



# National Transportation Safety Board



Island Express Helicopters  
Sikorsky S-76B, N72EX  
Calabasas, CA  
January 26, 2020

Human Performance

# Self-Induced Pressure

- Pilot was trusted to fly client's children
- Air charter broker used Island Express exclusively
- Pilot's relationship with client was friendly, and pilot likely did not want to disappoint client



# No Outside Influences

No pressure placed on pilot by:

- Island Express Helicopters
- Air charter broker
- Client

# Pilot's Decision to Continue Flight

- Pilot's flight into IMC was inconsistent with his typical judgment, company expectations
- Pilot's plan continuation bias
  - Becomes stronger as flight nears destination
  - Lack of an alternative plan



# Pilot's Loss of Outside Visual References

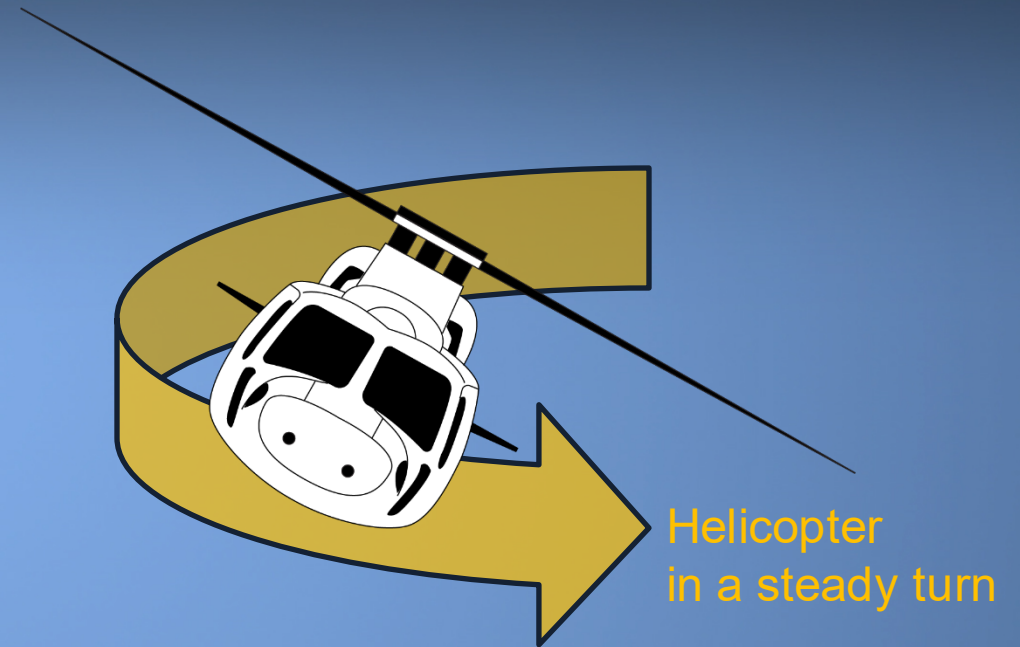
- Helicopter climbed rapidly into cloud layer and IMC while in a gradual left turn
- Pilot's loss of outside visual references required transition to instruments
- Pilot's loss of outside visual cues can lead him to experience vestibular illusions

# Spatial Disorientation



Source: saintlukeskc.org

- Inner ear (vestibular system)
- Provides pilot with balance and orientation



- “The Leans” illusion gives a pilot the perception of flying straight and level when actually in a turn



# Spatial Disorientation-Operational Distraction

- Controller asked pilot to “ident”
- Pilot’s communication with controller, pushing “ident” button introduced distractions
- Interruptions in pilot’s instrument scan, head and hand movements would make pilot more vulnerable to misleading vestibular cues

# Spatial Disorientation

- Helicopter began to bank more steeply, exacerbated effects of “The Leans”
- Pilot experienced second vestibular illusion
  - Somatogravic illusion
  - Incorrectly perceived helicopter was climbing when it was descending



# Spatial Disorientation Accidents

- From 2010-2019: 184 fatal aircraft accidents related to spatial disorientation, 20 of which were fatal helicopter accidents
- Cue-based training can reduce risks related to flight under VMC into adverse weather

# Spatial Disorientation Simulation Technology

- United States Helicopter Safety Team has established goals for promoting wider use of spatial disorientation technology
- Objective research is needed to evaluate efficacy of spatial disorientation technology and training



# Safety Management System

- Safety policy, safety assurance, risk management, and safety promotion
- President of Island Express aware of but not involved with SMS
- SMS was not required by FAA
- Company did not implement entire SMS

# Safety Management System

- Director of operations was accountable executive, monitored flight risk analysis forms
- No evidence company performed internal evaluations or hazard analysis using completed forms





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