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The NTSB Investigation Process (w/Case Study)

Hawaii Weather Cameras

Jim VanDerKamp – NTSB Air Safety Investigator

Filling in for… Paul Suffern – NTSB Meteorologist Investigator

HAWAIIAN AIRLINES


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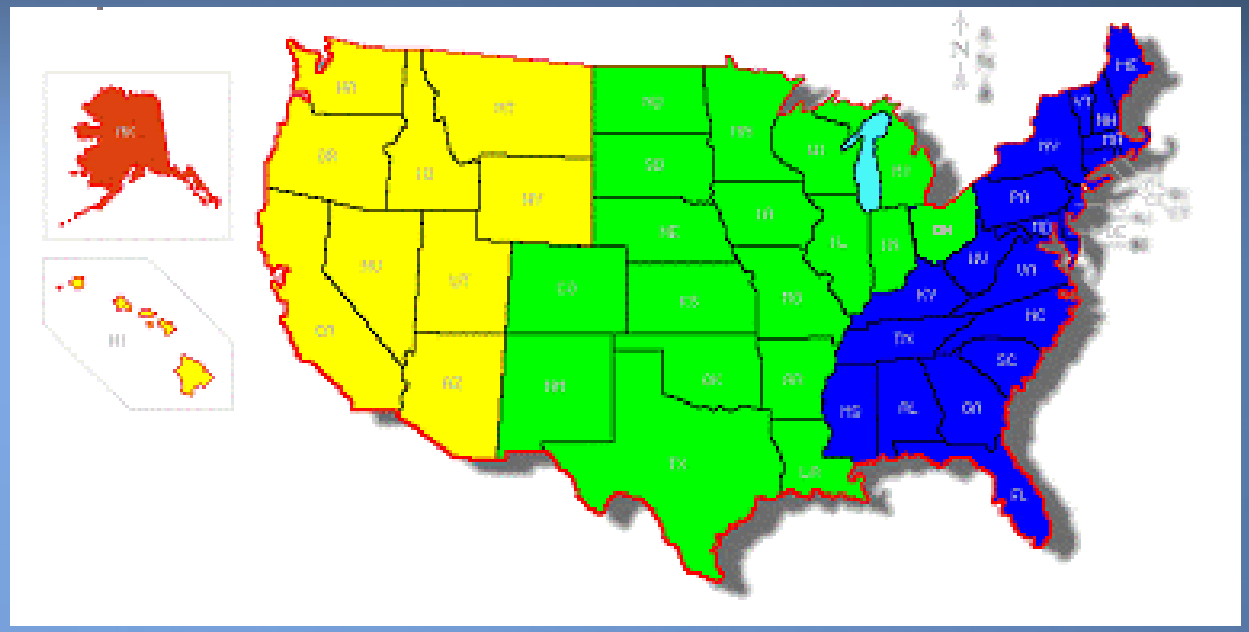
NTSB Governance

- Five-member board
- **Reports directly to Congress**
- **Independent federal agency** (not part of FAA)
- **No regulatory authority**
- Staff of accident investigators and specialists in various fields

NTSB Modes and Personnel

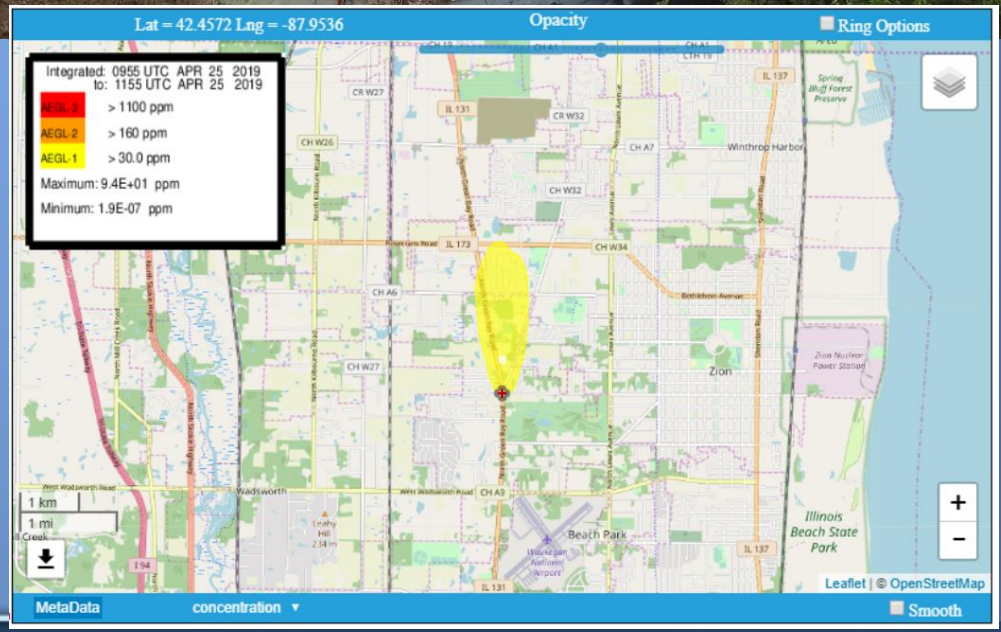
- HQ in Washington, DC
- 4 regional offices
- About 350 employees total
    - ≈ 110 AS investigators



- Investigations in all modes
- - Aviation
- - Marine
- - Pipeline/Haz Mat
- - Highway
- - Railroad
- - Commercial Space


Direction of Travel
(24) TILX 363368
DOT-117J
(25) TCBX 194145
DOT-111
(22) TILX 351873
DOT-117R (31.8)
(26) GATX 225797
DOT-117J


SCANDIES ROSE


Lat = 42.4572 Lng = -87.9536
Opacity
Ring Options
Integrated: 0955 UTC APR 25 2019
to: 1155 UTC APR 25 2019
AEGL-3 > 1100 ppm
AEGL-2 > 160 ppm
AEGL-1 > 30.0 ppm
Maximum: 9.4E+01 ppm
Minimum: 1.9E-07 ppm
Zion
Waukegan
Beach Park
Illinois Beach State Park
Leaflet | © OpenStreetMap
MetaData
concentration
Smooth

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Initial Notification & Launch

- Response Operations Center (ROC)
- Usually Media or FAA
- Collect/verify info
- Notify parties

- Go-Team
  - Top Hat meeting
  - IIC, Group Chairmen, Board Member, Transportation Disaster Assistance, Public Affairs, General Council, etc.

Launch considerations

- Any aviation accident - **6 or more fatalities**
- Any fatal accident - **Part 121 or 129 air carrier, or Part 135 operator**
- Any aviation accident, incident, or event - **national media**
- Any aviation accident or incident - **celebrity or renowned person**
- Any accident that results in **the destruction of an urban air mobility vehicle**
- Any fatal accident - **remotely piloted vehicle** or **commercial spacecraft**

Meteorology Group

- Two main themes to an investigation
    - **- Define** what the **environment** was

- Assess integrity, availability of all **weather information** supporting user decision-making and situational awareness

- Review/evaluate weather products and services
    - NWS, FAA, Operator dispatch/private weather services, etc…
    - Conduct formal interviews as necessary
    - Identify safety concerns, develop recommendations

- Regularly collaborate with ATC, OPS, HP, RE, all other modes and NTSB groups

The NTSB Investigative Process

On duty MET

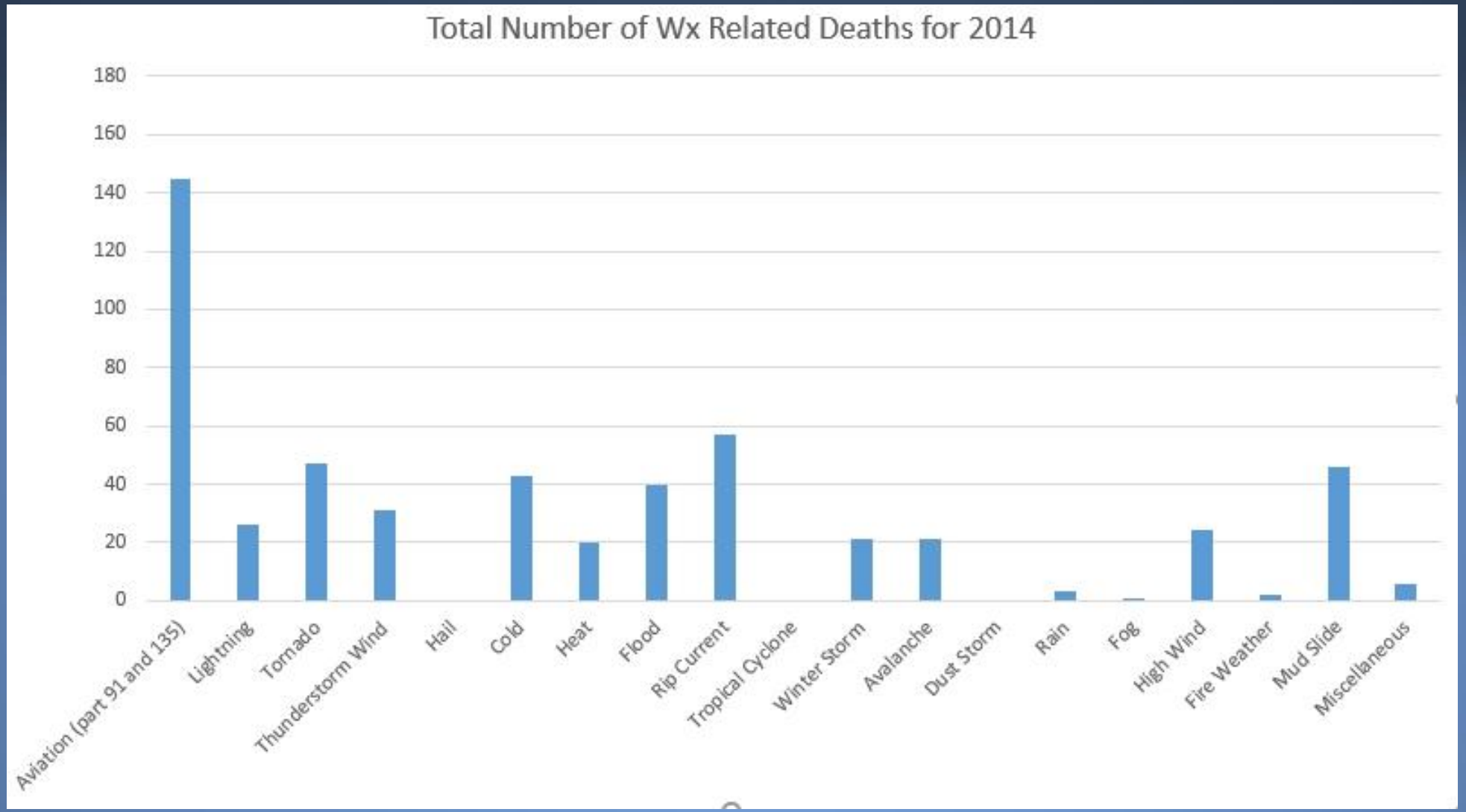
Fatal or non-fatal accidents we get an email, SAFTI support request, call, text…etc

Sometimes incidents too

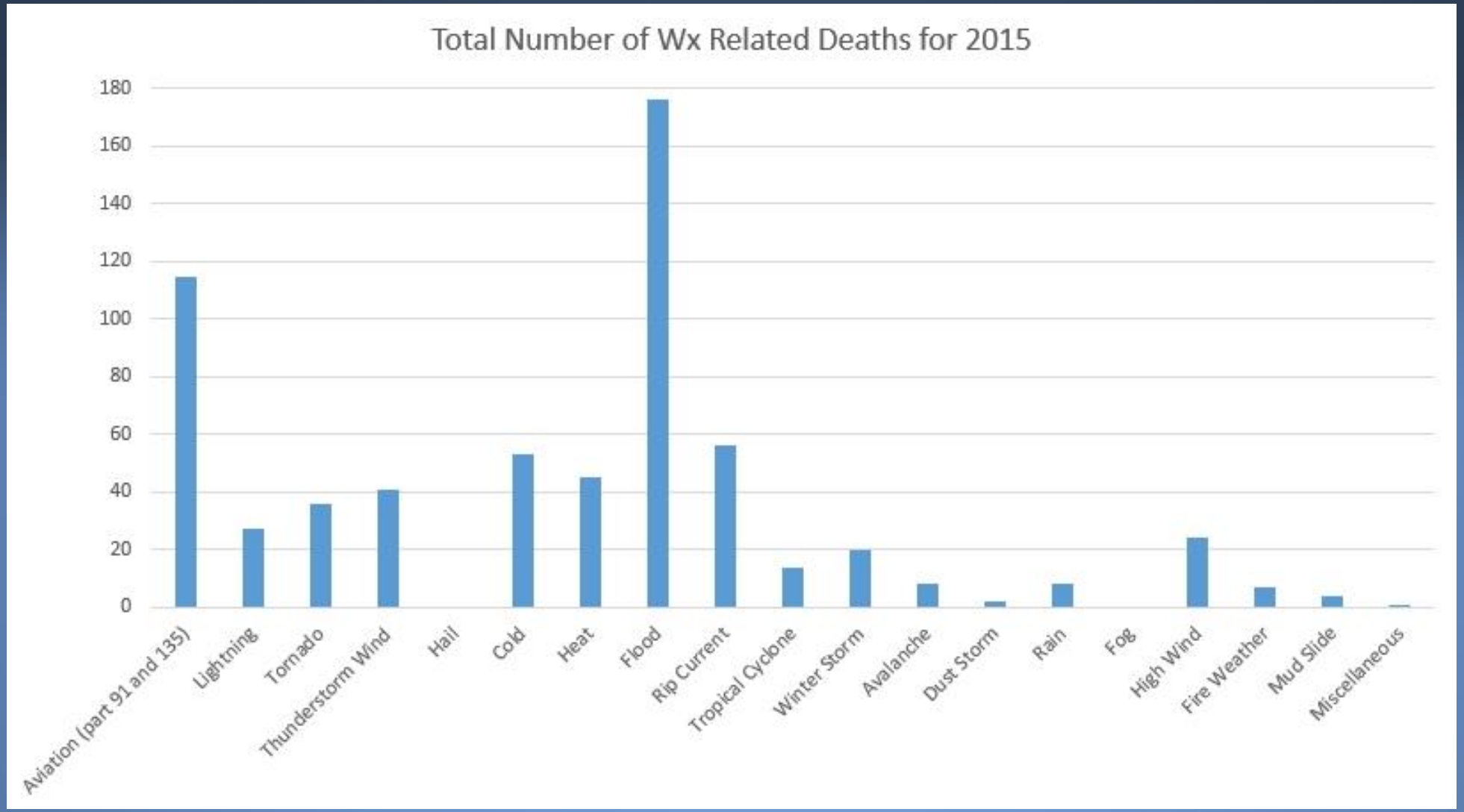
The NTSB Investigative Process

Call and coordinate with other investigators such as ATC, Operations, RE, etc…

Call NWS Forensics Manager



- Highest weather-related fatalities occurred in Aviation - Part 91 and 135


Total Number of Wx Related Deaths for 2015
180
160
140
120
100
80
60
40
20
0
Aviation (part 91 and 135)
Lightning
Tornado
Thunderstorm Wind
Hail
Cold
Heat
Flood
Rip Current
Tropical Cyclone
Winter Storm
Avalanche
Dust Storm
Rain
Fog
High Wind
Fire Weather
Mud Slide
Miscellaneous

Organizing the Investigation

- Initial Organization Mtg
  - Whole team present
  - No lawyers or media
- Share preliminary info
  - First responders
- Brief on rules and procedures
- IIC designates parties, observers, etc.
  - Investigative groups formed
- Daily progress meetings – ***factual*** info only

Possible Parties

Party Participants

- Party Coordinator
  - Oversees all participants of the organization
  - Senior enough to address safety issues
  - Not too high (availability) or financial/legal

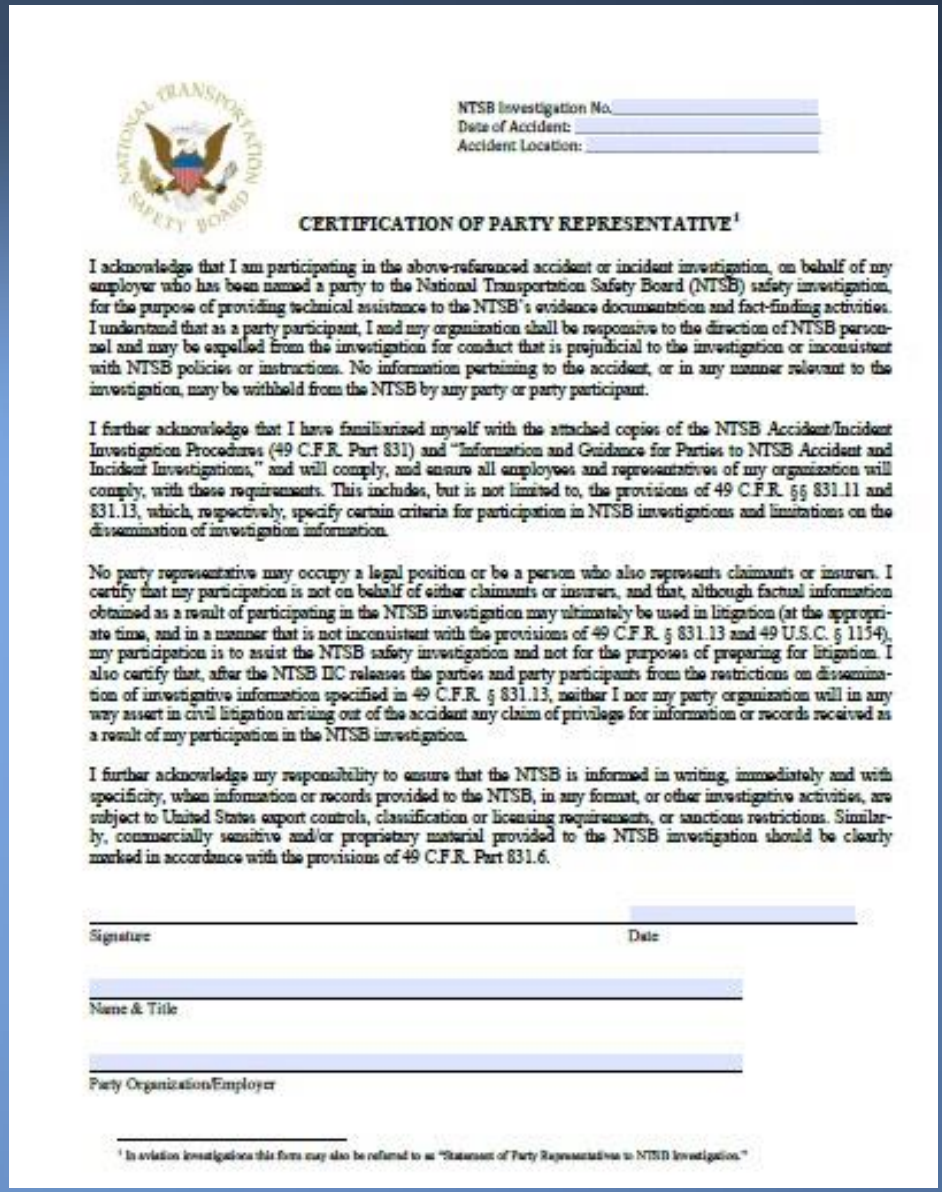
- Group Members
  - *"…suitable qualified technical personnel to actively assist…"*

Party Process

- Certification of Party Representative

- Role and responsibilities
- NWSI 10-2006
- Requests will be directed through the NWS Forensics Manager and the Region

- Restrictions on release of information



NTSB Investigation No._____
Date of Accident: _____
Accident Location: _____

CERTIFICATION OF PARTY REPRESENTATIVE[1]

I acknowledge that I am participating in the above-referenced accident or incident investigation, on behalf of my employer who has been named a party to the National Transportation Safety Board (NTSB) safety investigation, for the purpose of providing technical assistance to the NTSB's evidence documentation and fact-finding activities. I understand that as a party participant, I and my organization shall be responsive to the direction of NTSB personnel and may be expelled from the investigation for conduct that is prejudicial to the investigation or inconsistent with NTSB policies or instructions. No information pertaining to the accident, or in any manner relevant to the investigation, may be withheld from the NTSB by any party or party participant.

I further acknowledge that I have familiarized myself with the attached copies of the NTSB Accident/Incident Investigation Procedures (49 C.F.R. Part 831) and "Information and Guidance for Parties to NTSB Accident and Incident Investigations," and will comply, and ensure all employees and representatives of my organization will comply, with these requirements. This includes, but is not limited to, the provisions of 49 C.F.R. §§ 831.11 and 831.13, which, respectively, specify certain criteria for participation in NTSB investigations and limitations on the dissemination of investigation information.

No party representative may occupy a legal position or be a person who also represents claimants or insurers. I certify that my participation is not on behalf of either claimants or insurers, and that, although factual information obtained as a result of participating in the NTSB investigation may ultimately be used in litigation (at the appropriate time, and in a manner that is not inconsistent with the provisions of 49 C.F.R. § 831.13 and 49 U.S.C. § 1154), my participation is to assist the NTSB safety investigation and not for the purposes of preparing for litigation. I also certify that, after the NTSB IIC releases the parties and party participants from the restrictions on dissemination of investigative information specified in 49 C.F.R. § 831.13, neither I nor my party organization will in any way assert in civil litigation arising out of the accident any claim of privilege for information or records received as a result of my participation in the NTSB investigation.

I further acknowledge my responsibility to ensure that the NTSB is informed in writing, immediately and with specificity, when information or records provided to the NTSB, in any format, or other investigative activities, are subject to United States export controls, classification or licensing requirements, or sanctions restrictions. Similarly, commercially sensitive and/or proprietary material provided to the NTSB investigation should be clearly marked in accordance with the provisions of 49 C.F.R. Part 831.6.

Signature _____ Date _____

Name & Title _____

Party Organization/Employer _____

[1] In aviation investigations this form may also be referred to as "Statement of Party Representatives to NTSB Investigation."

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NWS Instruction: 10-2005 Handling and Releasing Accident-Related Weather Information

- **Notify regional HQ** of any request for data for an investigation.
- The **Forensics Manager at HQ** will coordinate with the appropriate RH or local office manager to arrange these interviews.
- Information in interviews and statements should be confined to functions and responsibilities relating to the NWS or accident.

WFO Decision Support Services for NTSB Investigation Team

- The NTSB may request weather support for the investigation team
- The WFO will provide a **weather watch** for high impact weather at the accident site
- The WFO will provide spot forecasts for the team
  - Normally for the daytime
  - The NTSB will provide the WFO with contact information and their forecast needs through the ROCs

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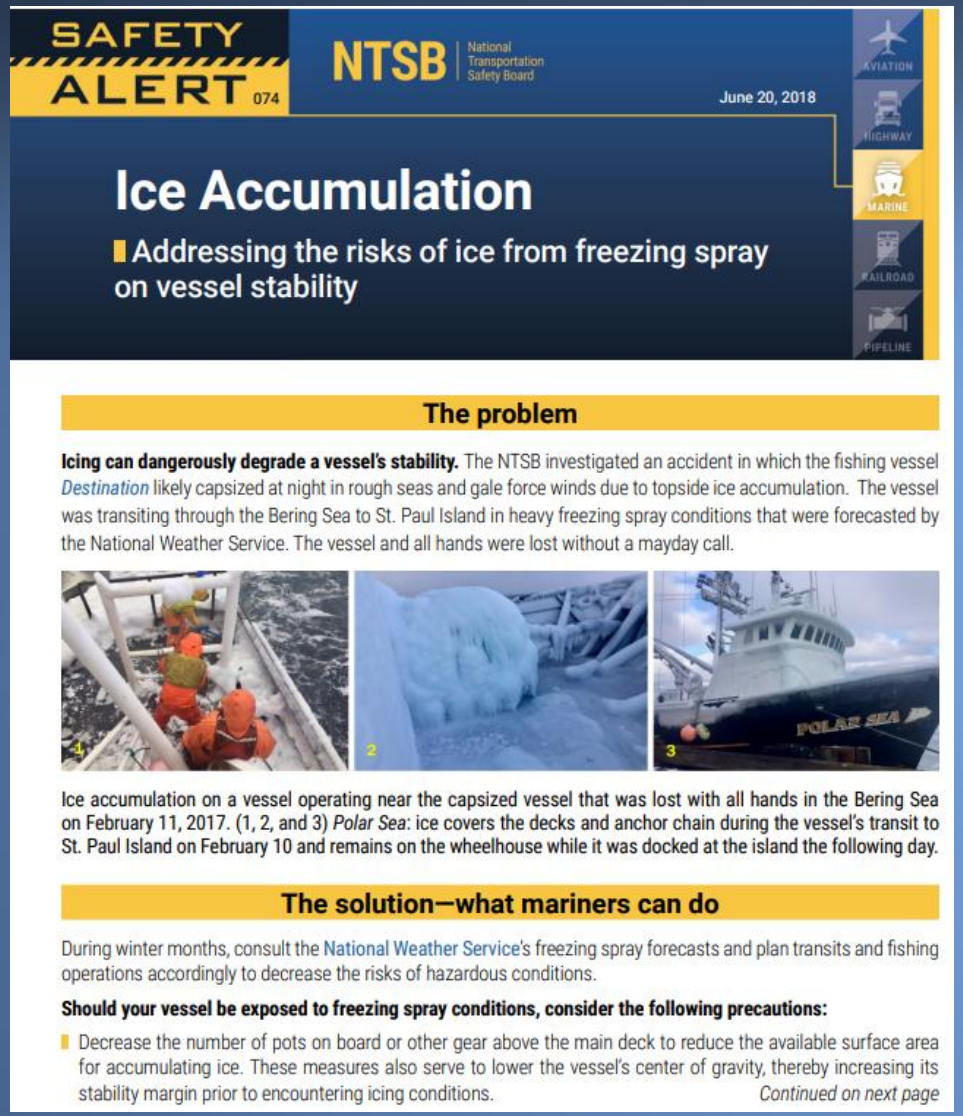
Example of Safety Work



SAFETY ALERT 074

NTSB National Transportation Safety Board

June 20, 2018

AVIATION HIGHWAY MARINE RAILROAD PIPELINE

Ice Accumulation

Addressing the risks of ice from freezing spray on vessel stability

The problem

Icing can dangerously degrade a vessel's stability. The NTSB investigated an accident in which the fishing vessel *Destination* likely capsized at night in rough seas and gale force winds due to topside ice accumulation. The vessel was transiting through the Bering Sea to St. Paul Island in heavy freezing spray conditions that were forecasted by the National Weather Service. The vessel and all hands were lost without a mayday call.

Ice accumulation on a vessel operating near the capsized vessel that was lost with all hands in the Bering Sea on February 11, 2017. (1, 2, and 3) *Polar Sea*: ice covers the decks and anchor chain during the vessel's transit to St. Paul Island on February 10 and remains on the wheelhouse while it was docked at the island the following day.

The solution—what mariners can do

During winter months, consult the National Weather Service's freezing spray forecasts and plan transits and fishing operations accordingly to decrease the risks of hazardous conditions.

Should your vessel be exposed to freezing spray conditions, consider the following precautions:

- Decrease the number of pots on board or other gear above the main deck to reduce the available surface area for accumulating ice. These measures also serve to lower the vessel's center of gravity, thereby increasing its stability margin prior to encountering icing conditions.

Continued on next page

To the North Pacific Fishing Vessel Owners' Association:

Notify your members (Bering Sea/Aleutian Islands Crabbers/Fishing Vessel fleet) of the specifics of this accident, the amount of ice assumed when developing stability instructions, and the dangers of icing. (M-21-09)

To the National Oceanic and Atmospheric Administration:

Increase the surface observation resources necessary for improved local forecasts for the Sutwik Island and Chignik Bay region in Alaska. (M-21-10)

To the National Weather Service:

Make your Ocean Prediction Center freezing spray website operational and promote its use in the industry. (M-21-11)

Examples of Safety Work

- ***A-14-20: TO THE NATIONAL WEATHER SERVICE: Establish a protocol that will enhance communication among meteorologists at the center weather service units, the Aviation Weather Center, and as applicable, other National Weather Service facilities to ensure mutual situation awareness of critical aviation weather data among meteorologists at those facilities.***

- ***A-18-21: TO THE NATIONAL WEATHER SERVICE: Revise National Weather Service Instruction 10-811 to include guidance on the issuance of airmen's meteorological information advisories and other products that advise of nonconvective turbulence hazards when convective significant meteorological information advisories are active, or may be issued, in the same region.***

A-18-22: TO THE NATIONAL WEATHER SERVICE: Develop and provide formal training to your aviation weather forecasters on the analysis, interpretation, and forecasting of low-level turbulence.

A-21-43: TO THE NATIONAL WEATHER SERVICE: Work with the FAA to modify AIRMET advisory issuing practices to include graphical AIRMET advisories with higher granularity taking into account the effect it would have on all NAS users.

What happens next…

- Group Field Notes
- Group Factual Report
- Group Chair's Analysis
- Probable Cause
- Board Meeting…?
- Recommendations


N985SA

NTSB Board Meeting - Collision into Terrain Safari Aviation Inc. Airbu...

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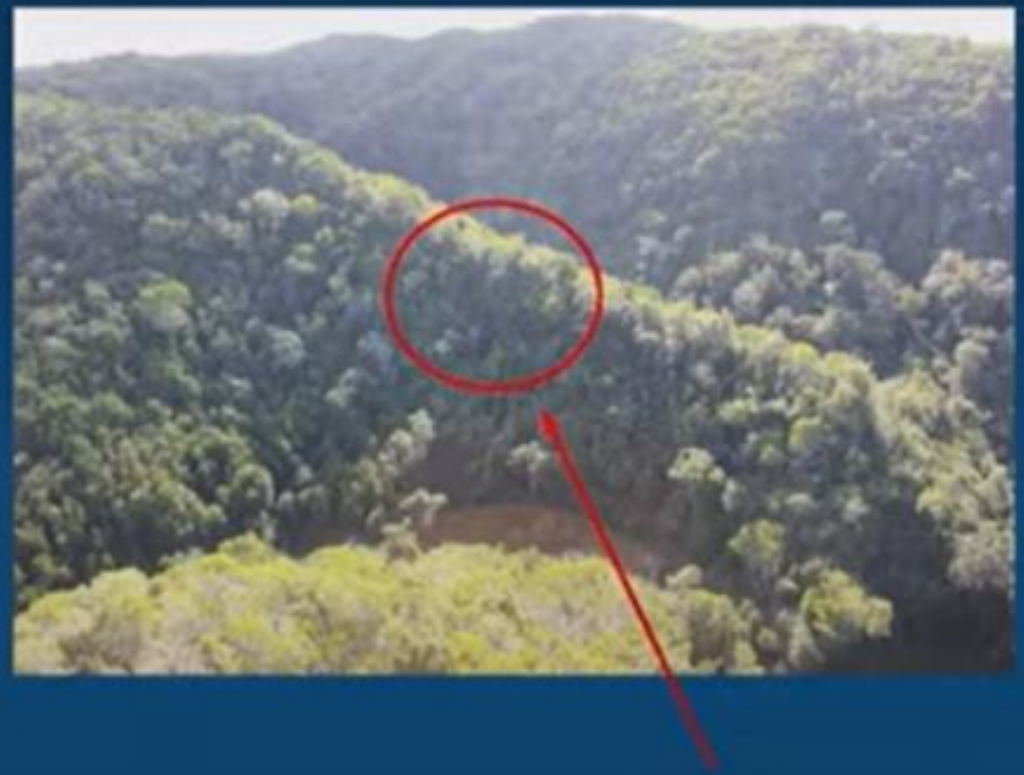
General Information

- December 26, 2019
- 4:57 p.m. Hawaii standard time
- Airbus AS350 B2 helicopter
- Safari Aviation Inc.
- Collided into terrain about 11 miles north of Kekaha, Hawaii
- Pilot and six passengers fatally injured



MORE VIDEOS

NTSB Board Meeting - Collision into Terrain Safari Aviation Inc. Airbu...

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Accident Pilot

- Chief pilot
- Arrived at office at 6:45 a.m.
- Printed weather
- Scheduled to perform eight 50-minute tours
- 1-hour lunch break

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Hawaii-Pacific Aviation Weather Safety Workshop - June 2023


NTSB Board Meeting - Collision into Terrain Safari Aviation Inc. Airbu...
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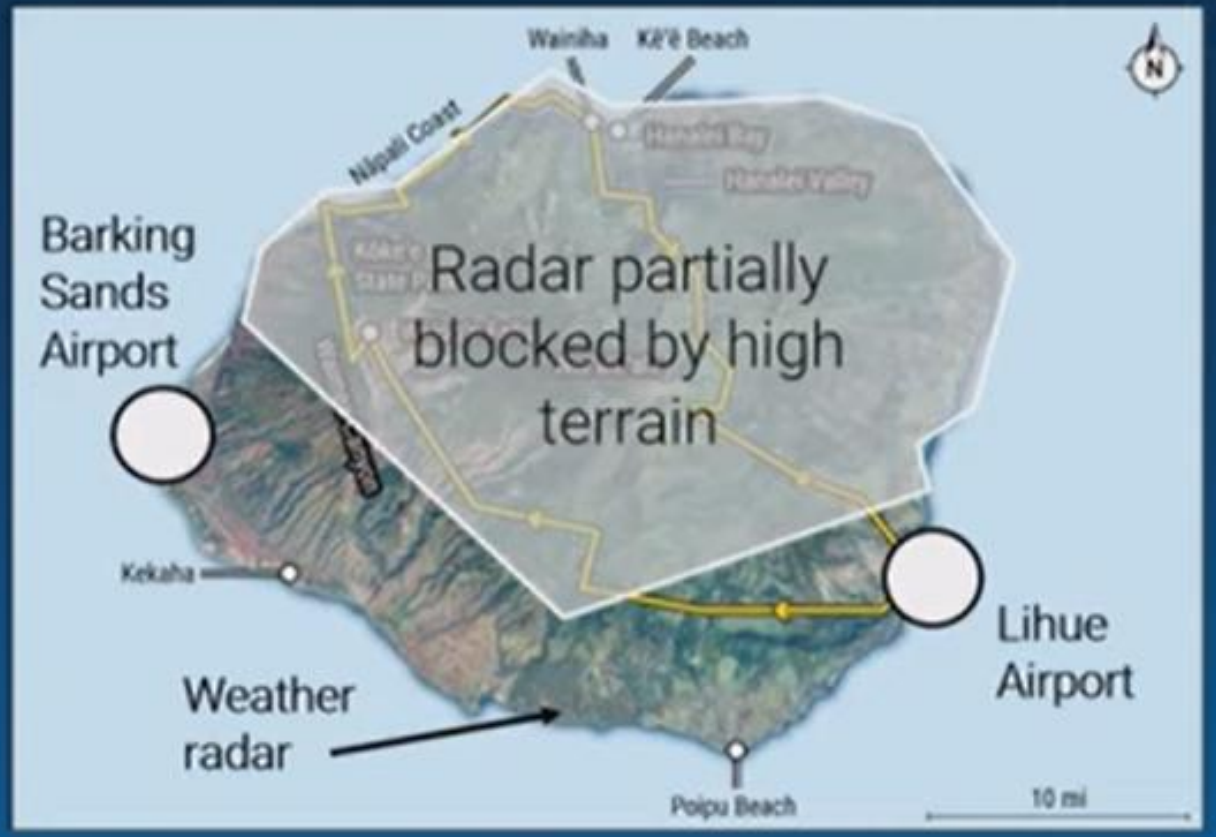
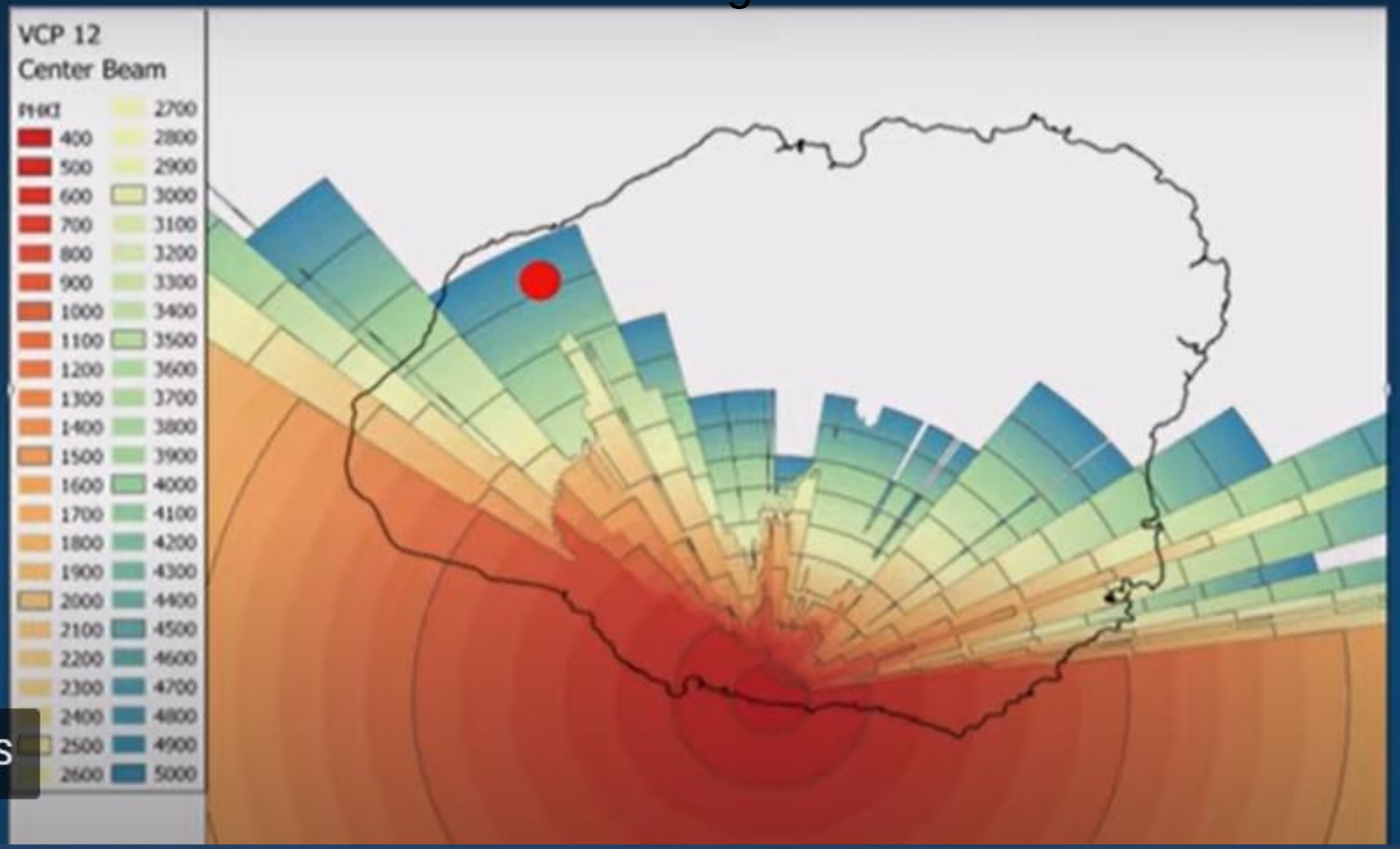
Lack of Relevant Weather Information

- Weather radar from facility on south side partially blocked by high terrain
- Pilots in Lihue had limited information about changing conditions on north side
- Lack of relevant information increases difficulty of making appropriate decisions before each flight



NTSB Board Meeting – Collision into Terrain Safari Aviation Inc. Airbus Limited Weather Radar Coverage Below 5000 ft.



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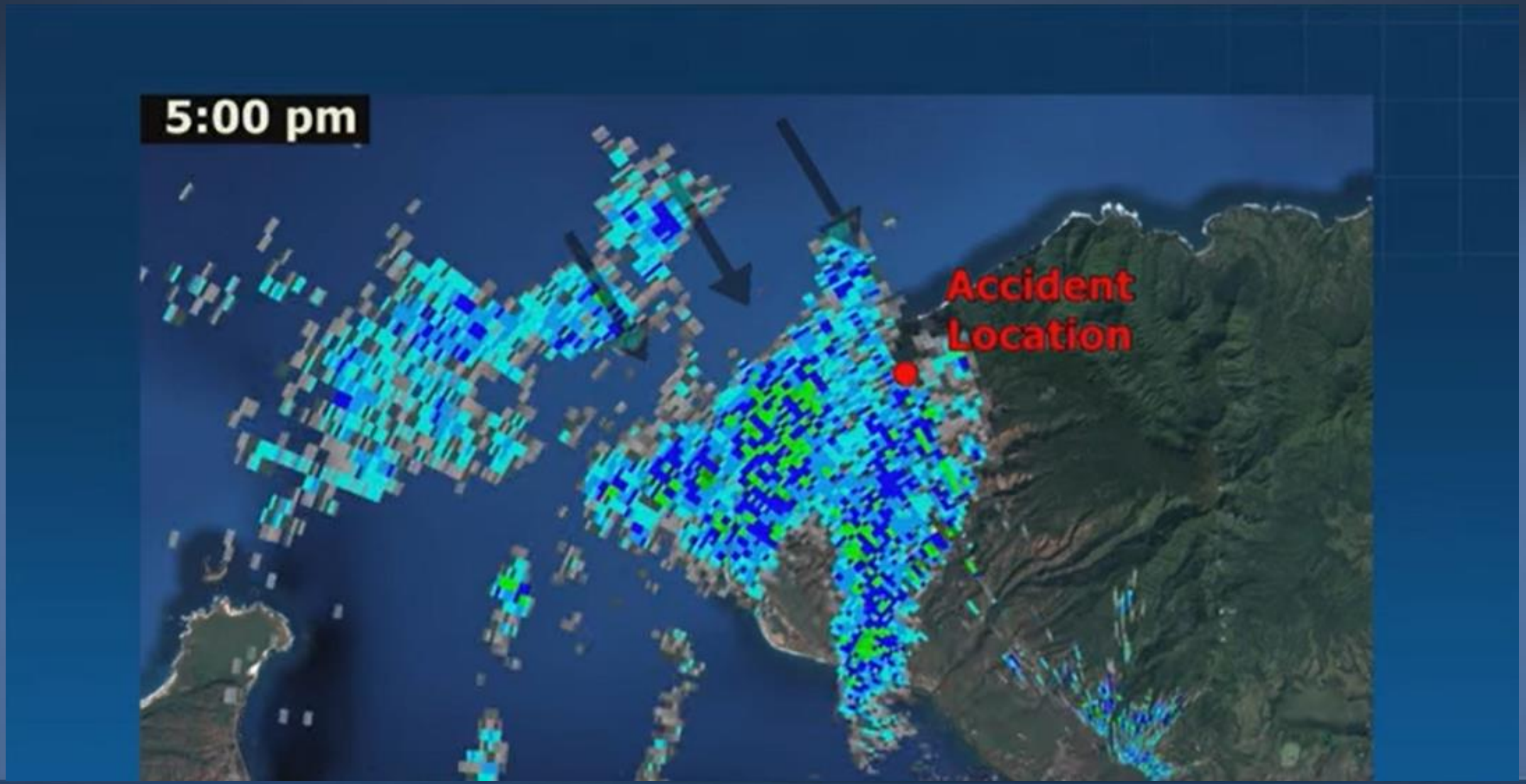
5:00 pm
Accident Location

Accident Flight

Accident Site

- Witness on hiking trail
- Heavy rain between 4:00 and 4:45 p.m.
- Dense fog with about 20 ft visibility
- Heard helicopter for about 30 to 50 seconds

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NTSB Board Meeting - Collision into Terrain Safari Aviation Inc. Airbu...

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Factors that Likely Influenced Pilot's Decision to Continue Flight into Deteriorating Conditions

- Atypical weather pattern
- Lack of relevant weather information

MORE VIDEOS

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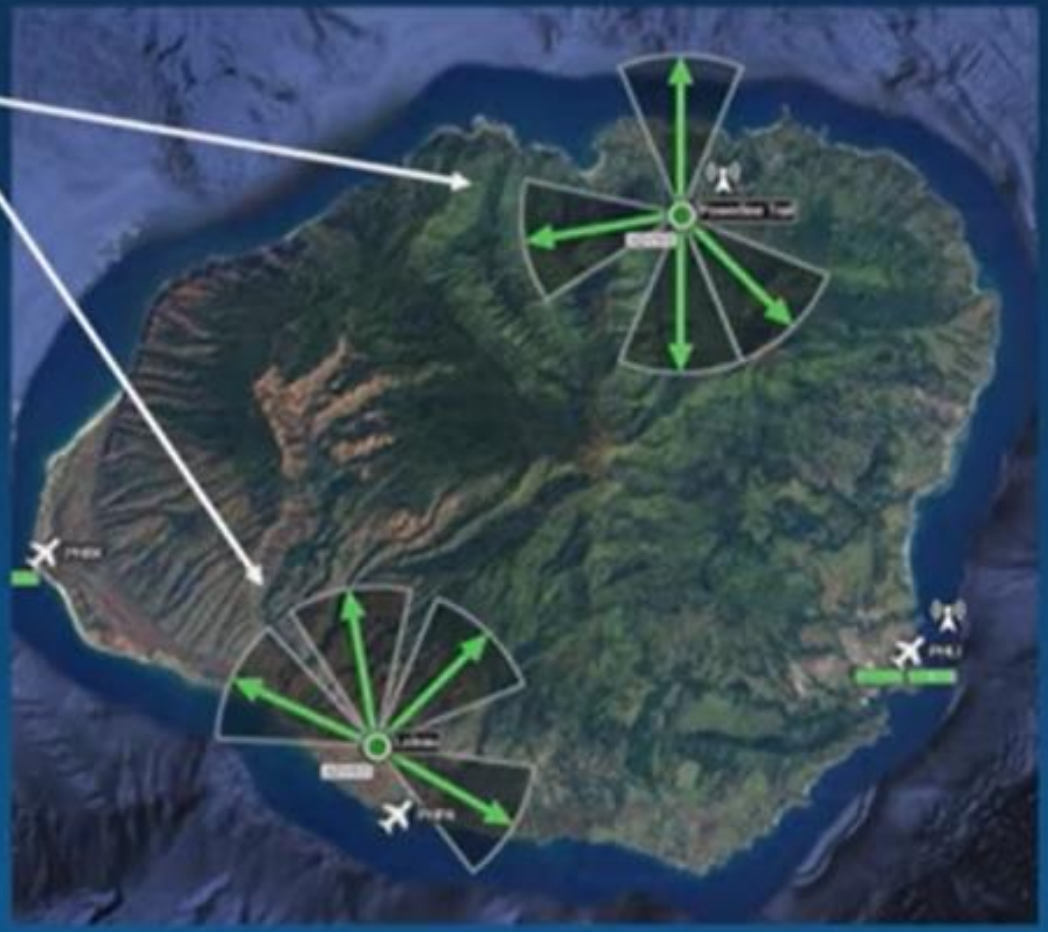
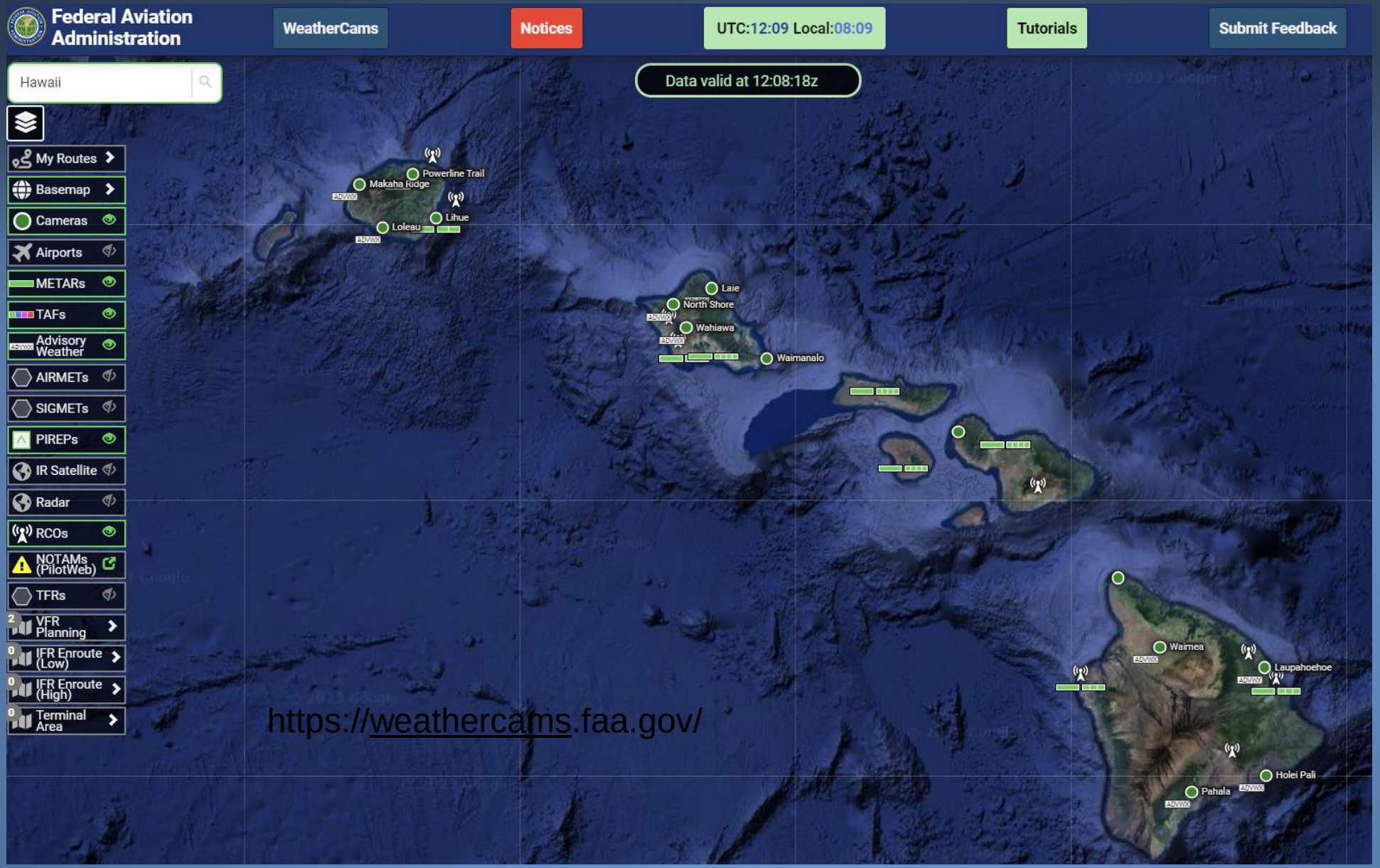
Atypical Weather Pattern

- Accident occurred in high terrain north of Waimea Canyon (orange circle)
- Pilots cannot see that area when flying inside canyon
- Good weather present during pilot's previous flight but conditions deteriorated
- When pilot reached north Waimea Canyon, low clouds, rain, and reduced visibility present

What We Found: *Need for Aviation Weather Cameras*

- In 2021, FAA installed two camera facilities on Kauai
- Neither shows northwest side of island
- What we propose:
  - One reiteration to FAA (A-13-25)




Federal Aviation Administration
WeatherCams
Notices
UTC:12:09 Local:08:09
Tutorials
Submit Feedback
Hawaii
Data valid at 12:08:18z
My Routes
Basemap
Cameras
Airports
METARs
TAFs
Advisory Weather
AIRMETs
SIGMETs
PIREPs
IR Satellite
Radar
RCOs
NOTAMs (PilotWeb)
TFRs
VFR Planning
IFR Enroute (Low)
IFR Enroute (High)
Terminal Area
Powerline Trail
Makaha Ridge
Lihue
Loleau
Laie
North Shore
Wahiawa
Waimanalo
Waimea
Laupahoehoe
Holei Pali
Pahala
https://weathercams.faa.gov/

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Disclaimers

- Camera information designated FAA supplementary product **to improve situational awareness**
- Images generally **updated every 10 min**
- Time of last update is indicated
- **Current conditions may change due to rapidly developing weather**
- **Does not meet requirements of a regulatory compliant preflight briefing**

About WeatherCams

The camera information contained on this website is a designated FAA supplementary product. Camera images are generally updated every 10 minutes. The time of the last update is indicated on each image. Current site conditions may differ from displayed images due to a variety of reasons; i.e., rapidly changing conditions, image update frequency, optical distortion, etc.

As a supplementary product, these images may only be used to improve situational awareness. They may not be used to comply with regulatory requirements; e.g., to determine weather minimums for IFR flight, unless otherwise authorized by the Administrator of the FAA. METAR information is provided for planning purposes only.

Prior to every flight, pilots should gather all information vital to the nature of the flight. Pilots can receive a regulatory compliant preflight briefing using automated resources (e.g., 1800wxbrief.com) or from Flight Service by dialing 1-800-WX-BRIEF (992-7433).

Any Questions?

https://weathercams.faa.gov/

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Email: paul.suffern@ntsb.gov

Thank you for your interest in aviation safety.