

September/October 2020

# FAA **BRIEFING** *Safety*



## Data-Driven Decision Making



Federal Aviation  
Administration

**7** Show Me  
the Data!

**10** Driven  
By Data

**13** The Missing Link



U.S. Department  
of Transportation

## Federal Aviation Administration

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## ABOUT THIS ISSUE ...



The September/October 2020 issue of *FAA Safety Briefing* focuses on the integral role of data in the aviation industry. Feature articles and departments explore the many ways data is collected, analyzed, and shared to make better and more informed safety-related decisions. We'll also look at some of the FAA's collaborative processes and tools that are helping to improve safety and efficiency in the National Airspace System.

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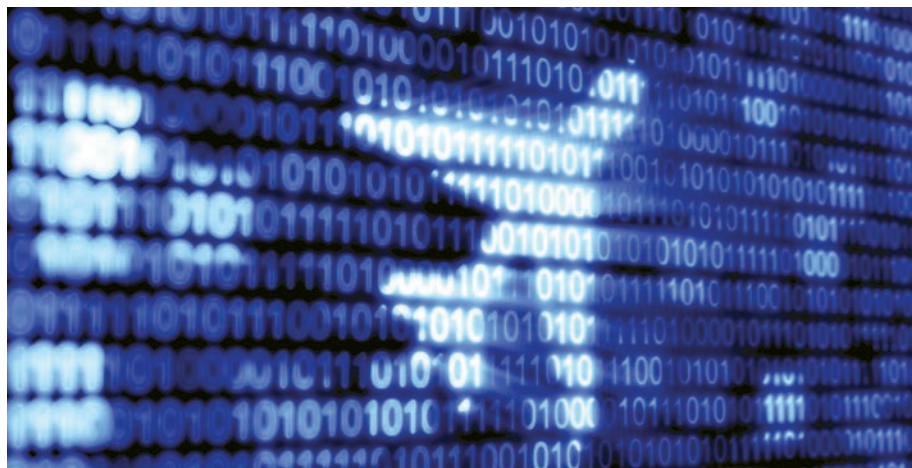
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# FAA **BRIEFING** Safety

The FAA Safety Policy Voice of Non-commercial General Aviation



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## TRANSFORMATION TO INFORMATION

*We must continue leaning into our role as a data-driven, risk-based decision-making oversight organization that prioritizes safety above all else.*

— Steve Dickson  
FAA Administrator

Data. It's a (deceptively) simple four-letter word. We can probably all agree that it's important; after all, the team chose data as the organizing theme for this issue of *FAA Safety Briefing* magazine. It's a word that we use all the time, not just in aviation, but in pretty much every aspect of modern life. If I asked you to tell me what it means, no doubt you could quickly offer a reasonable definition.

Like a lot of commonly used four-letter words, though, the word "data" has become something of an abstraction. We think we know what it is, but overuse has possibly muddled its meaning. For example, I suspect that many of us think "data" and "information" are just two words for the same thing, and we use them interchangeably. Certainly the two terms are related, but they are still quite different.

### No Latitude for Error

According to one online resource, data is raw material. For instance, data could consist of a string of zeros and ones in binary code. That's not very helpful to the average human being. When processed, organized, and presented in a given context, though, data becomes information — ideally information that human beings can actually understand and use for some purpose.

Here's another way to think about it. A set of latitude and longitude

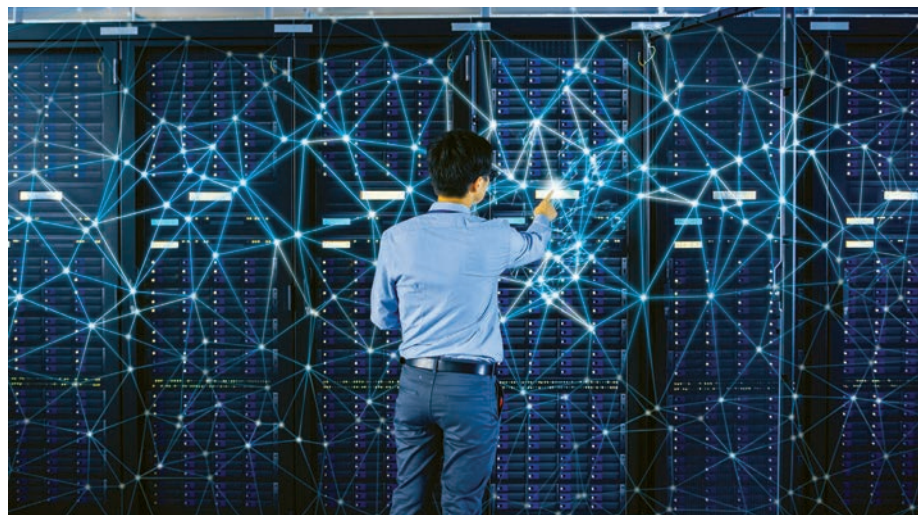
coordinates is data, but it's not terribly useful by itself. In the context of a chart or a moving map navigator, though, the latitude and longitude data becomes information. It denotes a specific point in space that might be a named waypoint (hopefully with a name that is easy to pronounce).

Using the latitude/longitude example lets me make a couple of important points about data and information, ideas that are threaded through the articles in this issue of *FAA Safety Briefing* magazine. First is the "garbage in, garbage out" idea. Even the tiniest-appearing mistake in latitude/longitude data can have huge adverse consequences. I can recall at least two aviation accidents in which lat/long data errors played a role in the tragic outcome. Incorrect data inevitably skews the information and decisions that arise from it. The point is clear: in any technical field, but especially in one as complex as aviation, it's critical to get — and use — correct data.

### More is Better

Here's the second important idea. If you want to take a trip, a single

set of lat/long coordinates isn't very helpful. While it does specify where you are, you need a lot more data in the form of lots more lat/long coordinates to pinpoint not only the destination, but also the path that will get you there. In the same vein, a single set of data — or a small set of data — isn't terribly conducive to driving solid information and sound decisions. That's why several of the articles in this issue emphasize and re-emphasize the need for more data. We all want to see the GA accident and incident rates decrease, and data is key to figuring out where the hazards are, and what mitigations we can take to eliminate them. So it's great to see how the FAA Safety Team (FAASTeam) is using the new FAASTeam Data Analysis Tool, or FATDAT, the subject of one of this issue's features, to gather more data and — important — to transform that data into information we can all use to improve safety. You'll also see several other examples of how greater (in both senses of the term) data is leading to greater safety information. Read on for more!





## AVIATION NEWS ROUNDUP

### New Runway Safety Animation

The Runway Safety Pilot Simulator online at [RunwaySafetySimulator.com](http://RunwaySafetySimulator.com) has a new animation. “The Anatomy of a Wrong Surface Event” is the second in a three-part series focusing on causal factors for wrong surface events, such as incorrect runway or taxiway approaches, landings, or departures. It highlights the importance of guarding against certain environmental factors that contribute to wrong surface events and other runway incursions.

The FAA’s Runway Safety Team urges pilots to use caution during intersection takeoffs. Here are some helpful tips:

- Align heading bugs or course needles (if equipped) with runway

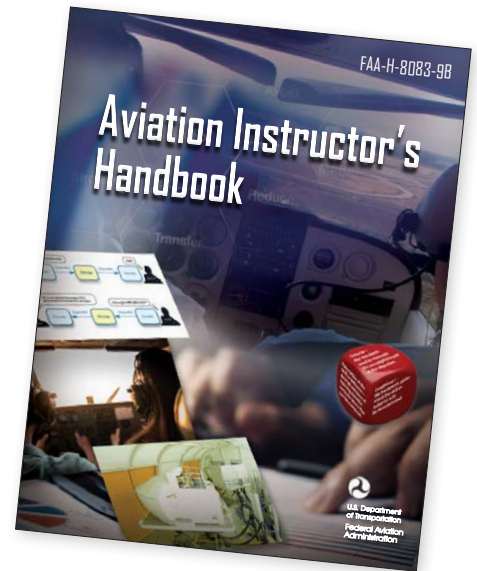


heading before entering the runway.

- Before adding takeoff power, double check your alignment with the magnetic compass and heading bug/course needle to ensure you are on the correct runway before takeoff.
- You have the right to use all available runway. If you don’t want to accept an intersection departure, say “UNABLE” and clearly communicate your request(s).
- Check out Aeronautical Information Manual (AIM) Chapter 4 (4-3-10) and Chapter 5 (5-2-5) for more information on intersection takeoffs.

### GA Town Hall on YouTube

In June, the FAA hosted a virtual General Aviation Town Hall that featured FAA Administrator Steve Dickson, FAA experts, and GA community/industry leaders discussing the effects of COVID-19 on operations, aircraft, airports, and infrastructure. You can watch it at [youtu.be/zDBu-XeIlSk](https://youtu.be/zDBu-XeIlSk).



### New Instructor Handbook Released

The FAA’s Aviation Instructor’s Handbook (FAA-H-8083-9) was updated in 2020. Designed for ground instructors, flight instructors, and aviation maintenance instructors, it provides aviation instructors with up-to-date information on learning and teaching, and how to relate this information to the task of teaching aeronautical

## SAFETY ENHANCEMENT TOPICS

Please visit [bit.ly/GAFactSheets](https://bit.ly/GAFactSheets) for more information on these and other topics.



### SEPTEMBER

#### Preflight After Maintenance

What items should you focus on and/or add to your preflight inspection checklist after maintenance?



### OCTOBER

#### Pilots and Medications

Learn more about the possible side effects of medications (prescribed or over-the-counter) and whether they may be hazardous to flight operations.



knowledge and skills. Experienced aviation instructors will also find the updated information useful for improving their effectiveness in training activities. Go to [bit.ly/FAAbooks](http://bit.ly/FAAbooks) to download the new handbook.

**Check Your Fuel**

A couple of years ago, more than a dozen aircraft fuel systems were contaminated when Diesel Exhaust Fluid (DEF) was added instead of deicing fluid. Fixed base operators (FBOs) and aircraft operators must be diligent in ensuring that staff are properly trained, and that employees follow company policies and procedures to prevent DEF or other contamination.

DEF is a urea and water-based fluid. Federal regulations require its use in the emission reduction systems of modern diesel engine vehicles. DEF is not a fuel additive, aviation or otherwise. It is a clear liquid that is stored in a specialized tank on the chassis of diesel engine vehicles and injected into engine exhaust to reduce noxious emissions. Flight line service

personnel could mistake DEF for Fuel System Icing Inhibitor (FSII) and add it to the FSII storage tanks on mobile refuelers. DEF and FSII are both clear, colorless liquids and if DEF is mistakenly added to a FSII storage tank, contamination can be very difficult, if not impossible to detect.

For more information, download the Safety Alert for Operators (SAFO) at [bit.ly/SAFO18015](http://bit.ly/SAFO18015).

**Lessons Learned Library Now Includes GA and Rotorcraft**

The FAA's Accidents Lessons Learned Library has new materials, and is now organized into three sections: small airplane, transport airplane, and rotorcraft.

The purpose of expanding the library to include general aviation (GA) lessons learned is to capture information related to selected accidents that contain key safety information, including resulting actions taken to

continue improving GA safety. The library uses three different "perspectives" to arrange the accidents and illustrate the complex interrelationship of accident causes. Each accident contains at least one high-level lesson related to a threat element, and at least one lesson related to a theme element.

See this issue's Angle of Attack department and go to [LessonsLearned.FAA.gov](http://LessonsLearned.FAA.gov) to learn more.



**Meet Our Medium Blog**

In May, the FAA launched a new blog on the Medium platform. The blog – Cleared for Takeoff – includes voices, stories, and news from the FAA, as well as all of the articles in this magazine. One unique benefit with reading our free content through Medium is the estimated read time indicator for each article. You can also share, save, and comment on articles, and if you have an account, you can highlight words or sentences to keep handy. Give it a try by downloading the Medium app and searching for the publication "Cleared for Takeoff," or go to [Medium.com/FAA](http://Medium.com/FAA) on a current web browser.



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# FROM THE FLIGHT DECK

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KNOW BEFORE YOU GO.

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**FAA**

NOW PLAYING



**YouTube**



## DATA-DRIVEN POLICY CHANGES

In the 1980s, many cardiac conditions effectively ended careers of professional pilots and grounded private pilots. Over time, the number of conditions eligible for special issuance has grown. For many, we have also been able to reduce the frequency of evaluations.

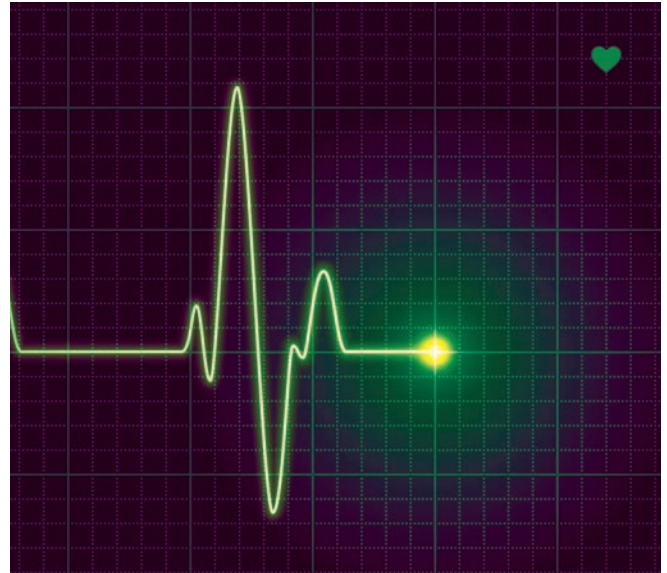
For perspective: in 2010, the cardiac panels (a group of cardiologists and aerospace medical specialists that convenes bimonthly at the Civil Aerospace Medical Institute (CAMI)) reviewed, in aggregate, 380 applications for special issuance of different cardiac conditions. Of these, 93 or 24 percent were denied, while cardiac panels in 2019 considered 466 applications and denied only 46 or 10 percent. We have been able to halve the denial rate over the past ten years.

This outcome reflects several FAA actions over the past decade. In January 2013, the Federal Air Surgeon (FAS) convened a roundtable of aerospace medicine experts plus cardiologists and a cardiothoracic surgeon, all with expertise in aviation medicine. They reviewed available literature and the FAA experience with various cardiac conditions. Using their recommendations, the FAS was able to ease restrictions for a number of conditions. For example, the initial observation period for coronary artery stenting went from six to three months, and the time between renewals of a special issuance for most pacemakers doubled from six to twelve months. Also, we now special issue most individuals with hypertrophic cardiomyopathy; previously, many were denied.

Our goal is to find the path to “yes,” but data does not always support “yes.” In fact, sometimes new

data requires us to rethink allowable conditions. Such was the case for implantable cardioverter-defibrillators (ICDs). For a period prior to 2011, the FAA allowed ICDs because available literature showed an acceptable safety profile. Subsequent studies on ICDs showed that while survival improved with these devices, ICD patients still had a much higher risk of sudden cardiac death and, following a shock, incapacitation (loss of consciousness/confusion). This data forced us to conclude that the overall risk of death and incapacitation in ICD patients was not acceptable, and we had to designate ICDs as disqualifying for all classes of medical certificates.

On a brighter note, the FAA introduced CACIs (Conditions an AME Can Issue) in early 2013. This change came after CAMI physicians noticed that a number of special-issued medical conditions were relatively benign, common, and routinely approved. They identified eighteen conditions for further review. A search of FAA records revealed that over 19 percent of all medical applicants had at least one of these conditions. Ninety-two pilots with at least one of these conditions were in a fatal mishap. However, correlation with data from the National Transportation Safety Board (NTSB) revealed that a CACI condition was



not causative in any mishap. We therefore determined that the AME could safely issue a medical if the airman met specific criteria (those we used for special issuance). CACI has been a huge success: after providing complete and acceptable information to the AME, in 96 percent of cases the airman can depart with medical certificate in hand.

Review of our certification policies is an ongoing and continuous effort; we are accelerating the pace of change. A number of conditions are now under review and additional CACI options are in development. Future advances in medicine should allow even greater flexibility in certification decisions.

**Leo M. Hattrup, M.D.,** received a bachelor's degree from Wichita State University, a master's in public health from Harvard University, and a doctorate from Vanderbilt University. He is retired from the U.S. Air Force in which he spent the majority of his career in aerospace medicine. He is board certified in aerospace and occupational medicine. He is a certificated flight instructor and enjoys flying airplanes, helicopters, and gliders.



# SHOW ME THE DATA!

## A Look at Data Sharing and Analysis in Aviation Safety

By Jennifer Caron

When you think about it, we use data every day. Whether it's studying the latest weather maps to decide if we're going to fly, or reading product reviews to guide our online purchases, or navigating with GPS to find the best way to get from point A to point B, data is a key factor that influences many of our routine choices. In fact, data is critical to helping us make better, more informed decisions about practically anything in our day-to-day lives.

When it comes to aviation, data makes its way into the tools you rely on in the cockpit every time you fly. Avionics manufacturers turn the raw data from navigational charts and instrument approaches that the FAA produces into a wide variety of electronic products that feed into flight management systems, iPads, and mobile devices and give pilots greater situational awareness.

But data is not only beneficial when it's individually consumed. It is even more valuable when it is shared. Whether from person to person or throughout the broader community, the more information or data you share, the more decisions you influence, the more value you provide, and the more people you can help. Data sharing means collaboration and communication with the aviation community, and these are key factors that help the general aviation (GA) community and the FAA make important safety decisions to improve processes and prevent accidents and incidents. To improve safety

we need to understand what people are seeing, learn from each other, and adapt.

Truly integrated data and collaboration, more commonly known as data fusion, is playing an increasingly important role in improving aviation safety. Data fusion delivers insight and innovation from multiple data sources and

**To improve safety we need to understand what people are seeing, learn from each other, and adapt.**

gives safety teams a better opportunity to understand the full context of events when incidents and accidents occur. Using shared data, the safety teams work together to identify risk, spot trends and causal factors, and develop safety strategies to mitigate risk before they lead to serious events or loss of life. Best practices and lessons

learned are continuously shared to evaluate progress and identify areas to improve.

This issue of *FAA Safety Briefing* is dedicated to the importance of data in the aviation community and the many ways that data is collected, analyzed, and shared to make better, more informed decisions, with the ultimate goal to improve safety and efficiency in the aviation industry. So let's have a look at some of the ways the FAA





roll/pitch/speed, low fuel, unstabilized approaches, and flights that had a higher risk of inflight loss of control. These trends are evaluated by the GAJSC to help monitor and address systemic risks. The point is to help identify safety risks and emerging threats unique to GA.

As more data is shared and analyzed, groups like the GAJSC develop safety enhancements and raise awareness in the community through targeted outreach efforts like the #FlySafe Campaign. FAASafety.gov and the FAA Safety Team's (FAASteAM) WINGS/AMT airmen proficiency programs are great resources for pilots and mechanics to help improve their skills and knowledge. More developments are on the way, including a complete redesign of FAASafety.gov with artificial intelligence capability that will use data to suggest customized training and flight activities.

You'll learn more about these and other GA data sharing and analysis programs throughout this issue.

### Surfing the Surface of Runway Data

Let's take a turn and taxi over to data collection, analysis, and strategies used to improve safety on our runways. The FAA's Runway Safety Group has created a new monitoring tool for the surface environment called the Surface Safety Metric (SSM). What's revolutionary about this new resource is that it quantifies risk by using all available data on runway excursions, incursions, and other surface incidents to create a combined risk value. SSM measures against a comprehensive target reflecting everything

that's happening in the NAS — number of incidents with no injuries, incidents with injuries, fatal accidents, and aircraft or facilities damaged — and incorporates information from other data sources to improve safety. Read "Big Data, Little Team" in this issue to learn more about this exciting new development. SSM is just one part of the engine powering a multi-faceted tapestry of runway safety initiatives, such as the Runway Safety Pilot Simulator and the agency's "From the Flight Deck" video series, designed to educate pilots and clearly identify hot spots and other safety-sensitive items.

### Dedicated to Data at the FAA

Safety is the FAA's core value, and data is the foundation for advancing the agency's safety goals, both inside and outside the FAA. By focusing on data-driven solutions, collaboration between the FAA and aircraft owners, application developers, and manufacturers provides new and better data that will improve the products you use in the cockpit as well as the safety and efficiency in the NAS.

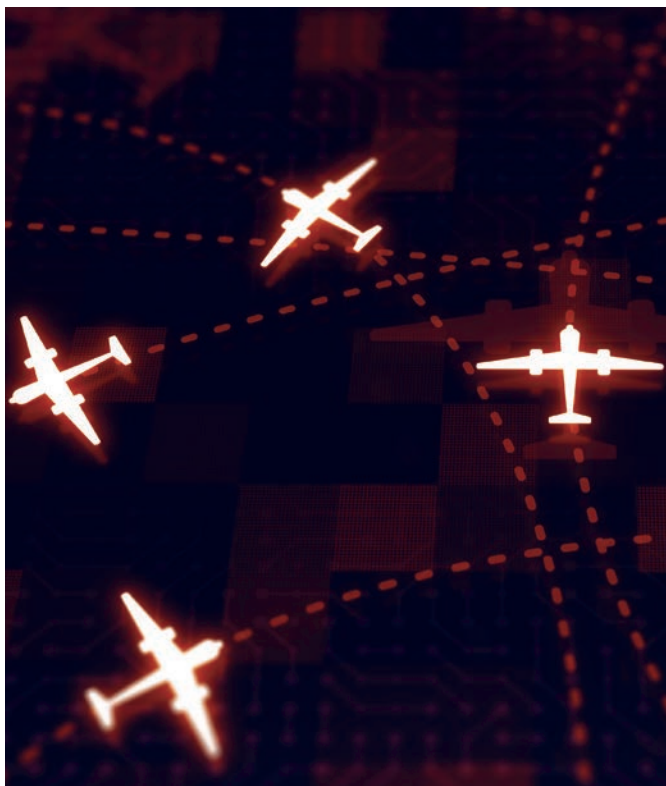
This fall, the FAA will launch Got Data 2.0. This effort is a modernized Data.FAA.gov (DFG), slated to be the FAA's clearinghouse site for publicly available FAA data. In addition, a new developer portal will provide application programming interfaces, or APIs, so developers can discover open API specifications and obtain self-service access to FAA data for their applications.

Inside the FAA, the Chief Data Office (CDO) developed a data platform to integrate and provide agency-wide access to data. The cloud-based data platform unlocks, manages, and shares the FAA's massive internal data resources. Its holistic approach makes the data visible and available to the workforce for greater insight into safety data across all lines of business. This will enable faster, data-fueled decision making and increase opportunities for analytics innovation across the agency. Employee participation in the Data Dexterity Program measures the broad spectrum of data needs across the agency and will help implement advanced data solutions and tools.

FAA employees and the public will soon be able to access regulatory guidance documents through the new Dynamic Regulatory System (DRS). This new system will replace the Flight Standards Information Management System (FSIMS), and the Regulatory Guidance Library (RGL), to provide the most up to date data. DRS will consolidate information and data from more than a dozen other repositories into just one single resource for all users. Look for DRS to launch at the end of this year.

If you like what you've heard so far, don't stop now! Turn the page or continue scrolling to learn more about data and its increasingly important role in improving aviation safety. ➤

Jennifer Caron is FAA Safety Briefing's copy editor and quality assurance lead. She is a certified technical writer-editor in aviation safety and flight standards.



# Driven By Data

## How the FAA Safety Team Leverages Data to Improve GA Safety

By Tom Hoffmann

FAA photo by Bryan Dahlvang



As a reader of this magazine, you've no doubt participated in a few (hopefully many!) FAA Safety Team (FAASTeam) hosted seminars or webinars over the years. Or perhaps you've caught wind of a new procedure or best practice to improve safety at your local airport. The FAASTeam Program Managers (FPMs) and Representatives throughout the country do their very best to relay engaging, timely, and relevant information to their stakeholders, whether it focuses on the type of flying you do in your local area, or is based on "big-picture" nationwide accident trends.

To do this, FPMs endeavor to keep their fingers on the pulse of GA activities by monitoring data on both a local and national level. The goal is to enable a proactive focus on problem areas. That's easier said than done, especially given the veritable firehose streams of data springing from various sources and directions. Realizing the need for a more streamlined source of data to help FPMs better inform the community and direct more effective accident mitigation strategies, the FAASTeam has developed a new tool to do just that — FATDAT.

### FATDAT – What's That?

National FAASTeam Manager Valerie Palazzolo was among the first to recognize the need for a more efficient data analysis tool for FPMs, and so under her direction in 2018, the team initiated production of a new tool. FAASTeam

Safety Liaison Team Lead Charlie Hamilton was chosen to spearhead these efforts. With Charlie in the left seat, a crew comprising FAA operational research analysts (Wade Weisenburger, Brad Billheimer, and Chad Porter), and a small FPM beta test group (Jay Flowers, Lance Little, Dr. Paul Foster, and Ryan Newman) was able to launch the new FAASTeam Data Analysis Tool, more affectionately known as the FATDAT, in just over a year.

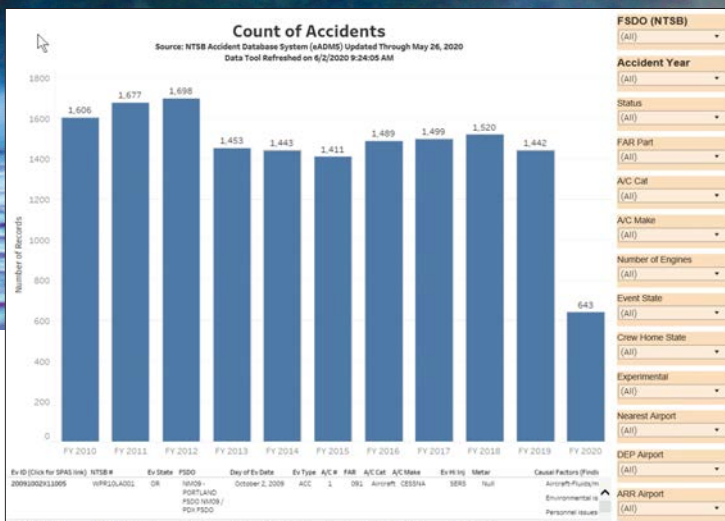
"We had been trying to get a data analysis program for the FPMs for many years," says Charlie. Using different types of programs, FPMs in the past had to work independently and spend hours manually crunching numbers for their regions. Since FPMs are not trained as data analysts, these methods didn't produce results consistent with the FAASTeam's national work program.

### Every "Bit" Counts

Key to the success of FATDAT is its ability to easily consolidate critical safety data into one central repository. It pulls in data from three locations: the NTSB aviation accident database, the FAA's Accident and Incident Data System (AIDS), and pilot deviation (PD) data from the FAA's Air Traffic Quality Assurance (ATQA) database.

Coordinating this data was no easy task since databases don't all speak the same language. In fact, the team is still working to import data from another FAA Air Traffic





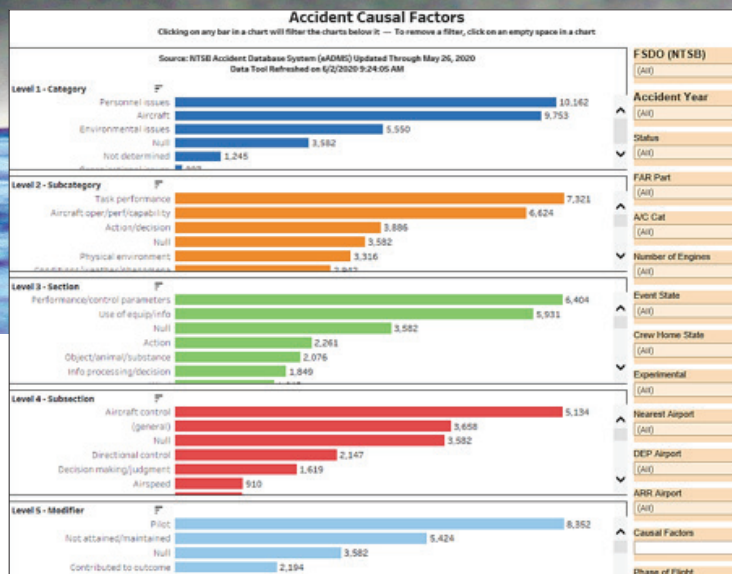
The FATDAT allows users to display accident data in graph form. This view shows NTSB accident data over the last 10 years. The filters on the right can be used to drill down into more specific areas.

source to better complement PD data. During development, the FATDAT team also had to contend with taxonomy variations within the data. Challenges notwithstanding, the tool has proven successful in harmonizing different data sets and giving FPMs a more robust look at aviation activity in their areas of responsibility. Filters within FATDAT provide even greater fidelity, allowing FPMs to sort data by date, time, airport, phase of flight, aircraft type, operating rules, and much more. This highlights another main advantage of FATDAT — making it easier to work with the data. “No more having to build pie charts,” remarks Charlie, “the tool does it for you.”

Houston-based FPM Lance Little can directly attest to FATDAT’s ease of use and efficiency, especially its ability to filter data by field office. “I used to ‘hand hack’ accident data for the entire state of Texas, then separate my data from the other three field offices,” says Lance. That once labor intensive practice now takes him only a fraction of the time.

### Big Data, Meet FATDAT

Since FATDAT came online in June 2019, this widely-embraced tool has enabled new ways of looking at mitigation strategies. “FATDAT helps you look at safety issues on a large scale, and in a manner that makes it



The data is further broken down into Accident Causal Factors shown here.

easier to develop a risk management strategy,” says Jay Flowers, National FAA Team Aviation Safety Inspector. As a former FPM, Jay recalls using the tool to develop a mitigation strategy that successfully helped reduce the

**Key to the success of the FATDAT is its ability to easily consolidate critical safety data into one central repository.**

risk of PDs for students in the University of North Dakota’s (UND) flight program. FATDAT helped flag a pattern of PDs that occurred with two person crews, specifically when an instructor and a certificated pilot were on board. In probing UND’s curriculum, Jay discovered that crew resource management (CRM) courses were not emphasized until the very end of their program. His advocacy to place CRM coursework at the beginning of their curriculum ultimately led to a reduction in these specific PDs.

Jay’s expertise with FATDAT, along with his skill at developing an instruction manual, led him to becoming

the current project lead. He adds that in addition to helping find and fix risk areas, FATDAT helps FPMs keep local Flight Standards District Office personnel abreast of safety issues via quarterly briefings and an annual report. These help drive local funding and resource allocation to better focus on specific needs. In addition, the detail contained in the annual reports is especially useful at the local Runway Safety Action Team (RSAT) meetings (held annually at all U.S. towered airports) to inform NAS users of any trends in their local flying areas. Contact your local Runway Safety Program Manager for more on RSAT meetings ([faa.gov/airports/runway\\_safety/regions](http://faa.gov/airports/runway_safety/regions)).

### May I Suggest a Side of Runway Safety with Your Webinar?

So what's in it for you? FATDAT may seem like inside baseball, but it can have a direct impact on your safety. FPMs and FAASafety Reps now use this information to fine tune their focus on issues and solutions that directly matter to you. It's about providing the right information, to the right people, at the right time. But wait, it gets better!

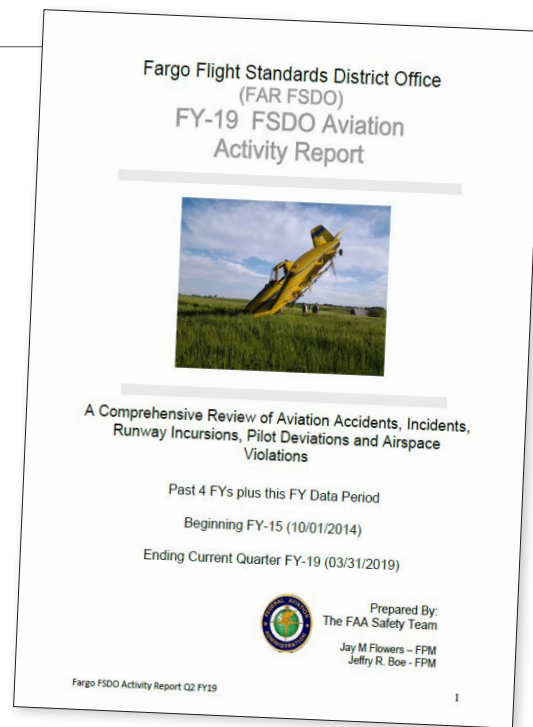
Where the proverbial bias-ply high-tech rubber compound meets the road is what I'm about to tell you, so hold on to your yokes. As I write, a team of experts is diligently working to completely revamp the FAASafety website, [FAASafety.gov](http://FAASafety.gov). Along with efforts to improve user-friendliness and incorporate mobile phone platforms is a rather innovative approach to better data integration. The aim is to link up several different data sets well beyond what FATDAT currently uses, including but not limited to the FAA's Safety Assurance System (SAS), the Airmen and Aircraft Registries, the Service Difficulty Reporting System (SDR), and the Aviation Safety Reporting System (ASRS, aka NASA Forms).

Using an advanced artificial intelligence (AI) system, the enhanced site will be able to "learn" from all these data sources and identify what training airmen might need. This

**FATDAT has enabled new ways of looking at mitigation strategies.**

behind-the-scenes trend analysis will also inform FPMs and FSDOs on what type of training will benefit a particular area or user group. For example, data sources may indicate a rise in weather-related accidents in the Northwest area of the U.S. The AI system would then be able to make specific weather training recommendations for pilots in that area, and prompt the FAASafety team to consider increasing or augmenting existing training to cover these weather-related causal factors.

The information an airman receives from the enhanced site will be based on the user's profile settings and preferences. If your account shows that you are a private pilot,



The FATDAT helps FPMs keep local Flight Standards District Office personnel abreast of safety issues via quarterly briefings and an annual report (pictured here).

single engine land, in the Colorado area, and data indicates an increased risk for controlled flight into terrain (CFIT) accidents in that area, your MyWINGS page might automatically suggest a course or flight activity on mountain flying and/or night flying. The system may also alert you to a mechanical issue with your particular aircraft make and model based on incoming data from SDRs. With these enhancements, the sky's the limit for developing more robust and proactive GA accident mitigation strategies for both trainers and trainees.

### Delivering With Data

It remains to be seen how these updates to [FAASafety.gov](http://FAASafety.gov) will impact FATDAT going forward. According to National FAASafety Outreach Manager Brad Wood, "there is still a lot of good value the tool can provide, particularly with visual representations of safety data." Jay and Brad have teamed up to boost the reporting power of [FAASafety.gov](http://FAASafety.gov) and will work towards a solution that best fits the needs of the FPM and Reps, as well as individual airmen.

As for the timeframe, the advanced analytics and AI functionality of the site will likely take about a year to complete. However, be on the lookout for a Phase I launch of [FAASafety.gov](http://FAASafety.gov) in late September 2020 that will debut some key look and feel enhancements to improve user experience.

"We're excited about the potential for FATDAT and our revamped [FAASafety.gov](http://FAASafety.gov) website to really move the needle on GA safety," says National FAASafety Operations Lead Kevin Clover. "Both tools will leverage vast amounts of data more efficiently, and in a way that better aligns with our risk-based strategies for education and outreach." Stay tuned for more information in future issues! ▶

Tom Hoffmann is the managing editor of *FAA Safety Briefing*. He is a commercial pilot and holds an A&P certificate.





# THE MISSING LINK

## Contributing to the Future by Examining Your Past

By James Williams

The search for the missing link in human evolution was one of the most well-known and yet least remembered events of history. One hundred years later, the phrase conjures mental images of dry text books and dust covered skeletons. What actually happened was a story of intense competition, worldwide adventures, and even scandal (see Piltown Man). Researchers in the late 19th and early 20th century were frantically searching for a transitional form that would connect humans with our simian ancestors at a time when many people didn't agree on such an idea.

After a century of reflection, we now know that there wasn't a missing link, but several. In fact, the entire construct of a linear ladder of evolution turned out to be a misinterpretation caused by a lack of fossil records. The more we uncovered, the more we learned.

How we think about our safety in the air can work the same way. When we only have a small amount of data, we can only see a limited number of solutions. That's why the FAA and the general aviation (GA) community have been working towards data sharing. As we've previously reported, earlier efforts led to establishing the Aviation Safety Information Analysis and Sharing (ASIAS) system. Using a massive quantity of voluntarily-reported data together with other data sources, ASIAS created a warehouse for safety analysts to find problems and facilitate solutions. Initially, ASIAS focused on air carrier data mostly because many air carriers have implemented

programs to collect flight data, to include Flight Data Monitoring (FDM) or Flight Operations Quality Assurance (FOQA) programs that provide a conduit to this data.

### Making It a Million

Adding GA was the obvious next step, but it presented a number of challenges. One was the fact that GA, depending on destinations operators may be flying to internationally, may not be subject to data collection requirements. Compounding that issue is the operating reality. The air carrier world has a limited number of participants operating in a largely similar way. GA has a much larger number of participants who operate in a massively wider set of circumstances.

The task was enormous, but as the famous Chinese proverb says, the journey of 1,000 miles starts with a single step. For the FAA, that step happened in 2015 with a project based in Phoenix, Ariz. Phoenix provided a robust and diverse test bed for a GA ASIAS implementation. "We wanted to demonstrate how ASIAS could help the community," said Corey Stephens, an operational research analyst in the FAA's Office of Accident Investigation and Prevention.

This touches on another issue the FAA faced with attempting to incorporate GA into an FDM program; what's in it for me (WIIFM)? "We wanted to demonstrate how ASIAS could help the community," said Stephens. So the FAA turned to flight training organizations like

the University of North Dakota, which had already established FDM programs and staff who understood systems like ASIAs and the benefits they could provide. Working with these partners and the MITRE Corporation, the FAA created a framework to allow collection of this data. The strong desire to open FDM to the widest possible audience led to the creation of the National General Aviation Flight Information Database (NGAFID).

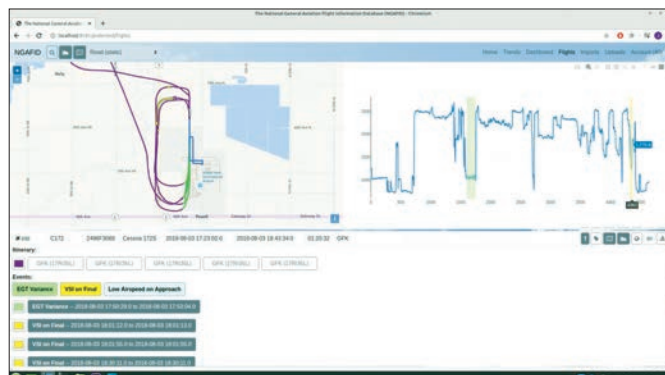
This GA-focused FDM effort has been very successful. GA participation in ASIAs has grown since the effort began in 2013. To date, 118 business operators have joined ASIAs, primarily made up of business jets with traditional FDM programs. The NGAFID allows those aircraft not equipped to participate in those types of programs. Currently, 13 universities and flight training institutions make up the vast majority of the data in the NGAFID. In a few short years, this still expanding group has amassed more than 1,000,000 flight hours of recorded data. That's a major milestone. As discussed in previous issues, (most recently, "Welcome to the Information Age," Nov/Dec 2019, p. 18 at [bit.ly/SBNov19](http://bit.ly/SBNov19)) data compounds into information, and the more data you have, the better your information.

But there's been a clear missing link from the NGAFID. You, the typical GA pilot, haven't really been a factor in the NGAFID. Only about 200 non-business or university-related individuals have contributed. So how do we fill that gap?

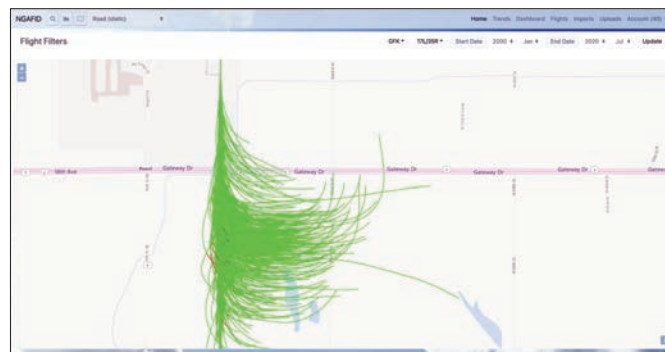
### WIIFM?

First and foremost, contributing to the NGAFID helps collaborative government and industry safety teams discover risks and develop more effective safety interventions based on actual data. For the individual pilot, NGAFID allows you to track your own flight activity and analyze your own data. Part of the FAA/industry push to make FDM even more valuable is NGAFID 2.0. Much of the upgrade work focused on behind-the-scenes fixes to make NGAFID work better. You might not immediately notice, but they allow for a better overall user experience and the potential for enhancements down the line.

What this means for you is that detailed analysis and review of your flights is only a few clicks or taps away. In fact, there are even automatic alerts to highlight potential safety issues you may have encountered during your flights. You can also customize the parameters to alert you if you have a specific aspect of your flight(s) you want to monitor, in addition to those NGAFID researchers and others in the GA community have identified. Depending on your method of logging data, you can even use the NGAFID to monitor for airworthiness and maintenance concerns. Yet another benefit is the ability to compare your data to that of other operators in your class or type. Want to know how you stack up against other 172 drivers? Here's your chance.



An example of NGAFID data showing exceedances during a flight.



Here is an example of the new Turn to Final Analysis tool, an enhancement added with NGAFID 2.0. It allows users to clearly see which turns indicate a high probability of a loss of control situation over a select period of time.

NGAFID 2.0 also offers some interesting options to “see” your flights. You can have them plotted on a street map, a sectional, a satellite view, and even Google Earth. You can recreate flights using commercially available software that allows you to animate from multiple view-points (e.g., in the cockpit, a chase view, etc.). This review capacity can also be really helpful in detecting subtle trends that can be hard to spot as they happen. Approach or departure speed is an example. You might be increasing your approach speed by just a knot or two per week (or the converse on your departure), but after a few weeks this habit could lead to an unstable approach. NGAFID lets you look back to search for the root cause. These are powerful tools once available only to pilots and operators of large and sophisticated fleets.

### The Ways In

“We look at the NGAFID as a hub, and entry methods as spokes,” explained Stephens. “We are always looking for more and better ways to get data into the NGAFID.” Currently, the primary data source is modern avionics, like the Garmin G1000, which record a number of flight parameters. “Modern avionics allow us to collect all this data by simply using a memory card slot that’s already there,” said Stephens. “Some of our larger fleet users even have wireless options that automatically begin downloading data when



the aircraft reaches the ramp.” He continued, “For folks with these systems, it’s easy to contribute, and they provide fairly high-quality data.” The downside? The cost of these avionics suites is an obvious limiting factor.

The next spoke is a combination of two things for pilots who aren’t on the cutting edge of avionics. If you have a portable Attitude and Heading Reference System (AHRS) in your aircraft, you may be able to connect it with the GA Airborne Recording Device (GAARD) app available on iOS and soon on Android devices. This allows the ever-increasing number of pilots with an AHRS to contribute higher quality data than would otherwise be possible. As with any FDM system, the better the data you put in, the better insight you get out.

**What this means for you is that detailed analysis and review of your flights is only a few clicks or taps away. In fact, there are even automatic alerts to highlight potential safety issues you may have encountered during your flights.**

Another spoke is the GAARD app itself. By using your device’s onboard sensors, such as GPS, the GAARD app is able to provide some basic data about your flight. It is low fidelity data in comparison to the previously mentioned options, but it has a zero entry cost for those who already own a smart phone or tablet. Even this data is enough to conduct a rudimentary unstabilized approach analysis. The app is free and it works in any aircraft regardless of equipment. That makes it great for renters who want the benefits of FDM. It’s also an excellent way to test drive the system to see if you like it. If not, just uninstall the app. No harm done.

“We’re also working on a method to import log files from popular electronic flight bag (EFB) programs,” Stephens said. “EFB programs represent a great opportunity because they have a fairly large install base.” EFB programs are also often combined with AHRS and ADS-B systems that allow for higher fidelity data while still being very easy to export and channel into the NGAFID. “It should work pretty well in concept, but we need to make sure the process is bulletproof before we release it to the public,” Stephens explained. “I’ve even been doing some test flights to help us move it forward.”

So here we stand: we know what the missing link is. We have tools to help us find it. The last thing we need is your help. “We know pilots are skittish about sharing data with others,” Stephens said. “But that also happened when we were launching ASIAs with the airlines. That’s why we make sure the data is de-identified before it’s viewable.” He continued, “We also know that the first person to abuse this system is going to set aviation safety back a generation and that’s something no one in the GA community or the FAA wants.” Additionally, the NGAFID is managed by members from the GA community and associations. This is the same model that has proven successful with the air carrier community for several years and the GA community since 2013.

So are you ready to contribute? As the saying goes, the life you save may end up being your own. ▶

*FAA Editor Jim Tise contributed to this article.*

James Williams is *FAA Safety Briefing’s* associate editor and photo editor. He is also a pilot and ground instructor.

#### LEARN MORE

National General Aviation Flight Information Database (NGAFID)  
[ngafid.org](http://ngafid.org)

## PILOTS

### GET YOUR GUARD UP WITH THE GAARD APP!



Use the **FREE General Aviation Airborne Recording Device (GAARD)** app to collect and analyze your flight data and improve safety for you and your fellow airmen.

Data collected is anonymous and will contribute to a national database for safety trend monitoring.

Go to [ngafid.org](http://ngafid.org) or scan the QR code to get started today!



GAARD App on iTunes Store  
(Android/Google Play Store  
version coming soon...)



# BIG DATA, Little Team

## How You Benefit from the FAA's Surface Safety Metric

By Nick DeLotell

**B**ig Data: “big data” — *noun*, extremely large data sets that may be analyzed computationally to reveal patterns, trends, and associations, especially relating to human behavior and interactions. (*Oxford Dictionary*)

It wasn't long into his flying career when Wilbur Wright was quoted as saying, “In flying I have learned that carelessness and overconfidence are usually far more dangerous than deliberately accepted risks.”

Merely eleven years before Wilbur and his brother made their famous flight, Sir Arthur Conan Doyle released another of his Sherlock Holmes short stories, *The Adventure of the Copper Beeches*. In it, when he's frustrated at the lack of evidence, Holmes is quoted as saying, “Data! Data! Data! I can't make bricks without clay.”

Here's a final nugget for you; nearly 50 years before the Wright brothers packed up their flying machine and headed to Kitty Hawk, the 1854 *Rulebook of the New York and Erie Railroad* stated, “The road must be run safe first, and fast afterward.”

Can you imagine an aviation system that embraces the fundamental concepts of these centuries-old quotes? For comparison, here are some key words and phrases from our core ethos at the FAA:

“Safety Risk Management”

“Data-Driven Risk-Based Decision Making”

“... safest, most efficient aerospace system in the world.”

It doesn't take Sherlock Holmes to detect some paral-

els between the FAA's 21st century ethos, and these 19th and 20th century concepts. Are you surprised to know that data analysis and safety risk management pre-date manned flight? While the value of data and the concepts of safety risk management are not novel, today's tools and technology make the FAA more and more effective at managing risk through Big Data.

### Big Data, Little Team

Right now, there is a small, passionate, and professional team of FAA experts dedicated to improving safety on the surface of our nation's airports. To be clear on that, we're talking about *all* towered airports from Guam to the Virgin Islands and everything in between. The team is small (20 people), but is also diverse, with each person bringing their own unique experience and perspectives as airline pilots, general aviation pilots, air traffic controllers, and data scientists. They're known as the FAA Runway Safety Group and they've taken Big Data and safety risk management concepts to the next level with their new Surface Safety Metric (SSM).

The traditional runway incursion data analysis might look purely at rates (e.g., 25 runway incursions per million flight operations) or statistics (e.g., most pilot deviations are caused by general aviation (GA) pilots). While there's certainly a benefit to knowing rates and statistics, the numbers don't always tell the full story. That's where the SSM is different. The SSM goes beyond traditional data analysis



by establishing certain values and algorithms within the data. The SSM also looks broadly at more data sources than ever before, such as National Transportation Safety Board (NTSB) data and data from the Aviation System Information Analysis and Sharing (ASIAS) system.

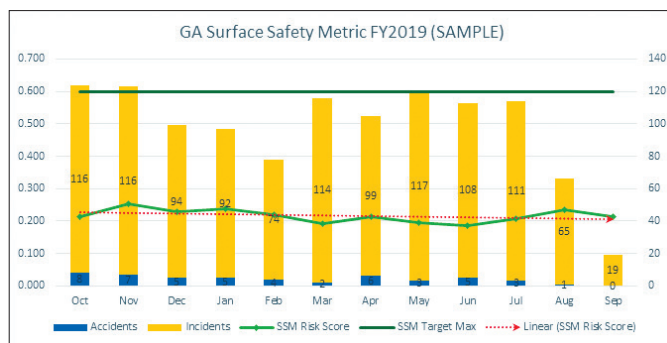
The results are impressive; the SSM has been able to objectively quantify risk. We're not just looking at rates and statistics anymore. Now we're able to see risk, measure it, point at it, and fix it, even in instances where no incident occurred or where, technically, no rules were broken. A key takeaway is that despite record air traffic volume (over 53 million flight operations in 2019) and a relatively steady rate of runway incursions, we are able to show that risk is continually trending down on the surface of our nation's airports. Said another way, our airports are more and more safe.

So, how are we using the SSM? It's really sensitive so single, "high risk" events are easy to identify and target. Events that involve injuries or fatalities on runways are examples. Alternatively, we can filter the SSM data to see trends. We look for things like individual "low risk" events but with a multitude of common factors that indicate systemic risk across the country. A good example of that is the identification of Wrong Surface Events (wrong runway or taxiway approaches, landings, or departures) as a top risk to GA pilots.

A key component to the SSM's success has been the FAA Compliance Program. To find and fix problems, we (you and me) have to build an open and transparent exchange of information and data. If you inadvertently make a mistake, the FAA doesn't want you to hide it because of a fear of being punished. If there is a problem, whether human or mechanical, we all need to learn from it, and we all need to make the changes necessary to prevent it from happening again.

An open and transparent exchange of information requires cooperation and trust. To achieve that, we all have to understand the difference between accountability (accepting responsibility and looking forward) and blame (focusing on punishment for what's already in the past). The Compliance

Program is a critical part of the SSM because it recognizes the value of accountability, and it provides an avenue for exchange of information and data.



In this SSM sample chart, the red linear trend line indicates decreasing risk for GA in the surface environment. A benefit of the SSM is that it easily identifies risk(s) that may not have been noticed before. Note the risk increase in May, despite the decrease in overall accidents/incidents. The FAA can zero in on what caused the risk to increase, and we take action to prevent it from causing future accidents/incidents.

### How You Benefit

Just like Sherlock Holmes, the Runway Safety Group collects the data, analyzes the data with the SSM, and finds the culprit. Once a culprit is identified, the group works collaboratively with aviation industry partners and other FAA offices to develop comprehensive plans either to remove hazards or to manage risks. That's ultimately the benefit — a safer and smarter aviation system *for you*.

We hope certain benefits speak for themselves. The FAA publishes products like the Runway Safety Pilot Simulator, From the Flight Deck Videos, and Airport Diagram Hot Spots, to name just a few. You might see other results in the form of Advisory Circulars, InFOs or SAFOs, or changes to the various FAA handbooks and Airman Certification Standards (ACS). The FAA is also making enormous investments in predictive technologies that provide better alerts to Air Traffic Controllers, and huge airport infrastructure improvements through the Runway Incursion Mitigation (RIM) program.

So what's on the horizon? Wrong Surface Events are still occurring at rates higher than they should, particularly within the GA community. Runway excursions by business jet operators are also a subject the Runway Safety Group continues to evaluate. Wherever the SSM takes them and whatever the solutions look like, rest assured that the Runway Safety Group is a little team that shares a big interest in keeping you safe.



## Cleared for Takeoff

The lessons and concepts from the 19th and 20th centuries hold as true today as ever. You can apply them and contribute to the safest and most efficient aerospace system in the world by remembering three simple things regardless of the type of aircraft you're strapping into:

1. **Wilbur said it best.** Don't be careless or overconfident just because you're on the ground.
2. **Safety is the top priority, and everything else comes later.** Treat the surface just like the sky; aviate by taxiing slower, navigate by reference to an airport diagram, and communicate with ATC when you need time, clarification, or a little more assistance.
3. **We're in this together.** Let's all be accountable for our mistakes and not play the blame game. By improving our reporting culture, we'll keep reducing risk.

Blue skies and happy landings! Taxi safely, my friends. >

Nick DeLotell is an aviation safety inspector in the FAA's Flight Standards Service in collaboration with the Runway Safety Group. He holds an airline transport pilot certificate, flight and ground instructor certificates, and is a remote pilot.



Photo by Jon Ross.

### LEARN MORE

From the Flight Deck  
[faa.gov/go/FromTheFlightDeck](https://faa.gov/go/FromTheFlightDeck)

Runway Safety Pilot Simulator  
[RunwaySafetySimulator.com](https://RunwaySafetySimulator.com)

FAA RIM Program  
[faa.gov/airports/special\\_programs/rim](https://faa.gov/airports/special_programs/rim)

## Reducing Runway Incursions – A BTR News Story

When Cody McClelland first started working as the new Air Traffic Manager at Baton Rouge Metro/Ryan Field Airport (BTR) in March of 2019, one of the first things brought to his attention was that BTR ranked first in runway incursions in the FAA's Southwest Region, with 16 in that year alone. Cody quickly began thinking outside the box to identify a way to break this pattern. Many of the issues were related to parallel runways 4L and 4R and their complex taxiway intersections. He decided to address the issue through a coaching and mentoring philosophy with both the local controllers and pilots.



Cody shared this philosophy at a local Experimental Aircraft Association (EAA) dinner and at FAA Safety Team (FAASTeam) pilot meetings to help the pilot and air traffic

community. "I wanted BTR to be an environment that encouraged learning before and after we make mistakes," Cody stated. "The controllers, after a bit, embraced the concept, and some even

came in my office to discuss ways they could have done better in situations they were unsure about. I think in the end it's about relationships and having a dialog with a very valuable resource: the pilots. They provided insight on what they were thinking and expecting from ATC. A lot of times my controllers and supervisors coached pilots on what ATC was expecting them to do. I think the results speak for themselves – all the effort that controllers and pilots have put in have made BTR a safer place to fly."

We take this opportunity to thank Cody for his awareness and quick actions to address the issue, and for helping to reduce runway incursions at BTR. To learn more about the issues Cody identified, check out this "From the Flight Deck" video on BTR at [FAA.gov/airports/runway\\_safety/videos/BTR](https://FAA.gov/airports/runway_safety/videos/BTR).

Runway Incursions at BTR/Baton Rouge Metro/Ryan Field		
Fiscal Year	Runway Incursions	Runway Incursion Rate/100k Operations
2019	16	28.3
2020	1	3.3





# RISE TO THE TOP

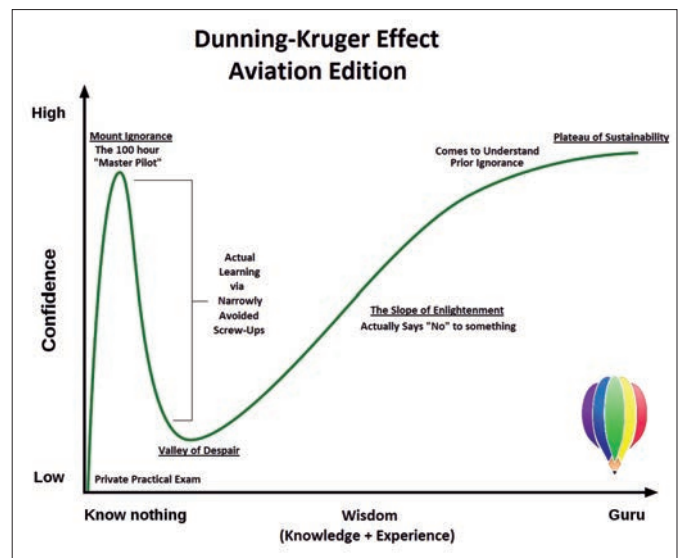
A Look at Frequent Accident Issues for Balloonists

By Adam Magee

“Expect the unexpected” has long been the gold standard in preparedness. Flight instructors preach planning as an effective accident prevention tool. When analyzing the National Transportation Safety Board (NTSB) database on hot air balloon accidents, one theme becomes apparent: Hot air balloon accidents mostly arise from deficiencies in accident mitigation efforts. So it’s worth taking a fresh look at some of the preflight and inflight actions that show up as contributing factors in accidents. The goal is to offer a data-driven approach to aeronautical decision making and accident prevention.

## Overestimating but Underperforming

When I work with a new balloon pilot, I often see a cognitive bias (officially called the Dunning-Kruger effect) in which people with low ability at a task overestimate that ability. Many fledgling balloonists are unable to recognize their lack of ability. Without this self-awareness, they cannot objectively evaluate their competence. After gaining certification, the new pilot quickly builds confidence during the first 100 hours. While confidence is at an all-time high, they have in fact climbed only to the peak of what I call “Mount Ignorance.” The new pilot then makes a series of mistakes and comes close to (if not all the way to) an accident or incident until they’ve reached the “Valley of Despair.” Assuming they continue flying, they now have the beginnings of appreciation for how much they don’t know. As the pilot works up



the “Slope of Enlightenment,” competence begins to form and eventually they reach the “Plateau of Sustainability.”

Some pilots have multiple peaks and valleys, or never hit their plateau of sustainability. At every peak, the pilot must battle hazardous attitudes of machismo, invulnerability, anti-authority, and impulsivity. Resignation reigns in each valley. Bear in mind that the plateau of sustainability can be dangerous as complacency and the same hazardous attitudes found at peaks can be present in plateaus.

Consider this number: around 54-percent of all hot air balloon accidents involve pilots who qualify for the highest level of the Balloon Federation of America's Pilot Achievement Award Program. This points to complacency and implies that the plateau of sustainability can be difficult, if not impossible, to achieve. When analyzing the NTSB database of hot air balloon accidents, the outside forces acting on the peaks and valleys, as well as a complacency factor, become apparent. The accident narratives shed light on the hazardous attitudes in play.

For example, the high-hour balloon pilot who decides to take off on a windy evening when other pilots decide not to fly is exhibiting the macho hazardous attitude. The accident narrative is full of an "I can do it!" attitude. In these instances, tell yourself that "taking chances is foolish" in order to catch your behavior. Listen to corrective action suggestions from crewmembers or other pilots. Difficult? Yes, but it could prevent an accident.

To combat the hazardous attitudes found in the peaks and valleys, take yourself through an "unawareness checklist" before each flight. To teach this concept, I start by explaining the mission of the FAA: to have the safest aerospace system in the world. The entire airman certification process, FAA Safety Team (FAASTeam), this magazine, and everything else the FAA does are all aimed at fulfilling

this mission. The FAA develops tools like the PAVE and IMSAFE checklists (and so much more) because they can help prevent accidents. The checklists keep pilots aware of items that can have a negative impact on the flight. A natural first step in accident prevention is to simply use the tools your tax dollars have helped create.

### Another Tool You Can Use

Have you ever used a flight risk assessment tool (FRAT)? Going through PAVE and IMSAFE checklists in your head doesn't take actual risk exposure into account. Our brains tend to compartmentalize individual hazard and fail to appreciate their cumulative effects. Even if it happens unconsciously, we may also allow personal desires to manipulate a risk assessment so we can meet personal goals. The best way to compensate for these inherent shortcomings is to take this task to paper. Putting everything on "paper" (even electronic paper) allows us to establish risk limits in an atmosphere free from the pressure of an impending flight. It also offers a perspective on the entire risk picture. Most importantly, it sets the stage for managing risk through proactive mitigation strategies that are documented.

Designs can vary, but FRATs generally ask a series of questions that help identify and quantify risk for a flight. The FAASTeam's current FRAT tool (an automated spreadsheet available at [go.usa.gov/xkhJK](http://go.usa.gov/xkhJK)) follows the PAVE





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checklist, covering questions on the Pilot, Aircraft, enVironment, and External pressures. For example, it may ask how much rest you've had, how much time you've had in the aircraft, and what the weather conditions are for your destination. Based on the answers you supply, a total risk score is calculated. If the score calculated is green — go fly! If it's yellow — try to mitigate some of the higher scoring items. If it's red — no-go!

Personal minimums refer to an individual pilot's set of procedures, rules, criteria, and guidelines for deciding whether and under what conditions to operate (or continue operating) in the National Airspace System. Personal minimums should be set so as to provide a solid safety buffer between the pilot skills and aircraft capability required for the specific flight you want to make, and the pilot skills and aircraft capability available to you through training, experience, currency, proficiency and, in the case of the balloon, performance characteristics. Create your own personal minimums checklist and stick to it! For more, check out my other articles at <https://adobe.ly/2Rk529J> and <https://adobe.ly/32pHHZV>.

## Back to Basics

If you're a certificated balloon pilot, it's probably been a while since you've read through the Lighter-than-Air balloon private pilot Practical Test Standards (PTS) (Note: Airman Certification Standards for LTA are in development). But do you recall how it tests the applicants' ability to pick a launch spot based on suitable landing areas downwind both in flight planning and launch site selection? The ability for a balloon to land at a location other than an airport is what makes balloons unique. It also makes balloon flight riskier. Contact with power lines is the number one fatal cause of balloon accidents.

Seventy-nine-percent of balloon accidents occur during the landing phase of flight. Further analysis reveals two major themes: lack of proficiency and impulsivity.

Pilot proficiency is important; many accidents involve pilots who are rusty or are flying an unfamiliar aircraft. Sometimes the pilot is flying an aircraft new to them and twice the size of the balloon they normally fly. We all know 14 CFR section 61.57 sets recent flight experience for carrying passengers, but does currency equate to proficiency? No! That's where the WINGS Pilot Proficiency Program comes in. WINGS encourages pilots to obtain additional knowledge and flying skill with an authorized instructor. This additional instruction knocks the rust off for pilots who have not recently flown much. Consider that with hot air balloons, 48-percent of accidents involve pilots with 15 or fewer hours in the last 90 days.

When faced with a difficult situation in flight (e.g., changing weather conditions, missed landing spots, flying into congested areas, etc.) the accident narrative often



points towards the impulsivity hazardous attitude. Pilots want to “do something quickly” to avoid an accident, but hastily executed actions often make the situation worse. Checklists are a great accident mitigation strategy; they help pilots combat impulsivity. When faced with a difficult situation, your checklist provides an opportunity to think and perform a double check. An often overlooked but very important checklist is for the passenger briefing. In many hot air balloon landing phase accidents, an inadequate passenger briefing has unnecessarily led to broken bones, and in one case, a fatality.

## In Data We Trust

To “expect the unexpected” in hot air balloon accidents involves understanding the statistics behind accidents. Such data helps guide the FAA's development of accident mitigation strategies and aeronautical decision making resources. Whether your craft is lighter or heavier than air, make it a habit to know these resources and make them a regular part of your flight planning. >

Adam Magee is a commercial hot air balloon pilot/flight instructor, designated pilot examiner, FAA Safety Team (FAASafetyTeam) Representative, and was named the 2019 District and Regional FAA CFI of the Year. He is co-founder/president of The Balloon Training Academy, a 501(c)(3) non-profit organization and industry member of the FAASafetyTeam.



## #GOT DATA?

*We've got the data; you've got  
the fresh ideas.*

*Let's bring them together.*

— FAA Data Innovation Center

The FAA website is a pretty big place. As with many large cyber-places, I generally tend to stick to particular pathways and specific sites. That's efficient — even essential when I am in a hurry to get information my bosses want — but it also means there are many places I haven't seen. Moreover, I don't even know what I don't know until I somehow surf into something interesting.

So it was that, in the process of developing content for this issue's focus on data-driven decision making, I surfed into a site that was new to me and possibly to you as well. It turns out that the FAA website includes a Data Innovation Center ([faa.gov/got\\_data](http://faa.gov/got_data)). As the intro page notes, the Data Innovation Center serves as “the” access portal for the agency's aeronautical data and products.

As with most FAA website pages, you can subscribe to get update notices — in this case, updates on aeronautical data, digital downloads of chart and data products, and web services for product and underlying data APIs (application programming interface). But wait — there's more.

### Join the Party!

Noting that “collaboration is key to innovation,” the website also offers ways that you can connect and work with other stakeholders to help advance the aviation industry. You can join forums that let you share comments, submit questions, and request feedback on ideas. More could follow, but here are the three existing forums.



- **Aeronautical Charting Meeting** ([FAA.gov/air\\_traffic/flight\\_info/aeronav/acf](http://FAA.gov/air_traffic/flight_info/aeronav/acf)): This public forum occurs twice yearly and is the primary method of adding and modifying charting specifications.
- **IdeaScale** ([FAAedai.Ideascale.com](http://FAAedai.Ideascale.com)): Moderated by the FAA, IdeaScale is a social collaboration forum that allows participants to prioritize ideas and solicit feedback about innovative uses of FAA data.
- **StackExchange** ([opendata.stackexchange.com](http://opendata.stackexchange.com)): This one is a question-and-answer site for developers and researchers. Please note that the FAA does not moderate the Stack Exchange forum.

### More to Come

Recognizing that FAA data is a critical product to safety and that developers have a role to play, the FAA will launch Got Data 2.0 this fall. Given ever-evolving customer needs, organizations can no longer rely on small, dedicated innovation. Got Data 2.0 will therefore connect data and developers to enable the creation of innovative solutions. The broader ecosystem facilitates innovation and

support for new products and offers APIs a crucial role in linking organizations and technologies.

Part of Got Data 2.0 is to modernize the Data.FAA.gov (DFG) portal, which will be the clearinghouse for publicly available FAA data. There will also be a new developer portal to provide APIs so developers can freely access open specifications and obtain self-service access to FAA data to use in their applications. AFG will also enable FAA data product publishers to create APIs and securely connect their data products to consumers and stakeholders.

You'll find the link under the “Learn More” header. Click away! Consider bookmarking or, better yet, subscribing to this page to get all the latest and greatest information on FAA data availability.

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### LEARN MORE

Connect and Collaborate  
[faa.gov/got\\_data/collaborate](http://faa.gov/got_data/collaborate)



## DATA-BASED DECISION MAKING

Unmanned Aircraft Systems (UAS), also known as drones, are a burgeoning industry. UAS operations are fast increasing in number, technical complexity, and sophistication. The FAA is working to incrementally integrate UAS into the National Airspace System (NAS) in a way that assures the safety of people and property, both in the air and on the ground. The FAA's Unmanned Integration Office (AUS) has the task of coordinating those efforts.

With the exponential growth of UAS technologies and applications over the past few years, research has expanded to keep pace and better enable the FAA to support full integration. Applied research will inform the integration path, which is intended to enable increasingly more complex UAS operations over time.

In order to promote applied research, the FAA established the Integration Pilot Program (IPP), a government focused initiative, and the Partnership for Safety Program (PSP), an industry-focused initiative.

### Integration Pilot Program

Launched in 2017, the IPP offers a pathway for state, local, and tribal governments to partner with private sector entities (e.g., operators as well as manufacturers) to accelerate the safe integration of UAS operations. In May 2018, the Secretary of Transportation announced ten Lead Participants for the IPP:

- Choctaw Nation of Oklahoma (Durant, Oklahoma)
- City of San Diego (San Diego, California)
- Virginia Tech — Center for Innovative Technology (Herndon, Virginia)

- Kansas Department of Transportation (Topeka, Kansas)
- Lee County Mosquito Control District (Ft. Myers, Florida)
- Memphis-Shelby County Airport Authority (Memphis, Tennessee)
- North Carolina Department of Transportation (Raleigh, North Carolina)
- North Dakota Department of Transportation (Bismarck, North Dakota)
- City of Reno (Reno, Nevada)
- University of Alaska-Fairbanks (Fairbanks, Alaska)

The Lead Participants serve as the primary point of contact with the FAA, and they partner with private sector companies and organizations to carry out their operations. The IPP tests and evaluates various models of involvement in development and enforcement of federal regulations for UAS operations. It informs development of future federal guidelines and regulatory decisions on UAS operations nationwide.

IPP operations focus on Detect and Avoid (DAA) technologies, Command and Control (C2) links, navigation, weather, and human factors. Examples of use include agriculture, commerce, emergency management, human transportation, and other sectors. Part of the FAA's role is to emphasize the need to balance the benefits of innovation with the need to protect national security, public safety, critical infrastructure and the NAS. The IPP will close out in October 2020.

### Partnerships for Safety Program

Established in 2019, the PSP is the next integration step to transition from the

IPP. PSPs are an industry-focused partnership. Through a three-year agreement, the FAA works directly with companies to research and develop applications and operations that will support decisions and rulemaking. Companies go through a rigorous selection process and demonstrate innovative concepts that will contribute to increasingly more complex UAS operations. These operations include: Operations Over People, Expanded Operations (beyond visual line of sight, swarms, and on-airport operations), Small UAS Package Delivery Operations, Large Carrier Cargo Operations, and Passenger Transport Operations.

PSP entrants provide data and research that is applied to technical standards development. In return, they receive FAA guidance as well as authorization for experimental operations. The data helps answer several questions about UAS Integration: What kind of aircraft are best suited for certain operations? What is the durability and reliability of specific aircraft? What standards do we need for aircraft? What safety standards are necessary?

Data on new aspects of operation is critical to the step-by-step approach to UAS integration. The agency continuously applies lessons from the IPP and PSP to UAS decision making, rulemaking, and standards development. Program participants contribute to the FAA's research needs and foster a meaningful dialogue between local and national interests. While many challenges remain, the flexibility and innovation that the IPP and PSP offer will play a major role in facilitating safe and successful UAS integration.

**Danielle Corbett is an aviation safety inspector with the FAA's Office of Unmanned Aircraft Systems.**



## SEE SOMETHING? SAY SOMETHING

If you have ever shopped for a product online, you know the power of data in the form of user reviews and star ratings that influence your decision to click and buy. Voluntary feedback from past purchasers is tremendously valuable in helping other buyers identify issues, spot trends, and make better, more knowledgeable, and much faster decisions.

So too is the power behind aviation reporting systems like the FAA's Service Difficulty Report system (SDR). It relies on voluntary feedback from users like you, maintenance professionals on the front lines of the industry, to say something and let other people know when you see something that could potentially cause a safety hazard. If you or other mechanics in your shop see either brand new issues or that same old problem with a propeller, an appliance, or any aircraft part for that matter, please say something — and not just to those in your shop. Share by reporting it online. Using the SDR system, create a Malfunction/Defect Report (MDR). You'll find it under the Public Functions tab at [av-info.faa.gov/sdrx](http://av-info.faa.gov/sdrx). The MDR is confidential — you can remain anonymous if you choose — and there's absolutely no punishment for reporting. On the contrary, you get the satisfaction of knowing that your review and "buyer beware" experience with a part or appliance will help others make better, more informed decisions about airworthiness. When it comes to safety, your input could save someone's life.

### We Read Your Reviews

Filing isn't mandatory for part 91 operators, pilots, and mechanics who work their own shops, but the agency

strongly encourages filing MDRs on a voluntary basis. If a system component or part has malfunctioned, report it. If there's a flaw or an imperfection, report that too. "The MDR provides valuable safety information and may be the first indication of a potential safety problem or a defect," says Gracie Robino, Business Program Manager in the FAA's Flight Standards Service. "It can identify equipment malfunction trends that can help catch problems early. That allows advisories, service bulletins, airworthiness directives (ADs), and alerts to benefit from better information," Robino explains.

A case in point: "Thanks to the multiple MDR reports from GA mechanics, we identified a compressor brush as a frequently defective part, and we were seeing aircraft tail fires as a result," says Christy Eckerman, Continued Airworthiness Specialist in the FAA's Wichita Airworthiness Certification Office. "We were able to issue an airworthiness directive to address the problem."

### We've Heard Your Feedback

Users have reported that the SDR system is not friendly, the format is out of date, and that reports are not reviewed or processed promptly. The good news is that the SDR modernization effort is underway. The infrastructure is being rebuilt and changes have already been made. "Thanks to an increase in staffing and additional support from data processing, we no longer have a backlog," says Robino. "The newest reports are directly reviewed by two aviation safety inspectors. They identify any safety hazards that

need surveillance, immediate follow up, or escalation to the FAA's Monitor Safety/Analyze Data process, which quickly disseminates the safety info and determines whether corrective action is required by an AD," Robino explains. The rest of the SDR team is focused on older records so users have a better ability to see a real-time history of MDRs.

The best is still to come. "In the future, we see the system supporting a more robust and user-friendly format for data retrieval with enhanced search engine capabilities," says Robino. "Technology will allow the upload of photos and images, and users will receive email notification that their MDR and supporting documentation was successfully received," she explains. Additionally, the importance of aviation maintenance alerts is recognized as a means of disseminating reports back into the maintenance community with discussion to potentially revamp the program in the future.

Bottom line? If you see something, say something at [av-info.faa.gov/sdrx](http://av-info.faa.gov/sdrx). We need your valuable input.

*Jennifer Caron is FAA Safety Briefing's copy editor and quality assurance lead. She is a certified technical writer-editor in aviation safety and flight standards.*

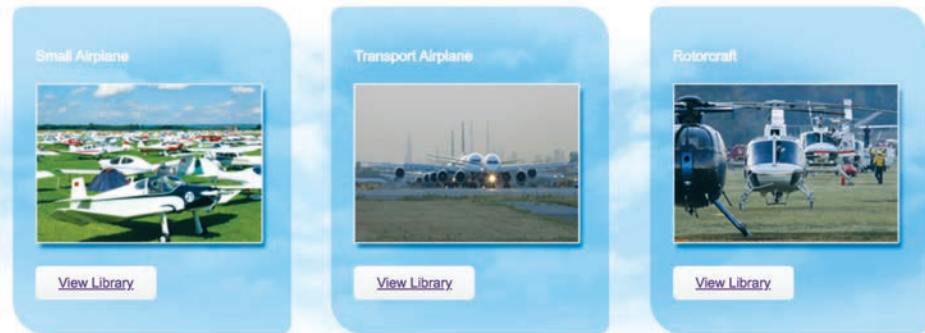




## FAA LESSONS LEARNED LIBRARY WELCOMES GA/ROTORCRAFT

I admit, I'm kind of a junkie when it comes to aviation accident documentaries like the series *Air Disaster*. The show's gripping accounts of real-life accidents do an excellent job of peeling back the layers of what leads to those fateful life-or-death moments on the flight deck. Combined with the intense gravitas of the narrator, the surprisingly convincing actor portrayals, and the eerily true-to-life animations that provide a first person perspective, it's hard to not watch each episode through to the end even if I already know the fate of the crew. These shows also provide an amazing amount of contextual detail and offer valuable lessons for all airmen, not just for the air carrier crews that are often profiled. The error chains are just as applicable to the general aviation (GA) realm.

Back in 2009, the FAA, under the leadership of Safety Manager Dan Cheney, took a page out of the playbook that proved successful for these shows and started the Aviation Lessons Learned Library. The idea was to profile several historically significant transport aviation accidents, along with details of how and why they occurred, in hope of preventing repetition of past mistakes. The site was a resounding success; it currently averages over one million hits a month and has become a go-to resource and training aid for flight schools, universities, airlines, and government entities across the globe. To improve and expand its reach, the site was recently transformed to provide better categorization of data and



findings. It also now adds modules on small airplanes and rotorcraft.

“There are currently 82 modules in the library, and we plan to add about five to six new ones in each category per year,” says FAA Aviation Safety Inspector Mike Wilson, who has also been the library’s operations lead and pilot subject matter expert for more than 10 years. According to Mike, the goal of the redesign was to provide more comprehensive data and learning material about each accident, as well as emphasize the many important lessons learned from the small airplane and helicopter communities.

The site, now titled Lessons Learned from Civil Aviation Accidents ([lessonslearned.faa.gov](https://lessonslearned.faa.gov)), encompasses three libraries: small airplane, transport airplane, and rotorcraft. Within each, three different “perspectives” (aircraft lifecycle, accident threats, and common themes) are used to arrange the accidents and illustrate the complex interrelationship of causes. Each section allows you to drill down and explore specific accident cause areas, whether it’s related to an aircraft’s design and manufacturing stage, a specific type of operation or industry (e.g., instructional, aerial application), or a common theme like human error.

Once you select an individual module, you can really get your “Air Disaster” geek on. There is an absolute trove of well-written information on each accident. The accident overview section provides a detailed time line of events, as well as a review of any and all contributing factors, complete with photos, animations, videos, and resource links. You can also view key safety issues and assumptions, what relevant regulations were involved, what safety initiatives resulted, and a summary of all lessons learned from the accident. The site gives you various ways of searching and sorting modules — including by key word or category — allowing you to customize a search by the type of aircraft or operation you fly.

Capping off the production cycle this year, twelve new modules were added to the library this summer, including five GA and five rotorcraft accidents. The small, but dedicated team that keeps this site running is extremely proud of their efforts and is committed to helping grow and evolve the Lessons Learned Library for years to come.

**Tom Hoffmann is the managing editor of *FAA Safety Briefing*. He is a commercial pilot and holds an A&P certificate.**



## HISTORY LESSONS

We all know that a well-trained pilot is generally a safer pilot. A great way to bolster that training is using a newly available series of training scenarios from the U.S. Helicopter Safety Team (USHST) — a government-industry safety advocacy team — based on lessons learned from recent fatal rotorcraft accidents.

The USHST's Recommended Practice (RP) document is geared for flight instructors, training departments, and operators as part of its national campaign to reduce the U.S. helicopter 5-year average fatal accident rate to 0.55 per 100,000 flight hours by 2025. You can find the RP here: [bit.ly/USHSTrp](http://bit.ly/USHSTrp).

The national fatal rotorcraft accident rate rose in fiscal years 2018 and 2019 but appears to be on a downward trend. New training techniques could help. The RP document identifies and describes 22 fatal helicopter accidents that involve some lack of sound aviation decision making. The accidents are categorized as follows: loss of rotor revolutions per minute (RPM) in autorotation, loss of tail rotor effectiveness, spatial disorientation, unintended flight into instrument meteorological conditions (IMC), low altitude wire strike, and low altitude engine failure.

According to Nick Mayhew, general manager of the L3Harris Arlington Training Center and industry co-chair of the U.S. Helicopter Safety Team, the impetus for the program came from a review of more than 100 fatal accidents, 23 of which the USHST believes could have been prevented through scenario-based simulator training.

The data was significant enough that the USHST issued Helicopter Safety Enhancement (H-SE) 123, *Increased Simulation/Education to Develop*

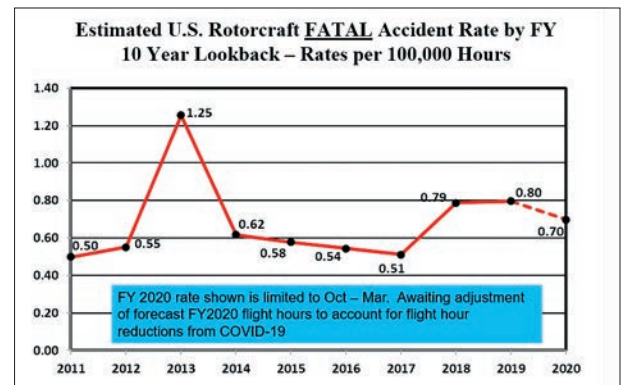
*Safe Decision Making*. It is among 22 safety enhancements that the USHST released in 2017.

According to Mayhew, pilots can learn by being placed in a simulated situation that results in a fatal accident, and then learn what steps they can take to help ensure that they land their helicopters safely.

The RP document offers guidelines to help instructors build each training scenario. For example, one scenario describes an accident where a pilot and his passenger were killed near Houston when their helicopter crashed into terrain during a low-level aerial photography trip. The National Transportation Safety Board determined the probable cause of this accident was the pilot's inability to maintain control of the helicopter after the engine lost power.

The recommended equipment and materials for this training scenario include an applicable simulator or basic aircrew training device; an applicable pilot operating handbook/rotorcraft flight manual; applicable preflight information and/or tools; applicable flight risk assessment tools (FRATs) and/or checklists, and applicable regulations.

The training completion standards for this scenario would be that the pilot under instruction will: (a) demonstrate proficiency in maintaining main rotor RPM in a variety of flight profiles; (b) demonstrate understanding of the conditions and risks associated with blade stall; (c) successfully recognize and mitigate risks



associated with operating in the low-level environment, specifically at low airspeed, and choose an appropriate altitude based on the specific mode of flight; (d) successfully maneuver the aircraft to avoid hazardous flight profiles; and (e) successfully recognize and respond to conditions conducive to carburetor icing (if applicable).

The USHST recognizes that training continues to be one of the top operational categories of helicopter accidents in the U.S. This recommended practice will allow pilots to learn from their mistakes in a safe environment and will make them less likely to repeat the error during actual flight.

**Gene Trainor is a technical writer/communications specialist for the FAA Compliance & Airworthiness Division.**

### LEARN MORE

For additional data-driven training, consider attending the virtually hosted 2020 FAA International Rotorcraft Safety Conference (Oct. 27-29). The conference will include presentations geared for pilots, mechanics, and the entire helicopter community. Information and registration are available at [www.faahelisafety.org](http://www.faahelisafety.org).





Check out our GA Safety Facebook page at [Facebook.com/groups/GASafety](https://www.facebook.com/groups/GASafety).

If you're not a member, we encourage you to join in on the discussions and post relevant GA content that makes the National Airspace System safer.

### What Not to Say on the Radio

You touched on the importance of correct communication but barely scratched the surface. That's not a criticism, it's just that the topic requires frequent discussion. I have been in aviation since 1958 as a CFIA-I and MEL and as a captain. The communications problem is that ATC has phraseology to be used in their FAA Order 7110.65 as amended. The Aeronautical Information Manual (AIM), however, is not as specific as it should be from the pilot's end. And therein lies the problem.

— Bob

*Thanks very much for the comment and we appreciate your taking the time to provide feedback on this safety-critical subject. You are absolutely right about "scratching the surface." Since it would be impossible to cover everything in a single article or even a whole issue, our goal is to offer both pertinent advice and pointers to all the additional material.*



### From Our Twitter Channels

#### Maintain a Stabilized Approach

Nice document on stabilized approaches. Glad to see the FAA talking more about energy management!

— John

*Thanks, John, we appreciate your feedback. Maintaining a stabilized approach is a great way to avoid loss of control during the landing phase of flight. Readers can check out the FlySafe fact sheet at [bit.ly/2NEUROF](https://bit.ly/2NEUROF) to learn more.*

#### Need Help with WINGS?

Do you guys assist with the WINGS program? I got my private and completed the basic part of the WINGS ... but I guess I never had my instructor do the three topic sections in order to move on to advance. I'd like to know what I can do for that section.

— Rania

*Hi Rania — we have some WINGS Pros available to help you out. Go to [FAASafety.gov/FAASTApp/directory](https://FAASafety.gov/FAASTApp/directory) and type "WINGSPro" in the keyword search to find someone near you. Also, check this out for more details about WINGS credit at [bit.ly/WINGSPPP](https://bit.ly/WINGSPPP).*

#### Getting to YES with NOTAMs

Your article [in the May/June 2020 issue] continues to advocate "always" calling Flight Service to confirm NOTAMs and other information. But FAA guidance and FSS plans have long noted the trend away from telephone briefings. In fact, several FAA sources note that telephone briefings are no

longer required to meet the preflight action, "all available information" requirement in the regulations. *Safety Briefing* should clear up the lingering confusion and conflicting advice.

— Bruce

*Thanks, Bruce. The FAA is aware of the inconsistency and is updating publications and website disclaimers and will release an Advisory Circular next year. 14 CFR §91.103, at [bit.ly/PreflightAction](https://bit.ly/PreflightAction), does not require a pilot to obtain a human-assisted briefing and does not state that Flight Service is the only official flight planning resource. Using automated resources, pilots can conduct a regulatory compliant preflight briefing without contacting Flight Service. Pilots who prefer to contact Flight Service are still encouraged to conduct a self-briefing prior to calling. Learn more at [1800wxbrief.com](https://1800wxbrief.com).*

**M** Here's some more feedback about NOTAMs from our new blog on Medium. Check it out at [Medium.com/FAA](https://Medium.com/FAA).

It is encouraging to see the FAA recognize that NOTAMs do not really support the "all available information" clause in FARs. Condensing the vast number of arcane abbreviations would help, as we have moved from the days of teletype. Access is not quite the problem that you describe, given the availability of NOTAMs on vendors' sites. The organization of and failure to prioritize NOTAM information remains a major deficiency for many GA pilots.

— Charles

*Let us hear from you! Send your comments, suggestions, and questions to [SafetyBriefing@faa.gov](mailto:SafetyBriefing@faa.gov). You can also reach us on Twitter @FAASafetyBrief or on Facebook at [facebook.com/FAA](https://facebook.com/FAA).*

*We may edit letters for style and/or length. Due to our publishing schedule, responses may not appear for several issues. While we do not print anonymous letters, we will withhold names or send personal replies upon request. If you have a concern with an immediate FAA operational issue, contact your local Flight Standards Office or air traffic facility.*



## OPPORTUNITY IN AMBIGUITY

*Ambiguity is something that I really respond to. I like the complexity of it.*

— Robert Redford

While actor Robert Redford might like ambiguity, it is generally not something that technically minded people enjoy. On the contrary, those drawn to aviation vocations or avocations strongly prefer the kind of “numbers don’t lie!” certainty that one of the lead characters in the “Hidden Figures” movie asserted. We take pride in basing our actions on data. The language of aviation is replete with the imagined certainty of binary go/no-go decisions.

After being immersed in aviation for over 25 years, I understand the appeal. As a liberal arts major, though, the alleged certainty of data often makes me squirm. The zeros and ones of binary code may seem solid. We focus so heavily now on risk management because we recognize that people, policies, and realities more often lie somewhere in the infinite number of fractions between zero and one. You can’t even permanently pinpoint which fraction, because circumstances shift continuously, whether minutely or by magnitudes.

### Fractions

The classic aviation scenario of the go/no-go decision illustrates the point. You get weather data. It can be “good” (VFR), “bad” (IFR), or somewhere in between (MVFR). That’s one level of ambiguity. The weather data becomes information when you put it in the context of a specific pilot, passenger(s), plane, and plan. Each of these elements has multiple facets, any of which can change in a heartbeat. So,

it’s never a one-and-done decision. As more recent training practices acknowledge, it’s really a continuous process of putting new data (e.g., updated weather) in the context of the pilot-passenger-plane-plan elements and using that information to evaluate and manage the resulting risk(s).

Here’s another level of ambiguity and complexity. People in general and pilots in particular take pride in being rational, and in making decisions based on facts. But what about those “gut feelings” we all sometimes experience?

One of my favorite books is Malcolm Gladwell’s *Blink*, which explores the reasoned underpinnings of so-called snap judgments and gut feelings. The core idea is that human beings take in a great deal more data than we can consciously, or “rationally,” process. Nevertheless, other parts of the brain do note, process, and catalog data that might eventually be served up in the form of eye-blink conclusions, or in a gnawing sense of unease. The book explains that we have to work to separate the signal from the noise in such cases. But the opportunity to manage the risk of this ambiguity starts with accepting that “all available information” includes

those “doesn’t look right” observations and “doesn’t feel right” instincts.

### Actions

Circling back to Mr. Redford’s affinity for ambiguity, I suspect he might love aviation. I also think we aviators have more in common with the improvisational stage than we realize. We might think we prefer to operate with a carefully memorized script, using that hard data to know exactly what’s going to happen as we move through each flight phase “scene” toward the grand finale of planned destination. But aviation is more like improvisational theatre: we are constantly challenged to adapt — to accept and incorporate new data into information that influences the next move.

Improvisational theatre works because it uses the scaffolding of its “yes, and” prime directive to safely manage the ambiguity and complexity of unscripted action. Risk management offers the same kind of scaffolding to aviators — enabling us to use it for growth and discovery, while keeping safe for many encore performances.

Susan K. Parson ([susan.parson@faa.gov](mailto:susan.parson@faa.gov)) is editor of *FAA Safety Briefing* and a Special Assistant in the FAA’s Flight Standards Service. She is a general aviation pilot and flight instructor.





## CHARLIE HAMILTON and JAY FLOWERS

### Aviation Safety Inspectors, FAA Safety Team

Good data is crucial to helping the FAA Safety Team (FAASafetyTeam) lower the aviation accident rate through training, outreach, and education. The FAASafetyTeam's Data Analysis Tool (FATDAT) plays a critical role in using data to promote safety to the highest standard. Behind that tool are two data-driven aviation safety inspectors: Charlie Hamilton and Jay Flowers.

In 1967, Charlie took his first flight lesson for \$5 in Bremerton, Washington. In college, he was instrumental in forming a sky-diving club. Eager to start flying, he took on flying helicopters for the Army, which included a combat tour flying HueyCobra gunships for the 101st Airborne Division in Vietnam. His decorations include two Distinguished Flying Crosses for heroism in aerial flight, the Bronze Star for meritorious service in a war zone, and 18 Air Medals for heroism.

Charlie then spent 35 years living and flying commercially in Alaska and for the Alaska Army National Guard where he developed and then managed the aviation, ground, and environmental safety programs and



Charlie Hamilton

the UH-1H and UH-60 standardization instructor pilot. His interest shifted to the FAA after earning numerous airman certificates and as a check airman for Trans Alaska Helicopters. Prior to retiring from the Guard in 2005, he joined the FAA at the Anchorage Flight Standards District Office (FSDO) in 1997.

With more than 11,000 flight hours under his belt, Charlie is now the FAASafetyTeam liaison to 18 FSDOs from Arizona to Puerto Rico. He is also the FATDAT founder and FAASafetyTeam helicopter liaison to the government/industry-led United States Helicopter Safety Team (USHST).

Jay, the FATDAT lead, was born into an aviation family in Bismarck, North Dakota. His parents were partial owners of a part 135 operation called Executive Air Taxi Corp., at the time a small company of 14 pilots who flew Cessna, Piper, and Beech aircraft. Jay flew for the company for 21 years as their check airman, chief pilot, and director of operations.

Jay also flew icing research for the University of North Dakota and air medical flights before joining the FAA at the Springfield FSDO in 2006.



Jay Flowers

With more than 10,000 flight hours logged, Jay moved up to headquarters where he is also the FAASafetyTeam lead for a flight instructor analysis tool and working to upgrade FAASafety.gov using an integrated artificial intelligence (AI) program. The AI will review accident and incident data to assist FAASafetyTeam program managers with localized risk assessments.

Data is reviewed across the FAASafetyTeam to see the big picture. In most cases, the issues or problems found are the same locally as they are nationally. Information pushed out does repeat, and that is because of what the data shows. Jay and Charlie both explained that repetition in training is what gives us the edge for better understanding and skill development. They add that it's why the WINGS program is designed to assist pilots in gaining proficiency, not currency. Together, Jay and Charlie live by the motto: A proficient pilot makes the skies safer for us all.

**Paul Cianciolo is an associate editor and the social media lead for *FAA Safety Briefing*. He is a U.S. Air Force veteran, and an auxiliary airman with Civil Air Patrol.**



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