Flightfax

ARMY AVIATION RISK-MANAGEMENT INFORMATION

FEBRUARY 2004 ✦ VOL 32 ✦ NO 2

A Failure to Communicate + IIMC = Tragedy

PLUS... Readership Survey

Flightfax

ARMY AVIATION RISK-MANAGEMENT INFORMATION

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JOSEPH A. SMITH
Brigadier General, U.S. Army
Commanding

DASAF's Corner
FROM THE DIRECTOR OF ARMY SAFETY

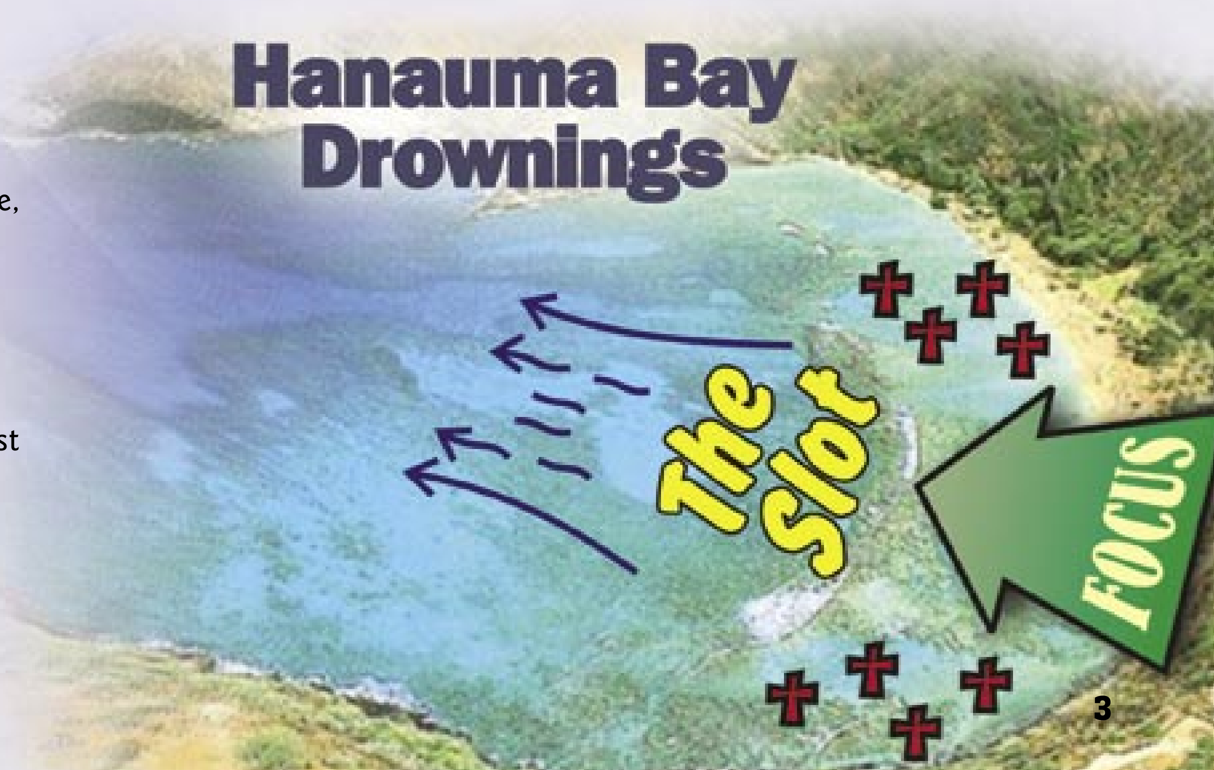
Think Outside the Slot—Expand Your Peripheral Vision

The common perception I hear as I travel around the Army is that risk management isn't "sexy." Junior leaders—the people who really make the difference—often see risk management as a hindrance rather than a combat multiplier. To these leaders, risk management exists only in the Army and is just one more layer of bureaucracy to overcome.

This misconception could not be further from the truth. Risk management is a major growth industry worldwide. As industry leaders realize the benefits a safe work environment can have on morale and productivity, people who specialize in risk mitigation have become in high demand. In fact, the Army's 5-Step Risk Management Model has been implemented by many organizations. One of those organizations is the Hanauma Bay Ocean Safety and Rescue Team.

Hanauma Bay is one of the world's most spectacular vacation locations and sits at the southern end of Oahu, 30 minutes from downtown Honolulu. The bay is a mecca for tourists and hosts thousands each day from around the globe. The snorkeling in the bay is second to none; however, for many swimmers it is their first experience with a powerful ocean tide, and that presents significant hazards. Those hazards became painfully obvious during 2002, when 12 swimmers drowned in the bay. This sparked a wave of public and political pressure for drastic changes. Hanauma Bay's Ocean Safety and Rescue Team's answer was to implement the Army's risk management process.

With support from U.S. Army Pacific Command safety professionals, the team began taking a hard look at the hazards. Identifying the hazards proved easy, but the assessment process was harder. The team painstakingly researched the accidents, looking at a host of factors including age, sex, swimming experience, and medical pre-conditions. However, none of these provided any consistent trends. The drownings almost always occurred in chest-deep water, but were evenly



distributed throughout the bay. The breakthrough came when the team went beyond analyzing the accidents and started looking at the near misses. As they looked at the locations where swimmers were rescued from drowning, they saw a pattern. The "slot"—a snorkeling area with a strong undertow—had the greatest number of rescues, but no fatalities. The team members highlighted the slot as their highest risk area and were doing several things to protect swimmers there. However, because the lifeguards were so fixated on watching swimmers in the slot, they were missing distressed swimmers in other areas of the bay.

By analyzing the near-miss data, the team realized it had a model for success that could be learned from and built upon. The team presented its data on fatalities and near misses to public officials. As a result, the team gained funding for an additional guard tower to focus on the dangerous areas east of the slot. Additional control measures included a safety briefing for all swimmers on the bay's danger spots, and better communication between lifeguards and rescue crews. Lastly, a supervisor was hired to implement the controls and supervise the bay's safety team.

The changes in the Hanauma Bay safety program produced immediate results. During 2003, there were 2 fatalities, a huge drop from the previous year's 12. The team attributed its success to the Army's risk management program. As it turns out, risk management is pretty sexy when it saves lives—and not just at Hanauma Bay.

Hanauma Bay's safety team was taking care of the slot, their area of highest risk, but not paying attention to lower risk areas. I believe many units approach risk management the same way. Let's use collective missions vs. single-ship training as an example.

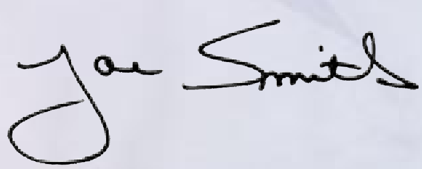
Army Aviation does an outstanding job at identifying and mitigating risk for collective missions. We brief, rehearse, and ensure senior leaders understand and accept the risk. However, what happens during single-ship missions? Is the same level of detail given to route planning, fighter management, and crew selection? Does the appropriate level of leadership approve the mission brief? Does the mission briefer receive a full back brief, or does he check the block and just sign his name without reviewing the plan in depth because "it's a simple mission?" Does the briefer review the plan in person, or brief over the phone?

These perceived simple missions are proving to be as equally dangerous. In FY03, 43.5 percent of Class A accidents were single-ship missions. Although we have correctly identified single-ship missions as our highest risk, we often fail to implement the same successful control measures we used during collective missions. Great leaders identify all areas of risk, not just their highest risk, and implement appropriate control measures for all missions.

As an Army, we must begin to look hard at our near misses if we are to get our arms around all risk sources. In military schools, we are taught to prepare for the next war, not the last one. Studying near misses allows us to identify and prevent accidents before they occur. Look closely at your formations and other units like yours for near misses. Share your near-miss stories with us by sending them to ***warstories@safetycenter.army.mil*** so we can all learn from them. If it saves just one life, it will be the most valuable 5 minutes you ever spent.

Thank you for what you do every day to keep our soldiers safe.

Keep your leader lights on!



A Failure to Communicate + IIMC = Tragedy

MAJ Ron Jackson
U.S. Army Safety Center

Inadvertent instrument meteorological conditions (IIMC) break-up procedures are often one of the most overlooked aspects of air mission planning and rehearsals. Whether a unit is conducting a mission or continuation training, IIMC break-up procedures seldom receive the emphasis necessary to ensure the safe and successful return of flight crews.

The mission was to conduct night extraction training of four six-man teams from a long-range surveillance (LRS) unit preparation. The concept of the operation was for two UH-60As, under night vision goggles (NVGs), to conduct a link-up with a two-man LRS control team. After the link-up and final coordination, the aircraft would depart with the two-man control team en route to a notional landing zone (LZ). After completing the insertion, the aircrew would loiter at a predetermined location until it was time to extract the teams. The unit that assigned the mission was a command aviation group company, with the primary mission of command and control, VIP support, and personnel recovery.

The crew received the weather forecast from a weather briefing flimsy approximately 4 hours prior to the flight. The forecast called for minimum ceilings at 3,000 feet, minimum visibility 2 miles, and winds 120 degrees at 20 knots, gusting to 22 knots, with blowing dust and isolated thunderstorms for the planned area of operation. However, unknown to the crew, their weather flimsy had been replaced but wasn't on file in the tactical operations center. The flimsy forecast of minimum ceilings and visibility remained largely unchanged, with the exception that light rain showers and thunderstorms were added as a visibility restriction. In addition, the incidence of thunderstorms was changed from isolated to few.

Prior to departing for the mission, the airfield's tactical tower received a pilot weather report (PIREP) from a CH-47 flight that informed them they had encountered IIMC and declared an emergency. After landing, the pilot in command (PC) of the lead CH-47 submitted a PIREP to their weather detachment at 2315 of ceilings reported at 400 feet above ground level (AGL). The PIREP was recorded by weather personnel, but was not disseminated to the Joint Army/Air Force Weather Information Network or to the accident aircraft's weather detachment. Additionally, a returning AH-64D transmitted a PIREP to the tactical tower indicating that instrument flight rules (IFR) conditions existed in the local area.

While the UH-60 flight was taxiing to the runway, they heard the AH-64D crew relay the PIREP and were notified by tower that the field was operating under IFR. The lead UH-60 requested a special visual flight rules (SVFR) departure to the south.

At 0010, the flight of two UH-60As departed the airfield. Approximately 10 minutes into the flight with an en route altitude of 100 feet AGL, Chalk 1 began to enter decreased visibility and announced to his aircrew that he was initiating IIMC procedures. The lead aircraft began a climbing left turn; however, Chalk 2, unaware of what Chalk 1 was doing, continued along the route of flight. Shortly after Chalk 1 initiated IIMC break-up, Chalk 2 impacted the ground. The aircraft was destroyed, and all personnel were fatally injured.

Lessons learned

The preliminary investigation revealed support, training, leader, and environment as contributory factors to this accident; planning and communications were critical to the outcome. Although all factors contributed, one might

have prevented the accident—briefing and rehearsing IIMC break-up procedures.

■ **Support**. The weather distribution process must be linked for all operational units, regardless of boundaries. In this case, two separate aviation brigades had weather reporting assets; however, weather information from one aviation brigade weather team was not being disseminated to other weather detachments. As such, critical PIREPs were not relayed to the flight crew. In areas with remote weather reporting capability, it is incumbent upon aircrews to provide the necessary observations to assist weather personnel in updating weather conditions. However, the chain does not stop there. Aviation flight operations elements must ensure that all weather data is received from all sources of information, and this information must be available to the aircrews.

■ **Training**. Continuation training that incorporates IIMC procedures is critical in building the confidence of aviators who could encounter this situation. Too often, IIMC can be viewed negatively; a common remark when discussing IIMC procedures is, "Don't go IIMC!" Unfortunately, it is not that easy. Single- and multi-ship IIMC procedures should be incorporated into all training plans and missions. In this accident, the unit was accustomed to operating single-ship missions; consequently, the aircrews were not proficient in multi-ship operations, let alone IIMC break-up procedures.

■ **Leader**. Leaders at all levels must be part of the planning process through mission execution. Without this involvement, leaders are unable to make informed risk decisions that can affect the outcome of the mission. In this case, company and battalion leaders were not involved in the air mission brief. They both received an overview of the mission, but were more than likely unaware that IIMC break-up procedures were not planned or briefed.

In areas with remote weather reporting capability, it is incumbent upon aircrews to provide the necessary observations to assist weather personnel in updating weather conditions. Aviation flight operations elements must ensure that all weather data is received from all sources of information, and this information must be available to the aircrews.

■ **Planning**. As with any mission, planning and performing rehearsals are a crucial element to facilitate the successful outcome of the mission. The key element that was lacking in this mission was the IIMC break-up plan.

■ **Communication**. In three separate incidents, two single factors—vague instruction and a lack of communication—contributed to the outcome of this mission. In the first incident, the lead CH-47 PC informed the tactical tower of the weather conditions and submitted a PIREP to their weather detachment. Although the PIREP was recorded by weather personnel, a vital communication breakdown occurred when the PIREP was not passed on to the accident aircraft's weather detachment or the Joint Army/Air Force Weather Information Network.

Shortly afterward, the AH-64D crew submitted a PIREP to the tactical tower and assumed the weather information would be relayed to the following flights. However, tower operators misunderstood this request and never relayed the weather situation to the UH-60 crew.

The last communication breakdown occurred when the UH-60 flight lead announced his intentions to initiate IIMC procedures to his aircrew only. At no time was the execution of IIMC break-up ever relayed to Chalk 2. ♦

—MAJ Ron Jackson, Aviation Systems and Accident Investigation Division, U.S. Army Safety Center, DSN 558-3754 (334-255-3754), ronald.jackson@safetycenter.army.mil

Aviation Weather Support Transformed

LTC John D. Murphy

Delivering the highest quality, mission-tailored weather and space environment information, products, and services to our Nation's combat forces—anytime, anyplace, and from the mud to the sun—is the Air Force Weather (AFW) mission. The USAF has provided meteorological services to the Army (except for artillery) since it first became a separate service. This obligation traces itself back to the initial implementation agreements of the National Security Act of 1947. Since that time, AFW has focused on improving support to USAF and Army warfighters, operators, and trainers; reducing workload; and working smarter.

The world has changed a lot since 1947. Environmental data requirements are changing at an ever-increasing pace. The fundamental differences in threats we face today require us to be more strategically responsive than in the past. Re-engineering AFW was both a USAF and Army effort to improve the timeliness, accuracy, and precision for decision-makers and aviators at every echelon.

The need for change

In 1996 the Chief of Staff, Air Force (CSAF), recognized the need for change by stating, "In a time of increased operations and reduced budgets, the USAF must change the way it does business." Since then, AFW completely re-engineered the way it provides weather support to both the Army and USAF. The four main areas driving AFW's need to re-engineer its primary weather support function (i.e., support to aviation) included:

- **Customer requirements changed**. Operators require more focused, tailored, responsive, fine-scale, highly accurate, and relevant weather support. Demands are ever increasing, and personnel and operations tempo drives nearly continuous deployments while garrison workload remains constant.
- **Resources changed**. AFW is a smaller, less-experienced force operating with reduced budgets. Outsourcing and privatization (O&P) will produce a greater portion of the force that is non-military, changing the environment in which AFW builds and sustains readiness.
- **Acquisition changed**. Changes in acquisition are characterized by more rapid prototyping, more open architectures, and an increase in competition of commercial and government off-the-shelf equipment and software.
- **Technology changed**. The information age, with increased emphasis on system interoperability and

readily available product visualization, is changing future operational concepts.

Before AFW re-engineered, you could find these forces at work in your local weather unit. Budgetary and operational impacts resulted in reduced manpower authorizations and grade structures of the combat weather team (CWT), high personnel and operations tempo, continuous on-the-job training (OJT) of school graduates at field units, low re-enlistment rates, and low forecaster manning levels. Combined, these changes and impacts resulted in an environment where AFW could no longer effectively mentor or train its new people to deliver quality support. There was a compelling case for reorganization and improvement.

In 1997, in response to the growing need for change, AFW began re-engineering its Total Force from top to bottom. The transformation was a functional initiative crossing all weather functions supporting the Army and USAF. It was intended to improve support to warfighters and operators to enable them to "choose the weather for battle." Warfighters and operators must be able to anticipate and exploit the weather, rather than coping with and avoiding it.

The plan

The AFW re-engineering strategy called for an improved mission focus. AFW reorganized its forecasting process and established a new career path, with weather technicians replacing forecasters and observers. Weather technicians assigned to your CWT would be qualified fully to provide support. AFW established eight operational weather squadrons (OWS) to provide common products and train new technicians, give improved support capabilities AFW-wide, and achieve economies and efficiencies in manning and operations. The six primary improvement areas addressed by AFW's strategy were:

- Focus weather support on the operator by optimizing forecasting processes, structure, and career path.
- Expand space and terrestrial weather observing capabilities and exploit science and technology to enhance support.
- Implement end-to-end processes, organization, and systems to provide a seamless transition of operations from peace to war.
- Revolutionize training and create a continuous, efficient, and effective training process.
- Implement end-to-end communications and software capabilities to provide fast, responsive, reliable, and relevant weather information to the operator.
- Implement an operator-focused metrics program.

Each of the above improvement areas aimed at providing high-quality weather information needed to "own the weather."

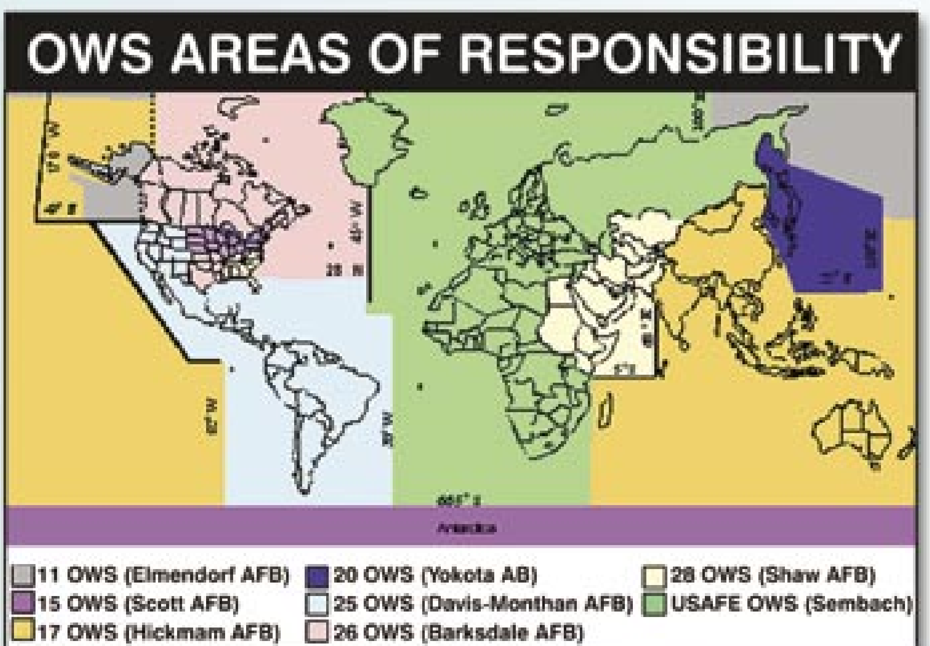


Figure 1: Worldwide AFW OWS Areas of Responsibility

What's the impact to an Army aviator?

The primary difference is appearance. For transient aviators, the weather counter is now more "virtual" than wood or pegboard. Your smaller, local CWT still supports your installation (in garrison and deployed) operations but is no longer sized to support transient aviators.

Most USAF bases or Army posts have transient aircrew work areas located near the weather station (usually in the post or base operations area or flight planning room). To help you get a remote flight weather briefing (FWB), work areas usually have a computer terminal capable of electronically filing your FWB request with the appropriate OWS (see figure 1). If a computer is not available, you always can call your requested information in directly to the OWS (preferably 2 hours in advance).

OWS contact information is located in the Flight Information Handbook and Flight Information Publication (FLIP). If these resources are not available, the local CWT usually can help you contact the appropriate OWS for transient information.

Once you contact the appropriate OWS, your information is transmitted directly to their FWB briefing cell to be worked. OWSs are staffed and organized to provide 24-hour transient aircrew support. Your completed briefing, tailored to your specifications, will be returned to you via computer, designated fax machine, or telephone.

Technology has not replaced weather forecasters completely. You still will hear a human voice when you contact the OWS by phone. OWS forecasters can

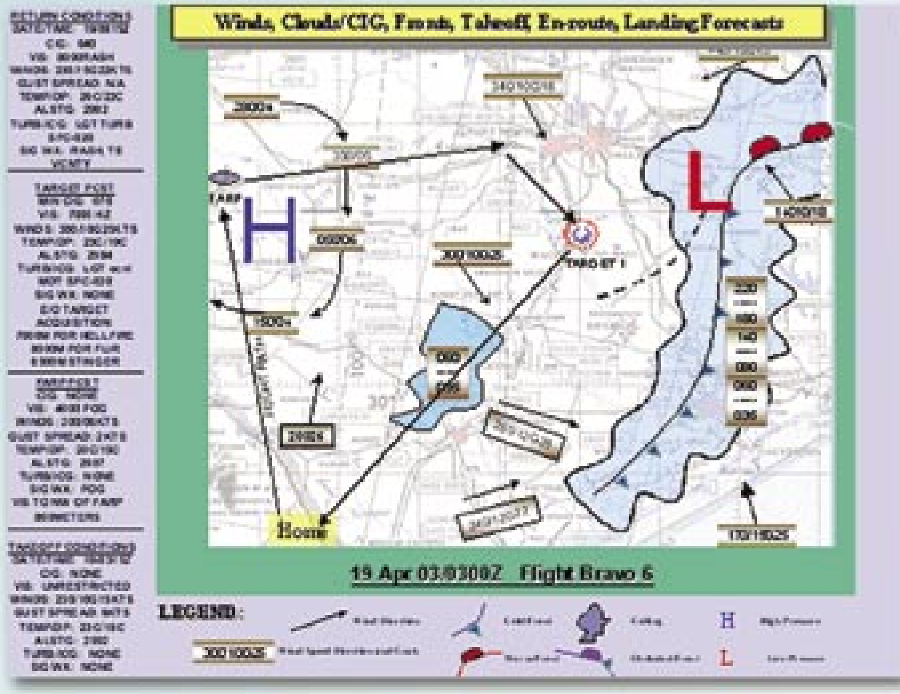


Figure 2: Flight route winds, clouds and ceilings, fronts, and landing forecast.

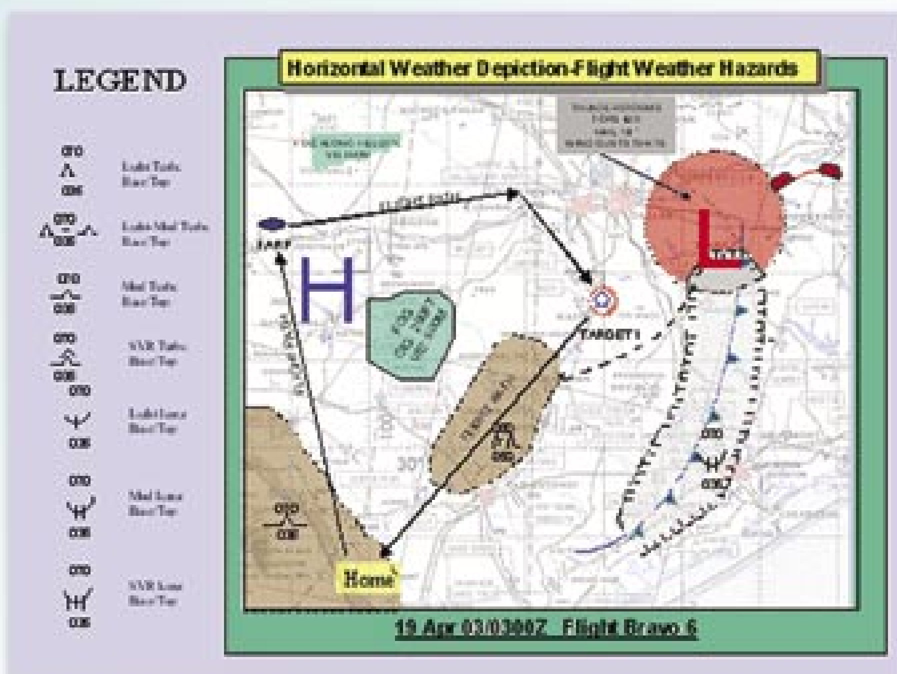


Figure 3: Flight route horizontal weather depiction and flight weather hazard forecast.

answer your questions, clarify information, elaborate on expected weather conditions, and provide the official "brief time" and "initials" you require. However, you no longer have to stand in line at a traditional weather station counter to receive your briefing. As a matter of fact, you can really help yourself, and others, by submitting your request in advance. Ideally, your request should be filed the evening prior to the next day's takeoff so your briefing will be ready when you arrive for preflight planning. Some OWSs are logging over 3,000 weather briefs per month, with most requests filed during peak flying hours. Early submissions help everyone but, most importantly, your briefing will be ready when you call and you won't have to wait.

What's next?

AFW continues to look for ways to improve support to Army aviators. An Army Aviation Center staff weather officer (SWO) was assigned recently at Fort Rucker, AL, to assist in the training of Army aviators. In addition, AFW initiated steps to standardize flight weather graphical attachments (see figures 2 through 5). Once technology is available to produce the products automatically, forecasters will be able to easily provide you with detailed, low-level flight weather briefings that truly are tailored to your missions. ♦

Editor's note: AFW is aiming for "environmental understanding," not just situational awareness. By understanding first, you'll be able to "act first and finish decisively!"

—LTC John D. Murphy wrote this article when he was stationed at HQDA, DCS G-2 (DAMI-POB), 1000 Army Pentagon, Washington, DC 20310-1000.

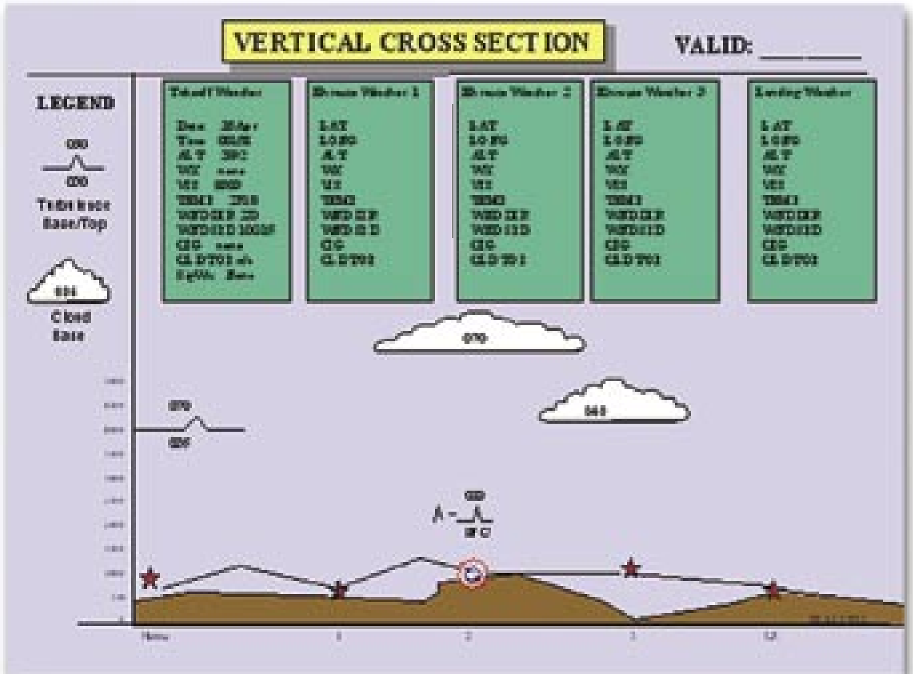


Figure 4: Flight route vertical cross-section forecast.

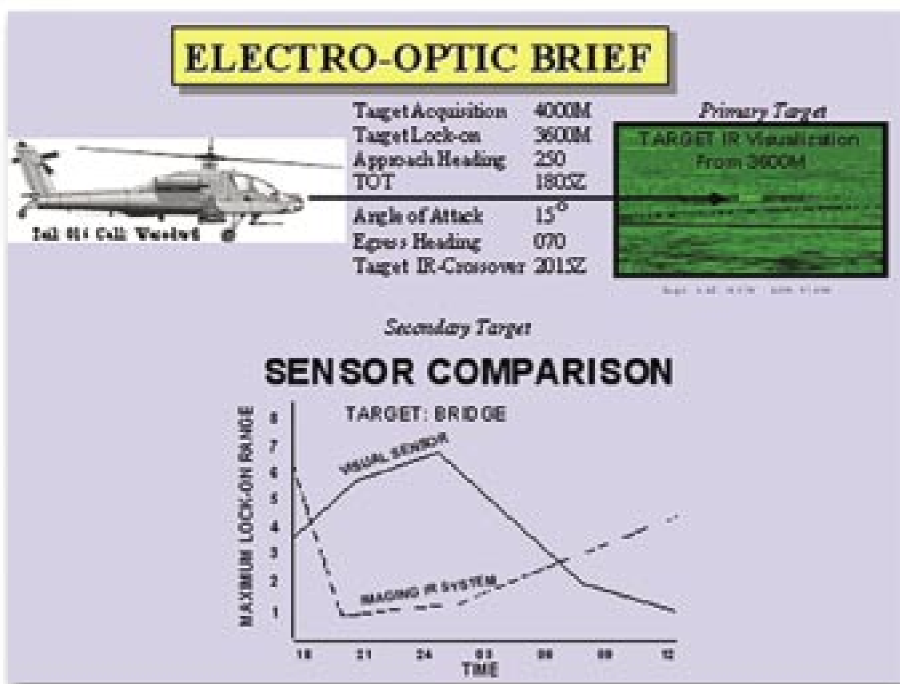


Figure 5: Special mission forecast (i.e., electro-optic brief).

WAR Stories

There I Was, IIMC and Nowhere to Go!

We all have our "war stories." Aviators can get into some precarious situations in only a matter of seconds. One of the most frightening scenarios for even the most seasoned aviator is suddenly not being able to see the ground anymore—just white around the aircraft. In other words, you've just gone inadvertent instrument meteorological conditions (IIMC)! This phenomenon is not uncommon, but can be very dangerous if the proper procedures aren't effected immediately. The aviators below found themselves IIMC and lived to tell about it. Can you relate to any of these situations?

I was a junior CW2 flying Black Hawks and had just been assigned to a new unit. One of the unit's missions was to fly fire bucket support on the local range to help protect endangered snails. The range sat on the ocean shore and consisted of a U-shaped valley ringed by mountains of up to 4,000 feet. This particular fire bucket mission was my first under night vision goggles (NVGs), and I was flying with a relatively junior instructor pilot (IP), also a CW2.

As you can imagine, there was always at least some cloud cover over the mountains. When we were mission complete, we always flew down the coast to a pass that was about 900 feet in elevation. It was around midnight when we were released by range control. As luck would have it, the clouds were only covering the peaks of the mountains. The IP asked me if I had ever flown directly back to the airfield, and I said I hadn't.

There was a small pass, more of a gap really, at the end of the valley. The IP proposed that we fly through it. Based on the cloud cover, it appeared we would just barely have the 500-foot basic cloud clearance. (By now you must be thinking, "Uh oh!") Because we were so close, I chose to keep my airspeed back at about 60 knots as I climbed to the end of the valley.

Everything was going smoothly until we started through the gap, when a band of clouds blew across the opening. I lost all visual references. I calmly stated (ok, maybe I wasn't calm!) that I was IMC and began applying full collective to gain altitude. The IP said he had the controls and started a 180-degree turn back to the valley. I thought he could still see the valley, but when I looked out his side window all I saw was the red position light reflecting off the clouds. I have to admit that I was nowhere near calm as I imagined slamming into the side of the mountain. I yelled, "What are you doing?" He replied, "Don't worry. I know where I am."

I reached down to make sure he still had the collective in the full-up position, still thinking about an untimely meeting with that mountain. As he executed the turn, I noted that our airspeed had dropped off to zero, and our pitch and roll were oscillating up to 20 degrees in every direction while the aircraft was climbing straight up at a couple thousand feet per minute.

I defaulted to basic instruments and started repeating, "Get some airspeed, wings level, in trim, keep climbing." As the IP increased the airspeed our attitude stabilized, and I saw the altimeter passing 4,000 feet on the way to our minimum safe altitude. I breathed a sigh of relief. Now that it appeared we would live, it was a simple matter of calling Approach Control, declaring an emergency, and doing an instrument landing system (ILS) approach.

As the IP started flying toward the approach airfield, which wasn't our home airfield, I started digging out the approach plate to get frequencies and such. I was tuning up the radio and about 1 to 2 minutes had passed when the IP said he had the ground in sight through a gap in the clouds. Even though I joked about it being a "sucker hole," neither one of us wanted to declare an emergency and disrupt the Class B airspace. He began a dive through the opening.

No, we didn't punch back into the clouds, but we did pop out right in the middle of a set of 1,500-foot antennas. Fortunately we still had on our NVGs as we carefully picked our way through the guy wires. I swore I'd never let myself get into such a stupid situation again. That night I learned a whole bunch of lessons the hard way. I only hope that after you quit laughing, you remember our mistakes and avoid getting into a similar situation. ♦

—CW4 Marc V. Elig, ASO, 2-25th Aviation Safety, Schofield Barracks, HI, DSN 315-456-2562 (808-656-2562), e-mail eligmv@schofield.army.mil

Here's another one...

This one time I was performing a topping check (TEAC) in a UH-1 with another maintenance test pilot (MTP) in the left seat, screaming through 8,000 feet mean sea level (MSL). Inside the cockpit, both of us were recording the numbers when we popped into a cloud deck and went full IMC. Could this be contributed to overconfidence? Yes, but situational awareness, no. Did the principles of maintaining level attitude and constant heading, along with minimal control inputs and an accurate assessment of where and what just happened, pay off? You bet! But in this case, I descended without any further problems because the conditions didn't necessitate vertical helicopter IFR recovery procedures (VHIRP). Did I report it? No—not back then, anyway. I was a young aviator not willing to admit I had made a mistake. ♦

—LTC Jeffrey S. Radke, ASO, Delaware Army National Guard, 302-326-7208, e-mail jeffrey.radke@de.ngb.army.mil

And another...

In Germany years ago, one of our command and control (C2) pilots was flying an OH-58A or C (I can't remember which) and had a frightening IIMC experience. He was coming back from the north and had an artillery captain with him. They were at about 500 feet, trying to follow the autobahn and stay visual meteorological conditions (VMC). The pilot momentarily looked inside to check his map, but when he looked back out all he saw was the inside of a cloud. I'll never forget his "testimonial" at the next safety and standards meeting when I, as the IP and instrument flight examiner (IFE), asked him to share his experience with the group. When I asked him what he did, he blurted, "I immediately turned 180 degrees." I asked if he transitioned to instruments, to which he replied, "Hell no! I just turned it around!" So much for classroom training! This guy was known in the unit for being a hardhead.

As a long-time Huey pilot, IP, and IFE, I always preached "real world" instruments. We tried to plan an IMC flight every chance we could. All the classroom training in the world can't beat actually going into the clouds. There is no way to inspire the panic that sets in when you suddenly find yourself IIMC. I believe that only with hours of instrument training and experience can a pilot remain relatively composed when this happens. I have yet to find a commander who considers instrument training a waste of time, especially if there's a simulator around. ♦

—CW5 Sargent B. Means, Andrews Air Force Base, sargent.means@andrews.af.mil

Editor's note: If you have an IIMC story, or any war story you'd like to share, please e-mail flightfax@safetycenter.army.mil.

Mail Call

I just finished reading your war story "The Need to Know" in the December 2003 Flightfax. Just wanted you to know you are not alone.

I had an almost identical experience as an ROTC cadet in the flight program at the University of Houston in February 1972. I had about 14 hours at the time. I was at 3,000 feet over the Houston Ship Channel in a CESSNA 150 when I attempted to enter and recover from a stall. I was at a high power setting and out of trim. The nose dropped and the aircraft entered a flat spin which became increasingly steep. I fought the controls but nothing worked.

Then, I remembered my flight instructor's advice and demonstration from an earlier flight. He demonstrated (along with a lot of other non-standard maneuvers) the aircraft's capability to fly "hands off" and advised me that if I ever got in trouble to simply pull off the power and take my hands and feet off the controls.

Since nothing else was working, I did just that. I pulled off the power. The hardest part was taking my hands and feet off the controls. When I did, the aircraft gave a lurch and a little dip, and flew right out of it. I recovered about 1,000 feet above a refinery. I then calmly flew back to Hobby airport. After I landed, I had a real case of the shakes and couldn't stop thinking about what had just happened.

In retrospect I was saved because of--

■ The inherent characteristics of a fine aircraft.

■ My flight instructor taught me a maneuver a lot sooner than I needed it.

■ A LOT OF LUCK.

I flew for 24 years after that. I have had other close calls, but that one always sticks in my mind.

So thanks for a good story, with a good point. ♦

—LTC Chris Southard, chris.southard@us.army.mil

ARAS—Accident Reporting Made Easy

Julie Shelley
Staff Editor

When an accident happens, the last thing anyone wants to think about is paperwork—you know, those pages-long accident reports that seem to go on and on. But that paperwork is vital in the fight to prevent future accidents in our Army. To answer that need, the U.S. Army Safety Center (USASC) is in the process of developing an automated, user-friendly reporting system available at the touch of a button—the Accident Reporting Automation System, or ARAS.

The first of several ARAS phases to be released over the next 2 years was deployed in early January 2004 and provides a much-needed alternative to the cumbersome paper reports used in the past. Through ARAS, the Abbreviated Ground Accident Report (AGAR) and Abbreviated Aviation Accident Report (AAAR) can now be completed online through the USASC's Web site. These forms are available anytime you need them, and they also come with built-in help! A few features include:

■ Built-in logic making the forms intuitive, which will help guide you through the accident reporting process—NO MORE CODE BOOKS! The drop-down menus

found throughout the system allow you to select needed information, reducing the amount of time spent filling out unnecessary sections.

■ An error-checking code to help you input accident data and reduce erroneous or incomplete data submissions. The electronic forms help with dates, times, and cost information, thereby saving time from needless corrections.

■ A complete Help menu system for technical and accident reporting questions and concerns.

■ An overview tutorial to assist you in navigating the appropriate Web pages.

■ Army Knowledge Online (AKO) authentication, which means you won't have to remember another user name and password. After initial registration, the system remembers your name and even what page you worked on last in a particular report. Also, each of your active reports is displayed every time you log on, making file management of multiple reports much easier.

■ Total electronic staffing of accident reports, so there's no need to print, fax, or mail paper copies. Once you submit the completed report, your supervisor will be notified via e-mail and asked to review the information.

Since this is a first-phase version, the system currently is available only for Class C and D on-duty ground accidents, and Class D, E, and F on-duty aviation accidents. However, forms for all accident classifications should be released in the near future. The ARAS forms can be accessed directly at **http://safety.army.mil/aras_public/intro_aras.html** or from the USASC home page, **http://safety.army.mil/home.html**.

Remember that ARAS is an official Department of Defense automation system developed to capture legitimate Army accident data. Practice sessions are not permitted—all data submitted on the site should involve actual Army accident cases. A developmental test site is available, however, to allow you the opportunity to become familiar with the automated forms and test the approval process. The test site can be found at **http://safety.army.mil/araswebforms/index.asp**.

The USASC team is excited to bring you this new technology. It's now easier than ever to report this vital data. Get on the test site and try ARAS out. We think you'll like it! ♦

—Ms. Julie Shelley, U.S. Army Safety Center, 334-255-1218 (DSN 558-1218), shelleyj@safteycenter.army.mil

Dust Landings—Lessons Learned Over 27 Years

CW5 Dennis McIntire
NVD Branch, Fort Rucker, AL

Dust landings will challenge the best of aviators. In heavy dust, the brownout is not a question of "if" but, "when." The "if" is a given, while the "when" is a factor we have little control over.

It's important to understand that the dust generated during the landing phase doesn't cause a true brownout until the vortices bring the heaviest dust through the rotor system. That said, if you can be in a touchdown position prior to that point, your landing will be easier and that much safer.

Additionally, you must understand the direct correlation between the aircraft angle of approach and the rate of descent as it applies to the ground roll/run following touchdown. It is best explained this way. At one extreme we can use a shallow approach angle. In that case our airspeed is higher (with a touchdown at or slightly above ETL), our rate of descent is very low, and our ground roll/run is long. That approach is relatively easy to master and has its place when landing to flat, unobstructed areas. For illustrative purposes ONLY, let's say the other extreme is a 90-degree vertical approach angle. This theoretical approach would use zero airspeed, a very high rate of descent, and would result in little or no ground run. It would also be extremely difficult to perform. Again, this example is only provided to illustrate the extreme end of the spectrum. I am not advocating that type of an approach. What I am saying is that you can execute a safe and controlled dust landing with minimum ground roll/run to most areas using factors in between these two extremes.

Over the years I have executed thousands of dust approaches while training others. During that time I have learned that dust landings using a steep side of a normal approach work best when landing to the toughest and dustiest landing zones. This type of approach is tough to perform, but I believe that every aviator needs to master it.

Approaches using the steeper approach angle must be flown in concert with a higher rate of descent than that of a normal approach. By a "higher rate of descent" I am not implying that the aircraft has to literally "fall out of the sky." Hardly so. The rate of descent is just slightly higher than that of a normal approach. While the brownout condition occurs without warning using the steeper approach, it reduces the opportunity for the dust

to cycle through your rotor system prematurely. That decreases the likelihood of a brownout before you are landing-assured. In addition, these approaches require greater skill due to the timing factor involved with adjusting the controls for touchdown. The benefits, however, become readily apparent when landing to unimproved dusty landing zones. This approach reduces the ground roll/run while allowing the pilot to see the landing area for virtually the whole approach.

The confidence to perform a dust landing with this type approach comes only through repetition with the benefit of a more experienced pilot or instructor pilot on the other set of controls. Most of this training can take place in a non-dusty area to reduce wear and tear on the aircraft. The "final exam," however, must be in true brownout conditions. Only then can the aviator know that their skills are up to the task.

Surprisingly, I've noticed that many aviators, especially those flying more powerful aircraft, tend to ignore the wind when determining their landing direction. Forgive me for stating the obvious but this can't be overemphasized—landing with a tailwind forces you to land with a higher ground speed to avoid browning-out prematurely. With that in mind, remember that "wind calm" does not always mean there is no wind. Just a few knots of wind can make all the difference in the world when it comes to your dust landing. Try it yourself. Experiment with a tailwind and headwind dust landing under identical light wind conditions. You can use a quartering headwind/tailwind if you like. Regardless, you'll be amazed by the results.

Knowing the surface wind is so important to me that in times where trusted indicators of surface wind were absent (trees, dust, smoke or water), I went through the effort of generating my own dust with a low approach to an area away from my final landing area. I performed that maneuver at a distance from my final landing area to avoid obscuring it prematurely for my later approach. This technique allowed me to accurately determine the wind direction and then consider it, along with other factors, in deciding my final approach method.

Formation landings add a measure of risk due to the increased chance of collision during the landing or go-around phase. Collective training is a must to ensure that individual crews work as one during their formation landing. While the landing techniques for formation aircraft are the same as for single-ship operations, all aircraft in the formation must be using the same approach angles, speeds, and braking. In addition, formation landings in dust require the formation to be "stacked down" so that the trail aircraft touches down first. All other chalks land in succession with the lead aircraft touching down last, thereby enabling all the aircraft to land in relatively "clean" air.

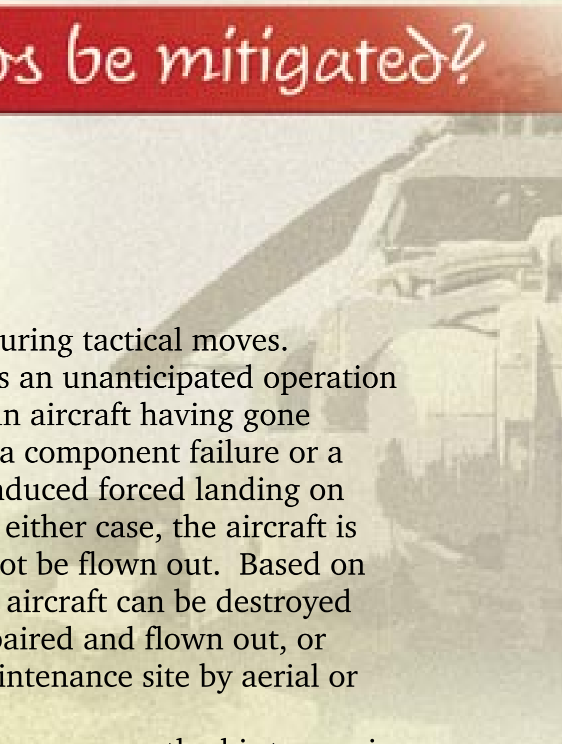
Ironically, though dust landings are not new to Army Aviation, recent events have forced us to look more closely at how we perform them. Until a device comes out that allows aviators to see "virtual VFR" in all conditions (trust me, we're looking), the individual pilot's skills will largely determine the landing outcome. **Fly safely!** ♦

Editor's note: This article delves only into the mechanics of a dust landing. Keep in mind that crew coordination, go-around procedures, and a plethora of other considerations need to be applied during the execution of these maneuvers.

—CW5 McIntire is Chief of the Night Vision Devices Branch, Fort Rucker, AL. He has been an IP since 1984 and has flown more than 5,500 hours with over 3,000 hours as a UH-1 & UH-60 IP/IFE. He can be reached at DSN 558-9515 (334-255-9515) or e-mail mcintire@rucker.army.mil.

Maintenance Evacua
Battlefield Recover

How can these risk and hazards be mitigated?



CW3 Timothy S. Ashcom
DOTDS, Fort Rucker, AL

Evacuation and recovery of downed aircraft places unique challenges on commanders. Planning, coordinating, and executing the safe recovery and evacuation of Army Aviation assets is vital for the preservation of our combat resources. General procedures used to develop, coordinate, and execute aircraft recovery and evacuation are detailed in Field Manual (FM) 3-04.513(1-513), Battlefield Aircraft Evacuation and Recovery.

Maintenance evacuation and recovery

Physical procedures for maintenance evacuation and battlefield recovery of aircraft are almost identical; both require rigging of the aircraft for helicopter evacuation or vehicle transportation. This article, as it pertains to physical procedures and the use of rigging kits, applies to both maintenance evacuation and battlefield recovery.

Maintenance evacuation is the physical act of moving an aircraft from a maintenance location on the battlefield to another maintenance location for repair. Movement is accomplished either by fly-out or aerial or ground recovery means. This type of evacuation normally is conducted to cross-level maintenance workloads or to relieve units of disabled aircraft during tactical moves. Aircraft recovery is an unanticipated operation that results from an aircraft having gone down from either a component failure or a combat damage-induced forced landing on the battlefield. In either case, the aircraft is disabled and cannot be flown out. Based on an assessment the aircraft can be destroyed or abandoned, repaired and flown out, or recovered to a maintenance site by aerial or ground means.

The preferred recovery method is to repair the aircraft at the scene of the forced landing. The aircraft then can be returned to service or prepared for evacuation to a maintenance site. Ground recovery remains an option to return an expensive asset to service when the aircraft cannot be repaired at the site or recovered aerially. The time allotted to repair the aircraft at the scene depends on the tactical situation. If time is not sufficient or the enemy situation dictates, recovery can be achieved by aerial or ground transportation.

Recovery operations always require detailed coordination. Manpower and recovery assets must be synchronized in response to time and the tactical situation. Extensive coordination among the battlefield functions of maneuver,

tion and
y of Aircraft

fire support, air defense, intelligence, and combat service support often are required. Command, control, and tactical procedures are preplanned and are included in unit standing operating procedures (SOPs), contingency plans, operations orders (OPORDs), and air mission briefings.

Responsibility for a recovery originates with the commander of the unit to which the disabled aircraft is assigned; however, responsibility may pass to a higher echelon when it is beyond the capability of the unit to complete the operation. A recovery operation begins when an aircraft has experienced a forced landing or is otherwise disabled on the battlefield. It ends when the aircraft has been recovered to, and is under the control of, a maintenance facility.

Recovery operations are unique. Each operation is discrete and could involve the initiative and imagination of commanders and staff to synchronize the operation within a range of variables. Aircraft that cannot be recovered and are in danger of enemy capture are destroyed according to Technical Manual (TM) 750-224-1-5. The authority for destruction will be included in SOPs and OPORDs. If possible, aircraft are cannibalized before destruction.

Accident investigation board

According to Army Regulation (AR) 385-40, Accident Reporting and Records, the commander who first becomes aware of an Army aircraft accident places a guard at the scene. This prevents anyone from moving or disturbing the aircraft or detaching parts until it is released by the accident investigation board president and by the U.S. Army Safety Center, if taking part.

In the combat environment, it might not be possible to comply fully with this requirement. Further, an aircraft damaged as a direct result of hostile fire is considered a combat loss rather than an accident. Situation permitting, the recovery operation may not begin until one of the following occurs:

- The commander of the unit to which the aircraft is assigned orders that an accident investigation board, as prescribed by AR 385-40, is not required; or
- The board president releases the aircraft.

Evacuation method

The evacuation method is accomplished by on-site repair of the disabled aircraft. The aircraft is prepared for a one-time evacuation mission to a regular maintenance area with a minimum flight crew (only the pilot, when possible). The pilot should be proficient in all emergency procedures for the particular aircraft. Advantages of the one-time evacuation mission method are speed, economy, and minimum likelihood of further damage. Disadvantages include the requirement for a clear takeoff path, the possibility of unfound damage causing a crash, the requirement for special tools and equipment, and the effects of weather conditions.

Aerial (sling-load method)

Aerial (sling-load method) recovery and evacuation involves preparing the disabled aircraft for movement, connecting it to a suitable lift helicopter with a component from an aerial recovery kit, and transporting it to a maintenance area. Advantages of aerial recovery or evacuation include less disassembly requirements and disabled aircraft accessibility, both of which contribute to a speedier rescue than the surface method (discussed on next page).

Some of the disadvantages are the possibility of dropping the disabled aircraft (thus inflicting more damage), the effects of rotor down-wash on the sling load, the effects of weather conditions, the possibility of loss of or damage to the recovery aircraft, and the requirement of a cleared approach and departure path for the recovery aircraft.

Surface method

The surface method of recovery and evacuation involves preparing the disabled aircraft for movement, lifting it onto a suitable transportation vehicle, and transporting it to a maintenance area. One advantage of the surface recovery method is that it restricts the enemy's ability to detect movement of recovery assets to an area relatively close to the movement routes. In addition, this method is used when weather conditions prohibit flight or threaten total loss of the aircraft during transport. Disadvantages include route security assets that are needed somewhere else might be occupied in the surface recovery effort; the time needed for surface recovery is much greater than for aerial recovery; recovery personnel and equipment assets are unavailable for long periods; the relatively high exposure time on the battlefield with slow-moving equipment increases the threat; a significant amount of aircraft disassembly or modification often is required to adapt the aircraft to surface travel; ground routes must be accessible and meticulous reconnaissance of the route is required; and loading procedures and travel on rough terrain can cause further damage to the aircraft.

On-site recovery procedures

Procedures performed at the site of the disabled aircraft include making the recovery area accessible, using communications correctly, and making the aircraft secure, safe, and ready for stable flight.

Condition of the pick-up site

The pick-up site must be cleared of all trees, obstacles, and trash. The recovery helicopter pilots must know of conditions that might restrict their visibility, such as dust or snow. Trees and obstacles should be cleared from the pick-up site, and foliage that is cut to clear an area must fall away from the area. This is done by appropriate tree notching or by a constraint applied to the tree using positioning straps and rope.

The pick-up area should be cleared thoroughly of all trash before the recovery helicopter arrives. Any item left unsecured can become an airborne missile, which could endanger recovery personnel or equipment. Recovery helicopter pilots also should be warned if the pick-up area has accumulated loose snow or is dusty. This enables the pilots to pre-plan for their approach, hookup, and departure of the downed aircraft area.

Risk management as applied to aircraft recovery and evacuation operations

The loss of an aircrew and/or airframe not only impacts the combat capability of an aviation unit, but the psychological trauma from the loss of a fellow crewman can, and will, adversely affect unit morale. In addition, high loss rates rapidly can deplete available operational readiness float (ORF) assts. FM 3-04.513(1-513), dated 27 September 2000, discusses the importance of including downed aircraft recovery missions into the battalion and brigade staff tactical decision-making process and applying risk management techniques and controls to reduce or mitigate risks.

Risk management is a common-sense tool that leaders can use to make smart risk decisions in tactical and everyday operations. It is a method of getting the job done by identifying the areas that present the highest risk and taking action to eliminate, reduce, or control the risk. It is not complex, technical, or difficult. Rather, it is a comparatively simple decision-making process, a way of thinking through a mission to balance mission demands against risks. ♦

—CW3 Timothy S. Ashcom is a doctrine writer and Collective Training Branch Chief in Combat Service Support, Directorate of Training, Doctrine, and Simulation (DOTDS), Fort Rucker, AL, DSN 558-2358 (334-255-2358), e-mail: ashcomt@rucker.army.mil.

The Write STUFF

Want to be a famous writer? The following tips will help you become the next best thing: a contributor to *Flightfax*!

Perhaps you've never written an article before. Don't let that scare you! It can be surprisingly easy, and the results are rewarding. By sharing your knowledge, you can make a valuable contribution to your fellow aviators. Whether your story is a long feature or a simple tip, it just might save someone's life or an expensive piece of equipment.

Flightfax is Army Aviation's only risk management publication. Popular topics include spatial disorientation, weather and environment, foreign object damage (FOD), flight data recorders, aviation maintenance, and night vision goggles (NVGs). A favorite is "War Stories," tales from pilots and crewmembers about close calls, near-misses, or lessons learned the hard way.

Getting started

The first thing you need to do is decide what you want to say. Then, just let it flow! Here are some tips:

■ Write about your personal experiences. The tone should be conversational, as if you are talking to a friend.

■ Keep it simple, direct, and easy to understand. Avoid language, jargon, or acronyms that might be unfamiliar to your reader. If you have to use technical terms or acronyms, include a brief definition.

■ Articles should be saved in Microsoft Word format and double-spaced. Most stories run one to two pages (about 500 and 1,000 words, respectively) and are restricted to four pages in length.

■ Remember that each issue of *Flightfax* is planned 3 months in advance, so make sure your article is still relevant and will interest readers several months down the road.

■ Your article will be more effective if you include supporting photographs or cartoons.

Graphics

Appropriate graphics enhance the reader's understanding. Clear, sharp photographs are important. Digital photos in JPEG or TIF format of at least 300 dpi are preferred; however, 5 x 7 color prints, negatives, and 35mm slides are acceptable.

Photograph soldiers or equipment doing something—avoid those boring static or posed photos. Be sure the photographs do not show any safety violations (i.e., a soldier performing maintenance wearing a watch or ring, or soldiers outdoors without proper head gear). Good photographs don't always need a story; we can use them for a poster or the front cover.

Submissions by mail must include a printed manuscript, text on a 3.5-inch disk, a cover letter, and complete photo captions.

Mail your complete publication package to:

U.S. Army Safety Center
ATTN: Flightfax
Bldg. 4905, 5th Ave.
Fort Rucker, AL 36362-5363.

The quickest way to get your story to us is by e-mailing it to **flightfax@safetycenter.army.mil**. Remember to include your rank, name, unit, address, and office telephone number (commercial and DSN). Also, please add a brief biographical sketch for your byline. Help us make *Flightfax* the best publication in the military—after all, it's your magazine!

For more information, contact Paula Allman, *Flightfax* Managing Editor, DSN 558-9855 (334-255-9855), or e-mail paula.allman@safetycenter.army.mil. ♦

ACCIDENT BRIEFS

Information based on preliminary reports of aircraft accidents

AH-64

D Model

■ **Class A:** The crew noticed smoke and heard a grinding noise coming from the transmission area. Shortly afterward, the #2 engine transmission caution light illuminated. The crew completed emergency landing and shutdown procedures when the AFT DECK FIRE caution light illuminated. The crew egressed safely; however, the aircraft was consumed by fire.

CH-47

D Model

■ **Class C:** While conducting a 30-minute ground run after completing an engine upgrade, the #1 generator failed, causing the XSMN AUX oil pressure light to illuminate. The crew immediately shut down the aircraft. Post-flight inspection revealed a black ring around the generator, and the aft transmission filter was popped. A serviceability check showed a large amount of debris in the area. It is suspected the generator shaft sheared and caused foreign object debris damage to the transmission.

MH-60

K Model

■ **Class D:** During high-altitude parachute operations, the jumpmaster inadvertently pulled the cargo door window emergency release handle. The left cargo door windows separated from the aircraft and struck two main rotor blades, one tail rotor blade, and the left horizontal stabilator. The crew performed a precautionary landing. Damage was noted on the post-flight inspection by the technical inspector. The aircraft was cleared for a one-time flight to the airfield, where it was repaired and returned to service.

OH-58

C Model

■ **Class C:** During daylight initial entry rotary-wing training for a low-level autorotation, the student pilot entered the maneuver at the correct entry point but applied too much aft cyclic to decelerate the aircraft. The aircraft subsequently "ballooned." The aircraft began to settle past the middle 1/3 of the safety lane. At about 25 feet above ground level, the instructor pilot (IP) determined the aircraft would not make the safety lane and took the controls. The IP rapidly rolled the throttle to full open and applied collective to stop the rate of descent, overtorquing the aircraft to prevent a hard landing.

■ **Class C:** The aircraft experienced an engine over-temperature condition during start-up. Turbine outlet temperature spiked to 1,000 °C before engine shutdown. Engine replacement was required.

D(I) Model

■ **Class C:** Aircraft experienced engine and transmission over-torque readings of 128 percent and 131 percent (mast) for 4 seconds, respectively.

D(R) Model

■ **Class C:** Mast and engine torque readings exceeded limitations during a readiness level progression evaluation flight. Engine replacement was required.

UH-60

A Model

■ **Class C:** The crew was conducting a night unaided approach into a landing zone (LZ) when the aircraft's main rotor blades struck a tree. It was determined the landing light was not turned on soon enough, and the aircraft was lower than thought at the time of the tree strike.

■ **Class C:** The aircraft contacted wires during a passenger transfer mission. The uppermost wire made contact with the left side of the aircraft, causing damage to the chin bubble, step fairing, gunner's window, cargo door, stabilator, one main rotor blade, and the main landing gear cowling. The aircraft landed without further incident.

L Model

■ **Class A:** The aircraft entered an uncommanded yaw during takeoff and landed hard. One soldier suffered minor back injuries.

UH-1

V Model

■ **Class C:** The aircraft experienced an overspeed condition during an emergency governor operation following a perceived engine failure. The crew conducted a precautionary landing without further incident.

C-12

■ **Class B**: The crew was en route to a passenger pickup point when they suspected lightning had struck the aircraft. The aircraft landed, and post-flight inspection confirmed lightning strike damage.

RC-12

N Model

■ **Class D:** As the aircraft rotated during takeoff, the right-side outboard engine cowling separated from the aircraft. The crew aborted the mission and returned to the airfield without further incident.

For more info on selected briefs, call DSN 588-9552 (334-255-9552) or DSN 588-3410 (334-255-3410).

Flightfax Readership Survey

In an effort to keep current with field needs, we need your feedback. Please take a few minutes to fill out the form below and return it to us using the pre-addressed mailer on the back or fax it to Ms. Paula Allman, 334-255-3003.

1. Name (optional) ____________________________ Rank/Grade ________

2. Duty Status (Active, Reserve, Guard, Civilian, Other?) ____________________

3. What is your—

Branch? ____________________ MOS or civilian specialty? ____________________

Job title? ____________________ Duty location? ____________________

Total Flight time? ____________________

4. Which item best describes your current duty assignment?

- ☐ Operational flying
- ☐ Aviation maintenance
- ☐ Aviation safety—unit
- ☐ Other (specify) ____________________

5. How often do you read *Flightfax*?

- ☐ Every month
- ☐ Occasionally
- ☐ Rarely

6. When do you receive *Flightfax*?

- ☐ In the month it's dated
- ☐ After the month it's dated

7. Have you visited the Army Safety Center Web Site (http://safety.army.mil)?

- ☐ Yes, at work
- ☐ Yes, at home
- ☐ No

8. How would you prefer to receive *Flightfax*?

- ☐ In printed form
- ☐ Electronically (e-mail, Web)
- ☐ Other (specify) ____________________

9. How do you use the information in *Flightfax*?

- ☐ In safety meetings
- ☐ On bulletin boards
- ☐ In reading file
- ☐ In unit safety publications/directives
- ☐ To keep informed
- ☐ Other (specify) ____________________

10. What would you like to see added to *Flightfax*? ____________________

____

____

11. Use the scale below to rate how useful these articles are to you:

None = 1   Low = 2   Medium = 3   High = 4

- ___DASAF's Corner
- ___Investigators' Forum (accident reviews)
- ___War Stories (Near misses)
- ___Performance Updates (stats/trends)
- ___Accident Briefs
- ___Maintenance
- ___Safety messages
- ___Seasonal articles
- ___POV safety
- ___Broken Wing Awards
- ___NCO Corner
- ___Posters
- ___Other (specify) ____________________

12. Do you feel the articles have ever prevented or decreased the probability of an accident by you or someone you know? Explain.

____

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13. Rate the following types of info in terms of your interest and need.

None = 1   Low = 2   Medium = 3   High = 4

___Lessons learned

___Hazards, risks, and controls

___Risk-management process

___Humorous articles

___In-depth reports of accidents, causes, and solutions

___Safety articles on seasonal topics (e.g., cold weather injuries)

___Technical information on equipment and systems

___Statistical studies

___Accident rates

___Articles on new developments, equipment, etc.

___Maintenance topics

14. Rate the overall quality of *Flightfax*.

Poor = 1, Fair = 2, Good = 3, Exceptional = 4

Content:

___Accuracy

___Effective coverage of topic

___Choice of topics

___Credibility

___Interest to aviators

Layout:

___Appearance

___Illustrations

___Readability

15. Comments/suggestions to improve Flightfax. ________________________________

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