



**NTSB** National Transportation Safety Board

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*Office of Aviation Safety*

**Delta Connection Flight 6448**  
**Operated by Shuttle America**  
**Cleveland, Ohio**  
**February 18, 2007**  
Investigator-in-Charge  
Presentation







# Weather About 3:05 p.m.

- Winds 330 degrees at 16 knots, gusting to 22 knots (50-degree crosswind)
- Visibility 1/4 mile in heavy snow
- Ceiling broken at 600 feet and 1,700 feet, overcast at 3,400 feet
- Temperature -7 degrees Celsius

# Weather About 3:17 p.m.

- Visibility 1/4 mile in heavy snow
- Ceiling broken at 300 feet and 1,000 feet, overcast at 1,500 feet



# Runway Conditions

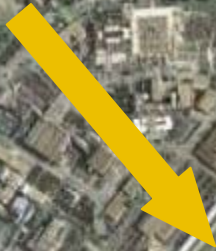
- Runway 28 plowing completed 1 hour 19 minutes prior to landing
- Braking action reported as fair (based on 737 pilot report 9 minutes prior to landing)
- Snow again began falling 29 minutes prior to the landing

# Aircraft Airframe, Systems, and Powerplant Conditions

- No aircraft anomalies



**Wind direction**



**Cleveland Hopkins  
Airport**





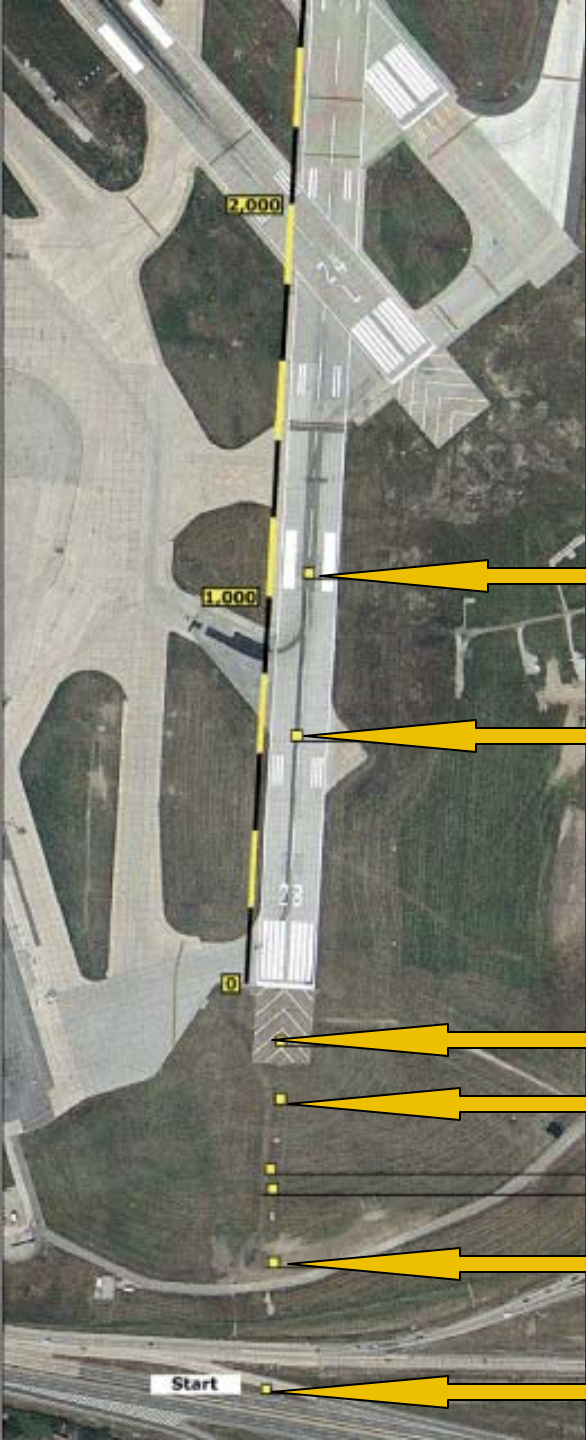


**End of acceptable  
touchdown zone**

**Landing area**

**Aircraft stopped**





**10 feet**

**30 feet**

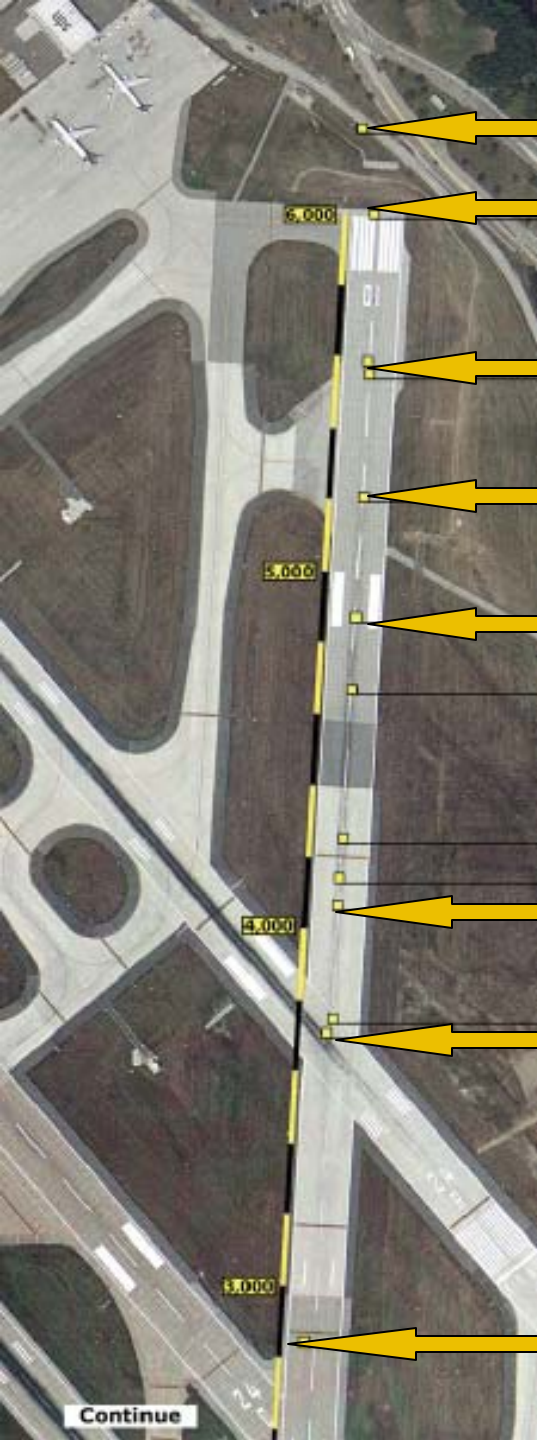
**40 feet**

**Captain sees runway**

**F/O sees runway**

**Captain calls for go-around**





**Aircraft stopped**

**25% N1**

**Capt 90% braking**

**F/O 75% braking**

**65% N1**

**Thrust reversers deployed**

**Nose gear touchdown**

**Main gear touchdown**

# Safety Issues

- Lack of flight training for rejected landings in deteriorating weather conditions and maximum performance landings on contaminated runways



# Safety Issues

- Need for standard operating procedures stating that either pilot can make a go-around callout
- Need for attendance policies that allows pilots to call in as fatigued when necessary

# Parties to the Investigation

- Federal Aviation Administration
- Shuttle America, Inc.
- International Brotherhood of Teamsters (flight crew)
- Centro de Investigacao e Prevencao de Acidentes Aeronauticos (CINEPA - Brazil)
  - Embraer Aircraft Holding, Inc.





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