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NOTE: This description was published in December, 1974. Revised statistics currently being used, which became available after publishing, are noted in parenthetical statements.

Natural Disaster Survey Report 74-1

The Widespread Tornado Outbreak of April 3-4, 1974

A Report to the Administrator

Description of the Outbreak

In terms of total number, path length, and total damage, the massive tornado occurrence of April 3-4, 1974, was more extensive than all previously known outbreaks. Of the 127 tornadoes so far documented (148 tornadoes according to revised statistics by T. Theodore Fujita, The University of Chicago), 118 had paths over a mile long. The total paths amounted to 2,014 miles (2,500 miles according to revised statistics by Mr. Fujita), resulting in 335 deaths (330 deaths according to revised statistics by Mr. Fujita). By comparison, during the tri-State out-break of March 18, 1925, seven tornadoes traveled 437 miles and caused 746 deaths. The Palm Sunday outbreak of April 11, 1965, spawned 31 tornadoes, which had paths totaling 853 miles, and killed 256.

The year 1973 went down in history as the year of the tornado. More than 1,100 tornadoes were reported--an all-time high. The first quarter of 1974 was just as busy, but severe weather forecasts generally were confined to a few watch areas on each storm day. This pattern was broken on Monday, April 1, when 11 severe weather watch areas were issued and more than 20 tornadoes developed from Alabama and Mississippi through the central States into Indiana and Ohio. Three deaths and much property damage were attributed to tornadoes. The storms of April 1 served to alert the forecasters to the potential for widespread outbreaks, and the impact of these storms was fresh in the minds of many people when they heard the watches and warnings of April 3. In Alabama and Tennessee, where severe damage occurred on both days, many lives were saved during the April 3-4 disaster because the public took protective actions that might not otherwise have been taken had it not been for the April I storms.

On Tuesday morning, April 2, the forecasters at the NSSFC determined that the developing storm system had the potential to produce severe thunderstorms the following day, although the precise location and timing Of Such activity was not yet evident. At that time, it appeared that the severe activity would occur somewhere in the middle or lower Mississippi Valley. Consequently, the Kansas City RWCC suggested in a teletypewriter message to 10 Central Region network radar stations that any needed maintenance be

done by April 2. (Stations alerted were Garden City and Wichita, Kans.; Grand Island, Neb.; St. Louis and Monett, Mo.; Detroit, Mich.; Des Moines, Iowa; Minneapolis, Minn.; Marseilles, Ill.; and Evansville, Ind.) Meanwhile, the Fort Worth RWCC was phoning to advise several Southern Region WSFOs of the coming severe weather potential and the need for radar maintenance. (Offices contacted were WSFOs in Oklahoma City, Little Rock, Memphis, Birmingham, and Jackson.)

While this preliminary alert did not extend far enough east to include all the tornadoes that occurred, and did include a large area in the central and southern plains in which severe thunderstorms did not occur, it gave many NOAA offices over 24 hours in which to prepare for the outbreak.

Through the night on Tuesday, indications of the storms to come were accumulating but the tremendous magnitude and intensity of what was actually to occur, as well as the precise timing and location of the storms, were still not evident. Two severe weather watches were issued during the predawn hours on Wednesday, April 3, for portions of the lower Mississippi Valley, but little activity was noted in these areas. The pace increased in the NSSFC and field offices during the forenoon, as thunderstorms began to build. Severe Thunderstorm Watch No. 92 covering portions of the Ohio Valley was issued at 8:27 a.m. CDT. From that time until 3:00 a.m. CDT the next morning, NSSFC issued 28 Severe Weather Watches covering almost the entire area from the Gulf of Mexico to the Canadian border and from the, Mississippi River to the East Coast. During this period, National Weather Service Offices issued about 150 tornado warnings. The major activity occurred between 2:00 p.m. and 10:00 p.m. on April 3. In all, 13 States had tornadoes.

The rapid development and widespread extent of the tornado outbreak are evident in the reported times of the first tornado in the seven States struck during the afternoon hours of April 3. Around 2:00 p.m. CDT, tornadoes touched down in Bradley County, Tenn., and Gilmer County, Ga. Within 10 minutes, tornadoes were reported in McLean and Logan Counties, Ill. At 2:20 p.m. CDT, separate killer storms set down in the Indiana counties of Perry and Lawrence. In Ohio the first tornado was reported about 3:30 p.m. CDT, and the Brandenburg, Ky., storm touched down at 3:40 p.m. Alabama's first tornado followed by less than an hour, striking 8 miles west of Birmingham at 4:30 p.m. CDT.

For comparative purposes, for all the tornadoes reported during this outbreak, the mean path length was on the order of 18.7 miles whereas the mean path length for all tornadoes in 1973 was 4.7 miles. For all tornadoes in 1972 it was 3.3 miles. In a rating of intensity of tornadoes on a scale from F0 to F5, six tornadoes in this outbreak had an intensity of F5. In 1973, only one tornado had an intensity of F5. In 1972, no tornadoes reached this intensity. In 1971, two tornadoes had an intensity of F5.

Of the casualties and losses suffered in the 13 States surveyed by the American Red Cross, some were caused by straight-line winds rather than tornadic-storms, particularly those involving mobile homes. Some of the deaths reported by the Red Cross were caused by heart attacks and not by direct storm injury. Large hail during the severe thunderstorms and tornadoes contributed to the total damage. The States of Alabama, Georgia, Tennessee, Kentucky, Indiana, and Ohio were the region of greatest storm activity and damage. Detailed descriptions of tornado activity in each State are provided in the sections that follow. The extremely large number of storms that occurred, and their rapid movement, magnified the problems involved in determining the number and sequence of events. Detailed studies of individual storms and further analyses may modify the descriptions given in this report.

*Numbers assigned to the tornadoes correspond to those given on the University of Chicago map furnished with this report.

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