

Illinois Tornadoes Prior to 1916

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ABSTRACT

An effort to chronicle Illinois tornadoes occurring prior to 1916 is summarized. From the more than 440 total Illinois tornado occurrences identified in the literature from that period, the list was culled to 325 individual events. Annual and mean monthly frequencies are shown and discussed relative to the modern record.

The present tornado data set includes location, time, and to a lesser extent, number injured, number killed and damage for each tornado event. Prominent tornadoes from the record are discussed, as data are available.

INTRODUCTION

The history of tornadoes in Illinois is rather well known since the mid-1950s (e.g., see Wilson & Changnon, 1971; and Wendland & Guinan, 1988). That record is believed to be essentially complete since the U.S. Weather Bureau inaugurated a concerted effort to record all such events at that time. Earlier, tornado accounts may be suspect since a record of such a small scale event is largely dependent on population density, awareness, and maintenance of a continuous record. Although the U.S. Army Signal Corps and U.S. Weather Bureau *accepted* tornado information for archival purposes through the years, a *complete and continuous* record only exists since the mid-1950s.

In spite of the incomplete nature of earlier tornado records, useful information of a climatological nature can be gleaned. This paper represents an initial attempt to document the record of Illinois tornadoes prior to 1916. The present total of 325 Illinois tornado events is incomplete, but non-repetitive, in that each reported tornado herein represents a separate event. Apparent multiple tornado events were deleted from the first list if two or more such events were recorded on the same date in the same county, occurring within a 2 hour span.

In early accounts, tornadoes were variously reported as tornadoes, "whirlwinds," "hurricanes," or "cyclones." Suspected events were concluded to be a tornado when associated comments confirmed a rather narrow, linear path of destruction, and/or a rotational pattern to the damage or debris.

EARLY TORNADO DATA SOURCES

The majority of the following tornado summary data for Illinois is composed of entries found in (1) the annual "Report of the Chief of the Weather Service," U.S. Army Signal Corps, from 1890 to 1916; and (2) *Monthly Weather Review* from 1872 to 1916 (e.g. Henry, 1896). Beginning in 1892, the former offered narrative and tabular information on violent storms, occasionally mentioning funnels and estimates of damage. The reports are certainly incomplete, but a reporting routine had been established. From 1890 through 1897, from 19 to 34 tornadoes or funnels were reported annually for the U.S. Beginning abruptly in 1898, no mention of severe or violent storms, funnels or tornadoes are found in the annual publication.

In 1875, comments concerning the occurrence and location of tornadoes began to appear in *Monthly Weather Review*, though they were few in number. Interestingly, references to specific tornado events virtually disappear in the 1880s and 1890s, although the terms "almost a tornado" or "incipient" tornado are found more than a few times. Such entries were not included in this summary.

County histories provided additional tornado information, notably, Ellsworth (1880) and *Museum News* (1889). Additional data were extracted from Flora (1954), Fuller (1914), Ludlum (1970, 1971), and Moses (1889). Grazulis (1990) lists U.S. tornadoes from 1880 through 1989, and helped verify and quantify accounts for which we had information. In addition, this data base provided several entries for which we had no prior information.

Additional tornado events were described in Illinois newspapers from the mid- and late-19th century, although these were not particularly productive sources, the news primarily being political in nature. Some individual accounts of tornadoes or suspected tornadoes were most interesting. For example, the following is quoted in Reynolds (1887:347-348):

"On June 5, 1805, a terrific hurricane swept over a part of Illinois. It was one of those tempests of the whirlwind order....It was about three-quarters of a mile wide, and to that extent, for several miles in Illinois, it prostrated trees and even swept the water out of the river and the lakes in the American Bottom to that width....A large bull was raised up high in the air; carried a considerable distance, and every bone in his body was broken....The storm carried in it pine tops from Missouri, which do not grow nearer than fifty or sixty miles from the American Bottom."

From this report, it appears that the referenced "hurricane" was indeed a tornado, and of considerable intensity.

ANALYSIS AND RESULTS

A listing of the 325 tornadoes summarized herein is presented in Table 1. Additional information was often available to that included in the table, but was often fragmented and certainly not available for all tornadoes.

The annual frequencies of the 325 recorded tornadoes in Illinois are shown in Fig. 1. The tornado reports are not distributed equally through the years of data, nor do the annual frequencies systematically increase, as would be expected, if the reports were largely dependant upon population density.

There were no tornadoes recorded in Illinois in 46 of the 111 years from 1805 to 1915: Specifically 1806-1814, 1816-1834, 1836-1843, 1848, 1851-1853, 1856, 1862-1863, 1865, 1867 and 1891. On the other hand, ten or more tornadoes were recorded in 11 of the years, all since 1875 (see Table 1). The recent annual average frequency of Illinois tornadoes, i.e., 28 (Wendland & Guinan, 1988), was equalled or approached only in 1880 and 1883. Whether the frequencies of these two years was actually much greater than other years of the late 19th century cannot be determined from the Illinois data, but could be evaluated by similar studies from adjoining states.

Decadal tornado frequencies in Illinois since the 1806-1815 decade exhibit a maximum frequency (104) in the 1880s (Fig. 2). The decline after that time is somewhat surprising. State population continued to increase, and became more equally distributed over the state, and news coverage and the transfer of such information probably became more complete with time. We suspect that the declining frequencies shown in our record since the late 1800s is due to an incomplete data base.

The distribution of tornadoes through the months of the year shown herein (Fig. 3) exhibits a strong spring maximum in May, followed by those of April, June and March, in that order. More recent monthly frequencies, i.e., those from 1955 through 1986 (Wendland & Guinan, 1988) are greatest in June, followed by April and May. The last decades of the 19th century exhibited a tornado minor maximum in late summer or autumn: August in the 1870s, September in the 1880s, July in the 1900s, and November in the 1910s. The 1955-1986 data exhibit such a phenomenon in August.

Eight separate dates stand out because of the relatively large number of tornadoes on each of those days, e.g., 21 on 18 May 1883, 11 on 12 May 1886, 10 on 27 March 1890, 8 each on 24 April 1880 and 21 April 1912, 6 on 17 July 1903, and 4 each on 27 March 1908 and 11 November 1911. These days with high frequencies strongly contributed to the *annual* maxima exhibited in Fig. 1. The tornadoes of 11 November 1911 are noteworthy in that they were associated with a severe, fast-moving cold front that moved across Illinois (Wendland, 1987), dropping temperatures by 65°F within 24 hrs at LaSalle IL, and 60°F at Peoria!

Tornado frequencies by county from 1805 through 1915 are presented in Fig. 4. This chart appears to be significantly dependent on population density and distribution during those years, in addition to actual tornado frequency. Counties with tornado frequencies of ten or more from 1805-1915 include Madison (23), Morgan (13), Lee, Whiteside and

Sangamon (11) and Adams and Christian (10). Interestingly, the 19th century distribution bears some similarities to the frequency distribution for 1955 to 1988 (Wendland & Guinan, 1988, Fig. 2), a record which is less dependent upon population density.

Several of the 325 tornado events resulted in serious loss of life or injury (Table 1), especially those of 4 June 1877; 18 May 1883; 19 February 1888; 27 March, 8 April and 20 June, 1890; 27 May 1896, 18 May 1898 and 21 April 1912. The tornadoes of 27 May 1896 are particularly noteworthy, being the second worst tornado event known in Illinois history as measured in lives lost and injuries; only the Tri-state tornado of 18 March 1925 being worse, with 1430 injured and 606 killed within the state (Wilson & Changnon, 1971). On 27 May 1896 at least 1125 were injured and at least 279 were killed by several tornadoes in west-central Illinois, undoubtedly due to high population densities in the area just east of the growing metropolitan St. Louis.

CONCLUSIONS

The chronology of early Illinois tornadoes compiled for this paper has only begun. Because of its yet incomplete nature, few meaningful spatial or temporal conclusions can be drawn at this time. However, a spring maximum frequency in the early record is similar to recent occurrences. Only 2 of the 111 years of record exhibited an annual statewide tornado frequency near-equivalent to that of today. The 1880s represent the decade with the greatest tornado frequency from 1805 through 1915, which may be a function of reporting and recording efficiency, and current availability of extant copy material.

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Table 1. Listing of 325 Illinois tornadoes from 1805 through 1916. MO: month, DA: day, YR: year, K: # killed, I: # injured, COUNTY: county(ies) impacted by tornado in question.

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Table 1.

continued

Fig. 2. Decade mean tornado frequencies in Illinois from 1806 through 1915 (15 on abscissa: mean value from 1806-1815).

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Fig. 3. Distribution of Illinois tornadoes by months of the year from 1870 through 1910.

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Fig. 4. Tornado frequency by county from 1805 through 1915.