes:	Extremes:	Extremes:	Extremes:
High T 110* (1933)	High T 111* (1934)	High T 115 (1936)	High T 117 (1936)	High T 118 (1936)	High T 118 (1936)	High T 114 (1936)
Low T 55* (1894)	Low T 52 (1989)	Low T 54 (1989)	Low T 40 (1903)	Low T 53 (1931)	Low T 50 (1967)	Low T 52 (1967)
Precip 1.93 (1997)	Precip 2.36 (1902)	Precip 1.34 (1955)	Precip 3.33 (1951)	Precip 2.46 (2004)	Precip 2.33 (1948)	Precip 3.20 (1989)
<b>14</b> T Avgs: <b>95/68</b>	<b>15</b> T Avgs: <b>94/69</b>	<b>16</b> T Avgs: <b>95/69</b>	<b>17</b> T Avgs: <b>95/69</b>	<b>18</b> T Avgs: <b>94/68</b>	<b>19</b> T Avgs: <b>94/67</b>	<b>20</b> T Avgs: <b>94/67</b>
Sig Prcp Freq: <b>17%</b>	Sig Prcp Freq: <b>11%</b>	Sig Prcp Freq: <b>11%</b>	Sig Prcp Freq: <b>18%</b>	Sig Prcp Freq: <b>11%</b>	Sig Prcp Freq: <b>12%</b>	Sig Prcp Freq: <b>16%</b>
Extremes:	Extremes:	Extremes:	Extremes:	Extremes:	Extremes:	Extremes:
High T 111 (1934)	High T 111* (1934)	High T 110 (1956)	High T 109 (1956)	High T 111 (1934)	High T 107 (1936)	High T 111 (1934)
Low T 54 (1991)	Low T 49 (1994)	Low T 56 (1994)	Low T 56 (1942)	Low T 46 (1943)	Low T 52 (1940)	Low T 50* (1950)
Precip 3.12 (1949)	Precip 3.60 (1969)	Precip 2.04 (1938)	Precip 3.30 (1904)	Precip 2.60 (1968)	Precip 1.42 (1983)	Precip 2.03 (1930)
<b>21</b> T Avgs: <b>94/67</b>	<b>22</b> T Avgs: <b>93/67</b>	<b>23</b> T Avgs: <b>94/66</b>	<b>24</b> T Avgs: <b>94/66</b>	<b>25</b> T Avgs: <b>94/66</b>	<b>26</b> T Avgs: <b>95/67</b>	<b>27</b> T Avgs: <b>93/67</b>
Sig Prcp Freq: <b>15%</b>	Sig Prcp Freq: <b>19%</b>	Sig Prcp Freq: <b>16%</b>	Sig Prcp Freq: <b>10%</b>	Sig Prcp Freq: <b>10%</b>	Sig Prcp Freq: <b>7%</b>	Sig Prcp Freq: <b>11%</b>
Extremes:	Extremes:	Extremes:	Extremes:	Extremes:	Extremes:	Extremes:
High T 110 (1934)	High T 106* (1918)	High T 110 (1936)	High T 110 (1936)	High T 109 (1936)	High T 109* (1913)	High T 110 (2000)
Low T 48 (1939)	Low T 50 (1949)	Low T 50 (1923)	Low T 48 (1896)	Low T 51* (1896)	Low T 46 (1910)	Low T 48 (1910)
Precip 3.67 (1920)	Precip 1.91 (1907)	Precip 3.50 (1914)	Precip 0.80 (1930)	Precip 3.40 (1960)	Precip 2.15 (1960)	Precip 0.50 (2002)
<b>28</b> T Avgs: <b>93/66</b>	<b>29</b> T Avgs: <b>93/65</b>	<b>30</b> T Avgs: <b>93/66</b>	<b>31</b> T Avgs: <b>92/66</b>	<b>Key</b>	<b>Aug. Averages</b>	
Sig Prcp Freq: <b>8%</b>	Sig Prcp Freq: <b>14%</b>	Sig Prcp Freq: <b>15%</b>	Sig Prcp Freq: <b>18%</b>	* - Record since tied	High Temp 95 F	
Extremes:	Extremes:	Extremes:	Extremes:	Highlight = Aug record	Low Temp 68 F	
High T 110 (2000)	High T 109 (1984)	High T 110 (1939)	High T 110 (1912)	All Temps in deg F	Avg Temp 82 F	
Low T 47 (1916)	Low T 45 (1911)	Low T 44 (1915)	Low T 41 (1915)	All Precip in inches	Precip 3.17"	
Precip 2.20 (1974)	Precip 3.20 (1897)	Precip 4.45 (2003)	Precip 4.10 (2003)	Sig Prcp Freq = Pct of days with >= 0.1" precip	Snow 0.0"	

# Cooperative Observer Data

## CLIMOCS (long-term summaries)

### JEFFERSON: Climatological Summary

Location: Grant County, 36.72 N 97.78 W

[click here for help](#)

Temperature (deg Fahrenheit)											
	AVERAGES (1971-2000)			EXTREMES (1894-2004)		AVG # DAYS PER MONTH (1971-2000)					
	Daily Max	Daily Min	Daily Avg	Record High	Record Low	Max>100	Max>90	Max<32	Min<32	Min<0	
Jan	46.3	22.9	34.6	85 (31st, 1911)	-22 (28th, 1899)				5	26	1
Feb	53.0	27.7	40.4	92 (22nd, 1996)	-23 (13th, 1905)		*		3	19	1
Mar	62.7	36.5	49.6	98 (31st, 1940)	-4 (3rd, 1960)		*	*		12	
Apr	72.5	45.7	59.1	102 (12th, 1972)	17 (9th, 1914)	*	1			3	
May	81.0	56.0	68.5	107 (31st, 1934)	25 (1st, 1909)	*	4			*	
Jun	91.1	65.3	78.2	114 (15th, 1953)	42 (4th, 1897)	3	19				
Jul	96.3	70.0	83.1	117 (18th, 1936)	44 (20th, 1899)	10	26				
Aug	95.1	68.4	81.8	118 (11th, 1936)	40 (10th, 1903)	9	25				
Sep	86.5	60.2	73.3	111 (2nd, 1939)	27 (30th, 1984)	2	12			*	
Oct	75.1	48.3	61.7	102 (2nd, 1898)	11 (30th, 1917)		2			2	
Nov	59.3	35.6	47.5	89 (6th, 1945)	2 (17th, 1894)				*	12	
Dec	48.7	26.0	37.3	86 (24th, 1955)	-16 (23rd, 1989)				3	24	1
Annual	72.4	47.0	59.7	118 (Aug 11, 1936)	-23 (Feb 13, 1905)	25	90	11	97	2	

Precipitation (inches)										
	AVERAGE	EXTREMES (1894-2004)		AVG # DAYS PER MONTH (1971-2000)						
	1971-2000	Monthly Max	Daily Max	any	meas	0.10"+	0.25"+	0.50"+	1.00"+	
Jan	1.03"	4.87" (1949)	1.74" (19th, 1894)	6	3	2	1	1	1	*
Feb	1.30"	4.32" (1915)	3.09" (21st, 1997)	5	4	3	1	1	1	*
Mar	3.03"	10.23" (1973)	3.50" (10th, 1974)	7	6	5	4	2	2	1
Apr	3.16"	7.66" (1994)	4.48" (28th, 1994)	8	7	5	4	2	2	1

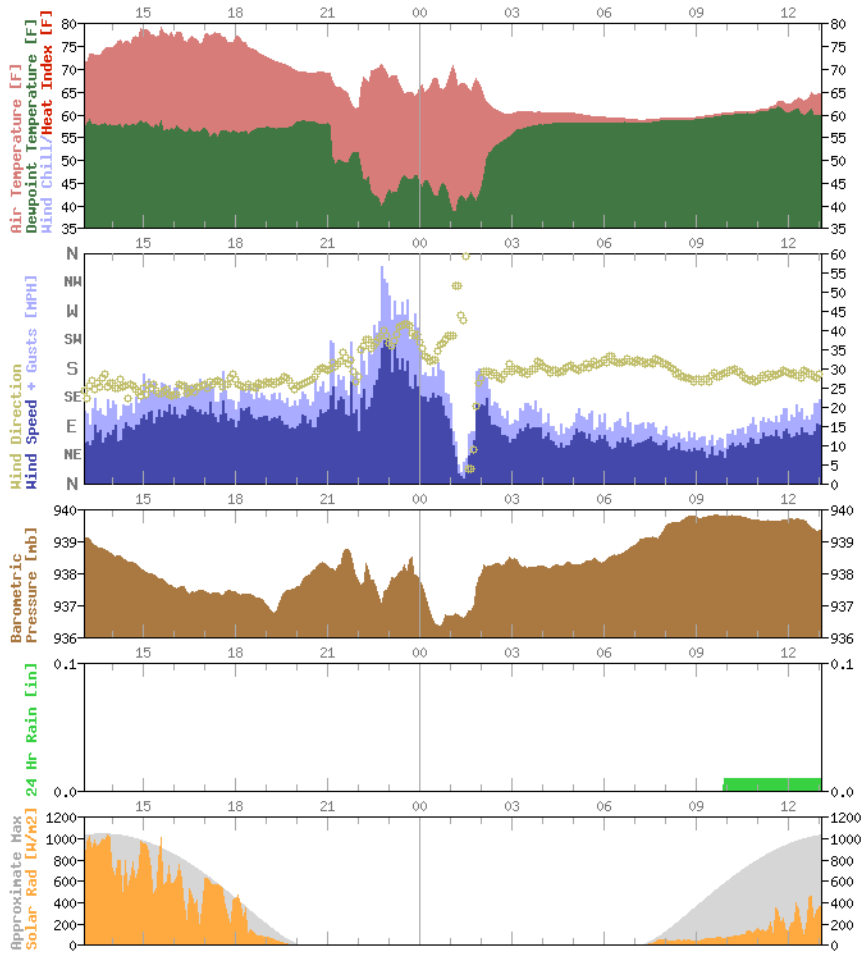
# Oklahoma Mesonet

[www.mesonet.org](http://www.mesonet.org)

The screenshot shows the Oklahoma Mesonet website. At the top, there is a navigation bar with links for Press Releases, Ticker, Bibliography, Contact, and Home. Below this is a secondary navigation bar with links for Overview, History, Sites, Instruments, Quality Assurance, Site Passes, and Projects. On the right side of this bar are links for Single Menu View and New Window. The main content area is divided into several sections. On the left is a sidebar menu under 'Mesonet Data' with options like Current Conditions, Air Temperature, Rainfall, Wind, Dew Point & Humidity, Soil Temperature, Soil Moisture, Pressure, Solar Radiation, Groundwater, Station Meteograms, and Past Data and Files. The 'Station Meteograms' and 'Past Data and Files' items are highlighted with a red box. The main content area features a large map of Oklahoma with temperature readings at various stations. Text on the map reads 'Oklahoma's World-Class Network of Environmental Monitoring Stations' and 'Over 4,203,614,128 observations since January 1st, 1994'. Below the map is a section for 'OCS FEATURE SOFTWARE' with a 'Get WeatherScope™' button and download links for Mac and PC. To the right of this is a 'Current Conditions' panel for Norman, showing a temperature of 61°F, last observed at 5:10 pm CDT, with other details like Dewpoint: 46°F, Humidity: 58%, Rainfall Since 7pm: 0", and Wind: E 4mph. At the bottom of the main content area is a section titled 'Are You New to WeatherScope?' with a 'View Quickstart Guide' button. Below this is a 'User Defined Format Now Available' section with text explaining how to change the format of the product lists. The footer contains copyright information: 'Copyright © 1996-2010 University of Oklahoma Board of Regents. All Rights Reserved. webmaster@mesonet.org.' and logos for the University of Oklahoma and the Mesonet.

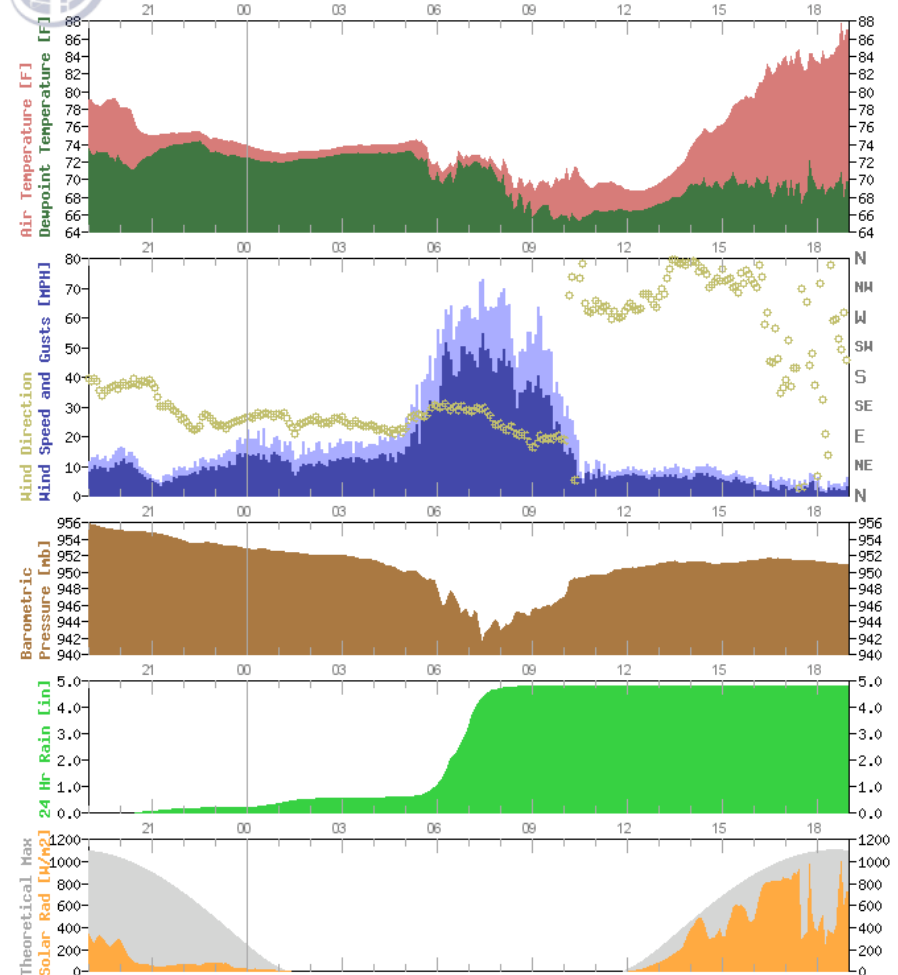
# Oklahoma Mesonet - Meteograms

**Cheyenne 24-Hour Mesonet Meteogram**  
1:05 pm (Apr 11, 2010) through 1:00 pm (Apr 12, 2010)



Copyright (c) 2010 The Oklahoma Mesonet. <http://www.mesonet.org> Image created Mon Apr 12 22:04:02 2010 UTC.

**Oklahoma Mesonet Meteogram at Watonga [WATO]**  
for the 24-hour period ending 7:00 pm GMT Aug 19, 2007



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# Mesonet Climatological Data

MESONET CLIMATOLOGICAL DATA SUMMARY (FREE) Freedom Latitude: 36-43-32				July 2009 Nearest City: 3.0 SSW Freedom Longitude: 99-08-32				Time Zone: Midnight-Midnight CST County: Woodward Elevation: 1739 feet												
DAY	TEMPERATURE ( F )				DEG DAYS HDD CDD	HUMIDITY (%)			RAIN (in)		PRESSURE (in)		WIND SPEED (mph)		SOLAR (MJ/m2)	4" SOIL TEMPERATURES				
	MAX	MIN	AVG	DEWPT		MAX	MIN	AVG	STN	MSL	DIR	AVG	MAX	SOD		BARE	MAX	MIN		
1	95	65	80.7	56.5	0	15	84	28	46	0.00	28.09	29.92	ESE	9.2	19.7	29.02	82.4	88.2	96	81
2	102	66	84.0	54.0	0	19	66	17	39	0.00	28.14	29.98	SSW	12.8	28.7	29.96	82.8	88.3	96	81
3	104	74	90.0	56.0	0	24	60	18	34	0.00	28.11	29.95	S	16.0	33.6	27.04	83.5	88.8	95	83
4	90	70	79.9	66.2	0	15	96	31	66	0.24	28.11	29.94	NNE	11.4	34.0	23.06	83.2	87.3	93	82
5	82	64	72.8	60.7	0	8	92	46	68	0.00	28.21	30.05	NNE	10.0	21.7	22.85	80.1	83.7	89	78
6	85	59	72.7	57.6	0	7	95	34	63	0.00	28.16	30.00	ESE	5.6	15.9	23.00	78.5	82.2	90	75
7	95	65	80.9	61.1	0	15	81	31	54	0.00	28.02	29.85	SSE	10.4	26.0	26.76	80.2	85.0	93	78
8	98	71	84.4	67.0	0	20	84	36	58	0.00	27.97	29.80	SE	15.9	33.2	28.00	82.2	87.4	95	81
9	107	70	89.3	62.9	0	23	85	21	47	0.00	27.99	29.82	S	16.6	36.0	29.47	83.5	88.7	96	82
10	114	80	98.6	47.2	0	32	48	9	21	0.00	28.05	29.88	SSW	18.6	43.6	24.47	83.9	90.0	96	84
11	106	80	93.2	56.0	0	28	59	17	30	0.00	28.18	30.02	W	10.5	32.4	26.05	84.7	91.4	98	85
12	110	75	94.2	51.6	0	27	52	12	26	0.00	28.16	30.00	SSW	14.3	32.6	29.83	85.0	91.5	98	85
13	107	74	91.2	60.6	0	26	89	17	41	0.00	28.08	29.91	SSW	11.5	26.1	27.41	86.3	92.8	100	86
14	111	83	95.3	53.4	0	32	42	12	26	0.00	28.00	29.83	SSW	19.1	36.0	28.99	86.6	92.8	99	87
15	99	73	84.9	62.7	0	21	77	28	49	0.02	28.17	30.01	E	13.1	35.7	22.65	86.3	91.5	97	86
16	96	68	79.5	64.4	0	17	92	34	63	0.10	28.21	30.05	ENE	12.7	45.6	25.26	84.4	87.9	94	82
17	86	64	73.7	57.9	0	10	89	28	61	0.00	28.32	30.17	ENE	8.1	31.1	18.60	81.5	84.5	89	80
18	91	57	72.7	58.7	0	9	96	29	67	0.04	28.32	30.16	W	6.1	26.3	25.91	80.3	83.1	92	76
19	95	62	78.3	58.6	0	13	92	25	57	0.00	28.24	30.08	ESE	8.3	21.8	28.48	81.1	84.4	93	76
20	98	67	83.8	62.2	0	18	92	28	52	0.23	28.01	29.84	S	15.7	51.2	21.79	81.9	85.9	92	81
21	88	66	74.6	61.7	0	12	97	31	69	0.00	28.15	29.98	NNE	10.7	24.3	24.12	80.7	83.0	90	77
22	89	59	75.7	51.4	0	9	89	20	49	0.00	28.24	30.08	SE	6.5	18.9	29.81	80.0	83.8	93	75
23	95	61	80.1	52.7	0	13	78	22	42	0.01	28.19	30.03	S	9.1	23.5	29.29	80.9	85.5	94	77
24	100	69	86.0	56.7	0	20	75	18	41	0.00	28.10	29.94	S	11.0	24.9	29.57	82.5	87.8	96	80
25	100	70	84.5	60.3	0	20	88	23	47	0.01	28.11	29.95	E	12.5	34.9	27.97	83.5	89.1	96	82
26	91	69	79.1	64.7	0	15	96	37	65	0.03	28.20	30.04	ESE	8.0	24.3	21.97	83.3	87.5	94	82
27	90	69	78.4	64.0	0	15	94	33	64	0.00	28.14	29.98	SE	9.2	26.2	22.70	83.1	87.1	94	82
28	93	66	78.2	63.2	0	15	96	31	65	0.00	28.07	29.90	NA	8.3	31.0	23.62	82.7	86.6	94	80
29	81	66	72.2	65.5	0	8	97	56	81	0.38	28.08	29.91	E	7.6	17.3	14.19	80.5	81.6	86	78
30	81	64	71.8	56.1	0	8	96	31	62	0.32	28.17	30.01	NNE	9.8	24.3	22.96	78.9	78.8	85	74
31	89	62	76.1	59.5	0	10	84	35	59	0.02	28.19	30.03	S	13.2	32.3	22.67	77.4	78.8	87	71
	96	68	81.8	59.1	<- Monthly Averages ->				28.13	29.97	S	* 11.3	51.2	25.40	82.3	86.6	94	80		
Temperature - Highest: 114 Lowest: 57					Degree Days - Total HDD: 0 Total CDD: 523					Number of Days With: Tmax > 90: 23      Rainfall > 0.01 inch: 11 Tmax < 32: 0      Rainfall > 0.10 inch: 5 Tmin < 32: 0      Avg Wind Speed > 10 mph: 19 Tmin < 0: 0      Max Wind Speed >= 30 mph: 15										
Rainfall: Monthly Total: 1.40 in. Greatest 24 Hr: 0.38 in.					Humidity - Highest: 97 Lowest: 9															

# OCS/Mesonet Ticker

- <http://ticker.mesonet.org>
- Fun, interesting weather and climate information
- A few of the recent really funny/interesting/informational tickers:
  - January 5, 2010 – deep freeze of December 1983
  - January 12, 2010 – uncommon cold
  - January 25, 2010 – ice storm coming!
  - February 18, 2010 – once upon a midnight dreary
  - March 8, 2010 – this past winter explained
  - March 23, 2010 – spring break snow perspective
  - March 30, 2007 – winds, warm weather, and fire danger
  - April 14, 2010 – black Sunday revisited