

Windsor Tornado - April 3, 1974

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General Weather Features

On the morning of April 3, 1974, a fairly intense low pressure area was centred in Kansas moving in a northeast direction. A moist tongue of tropical air was drawn well up the Mississippi Valley to the east - southeast of the low centre, while immediately to the north and west of the low centre, Arctic air with snow was being drawn southward. So we have in the vicinity of this one low, a tremendous energy potential with a complete gradation of air masses all the way from cold Arctic (temperature 30°F to 35°F) to humid tropical (temperature 65°F to 70°F). This report will not go into the dynamics of the upper air structure, which is the real key to the formation of severe weather. The Atmospheric Environment Service is preparing such a study.

In the forenoon, thunderstorms were being reported in the mid-Mississippi Valley. The United States Weather Service began to issue warnings of severe thunderstorms and possible tornadoes for a wide area southward from the Great Lakes including Michigan and Ohio. The Canadian Weather Service issued a similar warning in the early afternoon for southwestern Ontario. The duty meteorologist spoke with personnel at Richview Control Centre about the developing situation. The system supervisor received a teletype copy of the Canadian Weather Service advisory.

The low continued to move northeast crossing Michigan on the night of April 3-4, 1974. Tropical air in the system reached across Lake Erie into extreme southwestern Ontario. The area from southwestern Ontario southward was literally alive with severe thunderstorms and tornadoes. Deaths in this area of the United States on this night were reported to be near 300 in 93 separate tornadoes. One severe storm crossed Windsor, Ontario, causing power interruption, minor flooding, and damage to a few buildings, which in turn resulted in eight deaths.

Brief Outline of Investigation

On April 9, 1974, I visited Windsor, and with the kind assistance and co-operation of Mr. J.F. Mornan, Officer-in-Charge, Windsor Weather Office, visited the principle damage locations caused by the storm of the evening of April 3, 1974. Mr. Mornan provided me with a copy of the significant events at the Windsor Airport on the evening in question, as well as his own observations of the damage areas as seen the following morning. In addition, he provided a copy of a report prepared by Mr. C.R. Snider, Meteorologist-in-Charge, Weather Service Forecast Office, Detroit, Michigan. Both of the reports are attached to this memorandum.

I also visited the District Chief Operator, Mr. W. Blandford, at J.C. Keith GS. He indicated to me the areas where pole damage had been done. They tended to form a straight line across Windsor, but with large gaps of no damage. Crossing the storm's path at a near right angle is a 230 kV line running southeast from J.C. Keith GS as well as numerous wood pole transmission lines. They were left untouched as the storm skipped from its first touchdown point in the southwest portion of Sandwich West Township, where about 30 wooden poles were knocked down, to the next known damage area near Devonshire Mall, about five miles to the northeast. From this point, the damage pattern appeared to be at intervals of one-half to one mile until reaching the curling club after which there is no known damage further to the northeast, until the storm did minor damage in eastern Detroit.

Observations (Also refer to the two attached reports and Windsor map)

The damage pattern is in a straight line (see map). The 30 wooden poles taken out in the southwest part of Sandwich West Township were only three to four years old. It is fortunate that the area is sparsely populated. The damage at Devonshire Mall,

just northwest of the Windsor Airport, is difficult to assess. The existing building appears to have sustained no damage. Painted sheet metal roof ventilators were sitting in place, yet only 80 to 100 feet away steel girders up to the second storey level (part of an expansion of the Mall at the rear), had collapsed and were badly twisted. Construction officials at the site denied the possibility that the lower steel work support was not adequate.

A large mobile crane at the site weighing 30 tons was moved a distance of 6 to 9 feet by the wind. It did not turn over because of the large extension pads on both sides of the crane, and possibly because the cab and boom were not locked in position but were swinging freely. This information was obtained from the crane operator.

The collapse of the west wall of the curling rink appears to be partly due to construction methods. The peaked roof, made of one-quarter inch plywood with a large overhang to the west, was apparently lifted off from west to east and deposited in pieces in the parking area immediately to the east of the building. The west wall then collapsed killing eight people. The wall was 90 feet long by 30 feet high, plus another 12 feet to the peak. It consisted entirely of concrete blocks without internal or external support. A flat roofed two storey building beside the curling rink on the north side sustained no visible damage. A street of one and two storey frame houses on the west side, whose back fence line touches the curling rink property, was undamaged. Numerous television antennas on these houses appeared undamaged. Another flat roofed two storey building across the street from the curling club (east) appeared to be undamaged. The lots immediately to the south of the rink are vacant.

Summary

The severe thunderstorms on the evening of April 3, 1974, in southern Michigan, spawned a few known funnel clouds which dipped to earth (tornadoes) in a few locations in Michigan. One such funnel cloud appears to have crossed Windsor following a fairly straight line from southwest to northeast. Most of the time the funnel cloud did not reach the ground, and when it did touch down it was very briefly. The known path length across Windsor is seven miles. Mr. Snider indicated a total path length of about 20 miles from Flat Rock, Michigan, across Windsor to

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60 mph
24
30
24
20

eastern Detroit. The width of the path of destruction is difficult to determine from the rather selective damage pattern, but is probably less than 500 feet.

A detailed meteorological analysis of this storm is being prepared by the Atmospheric Environment Service.

* There are some reports of major damage in Cherokee Park in Windsor with this event. This appears to be due to CBC radio archives which included a clip regarding Cherokee Park in its coverage of this event. However, the Cherokee Park damage was in fact associated with an F2 tornado near Louisville, KY on the same day. Sills, 2011