

Log 2552A



# National Transportation Safety Board

Washington, D.C. 20594

## Safety Recommendation

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**Date:** May 16, 1995

**In reply refer to:** A-95-52

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On July 2, 1994, about 1843 eastern daylight time, a Douglas DC-9-31, N954VJ, operated by USAir, Inc., as flight 1016, collided with trees and a private residence near the Charlotte/Douglas International Airport, Charlotte, North Carolina, shortly after the flightcrew executed a missed approach from the instrument landing system approach to runway 18R. The captain, first officer, one flight attendant, and one passenger received minor injuries. Two flight attendants and 14 passengers sustained serious injuries. The remaining 37 passengers received fatal injuries. The airplane was destroyed by impact forces and a postcrash fire. Instrument meteorological conditions prevailed at the time of the accident, and an instrument flight rules flight plan had been filed. Flight 1016 was being conducted under 14 Code of Federal Regulations Part 121 as a regularly scheduled passenger flight from Columbia, South Carolina, to Charlotte.<sup>1</sup>

The National Transportation Safety Board has determined that the probable causes of this accident were: 1) the flightcrew's decision to continue an approach into severe convective activity that was conducive to a microburst; 2) the flightcrew's failure to recognize a windshear situation in a timely manner; 3) the

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<sup>1</sup>For more detailed information, read Aircraft Accident Report -- "Flight Into Terrain During Missed Approach, USAir Flight 1016, DC-9-31, N954VJ, Charlotte/Douglas International Airport, Charlotte, North Carolina, July 2, 1994" (NTSB/AAR-95/03)

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flightcrew's failure to establish and maintain the proper airplane attitude and thrust setting necessary to escape the windshear; and 4) the lack of real-time adverse weather and windshear hazard information dissemination from air traffic control, all of which led to an encounter with and failure to escape from a microburst-induced windshear that was produced by a rapidly developing thunderstorm located at the approach end of runway 18R.

Contributing to the accident were: 1) the lack of air traffic control procedures that would have required the controller to display and issue airport surveillance radar (ASR-9) weather information to the pilots of flight 1016; 2) the Charlotte tower supervisor's failure to properly advise and ensure that all controllers were aware of and reporting the reduction in visibility and the runway visual range value information, and the low level windshear alerts that had occurred in multiple quadrants; 3) the inadequate remedial actions by USAir to ensure adherence to standard operating procedures; and 4) the inadequate software logic in the airplane's windshear warning system that did not provide an alert upon entry into the windshear.

The Safety Board believes that the Center Weather Service Unit (CWSU) meteorologist was attentive to the significant weather conditions in the Atlanta airspace on the afternoon and evening of the accident, and that he made the appropriate weather issuances to Federal Aviation Administration (FAA) facilities. However, the Safety Board believes that he may have been at a disadvantage in his efforts to monitor the northern area of the Atlanta airspace because of the unavailability of data for the Charlotte area from the Columbia, South Carolina, (CAE) Doppler weather surveillance radar (WSR-88D), also known as NEXRAD, Next Generation Radar. If the meteorologist had been able to access the CAE WSR-88D data, it would have provided a high resolution depiction of the weather conditions in the Charlotte area. Further, it would have shown the development of the weather cell near the airport about 19 minutes before the accident, and that information could have been transmitted to the Charlotte terminal radar approach control (TRACON), air traffic control (ATC) tower, and flightcrews.

Testimony by the Charlotte tower supervisor at the Safety Board's public hearing on this accident indicated that verbal issuances regarding thunderstorms received from the Atlanta CWSU meteorologist are typically forwarded to pilots on the automatic terminal information service (ATIS). The Safety Board is concerned that there are no requirements for controllers to provide CWSU information directly to pilots. Although it is impossible to know what actions the flightcrew of USAir

1016 would have taken if they had been given an advisory of a Video Integrator Processor (VIP) level 3, 5 or 6 echo near the airport, the Safety Board believes that this critical weather information might have influenced the flightcrew's decision regarding the approach at Charlotte.

The Safety Board believes that the CWSU is a valuable program and a necessary part of the National Airspace System. However, based on the circumstances of this accident, the Safety Board also believes that the FAA and the National Weather Service (NWS) must reevaluate the total program to improve the reporting system. The Safety Board is concerned that in the case of the Atlanta CWSU meteorologist, it may not be possible for one person to monitor 100,000 square miles of airspace for significant weather phenomena and to make timely issuances to the affected ATC facilities. Because the CWSU meteorologist is required to make the appropriate advisories whenever a thunderstorm is detected, and thunderstorms imply severe or greater turbulence, severe icing, and low level windshear, every thunderstorm can be considered potentially hazardous. The Safety Board believes that this constant attention could possibly overwhelm the CWSU meteorologist, especially on days when numerous thunderstorms are occurring in the airspace. As the CWSU meteorologist stated at the Safety Board's public hearing on this accident, "it's more than one person can handle."

Therefore, as a result of its investigation of this accident, the National Transportation Safety Board recommends that the National Weather Service:

Reevaluate, in cooperation with the FAA, the CWSU program, and develop procedures to enable meteorologists to disseminate information about rapidly developing hazardous weather conditions, such as thunderstorms and low altitude windshear, to FAA TRACONs and tower facilities immediately upon detection. (Class II, Priority Action) (A-95-52)

Also, the Safety Board issued Safety Recommendations A-95-40 through A-95-51 to the Federal Aviation Administration and A-95-53 through A-95-56 to USAir.

Chairman HALL, Vice Chairman FRANCIS, and Member HAMMERSCHMIDT concurred in this recommendation.

By:   
Jim Hall  
Chairman