Volume 5, Number 2 Spring 2012

WINGMAN

Airmen Taking Care Of Airmen

The United States Air Force Journal of Aviation, Ground, Space and Weapons Safety

Stellar Safety Program

A Wisp of Smoke

Orbital Safety – Operations in a Crowded Environment

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Front cover: Senior Airman Courtney Beard crawls through a mud pit at Victory Base Complex, Iraq. (U.S. Army photo by Spc. Kelly Morehouse)

GROUND

U.S. Air Force photo by Dennis Rogers

CONTRIBUTIONS & FEEDBACK—*Wingman* welcomes reader contributions, comments and constructive feedback. The editor may revise contributed material to improve clarity, while retaining the author's intended meaning.

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SPACE

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Background photo by Master Sgt. Efrain Gonzalez

Spring forward ...

MAJ. GEN. GREG FEEST
Air Force Chief of Safety and
Commander, Air Force Safety Center
Kirtland AFB, N.M.

We began the New Year by introducing the "Quest for Zero" initiative to eliminate preventable on-duty fatalities and I appreciate the work you've already done to support this effort. Be sure to read the Ground Safety Special Edition at www.wingmanmagazine.af.mil to find out how you can do more to help meet this very attainable goal.

Now it's time to adjust our mindset as we move into spring. Depending on your geographic location, you've probably already benefited from improved weather conditions and longer daylight hours. As you know, increased training and operations typically ramp up proportionately as those factors continue to improve.

While we roll up our sleeves to resume schedules unhampered by winter's perilous winds, snow and ice, it is imperative that every Airman remain aware that increased training and ops logically drive an increased risk of mishap.

This ***Wingman*** issue offers good insights to help us "spring forward" and prepare for a safe transition to a faster pace afforded by spring's typically favorable conditions.

Features in the aviation section include a reminder of risks posed by flocking birds, particularly those returning from the fall migration. Other topics include how to maintain a stellar safety program, the importance of recognizing side effects of medication, the difficult decision to call "safety of flight," the ultimate value of chair flying and a great perspective from a single-seat fighter pilot who discovered the relevance of crew duties. Other articles address the training scheduler's role in monitoring instructor proficiency and student fatigue, as well as the team effort required for solid operational risk management.

More springtime hazards are found in the ground section. Try to guess the "Top 5" before you read the message from the Air Force chief of ground safety. Spring also introduces tornado season, making the article about tornado warning signs and survivor tips very timely. The founder of a successful military motorcycle club provides helpful information about starting a club and the benefits of participating in an existing one. "Snapshot on Safety" rounds out the section with details of more mishaps that highlight the hard lessons learned from those who disregarded basic safety practices.

The space section offers a good description of what it takes to command and control more than 60 satellites orbiting among thousands of tracked space objects.

Lastly, we congratulate some of our top performers for their outstanding achievements. Though only a few are recognized in ***Wingman***, I know every one of you prove your value to the team, day in and day out, and you continue to amaze me with your professionalism and unwavering dedication to the support of our mission. Thank you!

Continue to be good wingmen to your fellow Airmen, your family and yourself. And always remember, Safety is NO accident! ★★

Background illustration by Keith A. Wright
U.S. Air Force photo by Dennis Spotts

Stellar Safety Program

MAJ. CHRISTOPHER J. MILLER
30th Reconnaissance Squadron
Creech AFB, Nev.

Congratulations! Your wing just finished a fiscal year with no Class A's or B's, and you've reduced your Class C's by 79 percent. It sounds like your safety program is top-notch. Now what?

Having a nearly incident-free mishap rate is the dream of every wing or squadron safety office. So once you get there, how do you make sure it wasn't just luck and that your next accident isn't just around the corner?

There are many things to consider when evaluating your wing's program, other than the raw numbers of flying hours or incidents. These can be hard to capture but still can be very important when finding ways to improve what is already a stellar safety program.

Troops in contact: This may seem obvious but can still be overlooked when a squadron takes its turn in the AOR. After taking into account the new airfield environment, local operating instructions, special instructions, rules of engagement and search and rescue procedures among many others, the temptation to rush things or take more risks is always present when defending troops on the ground or taking out a high-value target. If your squadron is due to rotate in the coming year, start lead turning the importance of accurate, deliberate checklist procedures, especially when you hear gunshots in the background of the joint tactical air controller's radio calls.

The next big thing: If in a test squadron, are you expecting to test the "next big thing" next year? Testing new aircraft, weapons or capabilities is exciting, but be wary of the possible political, public relations and contractor pressures that may go with it. It may be appropriate to remind eager operators that the only thing worse than being behind timeline due to cancelled sorties is to be behind timeline due to an avoidable and costly accident.

U.S. Air Force photo by Lance Cheung

Squadron cannibalization: Are you going to lose some of your senior fliers to a new squadron? In the remotely piloted aircraft community, where the growth rate is only increasing, two or three new squadrons are stood up every year. This means that an active-duty squadron may lose several senior crewmembers to help stand up the new squadron. The RPA Weapons School was recently created and instructors were taken from several squadrons. When added together, these missing senior crewmembers can take valuable mentorship from a younger squadron. Remaining squadron members should sharpen their focus on day-to-day operations.

Culture: This is one factor that is the most discussed, but the least definable. How do you measure a squadron's safety culture? The only way to get a feel for culture is to get out from behind your desk at wing headquarters and spend time in the squadrons. (Time spent during inspections doesn't count.) Listen to what folks are saying. Are you hearing a lot of people talking about having to "make it (the sortie) happen"? Or what about, "We'll debrief tomorrow," or, "We'll green you up after the brief." These can all mean that pre- and post-flight safety discipline is starting to slip – and may be your first indicator that in-flight discipline may be slipping, too.

Recent ops or maintenance cancellations: What about a low cancellation rate? This is another goal of every flying squadron, but is it always a good thing? Flight safety officers should look out for internal or external pressures to keep planes flying and keep sortie rates up, even when a cancellation may be justified. Talking with maintenance supervisors and officers can give you another perspective on how flight safety is being addressed. Maintenance squadrons are also under many of the same low-manning, high-ops tempo pressures as flying squadrons, and rated safety officers should take their maintenance brethren's situation into consideration.

This is by no means an exhaustive list of things to look for, but it may help give wing- and squadron-level safety officers some ideas about how to be proactive in preventing future accidents, especially if things seem to be going very well. Finding ways to stay ahead of the next avoidable mishap can be more difficult for successful programs. What's true for the stock market is true for safety: Past performance isn't necessarily an indicator of future success. These are some ways you can make sure last year's success isn't the first link in the next accident chain.

U.S. Air Force photo by Tech. Sgt. Richard Lisum

Drugs and Your Job

CAPT. JESSICA C. DENZER
19th Airlift Wing
Little Rock AFB, Ark.

This story is about medications commonly used in the AOR. Every flier is familiar with the short list of medications permitted for use without consulting a doctor, such as acetaminophen and topical antiseptic. Fliers are very conscious of the drugs they use and even ground test prescription drugs before using them while flying. Both go pills and no-go pills are common medications for fliers in the AOR.

Like everyone in the flying community, I was given zolpidem to try before my first deployment. I popped a full pill and followed the directions explicitly, including going straight to bed. I didn't know if it helped me fall asleep, but I felt nauseous the next morning. Twelve hours after taking the pill, I still didn't feel quite right, but it wasn't too bad. I thought the dosage might have been a bit much since I'm not very big. Half a pill seemed a better idea. However, I also tested zaleplon, which seemed a better match, so I used zaleplon on that deployment and didn't think twice about zolpidem.

Between that deployment and my next, I got married and had a few kids. Zaleplon wasn't available this time around, and I couldn't take temazepam, due to adverse reactions. As I had already tested zolpidem and thought I knew what dose worked best for me, I didn't think twice when I was handed the pills.

The first time I took zolpidem on the deployment was due to a 12-hour schedule change. I had only half a pill and took it about 14 hours prior to alert. The second time was under similar circumstances.

U.S. Air Force photo by Tech Sgt. Jocelyn L. Rich

U.S. Air Force photo

U.S. Air Force photo by Keith A. Wright

After that second time, I realized it was affecting me. It was a night flight, and I was having visual illusions. My impression was that we were turning when we weren't and were going straight when we were turning. I was also having a difficult time focusing and keeping my cross-check where I needed it to be.

These distorted perceptions are a milder version of the zolpidem's typical side effects of drowsiness and dizziness. The lack of focus can be attributed to sleepiness, caused by high sensitivity to the drug, despite it having been my normal awake time. Visual illusions and vestibular effects, including inability to determine a position that one would normally sense, is clearly related to the drug's proclivity to produce dizziness.

My crewmembers noticed I wasn't behaving normally and asked if I was OK. Their quickness to recognize the situation and bring it to my attention enabled us to alter our pattern and prevent serious complications. I ended up having my co-pilot fly, and we completed an otherwise uneventful mission.

Some common symptoms associated with zolpidem usage are drowsiness and dizziness. There are also cases of sleepwalking and memory loss. My side effects were much milder, but, for that reason, I would categorize them as insidious. If I hadn't been paying attention, I might have mistaken my lack of focus and visual illusions for simply being tired – a possible side effect masked by the schedule change – rather than an adverse drug reaction.

It's important to know that drug effects are not always big, noticeable billboards that shout at you that something is wrong. Whether you're a flier, a maintainer or in any other career field, what you put into your body can affect your work and cause you to perform poorly. Make sure you pay attention to the side effects and have others monitor you, as well. It could save your life, or someone else's.

U.S. Air Force photo by Tech Sgt. Jocelyn L. Rich

Background photo by Osakabe Yasuo

Breaking the Error Chain is Never Wrong

ANONYMOUS

Fatigue is inevitable in the aviation community. Every crewmember can probably cite at least one example. We don't perform at our best when we're tired. We try to mitigate fatigue but know flying isn't a good idea when all mitigation measures fail. So what happens when someone says you're not allowed to call "safety of flight"?

There I was – an aircraft commander for six months and starting to gain some confidence. At four weeks into Operation Iraqi Freedom, my hard-working crew had flown two weeks without downtime. We flew, landed and were back at it 12 hours later.

On one particular day, I could tell we were dragging from the start, and we talked about our fatigue level. Everyone said they'd crashed during the 12 hours of crew rest, taking only enough time to eat and shower. We took off uneventfully and flew a combat mission. As we headed back, we started the checklist and were soon on the ground. But wait. Did we finish the checklist? Did we get clearance to land? What just happened?

We evidently finished the checklist because all the switches were in the right position, and the tower verified that we had clearance to land. However, none of us could remember, although the process occurred just five to 10 minutes earlier. I knew then that we'd been lucky, but we were headed down a bad road. We discussed it later and concluded that we were probably micro sleeping on final.

U.S. Air Force graphic by Keith A. Wright

Despite our best efforts to be responsible and get sleep, we needed to do something more. We collectively decided that 16 hours off, instead of the normal 12, would be enough. After all, we were at war. A day off would be unreasonable.

I went to the ops desk, described our activities over the last week and what happened the day before and requested 16 hours. When he said no, I explained again, in more detail, why we needed four more hours. I was flabbergasted when, again, the answer was, "No." I told him that if we got alerted in 12 hours – and we were as tired as we were that day – I would call "safety of flight." He responded, "That's not allowed." I then asked to see someone in his chain of command and was told to stand by as he went behind closed doors. Sometime later, he returned and said we would be legal in 16 hours. It wasn't easy, but we had successfully broken the error chain and probably prevented a mishap.

Several years later, a crew in my squadron ran into a similar situation. That crew was alerted at home station in the late afternoon as an augmented crew for what was supposed to be a quick flight to pick up cargo then a longer flight across the ocean. At crew show, the crewmembers said they had tried to sleep in but had difficulty, which is fairly normal for a late evening alert. They thought they could figure out a good work-rest plan to continue the mission as planned and were confident they'd all get enough sleep.

As the day progressed, they ran into several maintenance issues. The problems kept arising until they'd pounded the ramp long enough to reassess their fatigue levels and realized they were in the severe range. They called the controlling agency and were told that putting the crew to bed was best. The crew had no idea what was about to transpire.

What seemed to be the right crew decision to stop short of its intended destination due to fatigue turned into a bigger issue. Upon completion of that mission, the crewmembers were questioned about their "irresponsible" behavior. The entire squadron was briefed on that crew's decision, and leadership presented it as an example of what not to do.

The crew felt on that particular day, and in that set of circumstances, they made the right call. They likely broke the error chain.

As a senior ranking member in my squadron, I voiced my concerns to leadership about their approach. I remembered what it was like as a young aircraft commander to tell someone that the crew was fatigued and being told there would be no change. I wasn't successful in communicating this to leadership. Leadership sometimes doesn't see the situation the same way that the person making the decision sees it.

I present these two situations for a couple of reasons. First, if you are the young aircraft commander out there, make the right decision. Don't be afraid to say that you're too fatigued and unsafe to proceed. Second, as a leader, it's important to listen to your crews. Are they really irresponsible? Is their decision really a bad one?

Every crew has a different dynamic and sometimes the error chain is broken. Sometimes, it isn't. A crew who breaks the chain is never wrong in breaking the chain. There may be lessons learned, but they are alive to learn them.

"Safety of flight"?

U.S. Air Force photo by Master Sgt. Lee Hoover

Roll Your R's to ATC!

CAPT. BENJAMIN LINDSAY
77th Fighter Squadron
Shaw AFB, S.C.

So, there I was … in a not-so-routine sortie with a requirement that few aviators enjoy – a projected 10.5-hour pond crossing in a cramped F-16CJ. Of the hundreds of potential malfunctions of a single-engine, single-seat fighter, few require a "land as soon as possible" end result. That was the last thing on my mind after 10.1 hours of flight with numb legs and neck cramps.

What was on my mind at the time of the emergency procedure (EP) was trying to figure out what the Italian controller just said. Accent discrimination was not my forte as I scrambled to find a fix that sounded somewhat similar to the verbal garbage that my ear-brain disconnect was trying to re-assemble. With maps of an unfamiliar country's airspace in hand and only a half-hour remaining, a sense of finality almost took over as I (No. 6 in the formation) was somewhat content to follow lead into Aviano AB, Italy. As soon as I folded the map and looked out at Mount Etna, an engine lube warning light promptly spoiled any chance of an uneventful recovery.

An engine lube warning light indicates the engine is running out of oil and the aircraft needs to be immediately put on any patch of concrete. Oil loss will inevitably result in engine seizure, at which point the aircraft would be a multi-million dollar multi-role glider.

Where do I divert? Do I jettison my tanks with all my gear and aircraft forms into the Mediterranean? I know nothing about Italy except for the red circles on my map indicating desired divert bases. New avionics upgrades include an emergency divert page which immediately increased my situational awareness, as well as my element lead saying, "Turn right and go to Grosseto!"

Easily visible was a strip of more than 8,000 feet that was soon within gliding distance. It was, indeed,

U.S. Air Force photo by Capt. Shannon Collins

Grosseto. With the throttle at idle and low key in the bag, I descended and attempted to get as much airfield info from my element lead as possible. I needed field elevation, tower frequency, cable locations, winds and ground support. Before I could utter those requests, No. 5 responded with all the info I needed to make a safe simulated flameout and landing. However, things got a little more complicated during the SFO. Communication broke down as I tried to comprehend the Italian-English tower controller. I thought about rolling my r's and enunciating with inflections based on memories of an aged pizza shop owner I knew. No luck … just put it on the deck and use hand signals, I thought.

Approaching base key, the oil pressure dropped below Dash 1 limits and was decreasing slowly. To maintain hydraulics to land the aircraft in case of engine seizure, I activated my emergency power unit. Knowing that Grosseto has Eurofighters and would be familiar with hydrazine, my comfort level would've been increased except that I still couldn't understand the controllers. Thankfully my No. 5 was a Dutch exchange officer who helped to conclude this EP with a safe touchdown beyond raised cables.

After landing with wind direction details, due to hydrazine considerations, I pulled the jet on an adjacent taxiway to allow my element lead to land and the emergency response agencies to take care of me. Italian crash response units were very helpful in every regard, but I had to use a combination of Spanish and hand signals to communicate my intentions.

Spending the night on an inflated G-suit in a 1960's Cold-War-era hardened aircraft shelter at a little-known airfield, I was able to reflect on the day's events. What if that same EP happened 250 nautical miles from Lajes Field, Portugal? I started thinking about the ejection sequence and recovery procedures. What if the engine had seized? Would I have jettisoned my tanks and later had an interesting conversation with the ops group commander? I mulled over these and many more considerations with one thing in mind – mutual support is one of the most important mechanisms a fighter pilot has to combat adversity when things get ugly.

It's one thing to think about how I would handle the situation, but how would I help another flightmate in a similar situation? Reverse-engineering the problem with myself as the support asset, I spent time performing the oldest flight preparation technique in the book and one that I use in preparation for each flight to this day – chair flying. Perhaps I should have chairflown my Italian prior to launch.

U.S. Air Force graphic by Keith A. Wright

Single-Seat Crew Duties:

CAPT. BRIAN BURGOON
25th Fighter Squadron
Osan AB, Korea

If you read any Dash 1 flight manual on how to fly a single-seat fighter, you'll inevitably come to Section IV, *Crew Duties*. Fighter pilots pride ourselves on independence and even joke about the contents of this section at roll calls. The usual banter starts when the "Mayor" calls for a reading from Dash 1. A young lieutenant turns to Section IV and reads "Crew Duties," followed by the crowd responding in unison, "Not applicable!"

The truth is, the formation you fly with acts as one big crew. When your crew is on the same page, you're able to complete tasks in a condensed period of time and without sacrificing safety.

Last spring, I experienced an engine fire shortly after takeoff. The fire was inextinguishable. The pilots I flew with in the four-ship formation of A-10s acted as a single, well-orchestrated symphony to assist me in recovering the aircraft.

I was No. 4 in a four-ship upgrade sortie just south of the Korean Demilitarized Zone. The weather was average for the Korean spring with four to five miles of haze and a mid-level broken-to-overcast layer. We took off from Osan AB and performed a boresight on our Maverick missiles. Upon reaching 5,500 feet altitude, I went heads down to perform my checks. I finished my checks 10 miles out from Osan, and that's when I got the first indication of a problem. I instantly lost right-side hydraulic pressure and got a hydraulic reservoir warning light indicating the level of fluid was low.

I also had a bleed air leak light, indicating extremely hot air entering the fuselage and possible fire. I did what we all do when faced with an emergency and thought, "Oh crap, why me?" Then, my training kicked in, and I informed the rest of the formation of my aircraft malfunctions. We were 15 miles from Osan, and I requested to turn back and have No. 3 rejoin to the chase position. The flight lead cleared me off, and I started a 180-degree turn back to Osan.

As I began the turn, my right engine started to lose oil pressure. I asked No. 3 to move into chase position and look over my right engine because I was about to shut it down. As No. 3 moved into position, he informed me the right engine was on fire. At the same time I got that alarming call over the radio, I noticed my right fire handle was illuminated. I executed the bold face procedure to extinguish the engine fire and discharged one of the two A-10C fire bottles. Normally, that would extinguish the fire and the pilot would be able to recover the aircraft to the nearest suitable airfield on the remaining good engine. Unfortunately, the one fire bottle didn't extinguish the flames.

Graph with Checkbox – Applicable and Necessary

U.S. Air Force photo by Staff Sgt. Chad Thompson

No. 3 was flying a few hundred feet behind and said he saw the fire go out while the fire agent was spraying, but then the flames kicked up again. I then quickly used the second fire bottle. It had the same result. I was now out of extinguishing agent and had to focus on getting the plane on the deck before the fire spread to other parts of the aircraft.

All this took place within six to nine minutes. Little did I know that my "not applicable" single-seat crew was taking care of all of the coordination with external agencies I was too busy to handle myself.

No. 1 and 2 in the formation informed the supervisor of flying of my early return and emphasized the nature of the emergency and the need to get the fire trucks rolling immediately. No. 3 coordinated with approach control. He informed them I had an emergency and was on a 10-mile base for an opposite-direction approach and landing. As they handled the coordination, I performed all checklist items for a single-engine landing. I mentally prepared myself to emergency ground egress as fast as possible after landing and stopping the aircraft. My effective crew took about two minutes to collaborate with the personnel on the ground and coordinate the emergency landing. After the planning was complete, I switched to tower frequency and informed them my aircraft was still on fire and I was on a five-mile final for an opposite-direction landing.

The tower immediately cleared me to land. I reviewed my emergency landing data as I configured to land. With no hydraulic pressure in the right system, my speed brakes were unavailable, and I knew this would result in a longer landing distance. My right engine was still on fire as I approached the runway overrun. I focused on the landing and held the jet off the runway as long as I could to get to the slowest possible landing speed.

I lowered the nose to the runway and tapped the brakes to ensure they were working normally. I noticed the left side of the aircraft sink slightly, and, upon visual inspection, the left main tire had blown and was shooting sparks down the runway. I engaged my nose wheel steering to help keep the aircraft on the runway centerline. With the added drag of the blown tire, the aircraft came to a stop fairly quickly. My left main landing gear was now on fire, and my right engine was still burning unabated. It certainly was time to shut down the remaining engine, get out of the jet and let the firefighters go to work.

Thanks to No. 1 and 2, the fire trucks were immediately at my jet as it came to a stop. As I egressed the aircraft, the firefighters battled both fires for the next 15 minutes before finally extinguishing them.

Luckily, there were no injuries and the jet was eventually repaired. It was my crew's actions that kept me safe. We can all handle challenges in our single-seat fighters, but when time is at a premium, the thing that can keep us all safe is the delegation of duties, teamwork and solid crew resource management like that displayed by my four ship.

Photo courtesy of author

Background photo by Staff Sgt. Samuel Morse

The Best $5 I've Ever Lost

MAJ. JAMES BARLOW
57th Wing
Nellis AFB, Nev.

It was an ideal Friday afternoon sortie, leading an instructor pilot-only continuation training four-ship formation to the bombing range in the A-10. The bet was standard at a quarter a bomb and a nickel a bullet.

We cruised out to the range at 100 feet above ground level. I checked onto range to begin our bombing and strafing. After my safe escape while climbing up for the second 45-degree high-altitude dive bomb, I noticed the jet was climbing slower than usual. I confirmed my speed brakes were in and checked the status of my engines. Both engines were well within the green arc on all parameters although No. 2's fan speed was 7 percent lower than No. 1's. I cycled the throttles to see where the engines settled in. Both engines were almost exactly parallel at all power settings, except at military power where the No. 2 fan speed was again low by 7 percent. With the engines both well within limits, I continued the mission and dropped my second 45- and two 30-degree dive bombs.

Next came my first 10-degree climb, and the No. 2 engine got my attention again. We were again at 100 feet, running in to pop up to 1,800 feet to execute a low-angle, high-drag delivery, but the jet just wasn't getting uphill like normal. I aborted my first pop and called "knock it off." I established an altitude stack and brought No. 2 into the high pattern while 3 and 4 continued to work low altitude.

There were no checklists or operations limits that applied to an engine when the only abnormal indication was 7 percent below No. 1 at military power setting on an engine where it's common to have needles that aren't parallel. I decided to bring the jet home and queried No. 2 for inputs. We agreed to maintain element integrity and returned to Davis-Monthan AFB, Ariz., at medium altitude.

While en route, I reviewed all the Dash 1 checklists and in-flight guide pages that I would've reviewed if

U.S. Air Force graphic by Keith A. Wright
Photo courtesy of author

I'd actually experienced an engine failure. I also applied fighter resource management with No. 2 and asked if he could think of anything I might have missed. An experienced pilot flying as a wingman may have a bigger picture since he or she is removed from the emergency aircraft. In this case, No. 2 couldn't find anything missing, so we notified the supervisor of flying and I landed uneventfully via precautionary single-engine landing procedures.

After landing and engine shutdown, I had an engine specialist meet me at the jet to inspect the engine. I knew I'd made the right call when he told the production super, "Come look at this." As soon as it was my turn to climb up the ladder and look in the back of the engine, I was surprised to see the tip of every blade in the low-pressure turbine section was gone.

The extent of the damage resulted in a Class B mishap, but the investigation concluded the engine would have experienced a catastrophic failure if I'd continued the flight. Of course, I still had to pay for losing the bombing and gun events that I didn't accomplish due to recovering the jet early. However, I was able to save the Air Force and the A-10 community an engine that would live to fly and fight another day.

The takeaway is that the jets are getting old and not every emergency will be neatly spelled out in the checklist. The jets will talk to you, but sometimes it's only a whisper.

It was the best $5 I've ever lost.

U.S. Air Force graphic by Keith A. Wright

RISK MANAGEMENT IS A TEAM EFFORT

CAPT. TOM BEIER
23rd Flying Training Squadron
Fort Rucker, Ala.

I realized after instructor pilot training that I could be a crucial player in operational risk management (ORM) for undergraduate pilot training flying operations. I learned that ORM starts long before the mission brief and, as a scheduler, I could have a direct impact on instructor proficiency and fatigue. Knowing how to manage the squadron's instructors' schedules increases proficiency, and keeping everyone's circadian rhythm constant is good for their health and ability to learn or teach.

We need to pay attention to proficiency when scheduling instructor pilots against student sorties and executing flying schedules. For instance, scheduling an instructor, with the minimum required number of night vision goggle hours and who hasn't flown NVGs in 43 days, to fly with a student on his first NVG flight isn't the best risk management technique. It's also the responsibility of instructors to bring their lack of proficiency to the attention of the schedulers or operations superintendents because ORM is a team effort. It requires input from multiple sources to ensure we make the best decision to accomplish the mission while accepting the minimum amount of risk.

Fatigue is something we all struggle with and need to be able to quickly recognize in ourselves and our students. Fatigue for instructors can significantly impact the quality of their instruction and have dramatic consequences for students and instructors, alike.

The first time I remember a student suffering from fatigue was on an NVG sortie. It was my student's fifth consecutive night flight and the second half of a double on a Friday at 12:45 a.m. The last event was a navigation divert. It quickly became clear that fatigue had set in fast and hit my student like a ton of bricks. Therefore, I performed an instructor pilot demo of a landing zone reconnaissance, flew home and the sortie was incomplete.

My student had the will to keep going but had lost the ability to receive instruction. Knowing your limits is

U.S. Air Force photo by Staff Sgt. Jacob Bragg

crucial, but it's also important to be able to recognize and react to the limits of your crew. Because ORM is a shared responsibility, we should all recognize if we or someone else is pushing too hard and need to throttle back. Taking sorties off the schedule is never an easy choice, especially if you're a flight commander whose class is nearing graduation. But weighing risk versus reward is what risk management is all about. In this case it wasn't just safety of flight but the ability of the student to learn and receive quality training.

There are many facets to risk management, and I'd classify those addressed here as latent factors, or factors that can exist or propagate prior to the sortie. I addressed latent factors because risk mitigation starts long before the brief, not something we just put on a sheet of paper prior to stepping to the aircraft. Rather, it's a shared responsibility between leadership and those executing the mission.

It takes a team effort to prevent a mishap, and the hardest part is seeing the direct correlation between your risk management efforts and a reduction in mishaps. Because we can't control all risk factors, it's important to take seriously those that we can control. Risk management should be looked at from the top down long before there's an opportunity for a crew to make a bad decision or an aircraft part to fail.

Background photo by Staff Sgt. Joshua Strang

The Aviation Well Done Award

... presented for outstanding airmanship and professional performance during a hazardous situation and for a significant contribution to the Air Force Mishap Prevention Program

Maj. Thomas Nelson

The Aviation Safety Well Done Award is presented to Maj. Thomas Nelson and Capt. Timothy Symons, 494th Fighter Squadron, Royal Air Force Lakenheath, England, for their outstanding airmanship and discipline on Jan. 11, 2011, while flying an F-15E training mission. Shortly after takeoff at 40 feet above ground level, the aircraft began an uncommanded roll to the right which Nelson immediately countered to prevent the aircraft from impacting the ground. The crew declared an emergency and continued to climb to a safe altitude in the vicinity of RAF Lakenheath. Nelson relayed navigation intentions, and Symons ensured all checklists were accomplished. The crew adjusted gross weight and performed a controllability check, however, was unable to prevent the aircraft from rolling. During this time, the crew experienced a subsequent aircraft malfunction when the left main landing gear indicated unsafe. The crew ran the landing gear malfunction checklist and received a visual inspection of landing gear. The crew completed checklists with coordination from the supervisor of flying and attempted a normal landing. While commencing the approach, the crew made the critical decision to go around due to poor aircraft handling qualities, cross control inputs and low ceilings. The crew was able to coordinate for vectors to short final and made a flawless landing. Nelson's and Symons' timely recognition of an emergency situation, quick reaction and smooth crew coordination directly contributed to the safe recovery of a multi-million dollar weapons system. Nelson's and Symons' exceptional performance and commitment to safety reflect great credit upon themselves, U.S. Air Forces in Europe and the U.S. Air Force.

Capt. Timothy Symons

U.S. Air Force photos

Maj. David N. Unruh

Majs. David N. Unruh and Alaric T. Michaelis, 173rd Fighter Wing, Kingsley Field, Klamath Falls, Ore., are awarded the Aviation Safety Well Done Award in recognition of exceptional actions on Jan. 21, 2011. Unruh and Michaelis were flying an F-15D when the aircraft experienced a primary system hydraulic failure. They determined that the best course of action was to reduce gross weight by dumping fuel and returning to base. A fuel valve failure caused the fuel to continue dumping after the programmed stop point. Unruh used excellent crew coordination to determine that he should fly as fast as possible due to losing fuel at more than 1,000 pounds per minute. He quickly calculated that he had eight minutes to base and 10 minutes of fuel remaining. He and the backseat pilot continued to run checklists in the loud, unpressurized cockpit. Unruh expertly found a break in the clouds and remained clear of the clouds as he started his descent to the airport at 600 knots, 300 knots faster than normal. He flew a flawless approach and executed a perfect landing. Upon rollout, Unruh and Michaelis noted that they were still leaking fuel. They performed an emergency ground egress just as the fire trucks were arriving. Their superb airmanship prevented the loss of a $40 million aircraft and the potential injury to two Air Force aviators. Unruh's and Michaelis' exceptional performance and commitment to safety reflect great credit upon themselves, the Air National Guard and the U.S. Air Force.

Maj. Alaric T. Michaelis

BASH Spring Migration

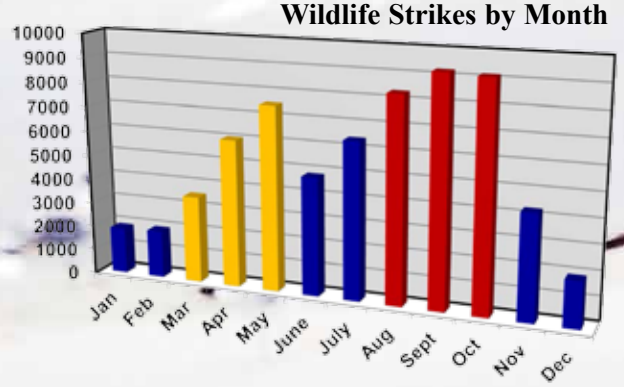
2ND LT. TIFFANY ROBERTSON
Aviation Safety Division
Air Force Safety Center
Kirtland AFB, N.M.

Love is in the air this spring, and so are the birds! Birds migrate north from March through May, bringing a temporary increase in wildlife hazards to many airfields. Birds nest from May through July to raise their young, and then fly south for the winter from August through October.

Strike numbers are higher in the fall than in the spring due to reproduction in the summer months and aging in the winter months. While climate change may shift the migratory periods slightly, fall and spring migration have consistently shown increased strike numbers and therefore increased risk to Airmen and resources.

Wildlife surveys are a fantastic tool to help track bird species that use the airfield during each season and provide documentation to justify the need for harassment and depredation permits. Survey data also help wing leadership to evaluate the effectiveness of its Bird/Wildlife Aircraft Safety Hazard (BASH) program and target resources appropriately. Surveys should consist of three-minute point counts at each airfield survey location and should be done at least four times per week at various times of day (dawn, late morning, early afternoon and dusk) with no more than two surveys each day. Include location, species, number and behavior of wildlife at each survey location. For sample bird survey forms, click: https://www.my.af.mil/gcss-af/USAF/ep/contentView.do?contentType=EDITORIAL&contentId=c5FDEA9F0240B216101254BE781B92D5C&channelPageId=s6925EC1334F60FB5E044080020E329A9&programId=t6925EC31E6430FB5E044080020E329A9.

Wildlife Strikes by Month



While resident birds can be resistant to harassment techniques and may return after multiple harassment and depredation operations, migratory birds historically respond well to harassment and simply continue their migration route.

Ensure all harassment tools are in place and ready to use for the migratory season. Airfields are attractive to migratory birds for three primary reasons: food, water and cover. Food may include grass that is allowed to go to seed, insects or even smaller birds and rodents. Water will pond on poorly graded airfield surfaces after rain or will remain in clogged drainage ditches for extended periods of time. It's imperative that airfield surfaces are maintained to drain effectively and that drainage ditches are constructed and cleared to allow water to flow and evaporate quickly.

U.S. Navy photo by Petty Officer 2nd Class Jonathen E. Davis

Water on or near the airfield invites many forms of wildlife but is especially attractive to geese and other large waterfowl that are particularly hazardous. Canada Geese, American White Pelicans, Mallards, Lesser Scaup and Ring-billed Gulls are all on the Air Force's top 10 most-costly BASH species list. Cover can be provided by tall grass, shrubs or trees on or near the airfield. Taller grass, shrubs or trees adjacent to properly maintained airfield grass can also create an edge effect between the two habitat types. Edge habitat is very attractive to many species because the higher vegetation provides quick access to cover, food and nesting locations and should be kept as far away from aircraft movement areas as possible.

Spring migration increases the number of wildlife strikes and subsequently the amount of wildlife remains that need to be collected. As always, wear gloves when collecting wildlife material. Blot blood or tissue with alcohol (ethanol is preferred, but isopropyl is also acceptable) and allow to dry before shipping. Use safety goggles and a surgical mask if splashing is anticipated. If feathers are present, include a reasonable amount in a re-sealable plastic bag with the largest variety of feathers possible (breast, back, wing and tail) and make sure to pluck the feathers instead of cutting to preserve the DNA and feather structure. Wash hands thoroughly with soap and water after cleaning wildlife remains and before eating, smoking or touching the facial area. After the BASH page is completed in the Air Force Safety Automated System (AFSAS), a shipping sheet will be provided to send with the wildlife remains to the Smithsonian. Always include the shipping sheet, or at a minimum, the AFSAS number, date, accounting organization and contact information.

If shipping wildlife remains from overseas, use extra caution to avoid the transmission of avian influenza. The United States Department of Agriculture-approved treatment methods for shipping wildlife remains from overseas include: 1) Immerse in 70 percent alcohol and allow to dry; 2) Heat to 130 degrees Fahrenheit for at least 30 minutes; 3) Immerse in phenol and allow to dry or 4) Immerse in 10 percent formalin and allow to dry. The first option is the easiest and most commonly used. Make sure to include a Certificate of Origin, Certificate of Treatment and USDA Animal and Plant Health Inspection Service permit in each shipment and label as "Safety Investigation Material." All wildlife remains collection, treatment and shipping instructions and documents can also be found on the BASH portal page.

Preparation for migratory season is critical. Ensure that airfield wildlife surveys are completed; your unit is prepared to harass and depredate as needed; food, water and cover airfield attractants are minimized and strike cleanup is done correctly. May each spring be safer than the last.

For additional information, visit the BASH website at: http://www.afsc.af.mil/organizations/bash/index.asp.

Enjoy Spring Mishap Free

BILL "TOP" PARSONS
Air Force Chief of Ground Safety
Air Force Safety Center
Kirtland AFB, N.M.

Though winter is in full swing in many parts of the country, it's time to begin thinking about the approach of spring. While motorcycle safety is a big concern at this time of year, other unsafe behaviors are a high priority, too. The top five springtime mishaps include: car and motorcycle accidents; slips, trips and falls; basketball mishaps; back injuries and hand and finger injuries.

You may be surprised to note that April is the most dangerous month for motorcycle fatalities. According to analysis of mishaps recorded in the Air Force Safety Automated System (AFSAS), Airmen in their mid-20s who ride a sport bike are most likely to speed, violate traffic laws, have less experience and possibly put themselves and others at risk for a fatal accident. All riders should monitor the condition of their bikes, ride within their skill levels and be alert to dangers. Drivers of four-wheeled vehicles should be extra alert in watching for motorcycles as the weather warms. Most of our fine Airmen follow the rules of the road and exercise good risk management. But, sometimes that's not enough – you need to watch out for the other guy, too.

We're fortunate that our members share stories and facts with you, their peers. That can have a very positive impact. We hope that by reading the experiences shared in this issue of ***Wingman***, you'll learn from the mistakes as well as the good decisions of others and save yourself from mishaps.

In reaching for our goal of zero preventable mishaps, I urge you to keep safety foremost in your mind as you enjoy the many activities of spring. Thank you for your service and your commitment to your families and the Air Force.

Background photo by Airman 1st Class Anthony Sanchelli

Spring is Tornado Season

2ND LT. CHRISTOPHER GERHARDSTEIN
36th Electronic Warfare Squadron
Eglin AFB, Fla.

Tornadoes, also known as twisters or cyclones, can be very violent and dangerous weather occurrences. A tornado is a particularly dangerous weather event because it can occur anywhere in the country, and they've been observed on every continent in the world except Antarctica. The most deadly tornado recorded is credited with taking 695 lives.

Tornado rating scales
Many systems are used to describe the power of a tornado. The most popular is the Enhanced Fujita Scale. This scale rates the strength and power of a tornado on a scale from 0 to 5. A category-0 tornado is the weakest, being just powerful enough to uproot trees. This category isn't strong enough to destroy a rooted structure. A category-5 tornado is the strongest and has the ability to damage even the most stable structures by ripping them off of their foundations.

Signs of a tornado
The best method of being alerted to a tornado is through a public announcement or emergency system. The invention of modern weather radar has given public officials the ability to see the initial signs of the formation of a tornado. Several key characteristics that serve as good alerts are severe hail, heavy rain, flooding and rapidly changing wind speed or direction.

What to do if a tornado warning is issued
There are many preventive measures that can increase your safety in the event of a tornado. There should be a tornado plan for locations you frequent, including your home and office. The probability of surviving a tornado greatly increases for even the most powerful tornadoes if you take shelter inside a basement or the interior of a first-floor room, away from windows or glass.

Using a highway underpass is not advised and can be an extremely dangerous decision. The cover of a highway underpass is NOT a safe place to stop in the event of a tornado.

ORIGINAL FUJITA SCALE		ENHANCED FUJITA SCALE	
F5	261-318 mph	EF5	+200 mph
F4	207-260 mph	EF4	166-200 mph
F3	158-206 mph	EF3	136-165 mph
F2	113-157 mph	EF2	111-135 mph
F1	73-112 mph	EF1	86-110 mph
F0	<73 mph	EF0	65-85 mph

Background photo by Lt. j.g. Ryan Sullivan

A Wisp of Smoke

LT. COL. STEVEN A. POMEROY
U.S. Air Force Academy
Colorado Springs, Colo.

My family and I have accumulated hundreds of thousands of miles of driving the poorly maintained and desolate country roads of Wyoming, Montana and Saskatchewan, among others. Last summer, we prepared for our annual 1,400-mile drive to Canada. We casually ran through our standard preparations and planning with the quiet confidence of any smart operator.

We used our venerable pickup truck. We would've rather used our automobile with its satellite phone system, but we wanted the truck's cargo space. There were cell phone dead zones on our route, but we understood this as a known hazard. We set forth on June 30, prepared for the Fourth of July holiday traffic. We knew the route and planned our rest stops. We had readied for potential hazards. Had our fellow drivers?

We saw four accidents on the first day of the two-day drive. The first was a multi-car pileup on Interstate 25, north of Larkspur, Colo. Later, as we passed construction just south of Invesco Field, a heavy rescue crew was extracting an injured man from a three-car pileup opposite our lane. Once north of Fort Collins, I-25 quieted and we made good time to the Colorado-Wyoming border, where we saw the day's third bad accident. A tractor-trailer had rear-ended another semi. The tractor's cab shredded off the truck's frame; the motor dropped from its mounts to the road surface, and the fiberglass cabin shell appeared as if giant hands had ripped it. We grimaced and commented no one could've survived.

With all quiet again, we were hours into our final road of the day, Highway 59 North. Two hours from our overnight stop, we encountered accident number four near the Wyoming-Montana border. I saw a wisp of smoke coming up a hill where none should've been. Coming around a rising left turn, I glimpsed an SUV about 100 feet down the embankment. A body hung out the driver's window. We were in a cell phone dead zone, and I wished we had our car's satellite phone. We parked, illuminated the hazards, and my son, his friend and I went down the hill while my wife flagged down help.

I ran to render aid. The SUV's engine revved high, the knee-deep water on the exhaust manifold caused the steam I saw and the radio blasted. Carefully wading through the water, I called to the driver while shutting off the engine and radio. The driver was badly injured, in shock and breathing roughly. His bleeding had stopped and no bones protruded. He wore only a lap belt, clearly having tucked the shoulder harness behind him. He must've been there for a while because blood had clotted over gashes on his neck and left shoulder.


U.S. Air Force photo by Kemberly Groue

There wasn't much to do for him but try to prevent further shock. I didn't move him for fear of aggravating internal injuries and restarting bleeding. Then my son yelled, "Dad, there's a girl!"

Not wearing a seat belt, she was flung 50 feet away from the vehicle. The police said the car had rolled three times. Her body had started to turn purple from internal bleeding. No doubt, she suffered a broken neck. The car had plunged over a barbed wire fence, and she lay over the wire the car had compressed. I checked her airway, breathing and circulation, but she was dead so I covered her with a blanket. By now, my wife had help en route, and then a couple of other fellows approached.

Amongst the debris were numerous family pictures showing the couple and a baby. We found an ejected car seat, but no child was present. Believe me, we searched – dredging the water with arms and legs while hoping not to find a drowned body. The professionals began arriving, and the sheriff told us to go up the hill and wait.

Twenty-two years of self-aid buddy-care had come in handy, keeping my head clear and preventing me from worsening things. The professionals did the same things as did those of us who first pulled off the highway to render aid. They ensured appropriate help and safety, and stabilized the victim while controlling the area. State troopers placed marker flares on the road. As we waited, six men struggled to remove the driver from the wreck, coupled a neck brace and strapped him to a carrying board.

Meanwhile, we wondered why this tragedy happened. The probable cause? Stupidity. We found two empty booze bottles in the debris trail. I'm confident a high rate of speed contributed. Moreover, had the woman worn her seatbelt, she would've remained inside the vehicle and would've probably survived. There was plenty of life space within the cabin. The driver hadn't worn his shoulder belt and died later that night. Their choices not only ended their lives but also orphaned a child while endangering the lives of 15 respondents, including my family.

We're confident Air Force members sometimes forget that life is in many ways a game of seconds and inches. It takes only a moment to properly clasp a seatbelt, and there's no excuse for driving drunk. Being responsible for our safety is truly a simple thing to do. Yet, that's what makes it maddeningly challenging. The next time you travel, take a moment to think about what you are doing, and reassess. Reflection may just prevent your life from becoming a mere wisp of smoke.

The Ride: Skills,

ADAM BUEHLER
87th Civil Engineer Squadron
Joint Base McGuire-Dix-Lakehurst, N.J.

I left active duty in 1999 for an Air Reserve Technician job and rode my motorcycle to work every day. I looked at what the Air Force had to offer riders and asked some questions about base motorcycle regulations. It seemed there had to be a better way to educate riders and exchange information.

I started the Green Knights Military Motorcycle Club with the help of then-Master Sgt. Jeff Richards. Neither of us could have imagined that a small club at a small base would eventually grow to 94 chapters around the world, as well as militaries of other countries, including the Irish Defense Force, Royal Air Force and the Canadian Army wanting to join.

The Green Knights use social media and host a monthly radio show to discuss topics, share new information and provide advice. These outlets allow leadership the opportunity to hear what we think about topics that may affect us.

Mentorship clubs like the Green Knights are created to gather all the individual voices of riders on base and bring them into one large voice. These clubs have something for everyone. They offer education programs for not only riders, but the entire population on the road. Like many mentorship clubs outside the base, we aim to save lives. For most of us, motorcycle riding isn't a hobby or sport, but a means of transportation, just as it is for most people with their cars.

As you read the next paragraph, think about the scenario and what you would do as either person.

You wake up, look out the window and see nothing but clear skies. Thoughts of what to do for the day run through your mind. "Should I cut the lawn, paint the garage or fix that old fence?" Then it hits you. "Go for a ride." You grab the phone and call a few friends with two simple words, "Let's ride!" As you put on your riding gear and head out the door, you picture how great the day will be. You fire up the engine and pull out of the garage ... a little crack of the throttle and you're off. You're instantly hit with that indescribable feeling you get when the wind is in your face. As you ride, you keep the skills you've learned running in the back of your head. Watch the other vehicles on the road, scan ahead and make sure you're as visible as possible to other drivers. All is good until – things change in a split second. Suddenly, a car coming from the opposite direction turns in front of you. Reaction time is milliseconds. What do you do?

Those who ride know this situation all too well. In speaking with other riders, I hear the same story. The individual was talking on the cell phone, texting, putting on makeup, eating or the worst … running late or thought he or she had enough time to turn.

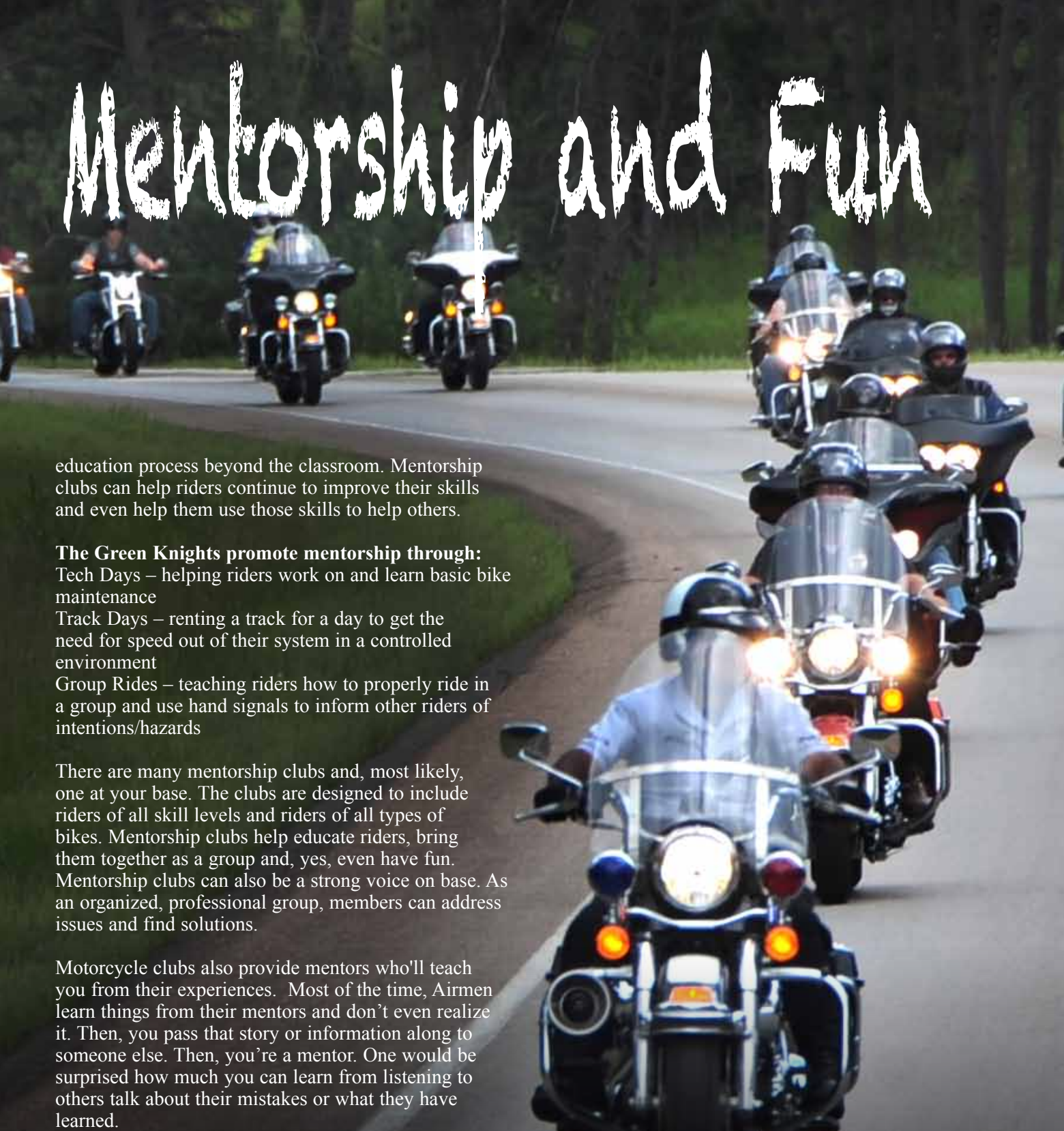
Many riders are injured or killed every year by drivers who aren't paying attention. It's not difficult to take a few extra seconds to look twice or put away distractions. This goes for all who operate vehicles, not only car drivers. There are also many riders injured because of their own mistakes, like distractions or riding beyond their skills.

A mentorship club can help riders keep from becoming complacent on the road. Even if you don't ride, think about how long it's been since you took a driver's test or were evaluated. Motorcyclists can take a Motorcycle Safety Foundation class, and many areas offer safe driving courses for vehicle drivers. Contact your local base safety office for details. Completion of some classes can remove points or lower your insurance rate.

The Air Force has implemented different means to increase riders' survival, such as Motorcycle Safety Foundation classes, special classes for sport bikes, even refresher classes. Mentorship clubs try to continue the

U.S. Air Force photo by Airman 1st Class Anthony Sanchelli

Mentorship and Fun



education process beyond the classroom. Mentorship clubs can help riders continue to improve their skills and even help them use those skills to help others.

The Green Knights promote mentorship through:
Tech Days – helping riders work on and learn basic bike maintenance
Track Days – renting a track for a day to get the need for speed out of their system in a controlled environment
Group Rides – teaching riders how to properly ride in a group and use hand signals to inform other riders of intentions/hazards

There are many mentorship clubs and, most likely, one at your base. The clubs are designed to include riders of all skill levels and riders of all types of bikes. Mentorship clubs help educate riders, bring them together as a group and, yes, even have fun. Mentorship clubs can also be a strong voice on base. As an organized, professional group, members can address issues and find solutions.

Motorcycle clubs also provide mentors who'll teach you from their experiences. Most of the time, Airmen learn things from their mentors and don't even realize it. Then, you pass that story or information along to someone else. Then, you're a mentor. One would be surprised how much you can learn from listening to others talk about their mistakes or what they have learned.

Mentorship clubs also offer a chance to ride with friends and become familiar with an area. Club members also provide a great support network. Someone will likely have a trailer to pick up your bike if it breaks down and can refer you to a reliable mechanic. Larger clubs have a larger network of friends and supporters who may prove to be good contacts as you travel.

Look for your local mentorship club. Members are willing to mentor less-experienced riders, and they can always use another mentor.

For more information on the Green Knights MMC, or advice about starting a mentorship club, contact greenknightsmmc@hotmail.com or online at www.greenknightsmc.com.

LARRY JAMES
Ground Safety Division Contractor
Air Force Safety Center
Kirtland AFB, N.M.

Well Lubricated … But Not Attached

On a spring evening, Airman 1 (A1) and two friends (A2 and A3) left the base and went to a local restaurant. A1 and his friends had several adult beverages while waiting for other friends (C1 and C2). The group decided after dinner that C1 and C2 should drive back to the base for a visit. A1 got into the car with A2 and A3. While at a traffic light, A1 switched to the car driven by C1 so they could more easily get through gate security. C1 decided to stop at a convenience store where A1 purchased a 40-ounce beer and got back into the car. A1 failed to fasten the seat belt this time. As C1 continued toward the base at about 70-mph in a 55-mph zone, a skunk ran into the car's path. In an attempt to avoid the skunk, C1 over-steered the vehicle, and the vehicle left the road and rolled. A1 was ejected through the rear window during the roll. Emergency responders pronounced A1 and C1 dead at the scene. Alcohol was involved in this mishap.

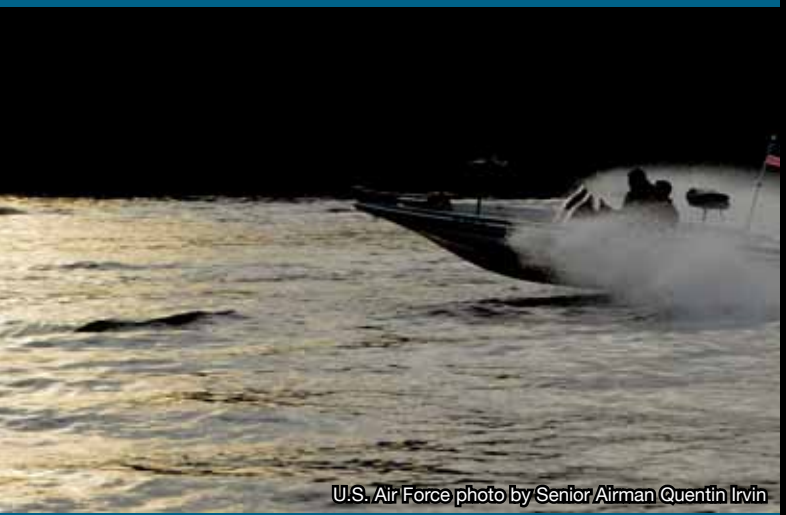
Lessons Learned

A1, A2, A3, C1 and C2 failed to use sound risk management principles in the events that led up to this tragedy. A1 and friends decided to have a few drinks while waiting to meet the two civilians at the restaurant and had no plan to safely return to the base. A1 decided to ride with C1 and C2 (who had also been drinking) and changed vehicles while stopped at a traffic light. A1 decided at the convenience store to purchase alcohol and didn't fasten his seatbelt when he returned to the car. Making dramatic direction changes while impaired and driving too fast contributed to the mishap. But, the decision not to wear a seatbelt is what cost A1 his life. The National Highway Traffic Safety Administration states that the use of seat belts reduces serious crash-related injuries and deaths by about 50 percent. It's worth noting that C2 (who was belted in) walked away from this mishap with only minor injuries. It's also important to realize that sound risk management decisions must be made before thinking is affected by alcohol. Sound thinking is a definite uncertainty once alcohol is worked into the equation. Think about what you're doing and always consider the worst possible outcome to determine if what you're doing makes sense.

U.S. Air Force graphic by Keith A. Wright

Turbo-charged
On a warm spring afternoon, Airman 1 (A1) took a leisure cruise on his 15-foot Skill Craft. When A1 returned to the boat launch, he saw Airman 2 (A2) preparing to put his 20-foot Bayliner into the water. A2 told A1 there was a problem with the inboard motor, and asked A1 to accompany him to help troubleshoot the problem. A2 and A1 took the boat into the bay. A2 removed the cover from the motor and told A1 he heard a rattling noise. A2 then throttled up the engine as A1 leaned closer to hear the source of the rattling. To help locate the noise source, A1 put a hand up to cup his right ear. As A1 leaned closer, his right hand was sucked into the inlet of the turbocharger and contacted the fan. A1 immediately pulled back his hand and realized that the end of his middle finger had been amputated, and two other fingers were badly cut. There was no indication that alcohol or fatigue was involved in this mishap.

Lessons Learned
A1 failed to follow good risk management principles when deciding to troubleshoot the turbocharged engine on A2's Bayliner. A1 had several years of experience with boat motors but no experience with turbocharged boat motors. He wasn't familiar with the type of airstream that was created by the turbocharger. It's admirable to want to help others, but it's sometimes better to let someone with more knowledge and experience come to the rescue. The blades of a turbocharger spin at an incredibly high rate, and this mishap could've easily cost A1 more than the tip of a finger. Being the best buddy may mean you have to tell your friend that you would like to help, but you may not be the best choice.


U.S. Air Force photo by Senior Airman Quentin Irvin

U.S. Air Force photo by Airman Gina Chiaverotti

Keep Your Eye on the (Paint)ball
On a June afternoon, Airman 1 (A1) and some friends went to a paintball camp. After about an hour of play, A1 was hit by another player but didn't realize she was hit. When another player started shooting at her, A1 dived behind some bushes. A1 then noticed a paint splotch on her clothing and stood up to leave the playing field. A1 removed her protective mask before departing the field and was shot directly in the eye by a player who didn't realize she was out. A1 was rushed to the hospital and diagnosed with glaucoma and a cataract as a direct result of the trauma to the eye. There was no indication that alcohol or fatigue were involved in this mishap.

Lessons Learned
A1 and her friends failed to follow good risk management principles when they failed to clarify the rules of the game and the process for taking themselves out of the game. The Paintball Guru (http://www.co2paintballguru.com) says that 85 percent of all paintball injuries are eye-related and almost all could be prevented by wearing a paintball mask. A1 made two mistakes when she decided to leave the field. First, she didn't announce her intentions to the other players, which left her as a target. Second, she removed her protective mask while still in an area where she could be shot. A predetermined signal that she was out of the game and keeping on all her gear until reaching a predesignated safe area would have prevented this mishap. Paintball is a fun sport and is excellent for team building. But, be aware that it can also be painful and can cause significant injury if you don't wear all the right gear.

Buckaroo Bonzai
Airman 1 (A1) was riding his Yamaha sport bike with three others on a clear spring day. A1 was the lead rider as they approached a sweeping merge lane on an overpass with a 50-mph speed limit. The overpass merged into a 60-mph, three-lane highway. Two vehicles were in the right lane, ahead of the group, as A1 and his friends reached the intersection of the overpass and the highway. A1 didn't see approaching traffic, so he accelerated to the middle lane of the highway. Instead of moving over one lane, he went over all three lanes and ended up on the shoulder. The shoulder rolls sharply downhill into a dirt median. A1 attempted to ride the bike through the dirt median, but the bike bounced. Witnesses stated that A1 held on for the first bounce, but soon separated from the bike. A1 sustained a fractured collar bone, two fractured ribs and significant road rash. There was no indication that alcohol or fatigue were involved in this mishap.

Lessons Learned
A1 did a good job of risk management to a point. He wore all of the recommended safety gear, which probably saved his life. However, A1 was the lead rider in a new group on an unfamiliar route. A1 accelerated from below 50 mph to almost 70 mph while merging, forcing the bike to go wide and off the road. Take it easy when you move to a new area. You can begin to relax a bit when you've become familiar with your routes. Don't let your desire to impress be your downfall.

U.S. Marine Corps photo

U.S. Marine Corps photo by Lance Cpl. Shannon McMillian

Distracted Driving

STAFF SGT. BRANDON SIGNOROTTI
31st Test & Evaluation Squadron
Edwards AFB, Calif.

Driving a car is arguably one of the most dangerous things you'll ever do. It's funny people say that because many of us think flying in a plane or going on a cruise is more dangerous. But, the hazards of driving far surpass those of any other mode of transportation.

Multitasking reduces reaction time of even the most alert and skillful drivers. According to the National Highway Traffic Safety Administration, 20 percent of injury crashes in 2009 involved reports of distracted driving.

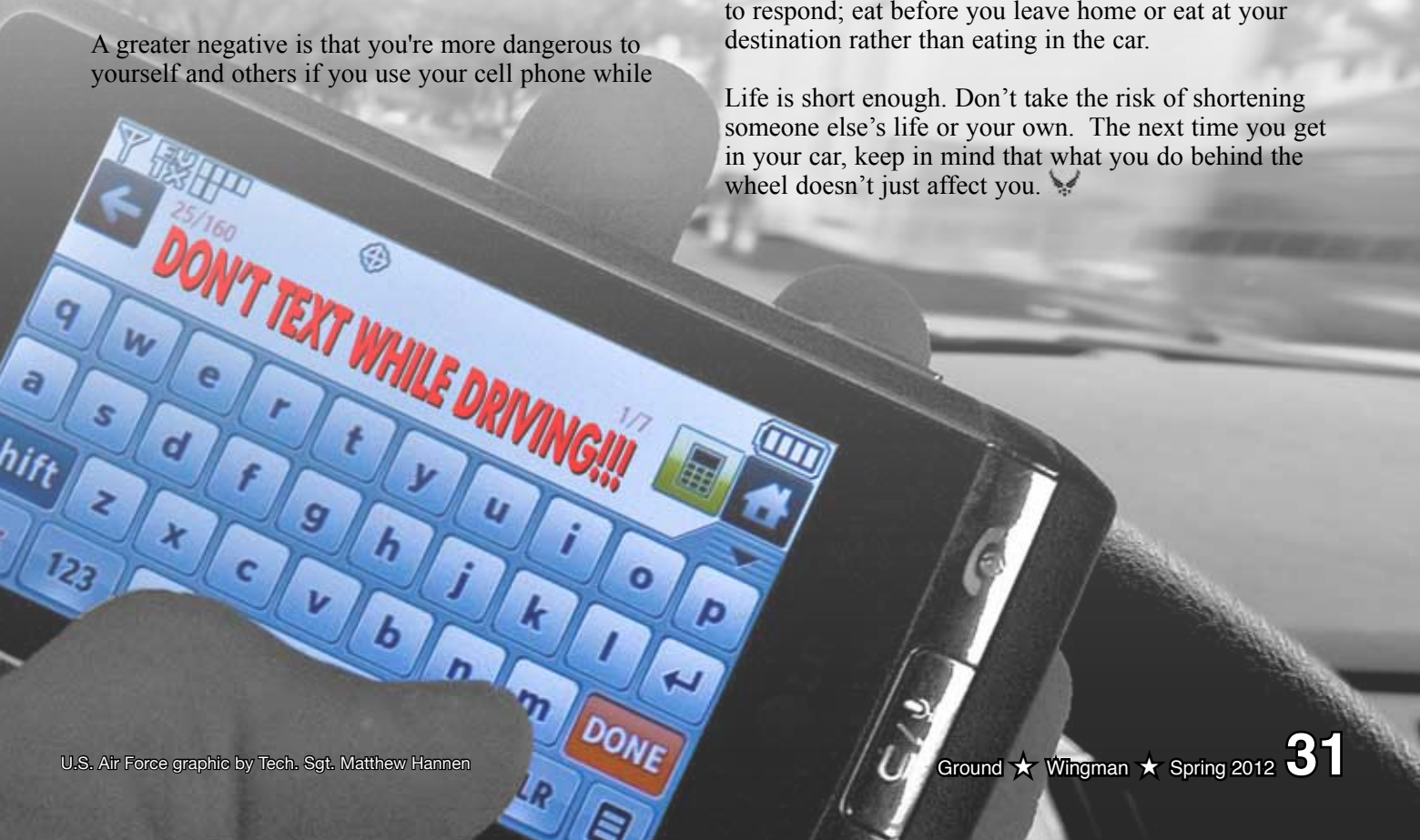
Although the tendency is to cite age or gender as reasons for driving accidents, nothing comes close to a distracted driver. One of the biggest contributors to distracted driving is cell phone use. Since cell phones have come a long way from the old "brick" flip phones of the past — they're much smaller, convenient and used by so many — they can be both positive and negative for a driver. They're positive because you don't have to find a way to call for help in an emergency. On the negative side, you're never very far away from your office.

A greater negative is that you're more dangerous to yourself and others if you use your cell phone while driving. The statistics tell the horrible truth. According to the website www.texting-while-driving.org, drivers who talk on their cell phone are four times more likely to be involved in an accident. If that statistic is not scary enough, try this one: The same site also says that a driver who texts is eight times more likely to be involved in an accident. That's pretty scary stuff! I've also used my cell phone and texted while driving on more than one occasion. But after experiencing firsthand the effect it has and reading these statistics, I don't now and never will do it again.

Distracted driving isn't limited to cell phone use. Simple tasks like eating on the way to work, putting on make-up, reaching for something or even trying to grab that pesky napkin floating around your car are severe distractions. If you're behind the wheel and doing anything other than driving, you're significantly increasing your chances of being involved in an accident.

Despite all the modern advances in technology, including newer and safer cars and hands-free devices for your phone, it all boils down to simple concepts. Focus on driving, and don't complicate it by adding cell phone use, eating or anything else. If you get a call or text, pull over to a safe area before attempting to respond; eat before you leave home or eat at your destination rather than eating in the car.

Life is short enough. Don't take the risk of shortening someone else's life or your own. The next time you get in your car, keep in mind that what you do behind the wheel doesn't just affect you.



U.S. Air Force graphic by Tech. Sgt. Matthew Hannen

Orbital Safety – Operations in a Crowded Environment

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50th Space Wing
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The 50th Operations Group commands and controls more than 60 satellites worth approximately $66 billion.[i] These assets support the U.S. military, U.S. allies, federal agencies and civilian activities globally. They occupy a crowded environment with about 19,000 tracked objects in space.[ii] This is a small percentage of the total number, which may be millions to billions of objects.[iii]

Most of the orbiting objects are debris from space activities and articles that no longer serve a useful function, such as rocket bodies, non-functioning satellites, a camera, toothbrush, pair of pliers, tool bag and a wrench, to name a few. The amount of debris has increased steadily since the 1990s as more nations have entered into space. Since 2007, space debris increased approximately 35 percent. In January 2007, a Chinese Anti Satellite test created an extra 2,300 trackable pieces of debris (more than 1 million total pieces).[iv] In February 2009, a collision between an Iridium satellite and a Russian Kosmos communications satellite created another 2,100 trackable pieces.[v]

The quantity of space debris and the speed at which it travels (up to 17,500 mph) poses a significant threat to satellites in orbit.[vi] Each week, there are approximately 13,000 close approaches between orbiting objects. Hugh Lewis, a space debris expert, University of Southampton, England, calculated that there could be as many as 20,000 close approaches per week by 2019, and as many as 50,000 per week by 2059.[vii] By 2059, it's possible that satellite operators will have to make five times as many collision avoidance maneuvers as they will in 2019.[viii]

In response to this hazardous environment, a robust orbital safety program has emerged within the 50th Space Wing. Space safety is a dynamic process designed to improve operational effectiveness and mission success by preventing mishaps and close calls.[ix] In the event of a mishap, the task is to mitigate the effects of the event and derive lessons learned to prevent future mishaps.

The 50 SW has consistently demonstrated a proactive safety mindset, which has maintained the operational effectiveness of its constellations in the various orbits where they reside. Communications satellites in the extremely crowded geosynchronous belt regularly perform station-keeping maneuvers to stay within their allotted orbital boundaries, offsetting the impact of solar winds, radiation pressure and effects from the gravitational fields of the moon, sun and earth.

Outside of nominal station-keeping operations, the 50 SW uses contingency procedures to maintain its constellations and prolong service life beyond requirements. For instance, we performed the first no-fuel satellite recovery that re-established earth pointing without fuel, thereby increasing on-orbit stationing, maintaining capabilities and service life. Using the expertise of the wing's engineers and operators, we restored satellite stabilization without firing thrusters, extending the life of one satellite by six months.

The 50 SW has also demonstrated good stewardship of space through flawless disposal activities, maintaining maximum access to the various orbital belts. We've removed defunct GPS satellites from Medium Earth Orbit, allowing new satellites to enter the constellation and ensuring seamless positioning, navigation and timing for military and civilian activities. The 50 SW also safely disposed of multiple obsolete communication satellites, maximizing access to the geosynchronous belt where space is very limited.

Given the scope of the wing's activities, it's paramount that the requisite safety measures are in place to maintain the constellations and provide unimpeded access to global users. Failure to do so could jeopardize the mission of constellations, and have possible fatal consequences.

Due to the diligence of 50 OG operators, engineers and orbital safety officers, 50 SW satellites remain safely on orbit, providing information for warfighters and civilians. In the event of a mishap, the 50 SW is ready to resolve the issue and continue to ensure mission success.

i "Fact Sheets: 50th Operations Group," 18 Mar 11, http://www.schriever.af.mil/library/factsheets/factsheet.asp?id=3910
ii Brian Weeden, "The Number's Game: What's in Earth Orbit and How Do We Know?" The Space Review, 13 July 2009, http://www.thespacereview.com/article/1417/1
iii Ibid.
iv "Space Junk Threat Will Grow for Astronauts and Satellites," Fox News, 6 April 2011, http://www.foxnews.com/scitech/2011/04/06/space-junk-threat-grow-astronauts-satellites/
v Ibid.
vi Paul Marks, "Space Debris Threat to Future Launches," New Scientist, 27 October 2009, http://www.newscientist.com/article/dn18050-space-debris-threat-to-future-launches.html
vii Ibid.
viii Ibid.
ix Air Force Instruction 91-217, Space Safety and Mishap Prevention Program, 18 February 2010, para. 1.2

Graphic courtesy of author

The AIR FORCE SAFETY CENTER proudly congratulates ...

Gary S. Rudman: Awarded the Certified Safety Professional credential. Rudman is the deputy director of safety at 9th Air Force/U.S. Air Forces Central Command, Shaw AFB, S.C.

AIRCRAFT SAVE AWARD

Staff Sgt. Daniel Henderson

Darren Nix

The Lt. General Gordon A. Blake Aircraft Save Program recognizes actions of airfield operations personnel that result in the safe recovery of an imperiled airborne aircraft or help given to an endangered aircraft on the ground. The performance must clearly extend beyond normal duty requirements, be professional and cast no reasonable doubt that, without this action, probable damage would have resulted.

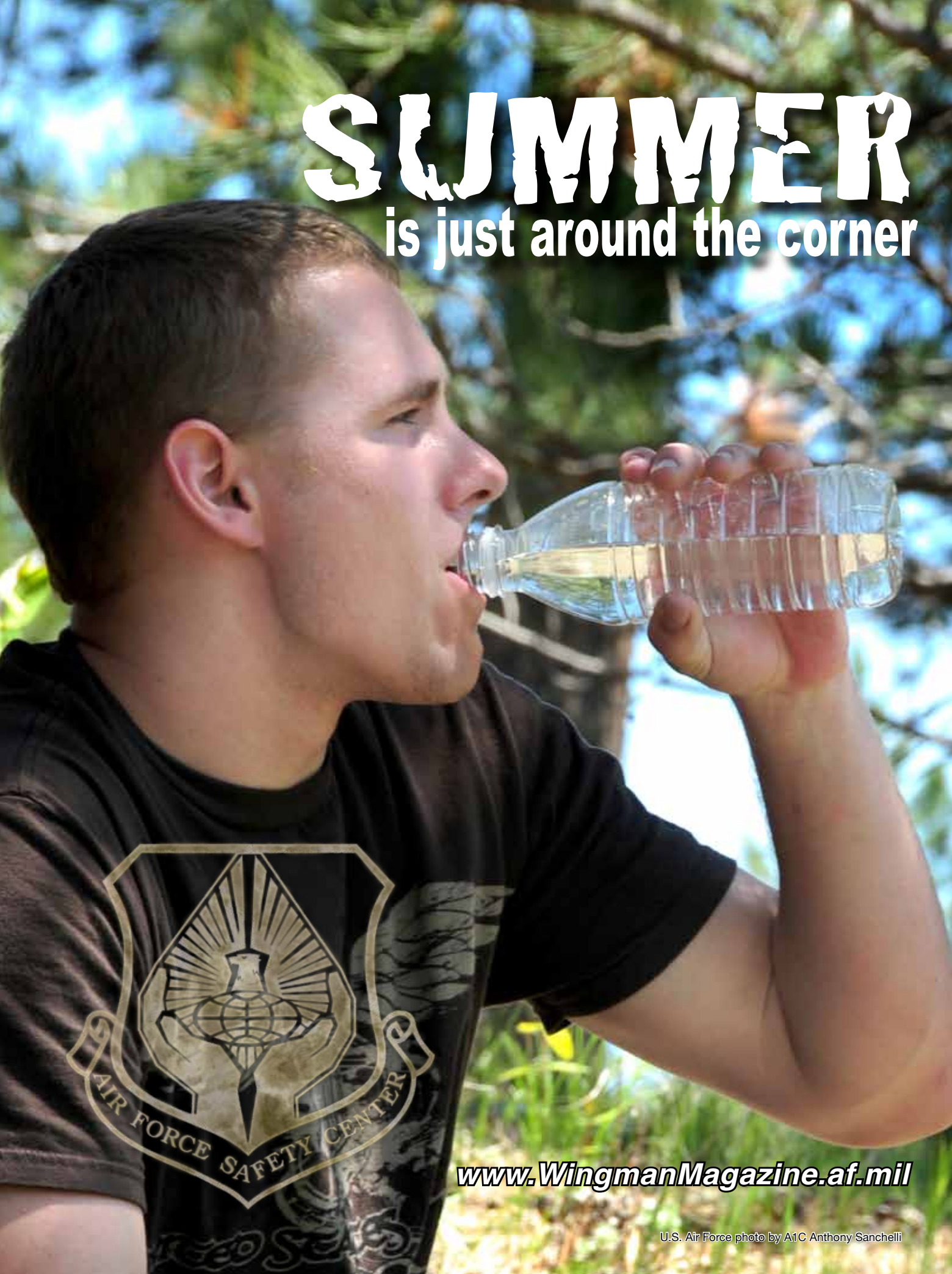
Headquarters Air Force Flight Standards Agency meets quarterly to evaluate nominations for the award and has announced winners for the first time in more than 17 months. Staff Sgt. Daniel Henderson, 72nd Operational Support Squadron, Tinker AFB, Okla., and Darren Nix, 80th OSS, Sheppard AFB, Texas, have both earned Aircraft Save Awards for their contributions to aviation safety excellence.

On July 13, 2011, Henderson cleared an E-3 Sentry to land on Runway 17 when, on his third visual scan of the runway, he noticed an unidentified pedestrian walking on a taxiway and approaching the runway nearly two miles from the control tower. As soon as he detected the individual, Henderson alerted the other controllers and monitored the pedestrian's actions from the control tower cab. The pedestrian continued to an unsafe proximity to the runway environment, prompting Henderson to instruct the aircraft to break off of the approach as the aircraft was approximately a half mile from touchdown. The aircraft immediately complied with the control instructions and overflew the pedestrian by approximately 500 feet. The pedestrian continued across the airfield and entered a second runway where he was apprehended and found to be disoriented and oblivious to the hazardous environment. Henderson's superior situational awareness and immediate actions prevented a potentially fatal pedestrian/aircraft collision, preserving the 38 crewmembers on board the $270 million C-2 asset and the disorientated pedestrian.

On July 18, 2011, Nix completed the facility closing checklists for Sheppard AFB's Radar Approach Control and gave control of the airspace to Dallas Center. Shortly after relinquishing control, Nix observed an aircraft displaying an emergency code on the radar scope and alerted the controllers at Dallas Center. Unfortunately, they were unable to observe or communicate with the aircraft. Nix resumed control of the airspace and contacted the emergency aircraft to provide assistance. He issued a vector to the nearest airport; however, the disoriented pilot flew in the opposite direction directly toward antennas that were published obstacles in the area. Nix then issued no-gyro vectors away from the obstacles and toward a visual reference point, leading the aircraft to a safe recovery at a civilian airport. Nix's extraordinary dedication to duty and application of air traffic control prevented a possible catastrophic mishap and loss of life.

The actions of both of these individuals broke the accident chain and prevented potentially fatal scenarios from developing. Each individual received the Lt. Gen. Gordon A. Blake Aircraft Save Award Certificate, "Save" pin and are authorized to wear the U.S. Air Force Recognition Ribbon for military members or the Air Force Recognition lapel pin for civilian recipients.

U.S. Air Force photos



U.S. Air Force photo by A1C Anthony Sanchelli