

February 1998 Central Florida Tornado Outbreak

20th Anniversary

The most devastating tornado outbreak in Florida's history occurred during the late night and early morning hours of February 22-23, 1998. A total of seven significant tornadoes were confirmed between 10:55 p.m. and 2:30 a.m., resulting in 42 fatalities and more than 260 injuries. The majority of the damage and all the fatalities were caused by four unusually long-lived tornadoes, which primarily impacted South Daytona, Winter Garden, Sanford, and Kissimmee. The supercell thunderstorms that produced these tornadoes were powerful and cyclic in nature, with tornado damage tracks ranging from 8 to 38 miles. One factor that made this a particularly deadly event was that it occurred overnight when many residents were asleep. In the past, the only method for citizens to receive a National Weather Service (NWS) tornado warning while asleep was via a tone-alerted NOAA Weather Radio. Today, most residents receive tornado warnings automatically on their personal cell phones through the Wireless Emergency Alert (WEA) system, providing a final opportunity to move to a more secure location (i.e. a small, interior room on the lowest floor of a home – away from windows).

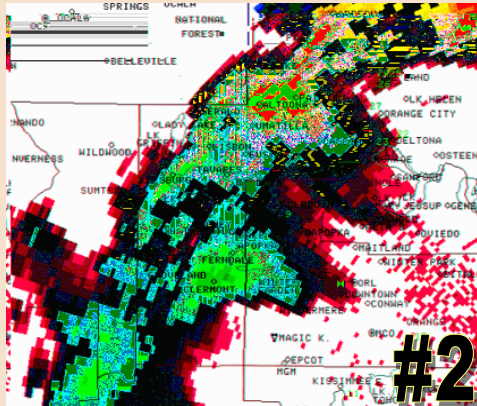


While several outbreaks of strong and violent tornadoes have been documented in Central Florida over the past 120 years, the number of fatalities resulting from the February 1998 outbreak was unprecedented. In fact, the second deadliest tornado outbreak in Florida's history, the 2007 "Groundhog Day" event, resulted in 21 fatalities. The more recent event produced half as many tornadoes as during 1998, and the tornadoes affected a rural, low population area within Lake and Volusia Counties, compared with the highly populated Orlando suburbs which experienced the 1998 tornadoes.

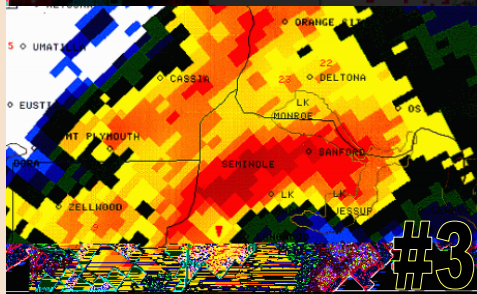
Still, accurate severe weather forecasts issued days in advance and tornado warnings provided with significant lead times, combined with highly visible messaging of the tornado threat by NWS Melbourne staff and the Orlando media likely help prevent additional fatalities and injuries. The effects of this outbreak are still being felt 20 years later by a tornado-savvy public, many of whom still live in the area and vividly recall the events of that fateful night.



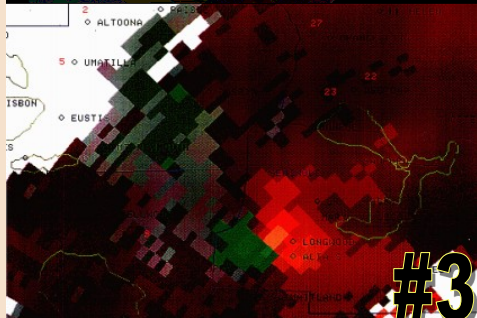
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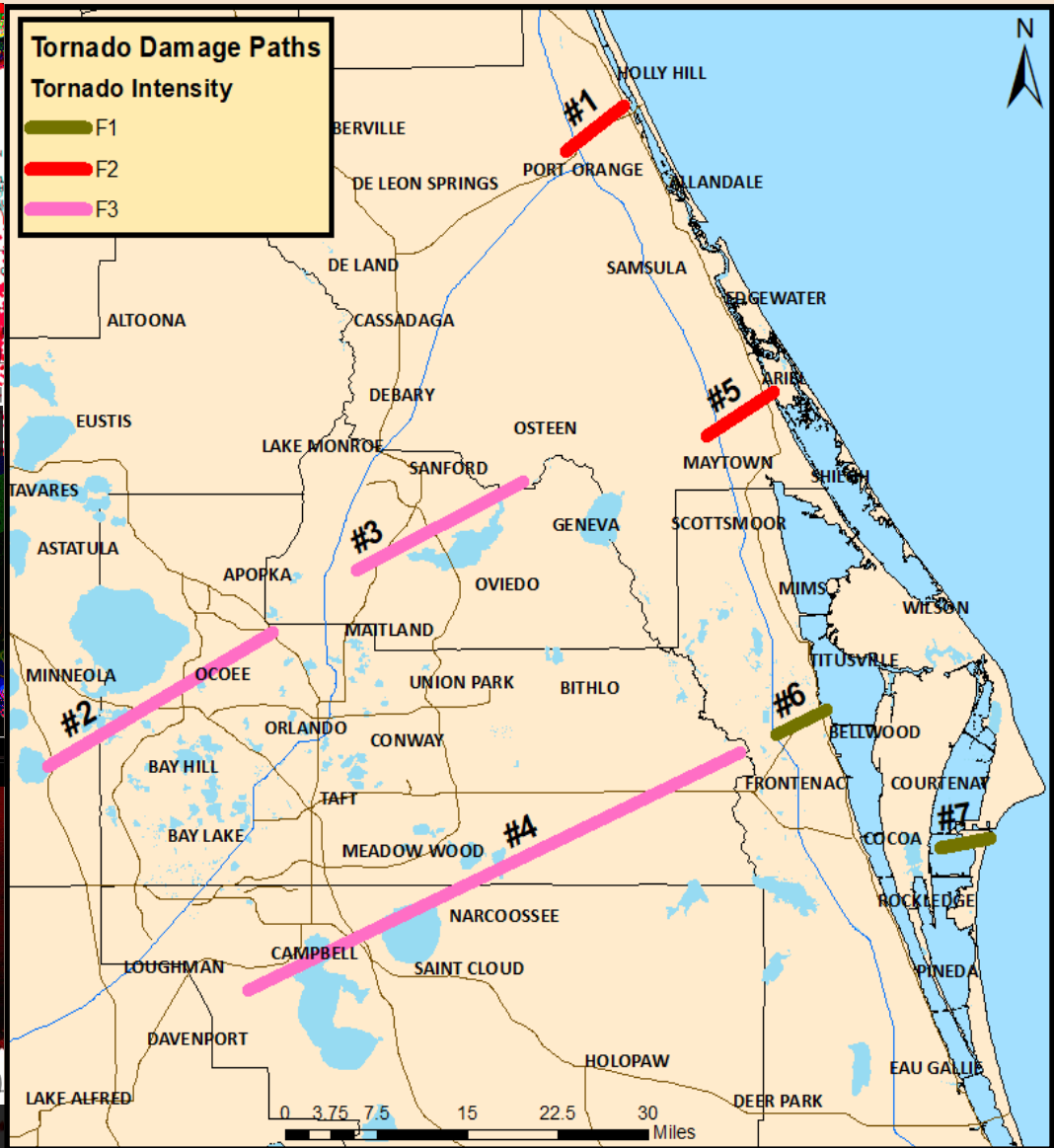
Winter Garden Supercell



Sanford Supercell



Sanford Supercell (velocity)



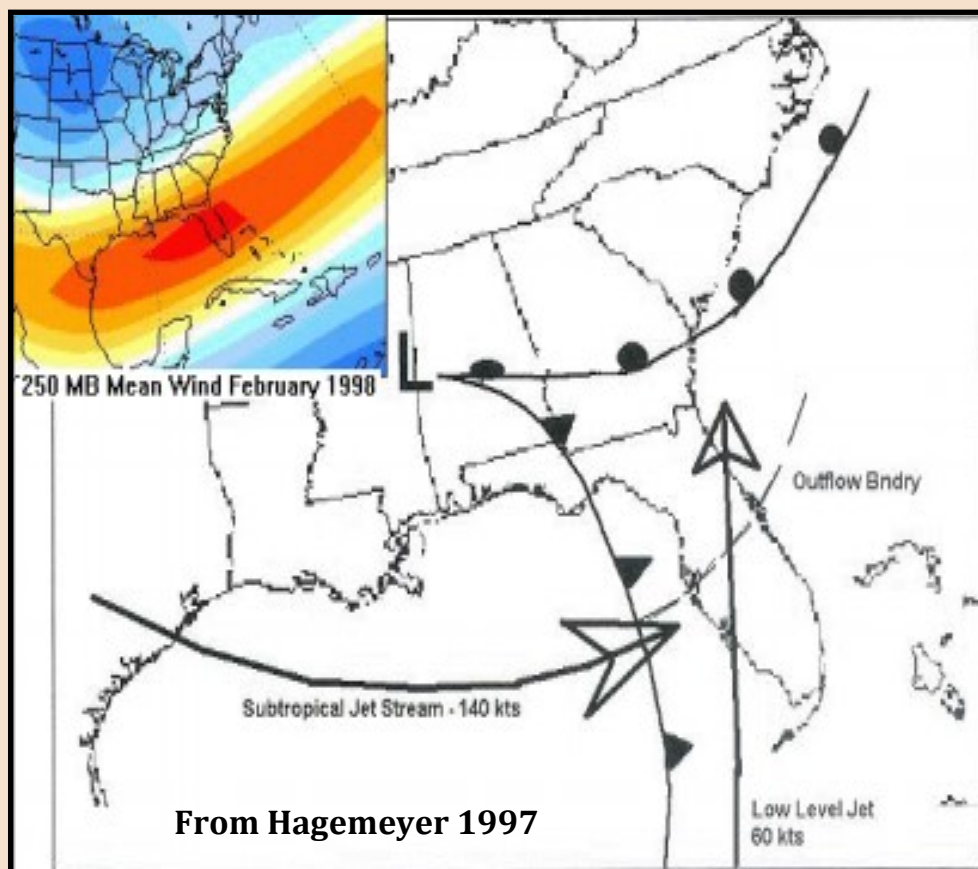
- #1 F2 tornado touched down in Volusia County at 10:55 p.m.—1 fatality, 3 injuries.
- #2 F3 tornado touched down in Lake County at 11:37 p.m., entered Orange County at 11:41 p.m., first fatalities around 11:50 p.m., lifting at midnight—3 fatalities, approximately 70 injuries.
- #3 F3 tornado touched down in Seminole County at 12:10 a.m., first fatalities around 12:15 a.m. near Sanford, lifting at Volusia County at 12:25 a.m.—13 fatalities (12—Seminole County, 1—Volusia County), approximately 36 injuries.
- #4 F3 tornado touched down in Osceola County at 12:40 a.m., first fatalities at 12:50 a.m. in Kissimmee, crossed into Orange County at 12:55 a.m., lifting at 1:28 a.m.—25 fatalities, 150+ injuries.
- #5 F2 tornado touched down in Volusia County at 12:45 a.m.—no fatalities or injuries.
- #6 F1 tornado touched down in Brevard County at 1:38 a.m.—no fatalities or injuries.
- #7 F1 tornado touched down in Brevard County at 2:30 a.m.—no fatalities or injuries.



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Meteorological Conditions



Meteorologists at the National Weather Service in Melbourne realized well in advance that there would be a much greater than normal probability of an active severe weather season in the spring of 1998 due to the presence of a strong El Niño throughout the winter and spring of 1997-1998. During El Niño events, the subtropical jet stream (as indicated in the figure below) occasionally shifts much further south than normal, overlaying the Florida peninsula, with greater wind speeds than normal. This in turn increases the vertical wind shear over portions of Florida, creating an environment favorable for strong to violent tornadoes.

The ideal meteorological set-up capable of producing and sustaining tornadic supercell thunderstorms was in place over the Florida peninsula on the night of February 22, 1998. A strong upper-level weather disturbance associated with 160 mph jet stream winds approached the Florida peninsula from the west. At ground level, a low pressure system moved across the Southeast U.S. as an associated cold front approached Florida from the Gulf of Mexico and a warm front developed north of Florida. After nightfall, lower-level wind increased to more than 55 mph just above ground level. Together, these parameters resulted in an unusually warm, moist and unstable environment across Central Florida, together with extreme wind shear – prime conditions for a historic tornado outbreak.

During a 5-hour period from late on February 22 into the early morning hours of February 23, NWS Melbourne meteorologists issued 14 tornado warnings. All 7 tornadoes were preceded by tornado warnings, with an average lead time of 15-minutes (typical lead-time nationwide averaged 13-minutes). The four tornadoes that resulted in fatalities had an average lead time of 23-minutes.

- [Additional information about 1998 Central Florida Tornado Outbreak](#)
- [Tornado Safety Information](#)
- [Weather Emergency Alerts \(WEA\) via cell phones](#)
- [An additional way to receive emergency alerts in your community](#)



February 1998 Central Florida Tornado Outbreak 20th Anniversary



RV Park in Kissimmee



RV Park in Kissimmee

Counties hit



Kissimmee



Kissimmee



Kissimmee



RV Park in Kissimmee



Kissimmee



Kissimmee