Survival Flight Inc.
Fatal Accident
Bell 407
January 29th, 2019
Zaleski, Ohio

Matt Johnson
ATP-H, M-CFI, FAA-DPE
SP-IFR Air Medical Pilot
Part 135 Check Airman / Training Captain
Survival Flight Fatal Accident – Accident Summary

- 1/29/2019
- Part 135 HAA
- Viking Aviation, LLC dba Survival Flight Inc.
- Departed Mount Carmel Hospital, Grove City OH – 0628 hours.
- Destined for Holzer Meigs in Pomeroy OH 69 miles SE.
- Night VMC at departure.
- Snow Showers and areas of IMC along route.
- Requesting Hospital called 2 other providers with both declining for weather.
- SF was 3rd call.
Survival Flight Fatal Accident – Accident Summary

- SF Operational Control Specialist (OCS) called SF Base 14 and requested a Wx check with the duty pilot.
- Pilot accepted the flight within 28 seconds of the call.
- Pilot advised OCS the day pilot was "5 minutes away" and may take the flight.
- When the day pilot arrived at the base she proceeded to an already-started helicopter and departed.
- No record of accident pilot receiving Wx brief or accessing any Wx imagery.
- 0628 FDM indicates aircraft begins climb to 3000 and travels SE for 22 minutes.
- Fly's through first snow band.
- Attempts 180 degree turn shortly after entering second snow band.
- The helicopter impacted trees on the reciprocal heading of the flightpath.
Survival Flight Fatal Accident – Accident Summary

- Reported visibility was as low as 3 miles at the surface with light snow at Fairfield County Airport, which was located about 30 miles northwest of the accident site.
- Satellite imagery showed cloud cover moving southwest to northeast over the accident site.
- The NWS forecast valid for the accident area for the period before and during the accident flight indicated precipitation and MVFR ceilings along the proposed route of flight.
- AIRMET’s Tango and Zulu in effect.
Survival Flight Fatal Accident – Findings

3.1 Findings (NTSB Aircraft Accident Report)

1. The pilot likely encountered instrument meteorological conditions inadvertently when the helicopter flew through a snow band, which resulted in decreased visibility.

2. In an attempt to recover from the inadvertent instrument meteorological conditions (IIMC) encounter, the pilot began a 180° turn as part of an IIMC escape maneuver, in keeping with standard operating procedures, but did not maintain altitude and allowed the helicopter to descend until it impacted terrain.

3. None of the following were factors in the accident: (1) pilot qualifications*; (2) pilot medical conditions or impairment by alcohol or other drugs; (3) the airworthiness of the helicopter.

*B206/B407
The NTSB determines that the probable cause of this accident was Survival Flight’s inadequate management of safety, which normalized pilots’ and operations control specialists’ noncompliance with risk analysis procedures and resulted in the initiation of the flight without a comprehensive preflight weather evaluation, leading to the pilot’s inadvertent encounter with instrument meteorological conditions, failure to maintain altitude, and subsequent collision with terrain.
Survival Flight Fatal Accident – Wx Related Recommendations to the FAA

• **A-20-15** Install the latest software on your terminal doppler weather radars (TDWRs) and require the National Weather Service (NWS) to distribute Level II TDWR data to all of its users so they will have access to the most accurate precipitation information.

• **A-20-16** Require the National Weather Service (NWS) to add terminal doppler weather radar data to the HEMS Weather Tool

• **A-20-17** Require the National Weather Service (NWS) to provide capability in the HEMS Weather Tool to graphically display areas of weather radar limitations, including areas where beams may lack low-altitude coverage, areas that lack radar coverage, and areas of beam blockages.
Survival Flight Fatal Accident – Wx Related Recommendations to the NWS

- **A-20-18** Distribute Level II terminal doppler weather radar data to all of your users so they will have access to the most accurate precipitation information.

- **A-20-19** Add terminal doppler weather radar data to the HEMS Weather Tool overlay.

- **A-20-20** Provide capability in the HEMS Weather Tool to graphically display areas of weather radar limitations, including areas where beams may lack low-altitude coverage, areas that lack radar coverage, and areas of beam blockages.
Survival Flight Fatal Accident – the Weather Radar Issue

• The HEMS Tool radar overlay option uses the MRMS.

• The MRMS weather radar imagery incorporates information only from the network of WSR-88D weather radars.

• The MRMS weather radar information does not take TDWR information into account.
NEXRAD Coverage Below 10,000 Feet AGL

Radar-WSR-88D

*Bottom of beam height (assuming Standard Atmospheric Refraction)
Terrain Blockage indicated where 50% or more of beam blocked
Radar-TDWR

TDWR Coverage Below 10,000 Feet AGL

- TDWR Hazardous Mode Coverage
  - 10,000 ft above ground level
  - 5,000 ft above ground level
  - 3,000 ft above ground level

*Center of beam height (assuming Standard Atmospheric Refraction)
Tornado Exception indicated where more than 50% of beam blocked

NOAA
Survival Flight Fatal Accident – the Weather Radar Issue

Part of HEMS Weather Tool

Mount Carmel

accident site

WSR-88D

Not part of HEMS Weather Tool

TDWR

Weather radar at time of weather check

Image Source: NTSB
Survival Flight Fatal Accident – the Weather Radar Issue

Part of HEMS Weather Tool

Not part of HEMS Weather Tool

Weather radar at accident time

Image Source: NTSB
Radar Coverage of Precipitation with Range (SM) – Assuming no Beam Blocking

Note: Coverage is worse for snow, and in areas of rugged terrain.

Graphic Source: Comet
Survival Flight Fatal Accident – IWG Recommendations

- Continued support for Wx Related recommendations made by the NTSB to the FAA & NWS.
- Initiate an industry-wide “Got Radar?” campaign.
  - New radar.weather.gov site
  - Encourage Operators / Training
  - Awareness
    - Training Bulletin
    - Video
Survival Flight Fatal Accident – IWG Recommendations

- MAI Director of Operations initiates GOM revision.
- Directs development of radar specific curriculum delivered to all Check Airmen / Training Captains.
- Made part of recurrent training.