UIMC = Unintended Flight into IMC

“UIMC Safety Initiative”

USHST All-Hands Event – Vision Zero: Personal / Private Flying Perspectives

Wed, January 20th
Agenda

• Statistics
• 178 Seconds to Live
• Helicopter fatal accident case studies
• Preflight Planning
  • USHST Resources
  • HAI Safety Initiatives
  • AWC - HEMS Tool - Aviation Weather Center
• AVOIDance Resources
  • Enroute Decision Points
  • Degraded Visual Environment
  • Precautionary Landing (Land & Live)
• UIMC Procedure
• Final Thoughts
CAST/ICAO Common Taxonomy Team (CICTT)
Aviation Occurrence Categories

UNINTENDED FLIGHT IN IMC (UIMC)

Unintended flight in Instrument Meteorological Conditions (IMC).

Usage Notes:

- May be used as a precursor to CFIT, LOC-I or LALT.
- Applicable if the pilot was flying according to Visual Flight Rules (VFR), as defined in Annex 2 – Rules of the Air – to the Convention on International Civil Aviation, and by any reason found oneself inadvertently in IMC.
- Only to be used when loss of visual references is encountered.
- Only to be used if pilot not qualified to fly in IMC and/or aircraft not equipped to fly in IMC.
“Priority” Occurrence Category by CAST/ICAO Common Taxonomy Team (CICTT)
CY 2009 – 2018 (198 fatal accidents)
178 Seconds to Live Video (Helicopter) (AOPA – ASI)
On May 4, 2019, about 1210 eastern daylight time, a Guimbal Cabri G2, N572MD, was destroyed when it impacted the Chesapeake Bay near Kent Island, Maryland. The private pilot and passenger were fatally injured. The helicopter was registered to a corporation and operated by Monumental Helicopters as a Title 14 Code of Federal Regulations Part 91 personal flight.

Instrument meteorological conditions prevailed for the flight, and a special flight rules area flight plan was filed for the local flight that originated from Tipton Airport (FME), Fort Meade, Maryland, around 1130.
✓ VFR Rated Pilot
✓ No IIMC Training
✓ VFR Aircraft
✓ VFR Flight Plan
✓ IMC Conditions
FAA Airman Records

• Accident pilot held a private pilot certificate with a rating for rotorcraft-helicopter.
• The pilot was issued a second-class medical certificate on July 6, 2017, with no limitations.
• The pilot's logbook was recovered, and he recorded 103.5 total hours of flight time; all of which were in the accident helicopter.
• He did not hold an instrument rating, nor did he record any instrument flight time or simulated instrument flight time.
Preflight Weather Briefing

• After reviewing the SFRA flight plan, the briefer stated that he was “showing IFR conditions in that area so technically [he] wouldn’t be able to recommend VFR flight. There is also an AIRMET sierra for IFR conditions in the area ‘till sometime between 5 and 8 PM today.”
Weather

• The recorded weather observation at Bay Bridge Airport (W29), Stevensville, Maryland, around the time of the accident, which was about 8 miles to the northeast of the accident location, included wind from 350° at 5 knots, visibility 3 miles, mist, overcast clouds at 400 ft (AGL), temperature 18° C, dew point 18° C; and an altimeter setting of 29.88 inches of mercury.
Flight School Aircraft Use Agreement
VFR Weather Requirements

• Pattern with CFI
  • 1,500’ ceiling
  • 3 miles visibility
  • Max 25 kts wind; 15 kts solo student

• Cross-Country w/ CFI
  • 3,000’ ceiling
  • 3 miles visibility, 6 miles for solo student

• Solo Pattern
  • 2,000’ ceiling
  • 5 miles visibility
  • 15 kts wind

• Solo Cross-Country
  • 3,000’ ceiling
  • 6 miles visibility
  • 15 kts wind

• Night Pattern
  • 3,000’ ceiling
  • 10 miles visibility
  • 15 kts wind

• Night Solo
  • 5,000’ ceiling
  • 10 miles visibility
  • 15 kts wind
Witness Statement(s)

• According to several witnesses and preliminary radar data obtained from the Federal Aviation Administration (FAA), the helicopter was flying around the southern point of Kent Island for several minutes before the accident occurred.

• One witness stated that the weather was "cloudy and the fog was heavy."

• Another witness reported that the helicopter was "flying very low to the water in dense fog," before the accident occurred.
Passenger Photographs -
During Accident Flight
Passenger Photographs - During Accident Flight
Figure 1 - The red line depicts the helicopter's radar-observed flight path for the 10 minutes before the accident. Note: The time displayed at the beginning of the radar plot is in universal coordinated time.
IM COMMS with helicopter passenger and boat
00:02:58
On January 26, 2020, about 0945 PST, a Sikorsky S76B helicopter, N72EX, crashed into hilly terrain near Calabasas, California. A post impact fire ensued and resulted in a brush fire. The eight passengers and one pilot onboard were fatally injured and the helicopter was destroyed.

The helicopter was operated by Island Express Helicopters.

Weather at Van Nuys airport, about 14 miles northeast of the site was reported as 1,100 feet overcast with 2 ½ miles visibility.

The flight was operated under the provisions of 14 CFR Part 135 under visual flight rules from John Wayne Airport (KSNA), Santa Ana, California, to Camarillo Airport (KCMA), Camarillo, California.

An Investigative Webpage is located at https://www.ntsb.gov/investigations/Pages/DCA20MA059.aspx
- IFR Aircraft
- IFR Rated Pilot
- VFR Program
- IIMC Training
- IMC Conditions
RED LINE: FLIGHT PATH OF KOBE BRYANT’S HELICOPTER
Performance Study
DCA20MA059, Sikorsky S-76B, N72EX

Figure 4. Accident flight path over terrain map.
Figure 9 – ALERTWildfire camera locations. Camera elevations provided by UNR. Yellow text identifies approximate distance from camera to accident location. Accident location denoted by the red circle.
Figure 14 – ALERTWildfire Sage Peak 2 camera image from 0943:38 PST, facing south.
Figure 12 – ALERTWildfire Helibase 69B West camera image from 0944:57 PST, facing west.
Figure 11 – ALERTWildfire Saddle 2 camera image from 0943:33 PST, facing north.
Figure 10 – ALERTWildfire Castro 2 camera image from 0943:23 PST, facing east-northeast.
<table>
<thead>
<tr>
<th>Time (UTC)</th>
<th>Agency</th>
<th>Transmission / Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>1744:34</td>
<td>N72EX</td>
<td>and socal for helicopter two echo x-ray we gonna go ahead and start our climb to go above the uh layers and uh we can stay with you here</td>
</tr>
<tr>
<td>1744:43</td>
<td>SCT-RW</td>
<td>two echo x-ray uh where are ya</td>
</tr>
<tr>
<td>1744:46</td>
<td>N72EX</td>
<td>uh....just west of van nuys two echo x-ray</td>
</tr>
<tr>
<td>1744:53</td>
<td>SCT-RW</td>
<td>two ech- echo x-ray ident</td>
</tr>
<tr>
<td>1744:55</td>
<td>N72EX</td>
<td>ident</td>
</tr>
<tr>
<td>1744:59</td>
<td>SCT-RW</td>
<td>two echo x-ray yeah you're uh still on a twelve hundred code uh were you requesting flight following</td>
</tr>
<tr>
<td>1745:04</td>
<td>N72EX</td>
<td>yes sir two echo x-ray</td>
</tr>
<tr>
<td>1745:17</td>
<td>SCT-RW</td>
<td>and two echo x-ray where say intentions</td>
</tr>
<tr>
<td>1745:19</td>
<td>N72EX</td>
<td>uh we climbing to four thousand two echo x-ray</td>
</tr>
<tr>
<td>1745:24</td>
<td>SCT-RW</td>
<td>and then whata ya gonna do when ya get to altitude</td>
</tr>
<tr>
<td>----</td>
<td>----</td>
<td>** No further transmissions recorded from N72EX **</td>
</tr>
</tbody>
</table>

*** End Of Partial Transcript ***
N72EX final 1 minute ADS-B Data received by Flightradar24

- **Altitude**: 1350 ft AMSL
- **Ground speed**: 161 kts
- **Vertical speed**: -4864 fpm
Figure 5. End of accident flight with time and altitudes noted.
Figure 2. Accident altitude, groundspeed, and terrain elevation.
Just Sayin’

“No battle plan survives first contact with the enemy”

_Helmuth von Moltke the Elder_

“Everybody has a plan until they get punched in the mouth”

_Mike Tyson_
So What’s Your Plan?

- IIMC is a life-threatening emergency for any pilot.
- Helicopter pilots that encounter IIMC may experience physiological illusions which can lead to spatial disorientation and loss of aircraft control.
- Many accidents can be traced back to the pilot’s inability to recover the helicopter after IIMC is encountered, even with adequate equipment installed.


• H-SE 115/128: Threat and Error Management Training

• H-SE 91: Enhanced Helicopter Vision Systems

• H-SE 127a: Recognition & Recovery of Spatial Disorientation
HELI-EXPO and “Go Local” programs

- **H-SE 123: Simulations for Safe Decision Making**
- **Recommended Practice: Simulation Training for Aviation Decision Making**
- **Scenario-Based Training to Improve Aviation Decision Making**
Weather Minimums

• § 91.155 Basic VFR weather minimums
  • 14 CFR Part 91.155, basic visual flight rules weather minimums for helicopters operating from the surface to 1,200 ft msl were 1/2-statute mile visibility, and remain clear of clouds

• FAA Weather Minimums are the “Minimum Standards”

• “Personal Minimums” should be designed to give you the ADDED protection for those unforeseen circumstances.
Resources

- **Degraded Visual Environment**

- **Enroute Decision Points**

- **Precautionary Landing (HAI Land & Live)**
  - “Land the Damn Helicopter!”
  - “Don’t take off in the Damn Helicopter!”
CY 2020 UIMC Events

1. 10/21/2020, ERA21LA028, Bell 206B, PERS/PVT, Point Lookout, NY

2. 10/24/2020, Bell 206B, Aerial Observation - Pipeline, Schenectady, NY

3. 10/26/2020, WPR21LA027, AS-350B3, HAA, Silver City, NM
Final Thoughts

• Give yourself a greater margin of safety
  • Altitude
  • Ceiling
  • Visibility
  • Cloud Clearance

• Precursor to UIMC or IIMC
  • Precautionary Landing
  • Declare an EMERGENCY and Live!

• Enforcement Actions – FEAR
• FAA Compliance Program
8900.1 CHG 443
Safety Assurance System: Air Ambulance Specific Flight Crewmember Training Programs

- **VOLUME 3 GENERAL TECHNICAL ADMINISTRATION**
- **CHAPTER 19 TRAINING PROGRAMS AND AIRMAN QUALIFICATIONS**
- **Section 15 Safety Assurance System: Air Ambulance Specific Flight Crewmember Training Programs**
- **3-19-15-5 HELICOPTER TRAINING PROGRAMS**

- **D. IIMC Avoidance and Recovery Procedures.** This is a topic that applies to all part 135 helicopter operations and as such is checked in all § 135.293 competency checks. It is emphasized here because of the high proportion of helicopter accidents that were at least partially attributed to continued visual flight rules (VFR) flights into instrument meteorological conditions (IMC).

  1) Inspectors should evaluate the certificate holder’s training and checking procedures, particularly the identification and recognition of circumstances likely to lead to IIMC encounters and that serve to prompt the pilot to abandon continued VFR flights into deteriorating conditions.

  2) The inspector must also evaluate the training program treatment of IIMC recovery techniques and procedures, including the appropriate declaration of an emergency due to an IIMC encounter and the obtaining of an instrument flight rules (IFR) clearance at the first opportunity. Inspectors are cautioned to avoid pursuit of enforcement action under these circumstances providing adequate pre-flight planning and risk analysis was performed.

  3) IIMC may effectively occur when visual meteorological conditions (ceiling and visibility) may exist but conditions do not allow for the determination of a usable horizon. Such conditions include flat light conditions (discussed in paragraph 3-9 of the current edition of AC 135-14) and may occur during night operations over unlit surfaces in low-lighting conditions. These conditions may result in a loss of horizontal or surface reference by which the pilot typically controls a helicopter in VFR flight. Without adequate training and checking, pilots may not be prepared to contend with these conditions, leading to loss of control that may not be survivable.

  4) An oral or written test covering procedures for aircraft handling in flat-light, whiteout, and brownout conditions, including methods for recognizing and avoiding those conditions, is required. Refer to § 135.293(a)(9) and see Volume 3, Chapter 19, Section 7, Flightcrew Qualification Curriculum Segments, for further details.