

Abstract

An F2 tornado that touched down in Daytona Beach on Christmas Day afternoon caused over \$50 million of damage to the Embry-Riddle Aeronautical University campus and nearby neighborhoods. The tornado was part of a severe-weather outbreak over Florida, Georgia, and South Carolina that began during the overnight hours of 25 December 2006. Examination of surface and upper-level meteorological charts and vertical soundings on the morning of 25 December showed stability and wind-shear conditions favorable for tornadic thunderstorms over this region. The evolution of the squall line that moved through east-central Florida, and the parent thunderstorm that produced the tornado was examined using meteorological data from the Next Generation Doppler Radar, and Daytona Beach International Airport's Automated Surface Observing System and Low Level Wind Shear Alert System. Non-meteorological data included eyewitness accounts from the Embry-Riddle Campus Safety Department and the airport tower's air traffic controllers. These data sources were used to construct a timeline for the squall line's passage, tornado touchdown at the east end of the airport's runway 7L/25R complex, and subsequent damage path across the Embry-Riddle campus. A reconstruction of the damage path using fall semester enrollments and class locations estimated that between 400 and 500 people would have been in the tornado's path had it occurred during a typical Monday afternoon when classes were in session. Additionally, Comair Flight 580, enroute to Daytona Beach from New York, was scheduled to land at the same time the tornado touched down at the airport, but a power outage in the radar approach control facility caused the flight to deviate from its scheduled track. Fortunately, the crew established contact with Daytona Tower and were guided to a safe landing about 25 minutes after the tornado hit. Lessons learned from this case are outlined in the form of a protocol that can be adopted by collegiate aviation programs and airport management, patterned after the four phases of emergency management: (a) mitigation, (b) preparedness, (c) response, and (d) recovery.