

NOAA Technical Memorandum NWS SR-160

TORNADOES IN THE OKLAHOMA CITY AREA
SINCE 1890

Michael L. Branick
Experimental Forecast Facility
NWSFO Norman, OK

Scientific Services Division
Southern Region
Fort Worth, TX

August 1994

UNITED STATES
DEPARTMENT OF COMMERCE
Ronald H. Brown, Secretary

National Oceanic and Atmospheric Administration
Diana H. Josephson
Acting Under Secretary

National Weather Service
Elbert W. Friday
Assistant Administrator



TORNADOES IN THE OKLAHOMA CITY AREA SINCE 1890

1. Introduction

Oklahoma City (OKC), by virtue of its large areal extent and location near the heart of "tornado alley," has earned a reputation over the years as one of the tornado-prone cities in the United States. In the 1960s and 1970s, news and magazine articles sometimes quoted the number of times OKC has been struck by tornadoes; that number was in the 30s or lower 40s, depending on the year of publication. The source of the number most likely was a local listing kept on station at the National Weather Service Forecast Office (WSFO OKC). That list included 43 tornadoes as of 1978. Sometime later, record keeping ceased for some reason; and the existing list was relegated to a binder that was lost among the growing masses of other records that accumulated at the office.

In 1991 a project was initiated to revise the list by adding recent tornadoes (since 1978), validating existing entries, and searching for any others that might have been overlooked. This turned out to be a formidable task, for several reasons. One was the lack of reliable sources for storms before 1950. The only readily available data source before 1950, other than the local records on station at WSFO OKC, was Grazulis (1990). The compilation by Grazulis includes all tornadoes of F2 intensity or greater and all killer tornadoes from 1880 through 1989. Thus there are no records on weak tornadoes before 1950 (unless they happened to make it into the WSFO listing), and so the true number of tornadoes probably is much higher than the total contained herein. After 1950, records were cross-checked using *Storm Data* and the severe weather database compiled at the Severe Local Storms Unit of the National Severe Storms Forecast Center (NSSFC/SELS).

A second obstacle arose in determining exactly where the OKC city limits are—or were. OKC covers a large area today, but the city limits have changed over the years such that some areas that are now part of OKC were not always within the city limits. Peripheral townships have emerged as well over the years, some of which are now wholly surrounded by OKC city land. To establish a consistent area, it was decided to include the present OKC limits and all other surrounding cities and towns that are contained largely or wholly within those limits. The resulting area (hereafter called the "immediate OKC area") is shown in Fig. 1, and includes roughly 600 square miles. All recorded tornado events occurring wholly or partly within this area are included in the list. In addition to OKC, the following jurisdictions are included: Bethany, Choctaw, Crutcho, Del City, Forest Park, Jones, Midwest City, Moore, Mustang, Nichols Hills, Nicoma Park, Valley Brook, the Village, Warr Acres, Witcher, and Yukon (Fig. 1). The cities of Edmond, El Reno, and Norman are *not* included, which means that tornadoes striking within those city limits are not listed unless they also affected the immediate OKC area.

Each of the 93 tornado listings contains the date and time of initial touchdown (note that all times are CST), maximum F-scale rating (see Appendix for a description of the F Scale), number of people killed and injured (from the entire event), a dollar estimate of damage (not adjusted for inflation), the data source used, and a narrative describing what is known about the

event. Estimated values are in parentheses. Maximum tornado path width and length, if known, are given in brackets at the end of each narrative.

Many of the events were found in more than one data source. In general, the multiple sources were in good agreement. However, there were occasional differences, especially in F-scale ratings. The extensive research conducted by Grazulis (1990) suggests his ratings to be the most reliable, and they have been used when the intensity estimates differed among the available sources. Since Grazulis lists only events of F2 intensity or greater, any event not found in his listing has been given either an F0 or an F1 rating. Events listed as F2 in the NSSFC database, but not appearing in Grazulis 1990, are listed here as F1. Notes are included in the narrative of an event if there were differences in the assigned F-scale rating among the available sources. Weak events (F0 and F1) before 1950 had no assigned F scale in any of the available sources and thus have been assigned an estimated rating based on the available data.

2. Statistics

May is the peak month for all tornadoes, followed closely by April and June (Fig. 2). Nearly two-thirds of all tornadoes in OKC have struck during those three months. Strong and violent tornadoes occur slightly earlier, with April the peak month. (Note that 15 of the 17 April tornadoes were F2 or greater, and that five of the seven F4 tornadoes on record occurred in April.) Frequencies level off during the summer and fall before dwindling during the winter. (December and January are the only two months in which the immediate OKC area has not been hit.)

Tornado strikes are most frequent during the late afternoon (4:00 p.m. to 6:00 p.m.), with secondary peaks around 9:00 p.m. and 2:00 a.m. (Fig. 3). Since these peaks appear in the distribution of strong (F2 and F3) tornadoes, it is unlikely that the peaks are related to sociological factors (e.g., fewer tornadoes around dinner time, when people are inside and thus less likely to observe weaker events). These peaks may be due to the small sample size and may not appear in a larger sample. The data show no early morning events (4:00 a.m. to 7:00 a.m.), primarily weak events during the late morning and midday hours (with one notable exception) and a rapid increase in frequency during the early afternoon (1:00 p.m. to 2:00 p.m.).

Tornado distribution by decade (Fig. 4) is largely a reflection of the data sources used. The relatively small number of tornadoes through the 1930s is dominated by strong and violent events (F2 or greater), while the increase in frequency in the 1950s, '60s, and '70s is due mainly to a greater number of weak (F0 and F1) events. The frequency of weak events almost certainly has been more constant than the data indicate. Most of the weak events before 1950 probably were not documented.

The marked decrease in frequency beginning in the 1980s could be a statistical anomaly, or it might reflect a real downward trend. Most likely it is due to changes in quality control of severe weather reports. More attention was placed on downbursts (Fujita 1985), resulting in closer inspection of wind damage and an increasing number of events being classified as straight-line (downburst) winds instead of tornadoes. If this is the case, then some of the reported

tornadoes in earlier years may actually have been downbursts, and the decrease in frequency in the 1980s may actually reflect an adjustment toward more representative numbers (i.e., the totals from the 1960s and '70s may be too high).

Figs. 5 and 6 show the *approximate* locations and tracks of the tornadoes included in this list. Exact tracks are often very difficult, if not impossible, to plot, since the available data do not provide enough detail. The plotted tracks were drawn subjectively from the information available and are considered accurate only to within a few miles. The plots are sufficiently accurate to reveal a concentration of events in the south side of OKC. This trend is especially evident in strong tornadoes (Fig. 6b), while the seven violent (F4) events have been distributed more evenly (Fig. 6c). Although several tornado "corridors" are suggested, it is likely that these distributions are no more than statistical fluctuations. Therefore, past tornado frequencies in a given location do not imply similar frequencies in the future.

Most of the tornadoes moved northeast, while a few moved east or east-southeast. Only one long-track event showed no eastward component of motion; it traveled north to north-northwest through the center of Oklahoma County and the eastern parts of OKC. Speeds, based on available reports, generally ranged from 15 to 40 mph. However, several events (especially weaker ones) displayed slow and erratic movement, and a few were nearly stationary during their short durations.

Some other interesting facts about OKC tornadoes:

- The most deadly occurred on June 12, 1942 (35 killed).
- The most costly was on March 20, 1948, with damage over \$10 million mostly inflicted on aircraft at Tinker AFB.
- The record for tornadoes in a single day is five during the outbreak of June 8, 1974.
- There are no F5 tornadoes on record in the OKC immediate area. Of the seven F4 tornadoes, the most recent was on April 30, 1978.
- Three of the four November tornadoes occurred on the 19th; the other was on the 20th.
- The longest period without a tornado in OKC since 1950 is five years (June 1981 to May 1986). This is the only time since 1950 that more than three years have elapsed between tornado strikes in OKC; it is only the second time that more than two years have elapsed between strikes (the other was April 1951 to September 1954.)

##	Year	Date	Time	F	Killed	Injured	Damage	Data Sources ¹
1	1893	March 22	900P	F2	0	4	\$15,000	G,L
<p>Moved NE, passing a few blocks W of the center of OKC, swinging side-to-side and attended by a "sullen grinding noise." It destroyed 14 buildings, and injured one person seriously. There was minor damage at the Weather Bureau office. [Path width 50 yd, length 1 mi]</p>								
2	1893	April 25	330P	F4	31	100	Unknown	G
<p>Moved NE from NW of Newcastle through Moore. This massive tornado, reportedly over a mile and a quarter wide at one point, swept away at least 30 homes. (One of at least 5 strong/violent tornadoes in central OK on this day, but the only one within the immediate OKC area.) [Path width 800 yd, length 15 mi]</p>								
3	1896	May 12	400P	(F0)	0	0	None	G,L
<p>A "twisting serpent-like cloud detached itself from the southern bank (of clouds)," and touched down briefly without significant damage about 5 miles NW of the center of OKC. This minimal event preceded the more significant tornado below. (Note: Local records list this event on 15 May 1896.)</p>								
4	1896	May 12	430P	F2	0	0	\$500	G,L
<p>Moved slowly E from near 75th and Meridian (5 miles NW of the center of OKC) and passed 2 miles south of Britton. The tornado hit four farms, destroying one barn, killing some poultry, and tearing the kitchen off a farm house. A photograph of this tornado became the first to be published as an actual tornado photograph. [Path width 30 yd, length 5 mi]</p>								
5	1903	May 18	530P	F3	0	10	Unknown	G
<p>Moved NE from just SE of Union City, passing about 3 miles W of Yukon and clipping the extreme W parts of OKC. Damage path, possibly due to a family of tornadoes, continued NE to the W edge of Guthrie and ended NE of Guthrie. At least 12 homes were damaged in rural areas. [Path width 200 yd, length 45 mi]</p>								
6	1903	May 23	700P	F2	0	0	Unknown	G
<p>Barns were destroyed in Crutch, (in the northwest part of Midwest City).</p>								
7	1904	June 2	530P	F2	0	0	Unknown	G
<p>Homes and businesses were unroofed and torn apart at Witcher (near the present-day Turner Turnpike gate).</p>								
8	1910	May 16	Unkn	F2	1	1	Unknown	G
<p>Four homes were "wrecked" in Cleveland County 15 miles NE of Norman (SE part of OKC).</p>								
9	1912	April 20	345P	F4	1	1	Unknown	G
<p>Moved NE from 3 miles W of Yukon to 4 miles E of Edmond, crossing NW parts of OKC. At least 2 farm houses were leveled; a school 2 miles N of Yukon also was leveled - 15 minutes after the students had left. The funnel was seen as a "huge elephant's trunk" as it moved 15 miles NW of downtown OKC.</p>								
10	1927	April 11	800P	F3	1	6	Unknown	G
<p>Moved ENE from SW of Alfalfa to Mustang, affecting far southwest parts of OKC. The funnel reportedly was a half mile wide as it destroyed 8 homesteads and killed dozens of cattle near Alfalfa. It cut an intense swath of damage across northern Grady County, leveling entire farms. Seventeen homes were destroyed in a 2-block wide swath across the N part of Mustang, where one woman was killed. It reportedly "scorched" the ground and was watched by hundreds of people as it moved slowly to the ENE at 15 mph.</p>								

¹ G - Grazulis 1990; D - Storm Data; L - Local records kept on station at WSFO OKC; S - NSSFC/SELS database.

##	Year	Date	Time	F	Killed	Injured	Damage	Data Sources
11	1930	November 19	930A	F4	23	125	\$250,000	G
<p>Moved NNE from 3 miles W of the OKC limits, hitting the E part of Bethany. About 110 homes and 700 other buildings, or about a fourth of the town, were damaged or destroyed. Near the end of the damage path 3.5 miles NE of Wiley Post Airfield, the tornado hit the Camel Creek school. Buildings blew apart as the students were falling to the floor and looking for shelter; five students and a teacher were killed. [Path width 150 yd, length 7 mi]</p>								
12	1936	June 22	Unkn	F2	0	0	Minor	G
<p>A small tornado touched down briefly near the Cleveland County line, 6 miles S of downtown OKC. A barn was thrown into a house.</p>								
13	1937	June 9	430P	F3	4	7	\$55,000	G
<p>Tornado moved ESE from 3 miles E of Union City across SW parts of OKC to 3 miles W of Moore. Severe damage occurred to homes and barns on at least 8 farms. This was either a tornado family or a multiple-vortex tornado, and may well have been of F4 intensity. [Path width 200 yd, length 20 mi]</p>								
14	1940	May 21	500P	F2	0	0	Unknown	G
<p>A minimal F2 tornado dipped three times, destroying a barn 2 miles E of Mustang.</p>								
15	1942	June 12	841P	F4	35	100	\$500,000	G,L
<p>The most deadly tornado on record in the OKC area. The funnel cut a twisting, erratic path through the SW part of OKC. Movement was generally to the NE, but it often "cut to the east or west." 73 homes were destroyed and 31 damaged, with most of the damage in the 27-29th Street areas between Portland and Goff Avenues. [Path width 500 yd, length 2.3 mi]</p>								
16	1945	April 12	325P	F4	8	200	\$1,000,000+	G,L
<p>Moved NE from the Cleveland County line along the SE edge of OKC. About 160 homes were destroyed and 1,000 people were left homeless in Valley Brook, Del City, and Choctaw. Most of the casualties were families of personnel at Tinker AFB. [Path width 400 yd, length 20 mi]</p>								
17	1946	February 18	300P	(F0)	0	0	Minor	L
<p>Small tornado in the NE part of OKC.</p>								
18	1948	March 20	1010P	F3	0	8	\$10,250,000	G,L
<p>Moved E, causing a record amount of damage to date in Oklahoma. The funnel moved across Will Rogers Field and Tinker AFB. Extensive damage occurred to buildings and aircraft, mainly at Tinker AFB where 54 aircraft were destroyed, including 17 C-54 transports valued at \$500,000 apiece. Also destroyed were 15 P-47 fighters and two B-29 bombers. About 50 other planes were damaged and about 100 vehicles were damaged or destroyed. Three of the injuries were in the control tower. This event prompted the first efforts in tornado forecasting - a milestone made even more interesting 5 days later when the first tornado forecast ever made actually verified at the same location. [Path width 880 yd, length 16 mi]</p>								
19	1948	March 20	1025P	F2	0	0	\$50,000	G
<p>A separate tornado from the one that caused the major damage at Tinker AFB. This one moved NE from the corner of the Base, where it damaged a few buildings. Along 23rd Street, a grocery store and other buildings were destroyed.</p>								

##	Year	Date	Time	F	Killed	Injured	Damage	Data Sources
20	1948	March 25	600P	F3	0	1	\$6,100,000	G,L
<p>Moved NE, hitting Tinker AFB for the second time in less than a week. The likelihood of tornadoes in the area was forecast successfully for the first time ever, using new methods devised by Air Force forecasters after the tornadoes of five days earlier. This tornado struck just 100 yards from last week's tornado; 84 planes were hit, 35 of which were destroyed. These included 18 B-29s, 8 P-47s, 20 P-17s, and 3 C-47s. Hangars and other buildings were destroyed. This tornado was described as a "white finger" rather than the "black funnel" of the 20th. [Path width 200 yd, length 1.5 mi]</p>								
21	1949	April 30	257P	F4	0	48	\$800,000	G
<p>Moved slowly NE, destroying or damaging homes near Blanchard before moving to Norman and the North Campus of the University of Oklahoma. Well-constructed buildings were destroyed. The tornado turned to the NNE and dissipated west of Stella (extreme SE part of OKC). Nine farm homes were destroyed. [Path width 400 yd, length 22 mi]</p>								
22	1949	April 30	450P	F3	3	8	\$200,000	G
<p>Formed near Stella and moved NE to near Shawnee Lake (extreme SE part of OKC), where 11 homes were destroyed and one person was killed. Additional damage and 2 other deaths near Meeker. [Path width 250 yd, length 20 mi]</p>								
23	1951	April 5	155P	F2	0	0	\$20,000	G,S
<p>Moved NE from near Newcastle to Pleasant Valley to NE of Moore, crossing extreme S parts of OKC. A school was damaged in Newcastle and a farm home was damaged in Moore. [Path width 125 yd, length 8 mi]</p>								
24	1951	April 30	920P	F2	0	1	\$150,000	G,L,S
<p>Tornado produced a 100-block damage path through OKC from the SW part to the NE corner. Two homes and several businesses were unroofed, with less damage to over 1,000 other buildings. (Rated F3 in NSSFC database.) [Path width 200 yd, length 9 mi]</p>								
25	1951	April 30	930P	F1	0	0	\$10,000	L,S
<p>A second tornado damaged many homes in a 15-block path through the NW part of OKC.</p>								
26	1954	September 29	320P	F2	0	0	\$50,000	G,L,S
<p>This brief touchdown affected a 3-block area near 59th Street. Ten homes were damaged; 5 store buildings damaged and 1 destroyed. Four cars were crushed under a 90-foot section of a shopping center. A 500-lb soft drink machine was thrown 75 feet. [Path width 70 yd, length 0.2 mi]</p>								
27	1955	May 19	259P	F0	0	0	none	L,S
<p>Funnel was observed by Weather Bureau employees about 1 mile SE of Will Rogers Airport. It moved over the airport grounds, then turned northeastward. It appeared to be on the ground at times.</p>								
28	1955	May 26	300A	F1	0	0	\$20,000	L,S
<p>Moved northeastward across the SE part of the city.</p>								
29	1956	June 3	355A	F2	0	0	Unknown	G,S
<p>Moved NE from W of Mustang, passing over that town mostly at "roof-top" level. There apparently were twin funnels, one of which damaged 42 of the 60 homes in town. [Path width 800 yd, length 2 mi]</p>								

##	Year	Date	Time	F	Killed	Injured	Damage	Data Sources
30	1957	April 2	1030P	F0	0	0	None	L,S
Touched down briefly in a wheat field at the N edge of OKC.								
31	1958	May 24	310P	F1	0	0	\$4,000	L,S
Tornado struck a small airport (location not specified), causing damage to 3 planes, a hangar, and several outbuildings. (Rated F2 in NSSFC database.)								
32	1959	May 8	1100P	F0	0	0	\$500	D,S
A small tornado struck a country club golf course. Concession stands were damaged and trees were broken. The storm moved northeastward. [Path width 20 yd, length 0.5 mi]								
33	1959	May 22	253A	F1	0	0	\$5,000	D,S
Two homes and a church were damaged; several homes had shingles blown off. A couple narrowly escaped death when a slab of siding from one home rammed through their bedroom wall, breaking the headboard of the bed where they were sleeping. This is believed to be the same tornado that struck earlier W of Minco. Tornado moved NE. [Path width 100 yd, length 500 yd]								
34	1960	April 28	855P	F3	0	57	\$2,400,000	D,G,L,S
Path was eastward across the southern quarter of OKC, with widespread damage to homes, businesses, oil derricks, and utilities. Extensive hail damage also occurred with the storm. Two homes were destroyed, 40 received major damage, and 1500 suffered minor damage. Many oil derricks were blown over in SE OKC. The event was either a huge funnel that moved along "just above tree-top level" or several smaller funnels that caused destruction in a "hit-and-skip" fashion. Total damage was estimated at \$4 million, 60% from wind and 40% from hail. [Path width 800 yd, length 10 mi]								
35	1960	April 28	905P	F2	0	6	(\$500,000)	D,G,S
Moved NE from SW of Moore, through town, hitting a radio tower and barn SW of town. At least 12 buildings were heavily damaged in Moore. Large hail damaged crops, broke windows, and damaged roofs and autos. (Another tornado was reported to have moved ENE from near Antioch to 1.5 miles N of Moore, wrecking 26 planes in four hangars at the South Shields Airport. Several farmsteads, homes, businesses, and a cemetery were destroyed or heavily damaged. It is believed that this damage was an extension of either the south OKC tornado, #34, or the Moore tornado.) [Path width 400 yd, length 4 mi]								
36	1960	May 4	755P	F3	0	4	(\$250,000)	D,G,S
Moved NE through Bethany from NW 10th Street to Tulakes (Wiley Post) Airport. A dozen homes were destroyed and 25 others were severely damaged. The new terminal at the airport was badly damaged. [Path width 400 yd, length 5 mi]								
37	1960	May 19	425P	F2	0	0	(\$25,000)	D,G,S
One home was unroofed and two others were damaged in Moore. The tornado looked like a large dust devil.								
38	1961	February 17	545P	F3	0	7	(\$25,000)	D,G,S
Two small funnels were observed as they formed over Spencer; witnesses described them as "reaching the ground and bumping together." Tornado moved from Spencer across parts of northeast OKC to Jones, lifted NE of Jones, travelled aloft over Luther, and struck again at a farm NE of Luther. Several homes, mobile homes, and other buildings were destroyed; some were unroofed, blown apart, and dropped into piles. More than 20 other buildings were damaged. [Path width 300 yd, length 8 mi]								
39	1961	May 4	825P	F0	0	0	None	D,S
Police reported a tornado on the ground E of El Reno and N of Yukon (extreme W parts of OKC).								

##	Year	Date	Time	F	Killed	Injured	Damage	Data Sources
40	1961	May 7	1245A	(F0)	0	0	None	D,S
Weather Bureau observer at Will Rogers Field sighted a funnel aloft ESE of the station. Tornado touched down near Moore. Earlier, police reported a tornado at 1150PM crossing the highway between Moore and Norman; this may have been the same storm.								
41	1961	May 21	253P	(F0)	0	0	None	D,S
Public reported tornado on the ground 12 miles NW of OKC. No tornado damage was reported, but hail up to 1.5 inches in diameter damaged cars and roofs in northwest OKC.								
42	1961	May 21	603P	F2	0	0	\$2,000	D,G,L,S
Tulakes (Wiley Post) airport reported a tornado 2 miles W; winds reached 78 mph at the airport. No damage was reported in the area where the tornado was spotted, but it may have lifted and "dipped" again in Bethany/Warr Acres where a house roof was torn off and "spun around," and trees were blown down.								
43	1962	July 18	358P	F1	0	0	none	D,L,S
Funnel was viewed by control tower operators 2.2 miles NNE of Will Rogers Airport traffic control tower. The very slim funnel picked up considerable dust before lifting back into the 3,000 foot cloud base.								
44	1963	May 26	500P	F3	0	7	\$300,000	D,G,L,S
Tornado hit 5 miles E of Tinker AFB. A grocery store/service station was demolished. Eighteen homes, and many cars and outbuildings, were heavily damaged. Concrete block buildings were leveled. Hail up to 4 inches in diameter accompanied the storm. The entire storm left a 67-mile swath of damage from tornadoes, straight wind, hail, and heavy rain from Del City to near Holdenville.								
45	1963	July 29	515P	F1	0	0	\$1,500	D,L,S
A small tornado hit in the 3800 block of NW 58th Street. One home was unroofed and two others partially unroofed. Witnesses reported that the roofing was "carried spiralling aloft."								
46	1964	May 1	520P	F1	0	0	\$5,600	D,L,S
Tornado dropped to the ground about 430PM near Cimarron Airport 5 miles WSW of Yukon and moved slowly ENE for 3 miles before lifting. The funnel remained aloft as it skirted the NW side of Yukon, passed SE of Piedmont, and headed into Oklahoma County across the extreme NW limits of OKC around 520PM. It is believed that the funnel touched down briefly at a racing stable on the NW edge of OKC, lifting and "disintegrating" a 200-foot section of the stable roof in the air.								
47	1964	July 28	355P	F1	0	0	\$37,000	D,L,S
A small tornado was sighted lowering to the ground near the 4100 block of SW 20th Street, where it was then obscured by a blinding rainstorm. The storm moved ESE for 4 blocks across open fields, then lifted at 20th and S. Portland where a large portion of a roof was lifted from a shopping center. An air conditioner and a large sign were torn from the roof. (Listed as an F2 in NSSFC database.)								
48	1965	May 26	300A	F1	0	0	\$105,000	D,L,S
"Tree-top level." Northeastward path from Rotary Park across Downtown Airpark and Wheeler Park to approximately Broadway and SW 7th Street. Trees were uprooted, large limbs were twisted off, one large building was unroofed, telephone poles and power lines were blown down, and scaffolding was damaged at the new Post Office building. Heaviest damage was sustained by the R&R Laundry Supply Company. The roof was torn off, crushing 10-12 cars and a small storage building. Flying debris damaged a trailer owned by a trucking company. A church in NE OKC was completely destroyed by high winds. (Listed as F2 in NSSFC database.)								

##	Year	Date	Time	F	Killed	Injured	Damage	Data Sources
49	1965	August 31	145P	F0	0	0	None	D,L,S
<p>The first of three tornadoes in OKC area on this day. Two funnels "let down close to the ground" at the Lake Hefner Golf Course along the south shore of Lake Hefner. The smaller funnel retreated into the clouds, while the larger one touched down near the #16 hole and moved out over the lake to the NE. Observers watched the tornado for more than 5 minutes as it churned the lake water. The tornado lifted near the east shore. [Path width 100 yd, length 1 mi]</p>								
50	1965	August 31	215P	F0	0	0	(\$25,000)	D,L,S
<p>Two large storm cells converged E of Will Rogers Airport and "formed a rotating cloud." The storm moved SE, with a funnel forming near SW 80th & May Avenue. The tornado remained 50 to 150 feet above the ground as it moved from the NW corner of Moore across that city to SW 134th & Sunnyslane Avenue. The weak tornado was on the ground several times and drew considerable dust and debris aloft. It lifted along a creek bed in the south-central limit of OKC. [Path width 50 yd, length 10 mi]</p>								
51	1965	August 31	220P	F0	0	0	None	D,L,S
<p>The third tornado in the OKC area on this day, and the second of a pair that occurred in the Moore area. Moore police sighted this one near the South Canadian River and May Avenue in OKC; it appeared to be on the ground for a few minutes, moving generally south.</p>								
52	1965	September 19	730A	F0	0	0	\$42,000	D,L,S
<p>A small tornado skipped northeastward across the NW edge of OKC's downtown business section "just above rooftop level," and touched down briefly three times causing light damage. The first brief touchdown was near SW 3rd & Douglas, where a roof was damaged on a produce stall at the Public Market. Several OKC Police officers saw the tornado hit a parking lot just west of the police station at 200 N. Shartel, where debris and flying gravel broke windows and pitted 12 automobiles. It last struck at NW 5th and Hudson, where a Firestone store and several adjacent buildings were damaged. [Path width 30 yd, length 1.3 mi]</p>								
53	1965	September 19	745A	F0	0	0	(\$2,500)	D,S
<p>A small tornado struck at SE 20th & Bryan (Bryant?) Avenue and moved NE "at rooftop level" to the 3700 block of NE 15th before dissipating. Damage was limited to downed trees and power lines, patio roofs, school buses and a few cars. Boards, toys, and other debris were seen swirling through the air.</p>								
54	1967	June 10	1033P	F0	0	0	None	D,L,S
<p>Tornado was first reported on the ground about 4 miles N of El Reno at 935PM, then lifted. It was next sighted aloft about 5 miles N of Yukon, and last sighted on the ground at 1033PM 2.5 miles NW of Lake Hefner (NW part of OKC).</p>								
55	1967	June 10	1040P	F0	0	0	None	D,L,S
<p>A park ranger at Lake Hefner sighted a tornado on the ground briefly near NW 106th and May. Funnels aloft were sighted near NW 112th & Broadway Extension, and near NW 122nd & Sunnyslane around 1100PM.</p>								
56	1968	April 22	350P	F2	0	1	\$400,000	D,G,L,S
<p>A tornado touched down at the N edge of Tinker AFB, causing roof damage to two warehouses. It crossed I-40 and struck a large car dealership at the 7600 block of SE 29th Street. The roof of one building was ripped off and the debris hurled across a lot full of new cars. The roof and windows of the showroom/service building were damaged, as were an adjacent used car lot and car wash. A 2x12 rafter was thrown about 800 feet over the top of a nearby building, piercing the windshield of an auto driving out of the service shop. Of the more than 200 people within the one-block area, only one was hurt despite several being blown down. Approximately 300 autos were damaged. [Path width 25 yd, length 0.3 mi]</p>								

##	Year	Date	Time	F	Killed	Injured	Damage	Data Sources
57	1968	August 10	427P	F1	0	0	\$20,000	D,L,S
<p>Two persons watched a small tornado touch down during heavy rain and lift a steel-frame roof from a 20 x 30 foot garage building near NW 8th and Portland. The roof section was lifted about 50 feet into the air and then began spiralling in a 100-foot circle back to the W before heading NE for 100 yards where it crashed into the roof of an adjacent manufacturing company. Debris littered the immediate neighborhood after the funnel pulled quickly back into the heavy rain. (Listed as F2 in NSSFC database.) [Path width 50 yd, length 150 yd]</p>								
58	1970	April 30	100A	F2	0	46	\$6,300,000+	D,G,L,S
<p>Tornado moved NE from 4 miles NW of Pocasset to 3 miles E of Minco, through Mustang, and along a path up to 1/2 mile wide from the SW corner of OKC to the NE corner. The last damage was observed 2 miles W of Arcadia. A shopping center was ripped apart and the city hall was unroofed in Mustang. Damage in Mustang was estimated at \$500,000. Two semi-trailers were blown off I-40 while approaching OKC from the W. In OKC there was damage to 1,473 homes, of which about 50 were unroofed. Only 2 or 3 people reported seeing the funnel, but many heard a loud noise like a jet engine. Ten businesses were destroyed, including a large auto dealership where losses were \$1,000,000. About 293 businesses, 8 schools, 12 churches, and 300 signs were damaged. 30,000 phones were reported out of order, mainly in Mustang and NW OKC. OG&E reported 215 poles down. [Path width 400 yd, length 47 mi]</p>								
59	1970	April 30	130A	F2	0	2	\$300,000	D,G,L,S
<p>A second tornado touched down at the N edge of Lake Hefner and moved NE, destroying 10 homes and damaging 20 others in the Camelot addition in the extreme NW part of OKC. This apparently was part of a family of tornadoes that began SW of Altus and ended S of Stillwater. [Path width 200 yd, length 3 mi]</p>								
60	1970	June 11	210P	F3	0	1	\$150,000	D,G,L,S
<p>Tornado moved ENE from just S of Yukon to NW OKC. Two farms were destroyed near Yukon. A nursing home and a retirement home were damaged near Northwest Highway and Council Rd. in the extreme NW part of the city; a nursing home resident was injured. The funnel lifted as it moved NE, but touched down again and damaged two farmsteads near 150th & N. MacArthur. [Path width 100 yd, length 7 mi]</p>								
61	1971	October 30	1100A	F1	0	0	(\$2,500)	D,S
<p>A small tornado lifted a barn roof about 100 feet in the air and carried it about 300 feet in Valley Brook. The owner said he saw the funnel hit the barn and return to the parent cloud. [Path width 10 yd, length 100 yd]</p>								
62	1972	June 27	445P	F0	0	0	None	D,L,S
<p>Tornado touched down near SW 74th and May Avenue. There was no tornado damage; heavy dust and trash were picked up by the funnel. Hail up to 2.75 inches and straight-line winds over 80 mph caused damage in several areas, however. [Path width 20 yd, length 100 yd]</p>								
63	1973	June 4	600P	F1	0	0	Unknown	D,S
<p>A small tornado touched down about 2 miles NE of Yukon (extreme w part of OKC). Farm buildings were destroyed and wheat was damaged. Minor wind damage occurred in Yukon. [Path width 50 yd, length 2 mi]</p>								
64	1973	October 11	115A	F1	0	0	\$150,000	D,L,S
<p>Moved NE through south OKC, causing spotty damage along a narrow path from SW 89th and May to about SE 22nd and Byers. Damage was limited to roofs, fences, sheds, and windows; there was little structural damage except for an apartment complex at SW 59th & Lee where about 8 roofs were removed, and a few apartments sustained wall damage. [Path width 50 yd, length 5 mi]</p>								

##	Year	Date	Time	F	Killed	Injured	Damage	Data Sources
65	1973	November 19	730P	F3	5	53	\$5,300,000	D,G,L,S
<p>Tornado moved NNE about 40 mph from about 1 mile SSW of Blanchard. It moved through the west part of Blanchard, where winds were estimated at 150-175 mph. About a third of the town was damaged; 31 homes, 2 businesses and 2 churches were destroyed, and 44 homes and 2 businesses had major damage. Spotty damage occurred NE of Blanchard before it moved into Moore, where it struck a trailer park in S Moore and hit many homes and businesses in N sections. 37 mobile homes were destroyed and 30 others damaged. Of the 28 injuries in Moore, most occurred in the trailer park. Substantial damage occurred to a warehouse at SE 89th where a watchman was killed by a collapsed concrete brick wall. The remaining deaths occurred in mobile homes in Blanchard and Moore. Minor roof damage occurred in SE OKC and Del City N to about 20th Street SE. [Path width 500 yd, length 24 mi]</p>								
66	1974	March 8	615P	F1	0	1	\$40,000	D,L,S
<p>Moved NE from NE 17th and Eastern, damaging several buildings between there and NE 28th & Grand. Trees were downed near NE 47th and Coltrane and also 1/2 mile south of NE 63rd and Bryant. A shed and trailer were damaged west of Jones, 1/2 mile W of Post Oak Rd. on Britton Rd. One duplex was destroyed, two houses had major damage, and 8-9 houses suffered minor damage. [Path width narrow, length 8 mi]</p>								
67	1974	April 20	328P	F2	0	3	\$750,000	D,G,L,S
<p>"Skipped" ENE from 3 miles SW of Minco before touching down about 2 miles SE of Mustang and continuing across the SE part of OKC, across Del City, to 3 miles NW of Harrah before lifting near Midlothian. The tornado moved about a mile S of the National Weather Service office at Will Rogers Airport, where 2-inch diameter hail and wind gusts of 66 mph were reported. Most damage was in southern OKC and the Del City area. Five homes were unroofed in OKC; three men were injured when a truck was overturned. Homes were damaged and a dozen barns were damaged or destroyed in rural areas. This may have been a series of 2 or 3 tornadoes, but available data cannot identify separate tornado tracks. (Listed as F3 in NSSFC database.) [Path width 100 yd, length 60 mi]</p>								
68	1974	May 23	635P	F1	0	0	(\$25,000)	D,S
<p>A small tornado touched down briefly near I-40 and Mustang Rd. (far W part of OKC). Several power poles were damaged, and minor damage occurred to several cars. Tornado moved from NW to SE. [Path width 100 yd, length 0.75 mi]</p>								
69	1974	June 8	142P	F3	0	14	\$1,000,000	D,G,L,S
<p>The first of several tornadoes in the OKC area on this day, this one touched down a few feet SW of the National Weather Service office building at Will Rogers Airport, and hit the office. It continued east-northeast across the SW part of OKC. The first major damage was observed at SW 44th and Independence, and the last damage was noted at SW 22nd & Robinson. It destroyed 11 homes, 2 trailers, and 5 small businesses. 42 homes received major damage, and 630 received minor damage. [Path width 250 yd, length 9 mi]</p>								
70	1974	June 8	211P	F1	0	0	(\$25,000)	D,S
<p>Tornado touched down about 1.5 miles SW of Spencer and moved NE along Jones-Spencer Road. Damage was done to high line poles and some small businesses. (Listed as F2 in NSSFC database.) [Path width 50 yd, length 4 mi]</p>								
71	1974	June 8	218P	F3	0	0	Unknown	D,G,S
<p>Moved NE from 3 miles W of Jones to S of Luther. Four steel power line structures, built to withstand 150-mph winds, were blown down where the tornado crossed the Turner Turnpike. [Path width 600 yd, length 9 mi]</p>								

##	Year	Date	Time	F	Killed	Injured	Damage	Data Sources
72	1974	8 June	335P	F1	0	0	\$25,000	D,L,S
Touched down near SW 59th and Penn and moved NE, doing moderate damage to a few homes. Most damage was to roofs and trees. The last damage was at SW 44th & Lee Avenue. [Path width 100 yd, length 2.5 mi]								
73	1974	June 8	348P	F2	0	0	Unknown	D,G,S
Tornado touched down 3 miles SW of Choctaw and destroyed or damaged several farm buildings along an ENE path ending about 2 miles NE of Harrah. Damage also occurred to an OG&E plant and several power line poles. (Listed as F3 in NSSFC database.) [Path width 125 yd, length 6 mi]								
74	1974	August 1	340P	F1	0	0	(\$250,000)	D,S
A small tornado touched down near NW 2nd & Santa Fe Streets in Moore, and moved ESE. Mostly roof damage was sustained across a small section of Moore, with 2 roofs destroyed. [Path width 50 yd, length 1 mi]								
75	1975	May 13	315P	F1	0	0	\$25,000	D,L,S
Touched down just SE of SW 89th & Western and moved ESE, damaging an apartment complex. Several car windows exploded outward. (Listed as F2 in NSSFC database.) [Path width 50 yd, length 2 mi]								
76	1975	November 19	1140A	F1	0	0	\$40,000	D,L,S
A small tornado formed along the leading edge of a line of moderate to heavy thunderstorms associated with a strong cold front. Eyewitnesses said the tornado descended to the ground directly over an unoccupied restaurant on the west side of I-35 1 mile S of the Turner Turnpike gate. The restaurant was destroyed. It then moved NNE, scattering debris across I-35. A semi-trailer truck was turned on its side on the east side of I-35. [Path width 33 yd, length 0.25 mi]								
77	1976	March 4	1125A	F1	0	0	(\$25,000)	D,S
A small tornado first touched down along Louise Drive in the W part of Choctaw, where a barn was destroyed and shingles were torn from the roof of a house. It then lifted and remained aloft for about 1/2 mile as it moved E at 40 mph across downtown Choctaw. It touched down again over the Choctaw Fire station, where part of the corrugated tin roof was ripped off. Large trees adjacent to the fire station were heavily damaged. The grade and junior high school buildings located 1 block away, with 1,400 students inside, were undamaged. A wind speed indicator located 50 feet from the fire station recorded winds of 71 mph. [Path width 20 yd, length 0.5 mi]								
78	1977	May 20	640P	F2	0	0	\$600,000	D,G,L,S
Tornado moved NNW from Midwest City to the NE part of OKC to Edmond. Damage in the OKC-Midwest city areas was along Sooner Road from SE 15th Street to NE 108th. Three mobile homes, a service station, and 13 homes sustained major damage. There were 105 homes with minor damage. In Edmond, three houses and three mobile homes were destroyed, and two schools and many homes had varying amounts of damage. [Path width 400 yd, length 15.5 mi]								
79	1978	April 30	620P	F4	0	0	\$2,500,000	D,G,S
Tornado moved ENE from 2 miles S of Piedmont to 9 miles WNW of Edmond, skirting the extreme N parts of OKC. The heaviest damage was to a residential area 1 mile SE of Piedmont, where 15 homes in a housing addition were destroyed or heavily damaged. Ten rural homes also were severely damaged. Large objects, such as oil storage tanks, cars, and stock feeders, were picked up and carried up to a half mile. The damage path was at least a mile wide throughout its life cycle. [Path width 1 mi, length 8 mi]								

##	Year	Date	Time	F	Killed	Injured	Damage	Data Sources
80	1979	July 16	450P	F1	0	0	(\$50,000)	D,S
<p>A mini-tornado type vortex, probably a "gustnado," developed and damaged 8 houses in a block near the Canyon North and Martin Nature Park areas of NW OKC. Four homes lost a large part of their roofs, and the others suffered considerable damage. Although it only lasted a few seconds, a resident of one of the homes observed a white funnel and debris cloud as the damage was occurring and just after rain began. Gust-front type straight winds, generally from the NNE, also caused damage to trees, shingles, and windows in the area. (Listed as F2 in NSSFC database.) [Path width narrow, length short]</p>								
81	1979	August 19	200P	F0	0	0	(\$2,500)	D,S
<p>A small tornado touched down briefly and destroyed a barn under construction near SE 104th & Triple X Road (Cleveland County, extreme SE part of OKC). [Path width narrow, length short]</p>								
82	1979	November 20	212P	F1	0	0	(\$25,000)	D,S
<p>Brief tornado touched down S of Banner and again near 164th & Morgan Rd. (extreme NW part of OKC). Utility poles, barns, and 2 vehicles were damaged. [Path width narrow, length short]</p>								
83	1980	March 23	425P	F0	0	0	Minor	D,S
<p>Strong straight winds caused minor damage to several homes and apartment complexes near SW 68th & May Avenue. A condensation funnel was observed on the ground for about 30 seconds, but most, if not all, of the damage was due to straight winds.</p>								
84	1981	June 3	830P	F1	0	2	\$1,000,000+	D,S
<p>Tornado touched down in SW OKC and moved NE, damaging three residences and 9 businesses. [Path width 100 yd, length 1 mi]</p>								
85	1986	May 8	612P	F3	0	15	\$6,500,000	D,G,S
<p>Tornado touched down on the north edge of OKC, near 150th and N. Western Avenue, and followed a curving path, first NNE, then NE, then E, through parts of Edmond. Two housing additions were struck in Edmond, with 39 houses destroyed and 171 houses and 28 apartment buildings damaged. About 50-60 cars were damaged or destroyed. (A second tornado formed from the first; its path was entirely within Edmond.) [Path width 200 yd, length 4 mi]</p>								
86	1986	May 16	944P	F2	0	0	\$500,000	D,G,S
<p>Tornado moved N from the west part of Del City. A church sanctuary was destroyed, a home was unroofed, and various other buildings were damaged. (Listed as F1 in Storm Data and NSSFC database.) [Path width 50 yd, length 2 mi]</p>								
87	1986	September 29	330P	F2	0	0	\$70,000	D,G,S
<p>Tornado damaged an apartment complex in Midwest City. [Path width 75 yd, length 0.1 mi]</p>								
88	1986	October 2	907A	F1	0	0	\$600,000	D,S
<p>A small tornado touched down in The Village near May and Wilshire Avenues and moved N to NE, touching down intermittently to 0.4 miles N of Hefner Road on Sunnymeade Avenue. Damage occurred to trees, power poles, storage sheds, and to roofs of 60 homes. [Path width 150 yd, length 2 mi]</p>								
89	1988	March 28	520P	F1	0	0	(\$50,000)	D,S
<p>Touched down in northern Cleveland County in extreme SW parts of OKC, unroofing a building and damaging several horse trailers. This storm produced a massive hook-shaped echo on radar that tracked across the south side of OKC roughly along the Oklahoma-Cleveland county line. Despite the evidence of strong rotation, the storm only produced two short-lived tornadoes (this one and #90 below).</p>								

##	Year	Date	Time	F	Killed	Injured	Damage	Data Sources
90	1988	March 28	605P	F2	1	10	\$150,000	D,G,S
<p>Tornado moved ENE across the SE part of OKC from near I-40 and Anderson Road, dipping down at the top of a hill and striking a mobile home park. It damaged several trailers and destroyed one near the bottom of the hill. The dollar amount of tornado damage is uncertain due to the extreme hail damage across south OKC. Hail totalled 1500 cars at the GM plant, and heavily damaged several large planes at Tinker AFB. Hail damage estimates were as high as \$35 million in the S part of Oklahoma County. (Listed as F1 in Storm Data and NSSFC database.) [Path width 35 yd, length 0.8 mi]</p>								
91	1990	March 13	559P	F2	0	1	(\$250,000)	D,S
<p>Tornado touched down 1 mile SW of Stella and moved NE across the extreme SE part of OKC, lifting 4 miles W of Meeker at 645 PM. A mobile home was destroyed in Stella, resulting in one serious injury. Damage to the Shawnee Lakes area (Pottawatomie County) included the roof ripped off a home, several homes with minor structural damage, three mobile homes damaged, and a barn destroyed. In Lincoln County, a camper was rolled over onto a shed W of Meeker, and a mobile home 4 1/4 miles W of Meeker was destroyed. This was one of several tornadoes that tracked just S and E of the OKC area on this day, but the only one to occur within the OKC limits. [Path width 200 yd, length 18 mi]</p>								
92	1991	May 2	720P	F1	0	0	\$325,000	D,S
<p>Tornado occurred in Moore and south OKC along a thunderstorm gust front. It destroyed about 200 self-storage units at a storage facility, and about 20 boats at a boat storage facility across the street. Also, 5 mobile homes were damaged. [Path width 30 yd, length 0.5 mi]</p>								
93	1992	October 7	255P	F1	0	3	\$150,000	D,S
<p>A small "gustnado" moved through a residential area in SW OKC near SW 27th and Czech Hall Road. The area consisted mainly of mobile homes and modular homes. Six mobile homes were damaged or destroyed, and one garage was damaged. [Path width 25 yd, length 0.25 mi]</p>								

References

- Fujita, T. T., 1985: *The Downburst, Microburst and Macrobust*. SMRP Research Paper No. 210 (NTIS No. PB85-148880), Univ. of Chicago, 122pp.
- Grazulis, T. P., 1990: *Significant Tornadoes, 1880-1989. Volume II: A Chronology of Events*. Environmental Films, St. Johnsbury, Vermont, 685pp.

APPENDIX

Fujita Scale (or F Scale) of tornado damage intensity. The F Scale was developed based on damage intensity and not wind speed; wind speed ranges given are estimated, based on the extent of observed damage.

F Scale	Character	Estimated Winds	Description
Zero (F0)	Weak	40-72 mph	Light Damage. Some damage to chimneys; branches broken off trees, shallow-rooted trees uprooted, sign boards damaged.
One (F1)	Weak	73-112 mph	Moderate damage. Roof surfaces peeled off; mobile homes pushed off foundations or overturned; moving autos pushed off road.
Two (F2)	Strong	113-157 mph	Considerable damage. Roofs torn from frame houses; mobile homes demolished; boxcars pushed over; large trees snapped or uprooted; light objects become projectiles.
Three (F3)	Strong	158-206 mph	Severe damage. Roofs and some walls torn from well-constructed houses; trains overturned; most trees in forested area uprooted; heavy cars lifted and thrown.
Four (F4)	Violent	207-260 mph	Devastating damage. Well-constructed houses leveled; structures with weak foundation blown some distance; cars thrown; large missiles generated.
Five (F5)	Violent	260-318 mph	Incredible damage. Strong frame houses lifted off foundations, carried considerable distances, and disintegrated; auto-sized missiles airborne for several hundred feet or more; trees debarked.

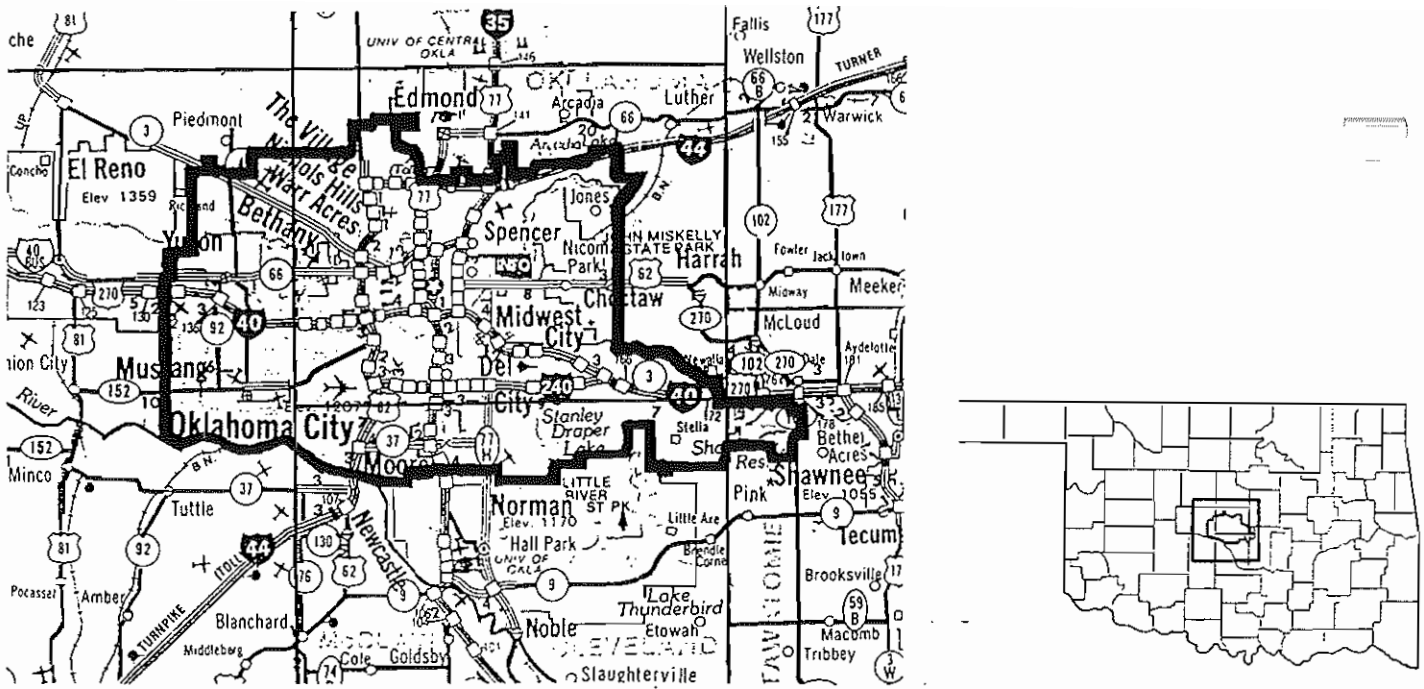


Fig. 1. Map of central Oklahoma showing immediate OKC area (enclosed by heavy solid line).

TORNADOES IN OKC BY MONTH

1890–1993 (93 Tornadoes)

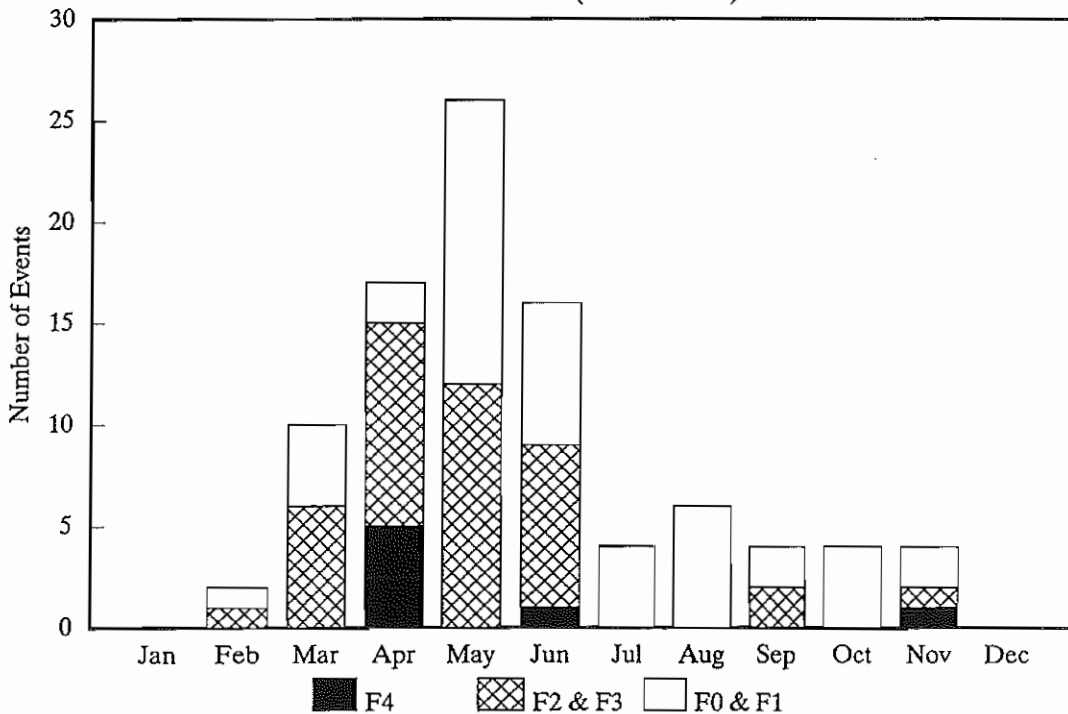


Fig. 2. Annual distribution of tornadoes in the immediate OKC area, 1890-1993.

DIURNAL DISTRIBUTION OF OKC TORNADOES
1890-1993 (93 Tornadoes)

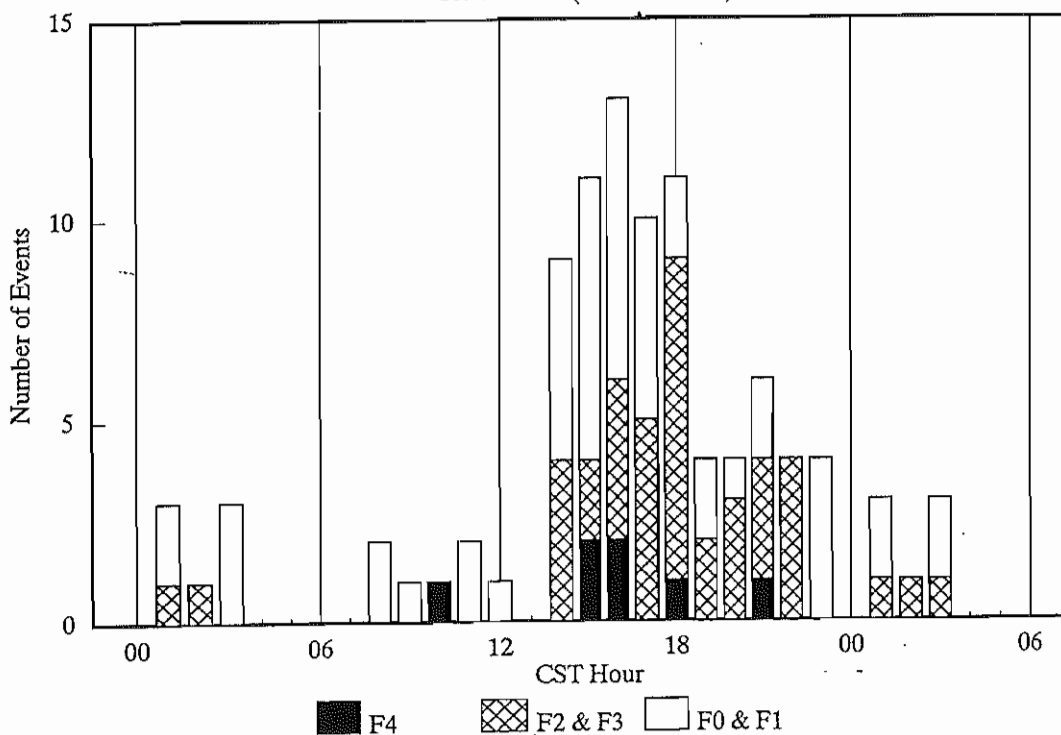


Fig. 3. Diurnal distribution of tornadoes in the immediate OKC area, 1890-1993. Data based on initial tornado touchdown times, with hour HH defined as the period HH-30 to HH+29. Data from 00 CST to 06 CST are repeated to show the trend across the 00 CST (midnight) period.

TORNADOES IN OKC BY DECADE
1890-1993 (93 Tornadoes)

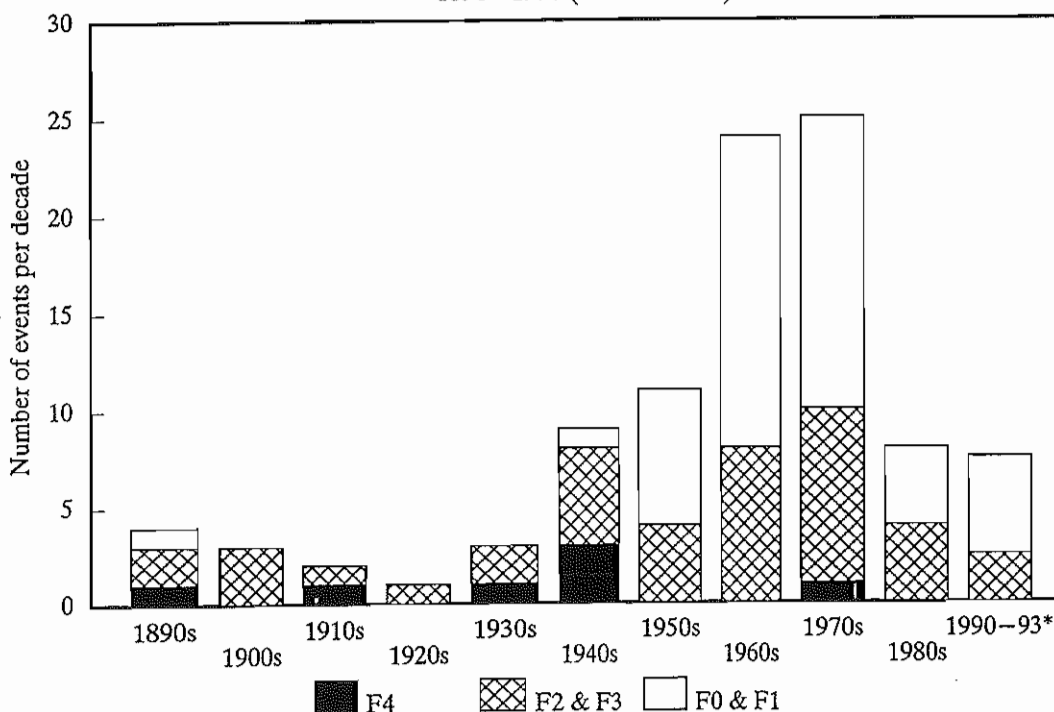


Fig. 4. Tornado frequency in the immediate OKC area by decade, 1890-1993. (* - The data presented for 1990-1993 have been standardized to a decadal frequency by multiplying the observed 4-year totals by 2.5.)

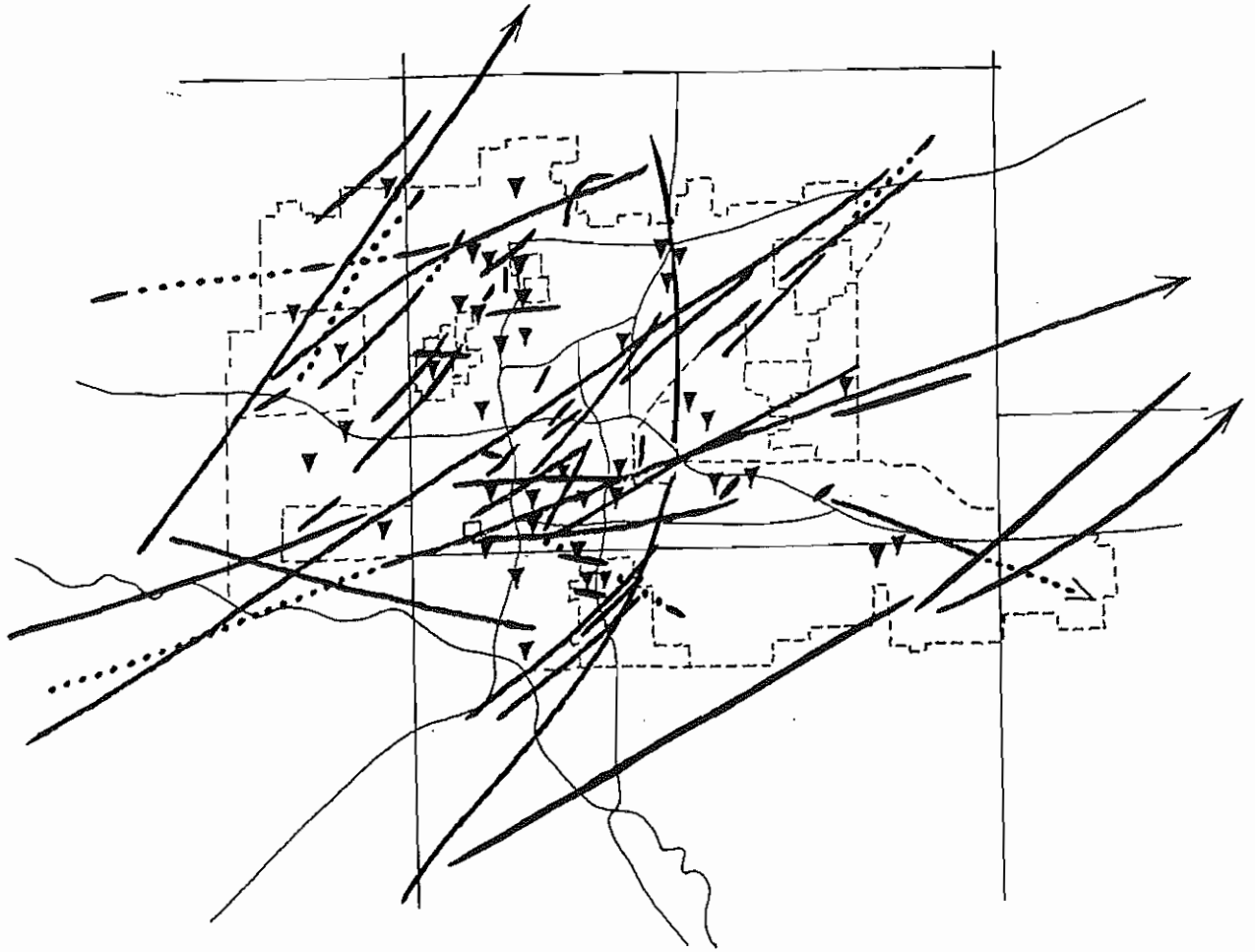
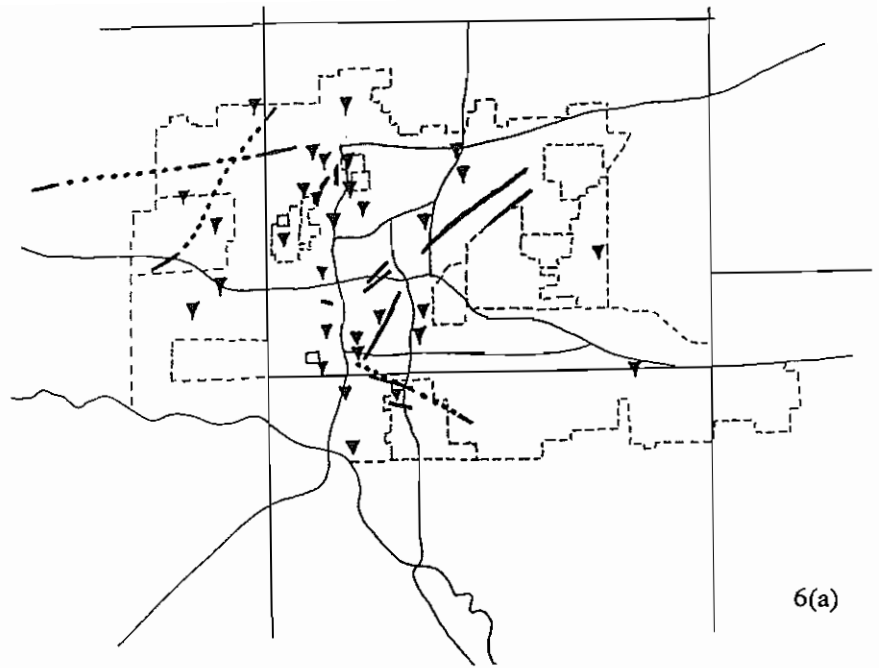
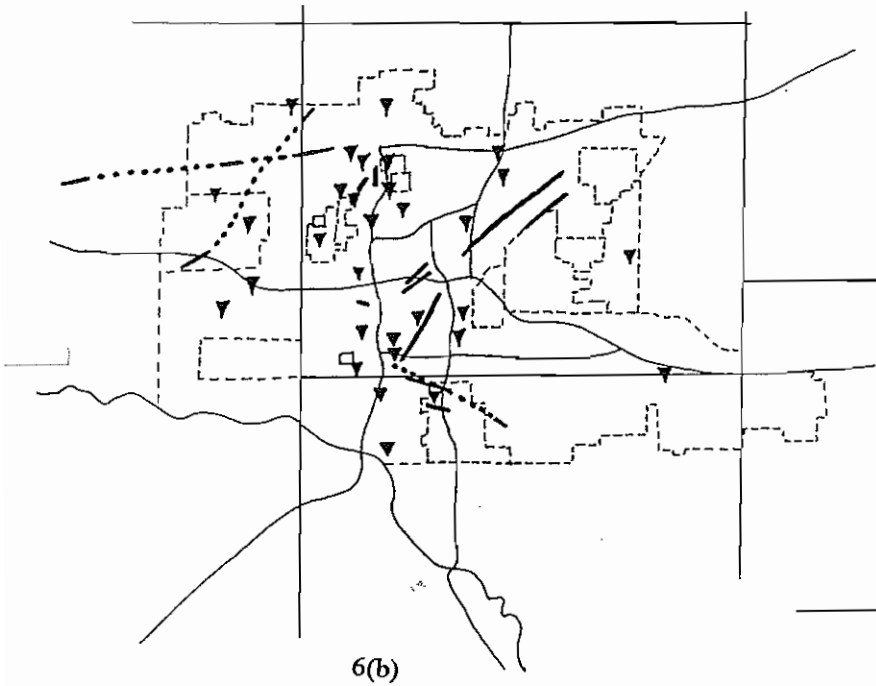


Fig. 5. Tracks of all recorded tornadoes occurring wholly or partly within the immediate OKC area, 1890-1993. County boundaries and major highways are shown by thin solid lines. Immediate OKC area, and townships within it, are enclosed by thin dashed lines. Short-track tornadoes (path lengths less than 1 mile) are shown by triangles. Dotted tracks indicate portions where either damage was intermittent or the tornado was reported as aloft. Arrows indicate that the damage track extended farther than shown. (Note that tornadoes that occurred entirely outside the outermost dashed line are not shown.)

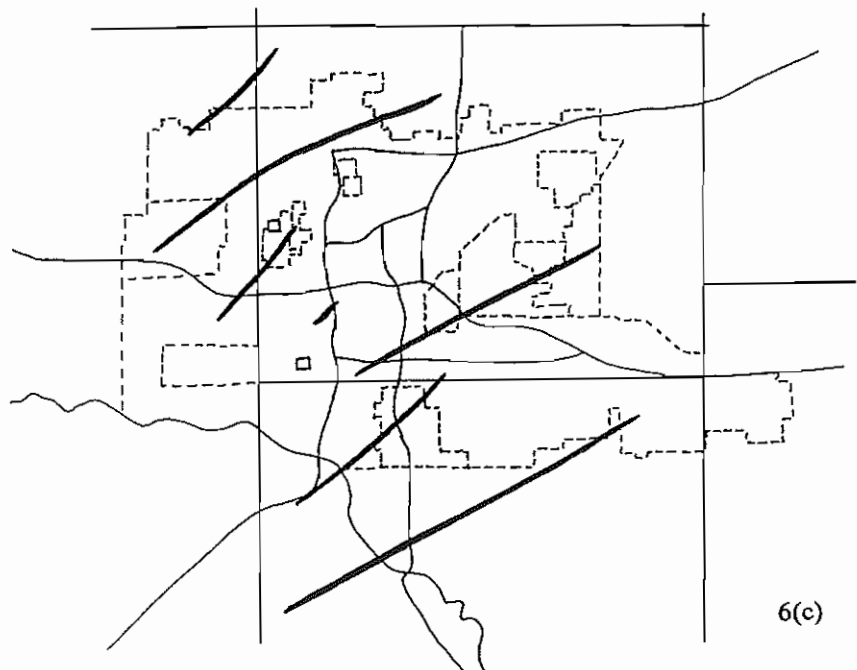


6(a)



6(b)

Fig. 6. As in Fig. 5, except for weak (a), strong (b), and violent (c) tornadoes.



6(c)

