The Safety Wire

April 2013

IIMC KILLS more of us than anything else. Why is flight into Inadvertent Instrument Meteorological Conditions so lethal? Is it because we do not have enough equipment in our aircraft? A quick look at the types of aircraft involved in IIMC related accidents shows that many of the involved aircraft are actually certified for instrument flight. Perhaps it is because too many pilots do not have instrument training. Again, a look at the actual accidents shows that most pilots have had instrument training. Many of these pilots had instrument ratings and experience flying IFR.

As part of a Safety Management System driven model, the ALEA Safety Program identified this high priority hazard in our industry and began working with the ALEA Training Program to address it. I have asked a number of industry experts for their assistance. One of the common themes that resonated among all of the responses was the critical idea that Inadvertent Instrument Flight is fundamentally different than Planned Instrument Flight. The unique aspects created by the 'Inadvertent' part of IIMC requires that we train specifically for this scenario. Flight training designed to train pilots for planned instrument flight is a good start but is not sufficient, as is proven by the stack of accidents involving instrument rated pilots flying instrument certified aircraft.

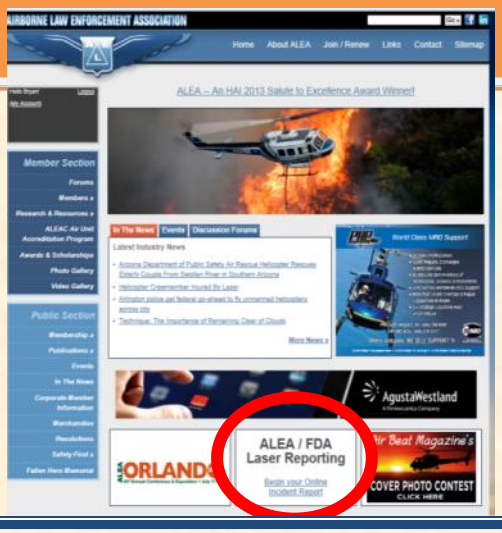
Fully explaining the differences requires more space than a newsletter allows. Recently, Rich Weber of the Jacksonville Police Department's aviation unit and I put together a new class on the topic, which is being presented at ALEA regional safety seminars. A couple of the major points presented in the class are the fact that IIMC does not allow for planning or equipment preparation, and the aspect of fear. When we conduct a planned IFR flight, we have time to prepare for the flight and set up our equipment. When we lose outside references, it is expected and we are ready for it. We are also in instrument certified

aircraft, which is not the case for many aircraft in public safety, especially the majority of single-engine helicopters. In an IIMC encounter, diverting attention away from the instruments to conduct the avionics and/or chart preparation that would normally be done prior to planned IFR flight often leads to loss of control in a very short time. Complicating the lack of preparation and the difficulty already inherent in hand-flying small, unstable aircraft in instrument conditions is the undeniable aspect of anxiety created by the 'inadvertent' aspect of IIMC. The psychological and physiological effects of this anxiety on the pilot are no less powerful than they are in other critical incident situations such as lethal force encounters. Too often, our IIMC training ignores these two significant aspects, as well as others, which leaves our crews ill-prepared to deal with this type of emergency. And yes, it is an emergency. The fatality rate demands this title be given to IIMC.

After the first IIMC Survival class given by Richard and myself, one attendee approached us. He said that he was sold on the idea of doing IIMC specific training and asked us for a sample syllabus so he could get his unit started. I didn't have one. After asking around, the only real IIMC solution out there was at some of the excellent simulator based training facilities (look for more information on this in the next *Air Beat* magazine). I asked industry experts again for some help. We have come up with a sample syllabus and posted it on the ALEA website (http://www.alea.org/assets/cms/files/safety/IIMC%20Training.doc). This is our first attempt at putting together some ideas for IIMC specific training. I ask all of you to take the time to look at it and see if your agency can implement an IIMC training program. Feedback on the syllabus would be appreciated. Remember, instrument training carries with it the same hazards that any flight training does. It should only be conducted by a certified, experienced and current instrument flight instructor, as the syllabus recommends.

"…in bad weather, as in most other situations, safety and fatal hazard are not separated by any sharp boundary line, but shade gradually from one into the other. There is no little red light which is going to flash on and inform commanding officers or higher commanders that from then on there is extreme danger from the weather…Naturally no commander is going to cut thin the margin between staying afloat and foundering, but he may nevertheless unwittingly pass the danger point even though no ship is yet in extremis. Ships that keep on going as long as the severity of wind and sea has not yet come close to capsizing them or breaking them in two, may nevertheless become helpless to avoid these catastrophes later if things get worse…The time for taking all measures for a ship's safety is while still able to do so. Nothing is more dangerous than for a seaman to be grudging in taking precautions lest they turn out to have been unnecessary. Safety at sea for a thousand years has depended on exactly the opposite philosophy."

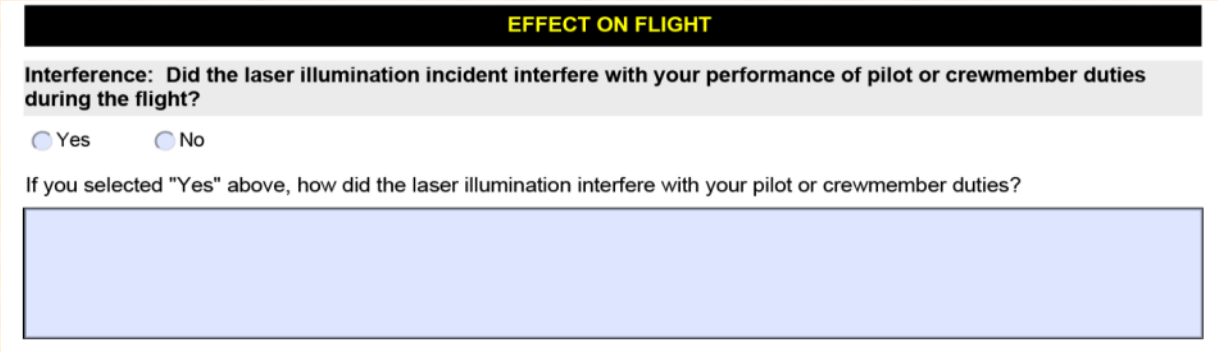
~Admiral Chester A. Nimitz, USN



Laser Reporting

I would like to thank the folks who have begun using the ALEA laser reporting form. Already, one of the incidents in which an arrest was made is being looked at by the FAA to try and tie in the event to similar attacks in the area. Again, look for the link to the report at the bottom of the ALEA home page.

During the recent ALEA Safety Officer Mutual Aid Group online meeting, one of the safety officers passed on that some civil cases against people arrested for hitting law enforcement aircraft were dropped because of the answer given on the FAA's laser reporting form. That question asked if the laser strike caused any interference with the crew's flight duties. Apparently, answering 'No' to this question has led the courts to believe that the incidents were not serious. This is not the message we want to send to the public. An excerpt from the report showing that question is below.


EFFECT ON FLIGHT

Interference: Did the laser illumination incident interfere with your performance of pilot or crewmember duties during the flight?

Yes No

If you selected "Yes" above, how did the laser illumination interfere with your pilot or crewmember duties?

Safety Officer Mutual Aid Group

Recently, the members of the Safety Officer Mutual Aid Group had an online meeting to discuss safety related issues at their agencies. The meeting was very productive and numerous topics were discussed. The group discussed dealing with hazard reporting, leadership challenges, dealing with maintenance issues that occur infrequently enough to cause troubleshooting problems (or questions about the reporting person's ability), laser reporting, and more.

One of the items brought up was the need for a simple, easy to use Hazard Reporting form. Working with Sgt. Josh Goldschmidt (Portland Police), we have made a new form based on the one found in the ALEA SMS Toolkit. We also developed a simple survey for safety officers to distribute. This follows along with the SMS information discussed in the March newsletter. Both documents can be downloaded here: http://www.alea.org/assets/cms/files/safety/Hazard%20and%20Risk%20Assessment%20Reports%201.0.docx

The next meeting is scheduled for Monday, June 3rd at 1500 hrs Eastern US time (1900z). Any ALEA members who are safety officers, or interested in safety, are welcome to join the group. Just send me an email to: safety@alea.org

Dr's. Visit...

I asked ALEA's Aeromedical Liaison, Dr. Dudley Crosson, for his input on the medication related accident report in last month's newsletter. He asked that I pass this information on to you all.

> "While the idea of slamming down an energy drink before a flight may help a pilot or aircrew stay awake or to energize them during a long flight, research says this may not be in everyone's best interest. What's the best single method to improve energy levels, increase the ability to concentrate,

sharpen memory, strengthen the immune system, and decrease people's risk of being killed in accidents? The answer may surprise you. Researchers have discovered that getting an extra 60 to 90 minutes of sleep each night will do just that.

While many people argue that they get by just fine on very little sleep, they also find themselves reaching for a little boost as that "2:30 tired feeling" takes hold once again. The bottom line is, while in a flight status, energy drinks are a no go! The majority of the ingredients are on the no-go list."

For more information on this topic, please try to catch one of his presentations at an ALEA regional seminar or the annual conference. For other aeromedical questions, ALEA members can contact Dr. Crosson at:

(772) 359-3680
dcrosson@delta-p.com

Emergency Procedure of the Month

IIMC..

You suddenly, and unexpectedly, lose visual reference to the horizon…now what?

Consider the following cases and, with your crew, review the emergency procedures for the aircraft you fly:

Aircraft: MBB BK117A3
Injuries: 3 Minor.
NTSB Identification: ATL04LA055

The pilot stated he departed the hospital, climbed to 1,000 feet, and was in visual flight conditions on a heading of 120-degrees magnetic with a ceiling of 1,500 feet and 8 to 10 miles visibility. He passed Okeechobee to the northeast and encountered instrument meteorological conditions (IMC). He observed some highway lights to the east and started a left turn to get a reference on the lights and "lost total visibility due to heavy rain". He slowed the helicopter down and lost sight of the lights. He made a right turn to the south and "encountered vertigo." He immediately looked down at his flight instruments and observed the artificial horizon was above the horizon, and the airspeed was decreasing. He lowered the nose of the helicopter to regain airspeed and the helicopter began to settle. The nose of the helicopter went to the right and down. He looked back at his flight instruments, the attitude indicator showed the helicopter was inverted, and the vertical speed indicator indicated a 1,000-foot a minute descent. He immediately applied cyclic pitch and rolled the helicopter to the upright

position and pulled collective pitch to increase power. The front seat paramedic made a mayday call on the radio. The helicopter collided with the trees in an upright position and fell to the ground. The pilot stated there were no mechanical deficiencies with the helicopter.

A paramedic located in the left front seat of the helicopter stated they had just cleared a rain shower when the pilot stated he wanted to follow State Road 70 due to the headlights of the cars. It was dark except for the lights of a few distant houses and the lights of the cars. The pilot started a turn. "During this bank our descent became increased and sharp." He reached over and grabbed the pilot's leg and said his name three times with no response. "We then came to a level attitude and began to fish back and forth from nose to tail and back. This increased in intensity until we entered a right hand downward spiral and impacted the ground."

Aircraft: CESSNA A185F
Injuries: 1 fatal injury
NTSB Identification: ERA11GA207

The pilot responded to nearby Eagle Lake to assist another game warden in freeing his trapped snowmobile. The pilot departed about 1 hour later, and the game warden reported that almost immediately after the airplane departed, visibility was reduced to less than 1/2-mile due to snow.

A former pilot was working on some encampments he owned located about 2 to 3 miles west of Clear Lake on the day of the accident. He stated that the weather throughout the day consisted of intermittent "blue skies" and snow showers.

At 1622:13, the airplane began slowing from the previously established approximate groundspeed of 120 knots, to about 110 knots 30 seconds later. At 1622:30, the airplane's established track turned about 40 degrees left, when it was about 1/2-mile south of Clear Lake. At 1622:49, the airplane crossed the southern bank of Clear Lake, at a GPS altitude of 1,480 feet. The final three GPS positions were recorded between 1622:55 and 1622:59. During that time, the GPS altitude decreased from 1,481 feet, to 1,423 feet, and finally to 1,297 feet, with a calculated descent rate between the three points of 1,740 feet per minute and 3,780 feet per minute. During that time period, the track also turned from generally northwest to east, at an average turn rate of 11 degrees per second.
The initial impact point was about 230 feet southeast of the final GPS position, at an elevation of 1,197 feet, along a heading consistent with the ground track established between the final two GPS positions

According to preliminary information provided by the operator, the pilot was reported missing about 2000, when he did not return to his home as expected. A subsequent search ensued, and the wreckage was located about 0850 the following day.

NTSB Identification: LAX07FA056.
Aircraft: Bell 412SP
Injuries: 3 Fatal.

The emergency medical services (EMS) helicopter was performing a cross-country repositioning flight from a hospital back to its base during dark night conditions back over a routing that the pilot had flown 5 times that day and also earlier in the evening when they had transported a patient to the hospital. Visual meteorological conditions predominantly prevailed along the route of flight; however, analysis of the weather reports disclosed conditions consistent with broken to overcast clouds having bases at 4,000 feet mean sea level (msl) in the vicinity of the accident site. An AIRMET had been issued for the area for IFR conditions, with mountain obscuration, precipitation, mist, and fog. The route of flight proceeded toward the apex of a mountain pass, which is the main transition route from one side of a mountain range to the other, where the helicopter's base is located. The tracking data indicated that the helicopter appeared to follow a major highway in the lower portion of the pass. The highway makes a large "S" shaped path as it gains in elevation toward the top of the pass, which is about 4,200 (msl). Near the upper end of the pass, the helicopter's satellite derived flight track showed that it inexplicably diverged toward the east, away from the highway, instead of continuing to follow the highway into the upper desert valley. The helicopter collided with terrain about 0.7 nautical miles east of the highway at 4,026 feet msl. While the operator was in the process of equipping its helicopter fleet with night vision goggles, the accident helicopter had not as yet been equipped with any enhanced night vision devices. The helicopter was equipped for instrument flight, including a 3-axis autopilot. The first fire department responders to the accident site reported that the area was covered by what they described as "intermittent waves" of fog that would suddenly form and then dissipate, which made it difficult to locate the wreckage.

The National Transportation Safety Board determines the probable cause(s) of this accident to be: The pilot's inadvertent encounter with instrument meteorological conditions and subsequent failure to maintain terrain clearance. Contributing to the accident were the dark night conditions, fog, and mountainous terrain.

Aircraft: CIRRUS SR20
Injuries: 2 Fatal.
NTSB Identification: WPR11FA354

The airplane collided with terrain while maneuvering in dark night visual meteorological conditions while on the third leg of a 1,665 nautical mile (nm) cross-country flight. The airplane, with the pilot/owner and a pilot-rated passenger aboard, had departed the east coast in the morning and had been en route for about 16 hours. It could not be determined which of the two pilots was manipulating the flight controls at the time of the accident. The planned length of the last leg of the flight was 660 nm, which was about equal to the airplane's calculated maximum range for a no wind condition with a 45 minute reserve. Radar data revealed that during the last few minutes of the flight, the airplane changed course several times toward different nearby airports. The last radar return was about 0.1 nm south of the accident site, which was located in a remote, sparsely populated area. Examination of the accident site revealed signatures, including tree strikes and wreckage

distribution, consistent with controlled flight into terrain. Postaccident examination of the engine and airframe revealed no evidence of mechanical malfunctions or failures that would have precluded normal operation. It is likely that the pilots lost situational awareness and failed to maintain terrain clearance. Conditions conducive to controlled flight into terrain included fatigue due to the pilots' long duty day, the dark night light condition, the lack of ground lighting in the region, and the fact that neither pilot was instrument rated.

IT TAKES ABOUT 40 HOURS TO LEARN HOW TO FLY,
AND A LIFETIME TO LEARN WHEN NOT TO FLY.
~UNKNOWN

REALITY CHECK...

The following excerpts are directly from NTSB reports. The intent is not to judge, but to use the harsh lessons experienced by some to increase safety for everyone.

Aircraft: EUROCOPTER AS350
Injuries: 3 Fatal
NTSB Identification: **ANC13GA036**

On March 30, 2013, at 2320 Alaska daylight time, a Eurocopter AS 350 B3 impacted terrain while maneuvering near Talkeetna, Alaska. The airline transport certificated pilot and two passengers sustained fatal injuries. The helicopter was destroyed by impact and post-crash fire. The helicopter was registered to and operated by the State of Alaska, Department of Public Safety (DPS), as a public aircraft operations flight under 14 Code of Federal Regulations Part 91. Instrument meteorological conditions were reported in the area at the time of the accident, and department flight following procedures were in effect. The flight originated from the passenger rescue location at 2313 and was destined for an off airport location in Talkeetna.

According to Alaska State Troopers personnel and dispatch records, at 1935, a distressed individual requested assistance in an area near Talkeetna, and a search and rescue (SAR) mission with the helicopter was initiated. The pilot departed the DPS facility at Anchorage International Airport, Anchorage, Alaska, at 2117. The pilot flew to Talkeetna and at 2142, picked up an Alaska State Trooper near the Talkeetna Trooper Post facility to aid in the SAR mission. The distressed individual was located, and the helicopter landed at the remote location at 2201. At 2313, the helicopter departed the remote location and was destined for an off airport location in Talkeetna to meet emergency medical ground support.

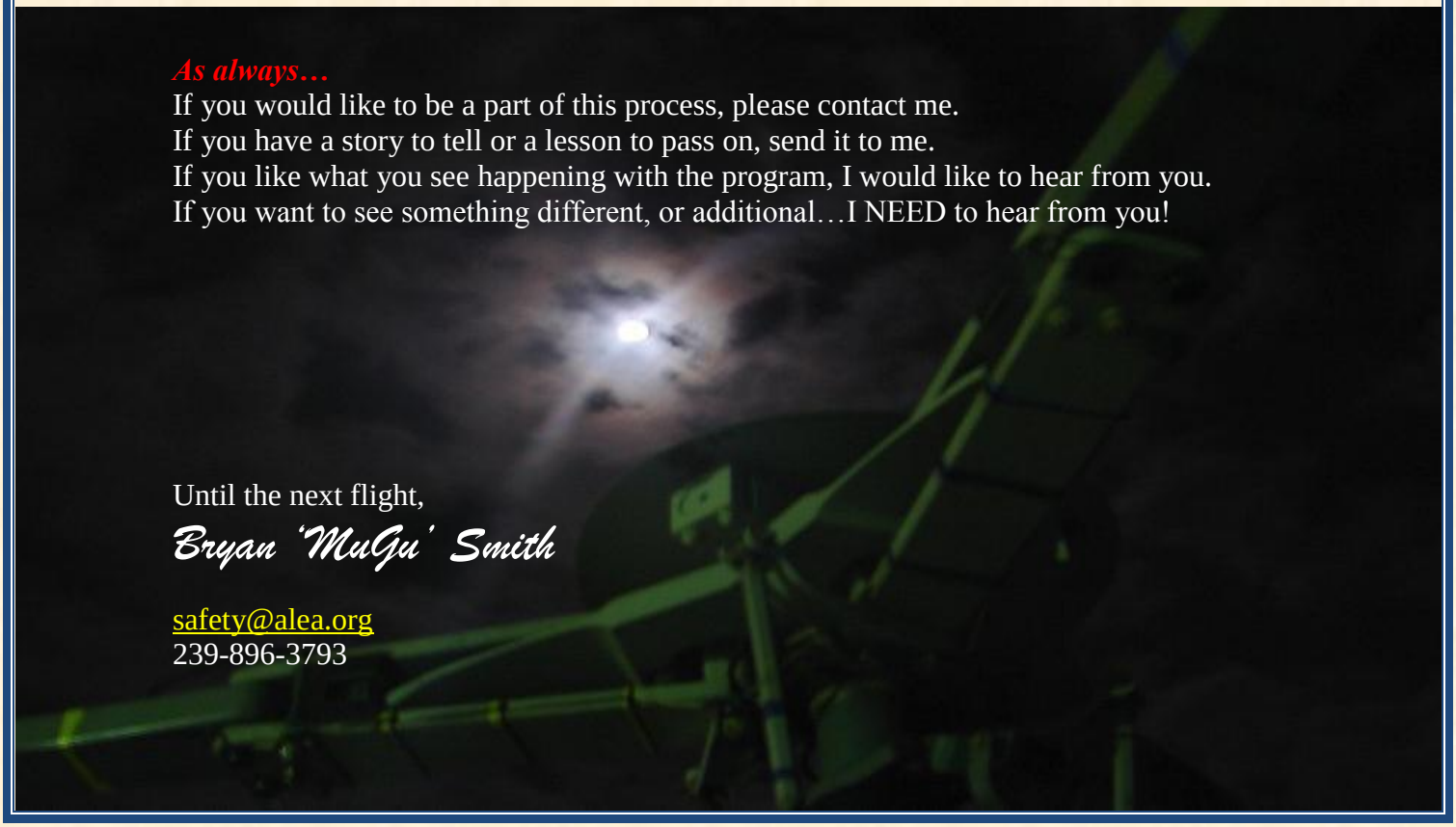
On March 31, 2013, at 0044, attempts were made by trooper dispatch personnel to contact the pilot and trooper via radio and their cellular telephones, without success. Due to weather conditions in the Talkeetna area, search efforts were delayed. At 0923, the helicopter accident site was located by search and rescue personnel.

Aircraft: CESSNA 172N
Injuries: 1 Serious,2 Minor.
NTSB Identification: **ANC13LA021**

The pilot stated that he had flown to pick up two individuals, and return into Aniak. He said the weather was VFR upon his departure, and that the Automated Surface Observing System (ASOS) was reporting 10 statute miles visibility. As he approached the airport, he said that his flight visibility had reduced to about 2 statute miles. He said he was only on the ground long enough to off load some packages, and get the two passengers on board. He stated that he took off and climbed to approximately 300 feet above the ground, and that he could see the tress on both sides of the river that runs adjacent to the airport. He then stated that the next thing that he remembered was that the airplane was on the ground and upside down.

A witness that was observing the takeoff stated that the weather was deteriorating rapidly. He saw the accident airplane depart, and climb to just about tree level. Shortly thereafter, he heard "a strange sound" and then the airplane's engine stopped making noise. He said that he got on his snow machine, and proceeded down the river to look for the airplane. The witness said that while driving toward where he thought the airplane was located, the snow, visibility, and light conditions made it very difficult to distinguish any detail in the terrain. He located the airplane on the frozen river, and assisted in transporting the injured occupants to the village clinic.

The nearest official reporting station is the Kalskag Airport (PALG). Just before the accident, at 1614, the weather was reported as: Wind, variable at 3 knots; visibility, .25 statute miles in light snow and freezing fog; sky condition, broken clouds at 300 feet above ground level (agl), broken clouds at 1,300 feet agl, overcast at 2,700 feet agl; temperature, 16 degrees F; dew point, 12 degrees F; altimeter, 29.55 inches Hg.



As always…
If you would like to be a part of this process, please contact me.
If you have a story to tell or a lesson to pass on, send it to me.
If you like what you see happening with the program, I would like to hear from you.
If you want to see something different, or additional…I NEED to hear from you!

Until the next flight,

Bryan 'MuGu' Smith

safety@alea.org
239-896-3793