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**PUBLISHER**

James A. Viola

**EDITOR**

Gina Kvitkovich

**DEPUTY EDITOR**

Christine A. DeJoy

**GRAPHIC DESIGN**

Phyllis J. Utter

**ADVERTISING**

[sales@rotor.org](mailto:sales@rotor.org)

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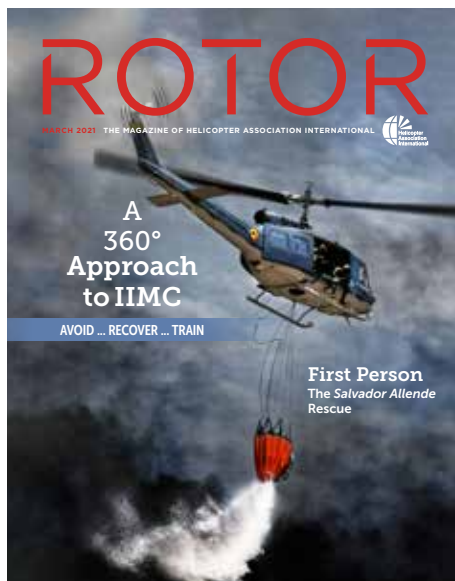
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#### Scott Burgess, PhD

Embry-Riddle Aeronautical University  
Rule, Texas, USA



**ON THE COVER:** Roberto José García Hernández earned himself an Honorable Mention in this year's ROTOR Magazine Photo Contest with this January 2020 shot of a Colombian Air Force Huey II conducting a firefighting mission in a nature park in Colombia's Antioquia Department. García Hernández's split-second timing forces the viewer to wait—just like the two figures in the Huey—to see where the water will fall. Turn to p. 55 to see more great photos of helicopters.

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# CONTRIBUTORS

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## Mark Bennett

Mark Bennett worked for McDonnell Douglas Helicopter/Boeing for a decade, then in 1999 cofounded an aerospace-only marketing agency. With 30 years of photography and design experience serving the aerospace and defense industries, he founded AeroMark Images to shoot and write for both industry and media.



## Cade Clark

HAI's VP of government affairs, Cade Clark has directed association advocacy programs for nearly 20 years. Growing up, he worked at an FBO where Cade learned to fly, washed planes, got in the mechanics' way, idolized the old-timers and their stories, and deepened his love for all things general aviation.



## Thomas McKenzie

Thomas McKenzie is a retired US Coast Guard chief public affairs specialist with experience in Alaska; Washington, D.C.; New York City; the San Francisco Bay Area; and 42 other US locations. His final assignment was on the Coast Guard's National Strike Force Public Information Assist Team, a four-person crisis, emergency, and risk communications disaster-response unit.



## Scott Boughton

Scott Boughton, an outspoken advocate for improved safety through focused intentional training, is a veteran Part 135 instructor/check pilot. Currently an IFR pilot in command in the EC135, part-time production test pilot, and vice chairman of the HAI Training Working Group, Scott holds rotorcraft ATP and CFII certificates.



## Jaasmin Foote

Jaasmin Foote joined HAI as the association's social media manager in March, just a week before the COVID-19 pandemic lockdown. She holds a bachelor's degree in English and is currently pursuing her master's in marketing. Jaasmin is responsible for all the cool posts on HAI's social media platforms. Follow us, drop by, and say hi!



## Zac Noble

Zac Noble joined HAI as its deputy director of flight operations and technical services after 11 years of flying in the air medical sector. A US Army veteran, Zac's aviation career spans more than 35 years. He is a dual-rated ATP, a dual-rated CFII, and an A&P with IA privileges.



## Jen Boyer

Jen Boyer is a 20-year journalism and public relations professional in the aviation industry, having worked for flight schools, OEMs, and operators. She holds a rotorcraft commercial instrument license with CFI and CFII ratings. Jen now runs her own public relations and communications firm.



## David Jack Kenny

David Jack Kenny is a fixed-wing ATP with commercial privileges for helicopter. He also holds degrees in statistics. From 2008 through 2017, he worked for AOPA's Air Safety Institute, where he authored eight editions of its *Joseph T. Nall Report* and nearly 500 articles. He'd rather be flying.



## John Shea

John Shea joined HAI as director of government affairs in 2019. He came to HAI from the National Association of State Aviation Officials (NASAO), where he was interim president in 2018 and lead government affairs representative since 2017. Previously, as a legislative staffer, John advised multiple members of Congress on transportation policy.



## Bryan Burns

Bryan Burns is president of the Air Charter Safety Foundation. He has 30-plus years of experience with fixed-base operators, serving as the GM for Signature Flight Support, Jackson Hole Aviation, and Vail Valley Jet Center. A private pilot, Burns holds a BS degree from Florida Institute of Technology.



## Gina Kvitkovich

Gina Kvitkovich joined HAI as director of publications and media in 2011 after decades of honing her skills in writing, editing, and publishing. As editor of ROTOR, she is responsible for every error in the magazine that you're reading—and for some of the good stuff, as well.



## Dan Sweet

Dan Sweet joined HAI as director of communications and public relations in 2017. He previously served in the US Navy as a photojournalist. After leaving the Navy, he worked for Oregon-based Columbia Helicopters, performing public relations, communications, and trade show management work for more than 22 years.

## WRITE FOR ROTOR

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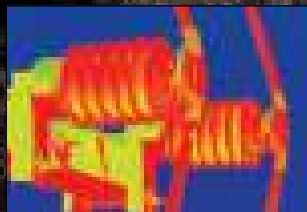


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By Jeffery Smith



Jeffery Smith holds the position of treasurer on the HAI Board of Directors. He is chief helicopter pilot for ROP Aviation and has worked with the Eastern Region Helicopter Council for more than 15 years, having served as the group's chairman for 5 years. Jeff is a US Army veteran and has accumulated more than 10,000 flight hours, including over 700 hours in military and commercial helicopter air ambulance missions.

## What Can HAI Do for You?

*Everything you need help with.*

**I**'VE BEEN ON THE HAI BOARD OF DIRECTORS FOR ALMOST TWO YEARS, but I've been associated with the organization for almost two decades. One of the most common questions I'm asked is: What can HAI do for me?

The best answer is: What do you need help with? I've been a line pilot, middle manager, safety officer, aviation manager, director and chair of a regional advocacy group, and public spokesperson. In each role, I've taken advantage of HAI resources to better meet my challenges.

Can HAI help you get a better job? (Yes.) Can HAI work with elected officials to provide needed relief such as Payroll Support Program funding (\$179 million and counting!) and an excise-tax holiday during the pandemic? (Yes.) Can HAI help you and your colleagues in the vertical takeoff and landing (VTOL) industry be safer? (Yes.) Can HAI pursue a national aviation policy that won't allow the airspace to be carved into micro-jurisdictions? (Yes.) Can HAI work with regulators to get more designated pilot examiners, restore human external cargo operations, or shorten the wait for Part 135 approvals? (Yes, yes, and yes.)

HAI isn't an annual trade show; it's an international member services organization. Although HAI HELI-EXPO® is an important revenue stream for the association, as treasurer, I can tell you that member dues, while very much needed, don't come close to covering the expenses incurred by HAI's work on issues that affect the global helicopter industry. And because HAI is a not-for-profit organization, any revenue beyond expenses goes directly back into creating and delivering member services.

We're also fortunate to have hundreds of HAI members who volunteer to address industry issues, taking time out of their busy schedules to give back to the industry that feeds them. In my opinion, THAT is what HAI is about: a community of peers working to address their common problems.

Art Fornoff and the other 15 folks in the room when this organization was formed in 1948 weren't trying to amass member dues or find a revenue stream. They were motivated by a different purpose. Although the civil helicopter was only two years old, these farsighted operators understood that, though they were competitors, they had to all band together to ensure a safe, sustainable, and economically viable industry. No small task, then or today.

I will say that HAI needs to communicate better and make it easier for all our members to enjoy the benefits the association offers. Through recent polling, we found that most people who work for HAI member organizations don't know that they are automatically members too. That's right—everyone who's an employee of an HAI member company can access all the information and resources for HAI members, including direct access to HAI's technical, regulatory, and legislative staff members.

Other HAI members-only benefits include several programs aimed at improving operational safety, discounts on attending or exhibiting at HAI HELI-EXPO and HAI education courses, as well as opportunities to promote your organization in HAI media. In HAI's working groups, members can take on a leadership role by tackling industry issues. ROTOR Daily, ROTOR magazine, weekly webinars, the *Washington Update* newsletter, on-point safety videos—HAI provides our community with information, data, and one-on-one contacts for your questions.

Is your company an HAI member? If not, why not? And if it is, then ask your company's HAI member representative to update your HAI company roster with all staff who should enjoy our benefits (or contact [member@rotor.org](mailto:member@rotor.org) for help). You'll quickly learn what HAI can do for you. 🌐



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By James A. Viola



James A. Viola is HAI's president and CEO. After a career as a US Army aviator, he joined the FAA, where he served as director of the Office of General Aviation Safety Assurance before joining HAI. A dual-rated pilot, Jim holds ATP ratings in both airplanes and helicopters and is a CFII. Jim can be contacted at [president@rotor.org](mailto:president@rotor.org).

## Planning for the Future

*Coming soon: new initiatives for HAI and global safety.*

**I** HOPE THIS EDITION OF ROTOR MAGAZINE FINDS YOU HEALTHY and doing well in 2021. I was looking forward to seeing you all this month at what would've been my second HAI HELI-EXPO® as your president and CEO, but as you know, we had to alter our flight plans to adjust to changing conditions.


We've now fully shifted gears to planning HAI HELI-EXPO 2022, which will be held in Dallas, Mar. 7–10, with exhibits open Mar. 8–10. Mark your calendars now, and please plan to bring all your business associates, employees, and friends. Everything is bigger in Texas, and we're certainly planning a show to match.

In the meantime, I hope you're keeping up with all the things HAI is doing during this pandemic to ensure that you're ready to shift gears and get back to business. As you'll read in this edition of ROTOR, your association staff has been hard at work for you. Thanks to our Government Affairs team, HAI members have received more than \$179 million in US Payroll Support Program funds (p. 12). Meanwhile, HAI's Member Services Department is moving online the content and events previously scheduled for New Orleans, so you won't have to skip a beat in your professional development (p. 17). We're also launching a new, members-only safety program (p. 38), and of course you're reading and hearing about all this due to the excellent work of the MIC (Marketing, Information, and Communications) Department.

But we're not done yet. HAI surveyed the global vertical takeoff and landing (VTOL) industry to help us understand what you need today and what will help you achieve future success. Based on your feedback, we're drafting a five-year strategic plan for the association's activities and growth. This plan will then go out to you, the HAI member, for your review and comments. Please watch for this document in the next 60 to 90 days. And if you already have something to say, don't wait—drop me a note at [president@rotor.org](mailto:president@rotor.org).

One of the bigger changes that has occurred in the past 12 months has been the expansion of what started in 2005 as the International Helicopter Safety Team (IHST). At that time, the global helicopter community—manufacturers, operators, associations, and regulators—joined together to reduce the worldwide civil helicopter accident rate by 80% in 10 years. In 2019, the IHST recalibrated, incorporating as the International Helicopter Safety Foundation (IHSF) with a vision of zero accidents. The IHST/IHSF has been globally recognized for its work in advancing helicopter safety. Its regional safety teams, each of which leads safety efforts in its geographic area, have made significant contributions in developing and sharing effective, relevant safety initiatives for the helicopter industry.

A change of leadership within several IHSF stakeholders, compounded by the disruptions caused by the COVID-19 pandemic, precipitated a review of the IHSF. In addition, we're on the cusp of a tremendous expansion in VTOL aircraft and operations, including civil tiltrotors, new vertical flight technology, and eventually autonomous VTOL operations.

The new organization for advancing the safety of international vertical flight—including all VTOL aircraft—is the Vertical Aviation Safety Team, or VAST, which will pursue a data-informed, regionally based, consensus-driven approach to eliminating fatal accidents in the global VTOL industry. Beginning Apr. 15, you can visit [vast.aero](http://vast.aero) to learn more. Our support for VAST reflects HAI's duty to protect the future of our industry by ensuring its safety. 

A handwritten signature in blue ink that reads "James".



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By Alan Frazier

## Raising the Bar for sUAS

*Standard tests are available to evaluate pilots, equipment.*



Alan Frazier currently serves as a senior fellow at Georgetown University. He is assigned full time to NIST, where he works to develop sUAS standard test methods. A 40-year law enforcement professional, Al is an airline transport pilot rated to fly single- and multiengine airplanes, helicopters, gliders, and sUAS.

**W**ITH THE SIGNIFICANT BENEFITS OF FAR LOWER OPERATING costs and reduced risk to operational personnel, small unmanned aircraft systems (sUAS) will play an increasingly large role in public safety and professional applications. But before they can, a national standardized process for evaluating the remote skills of sUAS pilots must be defined and implemented.

Currently, US operators must possess an FAA remote pilot certificate to operate a commercial sUAS. The FAA's remote pilot exam covers a broad spectrum of topics, but interestingly—and some would say disturbingly—it includes no practical exam. Consequently, we have no national standard for remote pilot flying skills.

While the FAA exam provides a good evaluation of remote pilot knowledge, including critical subjects such as airspace and communications, the lack of a practical exam leaves a void that potentially increases the liability exposure of individuals and entities using sUAS. Enter NIST, the National Institute of Standards and Technology, a nonregulatory US agency.

NIST has created [a set of standard test methods](#) for organizations seeking to credential sUAS pilots or evaluate sUAS equipment. These test methods, which are being standardized through ASTM International, encompass four “test lane” protocols: Basic Proficiency Evaluation for Remote Pilots (BPERP); Open Test Lane; Obstructed Test Lane; and Confined Test Lane. They are easily performed using materials readily available at any large hardware store.


After seeing the potential of these tests while participating in a NIST exercise, I was greatly impressed by their promise for agencies seeking to internally credential sUAS pilots or serve as a credentialing resource for others. The test methods are already being used as the basis for statewide credentialing of emergency responders in Colorado and Texas, and many other state and local emergency response organizations, as well as Canada, also are utilizing them.

For a look at what all the excitement is about, let's discuss the most basic of the four test methods, [the BPERP](#). It can be administered in 10 minutes using three omni bucket stands, a 50-ft. tape measure, a stopwatch, and a test area of 50 ft. by 20 ft.

During the BPERP, the remote pilot must conduct takeoffs and landings from and to a 12-in.-radius circle, climb to specified altitudes of 10 ft. and 20 ft. agl, and conduct yawing turns as well as forward, reverse, and traverse flight maneuvers. The goal is to capture still images of 36 targets placed within 2-gal. buckets fastened to short test stands constructed from 2-by-4 and 4-by-4 lumber. The test consists of one maneuvering phase and two traverse flight phases. Agencies set their own benchmark scores for passing the test.

I've had the opportunity to administer the BPERP to both novice and experienced remote pilots. The test methods were unanimously endorsed by every pilot I've run through the course.

The NIST test methods represent an excellent way for organizations to raise the bar on their remote pilot credentialing and sUAS equipment evaluation. Their adoption also promises to fill the void created by the absence of an FAA remote pilot practical examination and further mitigate risk in the areas of sUAS accident prevention and civil liability defense.

Over the next two years, the Airborne Public Safety Association will be presenting several NIST sUAS Standard Test Methods Train-the-Trainer workshops. The [four-hour complimentary virtual introductory courses](#) and the tuition-based three-day in-person certification course are appropriate for experienced sUAS pilots who serve as trainers. They are also suitable for supervisors and managers within sUAS units. I highly recommend them. 





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## Ushering in 2021

*New year, new Congress, new leadership ... same politics.*

**I**T'S THE FIRST QUARTER OF THE NEW YEAR, and Congress and the states are busy legislating. The first session of the 117th Congress has seen some historic moments in its first few months, while state legislators have already started their mad dash toward adjournment. Before we look at where Congress is going, however, let's do a quick review of where we've been since we last reported.

### Leadership Changes

Democrats now control the Senate by a razor-thin margin, but Democrat and Republican Senate leaders reached a power-sharing agreement for governing their chamber. This agreement is based on a similar deal from 2001, which is the last time the chamber was divided 50–50. Under this agreement, the

Democrats control the committees and assume the majority with Vice President Kamala Harris's tie-breaking vote. There have been only three prior instances of an evenly split Senate, in 1881, 1953, and 2001.

House and Senate committees have organized, and multiple freshman members joined the two dedicated to transportation: the US Senate

Committee on Commerce, Science, and Transportation and the House Committee on Transportation and Infrastructure. The House committee maintains its leadership under Chair Peter DeFazio (D-Ore.-04) and Ranking Member Sam Graves (R-Mo.-06). The committee's Aviation Subcommittee is chaired by Rick Larsen (D-Wash.-02) with Garret Graves (R-La.-06) as ranking member.

In the Senate, the gavel changed hands with the new Democratic majority. The Senate Commerce Committee is now led by Chair Maria Cantwell (D-Wash.) and

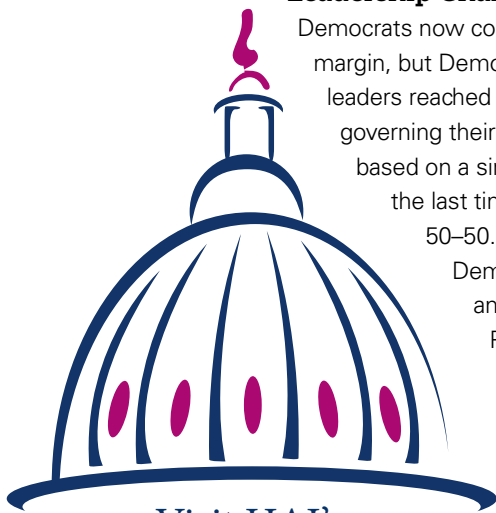
Ranking Member Roger Wicker (R-Miss.). The committee's Aviation Safety, Operations, and Innovation Subcommittee is chaired by Kyrsten Sinema (D-Ariz.) and Ranking Member Ted Cruz (R-Tex.). A more detailed overview of committee makeup can be found in HAI's members-only [Legislative Action Center](#).

### COVID Relief

Passing COVID-19 relief legislation was a top legislative priority both at the end of the last Congress and the beginning of the new session. At the conclusion of the 116th Congress, lawmakers passed a \$900 billion coronavirus aid package that was attached to a \$1.4 trillion government funding bill. The relief package included \$284 billion for the Paycheck Protection Program (PPP) and \$20 billion for the Economic Injury Disaster Loan (EIDL) program.

The legislation allows businesses to deduct expenses associated with their forgiven PPP loans, in addition to expanding the employee retention credit intended to prevent layoffs. The package also included \$15 billion for renewal of the Payroll Support Program (PSP) for air carriers and made important changes to the program's award calculation, providing a 15% increase to account for a discrepancy based on forms some air carriers originally filed to report their salaries and benefits. HAI worked closely with Congress to ensure HAI members were included in this important program and to resolve the funding discrepancy, and those efforts have paid off: as of this writing, HAI members have received more than \$179 million in PSP funding.

Pivoting to the 117th Congress, President Joe Biden released the "American Rescue Plan" as a legislative proposal to address the continuing effects of the COVID-19 pandemic. On March 11, President Biden signed into law the largest stimulus package that Congress passed through the budget reconciliation process. The measure includes a new \$3 billion program for aviation manufacturing workers that would help prevent involuntary furloughs of thousands of workers at some 5,000



Visit HAI's  
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aeronautical repair stations and similar aviation businesses and roughly 1,500 aerospace manufacturers.

The legislation also includes \$15 billion for air carriers and \$8 billion for airports, with \$100 million specifically for general aviation airports. Other notable items in President Biden's relief plan include a new grant program for small-business owners in addition to the PPP. Throughout the legislative process, HAI worked with committees of jurisdiction to ensure the rotorcraft industry received adequate financial support in the relief package.

Now that Congress has wrapped up this latest relief package, lawmakers will next turn to appropriations work as well as a potential infrastructure package. These legislative vehicles provide opportunities for HAI to pursue important priorities for the vertical flight industry. As the industry moves forward with advanced air mobility, congressional policy discussions involving vertiports, urban planning, intermodal transportation, and availability of power for electrical charging take on increased importance and ramifications. HAI continues to engage with the committees of jurisdiction on these issues.

## Safety Policy

Of course, no edition of "Advocating for You" would be complete without recognizing the importance of safety and how the rotorcraft industry can work toward improving in this area. HAI's safety team has done impressive work in creating new safety programs and providing new training opportunities and resources to operators and pilots to improve safety in their daily operations. It's important to educate lawmakers and other policymakers about this work as these discussions will inform the process as Congress looks at various safety initiatives and potential policy paths.

As the 117th Congress settles in for its two-year term, state houses across the nation have convened for their comparatively shorter sessions. Many state legislative sessions will adjourn by April and May. A handful of states, such as Illinois, Massachusetts, Michigan, New Jersey, New York, Rhode Island, South Carolina, and Wisconsin, meet throughout the year. With adjournment dates set for late spring to early summer, state legislators are on an expedited time frame to finish their legislative work and set state budgets.

## State Legislatures

The legislative process in the states may seem to occur at lightning speed compared with the slower pace of the federal legislative process. This is an important lesson for our grassroots efforts. Getting to know your state elected officials early and working with them in the run-up to the state legislative session is paramount.

Because events move so quickly in the state legislatures, it's important to be a part of the dialogue and provide resources and perspective on issues that affect our industry. Use the run-up time before the session begins to meet with your state legislators. This is a great opportunity to brief them on issues important to your company, serve as a resource during the short but intense session, and then continue to expand your network and strengthen relationships throughout the year.

## The Human Element

The new year has brought in a new Congress and new leadership, but the politics remain the same. Is it cynical or pessimistic to say that politics is the same, regardless of who's in power? Well, sure, you could read it that way. You could find lots of websites to support that theory as well. But the human element of politics

hasn't changed. Yes, the country has new leadership, the Senate changed parties, and politics seem to get more partisan with each passing election. But what hasn't changed is the human element. Our elected officials are still human, despite how political cartoonists skewer them.

Focusing on this human element will allow us to take our industry in a new direction. It takes a human touch to have an impact. We need to tell our story to our legislators, so they know and understand our problems and pinch points. We need to describe how different solutions can remove roadblocks and allow businesses to thrive and grow. The PSP is a good example of how this human-focused outreach provided more than \$179 million in funding for HAI members.

We need to be advocates for ourselves and our industry. We belong to a unique industry that does an incredible job of helping others through the many types of missions we fly, missions that often could not be accomplished by other means. We do good work for good people, and that's a good story. Help us to tell that story.

As part of our outreach efforts, please consider signing up for HAI Action Alerts (<https://p2a.co/fl36o27>) to stay informed of the most important rotorcraft-related government developments and to directly engage with your elected officials when certain bills are up for a vote in Congress. Just fill in your name and contact information, and HAI will notify you when major legislation is up for a vote.

With all that's new this year, let's commit to contact our elected officials and develop new relationships or strengthen existing ones. Don't know where to start? Reach out to us at [advocacy@rotor.org](mailto:advocacy@rotor.org) and let us help.

Here's to a much better year than last. After 2020, we can only go up. 🍀



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# ROTORWASH

INDUSTRY DATA, TOPICS, ADVICE, HAPPENINGS, ISSUES, AND NEWS TO KEEP THE ROTORS TURNING

## HAI BRIEFS

### A Full-On Approach to Helicopter Safety

HAI BEGAN MORE THAN 70 YEARS AGO to promote and advocate for the young but burgeoning helicopter industry. While HAI continues that role today, the group also makes a significant and robust contribution to safety programs for our industry. With the goal of reducing accidents and saving lives, HAI's safety programs address culture and systems for people, airframes, and technology.

"Over the past six months, with key stakeholders, HAI has completed a top-to-bottom review of our safety programs," says James Viola, president and CEO of HAI. "We've strengthened our collaboration

with industry partners and refocused our safety efforts on providing tangible resources for the helicopter community, including those targeted at helping pilots

***HAI promotes a 360-degree approach to reducing accidents, one that addresses culture, processes, training, and the appropriate use of technology to reduce aviation risk.***

avoid or recover from IIMC, one of the leading causes of the Jan. 26, 2020, Calabasas, California, accident.

"With human performance issues as a causal factor in the majority of aviation

accidents, HAI believes the best way to improve safety in our industry is by helping people become safer pilots, maintenance technicians, operators, and aviation professionals," Viola continues.

"We believe we can lower the industry accident rate significantly by addressing human factors," Viola adds. "HAI continues to promote a 360-degree approach to reducing accidents, one that addresses

culture, processes, and training, and the appropriate use of technology to reduce aviation risk."

Previously addressed as a holistic approach, the 360-degree approach ➤



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HAI annually runs a workshop, [Mil2Civ Transition: Finding a Job in the Civil Helicopter Industry](#), to help military pilots and maintainers move their skills to the civil helicopter industry. This year, that workshop was held online as part of the HAI@Work webinar series. During this Feb. 18 webinar, six industry professionals shared their experiences in transitioning from a military to civil career in helicopter aviation, as well as a wealth of tips to help those hoping to make the jump in the future. Our social media posts about the webinar reached nearly 20,000 people who may have missed the live webcast. To catch up on this, or any HAI@Work webinar that you missed, visit [rotor.org/webinar](http://rotor.org/webinar).

► uses language familiar to pilots and encourages them to use every resource they have available.

“A pilot’s approach to safety shouldn’t mean they take the fastest, easiest method of assessing the risk of a flight,” says Viola. “Most pilots have years of training to rely on, developing their own safety culture along the way. When they combine knowledge and awareness from those two elements, along with the appropriate use of technology, they’re taking a 360-degree approach to safety.”

HAI’s safety program contains a variety of resources and tools to help pilots strengthen their safety culture and provide assistance and training where needed. These program elements include the following:

### 56 Seconds to Live

HAI is proud to support the recent release of *56 Seconds to Live*. This video, produced by the US Helicopter Safety Team (USHST), portrays a fictional pilot’s rapid loss of control over his aircraft after attempting to continue VFR flight into IMC. Helicopter safety experts say the film doesn’t exaggerate the dangers of UIMC.

The video is a core element of a training program that will be available in the coming months. That program will examine various

points in the video where the pilot could have made a different decision, resulting in a different outcome for the flight.

### FRAT and ASAP

**Flight Risk Assessment Tool (FRAT):** HAI has partnered with a commercial provider, NGFT Solutions, to expand the scope and accessibility of its legacy FRAT program into an expansive suite of free, customizable safety tools optimized for mobile and offline use. A transition to the new application is planned for later this year.

### Aviation Safety Action Program (ASAP):

A robust hazard reporting program is considered essential to improving safety, and small helicopter operators with limited resources sometimes struggle to field these programs. In response, HAI has partnered with the [Air Charter Safety Foundation \(ACSF\)](#) to provide HAI members with an Aviation Safety Action Program (ASAP) that provides third-party support for the reporting of aviation hazards and events (see [p. 38](#) to learn more).

### A Lifetime of Training

Because most accidents involve human error, improving safety in the helicopter industry often focuses on training. “We must continue to address safety training

through every opportunity, including recurrent training,” Viola says. “That training must address every aspect of a pilot’s performance, from training for specific aircraft and procedures to learning better aeronautical decision-making processes.

“For pilots, the development of a personal safety culture must begin on the first day of flight school and then never stop. Each flight is another test of our commitment to fly safely, which is our highest duty,” Viola continues.

“Aviation operations, too, must build a robust safety culture where each person is empowered and encouraged by management to take personal responsibility in improving operational safety by following policies and procedures and reporting identified hazards.”

### Safety Management Systems

HAI strongly recommends that all aviation operations adopt a safety management system (SMS), a practice endorsed by aviation regulators and safety organizations around the world as the best way to systematically manage aviation risk. An SMS addresses safety culture and also incorporates an ongoing process to address identified hazards, manage risk, and improve the organization’s safety performance.

### Flight Data Monitoring Programs

HAI supports the establishment of a flight data monitoring (FDM) program by helicopter operators conducting paying-passenger aviation activities, as that data can be used to reduce accidents and improve safety across that industry sector. However, the association doesn’t recommend mandating specific equipment across all missions and platforms.

### Additional Information

“Anyone who wants to know more about improving operational safety should visit the [safety section on rotor.org](#), our website,” says Viola.



Helicopter pilots who continue VFR flight into IMC have, on average, 56 seconds to live; learn more at [ushst.org/56secs](http://ushst.org/56secs).

## HAI HELI-EXPO Events Move Online

WE'RE ALL DISAPPOINTED THAT WE won't get to ogle shiny helicopters and meet with friends and business associates at HAI HELI-EXPO 2021. But while our in-person show in New Orleans was canceled this year, HAI is making sure you can still take advantage of educational opportunities that are normally presented at Expo.

One highly attended event every year is the Manufacturer Technical Briefings (MTBs), where airframe and engine manufacturers provide updates on their products. Besides providing information needed for safe and efficient operations, these briefings meet FAA requirements for renewal of inspection authorization (IA) certificates as well as for aviation maintenance technician (AMT) credits. Sponsored by Concepts NREC, Concorde Aircraft Batteries, and DART Aerospace, the 2021 MTBs were held virtually Mar. 22–25, beginning at 12:00 pm eastern time (UTC-4) each day.

Also popular every year at HAI HELI-EXPO® is HAI's Flight Instructor Refresher Course (FIRC). This year, HAI and the Helicopter Institute brought the training, traditionally a big part of the education program at the show, directly to participants—as the only FAA-approved virtual FIRC in the nation.

The helicopter-only course was held online Mar. 21–22, 2021, from 10:00 am to 7:00 pm eastern time (UTC-4). It covered the latest updates in regulations and helicopter flight instruction techniques from leading industry professionals.

The class was designed for flight instructors who:

- Wish to renew their instructor certificates under CFR Part 61 or
- Wish to maintain their qualifications as chief instructors or assistant chief instructors for pilot schools certificated under CFR Part 141.

Other participants who took the course to broaden their aviation knowledge will receive a certificate of completion.

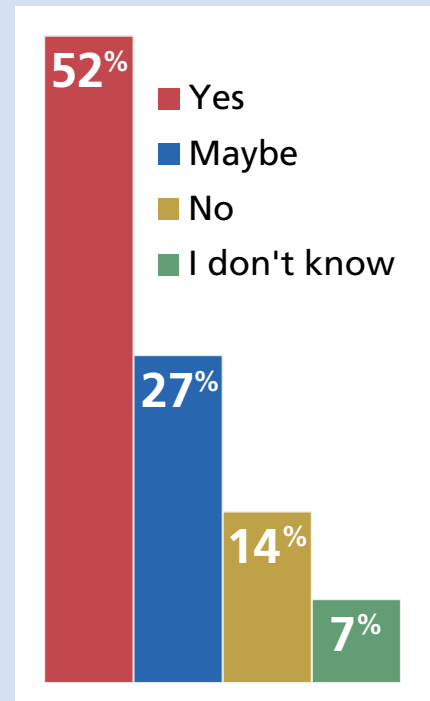
Finally, watch for Rotor Safety Challenge sessions appearing as part of the HAI@Work webinar series in the

### Industry Forecast: Operators Plan to Grow

#### Does your organization plan to expand its business in the next five years?

HAI conducted a global survey of members and nonmembers early this year. While we are still compiling the data, here's some promising news: more than half of operators responding (52%) indicated they plan to expand their business within the next five years. Expansion areas include equipment (60%), personnel (43%), and new mission segments (40%).

Look for more insights from our survey in the next issue of ROTOR.



months ahead. These popular, free safety education sessions will be provided throughout the rest of the year, scattered among other interesting HAI@Work topics. The webinars are held live every Thursday afternoon at 4:00 pm eastern time (UTC-4). Visit [rotor.org](http://rotor.org) to register and to catch any webinars you may have missed.

***Watch for Rotor Safety Challenge sessions appearing as part of the HAI@Work webinar series in the months ahead. These free safety education sessions will be provided throughout the year.***

The HAI staff is already planning for a robust lineup of industry meetings, education sessions, and networking events at HAI HELI-EXPO 2022, scheduled for Mar. 7–10 in Dallas, with exhibits open Mar. 8–10. You'll get your chance to see those shiny helicopters and to join the vertical aviation industry for educational and networking opportunities. [@](#)



## Insuring Your Aviation Business

*Building strong relationships with brokers and underwriters is critical to obtaining the best coverage.*



**WATCH**  
"Maintaining  
Insurability in  
a Challenging  
Market"

**1 DON'T think all brokers and underwriters are alike.** This is especially true now, when we're in a hard market for aviation insurance, which means coverage is being reduced and premiums are on the rise. And because most state regulators in the United States require aviation operators to go through brokers to obtain insurance rather than work directly with underwriters, it's all the more critical to find a broker who specializes in aviation and has access to a broad pool of insurers. Remember, the broker works for the operator, not the underwriter, and a good broker should connect you with the optimal insurance companies and policies for your business.

**2 DON'T view your relationships with your insurer and broker as just numbers on a page.** A broker's job entails much more than filling out paperwork and quoting you a price come policy

renewal time. He or she can play a key role in introducing you to underwriters and helping you foster a personal, one-on-one relationship with them. Underwriters depend heavily on such relationships in assessing whether to insure a company. Sure, insurers want to know how many aircraft you operate and their monetary value, but even more important are the qualities that distinguish your organization from your competitors and make you a better insurance risk than others. "There's no replacement for face-to-face interaction, sitting in someone's office, visiting a base, walking around, and hearing about the company directly from the client," says Colin Bruno, senior VP and senior underwriting manager at Global Aerospace. Once they're working with a client, insurers want to maintain the relationship for the long term. The better the underwriter understands your business, the more likely that will happen.

**3 DO train continually—and share your training program with your broker and insurer.** “We love to hear from clients about training,” says David Watkins, regional head of general aviation for North America at Allianz. “We especially look for training that goes above and beyond FAA minimums.” Indeed, the type of training your operation undertakes is something most every insurer wants to know, because it demonstrates your attitude toward safety. “Showing you’re doing everything you can to continually improve and make yourself the best operation possible is vital,” says Kevin Kovarik, senior VP and rotary-wing business line manager at USAIG. “As the market hardens, each underwriter’s knowledge of your training program is more and more important.” Good brokers and underwriters will be able to suggest affordable training options for your operation, whether simulator or in-aircraft based. Insurers encourage scenario-based training as well that is based on your operational missions, such as flying in mountainous terrain, the wire environment, IIMC, or while using night-vision goggles. Whatever your training methods, industry experts suggest bringing in a third party to evaluate your company’s program for an objective, outside perspective that can quantify and measure your training results.

**4 DO look to the future.** Insurers want to be assured your operation will be in business tomorrow, so show them how you’re maintaining continuity and planning for the future. Do you have a company growth plan? A pool of pilots to pull from as veterans retire and others move on? What’s your ability to support the older aircraft in your fleet, not only in maintenance costs but in make and model time among your pilots and maintenance techs? Underwriters want to be confident of their operators’ stability and growth plans, and they want your business to last. In this hard market, which experts say will continue at least until October, insurers don’t want to assume as much risk as they did during the previous, soft market. Long-term viability greatly enhances an operator’s attractiveness to an underwriter.

**5 DON’T assume operation size dictates insurance terms.** What’s more important to an underwriter than your fleet size? Your operation’s exposure to risk, for one. A tour or offshore operator with high passenger density, for example, generally poses more risk than an electronic news-gathering or utility operator in which passenger density—and, therefore, liability exposure—is

fairly limited. Your company’s safety culture is another area in which in-person visits give you an opportunity to demonstrate your company’s value—in this instance, through the many visible ways your business supports safety throughout the company. “When you’re on-site at a shop that’s committed to a strong safety culture, it sells itself,” says Joel Heining, a sales executive with brokerage firm AssuredPartners Aerospace. “You can feel it in the presence and the awareness of the people when you walk in the room. You can have all the flashy accolades up on the walls, but it’s really the employees’ attitudes and activities that make the culture genuinely apparent.”

*Thanks to the panelists on the Sep. 24, 2020, HAI@Work webinar, “Maintaining Insurability in a Challenging Market”: Kevin Kovarik, senior VP and rotary-wing business line manager, USAIG; Colin Bruno, senior VP and senior underwriting manager, Global Aerospace; Joel Heining, sales executive, AssuredPartners Aerospace; and David Watkins, regional head of general aviation for North America, Allianz. Listen to [the recorded webinar](#) to learn more about today’s aviation insurance marketplace.*



By James A. Viola

# Sgt. Javaughn Harrison, UAS Operator, US Army

*Soldier is “eye in the sky” for ground troops, pilots.*



**WATCH  
Warrior  
Weeks: The  
Upper Hand**

**M**ILITARY ROTORCRAFT HAVE LONG BEEN a source of both personnel and new ideas for the civil industry. For many HAI members, their first helicopter ride took place while serving their countries. Military innovations later widely adopted by the civil industry include radar, night-vision goggles, and the helicopter air ambulance mission.

World War I saw the first military experiments with powered pilotless aircraft, and the US Army used reconnaissance drones in Vietnam in the 1960s. But it wasn't until 2005 that the FAA released guidance on the civil use of unmanned aircraft systems (UASs, or drones) in the United States. Today, the agency has registered nearly 869,000 drones, compared with a 2019 estimate of nearly 211,000 general aviation aircraft. With the twin advantages of lower operating costs and less risk to human flight crews, drones are expected to be increasingly utilized by the civil rotorcraft industry.

Sgt. Javaughn Harrison of the US Army 1st Infantry Division is the latest example of the military's investment in drone applications. As an operator of unmanned aircraft systems (UAS), Harrison acts as “The Upper Hand,” identifying threats on the ground and in the air and then relaying that information to his fellow soldiers. He is also one of 12 soldiers starring in the US Army's latest marketing campaign, “What's Your Warrior?” which focuses on 12 in-demand military careers.

In late January, HAI President and CEO James A. Viola, himself a former US Army helicopter pilot, spoke with Harrison via Zoom from the soldier's duty station in South Korea about the aerial advantage provided by UAS and how his unit works with manned aviation assets. *[Note: this interview has been edited for length and clarity.]*



**Viola: Some civil rotorcraft operators don't realize the benefits of conducting both manned and unmanned missions. What was your first manned and unmanned combined mission like?**

**Harrison:** It went pretty smoothly. The payload operator, aircrew commander, and I went out to get the briefing from the Apache and Black Hawk pilots on what the mission would be and how we were going to execute it. They showed us maps of all the flight routes they were going to use, and our job was to build around that and help them navigate through it.

**How do you prepare for a manned–unmanned mission?**

We do different phases of training to attain top proficiency. Essentially, we practice so that when we get to the actual live flights and the MUM-T [manned and unmanned teaming] training, we're not making fools of ourselves.

**What's a normal launch-and-recovery cycle for your UAS?**

If we're far away from the supported unit, we try to launch at least an hour before they do, so that we can get established in our respective locations. But if we're close by, we try to launch first so that we can get at least 1,000 ft. above them. That way, when the supported unit gets to their spot, we can adjust to a certain height and distance in front of them, so as not to be in their line of sight when they're performing engagements. That protects everyone's aircraft, helicopter and UAS.

**Do you maintain a certain deconfliction altitude?**

The general rule is, for every 1,000 ft. they go up, we go another 1,000 ft. up and 200 ft. in front.

**Do you do a post-flight on your vehicles?**

Yes, once we land, we have our post-flight details to go through, including cleaning off the aircraft and filling out our flight logs. Once that's done, we go over to the other pilots and have a post-flight conversation of how the





Harrison is 1 of 12 soldiers in the Army's "What's Your Warrior?" campaign about popular military careers.

flight went—the goods, the bads, the sustains—and take that information onto the next flight.

**Do all the pilots understand the work you do and how you're helping them, or are there some naysayers out there?**

I'll be completely honest with you, there are some naysayers. But, overall, the pilots seem hopeful about us. They want to be able to use us more than what we're able to provide right now. They want to help us out, so it's great; we want to help them out as well. So it's a constant help-me, help-you type of thing.

We don't get a lot of MUM-T training, at least for this unit. But when we do, we try to execute it as best we can and build off of the small things we're able to control. It's still a growing process, so we're still taking baby steps to make sure it's the best we can make it.

**How long have you been flying?**

I've been flying for about three years. I started in school in Arizona in 2018, and my first live flight was August of that year. I've been flying ever since I got to this unit. But

by the time I got here, the unit was gearing up to go to Europe, so we had limited flight hours, and all our equipment was packed up, so I was doing most of my flying in simulators. But once I got to Europe, it was definitely a new experience—to go from flying at school to flying in a completely different country. I kind of submerged myself into a whole new world of UAS.

**So you flew in Arizona, in Europe, and now you're in Korea. Is there a big difference between the three? Do you have to learn different sets of rules for operations?**

In Korea, [as of late January we were] still on COVID quarantine, so I haven't been able to leave the base. But as far as Europe goes, we went from Germany to Poland, and those two were completely different. In our briefings, we were told about the different airspaces available, the different flight hours we could fly. Most of it tended to line up the same, aside from the airspaces we could fly and operate in.

Working with the local authorities was new and challenging, but in both countries, they worked really well with UAS. I guess the only thing I'd say is much different from flying in the States is for our UAS guys—our Shadow guys.

**How big is a Shadow?**

It's about 24, 25 ft. in wingspan and weighs about 450 lb.

**So not like the comparatively small UAS people in the States tend to think of. The Shadow is a small airplane, essentially.**

Ha! Yeah, pretty much.

**It sounds as though you're very happy in UAS aviation, like you feel you've found your career.**

I'm very happy. I'm out here getting a great education from this, great experiences. I meet a lot of different people, and I'm just having a blast with it. I'm optimistic about the future.

**What does the nickname "The Upper Hand" and the role it signifies mean to you?**

It means I'm the eye in the sky. I'm helping ground troops and pilots detect any threats out there, or any of the items or targets we need to detect. That way, the guys on the ground and in the sky can feel secure. We're making sure they get their mission accomplished. We're basically a big security camera that looks after them, to reassure them they're safe. 🇺🇸



A team from the Army's 1st Infantry Division launches the Shadow, the unit's unmanned aircraft. The drone appears almost airplane-like, given that it weighs approximately 450 lb. and has a wingspan of nearly 25 ft.

# ROTORCRAFT EVENTS

## CANCELED

The following events have been canceled for 2021 as a result of the COVID-19 pandemic:

### ABACE2021

*Originally scheduled for Apr. 13–15, 2021*  
Asian Business Aviation Conference & Exhibition

### AAAA 2021 Summit

*Originally scheduled for Apr. 21–23, 2021*  
Army Aviation Association of America

### EBACE2021

*Originally scheduled for May 18–20, 2021*  
European Business Aviation Association

## SCHEDULED

The following events were on schedule as of mid-March:

2021

### MAY 8

#### Delaware Aviation Museum Open House and Pancake Breakfast

Aircraft Owners and Pilots Association  
Georgetown, Delaware, USA  
Learn more at [aopa.org](http://aopa.org).

### MAY 10–14/VIRTUAL

#### Forum 77: The Future of Vertical Flight

The Vertical Flight Society  
Learn more at [vtol.org](http://vtol.org).

### MAY 18–20/VIRTUAL

#### EBACE Connect

European Business Aviation Association and National Business Aviation Association  
Learn more at [ebace.aero](http://ebace.aero).

### JUL. 26–31

#### APSCON 2021

Airborne Public Safety Association  
New Orleans, Louisiana, USA  
Learn more at [publicsafetyaviation.org](http://publicsafetyaviation.org).

### JUL. 26–AUG. 1

#### 2021 EAA AirVenture Oshkosh

Experimental Aircraft Association  
Oshkosh, Wisconsin, USA  
Learn more at [eaa.org](http://eaa.org).

### JUL. 27–29

#### IMDEX Asia 2021

Singapore  
Learn more at [imdexasia.com](http://imdexasia.com).

### JUL. 27–29

#### RCA-UMSA 2021

Rotorcraft Asia and Unmanned Systems  
Asia Singapore  
Learn more at [rca-umsa.com](http://rca-umsa.com).

### AUG. 6–8

#### Fulton County Airport KUSE –Aircraft Auction

Aircraft Owners and Pilots Association  
Wauseon, Ohio, USA  
Learn more at [aopa.org](http://aopa.org).

### SEP. 7–10

#### 47th European Rotorcraft Forum

The Vertical Flight Society  
Glasgow, Scotland, United Kingdom  
Learn more at [vtol.org](http://vtol.org).

### OCT. 10–11

#### 2021 Tax, Regulatory & Risk Management Conference

National Business Aviation Association  
Las Vegas, Nevada, USA  
Learn more at [nbaa.org](http://nbaa.org).

### OCT. 12–14

#### 2021 NBAA Business Aviation Convention & Exhibition (NBAA-BACE)

National Business Aviation Association  
Las Vegas, Nevada, USA  
Learn more at [nbaa.org](http://nbaa.org).

### OCT. 31–NOV. 2

#### SHIFT AMTC21 Conference

Association of Air Medical Services  
Fort Worth, Texas, USA  
Learn more at [aams.org](http://aams.org).

### NOV. 3–5

#### 9th Asian/Australian Rotorcraft Forum

The Vertical Flight Society  
TBD  
Learn more at [vtol.org](http://vtol.org).

2022

### MAR. 7–10

#### EXHIBITS OPEN MAR. 8–10 HAI HELI-EXPO 2022



Helicopter Association International  
Dallas, Texas, USA  
More information coming soon!

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### BRANCH LOCATIONS

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<b>Irvine, CA</b> 888-304-8844	<b>Addison, TX</b> 888-811-0012
<b>St. Charles, IL</b> 800-481-1391	<b>Ft. Lauderdale, FL</b> 877-404-8151
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# FLY OVER

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# HAI International Partners Team Up to Fight COVID

By Jen Boyer



## HAI forum for global collaboration provides connection, best practices.

**A**T HAI HELI-EXPO 2020 IN ANAHEIM, California, newly appointed HAI President and CEO James A. Viola announced the association's commitment to increase international collaboration within the vertical takeoff and landing (VTOL) industry. A key piece of that initiative, HAI's International Partnership Program (IPP), was announced on Jun. 30, 2020.

By bringing together the leaders of global helicopter organizations, the IPP promotes common safety and operational standards as well as best practices through collaboration. Program participants gather in a quarterly virtual meeting to discuss regional, operational, and global concerns ranging from regulations and standardization to topical

issues such as firefighting or the coronavirus pandemic.

"In this first year, the IPP is focused on big-picture items, providing leaders of helicopter associations around the world a platform to share their input, advice, and observations on the issues facing their members," says HAI Senior Director of Operations and International Affairs Chris Martino, who coordinates the program.

In the first nine months, HAI's IPP program has expanded to include the Chilean Helicopter Association (ACHHEL), Australian Helicopter Industry Association (AHIA), British Helicopter Association (BHA), Helicopter Association of Southern Africa (HASA), European Helicopter Association (EHA), Helicopter Association of Canada (HAC), Rotary Wing Society of India (RWSI), and Association for Promotion



of Helicopter Industry, Japan (AHIJ). HAI is talking to additional helicopter associations that have expressed interest in participation, Martino says.

“The IPP paid dividends for our industry during HAI’s Virtual Aerial Firefighting Conference last November,” Martino says. “Because the conference was all virtual, there were considerable opportunities for more international participation among both presenters and attendees, and we were able to include international content as a direct result of our collaboration through the IPP.” In addition to other conference sessions with an international focus, IPP member Loreto Moraga, president of ACHHEL, presented on aerial firefighting operations and issues in Chile and across South America, and Ray Cronin, president of AHIA, spoke on best practices that support international collaboration during firefighting activities.

In addition to discussing local, regional, and global issues, IPP members also build personal connections. Since the group’s formation, several members have either received support from fellow members on specific issues or provided support of their own.

“Here in the UK, I’ve been in close contact with the European Helicopter Association for many years,” explains BHA CEO Tim Fauchon. “Through that connection, I’m able to stay well versed on issues between Europe and Britain. However, the IPP has connected me with even more contacts around the world in Japan, Australia, and India. This group has really helped the BHA to expand our international partnerships.”

### **BHA Mobilizes UK Industry for COVID Support**

Formed during the COVID pandemic, the IPP has already begun delivering on its mission to increase collaboration, due in part to the extreme circumstances facing the industry around the world. In Britain, Fauchon created a database and system enhancing the civil helicopter industry’s ability to support the UK government during the pandemic. Through

the IPP, he’s been able to share this work and inspire others.

When the COVID pandemic began in the first quarter of 2020, Fauchon began investigating how to mobilize the UK helicopter industry to support that country’s National Health Service.

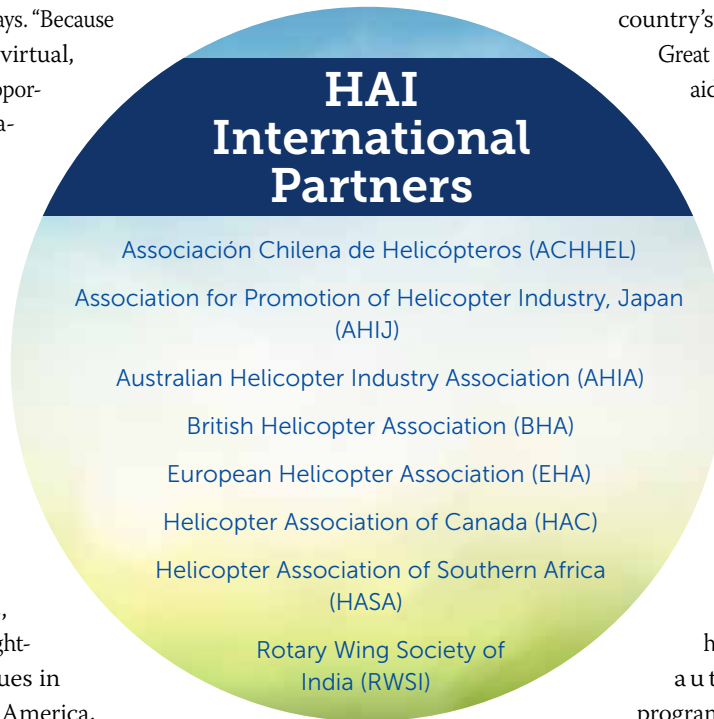
Great Britain already had a military aid to civil authority program, whereby military assets could be mobilized to support civilian efforts in times of need (much like US National Guard troops and assets are mobilized in times of US emergencies). Fauchon dug into his military background and contacts and pulled together a team of ex-military and civilian operators to create a helicopter assistance to civil authorities (HACA) program.

Fauchon worked with representatives from the UK Civil Aviation Authority (CAA), the Transportation Ministry, and a UK government cabinet office to develop a program that made civil helicopters available for government agency use during the pandemic. A credit card payment system was set up through the British government’s procurement agency, Crown Commercial Services (CCS), with an initial budget of £1.5 million. Any government agency in Great Britain could apply for the credit card to pay for civilian helicopter services used as part of that country’s COVID response.

Fauchon then went about building a database of commercial air operator certificate (AOC) operators (much like FAA Part 135) and other “flyers” and support services willing to participate.

“While we started the database with our members, we knew we had a big industry and opened it to everyone,” Fauchon says. “It didn’t take long before we had an enormous database with everything from helicopter operators to fuel services, offices, and hangars available if needed.”

Fauchon then hit a wall of red tape. The agencies calling Fauchon needed aircraft quickly, and applying for the CCS credit card took time. Without the credit card to ensure immediate payment, bills for helicopter services went into the government payment system, where it could take as long



BHA's HACA set up transportation from Nightingale Hospital in London to Sunderland in northern England for medical personnel to provide counsel on field hospital operations during the first wave of COVID. The team used a field (below) belonging to Nissan (building in background) in Sunderland as a safe landing zone.



as three months to receive payment. After hours of calls and waiting on hold, Fauchon was able to find government employees who could use purchase orders to reduce the payment time to two months, and he's working to shorten that to two weeks.

Since its beginning, Fauchon's HACA program has provided a number of services for the UK government, from transfers of medical staff and equipment between facilities to helping with moorland firefighting when local fire crews were limited by COVID restrictions. It stands ready to support vaccine distribution as well. With the majority of the United Kingdom well served by roads and rail, the need for helicopters is limited to more-rural areas. Yet, when a helicopter is needed, Fauchon says his HACA program ensures that one is ready within two hours.

### **ACHHEL Supports Chilean Vaccine Distribution**

Fauchon shared with fellow IPP members his efforts to increase utilization of the British helicopter industry in the UK

COVID response. His experiences helped Chile's Moraga prepare the Chilean helicopter industry to support vaccine distribution.

In January 2021, Chile's hospitals in rural areas began to reach capacity. More helicopter transports were required to get patients to larger hospitals with intensive care services. At the same time, the country began to ramp up vaccine delivery. Since late 2020, military and law enforcement aircraft were used to help deliver the first Pfizer-BioNTech vaccines to citizens in outlying areas. Chile now has agreements with



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HAI INTERNATIONAL PARTNERS TEAM UP TO FIGHT COVID *continued*

An Ecocopter AS350 (above) arrives with Pfizer vaccine doses for medical personnel. Ecocopter pilot Claudio Avendaño (below) celebrates the delivery with Karla Rubilar Barahona, Chile's minister of family and social development.

four vaccine makers and recently opened vaccination to all citizens over 60 years of age in an effort to beat the potential autumn wave of infections that could come as soon as March.

A long, thin country with considerable rural and mountainous terrain, Chile required creative support to meet its aggressive vaccine schedule. The Chilean Aerial Federation (FEDACH), a civilian general aviation organization, had begun working with the Chilean government, much as BHA's Fauchon had. However, realizing that it needed to reach many areas with little or no aviation infrastructure, FEDACH soon reached out to Moraga and ACHHEL to manage helicopter support.

"As more vaccines arrived, FEDACH began working with the government to see how civilian operators can help," Moraga says. "Yet they need helicopters to deliver directly

to hospitals and other rural areas that are not near airports. Their helicopter members are private pilots. We were able to help with our commercial operators."



ACHHEL began the helicopter vaccine delivery program with a few donated flights to gather data on timing, routes, and procedures, including the safe transportation of the super-cold vaccine using dry ice, a hazardous material. In consultation with Chilean health authorities, ACHHEL is currently transporting vaccines only with cold gel.

HAI's Martino shared the FAA's vaccine transportation regulations with Moraga, and Fauchon shared the CAA's template procedures. This information will help Moraga contribute to and support Chile's civil aviation regulator, the Dirección General de Aeronáutica Civil (DGAC), in its development of regulations for that country.

IMAGES COURTESY LORETO MORAGA

The first Chilean helicopter flight transporting COVID vaccines took place Jan. 25, from Santiago to Quillota, a 30-minute flight. Servicios Aéreos Suma Air donated the helicopter, and Airbus supplied a pilot. The helicopter carrying a case of 85 Pfizer-BioNTech vaccines was greeted by a cheering crowd lined up for their shots.

ACHHEL participated in a larger transport on Feb. 4, where an Airbus AS350 helicopter donated by Ecopter and flown by a company pilot transported 25 Pfizer second-dose vaccines for medical personnel from the Municipal de Vitacura Airport (SCLC), north of Santiago, to a soccer field next to the Buin hospital, 45 km away and south of the congested city, saving an hour of drive time for the temperature-sensitive vaccines.

“These were very successful flights, and the people were very excited to see the helicopter arrive with the vaccines,” Moraga says.

“The information that I received through the IPP was a

valuable part of the planning. We received a lot of information from associations around the world before we did the flights, and we shared that information with our volunteer operators.

We were able to develop protocols based on those used in other countries to ensure strong safety measures,” says Moraga. “As we do more flights, we’ll look at having conversations with aviation, transportation, and health authorities to develop a program where the government will be able to work directly with ACHHEL’s operators to deliver vaccines to remote areas.”

Sharing information and best practices that promote the effective use of helicopters around the world is exactly why the IPP exists, says HAI’s Viola. “As shown by the collaboration on COVID vaccine transport, the relationships built through the IPP have already demonstrated their value, and we’re just getting started. We want to hear from more organizations that would like to use the IPP to collaborate on these types of initiatives.”

***“The relationships built through the IPP have already demonstrated their value, and we’re just getting started.”***

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# First Person The *Salvador Allende* Rescue

By Thomas McKenzie

Surrounded by debris, 850 miles from land, a merchant mariner floats and waits.

**I**N DECEMBER 1994, AFTER YEARS SPENT FLYING first for the US Army and then the US Coast Guard (USCG), Chris Baur was working as a criminal investigator for the US Customs Service (now US Customs and Border Protection). His experience as a dual-rated pilot proved useful in his work in covert operations targeting criminal cartels. He played different roles, sometimes selling aircraft, brokering the movement of narcotics, or uncovering financial fraud.

But he was also Capt. Baur of the US Air Force New York Air National Guard, so when he had a few free days that December, he went to Francis S. Gabreski Air National Guard Base on Long Island, New York, to fly some night-vision goggle work in the HH-60. Little did he know he'd end up taking part in a historic mission that would test the limits of man and machine in one of the longest rescue operations ever recorded.

## **The *Salvador Allende***

On the afternoon of Thursday, Dec. 8, shortly after landing

at the base, Baur was approached by the supervisor of flying. "Hey, I've got the Coast Guard on the phone. You guys speak the same language; why don't you talk to him?"

The voice on the phone, that of a chief Baur knew from District One, the USCG's mid-Atlantic region, relayed grim details: the Ukrainian-flagged *Salvador Allende*, a cargo carrier with a Merchant Marine crew of 33, was transiting from Freeport, Texas, to Helsinki, Finland, with a load of rice. Heavy seas had caused a critical shift in its cargo, destabilizing the vessel. With a 45-degree list to port, the deck awash in waves and taking progressively larger rolls, the *Allende's* captain gave the order to abandon ship and began transmitting an SOS. Rescuers received the first distress calls at 9:30 pm. By early next morning, the ship had sunk.

The *Allende's* last known position was about 850 miles southeast of Nova Scotia. The Coast Guard had launched a rescue mission, but those ships were still too far away.

"We don't really have anything that can reach it," finished the chief. "But you guys can refuel in flight." Meaning: *you have the range to reach this vessel.*



Initially, there was to be no rescue. Then it was to be a search, and then Baur found himself being asked to fly on the mission. There'd been some intense deliberation at higher levels. Baur, accustomed to the Coast Guard's rapid response posture and their ability to be "wheels in the well in seven minutes," felt differently about the Air Force's rescue planning protocols. He hastily packed an AWOL bag with a couple of flight suits and a toilet kit and then called his mother to say goodbye.

"Hey, Mom. Listen, I'm going out on a rescue," he said, providing her with the location of any important papers she might need.

"You've never called me before with anything like this." His mother sounded worried.

"I'm just being honest with you. This is different from other rescues," said Baur.

"Well, if the weather's bad, just don't fly."

"Don't worry, Mom. I won't."

When Baur arrived at the squadron, they didn't meet and brief as usual. He was met in the parking lot and helped into his survival gear, after which he climbed into the left seat of one of two HH-60 Pave Hawk helicopters, their engines running. "I plugged my helmet in and asked where we were headed. The response I heard back was 'Royal Canadian Air Force Base Shearwater in Halifax, and we got you a sandwich from the deli.'"

Baur would be copiloting for Lt. Col. Ed Fleming. Tech. Sgt. James "Doc" Dougherty, the crew's pararescueman (PJ), and Senior Master Sgt. Rich Davin, their flight engineer, were preparing Jolly 14 for flight. Piloting the other Pave Hawk, Jolly 08, was Capt. Graham Buschor and his crew: Maj. Gene Sengstacken, Tech. Sgt. John Krulder, and Tech Sgt. William Moore.

Several hours later, Baur was at a Halifax Holiday Inn, where he met the "Yankees" (Marine Aerial Refueler Transport Squadron 452), who would be their refueling escorts in the morning. "Do me a favor," Baur asked a Marine pilot. "I'm gonna be up on 5696," referring to HF 5696 MHz, the Coast Guard

search-and-rescue (SAR) frequency where Baur planned to keep his radio guard and position reporting. "Monitor that for me. If I go in, get visual—and I guess tell my ex-wife the check's gonna be late this month."

"It certainly played through my mind about who was gonna come get me, if anybody," says Baur. "I put stock in the Marines. I knew that if they were on the same frequency, they'd know where we were in case nobody else did."

That night, the phone in Baur's hotel room



The *Salvador Allende*

rang off the hook. If it wasn't the mission planning cell with updates, it was the people he worked for at Customs asking him where he was and what he was doing. "What if something happens to you?"

"Don't worry about it," Baur reassured them. "It's all gonna come together. It'll be fine. See you bright and early Monday."

### Mission Day

When Baur's phone rang at 3:30 am on Saturday, Dec. 10, it was the clerk at the hotel front desk. "The RCAF bus is outside waiting for you."

*How could that be?* "What do you mean the bus is waiting for me? The launch window isn't until—"

"Oh no," she interrupted. "The launch window has been moved up." *How the hell does a hotel clerk know when a mission time has been moved up?* Baur hung up and put on his flight suit. As he was ready to leave the room, he saw his AWOL bag on the bed. He froze in the open doorway: *Do I take the bag with me because I'm not coming back, or do I leave the bag here*

*because I am coming back? If I leave the bag here and I don't come back, that means one of my friends will have to deal with it.* Finally, he decided, *\*\*\*\* it, I'm gonna come back.* He closed the door and headed out.

The crew received their mission briefing at Base Shearwater where the planning cell had worked through the night to orchestrate a rescue plan. Guidance was firm: the helicopter was not a search asset but a rescue platform. The HH-60 crews were prohibited from going beyond the turnaround time, refueling at night, or using their night-vision goggles (NVG). They were to fly to a set of coordinates where they could expect to find the *Salvador Allende* survivors in white wooden lifeboats and join the crews of an RCAF CP-140 Aurora and a Coast Guard HC-130 from Elizabeth City, North Carolina, already on scene.

Baur had enough time to eat lukewarm scrambled eggs during the brief before the crews were dropped off at their aircraft. They started up, taxied, and took off into a snowstorm. It was 90 minutes before sunrise.

### Heading Out

Visibility was terrible. They couldn't see anything through the clouds and snow, so Baur "painted" the coastline with the Pave Hawk's radar before deciding to extend and lock the refueling probe into position, recommending the same for wingman Buschor. "There's nothing in the manual that says you can't fly with it extended," says Baur. "If you get low on fuel but suddenly you can't get the probe extended, it's close to impossible to refuel because of the proximity of the rotor blades to the refueling hose."

On they flew, now with a roaring 70 kt. tailwind. The blade-deicing system was working on Baur's aircraft but failed on Buschor's, posing an extra challenge. They began accumulating ice and climbed above the weather. Sometime after sunrise, a Marine KC-130 arrived for the first of many refueling operations. Once at the survivor extraction point, they needed to descend again, immediately reaccumulating

ice. At their request, the Marines scouted ahead and discovered an opening in the cloud deck. “It reminded me of the *Millennium Falcon*, the way that KC-130 dove down through the hole in the clouds with the hoses out,” says Baur. “We dove in after and followed them through.”

But below, the weather was treacherous. The ceiling was low, ragged, and overcast with poor visibility and rain. They encountered massive, 30 ft. sea swells, and the wind was a



An HC-130 Combat Shadow refuels an HH-60 Pave Hawk. Midair refueling requires precision flying by both pilots, even in daylight and good weather conditions.

strong 50 kt. More bad news: Baur radioed the Aurora pilot already on scene but was told the crew had no knowledge of where the Ukrainians were waiting in their lifeboats.

Drawing on his past Coast Guard experience, Baur recommended working a parallel search. “We were observing a fuel slick and debris. My plan was to create a creeping line search on both sides of the debris and fly up the current.” The Marines were willing to join and search with them until they went bingo fuel—meaning they’d reached their minimum fuel levels and had to return to base.

Gradually, they noticed the debris field was changing. They were seeing parts of a ship: wooden pallets, furniture, and paper. The wind was strong, but the current was consistent; deep blue water from the Gulf Stream, snaked with tendrils of whitecaps and surf. This gave them a clear direction to search, but it was well past the turnaround time. By 12:30 pm, they’d already searched hundreds of miles beyond the extraction point.

“We decided to continue searching, even if it meant disobeying orders. We’d been told not to search and to turn around no later than 12:30 local, but we made an ethical choice to continue in order to save human lives,” says Baur.

Just as they were getting light on fuel again, Rich Davin, Baur’s flight engineer, called out. “Hey, there’s some debris over there waving at us!”

“And that’s when we saw this guy, waving his arm like he’s hailing a cab in Manhattan, not in a debris field in the middle of the Atlantic Ocean,” says Baur. “His name was Alexander Taranov. That was the first time we met. I would come to know him better.”

## Taranov

From the Pave Hawk’s right seat, Fleming controlled the hoist while Baur monitored the aircraft torque, engine RPM, sea state, and radios from the left seat. Suddenly, Fleming entered into a hover in the trough between the 30 ft. swells. “The next thing I know, Doc was jumping out of the aircraft and swimming toward Taranov,” says Baur.

While Fleming was focused on holding the hover, Baur watched “a wave like in the opening credits of *Hawaii Five-0* coming right at us.” Backing up Fleming, Baur verbalized the threat and pulled up sharply on the collective. They departed the hover, orbiting to a safe distance while observing the PJ and the survivor until Doc signaled for the hoist and watched as Doc helped Taranov into the hoist. Doc would then wait below to be hoisted by Davin.

“Hey, there’s sharks in the water! They’re eating the Ukrainians,” radioed Krulder, the wingman’s flight engineer. “They’re treating them like a buffet line.” Baur cut Fleming’s radio, sparing him the details as he worked. The *Allende* survivors had lashed themselves together using ropes or belts. As one shark came up for a strike, it would pull the others under. Then a body part would bob to the surface. There wasn’t much left.

With everyone safely back in the aircraft, Baur asked Davin to put a headset on Taranov so he could talk to him. “I wanted to find out more about who was with him, how many survivors there were, and if we were searching in the right area. Part of me didn’t want to tell Taranov about the sharks,” says Baur. “We would find out later, through a translator, that Taranov had had his own encounter and didn’t want to tell us about the sharks.”

Another quick discussion ensued: Should they put Doc back in the water to gather any remains? Absolutely not, they decided. It made no sense. Baur agreed and radioed one of the nearby searching ships, rolling and listing in the heavy seas. As the captain of that ship struggled to keep his vessel upright, members of his crew were casting over hooks and lines in an effort to gather the bobbing remains. “I thought that was probably the best solution,” says Baur. “I didn’t feel comfortable putting Doc in the water again.”

Taranov, 36, had survived in the cold North Atlantic seas for nearly two days wearing only a cloth coverall, two woolen sweaters, and an orange life jacket, sustaining himself with two cans of 7UP that had floated near enough to grab. His eyes were swollen shut from the sea and fuel. “He said he

knew the Americans would come, and he never gave up the will to survive. Taranov was thrilled to be in that aircraft.”

Meanwhile, it was time for a rendezvous with another tanker, an MC-130 from Patrick Air Force Base, and another refueling. “The good news is that we now had a full bag of gas,” says Baur. “The bad news is that once we’d finished, the pilot radioed that he was bingo fuel, abruptly sucking up his hoses and leaving us in the middle of the Atlantic.” They were maybe 800 miles out to sea with four hours and 20 minutes of fuel and hundreds of miles from the original pickup location. They required a lot more fuel to get back to Halifax, and they had but a single HF radio link to civilization.

Baur got on 5696 and radioed the Marine he’d spoken to back in Halifax. “I need you, and I need you now. Given our position, we’ll need more tankers and fuel to reach Halifax.” Time passed. There was another discussion: should the Pave Hawks remain there as the on-scene commander, or head north to Halifax with Taranov, who needed medical care? He was hypothermic after being in the ocean for two days. An HC-130 crew from Baur’s squadron were on their way, eventually reaching the 60s and providing them with fuel and support before the sun went down. Then, the previous MC-130 tanker returned. “I thought you guys were bingo fuel,” radioed Baur.

“Oh, we figured out we had more fuel, so we want to search for the rafts for survivors,” replied the pilot. Time passed. The crews meticulously searched each of the bobbing, empty black life rafts deployed by the various fixed-wing rescue assets over the past few days.

“You know, there’s no gold nugget out here,” Baur radioed back. “We got one guy in need of medical attention. The other bodies we saw were consumed by sharks; they’re, uh ... deceased. There are no more survivors; it’s time to go.”

Baur was adamant on that point. He knew they couldn’t stay out indefinitely. They still had to reach Halifax from the middle of the Atlantic. “This wasn’t some refueling exercise we were doing off the coast of Long Island.” They needed four tankers because the tankers needed fuel to get to them, plus fuel to give them fuel, and fuel to get themselves back to

base. The mission would require 10 mid-air refueling operations for the Pave Hawks.

Finally, everyone agreed. It was time to head back. Once again, the MC-130 declared bingo fuel and departed. The 60 crews had benefited from a tremendous tailwind coming to the search, which meant flying into a vicious headwind while returning to Halifax.

At twilight, a second Marine KC-130 joined the HC-130 on Baur’s wing. Freshly fueled with just enough to reach Halifax, Baur decided to take a break and asked Fleming to fly. He’d had nothing to eat or drink since departing Halifax that morning. “I remember opening up this amazing RCAF box lunch containing a bottle of orange juice. As I drank it, I could suddenly see in high-def color. My vision had slowly pixilated into a monochromatic noise.”

Baur hadn’t realized how much the flight had depleted his blood-sugar levels. In addition, he’d been manually flying for 12 hours weighted down with his survival suit and gear in a helicopter the Army had designed for two-hour

missions that lacked both automation and comfort. He donned his NVG and took control of the aircraft again.

### **Betting the Farm**

They were 327 miles from Halifax when a storm hit them like a brick wall. They switched to IMC and broke formation. The Pave Hawks were picking up ice again. Baur’s 60 had a blade-deicing system, but it often failed, as it did now. He remembered an old deicing tactic from his Coast Guard days: fly close to the water’s surface and use the salt spray to combat the ice. “We were getting pounded,” Baur says. “There were times when I was moving up and down at something like 500 ft. a minute. I tried to climb, but that didn’t work. We were all over the place.”

Buschor radioed. “Hey, Chris. What’s your heading?”

“It really depends on when you ask,” Baur replied. The nose of the aircraft was shifting wildly, 45 degrees to either side of the direction



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of flight in the extreme turbulence. In the right seat, Fleming was struggling to don his NVG. “Can’t you hold this thing steady?”

As they flew, Baur recalls that his ground speed and the chance of reaching Halifax, Sable Island, or an offshore rig had now evaporated. They’d need another refuel. “I flew for another hour in that weather, conditions in which it was impossible to conduct a rendezvous and mid-air refueling.”



Above: US Air Force  
Capt. Chris Baur,  
age 33.

Opposite: Taranov's  
heartfelt letter of  
thanks to the two  
HH-60 crews.

When Taranov wasn't busy dry heaving, the turbulence was bouncing him hard between the deck and the overhead of the cabin. *This poor guy survived a shipwreck, and now I'm gonna pulverize him in the back of the helicopter*, thought Baur. At some point, Davin took a cargo strap and lashed Taranov to the deck. Baur would later find the back of his helmet covered with dozens of dents, the result of repeatedly slamming into the circuit-breaker panel directly behind his head.

Baur asked the KC-130s to scout another rendezvous area. They radioed back: “Hey, we just broke out. We’re at 25,000 ft.” To meet for refueling, both HH-60s and the tanker needed to find one another, homing in on radio transmissions and visually acquiring one another using NVG. “Two more things we’d been ordered not to do,” says Baur, remembering the brief. “Don’t refuel at night, and don’t wear NVG to refuel.”

“We can’t climb to 25,000,” Baur responded, fighting the storm for directional control. While his adrenaline was fading, his body continued operating on muscle memory. He recalls a number of thoughts: *How much pounding can this aircraft take? At what point will the rotor blades just come off?* “The

experience was surreal.”

He flew for another hour on goggles, peering beneath the cutaways to the instruments. It required all of his mental acuity to keep the aircraft upright, and that became his only goal. “I didn’t touch the cyclic, and I was careful with the collective input. I didn’t want to overly stress the aircraft or encounter negative-G’s. I was just gonna ride this thing out like a cork. We continued ahead, determined to see who would win: us or the North Atlantic.

The Marines radioed an hour later: “Hey, we’re between layers at 6,000 ft.”

*Alright, this is where we bet the farm*, thought Baur. Performing a refueling rendezvous at night is challenging. They had to climb into the icing, find clear air to shed ice from the rotors, and find the tankers. A lack of moonlight reduced the goggles’ capability, but they desperately needed the fuel.

Leaving the marginal safety of the salt-laden air near the water, both helicopters punched into the belly of the storm, shrouded in ice and punished by turbulence. They climbed toward the break between the cloud layers, hoping to shed the ice and locate the tankers.

“Ultimately, we were able to rendezvous and refuel. And it was at that point we realized we were almost home free. Nothing was going to stand in our way of accomplishing the mission and delivering the survivor to safety.”

## Home Free

Eventually, they left the storm. Baur remembers flipping his goggles up so he could see the lights of Halifax. “My eyes were watery, not because I was crying but because they just burned so bad.” When the lights became more prominent, Davin brought Taranov forward to show him. “The emotion of it was incredible,” says Baur. “We felt like astronauts returning from space.”

As they approached, Taranov spoke. “America?”

“No,” corrected Davin. “Canada.”

Taranov seemed perplexed. “But you’re American? Why would Americans come all the way to middle of ocean to rescue me and take me to Canada?”

Finally, Baur landed. It had been over 16 hours since they took off from Halifax. “I felt like we had endured pure hell and fury but we’d accomplished the mission: *that others may live*. We pulled together and worked as a team to achieve the impossible, never losing focus, while successfully identifying and defeating the obstacles and challenges we encountered.”

Once the medical team had taken Taranov away for medical care, the crews had run their checklists and shut the aircraft down, Baur realized he had two new problems. One, he hadn’t been able to relieve himself for 16 hours. And two,

he couldn't stand on his legs or put weight on them.

The crew that met the aircraft helped him remove his gear and get out of his seat, but when they tried to use the door's emergency jettison, the mechanism failed. "It's a good thing we didn't have to ditch," says Baur, "because I probably wouldn't have gotten out."

Returning to his hotel room, Baur saw his AWOL bag sitting on the bed waiting for him, as if nothing in the world had changed. The pararescuemen took him out for dinner. "I remember falling asleep while eating pizza. The PJs helped me back to my room, where I passed out. I was wiped."


Another *Allende* survivor, the second mate, had been picked up by the Japanese cargo ship *Torungen* on Dec. 10. While the air search was officially suspended Monday due to poor visibility, 10 commercial vessels continued their search into the night without success. The bodies of seven Merchant Marines were recovered. The remaining 24 were never found.

Taranov, with the help of a *Reader's Digest* reporter, wrote letters (see below) to the crews of both Pave Hawks, thanking them for "risking your own lives to save mine." He and Baur were briefly reunited before Taranov's return to Ukraine.

In the months to come, the Pave Hawk crews were told they'd been awarded the Distinguished Flying Cross for the mission. But Baur remembers someone pulling them aside as they were preparing to receive the medals. "The Pentagon decided that since the mission was flown in peace time, they couldn't award a DFC to the crews," he says. But they had to pin something on the crews; families and other loved ones had gathered to watch. Baur doesn't recall what medal it was. "They just clipped it on. 'HC-130 crews flew with minimal rest in bad weather to support some helicopters.' That was the award narrative."

In 1998, the crews were presented with the Medal for Valor from the state of New York. Two years later, the Air Force unceremoniously issued the crews boxes with Air Medals inside.

*Baur went on to fly the HC-130 in the same squadron and retired in 2007 after 26 years of military service. He later became a senior captain at a major US airline and the president of Hughes Aerospace Corp., one of the largest air navigation services providers, recognized for pioneering NextGen satellite navigation with the FAA and ICAO worldwide.*

*A dual-rated ATP, Baur continues to fly helicopters, turboprops, and jet airliners today. He is recognized as a Fellow of the Royal Aeronautical Society and holds a BS from Embry-Riddle Aeronautical University, an MBA from Brown University, and an MBA from IE Business School in Madrid, Spain. *

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Dartmouth General Hospital  
325 Pleasant Street  
Dartmouth, Nova Scotia  
B2Y 4G8

20 December 1994

102 RQS Rescue Squadron  
Suffolk County Air National Guard  
Francis S. Grabreski  
West Hampton Beach,  
New York 11978

Attention: TSG James Dougherty (Jolly 14 Crew)  
Lt. Col. Ed Flemming  
Capt. Chris Baur  
SMS Rich Davin  
  
Capt. Graham Buschor (Jolly 08 Crew)  
Maj. Gene Sengstacken  
TSG John Krulder  
TSG William Moore

My dear kind rescuers:

I am struggling to find the words to express my gratitude for your brave, selfless actions, risking your own lives to save mine. It is very difficult to say what I feel.

I must tell you first of all that you did not save only my life. You also saved my wife, Larisa, and my daughters, Lena and Ludmilla. Without your courage, they would be alone, a widow and two orphans.

For the rest of my life, I shall always feel a bond of kinship with you, akin to what one feels for one's parents or one's own family.

I was so disappointed that you were unable to make a return trip to Halifax, so that I could offer my thanks in person. Had you done so, then the moment you landed, I would have filled your helicopter with fresh flowers!

I salute your bravery and your generosity, and I earnestly hope that I have conveyed at least some of the inexpressible gratitude I shall always feel for you.

Sincerely,

Alexander Taranov  
Crew Member  
Salvador Allende





# HAI Launches Safety Reporting Program for Members

Operators find that sharing ASAP reports generates significant operational benefits.

By Bryan Burns

**P** ILOTS, MAINTENANCE TECHS, AND MOST other aviation workers are fully aware that the safety of aviation operations depends on their day-to-day efforts. But doing the right thing that will keep you, your colleagues, and your customers safe—minute by minute, throughout each day—isn't always easy. Human beings make mistakes; we forget; we interpret a supervisor's direction differently than it was intended.

When operators aren't aware of those mistakes or deviations, they

lose the opportunity to correct them or address the underlying conditions that could contribute to future accidents or incidents. But what if pilots and others could actually *report* safety-related events or violations without fear of being penalized by the FAA or terminated by their employer? That's now possible through the Aviation Safety Action Program (ASAP), a new member benefit available through HAI.

Under ASAP, aviation employees throughout the company—from maintenance to the flight deck—can submit voluntary reports of



safety-related occurrences without fear of losing their jobs or being reprimanded by the FAA and losing their certificates, as long as certain conditions are met (see sidebar below).

In March 2021, HAI launched an ASAP reporting capability in partnership with the Air Charter Safety Foundation (ACSF, online at [acsf.aero](https://www.acsf.aero)). A well-known third-party facilitator of ASAP, ACSF has managed more than half of all ASAP participating companies for the business and general aviation industry since 2012.

ACSF works alongside aircraft operators and the FAA to receive, review, and respond to ASAP reports. “Having a neutral third party in the discussion helps to develop consensus,” notes the safety manager for an East Coast–based sports organization.

### ASAP Brings Big Benefits

ASAP is just one tool used in a robust safety management system (SMS) to improve both an organization’s [just culture](#)

## ASAP Defined

**What ASAP Is.** An Aviation Safety Action Program (ASAP) fosters a voluntary, cooperative, nonpunitive environment for the self-reporting of any events or concerns that could affect the safety of a flight. Flight department employees (pilots, aviation mechanics/engineers, dispatchers, schedulers, and so on) use ASAP to self-identify and report significant safety concerns and issues.

**Types of Reportable Events.** Reportable events may include (but are not limited to) operational deficiencies, noncompliance with regulations, or deviations from company policies and procedures. Examples include flying an unstable approach, airspace violations, altitude or route deviations, logbook errors, and OEM aircraft design or configuration issues.

**Events Not Accepted by ASAP.** The FAA takes no action against an employee who submits a report that is accepted as being appropriate for the ASAP process. However, not all events reported to ASAP are protected from punitive action.

An employee’s report may be dismissed from ASAP if his or her actions demonstrate an intentional disregard for company safety policies or the federal aviation regulations, or if he or she is involved in criminal activity, substance abuse, or the intentional falsification of information. When an employee’s report is dismissed from ASAP, the events contained in that report may be evaluated by the employer or the FAA for further disciplinary action.

**ASAP Resolution Process.** Each ASAP report is investigated by an organization’s event review committee (ERC), which typically meets every two

to three months or as needed. An ERC consists of three members: a management representative from the operator, an employee representative (pilot, mechanic, dispatcher, as appropriate), and a qualified FAA inspector from the appropriate flight standards district office. A representative from the Air Charter Safety Foundation (ACSF) is also present as a neutral third-party ASAP facilitator.

Committee members work together to review, analyze, and resolve the reported safety event. Using consensus and a nondisciplinary approach, the committee determines corrective actions that address all causal factors related to the event, including training gaps or ambiguities in company policies.

After the ERC determines to its satisfaction that all corrective actions have been properly completed, the ERC notifies the submitter that the report is closed.

**ASAP Benefits.** Employees of a participating ASAP organization have access to a nonpunitive reporting system that encourages them to submit safety events that might otherwise never be reported. Participating companies can take advantage of a structured, collaborative process to resolve those events and address all causal factors while strengthening their just culture. De-identified information from ASAP reports is also available to other organizations participating in the ACSF ASAP, and those companies are encouraged to use that data, including all corrective actions taken, to inform their own training programs and develop mitigation strategies for their operations. In addition, ACSF publishes a quarterly ASAP newsletter.

and reporting culture. We don't know what we don't know, which is why the employee hazard reports submitted through ASAP are so powerful. Sharing hazards and other safety issues can prevent others from making the same errors. ASAP's nonpunitive, solution-oriented focus on safety also supports an organization's just culture.

The program has posted impressive results so far. As ACSF president, I can attest to the fact that more than 90% of our 7,000 ASAP safety reports have been "sole source." This means more than 6,300 of those safety events

may never have been disclosed if it weren't for ASAP. This level of active participation validates the entire ASAP program.

Beyond the ability to improve safety, ASAP's solution-oriented approach benefits operational efficiencies and policies. For example, after a large regional air ambulance provider reported the inability to reach air traffic control (ATC) in remote areas, its safety manager said, "If someone in the back has a life-threatening medical emergency and we can't get clearance to get off the ground, that's a problem."

The organization developed operational procedures to remedy the issue. It now has a dedicated phone number to obtain departure clearances. Because ASAP reports are shared, its findings will help other operators, as well.

The air ambulance company also uncovered safety-related maintenance issues through ASAP. "We identified shortcomings with OEM maintenance manuals, which were updated," its safety manager explains. "And we drafted content for the AIM [Aeronautical Information Manual, published by the FAA]." ASAP helped improve the level of safety within the company and among different certificate holders and OEMs, and led the FAA to adjust its policies.

### ASAP Findings Improve Training

A just culture recognizes that most safety events are caused by honest mistakes, which are often caused by gaps in policies, procedures, or training. Operators have used ASAP to revise their flight operations and maintenance manuals and close training gaps.

Making such ongoing improvements to company policies and procedures is an important part of a just culture. "When a pilot isn't terminated in these instances, we can offer remedial training and take corrective actions to help ensure that these events don't happen again," says the air ambulance safety manager.

Participants are encouraged to regularly incorporate information from ASAP reports into safety newsletters or team meetings.

### Is It Really Nonpunitive?

One of the biggest reasons not all operators have signed up for ASAP is that some believe the program isn't truly nonpunitive.

But that belief is quickly discouraged in the wake of these reported events and their positive outcomes. "As a safety manager, my job isn't to find blame; it's to find cause," says the sports organization's safety manager. "The benefit of having an ASAP is in the results—of gaining knowledge of the unintentional error or safety threat. It's gratifying we can capture data and find solutions that often prove lifesaving."

"ASAP was an easy sell to my boss," says the safety manager for a Part 91 operator. "Our SMS policy has a statement about no retribution, so if a pilot makes an honest error, the FAA and company can't take punitive action. And since the ASAP memorandum of understanding is signed by three entities [the employer, the FAA, and the ACSF], it's a formal promise that adds strength and trust in the program."

### Sharing Data Benefits Industry

Another key benefit of ASAP is that program participants have access to findings to help other aircraft operators improve their safety policies and procedures. For example, through ASAP, the air ambulance company identified what to do when an operator has four helicopters arriving in a landing zone and ATC is unavailable. The operator's corrective action was to work with the FAA and a local ATC to develop a procedure for the first aircraft landing on scene, the second, and so on. These procedures are now available to other operators in the area.

Sharing safety data has big benefits for ASAP participants, enabling them to use lessons learned by others to improve efficiencies and even save lives. This is even true of OEMs.

"It doesn't cost us one extra cent to learn from another's safety event, and we don't pay the operators' costs of experiencing it," notes the sports organization safety manager.

"We think ASAP is an invaluable program if it's understood and managed correctly," says the operations director of an air tour operator. "This program isn't for people who like to fly under the radar. If you really want to create a just culture and culture of compliance and risk management, ASAP opens up and mitigates those pockets of resistance."

### ASAP in Action: A Case Study

The following case study, provided by a tour

## How to Join ASAP

### Register

HAI members can register at [rotor.org/ASAP](http://rotor.org/ASAP). A one-time setup fee and annual administration fee based on the number of users is required for ASAP participation and member support.

### Sign an MOU

ACSF will organize the co-signing of a memorandum of understanding (MOU) between all three parties—your operation, your local FAA flight standards district office (FSDO), and the ACSF. Once the MOU is finalized, the ACSF will work with you to begin your program participation.

### Conduct Training

An ACSF representative will offer train-the-trainer coursework for your company ASAP representative as well as for your FSDO and its ASAP representative. Then, your company ASAP rep will train fellow employees in the program rules as well as report submission.

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operator, shows why ASAP provides value for both the aviation employee and his or her organization.

**The Reported Incident:** On one air tour flight, a chip light flickers. Standard policy requires landing as soon as possible. The light continues to flicker and then turns solid. By this time, the pilot is 10 minutes from base. He turns around and heads back to the base, choosing not to land anywhere closer, despite many available options.

The light turns out to be faulty and not a serious issue. But positive outcome aside, there are still questions about the pilot's decision to fly for 10 minutes with the chip light on.

The director of operations reviews the company's just culture policy, and he considers the pilot's decision to be reckless. That is, until the pilot explains that decision.

**The ASAP Investigation:** The pilot tells the ASAP event review committee (ERC) that he previously had flown in Alaska with a chip

light on and wasn't able to set down, so he is comfortable flying with it illuminated. Also, the pilot relates that the tour company had previously told him, "If you're going to land, make sure you land somewhere that it doesn't end up in the news." With further investigation by the ERC, what looked like reckless behavior turned into a company procedural issue.

**Outcome:** As a result of the ASAP investigation, that tour operator has embraced more conservative aeronautical decision-making and changed its communication and training protocols. There's no longer a "go, no matter what" attitude. "Now, we tell them you can take off and turn around," the operator notes. "And you can cancel the flight; we'll applaud

that decision. ASAP has gotten us closer to the mindset that we don't need 'macho' in any way."

The ASAP process helped the operator to focus on deeper issues than the actions of one pilot. "This ASAP reporting helped us really

look at what sort of attitudes are in the pilots' minds when we train them. And we have to pay attention to what we say during training,"

he says. "When the pilots are in the air, we want them to only make aeronautical decisions. We encourage them to have a far more conservative mindset when flying tours."


### Is ASAP Worth It?

The last word on ASAP is best summed up by those who've used it. "Anyone who's not using ASAP is doing themselves a significant disservice," notes the Part 91 operator.

"ASAP more than pays for itself," says the tourism operator. "And it's brought items to our attention that might otherwise have fallen through the cracks."

### New to Safety? Start Here

For those operators who've yet to implement an SMS, HAI and ACSF are here to help by providing education, mentoring, resources, and tools. Our teams will take operators through the process of setting up an SMS and getting started with ASAP. As an added bonus, HAI members who participate in ASAP will get free access to the actively managed, Web-based ACSF SMS Tool, which helps teams manage all aspects of safety.

Flight departments can use this tool to document aviation safety data, perform risk assessments, and assign corrective actions, among other things. The platform also serves as an internal reporting program and offers multiple reporting options for each safety event. Users can voluntarily submit reports for an ASAP ERC meeting and export reports to the FAA's Aviation Safety Information Analysis and Sharing (ASIAS) system. Visit [acsf.aero/acsf-sms-tool](http://acsf.aero/acsf-sms-tool) for more information. 

***"ASAP more than pays for itself. And it's brought items to our attention that might otherwise have fallen through the cracks."***



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# SALUTE TO EXCELLENCE

*Celebrating the Best in Vertical Aviation*

Nominations for the 2022 Salute to Excellence Awards, to be celebrated at HAI HELI-EXPO 2022 in Dallas, will be accepted beginning Jun. 4, 2021. Visit [rotor.org/salute](http://rotor.org/salute) for more information.

## HAI Salutes Excellence in Vertical Lift

**F**OR MORE THAN 80 YEARS, THE VERTICAL lift community has used the unique abilities of our aircraft to make a difference in lives, communities, and businesses around the world. Our achievements are the result of an exceptional level of dedication to professionalism and safety by aviation professionals.

Every year, through its Salute to Excellence Awards, HAI strives to recognize a handful of these outstanding members of the vertical lift community who went above

and beyond in their work. Whether in a single instance or throughout a career, it is these pilots, maintenance technicians, flight instructors, safety professionals, operators, and industry leaders from around the globe who remind us to strive for excellence.

For 2021, HAI recognizes the remarkable achievements of the following honorees across our industry. We congratulate them and celebrate their extraordinary contributions to aviation and their example to the vertical flight community.



## Jeanette Eaton

*Vice President, Worldwide Strategy & Business Development,  
Sikorsky, a Lockheed Martin Company, Bethesda, Maryland, USA*

**The daughter of a US Army helicopter pilot, Jeanette Eaton** grew up around aircraft and often attended air shows with her father. Yet, her parents didn't suggest she pursue an aviation career. Her mother inspired her to attend college, while her father emphasized the benefits of a career in engineering.

Aviation had other ideas. The defining moment in Eaton's career path came shortly after she received her electrical engineering degree, on the day she interviewed with Sikorsky and toured a CH-53E Super Stallion.

"I was maybe 21, and I was so overwhelmed and impressed with the helicopter," she recalls. "The engineering, the power, the missions this aircraft could do—it was all so inspiring. I knew then I wanted to work for Sikorsky and work on helicopters."

Eaton spent the first 17 years of her career at Sikorsky. Participating in the company's leadership development program, she steadily obtained skills, knowledge, and expertise across a variety of positions while earning a master's degree in manufacturing engineering, an MBA with a focus on manufacturing management, and a master's in executive management.

As she gained knowledge and experience, her passion continued to evolve. Through Sikorsky's leadership development program, she discovered she enjoyed sales. She loved working with, getting to know, and sharing the stories of her customers. She was a natural communicator and thrived on sharing her passion.

Her mentor encouraged her to obtain her FAA ratings to increase her credibility and marketability as an aircraft sales representative. Eaton earned her commercial instrument single-engine land certificate and landed a job at Bell Helicopter as a sales manager. Bell helped her add on her commercial helicopter certificate, and that's when Eaton really hit her stride.

"Some of my most treasured experiences have come from cross-country trips across the United States in helicopters," she says. "Those experiences are truly the source of my passion, working with customers and flying. We all need to be ambassadors to aviation."

Ten years later, Sikorsky recruited her back as director of marketing, and she was soon promoted into commercial sales. Today, Eaton is responsible for strategy and business development for Sikorsky products worldwide, supporting customers while also finding ways to grow the customer base. At the same time, she's focused on giving back.

"Part of my job, one of the things I love to do, is to celebrate and recognize our customers and help share their stories," she says. "As a salesperson, I also feel we have to give back to the community."

Eaton is very active in volunteer activities that promote aviation and expose the next generation to aviation careers. She volunteers with the Eastern Regional Helicopter Council and the Whirly-Girls and also donates her time to the Girl Scouts, Junior Achievement, Civil Air Patrol, local schools, and other organizations, talking to youths about STEM and aviation careers.



Jeanette Eaton

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"When I think back to my past, I am thankful for those who inspired me," she says. "I feel if you're not exposed to something, you don't know it exists or is possible for you. It's important to teach [children] to open themselves to new opportunities. Looking back, the things that made the biggest impact and helped me find my passion were when I said yes to opportunities, even when I was a little afraid to do it."



## California Army National Guard 40th CAB CH-47 & UH-60 Helicopter Crews

Fresno, California, USA

WATCH the HAI@Work  
webinar in which we meet  
the Cal Guard crews

On the evening of Sep. 5, 2020, the rapidly growing Creek Fire in the Sierra Nevada Forest northeast of Fresno, California, had surrounded a large group of campers, hikers, and residents. Without assets to reach the stranded, the Madera County Sheriff's Office called the California Army National Guard 40th Combat Aviation Brigade (CAB) for help. The most deployed unit of Cal Guard, the 40th CAB also provides considerable support to Cal Fire (a department of the California Natural Resources Agency) during the state's fire seasons, employing its CH-47 Chinook and UH-60 Black Hawk helicopters for transport and water drops.



UH-60 Black Hawk crew (from left): WO1 Ge Xiong, CW2 Irvin Hernandez, and CW5 Kipp Goding.

Chief Warrant Officer 5 (CW5) Kipp Goding was at home when he got the call for help from his brigade commander. Goding, a Black Hawk pilot-in-command (PIC) based out of Fresno, quickly put together a crew that included pilot Chief Warrant Officer 2 (CW2) Irvin Hernandez and crew chief Warrant Officer 1 (WO1) Ge Xiong. Meanwhile, the brigade commander reached Chinook PIC CW5 Joseph Rosamond, who pulled together his Stockton, California-based crew: pilot CW2 Brady Hlebain, flight engineer Sgt. George Esquivel, and flight engineer Sgt. Cameron Powell.



CH-47 Chinook crew (from left): CW2 Brady Hlebain, Sgt. Cameron Powell, Sgt. George Esquivel, and CW5 Joseph Rosamond.

What followed was a harrowing night that tested the limits of crews and aircraft alike. An inferno fueled by bone-dry vegetation, bark beetle-killed trees, and strong winds, the Creek Fire was unpredictable, creating so much smoke that the pilots couldn't see to fly through it. After navigating Cal Fire airspace closed due to active tanker drops, the helicopters were forced to wait an hour until sunset, when night-vision goggles enabled them to see through the

smoke. Rosamond's Chinook arrived first and landed on a concrete boat ramp at the reservoir's edge. The two helicopters each flew three flights, rescuing a total of 242 people and a significant number of pets from the blaze.

"It was really brutal," Goding says. "We'd return to Fresno, refuel, and head back. In that time, the fire was in a new position. During the day, the wind made it jump over vegetation, leaving green spots. After sunset, the wind died down a bit, and the fire started burning those previously unburned areas. As a result, we were forced to find a new route to the reservoir each time we returned. No two trips were the same route."

The crews pushed the limits of the aircraft in the high altitude and fire-fueled temperatures. Each helicopter reached maximum weight during the night, yet mechanics back at Fresno inspected the aircraft and were able to give the green light to continue.

"In many ways, this was much worse than flying in combat," Goding recalls. "In combat, you don't see people shooting at you. You focus on the job. In the Creek Fire, you saw the wall of smoke and flames. You were flying into it and seeing the terror on people's faces. We did the job, just as any of our Guard members would. I really want to emphasize that. We may be the ones who did this job, but we're all doing these jobs every day."

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# W.A. "DUB" BLESSING FLIGHT INSTRUCTOR OF THE YEAR

*For upholding high standards of excellence in flight instruction*

## Nobuyuki Kosuge

*Pilot / Flight Instructor, HeliStream, Costa Mesa, California, USA*

**Nobuyuki Kosuge's soft-spoken demeanor and dedication** to safe, skilled helicopter flight have had an immense impact on countless pilots over the past two decades.

Born in Japan, Kosuge grew up near a Japanese Maritime Self-Defense Force air base, sparking his lifelong interest in aviation. He received a bachelor's degree in English from Kanda Gaigo University in Chiba, Japan, but never lost sight of his dream of flying.

Not long after college, Kosuge visited Southern California on vacation and took his first helicopter flight. He was hooked. In 2001, he enrolled in the HeliStream helicopter flight training school in Costa Mesa, California, and began a six-year journey of obtaining visas, changing schools (and transferring a visa) when one went bankrupt, and applying for a green card.

His hard work, along with the support of those around him, paid off. By 2007, Kosuge had his private and commercial certificates, and instrument and flight instructor ratings, as well as flight instructor experience in the United States, ground instruction experience in Japan, and green card sponsorship by HeliStream.

Kosuge began at HeliStream as a primary instructor. His professionalism and work ethic soon led to a promotion to instruct for HeliStream's Customs and Border Protection Rotor Wing Qualification Course, a program he now manages along with many initial qualification courses for other agencies, including the sheriff's departments for Orange County and Riverside County and the Ontario and Anaheim police departments. He has qualified dozens of law enforcement pilots through these programs.

Today, Kosuge serves as HeliStream's assistant chief flight instructor and FAA Part 135 check pilot. He has more than 10,600 flight hours in 11 aircraft models, with more than 9,000 hours of instruction given. While he no longer provides initial flight instruction, he remains very active with HeliStream's students, providing stage checks and sharing his knowledge as students progress.

"To see our students progress is very satisfying," Kosuge says. "I enjoy seeing them through each stage as they build their skills and transform into professional pilots."

Kosuge also runs the company's transition and recurrent training in the MD 500 and AS350, allowing him to provide instrument proficiency checks for many of HeliStream's law enforcement customers.

One of the company's Part 135 line pilots since 2008, Kosuge also flies a number of utility, photography, charter, and tour flights and serves as a maintenance check pilot. He was also instrumental in developing HeliStream's safety management system.

While many flight instructors may have moved on to different careers by the time they accumulate as much experience as Kosuge, he's happy to stay in the training arena.

"I really enjoy HeliStream itself as a multiple-mission company," he says. "I started with initial instruction, but as they get more missions and support work in utility, firefighting, and other commercial work, I get to expand my skills and still instruct. The variety makes this a very attractive company."



Nobuyuki Kosuge

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## Hill Air

HeliStream sees Kosuge as one of its biggest assets due to his work ethic and the skills he can share with students.

"Nobu's abilities as a professional flight instructor are exemplary," says HeliStream CFO Barbara Perrin. "He teaches by example, holding himself to the highest standards of professionalism. His students naturally learn from his well-developed and safe habit patterns."



## John Cooper

*Safety and Training Officer, Columbus Division of Police, Helicopter Unit, Columbus, Ohio, USA*

**While John Cooper earned his private pilot single-engine land rating** in his teens, it was helicopters that truly captured his imagination.

Using money from his full-time paper route and a second job helping scrap Army surplus helicopters for a helicopter operator in Maryland, Cooper earned his private helicopter add-on certificate in an Enstrom in the late 1970s. His training then came to a halt as he sought the funds and a path to a helicopter pilot career.

Cooper's big break came in 1988 when he was hired by the Columbus (Ohio) Division of Police—the division's robust helicopter aviation unit trained officers to fly. Cooper served as a street officer until he was accepted into the aviation unit in 1991. There, he earned his commercial helicopter certificate and flew as a helicopter tactical pilot. A few years later, he earned his certificated flight instructor rating. In 1996, he became the unit's safety and training officer.



John Cooper

Today, at 57, Cooper is the Columbus Police Division's longest-serving pilot in the aviation unit and its longest-serving safety and training officer. He has 5,900 hours in helicopters, with 3,500 hours in instruction, and is an FAA helicopter designated pilot examiner. During his 30-year career with the unit, Cooper has also built and strengthened the unit's safety programs.

In his position as safety and training officer, Cooper has two main responsibilities. The first is maintaining and overseeing safety standards for the department's heliport. The second is overseeing all pilot training for the unit.

In 1999, Cooper helped the Columbus Police Division become the first police department in the United States to achieve Public Safety Aviation Accreditation Commission (PSAAC) accreditation. He also led the effort to achieve reaccreditation of the unit in 2012. Columbus Police awarded him its Medal of Merit for both efforts.

The Columbus Police Division employs 21 pilots who fly the unit's five aircraft, one Bell 407GX<sub>i</sub> and four MD 530F helicopters. Cooper provides primary,

recurrent, and transition training, ensuring that every pilot meets rigorous FAA and departmental standards, including two checkrides a year.

New recruits to the Columbus Police aviation unit come with everything from no flight experience to full certificates. Cooper helps each of the officers gain the experience needed to obtain pilot-in-command status on the aircraft, placing particular emphasis on safety.

"I'm big on safety," he says. "I put a lot of emphasis on emergency procedures, too. We've had four engine failures, and the pilots put the aircraft down safely in some very confined areas. I've had pilots come to me afterward and thank me for the training. That's emphasized for me how important emergency procedures are."

To increase safety, Cooper established an integrated training system for the department, something for which he again received the department's Medal of Merit. He applied for a grant and added a helicopter aviation training device to his training equipment to conduct training for inadvertent entry into instrument meteorological conditions (IIMC). He also developed aeronautical decision-making models based on realistic scenarios and put all pilots through that training. To enhance realism, Cooper invites local air traffic controllers to participate in instrument and IIMC training.

"I love training," he says. "I love getting into people's minds and bringing that understanding. I like taking something complex, breaking it down, and making it easily digestible. That's what any instructor should be doing."

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## University of Maryland UAS Test Site and University of Maryland, Baltimore

*College Park and Baltimore, Maryland, USA*

**On the night of Apr. 19, 2019**, 44-year-old nursing assistant Trina Glispy waited at the University of Maryland Medical Center (UMMC), preparing for kidney transplant surgery. In her eighth year of dialysis for kidney failure, she had begun to lose hope. Destiny had another plan.

When Glispy learned she had a match, she was offered a very special opportunity—the kidney could be delivered to the hospital by drone, a medical first that would pave the way for faster organ delivery. Excited by the chance to make a difference, Glispy agreed to the delivery.

As Glispy was prepped, an unmanned aircraft system (UAS) team, led by University of Maryland UAS Test Site Director Matt Scassero and UMMC's Dr. Joseph Scalea, awaited the arrival of the kidney from the Living Legacy Foundation, Maryland's organ procurement organization. Once secured, the kidney was launched in a custom UAS, complete with real-time monitoring equipment.

The drone flew 2.8 miles in 9.52 minutes at 300 ft. to the rooftop helipad at UMMC, faster than a car could have made the trip in Baltimore traffic. It landed smoothly with all organ-monitoring readings in the green. The kidney was soon on its way to the operating room where Glispy waited.

The idea of organ transport by UAS was born two and a half years earlier. Scalea approached Scassero after hearing about a fixed-wing drone test his team had conducted carrying medical equipment across the Chesapeake Bay and asked if the same could be done for an organ.

"I was excited about the idea and challenge," Scassero recalls. "This project was a lot more than a drone flight. We needed to develop a drone with redundancies, to reduce risk, and identify how to track the state of the organ while it was in transit."

Scassero's team embraced the challenge. The drone was built from scratch with multiple redundancies, all the way down to a parachute that could be deployed automatically or manually to protect the organ. The team also designed the first-ever organ-monitoring system that tracks an organ's condition in transport in real time, recording and uploading to the cloud temperature, pressure, and vibrations for live monitoring. Medical staff can later remove the onboard SD memory card to review the same data.

"Nothing like this had ever been developed before," Scassero says. "Currently, an organ is tested after harvest and then tested again after arrival to ensure it's still viable. With our monitoring system, we discovered the kidney we flew remained well within the parameters; I'd even say better than it would have in a car or helicopter. The hope is one day this monitoring technology will replace the need for that second biopsy."

Glispy is doing very well and has returned to many of her former activities. The technology that made her recovery possible has also flourished. Members of the original team partnered with an investor to found MissionGO, a company that's developing and expanding this technology and increasing organ donation efficiency through a new software product.



Dr. Joseph Scalea (left) and Matt Scassero with their innovative drone.

## Neo Aik Sia

*Certified International Safety Manager, Kahului, Hawaii, USA*

**Neo Aik Sia was destined for aviation** from an early age. Fascinated with aircraft, he joined the Junior Flying Club in 1972 in his native Singapore before he could even drive a car. He later earned his private pilot airplane rating six months after graduating from high school.

Neo was conscripted into the Singapore National Service shortly after school. Seeing an opportunity to stay in aviation, he opted to leave the service three months later to enlist full time with the Republic of Singapore Air Force (RSAF) as a pilot officer. Once in the RSAF, he found his calling in safety.



Neo Aik Sia

Throughout his 29-year career at the RSAF, Neo progressively advanced through the ranks in areas where he could champion safety culture and implement safety programs. Throughout his service, he held multiple positions, including head of accident prevention, senior staff director and lecturer, director of operational development, senior pilot, and squadron commander.

Neo was eventually charged with responsibility for all RSAF aircraft, maintenance, and ground safety and accident prevention programs. He developed and implemented a safety management system (SMS) in 2000 that has since proven its effectiveness through reduced accidents and incidents. Now retired from the RSAF, he uses his experience to help develop and refine SMS programs for civilian organizations.

After emigrating to the United States in the early 2000s, Neo obtained his FAA airline transport pilot, ground instructor, and advanced instrument ground instructor certificates. He later worked with Air Methods, flying air ambulance, search-and-rescue, and maintenance test-flight missions in multiple locations across the United States.

In 2016, Neo was hired as the safety, quality, and standards manager for the Vision Technologies Aerospace subsidiary Aviation Academy of America, a national and international airline flight training academy in San Antonio, Texas. While there, he developed and implemented SMS and quality-assurance system programs aimed at achieving and sustaining a zero-accident record. When an incident occurred, he conducted investigations and used the findings to develop and implement changes in maintenance, operations, and training.

Most recently, Neo served as regional safety director at Blue Hawaiian Helicopters. In this role, he was responsible for promoting safety and implementing an SMS program and the FAA's Aviation Safety Action Program across Blue Hawaiian companies. He was also appointed as an FAA Safety Team (FAASTeam) representative. Neo concurrently prepared the companies for external audits by the Tour Operators Program of Safety (TOPS) and by Starr Aviation's loss-control consultant.

Throughout his career, Neo has been recognized for promoting safety culture while developing effective safety programs that identify and analyze hazards and mitigate the associated risks to safeguard operations.

Neo's passion is driven by the belief that all accidents are preventable. He mentors members of the industry in the need to understand accident causation, human factors, SMS, and the importance of adopting safety excellence and safety culture as a way of life to eliminate accidents.

"Building a positive safety culture by changing mindset, attitude, and behavior is the biggest challenge of implementing a safety program," Neo says. "Without a positive culture, the program is often implemented robotically with minimal effort. I emphasize the need to embrace safety at all levels. With total safety as a lifestyle, we all benefit—ourselves, our families, and our organizations."

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## David Wayne Fox

*Maintenance Instructor, Bell Training Academy, Fort Worth, Texas, USA*

**David Fox has been around aircraft since he was old enough** to toddle. Some of his most cherished memories are accompanying his mechanic father to the airport. His father was his inspiration as they built kit airplanes together and performed maintenance work on Bell 47s.

As a teen in 1970, David landed his first paying aviation job as a mechanic's helper working on Bell 47 helicopters. Three years later, he joined the US Army and worked as a crew chief, maintaining OH-58, UH-1, and AH-1G helicopters while serving a tour in Korea.

When he returned from Korea, David relied on his on-the-job training and self-study to obtain his airframe and power plant certificate. Not long after, he earned his private and commercial helicopter certificates.

In 1980, he and a friend founded Helitrans Co. Inc., a Part 135 operator and Part 145 repair station supporting the oil-and-gas industry off the Gulf Coast of Texas. He served as both the director of maintenance and chief inspector, having received his inspection authorization from the FAA.

For 20 years, Helitrans operated with a perfect safety record. The company had no accidents, incidents, violations, or forced landings.

"My proudest accomplishment is Helitrans's record," David says. "Having good people working for you and maintaining and operating the aircraft properly to manufacturer recommendations are to credit for that. I was very serious about following the rules and not cutting corners. Money isn't everything. Sometimes people lose sight of that."

David sold Helitrans in 2000. He enjoyed semiretirement, doing a little maintenance and consulting work, before Bell in 2001 invited him to be a ground school and simulator instructor for its light helicopters at the Bell Training Academy. For that position, he earned his certificated flight instructor rating.

David became a fixture at Bell, not just at the training center, but also within the accident investigation and legal departments. He was also the go-to expert for Bell owners and operators around the world on all things related to their aircraft's operation, performance, and maintenance. He taught every system on the aircraft, sharing his stories and anecdotes to help solidify student knowledge while engaging them to learn. David also taught the simulator portion of students' aircraft transition training. He developed an exhaustive list of connections and still gets calls from people around the world when they're stuck on a maintenance challenge.

"I've been doing this so long, chances are I've seen some of the more obscure or unique issues with these aircraft and may have a way to help," he says.

While at Bell, David was instrumental in developing the Bell 407GX and GXi initial pilot transition courses as well as leading and standardizing pilot instruction for light helicopters.

David retired from Bell in 2020 and now works part time for the Helicopter Institute in Fort Worth, Texas, providing pilot training. He also still moonlights as a mechanic, providing maintenance services for select clients.

These days, David's most rewarding work is mentoring young mechanics, believing it's essential for the older generation to share its wealth of knowledge as well as its experience and values.

"It's important to mentor these younger people," he says. "This is what my dad did with me. He mentored me on how to do things correctly to ensure that when you send an aircraft out, it will come back. Part of that is emphasizing the importance of following the manufacturers manuals and maintenance recommendations and developing a good working relationship with your local FAA inspectors."



David Wayne Fox

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# PILOT OF THE YEAR

*For outstanding achievement as a helicopter pilot*

## Lt. Cdr. Robert McCabe

*US Coast Guard Air Station Cape Cod, Buzzards Bay, Massachusetts, USA*

**US Coast Guard (USCG) Lt. Cdr. Robert McCabe** didn't set out to be a helicopter pilot. He joined the Coast Guard with a desire to be actively involved in humanitarian and search-and-rescue work. While assigned to a ship in Astoria, Oregon, he was inspired watching the MH-60T Jayhawks perform multiple harrowing rescues. He changed his focus and attended flight school after his first USCG tour.



Lt. Cdr. Robert McCabe

McCabe returned to Astoria in 2012 as an MH-60T pilot. After that tour, he was stationed in Sitka, Alaska, before his current assignment at USCG Air Station Cape Cod.

Today, McCabe conducts missions across New England, having accumulated more than 2,700 helicopter hours and countless successful rescue missions. In addition to being a pilot-in-command, he is an instructor pilot and flight examiner.

On the evening of Nov. 24, 2019, his skills and experience were put to the test. The fishing vessel *Leonardo*

had suddenly and unexpectedly capsized 24 miles southwest of Martha's Vineyard, throwing all four crew members into the 50-degree water.

Once on scene, McCabe's crew found a lone survivor in a life raft among the debris field in 10-ft. waves and 30-kt winds. The severely hypothermic survivor was hoisted aboard and successfully stabilized. During the rescue, the sun set and a squall with sleet came in, reducing visibility to a quarter mile and raising the seas to 15-ft. waves.

Rather than a typical search altitude of 300 ft., McCabe directed the other pilot to fly a low, 80-ft. air taxi to continue searching the debris field for remaining *Leonardo* crew members. With their focus mostly outside the aircraft, searching the rough water with spotlights in flying sleet, both pilots became disoriented. The aircraft started to bank 40 degrees, simultaneously pitching more than 14 degrees nose up and rapidly slowing while descending.

"The visual inputs we were getting were inconsistent," McCabe says. "The sleet gave that *Star Wars* warp-speed illusion in the searchlight beam, making us feel like we were flying at 50 kt. The waves gave us the sensation we were drifting right. Neither was right. I soon realized we had 'the leans.'"

Within 10 seconds of becoming disoriented, McCabe announced the aircraft's state and coached the flying pilot through an instrument transition to stable flight. McCabe's situational awareness and decisiveness were crucial to avoiding a near-catastrophe. "Admitting disorientation, then transitioning to correction is very, very difficult," he recalls. "It's extremely difficult to convince yourself to trust your instruments and make the correct inputs. That experience really brought home that we as a community need to fess up and do everything we can to learn from our mistakes."

Upon his return, McCabe described the event in detail to the air station's safety department, and information from the flight data monitoring system was used to create an animation of the flight for training. This effort resulted in USCG-wide policy recommendations, including standardizing training in night-vision goggle illusions, developing a manual addressing aeromedical factors of flight, and adding a discussion of spatial disorientation to every annual checkride.

## Michael K. Hynes

*President, Hynes Aviation Services, Branson, Missouri, USA*

**It all started with a \$5 airplane ride.** It was that ride almost 80 years ago that ignited a fire in Michael Hynes's belly and led to a very successful, 65-year aviation career.

At 17, he joined the US Air Force to become an aircraft mechanic. He was stationed at Palm Beach Air Force Base after graduation and eventually earned his airplane commercial certificate with a flight instructor rating.

In the first few years after leaving the Air Force, Hynes and a partner established a thriving airplane flight school, and Hynes started a fixed-base operation, aircraft maintenance shop, and charter service, which was one of the first Learjet corporate operators. He then earned his airline transport pilot certificate in 1959.

In the 1960s, after hearing about a Bell helicopter that achieved a top speed of over 150 kt, Hynes saw potential in adding helicopters to his school. Unable to find rotary-wing instruction in Florida, he built three hours of helicopter time at schools around the country. He acquired a Brantly B-2 helicopter in 1967 and taught himself to fly it, earning his commercial and flight instructor certificates in 1968. Using the Brantly and a Bell 47 helicopter, Hynes then formed one of Florida's first GI Bill helicopter flight schools.

Frustrated with limited access to parts for the aircraft, he also formed Brantly Operators, a maintenance and parts resource for the more than 350 Brantly helicopters in use. Hynes's ties to Brantly soon led to him securing ownership of the two Brantly type certificates, a vast parts inventory, and full production tooling in 1971 when Learjet filed for bankruptcy. Hynes moved his Brantly operation to Frederick, Oklahoma, and created a new company, Hynes Aviation Industries. During those years, he received FAA production certification for the redeveloped helicopter, now called the Brantly-Hynes B-2. He also designed and tested fly-by-wire artificial intelligence systems for drones and remotely piloted vehicles. At the same time, Hynes operated his now Oklahoma-based flight school, assisting former Vietnamese-military helicopter pilots to transition to successful piloting careers in the United States using Hynes aircraft. He was appointed as a designated pilot examiner to support the training and has since administered more than 800 airplane and helicopter flight exams to pilots from 38 countries.

Aviation has had its ups and downs for Hynes. He had backed a production loan for his US Army contract himself, and when payments from the Army fell behind, he was forced into bankruptcy and had to sell his Hynes Aviation Industries assets. Undaunted, he changed course and attended college, achieving his bachelor's, master's, and doctoral degrees. In addition to teaching high school and adult career and technical education courses, he has taught at Western Oklahoma State College and Embry-Riddle Aeronautical University's Altus Air Force Base campus. Hynes was appointed director of aviation education programs at the College of the Ozarks in 2003. He has built 16,500 flight hours in 314 types of aircraft and is one of the few individuals to be awarded both the FAA's Charles Taylor Master Mechanic Award and its Wright Brothers Master Pilot Award.



Michael K. Hynes

Now semiretired, Hynes, who turns 85 this year, currently oversees a \$450,000 trust fund that provides annual scholarships for students interested in aviation. When he talks to the next generation of aviation professionals about careers in the field, he also shares an underlying message about his secret to success.

"I tell kids to find that thing that gives them a fire in their belly," he says. "I tell them that when they find it and follow it, they've found what will make them successful."

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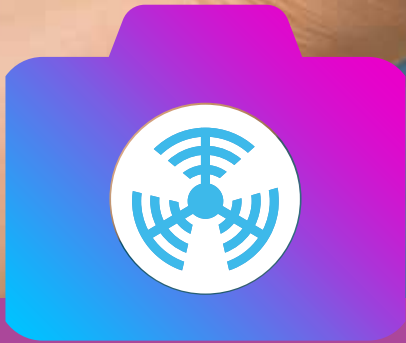
Founded in 1945, Twirly Birds is a non-profit organization of individual helicopter pilots formed for the purpose of aviation fellowship and the common bond of vertical flight.

For more information, visit [www.twirlybirds.org](http://www.twirlybirds.org)

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*Ninth Annual*

# ROTOR



## MAGAZINE PHOTO CONTEST

**Great photos of  
helicopters in  
2020? Why, yes.  
Just turn the  
page.**

**I**N A YEAR WHEN WE HAD TO CHANGE SO MUCH, some things didn't change at all. It turns out that ROTOR readers still like photos of rotorcraft, so we once again ran the annual ROTOR Magazine Photo Contest.

All of the winning images, shown on the following pages, capture the drama that's part of aviation. You'll see lives on the line, both literally and figuratively, and a gleaming aircraft set against a background of fire. You'll also see one photographer's memorable end to a perfect day.

These striking shots, chosen as the top photos in six categories, including the Grand Prize, reflect both the work we do and why we do it.

If you missed your chance to enter last year, consider submitting an image this year when the 10th annual ROTOR Magazine Photo Contest opens on Aug. 2, 2021. Show us your winning shots at [contest.rotor.org](https://contest.rotor.org)!





## Grand Prize

# Mark Mennie

Calgary, Alberta, Canada

Aviation photographer Mark Mennie took the Grand Prize in the 2021 ROTOR Magazine Photo Contest. Mennie shot this photo under medical direction in April 2020 to illustrate the new standards for personal protective equipment (PPE) that had been recently implemented to safely transport critically ill patients with COVID-19. His photo reminds us of a grim year—but also to be proud of our everyday heroes.









## Helicopters/ Drones at Work

### Julien Botella

Le Tholonet, France

Professional photographer Julien Botella captured this heavy-lift Eurocopter AS332 and a crew of linemen at work performing cable repairs for Réseau de Transport d'Électricité (RTE), which owns and operates France's electricity transmission system. The Super Puma is operated by Services et Travaux Héliportés (STH), an RTE division that provides helicopter services to assist the company in building and maintaining its electrical grid. In addition to documenting the role of helicopters in electricity production and transmission, Botella's perfectly composed shot highlights the delicate coordination necessary to conduct safe human external cargo operations.



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## Helicopters/Drones in the Military

### Carsten Vennemann

Stuttgart, Germany

The winning photo in the Helicopters/Drones in the Military category shows two US Marine Sikorsky CH-53E Super Stallions taking off after delivering a contingent of British Royal Marines to a landing zone during the 2016 Exercise Cold Response in Norway. The military exercises bring together NATO troops to train for harsh-weather operations. In Carsten Vennemann's photo, the activity of the swirling snow and departing aircraft frames the troop members who will remain behind.



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## People and Their Helicopters/Drones

### Marilyn Grubb

Grande Prairie, Alberta, Canada

On the way home from a helicopter ride in the Canadian Rockies to celebrate their 50th wedding anniversary, their pilot landed on a dry riverbed so that Marilyn Grubb and her husband could share a champagne toast. But Marilyn took away more than just memories from that special day. An avid photographer, she says, “When I saw the reflection of the helicopter, a Robinson R44, and my husband in the water, I captured it!” Her spur-of-the-moment photo took top honors in our People and Their Helicopters/Drones category. Lucky him, lucky her, lucky us.



Helicopter/Drone Digitally  
Enhanced Photos

**Creigh McIntyre**  
(Creigh Photography)

San Diego, California, USA

Photographer Creigh McIntyre created this beautiful-scary composite image that took top honors in the Digitally Enhanced category. McIntyre's photo positions a gleaming Sikorsky S-70i Firehawk, taken at the San Diego Fire-Rescue Department's base at Montgomery-Gibbs Executive Airport (KMYF), against the ominous background of California's Valley Fire, which killed four people and burned more than 76,000 acres in 2015.









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## Helping Hands and Helicopters during COVID-19

### Sylwia Tylkowska

Zawiercie, Poland

For this new category, Helping Hands and Helicopters during COVID-19, ROTOR wanted to document how the pandemic has affected those in the vertical takeoff and landing (VTOL) industry, including our many frontline workers. Aviation photographer Sylwia Tylkowska captured this dramatic shot of a patient transfer in Zawiercie, Poland, in April 2020—back when terms such as “PPE” and “social distancing” were just becoming part of our everyday vocabulary.





[USHST.ORG/56SECS](http://USHST.ORG/56SECS)

Learn More



Pilots must practice skills to avoid IIMC if possible, to recover when needed.

By Scott Boughton

# A 360-Degree Approach to IIMC

**T**IME AND TIME AGAIN, perfectly good helicopters are flown into the ground, killing everyone on board. The root cause is often inadvertent entry into instrument meteorological conditions (IIMC). These accidents have claimed at least 59 lives over just the past 10 years in the United States alone.

How do we put an end to IIMC accidents? Some operators have increased instrument training or made significant investment in equipment. Still others have placed more emphasis on not flying in marginal weather. There is movement in the right direction. What is still needed is a focused, unified effort by the industry to pull together ideas and best practices from around the world and deal with all facets of this problem, from how to avoid IIMC to how to recover from it.

One thing is clear: there is no silver bullet that will fix the problem. Warning pilots of the dangers of flying in marginal weather has not

prevented them from doing so. Conducting instrument training does not address a pilot's initial reaction to IIMC. A successful approach to curbing IIMC fatalities must cover all angles. Let's dive in!

## The Problem

What's so dangerous about IIMC in the first place? Pilots have flown safely in instrument conditions for decades, and they continue to do so. The danger comes down to the difference between *planning* to be in the clouds and *unintentionally* ending up there.

Pilots who intend to fly in the clouds expect to be operating in those conditions. They understand how important it is to commit to instruments and not try to fly visually without solid visual references.

On the other hand, pilots who encounter IIMC aren't expecting to be there. They're likely straining to maintain visual reference right up to the point of no return. As we'll discuss later, this is where the real



danger in IIMC lies: trying to fly in instrument conditions using only visual references leads to spatial disorientation. As shown in the US Helicopter Safety Team's (USHST) recent video, the average helicopter pilot under those conditions has only **56 seconds to live**.

### IIMC Avoidance: Before Takeoff

One incredibly successful tactic to IIMC survival is to avoid an IIMC encounter in the first place. Let's look at all that you can do—while still on the ground—to minimize your risk of ending up in the clouds.

#### Preflight Risk Assessment Tools

We can agree that visual flight rules (VFR) flight in zero-zero conditions is unwise. Similarly, accepting a flight with no ceiling and unrestricted visibility is an easy decision to make.

The problem comes when pilots are deciding whether to fly in marginal conditions, especially at night, that carry elevated risk but often don't deliver a compelling reason to stay on the ground. However, there is a widely available tool that helps pilots take inventory of risk factors, consider suggested risk mitigations, and arrive at a no-go decision when conditions warrant: the flight risk assessment tool (FRAT).

While ceiling and visibility are important, including more subtle weather factors in a FRAT will help pilots to assess conditions more accurately. How far apart are weather reporting stations? How closely are current observations matching forecasts? What is the temperature / dew point spread? Does the possibility of icing exist along the route and below the minimum safe altitude?

Take this opportunity to assess your operational or personal FRAT. How well does it capture the weather-related hazards that could lead to IIMC?

#### Route Planning

Route planning is critical to IIMC avoidance. Because types of helicopter operations vary widely, it's difficult to set strict planning guidelines that fit every operation. The key here is that the pilot must conduct planning from multiple angles.

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It isn't enough to simply check the METARS and TAF. Will this ceiling allow me to maintain visual reference and safe distance from terrain and obstacles in the area? Will flat-light conditions prevent visual reference to the horizon, regardless of ceiling and visibility? Are there nontraditional information sources, like highway webcams, that might help fill in the space between observations?

A pilot needs to consider all available information, not just some numbers in a weather minimums table. IIMC is one of the top causes of fatal helicopter accidents. Spending an extra moment during preflight planning to avoid IIMC is worth it.

### **Learning to Say “Not Today”**

The best way to avoid any accident is to simply not fly.

However, let's address the elephant in the room: when we do the right thing and turn a flight down because we don't believe we can safely complete it, there are often

very real consequences. If the helicopter doesn't fly, people wait longer for medical care, police ground units go unsupported, oil doesn't flow, revenue is lost—the list goes on.

While a pilot should not accept a flight in poor conditions in order to avoid the negative consequences of a turndown, it is difficult to completely remove the pressure to fly, from both external sources and internal beliefs, which are often the greatest source of pressure. Management can help here with a clear message to pilots that not only is it OK to turn down a flight, but they **MUST** do so when conditions warrant it—they're being paid to make smart aeronautical decisions. Routine use and sharing of FRAT, which provide pilots and management with a structured way to analyze and discuss flight risks, is another way to remove emotion from the decision to fly.

To avoid undue pressure, let's also educate our customers and clients about what goes into the decision to turn down a flight because of weather. Many clients don't understand the impact of weather on general aviation operations, particularly at the lower altitudes that helicopters fly in. If they understood the risks

they were embracing, they wouldn't be so eager to go in poor weather.

### **Filing IFR**

Another option, and a highly underused one, is to just file and fly IFR in the first place. However, we know that many rotorcraft operators don't field IFR-certificated aircraft or retain IFR-rated pilots. Perhaps now is the time for operators and pilots to consider these upgrades that would dramatically enhance their operational capabilities.

### **IIMC Avoidance: In the Air**

You've done your route planning and risk assessment. You've decided that taking the flight is the safe, prudent, and legal course

***Management can help with a clear message to pilots that not only is it OK to turn down a flight, but they **MUST** do so when conditions warrant it.***

of action.

Then reality happens. The ceiling and visibility aren't quite what you expected. But is the weather “bad” enough to change your plans?

This fuzzy area (pun intended), where a pilot still has some visual reference but isn't in visual meteorological conditions (VMC), is where people can really get hurt. By the time they realize they can't see enough to safely control the aircraft, their sense of spatial orientation is likely not aligned with reality—or gravity, for that matter. They've forced what they're seeing to align with what they're feeling, regardless of what the instruments indicate. Unless a smooth transition to instrument flight is made right at this moment, the outcome is unlikely to be good. The key is to not let it get this “bad.”

### **Defining IMC**

The problem here is that “bad” is an unclear term, and allowing ourselves to continue into deteriorating weather without clear guidelines can have disastrous results.

VFR define the distances from the clouds and flight visibility required to operate legally

in a particular airspace type. But how do I tell if I'm 2,000 ft. horizontally from a cloud? How much reaction time does half-a-mile (800 m) visibility really give me?

At the direction of the HAI Board of Directors, the HAI Training and Safety Working Groups have developed IIMC training resources for the industry, including:

- VFR/VMC best practices
- Techniques for estimating distances from clouds and obstacles
- Guidance for IIMC decision-making
- Recommendations for IIMC prevention and recovery training.

These resources will be published soon; watch ROTOR Daily for the announcement or visit [rotor.org/safety](http://rotor.org/safety).

Here's one IMC definition that focuses on what matters: if you lack ANY of these—proper visibility, visual reference to the horizon, OR the ability to control the aircraft visually—you are in instrument meteo-

rological conditions.

### **Changing Your Flight Plan**

Pilots need strategies—developed ahead of time—for determining when it's necessary to alter their flight plan. A technique to help pilots evaluate deteriorating flight conditions is the enroute decision point (EDP), where reaching preselected minimum altitudes or airspeeds triggers the need to make a decision.

By requiring pilots to take alternative action when they've had to descend or decelerate below predetermined altitudes and airspeeds, some of the burden of making that decision is removed from the pilot. In a sense, by committing to an EDP, he or she has made the tough decision BEFORE taking off.

Whatever the method for reaching the decision, when we realize that our plans must change, we need to choose one of these alternatives:

- Turn around
- Divert to better weather
- Land & LIVE
- Pick up an IFR clearance (if trained and equipped).

# IIMC TOOL KIT

## BEAT THOSE 56-SECOND ODDS

“A helicopter pilot who unintentionally continues VFR flight into IMC will very likely lose control of their aircraft and be dead within an average of 56 seconds.”

—Nick Mayhew, industry co-chair,  
US Helicopter Safety Team

### 1 IIMC AVOIDANCE: BEFORE TAKEOFF

Take a few minutes on the ground to avoid a later IIMC encounter

- ⚠️ **Use a flight risk assessment tool (FRAT)** to assess and mitigate mission risks
- ⚠️ **Create enroute decision points (EDP)** by selecting a minimum acceptable altitude or airspeed for the flight
  - ✔️ When I go below either of those minimums, I must change my flight plan
- ⚠️ **Plan your route**
  - ✔️ How will en route weather conditions impact the safety of my flight?
  - ✔️ How will terrain/obstacles along the route affect my flight plan?
  - ✔️ What conditions will require me to change my flight plan?
  - ✔️ If I do end up in the clouds, what's my plan for recovery?
- ⚠️ **If conditions aren't GO for VFR flight**
  - ✔️ I say, "Let's delay" OR
  - ✔️ I file and fly IFR



### 2 IIMC AVOIDANCE: IN THE AIR

Be alert for and respond to changing weather conditions during flight

- ⚠️ **When you go below your EDP** (minimum altitude OR airspeed), do ONE of the following:
  - ✔️ I turn around OR
  - ✔️ I divert to better weather OR
  - ✔️ I Land & LIVE OR
  - ✔️ I pick up an IFR clearance (if trained and equipped)
- ⚠️ **Respond decisively BEFORE** losing visual references

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### 3 IIMC RECOVERY: IN THE AIR

Surviving an IIMC encounter requires prompt recognition and action

- ⚠️ **You're in IMC** if ONE of these conditions is true:
  - ✔️ I lack proper visibility OR
  - ✔️ I don't have visual reference to the horizon OR
  - ✔️ I can't control the aircraft visually
- ⚠️ **To survive an IIMC encounter,** you must:
  - ✔️ Admit that I'm in IMC
  - ✔️ Commit to instruments
  - ✔️ Maintain aircraft control
  - ✔️ Keep my composure
  - ✔️ Follow my recovery plan
  - ✔️ Notify ATC

### 4 IIMC AVOIDANCE AND RECOVERY: TRAINING

IIMC avoidance and recovery are lifesaving, essential skills for pilots

⚠️ **Train to stay current, competent, and confident in your IIMC skills.**



I train regularly to keep skills fresh



I train in all aspects of IIMC prevention, beginning with the decision to fly



I train for IMC recognition and instrument transition, as well as instrument flight



I use scenario-based training that reflects my typical missions, environment, and weather



I use simulators, aviation training devices, and desktop flight programs to experience safely the result of poor decision-making and delay in IMC recognition



## **IIMC Recovery: In the Air**

Up to this point, we've looked at ways to reduce the number of IIMC *encounters*. While these measures should reduce IIMC incidents, real-world weather is just too unpredictable to eliminate them completely. If we want to reduce IIMC *accidents* to zero, pilots must plan and train to survive the encounter.

### **Staying Calm**

Your initial reaction to losing visual reference is key to your survival of an IIMC encounter. Most student pilots learn the 4 Cs for reacting to an emergency at some point in their training: Climb, Communicate, Confess, and Comply.

Bruce Webb, director of aviation educational and community outreach for Airbus Helicopters, suggests that we should change those Cs to “composure, composure, com-

***If you lack ANY of these—proper visibility, visual reference to the horizon, OR the ability to control the aircraft visually—you are in IIMC.***

posure, and composure.” As in most emergency situations, not panicking and keeping a clear head is most important.

It's also important to be aware of what happens to pilots physiologically during emergencies. Fine motor skills are temporarily lost, and tunnel vision sets in. A person under extreme stress will also tend to mirror physical actions from one side of the body to the other (bilateral symmetry). You may not want your right hand pulling back on the cyclic as you pull up on the collective with your left hand.

This is why pilots need to have a plan in place for encountering IIMC: so when the initial loss of motor skills occurs and tunnel vision takes over, they have a process to keep them alive until their composure returns.

### **Maintaining Control**

Conventional advice to pilots in IIMC is to transition to instruments. Then stabilize attitude, heading, power, airspeed, and trim, followed by initiating a controlled climb to a safe altitude.

This plan works for many aircraft, but not all. Operators of minimally equipped aircraft (for example, no attitude indicator) must customize their IIMC plan to fit their unique situation. The key factor here is that every pilot has a plan for encountering IIMC, has practiced that plan, and is ready to commit to that plan during those first critical moments.

### **Getting Back on the Ground**

Now that we are under control and maintaining a safe distance

from the ground, what's next?

Depending on the type of aircraft, installed equipment, and pilot proficiency, our choices vary. Do we climb to a VFR altitude above the minimum safe altitude and ask for vectors to an approach? Do we turn around and try to fly out of the bad weather? Do we use our knowledge of the surrounding terrain and attempt a slow descent? Depending on location and aircraft equipment, all of these could be valid choices. One thing is certain: the pilot needs to form his or her unique recovery plan before leaving the ground.

Regardless of the specific plan, the pilot should use all resources available. Once your aircraft is under control, declare an emergency. It helps air traffic control (ATC) clear the airspace around you, gives you another resource for assistance, and even helps protect your certificate (contrary to some pilots' fears, the FAA will support your efforts to keep out of the accident database).

Of course, ATC wants to help, but they can do more harm than good for a pilot who hasn't yet regained control of his or her helicopter. Until you've established aircraft control, resist making radio calls, entering squawk codes, or changing frequencies. Spatial disorientation, loss of control, and a fatal accident are almost a certain outcome when a pilot fails to prioritize aircraft control above all other actions. When talking to ATC, pilots need to know when to say “Stand by” or “Unable.”

## **Train for IIMC Avoidance and Recovery**

When visibility begins to deteriorate, a pilot must be able to recognize those signs and make the appropriate decision to land or commit to instruments before spatial disorientation sets in, all while under extreme stress. This is critical to surviving an IIMC encounter and requires very specific skills.

How can you practice those skills? Frequent, effective, realistic training in reacting to IIMC is the final and essential part of the IIMC solution.

IIMC training isn't the same thing as instrument training. Bryan Smith, safety program manager for the Airborne Public Safety Association, reminds us that it isn't during the vectors and instrument approach phase that most people are killing themselves. Of the 22 IIMC accidents that occurred between October 2010 and October 2020, exactly ZERO occurred after the pilot had properly transitioned to instruments.

Controlling an aircraft by reference to instruments and executing an instrument approach is a key component of IIMC training. However, training in recognizing IIMC conditions and transitioning promptly and appropriately to instrument flight is just as, if not more, important.

Scenario-based training, use of flight simulators and aviation training devices (ATD), as well as recent advancements in view-limiting device technology have greatly

increased the quality of IIMC training in recent years. Like any tools, though, they need to be employed properly.

IIMC training should always include a scenario-based course of action for the pilot to work through that reflects the conditions or missions that the pilot would be likely to encounter. Simply slapping a hood on a pilot and telling him or her to recover from an unusual attitude or to shoot an instrument approach isn't good IIMC training. The scenario

should involve the whole process, from the decision to accept the flight to the recovery from an inadvertent encounter.

Many pilots in training are permitted to set avionics for an approach while still sitting on the ground. While a pilot in a real-world scenario should be encouraged to prepare ahead as much as possible, it's important in training to allow the pilot to build the skills to handle the whole process in flight. This should also include emphasis on gaining positive control


before even thinking about setting up an approach. (Any pilot in a real-world situation who feels the need to set up an instrument approach while still on the ground "just in case" should reconsider their decision to launch in the first place.)

Training in simulators and ATD allows pilots to play out a scenario to its likely conclusion. The moment you pause the simulation and remove the weather to reveal the aircraft is inverted and pointing toward the ground can have a great impact on the training pilot. Spatial disorientation is insidious precisely because it can trick pilots into "knowing" that their instruments are wrong. Sometimes a person needs to see to believe.

View-limiting devices that allow an instructor to slowly decrease visibility can lull a pilot into staying visual just long enough to be extremely disoriented when he or she finally commits to instruments. What the pilot thought was the horizon was actually a road, and the pilot's head and aircraft instruments disagree. Doing this exercise in actual flight involves the vestibular system and is the only way to get the pilot truly, physically, spatially disoriented. Experiencing this sensation might just convince a pilot to turn around a little sooner next time or decline to take off in the first place.

### Next Steps

It's now obvious that our industry needs to provide pilots and operators with a 360-degree approach to IIMC prevention and recovery, including procedures, tools, and recurrent, effective, realistic training. This will be an ongoing process, requiring the input and buy-in of the whole industry—including everyone reading this article.

You can become part of the IIMC solution by implementing the steps discussed in this article (see p. 71 for a convenient one-page summary). Thanks to our industry's dedicated volunteers and safety professionals, there are resources—many of them free—that you can use to improve your ability to avoid or recover from IIMC. Visit [rotor.org/safety](http://rotor.org/safety) to get started, and spend at least 56 seconds committing to a plan to increase your skills in IIMC prevention and recovery. 

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## QUICK FACTS

### Sarah Louise Snell

Air Methods  
Wisconsin

## CURRENT JOB

I fly the EC145 (BK 117 C-2) in an air ambulance capacity in Wisconsin, conducting a mix of interhospital flights and scene calls to transport sick or injured patients to critical-care facilities.

## FIRST AVIATION JOB

My very first job in aviation was as an aircraft refueler at a small airport in McMinnville, Oregon, at age 17. My flying career started in Alaska in fixed-wing aircraft. My first helicopter pilot job was for a safari company in Kenya.

## FAVORITE HELICOPTER

One that's well maintained! If I had to choose among the helicopters I've flown, I like best the AS350 B3 with the 2B1 engine.

## How did you decide helicopter aviation was the career for you?

I became interested in helicopters when, as a commercial fixed-wing pilot, I spent a summer delivering fuel to remote utility helicopter operations in Alaska. I realized the helicopter pilots were having a lot more fun than I was! After that experience, I started working on my add-on ratings to shift my career track to rotary wing.

## Tell us about your first helicopter ride.

It was an introductory lesson with the owner of the helicopter school I attended in Oregon (Jerry Trimble Helicopters). His mastery of the machine and demonstration of precision flying was inspirational. I was hooked from my first full-down auto!

My most memorable flights are those for wildlife rescue and protection in Kenya, for Tropic Air. I love the feeling in helicopter missions when the combination of a well-equipped machine and a capable, well-trained crew creates a safe and successful outcome.

## How did you get to where you are now?

I started flying gliders in Oregon when I was 16 and by 20 had obtained my fixed-wing commercial and instructor's ratings, then my A&P in Alaska in my early 20s. Working as a bush pilot in Alaska and then in Africa naturally led me to start flying helicopters in 2010. Flying in Africa really challenged my flight-planning skills and performance calculations, as the flights were always in high-altitude terrain with heavy loads and unpredictable destinations that had very limited services.

The helicopter community is small and widespread, and I think my opportunities have presented themselves because I've worked hard in the right place at the right time with

the right people around me to help advance my career. I'm so grateful for the people who gave me a chance to prove myself early in my career, and I hope to pay forward the same favor to others in the future.

## What are your career goals?

I wish someday to give back to the world and my community through my helicopter flying career. I'm interested in flying the first generation of eco-friendly helicopters, and I hope to do so while supporting rescue organizations, providing medical services, or protecting and studying the environment.

## What advice would you give someone pursuing your path?

Never compromise safety for a job. Pay attention, and adhere to your personal minimums regarding weather and performance safety. Also, if you still can't hover on your third lesson, don't give up!





### Who inspires you?

My first mentor and employer, Judy Newman (now director of the Western Antique Aeroplane & Automobile Museum in Hood River, Oregon), who taught me my first lessons in aviation and inspired me to achieve whatever goal I set. My father inspires me with his long-standing dedication to the development of technology that someday will eliminate the world's dependence on fossil fuels.

### What still excites you about helicopter aviation?

Who doesn't love to hover?! And I love the crew coordination component of the job, the twin-engine performance of the machine, and the IFR capability.


### What challenges you about helicopter aviation?

To be a great helicopter pilot, one must constantly review normal and emergency procedures and practices. It's an ongoing challenge for helicopter operators to achieve the best possible level of safety training while not compromising profit margins.

My current job requires on-the-go thinking and a good understanding of regulations, performance parameters, and crew/patient needs to provide a safe, legal, and effective flight.

*"I love the feeling in helicopter missions when the combination of a well-equipped machine and a capable, well-trained crew creates a safe and successful outcome."*

### What do you think poses the biggest threat to the helicopter industry?

Dependence on fossil fuels will be the future limiting factor to the viability of helicopter businesses and applications. 



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HFA-909

# HAI AMT Scholarship Winner Alec Dockery

*Desire for a hands-on career led Colorado student to pursue A&P school.*



**G**ROWING UP IN CASTLE ROCK, Colorado, Alec Dockery had a family member who was a pilot, but he never imagined becoming an aviation maintenance technician (AMT). In fact, it took him a while to realize why aviation maintenance was the perfect career for him.

Alec's fascination with aircraft was born from spending time with his maternal grandfather, a pilot and aviation enthusiast.

"My grandfather loved planes," says Alec. "He got his pilot's license before he got his driver's license. We used to visit airports together to look at planes, and we went to lots of air shows. I even watched him use flight simulators a few times."

After high school, Alec enrolled in an audio engineering program at Arapahoe Community College in Littleton, Colorado.

After two years there, he transferred to Metropolitan State University of Denver (MSU) to pursue another passion: computer information systems.

However, after two semesters at MSU, Alec couldn't see himself sitting in front of a computer for the rest of his professional life. He wanted, instead, more hands-on work. Alec thought long and hard about what vocation would make him happiest and went back to his roots in search of answers.

"I've always liked fixing things, but my personal projects were minimal before I went to A&P school," says Alec. "I worked on my guitar and helped a few friends fix cars—nothing expansive. But doing these things allowed me to work with my hands, and I loved it. I guess that's where [my interest in maintenance] all started."

It was then that Alec had the idea to merge the careers of the two men who had influenced him most: his pilot grandfather on his mother's side and his paternal grandfather, who had been an engineer at Ford.

"I sort of did a mashup of the two and came up with a career of my own," says Alec. "The more I learned about aviation, the more it interested me. I also discovered that before my [maternal] grandfather passed away, he had a few helicopter hours written in his pilot logbook. And then my other grandfather was an engineer, and I enjoyed fixing things, so [helicopter maintenance] made sense."

Armed with his new game plan, Alec enrolled in an A&P program at Colorado Northwestern Community College (CNCC) in the fall of 2018. Alec discovered HAI's

scholarship opportunities through the school's job and scholarship board.

"It meant a lot to me that I was picked for the HAI Maintenance Technician Certificate Scholarship, because I had no experience in this industry," says Alec. "Being chosen meant that someone overlooked my lack of experience and gave me a chance because they thought I was capable of being a successful AMT."


Alec used his scholarship to assist with tuition and the purchase of aviation tools. Like many other students, his plans were delayed by COVID, which was declared a pandemic while Alec was completing his final semester. Luckily, CNCC allowed students to complete some of their work online as well as to eventually return to labs to work on turbine engines. Alec was able to graduate in June 2020, only one month later than he expected.

With the help of his grandfathers—and his HAI scholarship—Alec was able to reach his goal and is thrilled by the challenge of starting his new career as a helicopter AMT. In fact, he already has a position at [Trans Aero Ltd.](#) in Loveland, Colorado.

"What's most satisfying about being an AMT is the process of fixing something," says Alec. "You really get to learn everything that makes the machine operate." Alec credits his instructors with giving him one of the most valuable tools an AMT can possess: precision.

***"It meant a lot to me that I was picked for the HAI scholarship, because I had no experience in this industry. Someone overlooked my lack of experience and gave me a chance because they thought I was capable of being a successful AMT."***

They taught him to take his time and complete tasks correctly the first time to save lives—as well as time, money, and headaches.

Alec hopes his scholarship will help him maintain a steady career as an AMT. Just like his maternal grandfather, he wants to obtain a pilot's license to fly fixed-wing aircraft. 



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# RECENT ACCIDENTS & INCIDENTS

**T**HE ROTORCRAFT ACCIDENTS AND INCIDENTS LISTED BELOW OCCURRED FROM OCT. 1 TO DEC. 31, 2020. The accident details shown are preliminary information, subject to change, and may contain errors. All information was obtained through the official websites included below, where you can learn more details about each event.

**Australia—Australian Transport Safety Bureau (ATSB):** [bit.ly/2P3ZF1S](https://bit.ly/2P3ZF1S)

**United States—National Transportation Safety Board (NTSB):** [bit.ly/2lueqZa](https://bit.ly/2lueqZa)

## October 2020

### Enstrom 480

Woodstock, CT, USA  
Oct. 10, 2020 | [NTSB ERA21LA016](#)  
1 injury, 0 fatalities | Personal flight  
No description available.

### Bell 206

Zephyrhills, FL, USA  
Oct. 16, 2020 | [NTSB ERA21LA023](#)  
0 injuries, 0 fatalities | Personal flight  
Helicopter sustained substantial damage during attempted autorotative landing following pilot-reported low-rotor RPM aural alarm.

### Robinson R44

Pahrump, NV, USA  
Oct. 16, 2020 | [NTSB WPR21LA021](#)  
2 injuries, 0 fatalities | Business flight  
No description available.

### Robinson R22

Winder, GA, USA  
Oct. 18, 2020 | [NTSB ERA21LA024](#)  
1 injury, 0 fatalities | Personal flight

Helicopter impacted terrain, sustaining substantial damage, after pilot suspected a loss of power.

### Robinson R44 II

Washington, WI, USA  
Oct. 18, 2020 | [NTSB CEN21LA021](#)  
0 injuries, 0 fatalities | Personal flight  
No description available.

### Bell 206

Point Lookout, NY, USA  
Oct. 21, 2020 | [NTSB ERA21LA028](#)  
1 injury, 0 fatalities | Personal flight  
Helicopter settled into shallow water, sustaining substantial damage, after pilot reported entering IMC and a loss of yaw control.

### Eurocopter AS350 B3

Silver City, NM, USA  
Oct. 26, 2020 | [NTSB WPR21LA027](#)  
1 injury, 0 fatalities | Positioning flight  
No description available.

### Hughes 369

Honolulu, HI, USA  
Oct. 27, 2020 | [NTSB ANC21LA003](#)  
0 injuries, 0 fatalities | External-load flight  
During external-load operations, pilot reported helicopter lost power made impact with trees during attempted emergency landing.

## November 2020

### Agusta A109

Los Angeles, CA, USA  
Nov. 6, 2020 | [NTSB WPR21LA039](#)  
1 injury, 0 fatalities | Organ transport flight  
During a steep approach to an elevated helipad, helicopter entered an uncontrollable right yaw, made impact with helipad, and rolled onto its left side.

### Schweizer 269C

Rhame, ND, USA  
Nov. 7, 2020 | [NTSB CEN21LA081](#)  
0 injuries, 0 fatalities | General aviation flight  
No description available.

### Bell 206

Raleigh, NC, USA  
Nov. 8, 2020 | [NTSB ERA21LA040](#)  
0 injuries, 0 fatalities | General aviation flight  
No description available.

### Aérospatiale AS355

Hammonton, NJ, USA  
Nov. 14, 2020 | [NTSB ERA21LA043](#)  
0 injuries, 0 fatalities | Business flight  
No description available.

### Robinson R44

Austell, GA, USA  
Nov. 18, 2020 | [NTSB ERA21LA046](#)  
0 injuries, 0 fatalities | Instructional flight  
No description available.

## December 2020

### Robinson R44

Marulan South, New South Wales, Australia  
Dec. 2, 2020 | [ATSB AO-2020-061](#)  
0 injuries, 2 fatalities | Training flight  
Helicopter made impact with terrain and was destroyed in postcrash fire.

### Robinson R44 II

Marietta, TX, USA  
Dec. 5, 2020 | [NTSB CEN21LA077](#)  
0 injuries, 0 fatalities | Personal flight  
No description available.

### Robinson R44

Colorado City, TX, USA  
Dec. 10, 2020 | [NTSB CEN21LA084](#)  
0 injuries, 2 fatalities | Business flight  
Helicopter crashed for unknown reasons, leaving a 400-yard debris field.

### Robinson R44

Morris, IL, USA  
Dec. 20, 2020 | [NTSB CEN21LA095](#)  
1 injury, 0 fatalities | Personal flight  
No description available.

### Robinson R44

Clare, South Australia, Australia  
Dec. 22, 2020 | [ATSB AO-2020-064](#)  
0 injuries, 0 fatalities | Agricultural flight  
During attempted landing after aerial application flight, helicopter collided with vehicle and sustained substantial damage.

### Hughes 369D

Tuckers Crossing, MS, USA  
Dec. 29, 2020 | [NTSB CEN21LA102](#)  
0 injuries, 1 fatality | External-load flight  
While conducting aerial tree trimming with suspended saw, pilot attempted emergency landing, but helicopter made impact with trees and terrain and was consumed by postcrash fire.



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# Quick Thinking

*Immediate, decisive pilot action averts a catastrophic in-flight failure.*



**H**ELICOPTERS ARE PRIZED FOR THEIR ABILITY TO FLY VERY SLOWLY, right down to a hover. But the mechanical components enabling this ability operate within very narrow tolerances. Imbalances or mechanical slop in rapidly rotating assemblies can propagate into complete failure in minutes. Characteristically operating aircraft at low altitudes with a very limited gliding range, helicopter pilots must rely not only on their training and airmanship but their gut-level awareness, as well, to get ailing machines onto the ground before they fly apart.

## The Accident

On the morning of Dec. 7, 2019, VH-OXI, a US Army-surplus UH-1H, was dispatched from Wauchope, New South Wales (NSW), Australia, to conduct water drops on a bushfire near the Crawford River. The aircraft was equipped with a 1,200 l (317 gal.) bucket on a 45.72 m (150 ft.) line. The ground-based air attack crew directed the pilot to the river dip site and then the drop site.

The first drop was uneventful. But upon returning to the river, just before dipping the bucket, the pilot heard what he described as a “burring noise” accompanied by a “buzzing” vibration through the airframe. He immediately abandoned the dip.

As he began to fly out of the hover over the river, the noise and vibration returned, intensifying as the collective was raised. He dropped the bucket and radioed the air attack crew he’d be landing immediately. Increasing levels of noise and vibration on the way to an unconfined landing site convinced him the helicopter’s condition was deteriorating, so he diverted to a small clearing where he’d have to bring the ship to a hover to land.

Slowing to a 10 ft. hover, the helicopter began yawing right and didn’t respond to left pedal. Closing the throttle to idle failed to slow the rotation, so the pilot “dumped the collective,” and the helicopter landed hard about 180 degrees opposite its initial heading.



The main rotor blades struck the ground ahead and left of the pilot, breaking the main gearbox mounts, and the gearbox, mast, rotors, and driveshaft were ejected from the airframe. The pilot was able to extricate himself from the wreckage and was taken to a hospital, where he was determined to be uninjured. A small grass fire at the crash site was quickly extinguished by the state's Rural Fire Service and National Parks and Wildlife Service staff.

**The Aircraft**

The final report by the Australian Transport Safety Bureau (ATSB) lacks a detailed history of the aircraft's service life but does mention that the helicopter was built as a Bell UH-1D, subsequently converted to a UH-1H, and operated by the US Army as recently as 1980. After its release from military service, the aircraft was modified for civilian use by Arizona-based Overseas Aircraft Support Inc.

Secondary sources indicate that the ship was manufactured in 1964 and registered to NSW-based Touchdown Helicopters in October 2015. Neither the



VH-OXI's main wreckage site.

aircraft's total time in service nor its time since the upgrade was reported.

**The Investigation**

During its investigation of the event, the ATSB found that the Kamatics KAflex driveshaft connecting the aircraft's engine output shaft to the helicopter's main gearbox

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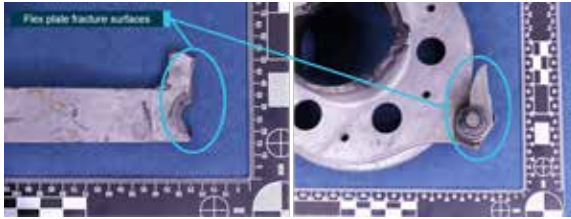
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input had broken. The assembly uses a series of flexible plates at either end to accommodate relative movement between the engine and transmission in flight and includes a fail-safe feature that allows up to 20 minutes of continued operation after the fracture of a single plate. In this case, though, “the flex plates from the drive-shaft had fractured into multiple segments.”

One of the bolt holes in the outer flex plate at the gearbox end had broken due to what materials examination showed to be a fatigue crack that had propagated through about 90% of the flex plate’s width (see photos above). Scoring on the section of the rear transmission-mount support assembly under the driveshaft matched discoloration on the failed outer flex plate.



The outer flex plate at the gearbox end fractured through the bolt hole (left), leaving a small section remaining (right).

***This pilot dumped lift at 10 ft. and was able to walk away. A free fall from 30 ft. wouldn’t have been nearly as benign. A shrewd decision made without delay was the difference between life-threatening injuries and an exciting hangar story.***

The investigators also found that five washers were missing from four different fasteners connecting the flex plates, allowing the flex plates to move relative to one another. In each case, witness marks indicated that the washers had apparently been present at one time, with the ATSB unable to explain their absence.

The driveshaft assembly isn’t field serviceable; its maker, Kamatics Corp., stresses in its maintenance and repair manual that “evidence of turning fasteners by wrench or other means” renders the entire assembly unairworthy. Any loose or missing hardware, including evidence of slippage on the torque stripes, is cause for immediate replacement “with a serviceable unit.”

Both in- and out-of-aircraft inspections are purely visual, looking for evidence of fretting, corrosion, or abrasion from contact with other assemblies as well as loose, broken, or slipping fasteners. Moreover, the maintenance shop that had removed and reinstalled the

driveshaft while performing an engine change 74.5 flight hours earlier provided investigators with quality-control photographs showing that, at that time, all fasteners visible in the photographs were assembled correctly.


Kamatics advised the ATSB that the failed driveshaft had originally been sold to the US Army in 1980. At that time, the UH-1H drive-shaft wasn’t subject to any service life or time-before-overhaul (TBO) limitations; replacement was done

strictly on condition. This was not the case with any of the company’s driveshafts for other models.

In 2018, Kamatics sent the FAA recommendations that included replacing UH-1H driveshafts after 5,000 hours of operation or, “if the time cannot be determined from historical records,” bringing those recommendations in line with those for Kamatics’s other helicopter driveshafts. That recommendation had no legal authority at the time of the accident, however, and the time in service of VH-OXI’s driveshaft had not been tracked because doing so hadn’t been required.

### **The Takeaway**

In-flight emergencies requiring immediate response aren’t unique to rotorcraft. The NTSB’s analysis of a horrific 2014 King Air accident found that just 20 seconds elapsed between the first indications of a loss of thrust in the left engine and the airplane’s inverted crash into the roof of FlightSafety International’s training facility at Wichita (Kansas) Mid-Continent Airport, now known as Wichita Dwight D. Eisenhower National Airport (KICT). The pilot likely had less than 10 seconds in which to react—a time frame that might seem downright luxurious to a helicopter pilot recognizing signs of impending mechanical failure while operating at low altitude and air-speed over obstructed terrain.

How quickly to put the ship down may depend in part on how rapidly those symptoms are intensifying, but it’s rare that sooner isn’t better than later. And if things do fall apart, the altitude at which that happens matters. This pilot dumped lift at 10 ft. and was able to walk away. A free fall from 30 ft. wouldn’t have been nearly as benign; from 50 or 100, probably unsurvivable. A shrewd decision made without delay was the difference between life-threatening injuries and an exciting hangar story that offers words to the wise. 





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## CFIT Still Gives Us Fits

*Even experienced pilots can lose focus and fall prey to this common aviation threat.*



**I**'VE OFTEN WONDERED HOW CONTROLLED flight into terrain, or CFIT, accidents occur. I've read and studied accident reports, and I've called out rule makers for allowing it to be legal to fly in weather that often "teases" pilots, luring them into a situation almost certain to guarantee an accident.

Although accidents related to CFIT haven't made the National Transportation Safety Board's (NTSB) Most Wanted List of Transportation Safety Improvements, the problem continues to be a leading cause of general aviation (GA) accidents.

Flying an airworthy aircraft into the ground isn't limited to single-pilot operations, or even GA operations. There have been many Part 121 air carriers that have flown heavy metal into the earth with two pilots aboard

who were using the very latest equipment available to prevent such a thing.

So important is this issue that the FAA devoted its entire November/December 2020 edition of [Safety Briefing](#) magazine to the problem. I feel so strongly about it that I reached out to Rick Domingo, FAA Flight Standards Service executive director, to personally thank him for the article he contributed to the magazine, "[A 'C' to Avoid.](#)"

Funny sometimes how things happen. I've been actively flying for 37 years. I've logged thousands of hours in all kinds of aircraft and conditions: helicopters, airplanes, singles and twins, VFR, IFR, and a ton of both unaided night and NVG (night-vision goggles) experience. Prior to coming to HAI, the cockpit was my office.

(I still fly weekly but do it to stay engaged and for fun and travel.)

About three days before I received *FAA Safety Briefing*, I was out doing some night flying. This time of year in the Northern Hemisphere lends itself to great night-flying opportunities. It gets dark early but isn't so cold as to make flying miserable.

This particular night was perfectly clear. It was very dark with no celestial illumination. I took off and did a cross-country flight of about 100 nautical miles. It was a mix of city flying, with lots of ground lights, and rural flying with no ground lights or cars for visual reference.

My home-base airport is in the country, with few surrounding lights. It does have some hills about 500 ft. above the airport elevation: a terrain feature easily seen with NVG but not at all visible unaided on a dark night.

About 20 miles out of my home airport, I began a descent from 5,500 ft. About 10 miles out, I continued descending to achieve a nice stabilized straight-in approach. I clicked the pilot-controlled lighting on bright. I had the airport beacon and runway lights in sight. Landing checks completed and radio calls made. All was good.

Then, with everything set and in a stabilized approach profile, I had the big idea to focus my attention inside, on the Garmin GNS 530W, in order to bring up a different display.

Yes indeed, you read that correctly. I prioritized changing the settings on my Garmin over maintaining situational awareness.

Luckily for me, while I was focused inside, making my GPS look like I wanted it to, my terrain avoidance and warning system (TAWS) was still on the job even though I was taking a mini vacation from flying the aircraft. The system shouted out, "Terrain ... terrain!"

I looked up, applied power, arrested my descent, and moments later completed a

nice night landing.

So how do CFIT accidents happen? They happen because of poor decision-making.

You can break it down and overanalyze it if you choose. Examples of a CFIT accident

***My accident report would have read: "The ATP-rated pilot, flying a very highly equipped aircraft, diverted his attention during a critical phase of flight."***

report could read: "The pilot wasn't IFR certified," "the pilot failed to perform the appropriate flight planning," or "the aircraft wasn't properly equipped."

My accident report would have read: "The ATP-rated pilot, with more than 7,000 hours of experience flying a very highly equipped aircraft with a fully capable three-axis autopilot, diverted his attention in the

cockpit during a critical phase of flight and destroyed a beautiful aircraft. This knucklehead made a poor decision and paid the price."

Of course, the NTSB and FAA would have been kinder in their assessments of my actions than I'm being. I can make light of the situation now because I'm here to tell you about it.

The bottom line: Timing is everything. Stay focused when you should be focused.

I don't like saying that a piece of electronics prevented an accident. That's what all our training, ratings, and experience are supposed to do. However, in this case, my TAWS prevented me from flying my aircraft into the ground on a dark night.

*Fugere tutum!* 🐺

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## Maria Rodriguez

*Remembering HAI's 2018 Pilot of the Year.*



**T**HE 2018 HAI SALUTE TO EXCELLENCE PILOT OF THE YEAR, MARIA RODRIGUEZ of St. Thomas, US Virgin Islands (USVI), died in a helicopter crash on Feb. 15, 2021.

With her husband, she was co-owner of Caribbean Buzz Helicopters and Buzz Management and also flew as a pilot for the company. She flew former US President Barack Obama and former First Lady Michelle Obama in 2017 and became friends with country musician Kenny Chesney when she flew him on visits to the Virgin Islands.

In late summer 2017, Rodriguez's home of USVI was in the path of both major Caribbean hurricanes—Hurricane Irma first, followed by Hurricane Maria a few weeks later. With roads impassable after Hurricane Irma, she walked from safe shelter to her home, which was battered and flooded but still standing. She hiked for an additional two hours to reach the airport. Her hangar was damaged, but the helicopters had survived unscathed. She rolled them onto the ramp and immediately began to fly support missions wherever she could. "Every evac flight started with tears," says Rodriguez, "but ended with smiles!"

As Hurricane Maria bore down upon her home again, Rodriguez moved her helicopters to a reinforced hangar in Puerto Rico. As quickly as possible after the storm passed, she returned to the USVI to again fly support missions.

In both instances, Rodriguez documented the devastation to her islands with her camera, posting hundreds of photographs to social media. In turn, these images—often the only photos coming from the region and without compensation to Rodriguez—were picked up by media outlets and reproduced throughout the world. Her images helped convey the destruction sustained by her island home to millions around the world, resulting in forewarning to others in the hurricane's path and waves of support for the islands.

Never seeking the spotlight, Rodriguez continued to serve her community through both flight and photography for the remainder of her life. [🌐](#)

# COMPLETE YOUR GA SURVEY!



The FAA's 43rd annual General Aviation and Part 135 Activity Survey (GA Survey) is the only source of information on the size and makeup of the U.S. general aviation and Part 135 fleets, the number of hours flown, and how people use GA aircraft.

Survey data will be used to **determine funding for infrastructure** and service needs, assess the **impact of regulatory changes**, and **measure aviation safety** — so it's important that you participate, even if you completed a survey last year, did not fly in 2020, or sold or damaged your aircraft.

To request a paper copy of the survey or if you have questions, email [infoaviationsurvey@tetratech.com](mailto:infoaviationsurvey@tetratech.com) or call 1-800-826-1797.

The GA Survey is conducted by Tetra Tech, an independent research firm; all responses are confidential.

Visit <http://bit.ly/GA-Survey> to see data from previous years' surveys.



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## LAST LOOK

By Mark Bennett

### Insite Commercial Robinson R44

This Robinson R44, enjoying a brief moment in the sun on an otherwise dreary, windy, very chilly day in Commerce Township, Michigan, is a business tool that puts commercial real estate developer Randy Thomas in the sky, where he's not just above, but ahead of, his competition.

Thomas, the president and CEO of Insite Commercial, explains, "We use it for showing new tenants the market overall... They can see the density of homes, traffic patterns, and where the new development is going."

His Robinson is no hangar queen, with Insite putting about 200 hours on the Hobbs meter every year. Nor is the flying all business. "A large part [of our flying] is donating rides to charities."

This isn't his first aircraft, either—this R44 replaced an earlier one, which followed more than one R22 over the course of eight years. "Soon, we'll have an R66," he crows.







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