History of Flight

- February 12, 2009
- 2217 eastern standard time
- Colgan Air, Inc.
- Bombardier DHC-8-400
- Continental Connection flight 3407
- Buffalo, New York
- 2 pilots, 2 flight attendants, 45 passengers, and 1 resident killed
History of Flight

• Snow and light-to-moderate icing expected en route

• Captain set reference speeds switch to increase (icing conditions)
  – Lowered angle-of-attack reference for stick shaker activation
  – Raised low-speed cue on airspeed displays by 15 knots
  – Improved performance margins
History of Flight

- First officer obtained landing speeds for non-icing conditions
  - Mismatch with position of ref speeds switch resulted in landing speed that was 13 knots lower than stick shaker activation speed
History of Flight

• Stick shaker activated; autopilot disengaged
• Airplane had minimum ice accretion
• Captain pulled back on control column and added power short of rating detent
  – Increased angle-of-attack, pitch, and load factor
  – Airplane entered accelerated stall
History of Flight

• Stick pusher activated three times
• After each activation, captain continued to pull back on control column
  – Exacerbated airplane’s stalled condition
  – Prevented potential recovery
HOT-2: gear's down.
HOT-1: flaps fifteen before landing checklist.
HOT-2: uhhh.
Investigation

• On scene for 8 days
• 3-day public hearing covered
  – Effect of icing on airplane performance
  – Cold weather operations
  – Sterile cockpit rules
  – Flight crew experience
  – Fatigue management
  – Stall recovery training
Investigation

- Flight crew and airplane properly certificated
- No evidence of any preimpact structural, engine, or systems failures
- ATC not factor in accident
- Accident not survivable
Investigation

- Weather was typical for time of year
- Ice accretion did not affect crew’s ability to fly and control airplane
- Need to provide complete and accurate weather documents
- Change in icing definitions needed
Safety Issues

- Crew response and monitoring failures
- Airspeed selection procedures
- Stall training
- Pilot training records and remedial training programs
Safety Issues

• Pilot professionalism
  – Sterile cockpit
  – Leadership training
  – Use of personal portable electronic devices

• Fatigue and commuting

• FOQA programs, FAA oversight, and SAFO process
Parties to the Investigation

- Federal Aviation Administration
- Colgan Air, Inc.
- Air Line Pilots Association
- National Air Traffic Controllers Association
- United Steelworkers Union (Flight Attendants)
Accredited Representatives

• Transportation Safety Board – Canada
  – Transport Canada
  – Bombardier
  – Pratt & Whitney Canada

• Air Accidents Investigation Branch – United Kingdom
  – Dowty Propellers