



# National Transportation Safety Board

**Clinton O. Johnson**

Chief

Alaska Regional Office

# CFIT

## Controlled Flight Into Terrain





# CFIT Accidents

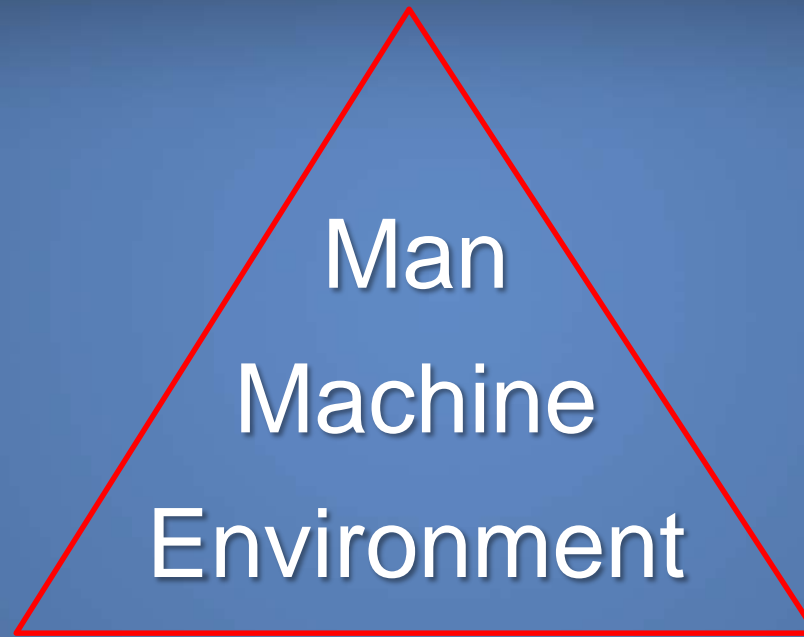




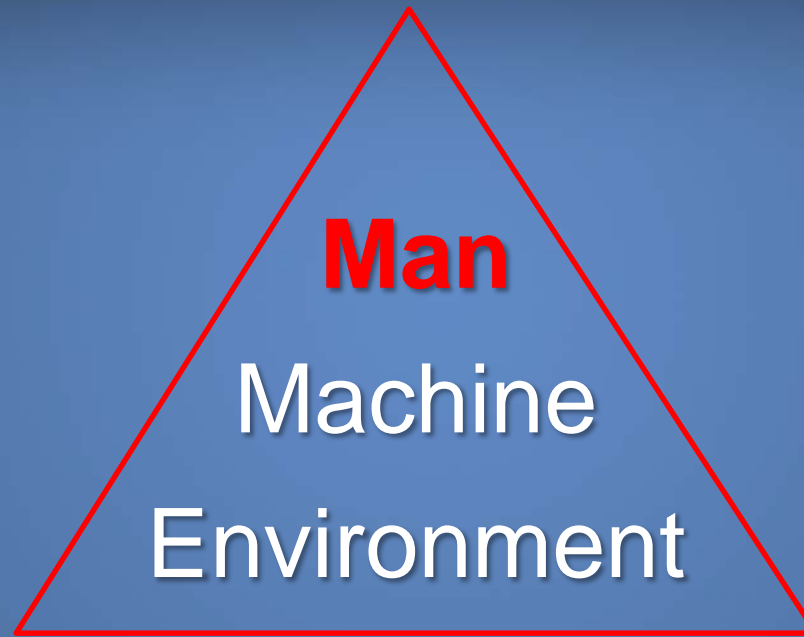
# CFIT Accidents



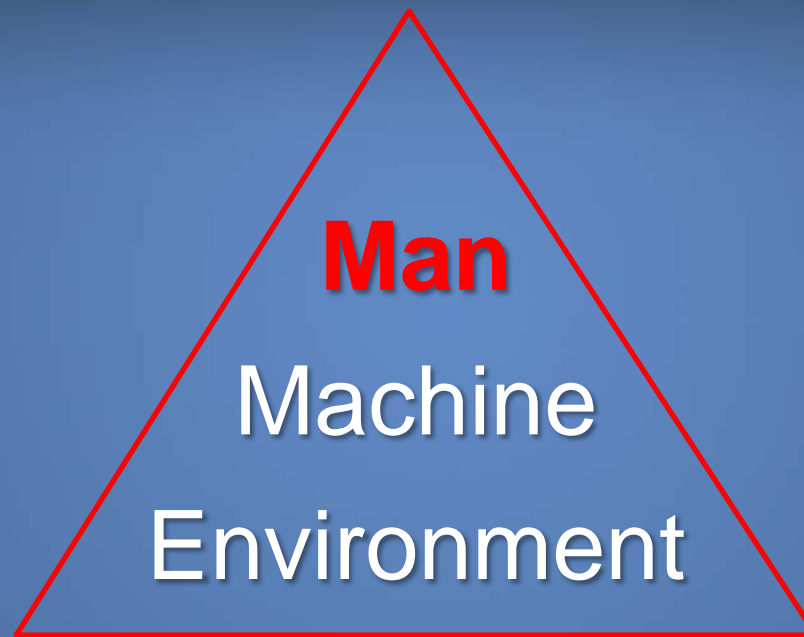
# The Basics



# The Basics



# The Basics



Weather doesn't cause accidents

## Evan Byrne, Ph.D

Chief of Human Factors

Aviation Psychologist

NASA

Pilot

- *American Airlines 1420*
- *Delta Airlines 1288*
- *Emery Worldwide Airlines 017*
- *SpaceShipTwo*

***Common factors in CFIT accidents ?***



**NTSB**



# Lessons Learned: I-IMC

- Marginal VFR / Dark Night



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- Lack of backup plan
- Pressure to succeed
- Past accomplishment



# Lessons Learned: I-IMC

- Marginal VFR / Dark Night
- Reluctance to abandon plan
- Lack of backup plan
- Pressure to succeed
- Past accomplishment
- Unfamiliar with flight route





# Cessna 182P Juneau, Alaska



# Southeast Alaska



Remote inland fjords  
Coastal waterways  
Steep mountainous terrain

# Overview

- July 24, 2011, Juneau, Alaska
- Hoonah to Juneau (35 miles)
- VFR Flight
- Time of accident 6:45 AM
- 2 occupants (Fatal)
- Husband and wife.





# Flight Crew

- Pilot, 77 years old
- 8,300 flight hours
- Instrument rated
- Third-class medical / Glasses



# Weather at departure

## Hoonah Airport:

- Wind, calm
- Visibility, 10 miles
- 3,500 feet overcast
- Temperature, 57 degrees F; dew point, 55 degrees F



# Weather at destination

## Juneau International Airport:

- Wind, 090 at 8 knots
- Visibility, 5 miles / light rain & mist
- 2,800 feet broken
- 3,600 feet overcast
- Temperature, 55 degrees F; dew point, 55 degrees F





# Witnesses in Juneau

“Weather much worse in the direction of the accident site (Douglas Island) than being reported at the airport”



# Juneau International Airport

- 121 Operators
- 135 Operators
- 91 Activity
- Surrounded by mountains



# History of Flight

- Departed Hoonah about 6:30 AM
- No weather brief
- Contact with Juneau Tower
- 10 miles SW, at 6:43 AM
- Faint sound of ELT

# Search

- Juneau Mountain Rescue
- US Coast Guard
- Alaska State Troopers
- NTSB
- FAA



# Engine





# Wreckage located

- 3,100 foot level
- Mountainous terrain
- Fragmented wreckage
- 2 occupants, deceased



# On scene



# On scene





# On scene



# On scene



NTSB



# Wreckage recovery



NTSB

# Wreckage recovery

Engine



Airframe





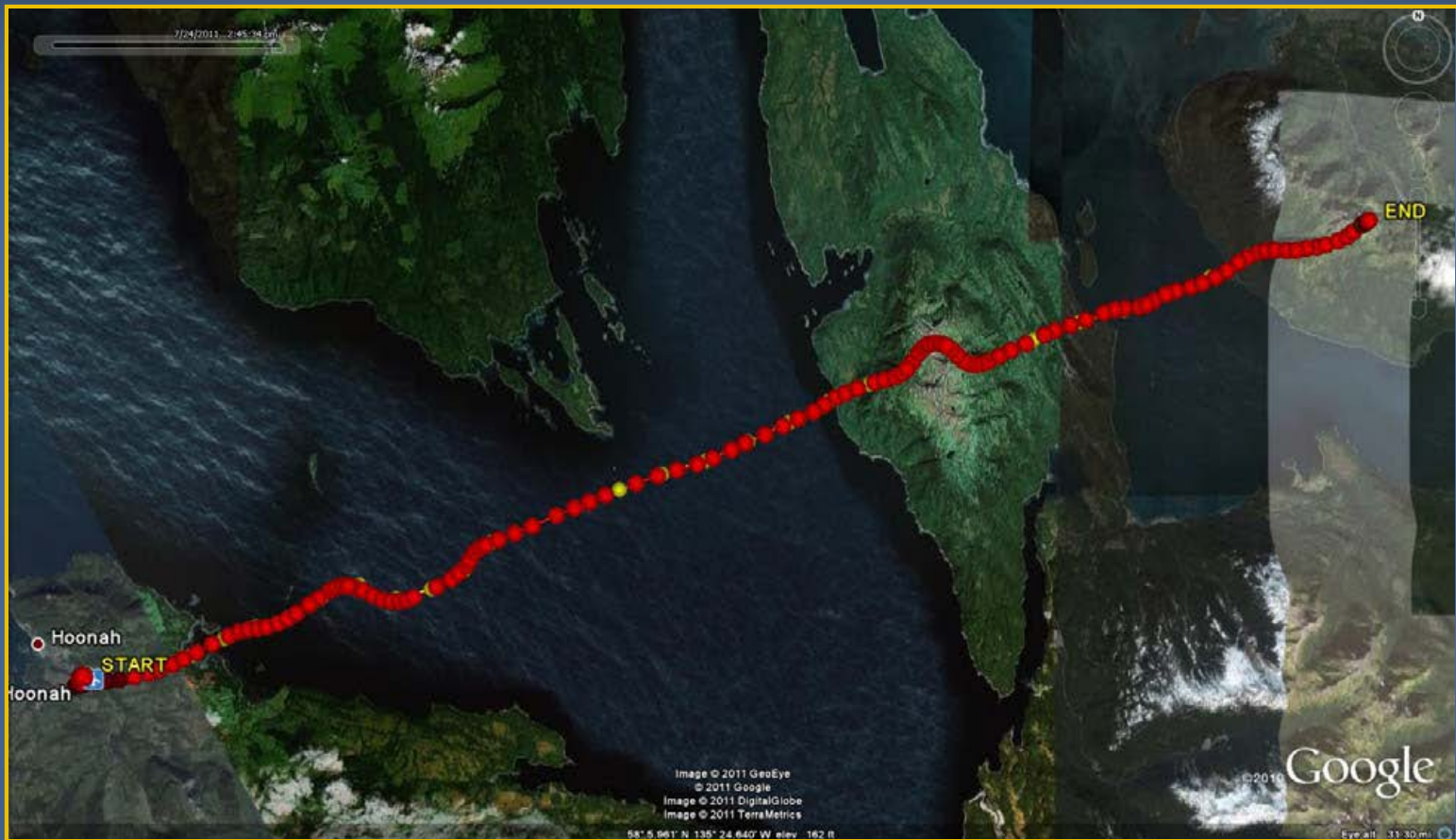
# Wreckage recovery



# Garmin 495 GPSMAT

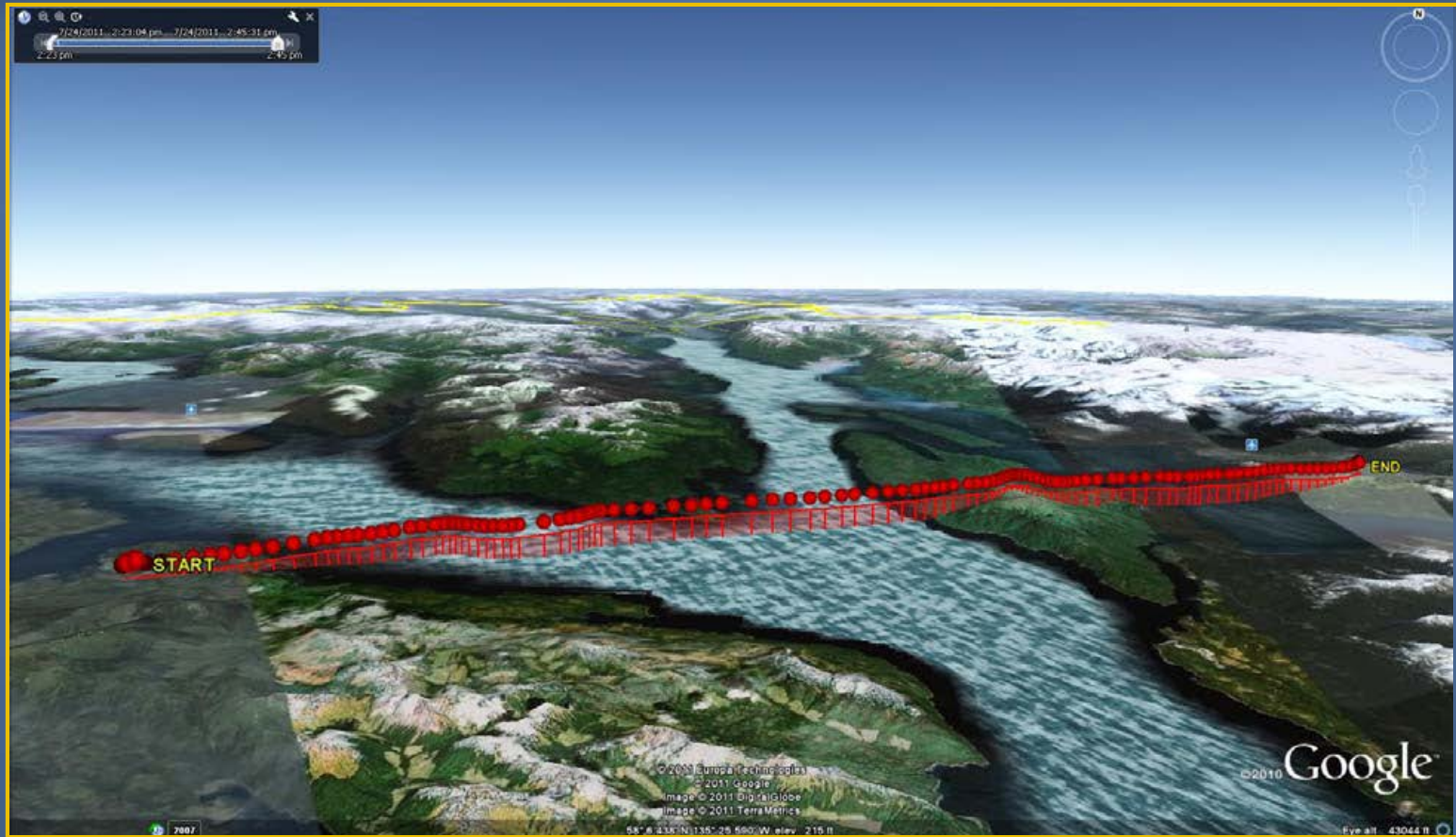


# NTSB data download





# NTSB data download



# Findings

## GPS DATA

Juneau (Downtown) Seaplane Base

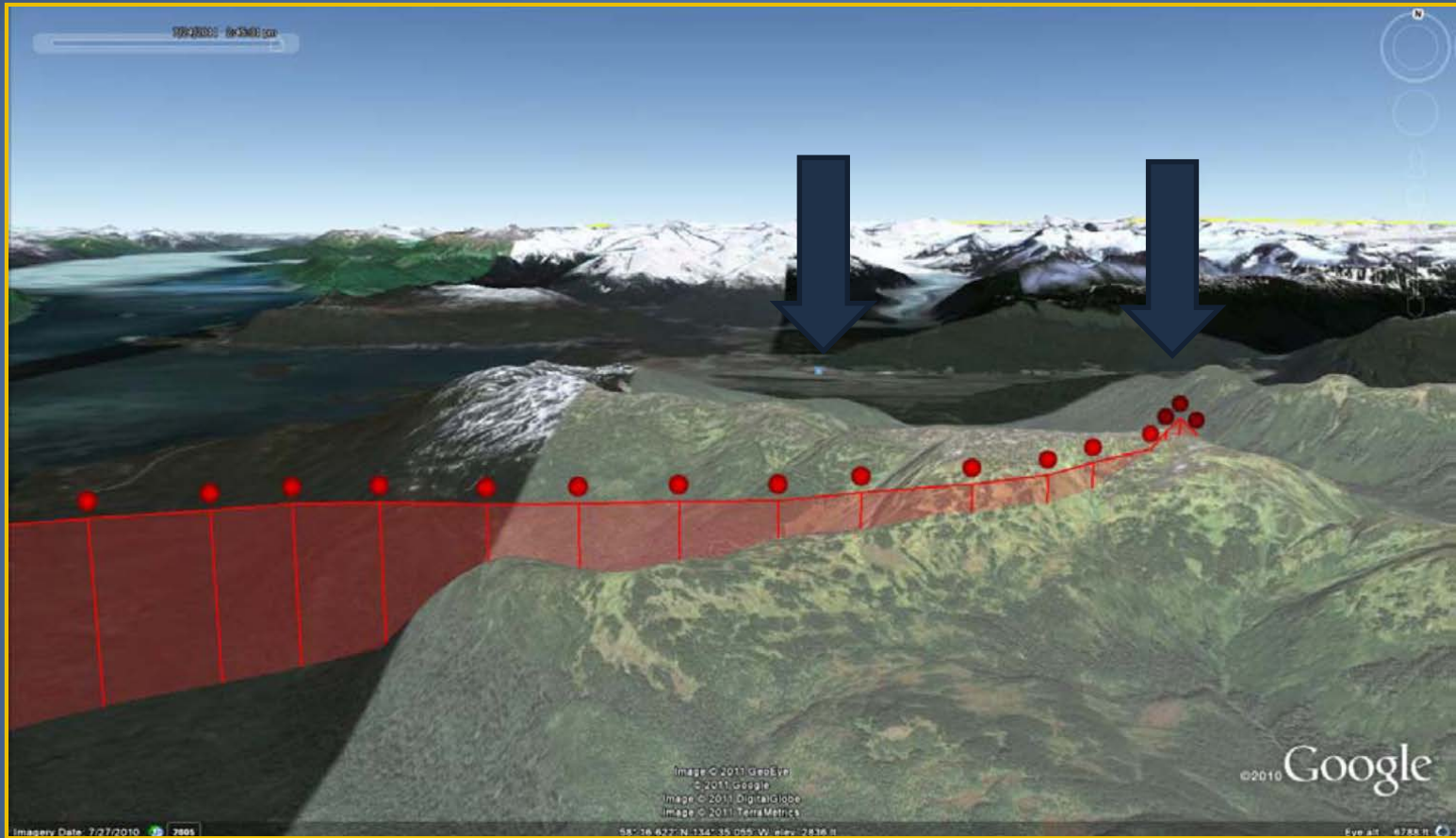
Vs.

Juneau International Airport



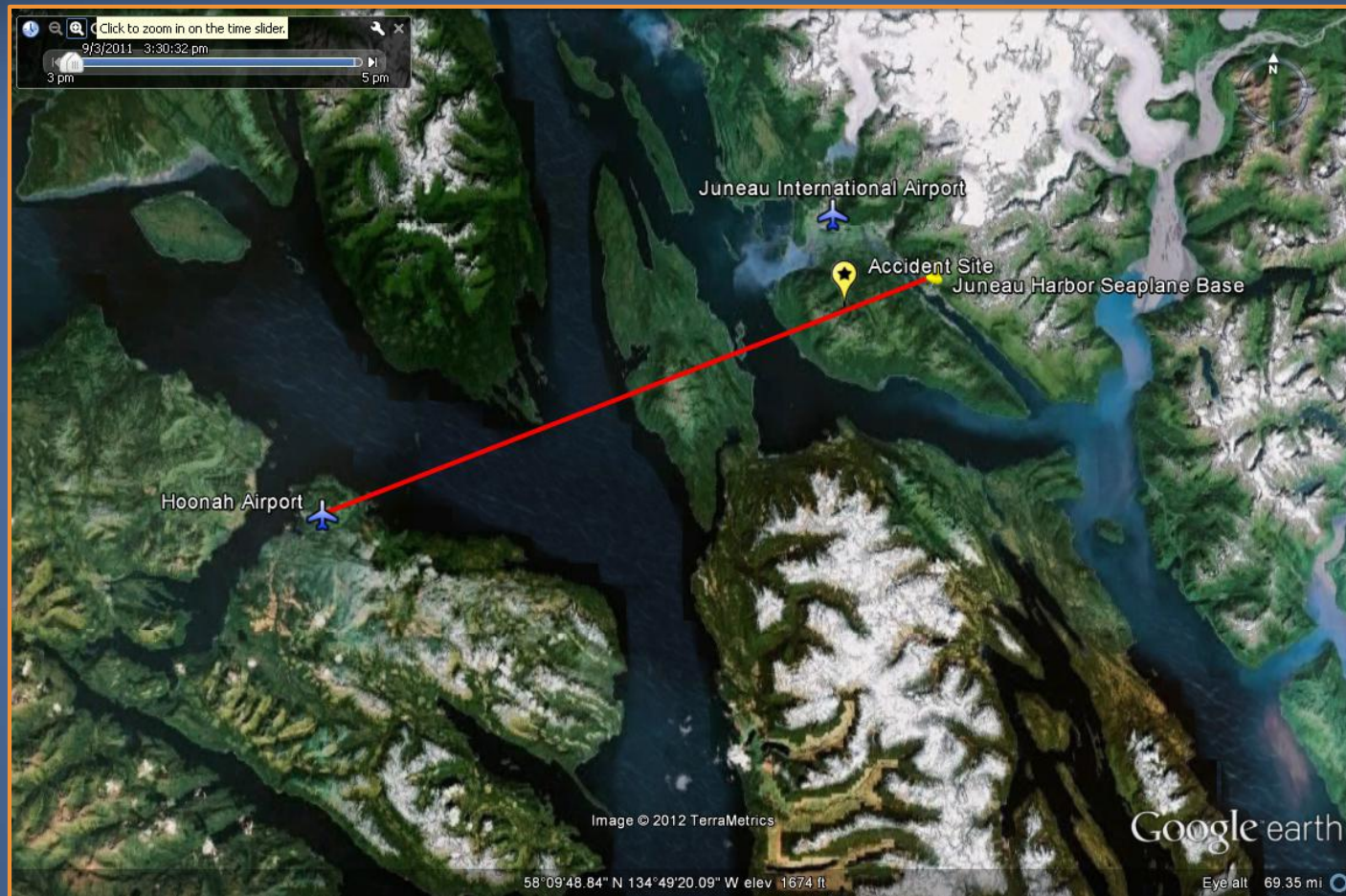
NTSB

# NTSB data download



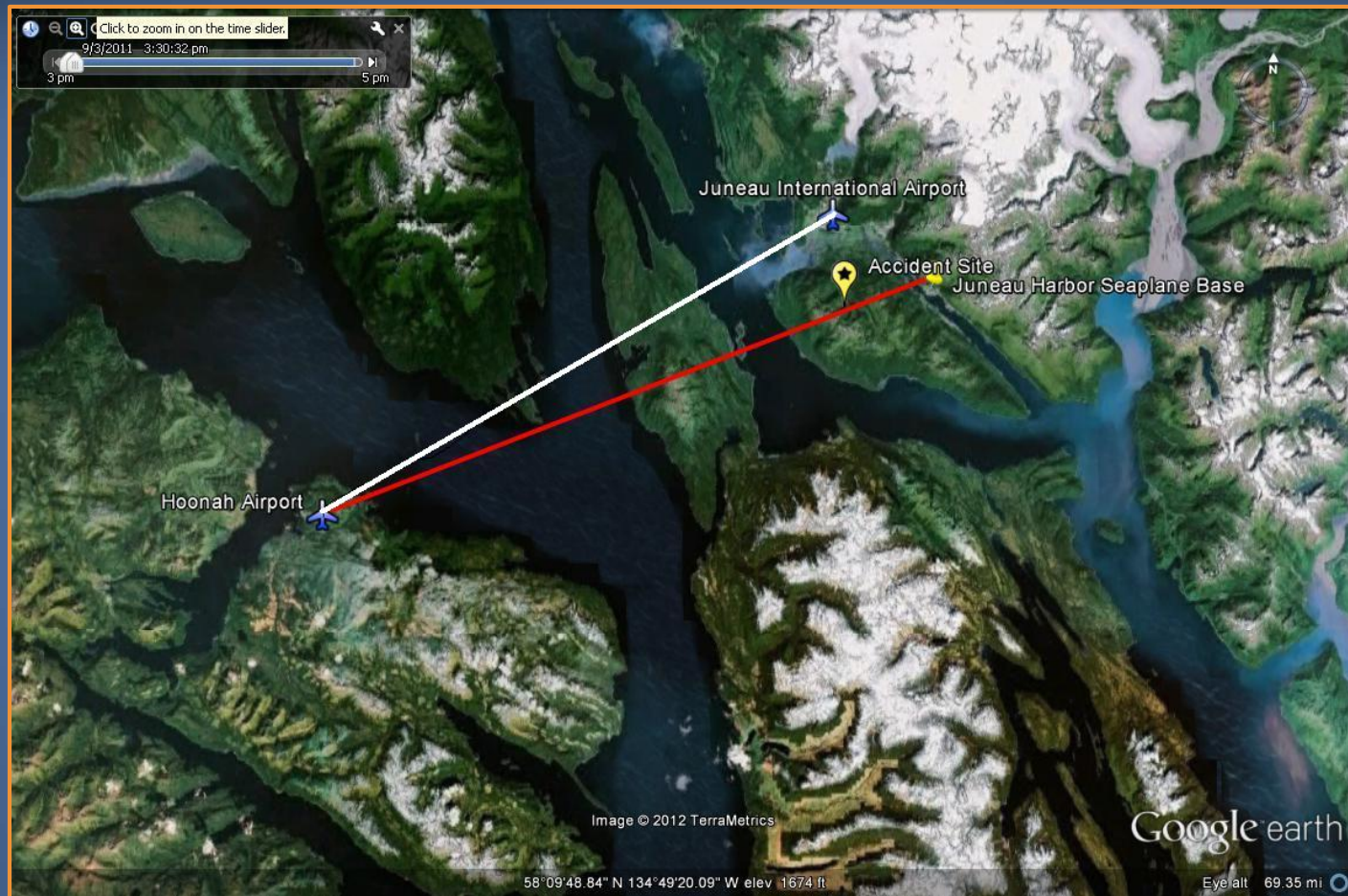


# Actual flight path



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# Intended flight path



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## Now the rest of the story...

- Moving to Hoonah
- Anchorage to Juneau – IFR
- Missed flight that evening
- Wife's return for work
- Alaska Airlines Flight, 7:28 AM
- (Accident time **6:45** AM)





# Review

- Late departure
- Missed flight
- Wife's job
- Poor weather along route
- Unfamiliar with area
- Wrong destination airport (W/P)

# Review

- VFR flight
- Self induced pressure
- Poor weather along route
- Unfamiliar with area
- **Wrong destination airport (W/P)**



# NTSB Probable Cause

*The National Transportation Safety Board determines the probable cause(s) of this accident as follows.*

**The pilot's continued visual flight into instrument meteorological conditions, which resulted in an in-flight collision with mountainous terrain. Contributing to the accident was the pilot's self-induced pressure to reach his destination.**





***“From tragedy we draw knowledge to improve the safety of us all”***



**NTSB**