THE MOBILITY FORUM

THE MAGAZINE OF AIR MOBILITY COMMAND | WINTER 2017-2018

Phoenix Spark: the Sky is Not the Limit for Innovative Airmen

First to Arrive, Last to Depart: Airmen Bring Relief to Hurricane Devastated Areas

Critical Days of Summer: Back-to-Back Success!

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A KC-135 Galaxy sits on the flight line covered with snow at 5 Wing Goose Bay, Canada.

USAF photo by SrA Jasmonet Jackson

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Season's Greetings from Air Mobility Command Headquarters!

As we get ready to wrap up 2017 and head into the holiday season, I want to take a moment to thank all of you for an incredible year. Our tankers fueled the fight against ISIS in the skies over Iraq and Syria, while our Airlifters and Mobility Support Airmen delivered freedom on the ground. More than 3,000 members of the Joint team participated in Exercise Mobility Guardian 2017, the largest exercise in AMC history. Our Total Force team delivered hope to those who lost everything during Hurricanes Harvey, Irma, and Maria.

Rapid Global Mobility is the lifeblood of the joint fight around the globe. Each one of you plays an important part in enabling all nine combatant commanders to do their missions every single day. I hope you can take some well-deserved time off to rest and enjoy your families this season. We need all of you to return to your units after the holidays ready to pick up where you left off. If you plan to travel this holiday season, please make sure you take the proper precautions for any areas of risk like unfamiliar roads, adverse weather conditions, and traffic delays. If you plan to participate in any winter sports or activities, please think about how to manage unnecessary risk and overcome potential hazards. You are a valued member of the AMC family, and I want everyone to come back safe after the holidays.

This time of year can be particularly stressful for those away from home or separated from family because of deployments or TDYs. Be a good wingman by being mindful of signs of depression and solitude. An act of kindness, a friendly face, or an invitation to participate in holiday festivities can make a big difference.

We have a lot to be thankful for this year. Our Active Duty, Guard, Reserve, and Civilian Airmen are the heart of AMC's Total Force team. Every member of this team contributes in an important way. Michele and I want to thank you for another fantastic year. We wish all of you safe and happy holidays!

- Gen Carlton D. Everhart II

Be a good wingman by being mindful of signs of depression and solitude. An act of kindness, a friendly face, or an invitation to participate in holiday festivities can make a big difference.

AMC Deputy Commander Maj Gen Sharpy

Reflects on September 11th

BY MS. KIM KNIGHT, STAFF WRITER

As each year comes to a close, most of us dedicate a little time reflecting on past years, events that changed our lives, lessons we often learned the hard way, and remembering those we have lost. We base our decisions today from that knowledge and vast experience gained over time and hope for a brighter tomorrow.

One of the most memorable events of our time is September 11, and many in our great nation spent that day watching live broadcasts in horror as the events unfolded. Others, including some who are reading this, remember it as the day they decided to join the military to protect and defend against such threats. Sadly, thousands also remember it as the day they lost a family member or friend.

The experiences of that day were quite different for Maj Gen Thomas J. Sharpy, Deputy Commander of AMC. You see, he was in our nation's capital on that dark day serving as a military aid to Vice President Dick Cheney.

However, like all Americans who did not know the imminent threat looming on the horizon, the day began like any other. He walked his children to school that morning and—although feeling a little under the weather—went on to work at his office on the fifth floor of the Eisenhower Building to prepare for a trip the next day to Williamsburg, Virginia.

At the office, Sharpy first spoke to Commander Douglas Cochrane, the naval aid to Norman Mineta, who was serving as Secretary of Transportation. Cochrane told him that it looked as if a Cessna had flown into the World Trade Center. For an update from the duty officers, the men went to the situation room. "At that time, we saw a much larger airplane strike the other tower," he recalled. "We realized it was not a Cessna and was not an accident. It was an attack."

Not long after, Sharpy said someone from the Secret Service ran in and said, "Fifty seconds to impact. This is not a drill." Indeed, it was the plane that struck the Pentagon, and it was unclear who had led the attacks or if more were forthcoming. "We were a nation at war, and we had to make sure the President and the cabinet secretaries were secure," he said.

Every shred of prior training was propelled into motion as they joined Vice President Cheney in the President's Emergency Operations Center to begin the grim process of ensuring key personnel were accounted for and in safe locations so they could respond to the dire situation. One might think the atmosphere surrounding the leaders of our nation during a crisis of this magnitude would be chaotic, but that was not the case at all. Sharpy said it was incredibly calm.

"I always think about the way Vice President Cheney and Secretary Mineta communicated and made critical decisions. Sometimes they didn't have perfect information, but they made the right decisions. When there is a crisis," he added, "leaders set the tone for the entire organization. If you are stressed, panicked, or rushed, people will sense that. But if you are calm, take time to make decisions, and are deliberate, people will notice that. Guess what they do? They emulate the person making the decisions. From that example, I learned the more chaotic it gets, the calmer you need to be."

Since details were grey, mitigating risks, establishing rules of engagement, and communication were the priorities.

"Once we knew the planes had been hijacked," Sharpy explained, "we knew how many there were, but rumors circulated there could be more. Secretary Mineta quickly said to close the airspace. We closed the airspace and implemented SCATANA [Security Control of Air Traffic and Air Navigation Aids], which is where we shut down all the navigational aids. When the airspace was closed, roughly 5,000 planes had to land all over the country."

As the panicked American public looked on, there was a definite need for strategic messaging from the President. A video teleconference (VTC) was the best option, but the question was where to do it. Sharpy suggested Barksdale AFB, Louisiana, as the prime location because Air Force One could land there, and it had VTC capabilities a mere block from the flightline, which eliminated the need for ground transportation. Thus, Air Force One landed at Barksdale. The President was advised not to return to Washington due to the possibility of additional attacks. He returned anyway and gave an address from the Oval Office. During the speech, Sharpy was in the White House not far away, watching.

Sharpy emerged from the bunker around 1:30 the next morning after a long 15-hour day. He had taken the metro to work that morning and had to find a driver to take him home. On the trip home, he did not see another vehicle and there were no planes flying overhead.

In the aftermath, there have been significant modifications in risk management, communications, and technology—as well as how to perform duties without the presence of technology and how we train. Government entities often train to respond to worst-case scenarios, and AMC is no exception. A prime example is Mobility Guardian, the largest scale exercise AMC has ever undertaken that included sister services and international partners as well. At the White House, Sharpy said steps were taken to ensure the continuity of the government and that the presidency stays intact at all times.

"I'd like to write a book called Perfection of Duty," he said, "because throughout the day, the President, Vice President, and the secretaries conducted themselves in such a way that I was proud to be part of the team. No one lost their composure, and everyone understood the severity of the situation. I have confidence it was not about politics. It was about leaders doing the right thing. On that day, they did it perfectly."

If you are stressed, panicked, or rushed, people will sense that. But if you are calm, take time to make decisions, and are deliberate, people will notice that. Guess what they do? They emulate the person making the decisions.

CRM/TEM Flying

BY LT COL. WALTER BORJA, HQ AMC FLIGHT SAFETY

All AMC crew members want to safely execute the mission. Using Crew Resource Management/ Threat Error Management (CRM/ TEM) is the way to do it, but discussing all the theories and methods used in CRM/TEM would take 50 pages or more.

So, let me instead spark your interest in CRM/TEM with a model provided to AMC/SE by United Airlines. This brief overview gives you an easy-to-understand picture of how we crew members can use CRM/TEM to execute our missions safely.

According to the Air Force definition, "CRM is the effective use of all available resources for flight crew personnel to assure a safe and efficient operation, reduce error, avoid stress and increase efficiency." The Air Force further breaks CRM down to six core skills: Mission Analysis, Situational Awareness (SA), Communication, Risk Management and Decision Making, Crew Coordination, and Task Management. These core skills have been driven into us since the beginning of our crew dog AF flying days, and that's a good thing!

TEM is defined by the Air Force as "A systems approach that builds multiple layers of defense logically designed to identify, prevent, and trap threats, and/or mitigate inevitable threats, errors, and undesired aircraft states (UAS). The goal of TEM is to build defenses that reduce the likelihood of errors and, when necessary, mitigate or fix committed errors. Error management is a process of understanding that errors will occur during operations; emphasis is placed on crewmember vigilance and effective monitoring/cross-checking so that the error is identified or trapped in a timely manner and then mitigated. The Pilot Monitoring (PM) role and the importance of TEM tools such as Verbalize, Verify, and Monitor (VVM) in mitigating threats and trapping errors cannot be over-emphasized."

Now let's tie CRM with TEM by looking at the United Airlines CRM/TEM model below.

Capt Bryan Adams, left, and Capt David Wilfong, 15th Airlift Squadron pilots, fly a C-17 Globemaster III enroute to Puerto Rico, Sept. 9, 2017, to deliver personnel and equipment in support of Hurricane Irma relief operations.

USAF photo by SSgt Charles Rivezzo

The top of the model, safe operations, represents the desired operating environment. As a crew encounters operational threats or human error, there is a potential to move away from the safe operations area. If the trend continues, the result may be an incident or accident. Effective application of CRM/TEM skills creates a pathway from an incident or accident and turns a divergent trend back to safe operations.

The response to threats, errors, and an Undesired Aircraft State is in the upward arrow to the right of each condition, showing the effect each has in moving the flight away from an incident/accident towards safe operations. Implied and imbedded in the arrow are the core skills of CRM.

The Air Force defines threats as "events or errors that occur outside the influence of the flight crew. They increase operational complexity and must be managed to maintain safety margins. All threats can negatively affect flight operations."

And boy, we face a ton of threats on every sortie. They range from closed taxiways on an airfield, ATC radio congestion, bird activity, weather, a partially mission capable jet, a challenging refueling, an unruly passenger, or inaccurate mission paperwork—to name a few. Overall, threats are the things that try to keep us from getting the job done. According to United Airlines' model, we need to **identify** and **prepare** for these threats.

Errors, according to the Air Force, are "flight crew actions or inactions that lead to a deviation from crew or organization intentions or expectations, reduce safety margins, and increase the probability of adverse operational events on the ground or in flight."

There are so many categories of errors, but examples include handling errors of busting through an altitude on level-off, improper FMS or autopilot inputs, or taxiing too close to obstacles. Or errors could be procedural, such as omitting part of a briefing, making non-standard level-off calls, or performing a checklist out of sequence. Using the model, we would **identify** and **repair** these errors. Something we have not talked about yet is the UAS. The Air Force says these are "Operational conditions where an unintended situation results in a reduction of safety margin." Furthermore, "a UAS is a result of ineffective TEM practices." We want to avoid UAS conditions to avoid finding ourselves without options for proper **recovery** in an incident or accident. So again, looking at the model, we would **identify** and **recover**.

This CRM/TEM article does not cover everything about the topic. So I challenge you to find resources and opportunities that help grow your CRM/TEM knowledge. Use the AMC/A3TO resources available through the **http://mafops.us.af.mil/Home** website, such as the AMC Form 4031 that offers grading criteria to assess an aircrew member's CRM/TEM competency. Or, contact the AMC CRM/TEM program director, Mr. Mark Altenburg, at **Mark.Altenburg@us.af.mil** to learn where AMC's CRM/TEM model is in its development. Better yet, become a LOSA observer, LOSA roundtable participant, or LOSA Safety Investigation Board volunteer to see CRM/TEM in action.

There is a mountain of CRM/TEM information out there, but an excellent starting point to understanding and executing CRM/TEM is the United Airlines model. I look at its simple explanation and the colors going from green (good) to yellow (caution) to red (bad) and I get it. I can follow the model and conscientiously think of flying from a CRM/TEM perspective.

I am going to **identify** threats prior to the mission and during all phases of flight, and communicate them with my crew so we can **prepare** for them. When I encounter a mistake/error, I am going to **identify** it so I can trap, mitigate, and **repair** it before it becomes more serious. If I get into a safety-compromised UAS, I want to be able to **identify** it and **recover** before it turns into an incident or accident—all while using CRM/TEM skills to get us back to that **green** Safe Operations zone where we crew members strive to be.

Fly safe!

Air Force definitions from AFI 11-290 AMCSUP I 4 Dec 2014.

The CRM/TEM Model and its description (within the United Airlines CRM/TEM Reference Manual) used in this article are proprietary to United Airlines.

Bank Angle Approach Instability, Lack of Go-Arounds, and Resulting Controlled Flight Into Terrain Concerns on Approach and at Touchdown

C-17 Bank, Wingtip Strike on Touchdown

BY MR. BRIAN C. LEWIS,
C-17 FLIGHT DATA ANALYST

Bank instability may be the least recognized unstable approach condition. The majority of crew exposures to the situation don't appear to be extreme enough for the pilots to recognize they are out of limits, or to trigger a go-around call—yet most should. This perceived lack of severity has made mobility crews somewhat overconfident with experiencing bank issues on final, as evidenced by the complete lack of go-arounds for bank instability on approach.

Crews can generally get away with minor PIOs (pilot-induced oscillations) or momentary excessive bank angles if they address them quickly and properly. However, when you add in an extreme or gusty wind, drift, yaw, alignment correction, excess control input, early removal of crosswind controls, or one of a dozen other factors you're likely to experience on an approach, the more likely you are to hit the ground with something other than the landing gear.

Each Major Weapons System (MWS) has its own standards for approach stability based on Mission Design Series (MDS) specific capabilities, mission, and standards. By focusing on approach stability, the MAF MWSs have experienced significant success over the last four years, especially when we look at the trends for speed, configuration, and rates of descent on approach. Yet we've somehow dodged the bullet on bank angle … until recently.

A recent C-17 mishap involving a wingtip strike upon touchdown prompted AMC's MFOQA data analysts to look deeper into bank and touchdown stability issues across several airframes. The analysts first discovered that no crews are going around for bank instability during final approach. None. Nada. Zilch. Not in the C-17, KC-135, C-5, C-130J, C-37, or C-40. These trends involved every aircraft from which we captured data, identified an unstable approach triggered for bank, and assessed the crew should have gone around. Simply put, crews are not recognizing the bank exceedance and are continuing the approach—with great risk.

So what? Well, the analysts decided to look at how close our aircraft are to striking the ground with a wingtip, engine pod, etc., on final, or during or after touchdown.

… they also touched down with a wingtip within two feet of the ground four times.

In the case of a KC-135, crew members executed a go-around after they touched down and narrowly averted striking their pod. In the case of the C-17, one aircraft hit a wingtip. However, crews on that aircraft have come very close to doing so many other times.

The C-17 has a 15-degree limit from target bank on final and a 9- to 13-degree absolute bank limit at touchdown. Out of the available data over the last 2.5 years, C-17s landed with a wingtip within five feet of the ground at least 105 times. That's not too bad, right? But, they also touched down with a wingtip within two feet of the ground four times. And a couple of those were within one foot of the ground!

C-130Js have a 10-degree bank limit at 150', yet there are numerous examples

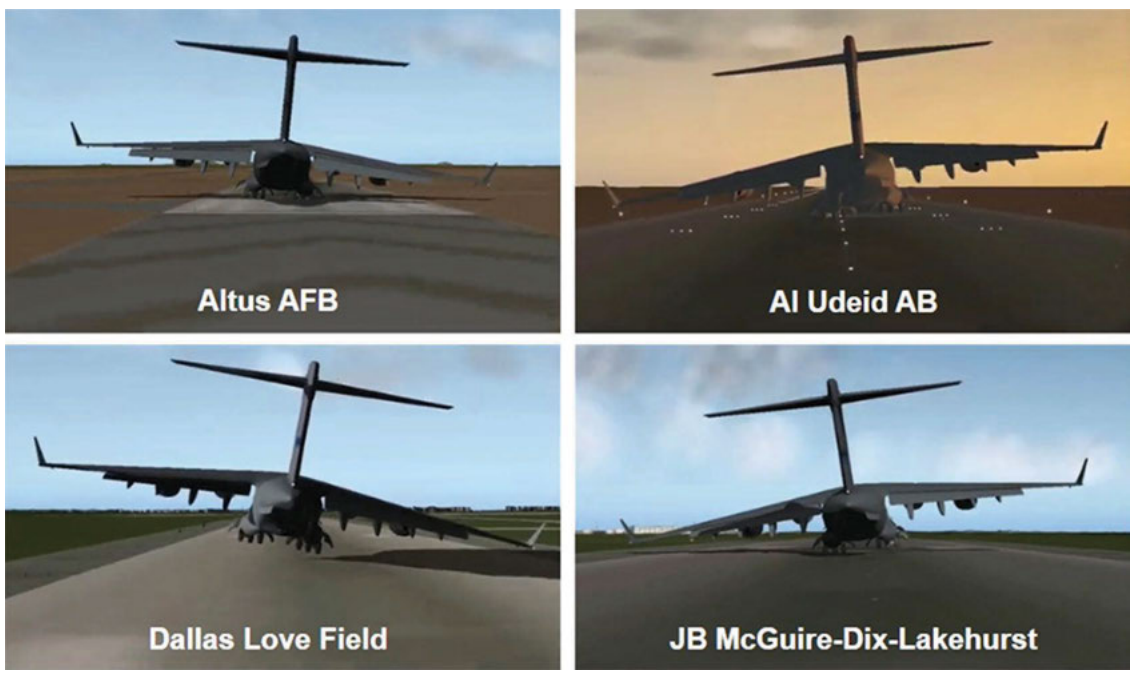
KC-135 Bank, Near Pod Scrape on Touchdown

Maybe it's time to pay more attention to bank as a factor during approaches and when considering touchdown stability.

of banks over 20 degrees at this point on the approach. Ditto for the C-37. They had one extreme example of over 30 degrees of bank on an unstable approach. In another case, a C-37 was beyond 25 degrees of bank at 213'.

The KC-135 doesn't necessarily have a wingtip strike risk like the other aircraft. Instead, crews are primarily concerned with engine pods striking the runway on touchdown or during rollout. Where the C-17 has 9-13 degrees of bank to play with at touchdown, the KC-135 has only 4-8 degrees, depending on the phase of landing. Nearly all (99 percent) of KC-135 landings are within +/- 3 degrees of bank at touchdown, which is great. But crews have experienced numerous close calls and two minor pod scrapes over the last couple of years.

Maybe it's time to pay more attention to bank as a factor during approaches and when considering touchdown stability. One suggestion is to review the parameters in your Vol 3 and Dash-1. Become more familiar with the limits—not just for the approach phase, but for touchdown, too. Consider taking the time to prep your crew for the potential of striking the ground on short final, upon touchdown, or during rollout, specifically focusing on the conditions that could make it more likely (high or gusty crosswinds, runway alignment, crab, drift, etc.). It is also worth stressing the importance of calling (and executing) a go-around when you are outside the prescribed standards. Keep in mind that it is easier to repair a bruised ego than it is to fix a broken jet.



C-17 Bank, Near Wingtip Strikes at Touchdown

First to Arrive, Last to Depart: **Airmen Bring Relief to Hurricane Devastated Areas**

BY MS. RUTH ANN REPLOGLE, STAFF WRITER

Who would have guessed that less than a month after participating in the Mobility Guardian—the largest scale exercise the Air Mobility Command (AMC) has ever taken part in—AMC's Airmen would be putting into practice the largest global disaster response the United States has ever seen?

Within weeks of each other, three of the most powerful hurricanes in recent history ravaged the Atlantic, leaving massive destruction and death in their wake. First came Harvey on August 25, then Irma on September 6, and Maria on September 20.

Among those to answer the call were the members of the 621st Contingency Response Wing (CRW). They are equipped to deploy within 12 hours of notice. Primarily stationed at Joint Base McGuire-Dix-Lakehurst, New Jersey, and Travis AFB, California, these nearly 1,500 Airmen are specifically trained to provide swift and coordinated humanitarian relief efforts, including airlift, aeromedical evacuation, and contingency response assets. Their expertise ensures additional airfield and airlift capability to move troops, vital supplies, and equipment whenever and wherever it's needed.

In many cases, CRW Air Mobility Operations Squadrons (AMOS) are among the first units to arrive after disaster strikes, often in tandem with members of the Federal Emergency Management Agency (FEMA). These Airmen sustain 24-hour operations until follow-on forces arrive.

"Mobility Airmen are typically the first ones in and the last ones to depart," said MSgt Dale Nyhus, who served as contingency response team chief at the airfield in Ponce, Puerto Rico, in the aftermath of Hurricane Maria.

HURRICANE HARVEY

Harvey hovered over the Houston metro for four days as a Category 4 hurricane. It set the record for heaviest rainfall from a storm in the continental U.S. (51 inches) and killed more than 80 people. Many Texans lost everything to colossal flooding that overtook their neighborhoods.

"Over 3,000 homes in a city only 14 square miles in size were destroyed," said 1Lt Shane Lockridge, the civil engineer air advisor for the 571st Mobility Support Advisory Squadron at Travis AFB and a native Texan. "All you saw were thousands of people piling debris and belongings by the curb to be hauled away. The city I spent my entire life in looked like a landfill."

Like many other AMC squadrons, his unit organized and packaged 400 pounds of relief supplies, immediately responding to the call for aid from his fellow Americans.

In the wake of Harvey, Airmen from the 375th Aeromedical Evacuation Squadron from Scott AFB, Illinois, mobilized out of Little Rock AFB, Arkansas, to transport hurricane victims to Texas, Oklahoma, Louisiana, Tennessee, Mississippi, and Alabama. They also initially delivered 6.5 tons of medical and emergency supplies to Texas on a C-17 Globemaster III.

Airmen from the 621 AMOS at Joint Base McGuire-Dix-Lakehurst and 321 AMOS at Travis AFB headed to the 601st Air Operation Center at Tyndall AFB, Florida, to begin supporting tanker, airlift, and aeromedical evacuation plans as Harvey bore down on Texas and Louisiana, and Irma loomed on the horizon.

HURRICANE IRMA

Irma swept through the Caribbean and the Florida Keys on the heels of Harvey. It became the strongest hurricane ever recorded in the Atlantic, peaking as a Category 5 with winds of 185 miles per hour. It led to more than 90 deaths in the U.S. and its territories, and nearly wiped out entire Caribbean islands.

As Floridians anxiously awaited Irma's landfall, Airmen were already on their way to the ravaged areas of St. Thomas and St. Croix, U.S. Virgin Islands. Members of the 62nd Airlift Wing at Joint Base Lewis-McChord, Washington, partnered with FEMA to deliver supplies to St. Thomas. They were the first C-17 Globemaster III on the scene—only to find the airfield looked like a wasteland.

"The runway was clear and the ramp was clear, but you could see the roofing material from the top of the terminal had all blown over and been pushed to the side," said Lt Col Brandon Tellez, 62d Operations Support Squadron director of operations. "There were aircraft flipped over, upside down and in ditches. The windows were blown out, and there was sea life inside the terminals after the flooding."

Because the commercial cargo—a diesel truck, portable generator attached to a pickup truck, and a FEMA box truck—wasn't designed for airlift, loadmasters had to be creative in loading and unloading. "We got all our ducks in a row and adapted," Tellez added.

Before crashing into Florida, Irma slammed into Puerto Rico, knocking out power and forcing thousands of people into shelters. The 62d Airlift Wing also transported 50 search and rescue and medical personnel from FEMA to San Juan, Puerto Rico.

Within hours of Irma hitting Florida, the 821st Contingency Response Squadron (CRS) from Travis AFB and 321 CRS from Joint Base McGuire-Dix-Lakehurst arrived to work with members of the Army, Marines, and FEMA. Airmen helped offload and deliver water and meals ready to eat (MREs) as they sustained 24-hour operations.

They also helped open and operate airfields. One team assisted the Florida Army National Guard with air traffic control at Marathon Regional Airport to enable a safe operating environment for more than 1,000 aircraft transitioning that airspace. Another team worked alongside Air Force Reserve Command at Homestead Air Reserve Base.

HURRICANE MARIA

With the U.S. Virgin Islands and Puerto Rico still digging out from the devastation of Irma, Hurricane Maria pounded the islands with intense winds and floodwaters. Initially a Category 5 storm before downgrading to a Category 4, it caused catastrophic damage and more than 50 deaths. It destroyed Puerto Rico's already damaged power grid and crippled seaports and runways, plunging millions of people into isolation without communication, food, and water.

Despite barely coming off relief operations for Irma, Lt Col Blaine Baker and his 64-member team from the 821 CRS ramped up efforts for relief operations.

"Having seen one community devastated by a hurricane, we reset as quickly as possible to be ready to assist in Puerto Rico," Baker said. More than 200 Airmen were deployed to Puerto Rico to operate the airfields, offload and move cargo to a staging area, and prepare it for distribution to FEMA staging locations.

Airmen assigned to the 621st Contingency Response Group at JB McGuire-Dix-Lakehurst, N.J., unload cargo at MacDill AFB, Fla., September 13, 2017. The 621st Contingency Response Wing supported Hurricane Irma relief efforts by receiving aircraft and rapidly downloading supplies and cargo.

USAF photo by TSgt Gustavo Gonzalez

SrA Terrance Thomas (left) and MSgt Frank Ingles, both assigned to 821st Contingency Response Squadron, unload pallets of food at Rafael Hernandez Airport, Aguadilla, Puerto Rico, Oct. 9, 2017.

U.S. Army photo by SSgt Pablo N. Piedra

A C-17 Globemaster III, delivering much needed supplies to areas devastated by Hurricane Irma, takes off from Travis AFB, Calif.

USAF photo by Louis Briscese

“I saw an Airman on the flight line who was tired, dirty, thirsty, and drenched in sweat,” he recalled. “But I’ve never seen morale higher. You know why? Because he knows his efforts enable the relief supplies to get to those families.”

The biggest difference with Maria was everything had to be flown in. According to Maj Gen Thomas J. Sharpy, AMC Deputy Commander, upon arrival in Puerto Rico Airmen had to open San Juan’s airfield and cargo yard to bring in the much-needed supplies and disaster relief personnel. Then they opened airfields and cargo yards in Roosevelt Roads on the east side of the island, Aguadilla on the west side of the island, and Ponce on the south side of the island.

Opening an airfield includes setting up command and control and the tactical operations center so troops can move aircraft in and out, as well as deploying communication elements, which allow voice and Internet communications to supporting units.

Beyond the airfields, Airmen helped evaluate and open the seaports at San Juan and Ponce so large container vessels could bring in supplies daily. The initial cargo brought included water, MREs, medical supplies, mobile medical units, helicopters, Humvees, high-capacity generators, and a cellular service tower.

Sharpy, who was immediately dispatched to Puerto Rico after the storm, explained that it was a challenge to integrate all relief efforts into a cohesive plan.

“FEMA has a way of doing things, the Army has a way of doing things, the Air Force has a way of doing things, and so on,” he said. “Just coordinating all of that into a synchronized plan is challenging. But we’ve done exceptionally well. From the results I’ve seen and the places I’ve visited, we’re getting the commodities to the logistical staging areas so municipalities and mayors can distribute those goods to the people in need. The teamwork has been incredible.”

While Maria took its toll on Puerto Rico, Sharpy said Airmen working night and day on the island remained undaunted.

“I saw an Airman on the flight line who was tired, dirty, thirsty, and drenched in sweat,” he recalled. “But I’ve never seen morale higher. You know why? Because he knows his efforts enable the relief supplies to get to those families.”

Airmen remaining longer term in Puerto Rico will help AMC’s mission transition from crisis response to sustained operations.

Also in the wake of Maria, Airmen from the 305th Air Mobility Wing at Joint Base McGuire-Dix-Lakehurst partnered with the New Jersey State Police and Emergency Medical Services Task Force to transport first responders and equipment to St. Croix. The wing provided two C-17 Globemaster III aircraft to help move personnel and cargo; Airmen then helped the Virgin Islands’ teams care for people and reorganize.

“I think I speak for all of the operations community when I say that this is what we want to be doing. This is what we love to do—help out and make a difference,” Lt Col Tellez said.

Thanks to their training and global exercises like Mobility Guardian, AMC’s Airmen epitomize the unique ability to respond quickly to disasters through airlift, refueling, and mobility support, thus providing the timeliest reach and results in humanitarian assistance.

“In my 30 years in the Air Force, I’ve never seen us provide this much effort for humanitarian assistance,” Sharpy said. “We moved 1,400 sorties for Maria alone and over 2,000 total in the U.S. area of responsibility in 40 days. That’s incredible.”

Agreed, sir. That’s incredible!

The Longest Running Humanitarian Airlift Mission:
Operation Christmas Drop

BY MS. JANET PURDY, STAFF WRITER

Who doesn't look forward to Christmas and the opportunity to give (and receive) a present? Making it even more special is when the gift meets a physical or emotional need, not just a want. Approximately 28,000 Pacific Islanders in some of the most remote areas of the world have received airdrops since 1952 from the Department of Defense's longest running humanitarian airlift mission – Operation Christmas Drop.

Airmen from the 734th Air Mobility Squadron once again airdropped donations gathered through Operation Christmas Drop 2017 to provide non-perishable food, medical supplies, personal hygiene supplies, fishing supplies, sports equipment, hand tools and building supplies, educational materials, clothing, and toys to the people of the Pacific Islands. This year, AMC is celebrating 66 years of providing humanitarian aid through this program.

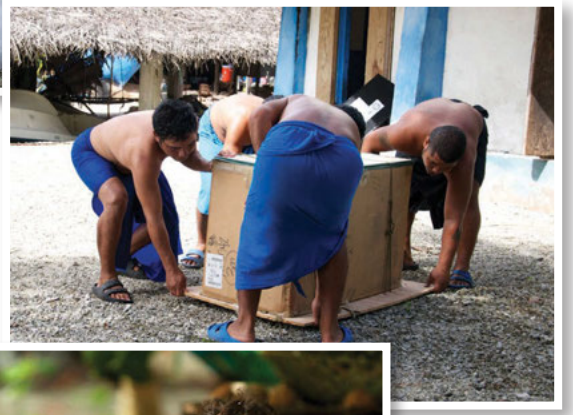
Operation Christmas Drop not only allows AMC to provide much-needed supplies to the remote islands, it also serves as a training mission for military airdrops. Yokota AB aircrews and personnel from Anderson AFB in Guam deliver almost 40,000 pounds of supplies by executing more than 20 low-cost, low-altitude airdrop training missions throughout the region. The airdrop missions allow aircrews to practice essential combat skills and demonstrate commitment throughout the Pacific Island region. Joining the United States on this mission were the Royal Australian Air Force and the Japanese Self Defense Force. Last year, Operation Christmas Drop integrated support from the U.S. Navy and U.S. Coast Guard, delivering 20,000 pounds of items by sea.

BOOTS ON THE GROUND

While stationed at Anderson AFB, Guam, SMSgt Cameron Leslie got a little surprise of his own when he sought out the opportunity to participate in spreading the blessings firsthand. In 2011, Leslie asked his commander if he could go to the islands and photograph the drop for the residents. His commander asked for a solid plan and Leslie got his wish. Although he spent a lot of time researching, his plan hit a big bump. He was to fly from Guam to Yap in the Federated States of Micronesia and connect with a missionary pilot for a jump to MogMog, Ulithi, as the navigators and crew who had flown in the past told him that was the easiest island to reach.

When he arrived in Yap, he learned he couldn't go out to the island due to an outbreak of dengue fever, a mosquito-borne disease. As he was at

Islanders retrieving cargo dropped during Operation Christmas Drop in 2015.
Photo by SMSgt Cameron Leslie; 521 AMOG/MXQ, Rota, Spain



Photos of SMSgt Cameron Leslie and residents of Yap and Ulithi before and during Operation Christmas Drop in 2015.

Photos courtesy of SMSgt Cameron Leslie; 521 AMOG/MXQ, Rota, Spain

the hotel preparing to return to Guam, they called to inform him they had rescinded the ban for him when they discovered the purpose of his trip.

So, next up, Ulithi. And, another bump. The plane broke down on the Ulithi air strip upon landing. Fortunately, Leslie was an airplane mechanic by trade, so he worked tirelessly on the plane along side the pilot until they got it ready to fly. At that point, the pilot was ready to fly back, and Leslie hadn't even performed his Christmas Drop mission. Instead, the pilot left but SMSgt Leslie stayed. Since the pilot didn't make it back for nearly two weeks, Leslie got to take in the island—it is about a mile long and a half mile wide with about 100 residents. The first drop was delayed a few days, so getting stranded on the remote island ended up being a blessing.

After the first drop on Ulithi, he went on to two subsequent island drops and saw how they divvy up the boxes. When Leslie was there, it was the first time the boxes were sorted and weighed, with each family receiving equal amounts of supplies, along with a 50-pound bag of rice, canned goods, and other non-perishable foods.

THE ORIGIN

The mission began in 1952 when a B-29 was out flying and saw the people below on the atoll of Kapingamarangi. "The next round they made, they wrapped some tobacco, rice, and canned food, and made a little parachute and dropped it out," Leslie said. "Eventually, it turned into what we know today." The boxes are filled with donations from around the world, collected in Guam by volunteers, and then packaged and dropped by parachute. The size of the boxes has increased over the years and the islanders are extremely thankful for Operation Christmas Drop.

Back-to-Back Success!

BY MR. WAYNE BENDALL, HQ AMC
OCCUPATIONAL SAFETY MANAGER

No, we're not talking about your favorite sports team. We're talking something much more important: life and death!

"Say Something" was the theme for this year's campaign; it targeted every Airman's duty to intervene when unsafe situations arise.

I am happy to report we had ZERO fatal mishaps in AMC during this year's Critical Days of Summer (CDS) safety campaign for the second year in a row. This is only the third time in the command's history that we have accomplished this goal; the two previous years were 2008 and 2016. Thank you for your tireless efforts in promoting safe mission execution through sound decision-making and personal risk management.

"Say Something" was the theme for this year's campaign; it targeted every Airman's duty to intervene when unsafe situations arise. The kick-off video featured AMC Commander Gen Carlton D. Everhart and AMC Command Chief CMSgt Shelina Frey sharing their leadership perspective on safe mission execution and the importance of safety this summer.

In addition, we solicited the help of Airmen across the command to create short, comedic videos aimed at promoting the theme of "Say Something" and communicating the safety message to our target audience in a different way. The video contest was a resounding success, and AMC Airmen showed their amazing creativity in developing mishap prevention videos. Thank you to all the wings for your submissions, and congratulations to everyone on a job well done. The 92 ARW, 62 AW, and 319 ABW were selected as winners and received an AMC Safety Well Done Award plaque and certificate.

Another key component in spreading the safety message this summer were eight discussion guides titled #**W**hat**W**ould**Y**ou**D**o? They were used to facilitate supervisory-led small-group talks using mishap scenarios. The guides allowed units to discuss situations where Airmen could place themselves in the shoes of those in the scenario and answer questions such as, "What would you do?" or "Would you have said something?" These guides highlighted our duty to intervene and pointed out that stepping up and saying something isn't always easy; however, it's often necessary to ensure the safety of our fellow wingmen.

Twelve Airmen across the Air Force lost their lives during the CDS campaign, and two others suffered permanent disabling injuries due to preventable mishaps. One AMC Airman sustained a permanent disabling injury when a firework exploded unexpectedly, resulting in blindness.

While the CDS campaign has ended, hazards and risks are still present in our on-duty and off-duty environments. It is vital for leaders, supervisors, and wingmen to continue their mishap prevention efforts throughout the remainder of the year and beyond. We need every Airman to stay focused, make good decisions, manage risks, and "Say Something" when the situation does not seem right.

Strategic Location = Big Reach for 730 AMS

BY MS. KIM KNIGHT, STAFF WRITER

Yokota Air Base (AB), Japan, has been dubbed the "Airlift hub of the Pacific" due to its location. It lives up to that nickname, thanks in part to the 730th Air Mobility Squadron (AMS) there.

This air logistics network connects Yokota AB to CONUS with regular missions through Travis AFB, California, Joint Base Pearl Harbor-Hickam, Hawaii, and Seattle-Tacoma International Airport, Washington. It provides direct logistics lines to Korea, Singapore, Diego Garcia, and several destinations throughout Japan. The 730 AMS forwards more than 75,000 passengers and 14,000 tons of cargo throughout the Pacific theater annually.

Yokota is also the only authorized Aerial Port of Debarkation for mainland Japan, thus making it the distribution point for several thousand tons of cargo annually ranging from munitions to household goods. It is indeed strategically located. With a C-17 from Yokota, the 730 AMS can touch 89 countries. In case you're wondering, that is 5,356,528,862 people—about 74 percent of the world population and four nuclear capable countries.

Lt Col Jerrymar "Jerry" Copeland Jr., Commander of the 730 AMS, said Yokota AB undoubtedly strengthens operations in the en route.

"It provides a bridge that connects strategic airlift between the continental United States and DoD locations in the Pacific theater," he explained, "and it provides a forward maintenance capability for transiting aircraft."

Some unique features set Yokota apart from other bases in the en route and enhance its ability to accomplish the TRANSCOM mission. First, the Mechanized Material Handling System there—an automated pallet storage and dispensing facility completed in 2015—is one of only three in the Air Force.

According to Mr. Joey A Eisenhut, 730 AMS Air Terminal Manager, "That system adds efficiency and security for the 408 pallets it is capable of holding. It is controlled by a satellite operator in the warehouse or can be controlled manually from a cab inside the facility. Some of its many modern capabilities include fire suppression, video security, and motion detectors." The system decreased the cargo staging timeline from 4.5 to 1.5 hrs.

The 730th Air Mobility Squadron also installed a crane in 2015 that allows transporters to process oversize equipment and 40-foot shipping containers—an important capability with Yokota's proximity to the port of Yokohama, Japan.

"We have the only active C-5 Aerial Port Expeditor program in the Western Pacific," continued Copeland. "The program certifies selected air transporters, similar to loadmaster certifications, to upload and download C-5s without C-5 crews being present, thereby adding flexibility to the Aerial Port and minimizing crew duty day. Also, we're the only WESTPAC [Western Pacific] location that uses C-5M ground trainers to the fullest. The trainers ensure maintenance personnel get the needed training to be effective, and using them allows our members to stay proficient in critical auxiliary power unit, engine run, and cargo door tasks."

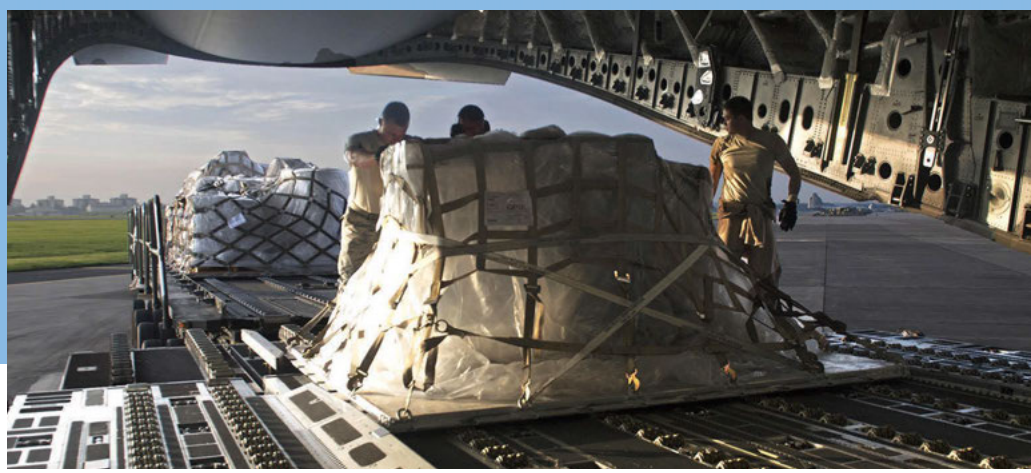
Capt. Eric H Deng, 730 AMS Aircraft Maintenance Unit OIC, said the 730 AMS has set its sights on the future, too. As an example, he mentioned TSgt Cory Kozlowski's project that uses a set of smart glasses (currently the Microsoft HoloLens) and mixes a live, direct view of a real-world environment with computer generated holograms, graphics, and/or sounds.

"The focus for now is on training," he explained, "where Airmen can watch step-by-step videos that feature either computer generated aircraft or videos overlaid on the actual aircraft. However, it can be logically extended to additional uses, such as getting assistance from more experienced maintainers or engineers while troubleshooting, inspecting, and evaluating completed work."

One unique mission the 730 AMS plays a part in is bolstering the capability and partnership with the Japanese Air Self Defense Force (JASDF). It has provided six C-17 aircraft familiarization workshops to Japanese Air Transporters since 2014 in which Airmen taught the JASDF how to load combat vehicles, chemical containment vehicles, and UH-60s properly.

Right: Airmen from the 730 AMS push cargo into a C-17 Globemaster III as they train members from a contingency response group at Yokota AB, Japan.

USAF photo by SSgt David Owsianka



Below: Brig Gen Michael Winkler, 5th Air Force vice commander, is briefed by Dean Labdon, 730 AMS mechanized material handling system (MMHS) manager, on the MMHS capabilities at Yokota AB, Japan.

USAF photo by Yasuo Osakabe

"The exercises deepen the working relationship between our two militaries and provide a wider range of deployment possibilities to JASDF logistics planners," Copeland said. "We believe that interaction with our Japanese partners strengthens the Japanese-U.S. bond by learning different processes and methods of operation, as well as sharing lessons in professional development and allowing participants to teach and learn in a culturally diverse environment."

The 730th Air Mobility Squadron has a detachment in Singapore, and Copeland provided a poignant reminder of its importance.

"In August, they were called upon to support the Navy after the USS John S. McCain was involved in an accident in the Strait of Malacca," he recalled. "Three military members and 18 contractors jumped into action and worked tirelessly to provide launch and recovery services for SH-60 Seahawk helicopters performing 24-hour search and rescue missions. Once the bodies of the 10 sailors were recovered, they teamed up with Mortuary Affairs to prepare and load transfer cases onto a C-17 to send our fallen brethren back home to their families."

Before closing, Copeland provided other examples of the Yokota AB Airmen being "the backbone of Rapid Global Mobility in the WESTPAC."

In January 2017, the USS Antietam, a Ticonderoga-class guided missile cruiser, ran aground outside of Yokosuka Naval Base, damaging the ship's propellers. The 730 AMS Air Freight section worked with numerous organizations throughout DoD to execute the movement of six stern-shafts for the repair. The shafts were 80 feet long and ranged from 65,000 to 110,000 pounds each; all were received, downloaded, transferred, and forwarded to Yokosuka Naval Base flawlessly.

That same month, a C-5M Aircraft from Travis AFB returned to Yokota Air Base 20 minutes after take-off due to a main landing gear not fully retracting. Once blocked in, personnel surveyed the damage. The 730th maintainers quickly identified the parts needed for repair and eventually discovered a subsequent issue that required repair. Still, this joint team effort—which included personnel from Travis AFB and the 733 AMS at Kadena AB, Japan—ended with a successful repair versus replacement for the affected parts, saving the Air Force $501,104.

Thanks to the men and women in the 730th Air Mobility Squadron for making Yokota AB the best "Airlift hub of the Pacific." That description says plenty but can't possibly say it all!

THESE are the Good Old Days

BY MR. MONTE NACE, STAFF WRITER

I'm sometimes guilty of reminiscing about time past, saying, "Those were the good old days!" But when it comes to flying in and out of the South Pole, the "good old days" are now!

It's no secret that AMC planes often go to remote locations to accomplish missions, but McMurdo Station in Antarctica is likely the most isolated (and eerily beautiful) of them all. Indeed, it is one of the U.S. military's most difficult peacetime missions due to the harsh Antarctic conditions. Even so, getting there is easier than it used to be! For example, in 1956, the flight took 12 hours on an unpressurized Air Force C-124. Today, it only takes a C-17 Globemaster III about five hours.

Located atop volcanic rock on Ross Island in the South Pole (technically, at 77 degrees 51 minutes S, 166 degrees 40 minutes E), McMurdo is comprised of about 85 buildings. A few hundred residents—primarily scientists and support personnel—live there in the austral winter (from late February to late October). The population swells to more than 1,000 in the austral summer (late October until mid-February).

The National Science Foundation, an independent federal agency created by Congress in 1950, conducts research at and near McMurdo Station. Interest areas include Earth's upper atmosphere, astrophysics, biology, medicine, geology, geophysics, glacial geology, and ocean and climate systems. Cold and/or windy conditions are common. Temperatures range from minus 58 F to as "warm" as 46 F; the average wind is just 12 knots but has exceeded 100 knots.

McMurdo sits approximately 2,400 miles south of Christchurch, New Zealand, which serves as the staging point for deployments to McMurdo Station. Since 1992, wheeled planes have arrived and departed using the 26-year-old Pegasus White Ice Runway, located about 19 miles from McMurdo. The compacted "white ice" pavement has been operational throughout the austral summer, except during the warmest months.

Operating on this "floating" runway of sorts created challenges, such as hard landings that could create waves that crack the ice. Aircraft repairs are tricky, too, as a stationary plane could break through the ice and plunge into the frigid water below. Flight crews have done exceptionally well, considering they may have landed on a white runway surrounded by a white landscape.

A new runway area called Phoenix was completed in 2016 using compressed snow that is reportedly stronger than concrete. Construction took more than 16 months. Heavy rollers weighing up to 160,000 pounds worked the snow over, changing it to a denser, higher strength snow foundation (32 inches deep) that can withstand the impact of heavily loaded aircraft landings.

For years, however, the isolation and the runway material were not necessarily the most alarming factor of a trip to McMurdo Station. Instead,

it was the prospect of running out of fuel and having to ditch in the ocean because the C-17s carrying in supplies only had enough fuel to make it back to Christchurch. Now, tanks are larger and the planes can make it farther, so it is much safer!

"The C-17, with its extended range fuel tanks, cargo capacity, and short/semi-prepared runway capabilities, is ideally suited for the Antarctic mission," said Lt Col Robert Schmidt, 304th Expeditionary Airlift Squadron commander, in an AMC interview in late 2016. "This not only improves the safety of the mission by giving the crews flexibility during rapidly changing weather conditions but also reduces the amount of fuel that needs to be shipped to Antarctica each year."

Today, support aircraft at McMurdo include the C-17 Globemaster III, deployed forward to New Zealand with personnel from the 62d and 446th Airlift Wings, Joint Base Lewis-McChord in Washington State. Intercontinental transport of personnel and cargo to and from the United States is augmented by C-5A aircraft from the 105th Airlift Wing at Stewart Air National Guard Base in New York. LC-130 ski-equipped cargo planes deployed forward to Antarctica from the 109th Airlift Wing, Stratton Air National Guard Base, New York, provide heavy lift to the Amundsen-Scott South Pole Station and other remote science outposts in Antarctica.

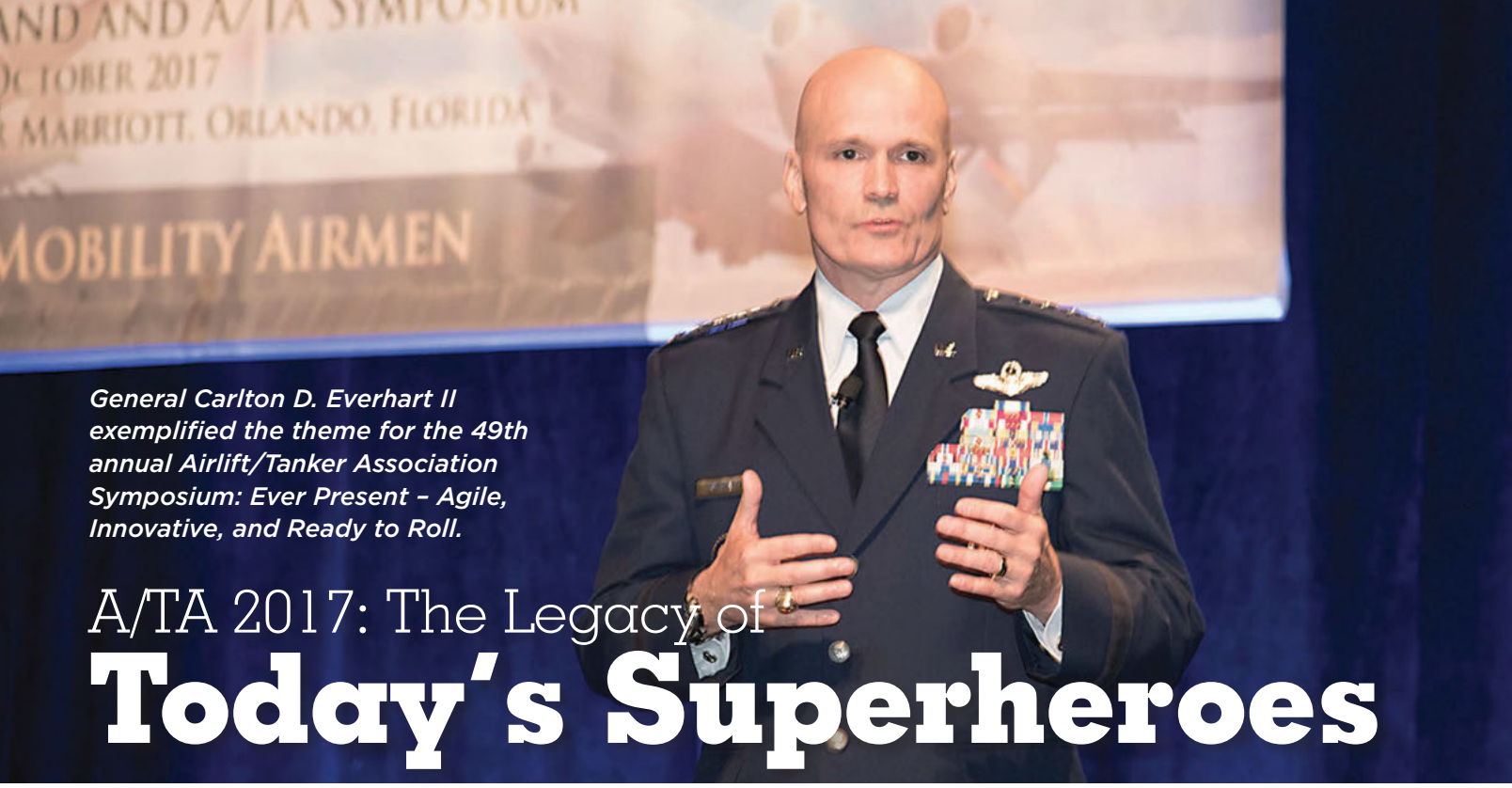
HISTORY OF OPERATION DEEP FREEZE

Operation Deep Freeze is the logistical support DoD provides to the U.S. Antarctic Program. It includes airlift and airdrop requirements, aeromedical evacuation support, search and rescue response, sealift, seaport access, bulk fuel supply, port cargo handling, and transportation requirements supporting the National Science Foundation.

1839	Captain Charles Wilkes led the first U.S. Naval Expedition into Antarctic waters.
1929	Admiral Richard E. Byrd established naval outposts on the Antarctic coast; he and his crew also flew over the South Pole.
1946	Byrd organized the U.S. Navy's Operation Highjump, putting 4,000+ people and numerous ships into the Ross Sea area.
1948	Commander Finn Ronne led an expedition that photographed over 450,000 square miles of the continent by air.
1955-56	U.S. Navy launched Operation Deep Freeze 1 to prepare logistics and basing support in advance of scientific work conducted by 40 nations in 1957-58.
1961	Various models of LC-130 heavy-lift ski planes began being used.
1988	The 109th Airlift Wing (New York Air National Guard), flying its own LC-130, enhanced the Navy's support program.
1998-99	The U.S. Air Force assumed the support mission. The 109th became the only flying unit in the world to fly the ski-equipped LC-130.

A C-17 Globemaster lands at McMurdo Station in Antarctica.

USAF photo by TSgt Jesse Huneycutt



General Carlton D. Everhart II exemplified the theme for the 49th annual Airlift/Tanker Association Symposium: Ever Present – Agile, Innovative, and Ready to Roll.

A/TA 2017: The Legacy of Today's Superheroes

BY MS. JANET PURDY,
STAFF WRITER

In his closing address to the Airmen and families, coalition partners, and industry partners who filled the convention center at the Orlando World Center Marriott on October 28, Gen Everhart talked about the past, present, and future of Air Mobility Command.

He recognized today's superheroes, who move the air mobility enterprise where it needs to be, and explained that Rapid Global Mobility Now and Tomorrow (RGMN&T) will build on the legacy of those superheroes. He also discussed several examples of modernization.

MOBILITY GUARDIAN BY THE NUMBERS:

- **11 nations** participating
- **54 aircraft** participating
- **243 aeromedical evacuations**
- **356 jumpers**
- **650 sorties** flown in 2 weeks
- **3,600 passengers (PAX)**
- **1.3 million pounds of fuel** passed

"KC-46 is coming," he insisted, putting Altus and McConnell on alert for spring. Everhart pointed out that modernization gives AMC survivability and persistence by "… getting machines to do what machines do so people can do what they do, which is getting after our enemies."

He touched on the nuclear mission, as well, saying we cannot fail—and that RGMN&T is "what we do" against those who try to do us harm.

SUPERHERO VIGNETTES

To bring home his message, Everhart shared scenarios depicting AMC Airmen being Ever Present. First, he mentioned the Power Projection Platform at McChord to detail the Mobility Guardian training exercise, describing it as a scenario-based exercise to learn how we can do things better.

"It requires talking to each other to identify how you'll beat a threat," he said. Through failures and successes, information was shared and shared again. He called out what he believed to be the most impressive statistic from the exercise: a 94.4 percent mission capability rate by maintenance.

Next, he described the accomplishments and skill of a team on a mission to take Marines from Kadena to Guam. Following four successful refuelings, the F-18 lost an engine and didn't have enough fuel to make it in. The KC-135 took over, per normal procedure, and helped the crippled fighter crawl back. Indeed, the crew ensured the F-18 had enough gas to land at an alternate location and provided airborne command and control until the fighter was on the ground safely.

Everhart then spoke of a crew taking critically wounded from Germany to the United States. As they prepared to leave, command tasked them with also transporting a baby needing critical medical services. The team stopped at Lakenhearth to pick up the baby, endured airfield closings due to bad weather, but proceeded to get the job done. Thanks to their tenacity, all Soldiers and the baby lived.

Service before self was also noted when he talked about the tenacity of AMC Airmen. Specifically, how the Contingency Response Wing has helped open airfields and get supplies where they are needed at Baghdad, Al Asad, and Erbil, and then liberated

Fallujah for the third time. Everhart reiterated repeatedly the team's resolve to give service over self as they were called to duty near Mosul and then Syria.

In naming some recipients of the bronze medal, he said, "It's not just what you do; it's what we all do." Bringing these stories from around the world full circle, he summarized what AMC does every day.

"We can reach the enemy where they hide," Everhart said. "We transport the most elite fighters and fuel them until we win. We are ever-present in all corners of the world. We bring supplies to the airfield and bring the hands that heal. Combatant commanders depend on us to support those facing the enemy. We stand ready whenever and wherever needed. We deliver hope, carry strength, fuel the fight, and save lives. We are the reach. We are AMC."

He then reminisced about a young Captain Everhart, a Red Devil preparing for Desert Storm. "I've walked a mile in your shoes," he said, adding that he made a decision when he returned home: he wasn't finished serving.

His focus then turned to the superheroes—the future of AMC.

"What you do matters," he began. "I don't want you to have to choose between your job and your family." Everhart said he recognizes the elite talent recruited into AMC—as well as the sacrifices Airmen and families make—and that he and his team are seeking suggestions and evaluating solutions. He used the metaphor that AMC is a big aircraft; sometimes it takes a little bit of change and a little bit of time to make that change.

"Be patient with me," he said. "I need you. We need you. Our nation needs you on our team." Everhart encouraged attendees to let their commanders know what's on their mind. He then shared a photo of his grandson and spoke of his wife and family. "It's an honor to serve," he added, adding that what he does now and what today's superheroes do in the future set the foundation for his grandson to succeed if he someday joins the Air Force.

"That's why I serve. Why do you?"

He closed by thanking Airmen for a job exceptionally well done each and every day.

Gen Carlton D. Everhart II gives the closing address for the Airlift/Tanker Association Symposium in Orlando, Fla., Oct. 26, 2017.

USAF photo by TSgt Jodi Martinez

MILESTONES THIS YEAR

Scott AFB: 100th year

USAF: 70th year

TACC: 25th year

USTRANSCOM: 30th year

Air Force Chief of Staff General David Goldfein speaking at the A/TA Symposium in Orlando, Fla. on October 26, 2017.

Photo by Janet Purdy

Ice. Stall. Crash.

BY MR. MONTE NACE,
STAFF WRITER

Ice. Stall. Crash. Nobody wants to hear those three words when affiliated with an aircraft incident, yet that was the case shortly before Christmas in 1985. Families at Fort Campbell, Kentucky—who were waiting patiently for loved ones to return home from a six-month peacekeeping mission in the Sinai Peninsula in Egypt—received tragic news instead. Arrow Air Flight 1285, a chartered civilian aircraft carrying their loved ones, had gone down. All 248 U.S. Army soldiers on board perished, as did the eight-person crew.

Events that day can serve as a reminder to all of us …

Thursday, December 12, 1985. Soldiers assigned or attached to the 3rd Battalion, 502nd Infantry Regiment, 2nd Brigade, 101st Airborne Division (Air Assault) headed home aboard a McDonnell Douglas DC-8 jetliner that left from Cairo, made a stopover in Cologne (West Germany), and took off with a new crew.

The next stop was Gander International Airport in Gander, Newfoundland. Passengers disembarked, and refueling occurred. The flight engineer reportedly conducted an external inspection of portions of the aircraft, passengers re-boarded, and the crew taxied for departure.

According to the Canadian Aviation Safety Board Majority report, witnesses said the aircraft gained little altitude and began to descend; several observed the plane in a right bank as it crossed a nearby highway. The pitch angle reportedly increased, but the aircraft continued to descend until it struck terrain approximately 3,000 feet beyond the departure end of the runway. An intense fire followed the impact. A first responder recalled during a 2015 interview that there was little remaining of the plane when he arrived, saying, "It basically disintegrated when it hit the ground."[1]

1 Within a few hours of the crash, a terrorist group claimed responsibility. However, Canadian and U.S. governments ultimately dismissed the claim. Similarly, some people have since claimed an on-board explosion caused the crash.

The Safety Board was unable to determine the exact sequence of events leading to the accident but concluded that, "Shortly after lift-off, the aircraft experienced an increase in drag and reduction in lift, which resulted in a stall at low altitude from which recovery was not possible. The most probable cause of the stall was determined to be ice on the leading edge and upper surface of the wing."

The report lists other factors that may have played a role in the incident. Indeed, the investigation itself was challenging due to the lack of information a serviceable cockpit voice recorder and enhanced-capability digital flight data recorder could have provided. Some of the findings cited in the report[2] include:

- During the approach to land, the existing meteorological conditions were conductive to ice accretion on the leading edge of the wing.
- While on the ground at Gander,

2 Aviation Occurrence Report Number 85-H50902 at **http://www.sandford.org/gandercrash/investigations/majority_report/html/_3-1.shtml**.

THE POWER OF ICE

The FAA published *Advisory Circular 20-117*. It indicates the effects of ice formation on an aircraft are variable and unpredictable, and depend on a plane's design.

The Circular states that ice, frost, or snow accumulation on the leading edge and upper surface of a wing can reduce wing lift by as much as 30 percent and can increase drag by 40 percent. These changes significantly increase stall speed, reduce controllability, and alter aircraft flight characteristics. It emphasizes that take-off should not be attempted unless all critical components of the aircraft are free of adhering snow, frost, or other ice formations.

Finally, AC-20-117 states that the only method of positively ascertaining whether an aircraft is clean prior to take-off is by close inspection.

SrA Eddy Santibanez, 721st Aerial Port Squadron special handler, walks toward a C-17 Globemaster III to sign for cargo before unloading at Ramstein AB, Germany.

USAF photo by SrA Jonathan Stefanko

Personnel from the 436 AMS remove snow and ice from a C-5M Super Galaxy at Dover AFB, Del.
USAF photo by Roland Balik

the aircraft was exposed to freezing and frozen precipitation capable of producing roughening on the wing upper surface. Also, the difference between the wing surface temperature and the outside temperature was conducive to the formation of frost on the surface of the wing.

- The aircraft was not de-iced prior to take-off.
- There was insufficient altitude available to recover from the stall.
- The performance of the aircraft after lift-off was consistent with the reduced aerodynamic efficiency and resultant high drag associated with wing ice contamination. It was also consistent with the effects of wing ice contamination combined with a partial loss in engine thrust.

So, investigators said precipitation conditions were favorable for ice to form on the wings as it approached Gander, its time on the ground could have produced roughening on the upper surface of the wing, and de-icing did not occur before take-off. Thus, the report indicates the probable cause of the crash was an unexpectedly high drag and reduced lift condition, most likely due to ice contamination on the wings' leading edges and upper surfaces.

This article can't address every aspect of aircraft icing. Instead, it is a reminder of the critical role you play in keeping Airmen alive. When it comes to potential ice formation on aircraft, I will borrow a couple of well-used phrases.

Follow your instincts. Investigators interviewed six ground service personnel who attended the aircraft during its technical stop at Gander. One person "did not see any obvious need for de-icing" but said he could not see the top of the wing. Another saw ice on the edge of the windscreen and reported that the flight engineer said the flight picked up "a little ice" on descent into Gander.

If you see something, say something. Regardless of your job title or job description, all airmen are on the same team. Pay attention to clues about the environmental conditions at ground level and in the air, and do not be afraid to voice your concerns.

There is a fine line between "not enough ice to bring down an airliner" and "enough to cause a catastrophe." Just because conditions did not cause icing in flight or on approach does not mean icing cannot occur on the ground prior to taking off again. De-icing may have meant the difference for 256 families that holiday season—and every holiday season since.

LIFT AND DRAG EFFECTS

Investigators in the Arrow Air Flight 1285 accident considered that ice accumulation affecting lift and drag associated with wing surface roughness was a causal factor in a number of take-off accidents involving jet transport aircraft.

- In December 1968, Ozark Airline Flight 982, a Douglas DC-9-15, crashed while taking off from the Sioux City (Iowa) Airport. The NTSB determined the probable cause of the accident was a stall near the upper limits of ground effect, with subsequent loss of control because of the aerodynamic and weight penalties of airfoil icing. The crew had not de-iced before the attempted take-off.
- In November 1978, Trans World Airways Flight 505, a Douglas DC-9-10, crashed while taking off from Newark (New Jersey) International Airport. Aircraft control was lost shortly after lift-off. The NTSB identified airframe icing and a failure to de-ice before take-off as causal factors.
- In February 1985, an Airborne Express Douglas DC-9-15 crashed while taking off from Philadelphia (Pennsylvania) International Airport. The NTSB determined that airfoil icing and failure to de-ice before take-off were cause factors in the accident.

All three accidents contained common elements.

1. Each aircraft stalled at a lower than normal angle of attack shortly after take-off.
2. Precipitation was present in the form of freezing rain and/or snow.
3. The planes were not de-iced before take-off.
4. None of the planes had leading edge devices.

Hey! Watch Your Step!

BY MS. RITA HESS, STAFF WRITER

A LOOK BACK

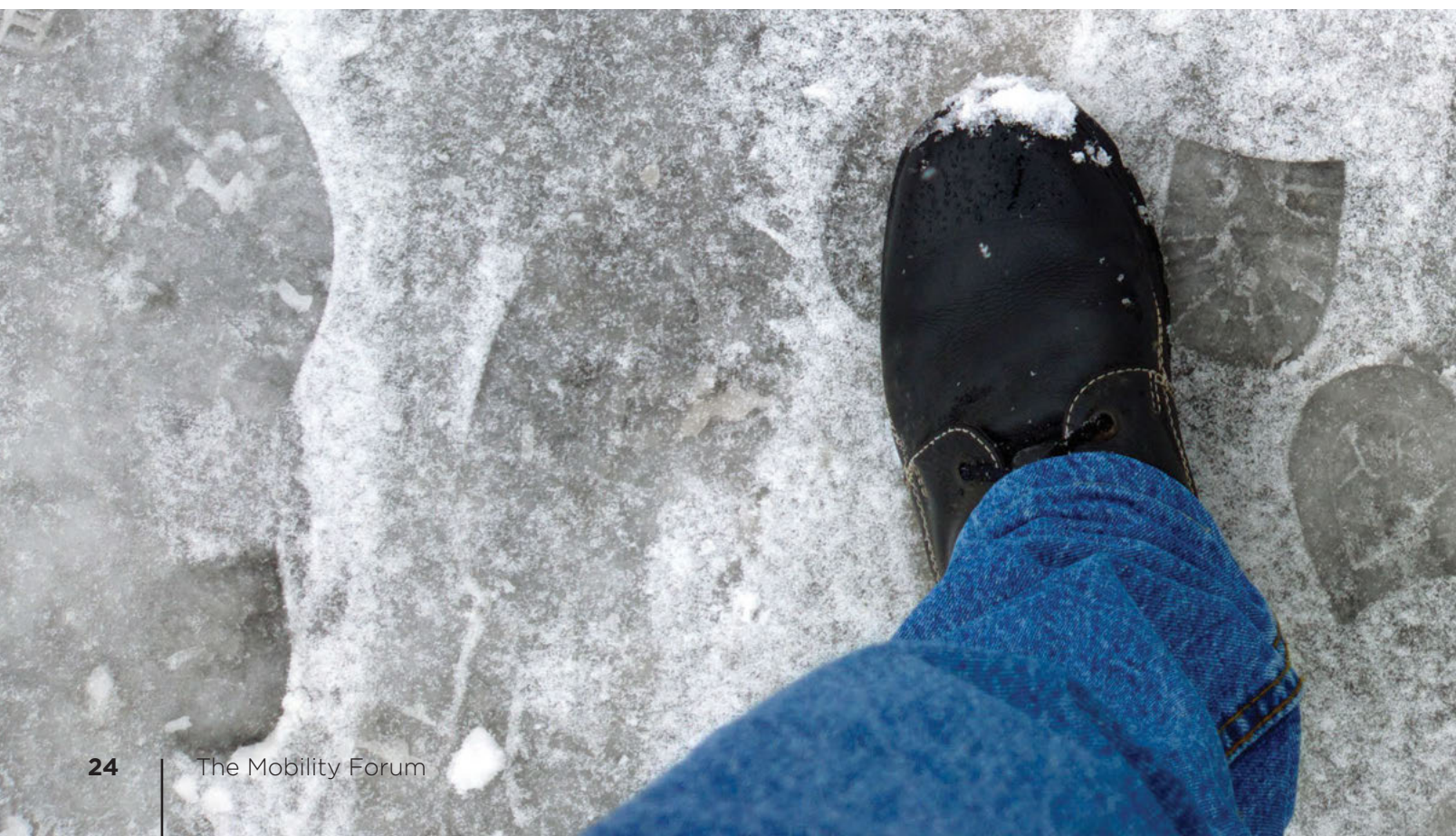
Before the Occupational Safety and Health Administration (OSHA) was created 43 years ago, an estimated 14,000 workers were killed on the job annually. Think about that. Of all the workers who left home each morning for work, approximately 38 of them died on the job *every day*. We fare much better now, but there are still, on average, 12 workplace fatalities per day.

- Slips, trips, and falls remain a persistent cause from year to year. A quick look at OSHA data for one month earlier this year reveals a worker who died after falling from a two-foot platform. Just a small distance—but it was nonetheless deadly. Reports indicate two other separate incidents in which employees tripped, fell, and subsequently died.
- If you live in a location that sees winter weather conditions this time of year, you might expect these types of accidents outdoors. But slick surfaces can be an indoor hazard, too, if ice and snow are tracked in on footwear or clothing. Obstacles in hallways and walkways can cause mishaps, as well. Finally, use of electronic devices while walking is quickly becoming a factor in many cases. Simply stated, many slips, trips, and falls are due to a lack of attention and lack of awareness of hazardous factors.

A LOOK AT AIR FORCE MISHAPS

Fall mishaps can result in permanent injury, paralysis, hospitalization, a reduced quality of life—and a lot of pain! From 2012–2016, Air Force personnel were involved in almost 3,500 fall mishaps (on and off duty), which resulted in 13 fatalities and 42,000 lost workdays. This number does not even include sports-related falls.

- "We need to remind everyone that appropriate risk management and a little common sense can drastically reduce the number of injuries from slips, trips, and falls," said Bill Parsons, Chief of Air Force Occupational Safety. The Air Force Safety Center teamed



up with OSHA and the National Institute for Occupational Safety and Health in May to promote fall safety and fall prevention.

› It is a message worth repeating this time of year, though, considering that winter weather can make walking dangerous. Slips on icy surfaces indoors and out injure Airmen, as do trips and missteps on stairs, curbs, and uneven surfaces. Other factors may include items placed where they should not be (cables, boxes, wires); liquid products (water, mud, grease) or dry products (dust, powder) causing slick surfaces; and unclean footwear (such as wet or muddy boots). There are numerous other causes, too. But the commonality is this: **Most of the mishaps are preventable**.

› Whether they occur on duty or off, these accidents can sideline personnel, which risks mission readiness and accomplishment. Remember, common sense (and common courtesy) can go a long way toward preventing slips, trips, and falls.

A LOOK AT 8 GREAT WAYS TO PREVENT SLIPS, TRIPS, AND FALLS

1. Put away your electronic devices; take your time and walk slowly.
2. Watch your step (yes, actually watch each step you take), being especially mindful of the terrain (sidewalks, curbs, gravel) and obstacles (steps). Pay close attention to changes in surface, such as when you leave a dry area and enter one that may be wet or slick.
3. If possible, find an alternate path around surfaces that may be slippery, such as those covered with damp leaves, snow, or ice.
4. Use handrails when you go up and down steps and stairways if provided.
5. Wear appropriate footwear. That might mean wearing one pair—for example, boots with soles that provide grip and/or traction—and carrying another pair to change into later.
6. In inclement weather, clean your outdoor shoes as soon as you go inside so that water, caked snow, and ice on your soles does not present a hazard to you or to people that may walk the same area after you.
7. Indoors, ensure that entryways, halls, and stairs are clear of snow, slush, or rain. If an area needs attention, take a minute to clean it up or report it—even if you did not cause it.
8. Remind Airmen through either safety briefings or casual conversations that we are all responsible for each other's safety.

A LOOK AT DR. LOVE!

In three very short videos produced for the May 2017 fall prevention campaign, Dr. Love demonstrates (a) how a game called "Which is Better?" can prevent slips, trips, and falls; (b) the importance of saving yourself and your coworkers from slipping and tripping hazards; and (c) how not to be a knucklehead when it comes to harness safety.

www.safety.af.mil/News/Video/videoid/465071/dvpTag/Falls/#DVIDSVideoPlayer18452

Tuskegee Airmen

BY MR. MONTE NACE, STAFF WRITER

First class of Tuskegee cadets in Tuskegee, Alabama, 1941.

Below: Lt Col George E. Hardy, during his time as a Tuskegee Airman in the 1940s.

Courtesy Photo

Left: Pilots of the 332d Fighter Group, "Tuskegee Airmen," From left to right, Lt Dempsey W. Morgan, Lt Carroll S. Woods, Lt Robert H. Nelson, Jr., Capt Andrew D. Turner, and Lt Clarence P. Lester.

USAF Photo

SETTING THE STAGE

The 1940s were a precarious period in history. One disturbing sign of the times was the abundance of racism and segregation within our country and our military services. In the U.S. Army Air Corps (predecessor to the Air Force), black service members were not allowed to pilot planes and were often prevented from entering cockpits.

Winds of change were blowing, however. President Franklin D. Roosevelt authorized enlistment of African American aviators and, in 1941, announced that a historically black Alabama college named Tuskegee University would train an all-black (including African-Americans and Haitian) fighter pilot unit. Some military officers, as well as some citizens, remained skeptical.

World War II escalated, though, and the first group of 33 black Airmen completed pilot training in July 1943. The War Department established the 99th Pursuit Squadron, comprised of America's first African American military pilots. It was subsequently renamed the 99th Fighter Squadron; decades later, it and several other squadrons collectively became known as the Tuskegee Airmen. The term encompassed not only pilots, but also radio operators, navigators, bombing crews, aircraft maintainers, instructors, and support personnel.

Lt Col George E. Hardy (Ret.)

MACDILL HOSTS A HERO

In 2016, MacDill Air Force Base in Florida hosted a Tuskegee pilot, retired Lt Col George E. Hardy, who spoke to an audience in the Davis Conference Center. The facility garnered its name from the late four-star Gen Benjamin O. Davis Jr. During his presentation, Hardy recalled the harsh realities of racism and segregation in the military.

"Segregation back then was a part of the fabric of this country," he said. "And it was enforced, and the military was segregated as well." Still, he says it was worth it. "We paid a price, but it was a price that we were glad to pay."

In addition to being a well-decorated veteran of World War II, Hardy later served in the Korean War and Vietnam War. He earned a Bachelor of Science Degree in Electrical Engineering, a Master of Science Degree in Systems Engineering-Reliability from the U.S. Air Force Institute of Technology, as well as an honorary Doctorate of Public Service from Tuskegee University.

OPERATION HUSKY

During that same decade, the Army Air Corps selected the C-47 Skytrain as its standard transport aircraft. It was actually a DC-3 with a reinforced fuselage floor, an oversized cargo door, and a few other modifications. These C-47s moved personnel and

GEN BENJAMIN O. DAVIS, JR.

Benjamin O. Davis Jr. was born in Washington, D.C., in 1912. After attending college, he entered the U.S. Military Academy at West Point in July 1932 and graduated as a second lieutenant of infantry.

He received his pilot wings in March 1942 from Tuskegee Army Air Base and quickly transferred to the Army Air Corps. As commander of the 99th Fighter Squadron at Tuskegee Army Air Base, he moved with his unit to North Africa in April 1943 and later to Sicily. He returned to the United States in October 1943, assumed command of the 332nd Fighter Group, and returned to Italy.

Left: Col Benjamin O. Davis, Jr., commander of the Tuskegee Airmen 332d Fighter Group, in front of his P-47 Thunderbolt in Sicily.

equipment to, from, and between various locations during World War II.

In 1943, 2Lt George Merz was piloting a C-47 in Operation Husky when he had to make an emergency nighttime water landing off the coast of Scoglitti, Sicily. He and his crew loaded onto rafts and paddled to shore, before a landing craft infantry finally rescued them. Merz later watched from the deck of the ship as the U.S. Navy mistook C-47s for German bombers and shot down 23 of them.[1]

The ship also picked up two other pilots who had been shot down, one of whom was Tuskegee Airman George Bolling, a P-40 Pilot from the 99th Pursuit Squadron. After arriving in Tunis (Africa), all were treated to a "ride" home. Bolling received a hero's welcome at the 99th Pursuit Squadron airfield. According to Merz, "They almost carried him away, and that was nice to see. I think he must be pretty well known in the Tuskegee Airmen because I once saw his picture in the Smithsonian."

[1] As told by George C. Merz, USAF Lt Col (Ret). Full transcript available at **https://amcmuseum.org/history/a-very-special-report-from-operation-husky**.

It turns out that Bolling's commander was Col Benjamin O. Davis Jr., who went on to become the Air Force's first African-American general (see inset above).

MOVING FORWARD

The diverse C-47 continued providing military service, even into the Vietnam War years. But Tuskegee Airmen delivered the most revered performance of World War II.

Over 900 pilots in all eventually trained at Tuskegee, and they quickly earned the respect of bomber pilots they escorted in the Mediterranean and European theaters. Their spectacular efforts helped affirm President Harry S. Truman's decision to desegregate the Armed Forces in 1948.

Over time, the Air Force developed programs and policies to ensure equal opportunity within the service and to help break down workplace barriers. The military—indeed, the entire federal government and many private companies—worked to prevent discrimination, and society began gradually changing its collective mindset about discrimination.

HISTORY OF THE C-47 SKYTRAIN

The Air Mobility Command Museum began in 1986 with a single C-47A that other museums deemed beyond salvage. It was then restored to its World War II condition, when it served with the 61st Troop Carrier Squadron.

Few aircraft can match the track record of the C-47 Skytrain, nicknamed Gooney Bird. By the end of World War II, the United States Army Air Force and U.S. Navy secured over 10,000 of them for carrying personnel and cargo. In combat, the aircraft towed gliders and dropped paratroops into enemy territory.

After the war, C-47s participated in the Berlin Airlift. During the Korean War, C-47s hauled supplies, dropped paratroops, evacuated wounded, and dropped flares for night bombing attacks. In Vietnam, the C-47 served again as a transport and was used for flying ground attack, reconnaissance, and psychological warfare missions. The last C-47 was retired from the U.S. Air Force in 1975.

PHOENIX SPARK: the Sky is **NOT** the Limit for **Innovative Airmen**

BY MS. KIM KNIGHT, STAFF WRITER

Have you ever shared an idea for improving a product or process at work—but received only a lukewarm response from a supervisor or coworkers? It may be time to dust off that idea or put your thinking cap back on and come up with another because the Air Force **wants** to hear your ideas. Maj Nathan Kitzke, AMC/A8 Scott AFB, Illinois, explained this grassroots initiative.

"Gen (Carlton D.) Everhart started mentioning the importance of bridging the technological gap between the commercial sector and the Department of Defense," he said.

In response, a bold and motivated team, led by Maj Anthony Perez, brought the initial concept for an innovation model to the table for Gen Everhart and issued what they call the "Four Star Challenge." The group wanted to provide the proof of concept for Travis AFB, California's grassroots innovation model and generate project plans for four projects of Gen Everhart's choice in a very short amount of time. Everhart empowered the group to act.

In only 57 days, they made over 50 contacts, sprouted more than 12 new project ideas, and located contract vehicles and funding sources—mission accomplished.

In only 57 days, they made over 50 contacts, sprouted more than 12 new project ideas, and located contract vehicles and funding sources—mission accomplished.

Furthermore, the Airmen at Travis AFB presented the idea that Airmen were capable of achieving the same outcomes at other locations and introduced the idea of Phoenix Spark, AMC's grassroots innovation program. Gen Everhart endorsed the concept in April 2017 by signing the Phoenix Spark charter.

The new program aims to deliver tomorrow's tool to the Warfighter today. The program does this by leveraging the ingenuity of Airmen at all levels and connecting them with the resources needed to deliver solutions. Phoenix Spark has built symbiotic relationships between AMC and experts from industry, academia, and other government agencies. The program has paved new pathways that cut through the established bureaucracy to make the military more agile and responsive to the Warfighter. In some cases, that means prototyping, experimenting, and/or fielding hardware and software solutions.

"Some components of the Air Force use products and processes that may be 30 to 40 years old," Kitzke said. "Younger Airmen that grew up in the computer age are tech savvy, and they can suggest some pretty innovative solutions to issues. They have ideas that can help us move forward more quickly and successfully."

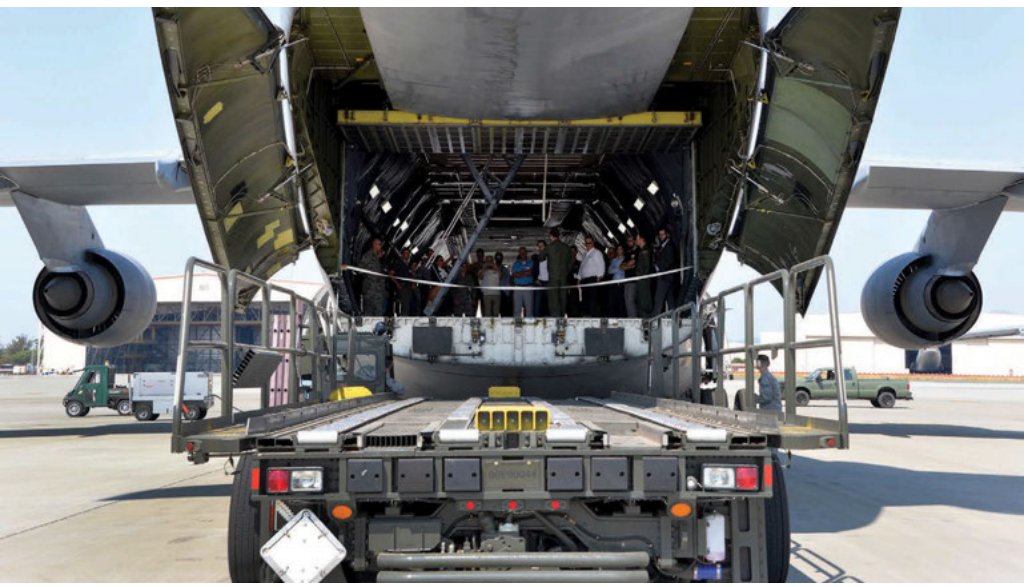
Kitzke believes it is important to get the Air Force current with technology—more specifically, information technology.

"For example," he said, "people can do so much with their phones—from banking to purchasing to just acquiring information. Right now, pilots can often get more of the information they need, such as weather reports, from a phone than from the technology in a C-130."

Some ideas from Phoenix Spark may affect only one base; other ideas can affect the entire Air Force. One example is a simple noise-reduction microphone that enhances crew communication for C-5 and C-17 aircrew. A loadmaster at Travis AFB, MSgt Mike Turner, found this solution online and worked through the Phoenix Spark

Gen Carlton D. Everhart II, Air Mobility Command commander, Scott AFB, Ill., talks with TSgt Nathaniel Harris, 60th Operations Group, about a newly developed mounted electronic flight bag holder (EFB) for the C-17 Globemaster III at Travis Air Force Base, Calif. Under the auspice of Phoenix Spark, the 60th OG is working with the 60th Maintenance Group to design and approve the mount for all three aircraft assigned to the 60th Air Mobility Wing. This was the first time any USAF aircrew utilized the new EFB mount. Phoenix Spark is a program chartered by Everhart to empower AMC Airmen to find innovative ways to modernize the Air Force.

USAF photo by Louis Briscese



Professionals from across industry, academia, and government tour a C-5M Super Galaxy during a base visit as part of a Phoenix Collider event at Travis AFB, Calif. Government and industry collaborations like Phoenix Collider are one of several avenues Phoenix Spark is pursuing to expand its footprint and develop solutions to enhance the lethality and efficiency of today's warfighter.

USAF photo by SSgt Charles Rivezzo

process to get it tested and fielded at Travis AFB. Once the solution is fully vetted at Travis AFB, the solution will be pushed up to the MAJCOM for proliferation throughout AMC.

"Another example is called a maker space," Kitzke continued. "It entails establishing an area where personnel can go and tinker. Lockheed Martin had a similar space for workers on its F-35 assembly line, and they came up with five different prototypes that improved safety or processes."

The goal is to get the Phoenix Spark Program active in every AMC wing, but Kitzke said the Air Force wants it to be a forum for ideas—not a bureaucratic burden. "All that's required is a project proposal, a project brief, and a bullet background paper," he said.

PHOENIX SPARK GENERAL AREAS OF INTEREST INCLUDE:

- Software and app development
- Machine learning and artificial intelligence
- Tools/studies for logistics management and operations research
- Organizational and managerial research and studies
- Augmented and virtual reality
- Corporate visits to exchange managerial best practices
- Automation and robotics
- Manufacturing technologies

PHOENIX SPARK

- Brings tomorrow's tools to the Warfighter today
- Inspires a culture of innovation within AMC
- Achieves the 3rd offset through grassroots innovation
- Develops symbiotic relationships with the government, industry, and academia

For more information, contact Maj Kitzke at 618-229-4265.

ONE TOUGH BIRD

By MS. JANET PURDY, STAFF WRITER

Col Burkel's six month check-up x-ray on July 21, 2016. It was reviewed by her neurosurgeon and shows the fully-fused bone plug that replaced the disc between the C5 and C6 vertebra, the titanium cover, screws that were placed over the bone plug to keep it in place while it fused, and the healed and stable C2 vertebrae.

Col Burkel is a Wounded Warrior and serves as an Air Force Wounded Warrior Program Ambassador and Mentor. She is a senior navigator with over 2,100 flight hours, including 285 combat and combat support hours, and has flown in the T-37B, T-43A, F-4E, C-141B, C-130E, and C-130H.

Col Laurel "Buff" Burkel is the Chief of Air Mobility Command's Fuel Efficiency Division at Scott AFB, in Illinois. In 2015, though, she was an advisor to the Afghan Air Force and deployed to the 438th Air Expeditionary Wing/Train, Advise, Assist Command – Air (TAAC-Air) as part of NATO's Resolute Support Mission. Her main objective was assisting and advising Afghan Air Force leadership with the further development and growth of its training, education, personnel, force management, manpower, recruiting, and gender integration capabilities and programs.

One important project Burkel and her team worked on was revamping the Afghan Air Force's manning document to update its organizational structure and incorporate soon-to-be-delivered Close Air Support (CAS) aircraft and capabilities that support its ground forces. On October 11, 2015, Col Burkel and three members of her advising staff planned to travel to the NATO HQ compound via helicopter to

position for a meeting regarding the updated Afghan Air Force manning document to be held at the Afghan Ministry of Defense the next day.

She was accompanied by Maj Phyllis Pelky, who was assigned to the Air Force Academy headquarters staff; MSgt Gregory Kuhse, who deployed from Scott AFB, Illinois; and Roy Tippett, a contractor advisor. She and her team boarded the second of the British Puma Mk 2 helicopters in the formation, along with two other passengers, for what they expected would be a routine flight from Kabul International Airport to NATO headquarters. It was Burkel's first time on a British helicopter. As they lifted off, she looked at Pelky, touched her shoulder and said, "Woohoo! We're getting to fly."

After an uneventful flight over and descent to land on the soccer field that serves as the landing zone at NATO headquarters, the lead helicopter saw people on the field and directed the formation to go around and try again to land. As the formation proceeded back around, the crew of the second helicopter, the one that Burkel and her team were on, lost sight of lead and turned right to regain position.

Tragedy struck when the helicopter collided with a Persistent Threat Detection System (PTDS) tether. As the rotors came around clockwise, the tether traveled along with them and then caught on and traveled down the tail of the helicopter. In 17 seconds, it worked its way into a gap in the tail cowling where the tail rotor drive shaft was located and caused it to stop working, rendering the helicopter unflyable. Seven seconds later, the helicopter hit the ground in the NATO headquarters compound, going over 4,000 feet per minute and crushing the chopper body down to one-third of what it was before.

"I remember descending to land," Burkel said. "When I looked out and saw the T-wall, we stopped and then started climbing back up. I don't remember much after that except the sensation of spinning and tumbling."

On the helicopter crew were two pilots and a third crew member who acted as the door gunner; in the back left passenger seats, front to back, were Tippett, Burkel, and a Lithuanian major. On the right side, front to back, sat a French contractor, Pelky, and Kuhse. Unfortunately, which side you were on in the helicopter determined your fate: all five on the right side of the aircraft were killed in the crash. The four on the left side survived, but were all injured to varying degrees.

Although she has no memory of the crash, Burkel sustained a broken neck but remained conscious. Later, survivors and first responders told her that when she was trapped in the helicopter, she yelled, "Get me out of here!" She also assisted them with their efforts to get her out.

Without visible injuries, it was difficult for those around her to realize her neck was broken. She was airlifted via helo from NATO headquarters back to the NATO compound's medical clinic at Kabul International Airport, where she resumed her memory of the sequence of events. From there, she was flown via another helicopter to Bagram for care. During the night she spent there, she found out that Kuhse and Pelky did not survive. Two British crew members and a French contractor also died. She phoned her father and each of her siblings, using her personal phone that had been in her uniform pocket. Then she called a former coworker at Tanker Airlift Control Center who had heard about the crash and had been involved in plans to airevac her to Landstuhl Regional Medical Center in Germany. The initial news he received sounded grave, so he was happy to hear from her.

"It's powerful to now be a customer of the airevac system," Burkel said. "My first operational check ride in the AF was to evac a baby from Guam to Hickam. I've flown those missions and I've commanded them. It's one of the most important things we do. I'm also now a customer."

When Burkel learned that, due to her broken neck, the plan was to litter her onto the C-17 that would take her from Bagram to Germany; that was not an option for the strong-willed colonel. Her response was clear.

Col Burkel doing a plank while wearing the halo in the gym room in the Military Transient Detachment dorm building at Landstuhl Regional Medical Center.

Photo by Mr. Lee Burkel

At Landstuhl Regional Medical Center, Germany on December 9, 2015, Col Burkel was visited by Gen Dunford, Chairman of the Joint Chiefs of Staff, and his wife, Ellyn during a USO tour.

Photo courtesy of Col Burkel

On December 14, 2016, Col Burkel visited patient Lily Douglas and her mother Tracy at the St. Louis Shriners Hospital for Children. Since then, Col Burkel has returned to visit four other children wearing halos and plans to visit more in the future.

Photo by Breanna Wyman, Public Relations Specialist for the St. Louis Shriners Hospital

"One, I'm an aircrew member, we don't get littered onto airplanes," she said. "Two, I walked into this country, and I'm walking out of it. Three, I lost two people in this crash, so I'm going to respect and honor them by walking out of this country." And then she did exactly that—walked onto the plane. Right before leaving Bagram, she also posted a picture on social media of her and a friend in her hospital room, with the caption, "One tough bird" to let friends and family know that she was injured but okay.

On arrival at Landstuhl Regional Medical Center in Germany, her surgeon recommended a halo for neck stabilization. She had a broken C2—also known as a hangman's fracture and the same break that left Superman actor Christopher Reeves paralyzed—and the disc between her C5/6 vertebrae was also crushed.

During recovery, she spent time in the gym in the Military Transient Dorm building where she lived while she recovered. Working out was an important part of her life and she was not going to let a broken neck get in the way. She rode the exercise bike and even did four-minute planks with the halo on.

After three months, the halo finally came off. Ten days later, Burkel's neurosurgeon at Landstuhl examined her neck and found no need for any physical therapy or any further fusion surgery. He cleared her to return to duty at her home station in Ottawa, Ontario, Canada, where Burkel had been serving as U.S. Transportation Command's exchange officer to the Canadian Joint Operations Command prior to her deployment.

She returned to work in Ottawa on February 1, 2016. In September that year, only 11 months and a day after the crash, Burkel scored a 99.1 on her first PT test since the crash. Her next milestone, 366 days after the crash (a leap year), was to go back on flight status.

In investigating the helicopter crash, the British team determined that the causal factor of the accident was listed as "the damage caused to the Tail Rotor Drive Shaft (TRDS) by the Persistent Threat Detection System (PTDS) tether strike." Two contributory factors were the aircrew's loss of visual contact with the formation leader and the momentary lack of situation awareness regarding the PTDS.

"I don't remember the actual crash," Burkel said, "but I am at peace with that because there's a reason I don't remember. It would be nice to have my own recollection of what happened. If that happens, it happens. But it helps to have talked to people that were there that day to fill in those blanks."

During the investigation, it was noted this was not the first time a helicopter had struck a tether in Afghanistan (and elsewhere). There are 11 previous tether strikes on record.

Pucker Up, Baby!

BY MS. RITA HESS, STAFF WRITER

Depending on where you live, driving in winter can be anything from a non-event to a full-blown #puckerfactor situation!

WHAT IS PUCKER FACTOR?

In case you aren't familiar with the term, one example of pucker factor happens when driving in stressful environmental conditions, such as ice or snow, but it can happen in rain, as well. It causes you to put a death grip on the steering wheel and tighten (pucker up) your sphincter until the danger passes—when you finally relax and exhale. Alternately, it can occur when driving in those same nerve-wracking conditions, silently hoping you live through it so you can "pucker up" and kiss your loved ones at day's end.

Using either definition, even the toughest adrenaline junkies hate skidding across an icy thoroughfare into oncoming traffic or sliding out of control down a ravine toward a grove of trees. So let's look at how to avoid dicey causes of pucker factor this season.

PROPER PLANNING PAYS!

You've heard it before: don't drive in inclement weather unless necessary! And if you can't avoid it, take time in the fall to prepare your vehicle. Specifically, crummy tires can cause a vehicle to lose traction or handle badly. Check yours for adequate tread, proper pressure, and acceptable age[1], replacing them as needed. If you are new to an area, find out what tires, chains, or special equipment authorities recommend (or require) and comply.

Since I'm only addressing pucker factor issues, I won't list everything else you should check (e.g., wiper blades, fluid levels, etc.) before driving, but please **DO** clear snow, ice, or frost from your vehicle's windows, lights, and roof before departing and at regular intervals if needed. Make yourself visible by turning your headlights on!

[1] For more information on tires, see **www.safercar.gov/tires**.

TOP 10 WINTER DRIVING TIPS

Call authorities and find out road conditions before you leave. Then follow these safety tips that may help you avoid pucker factor.

1. Remember that posted speed limits are for dry conditions. Slow down!
2. Disengage your cruise control so **you** control the speed.
3. Leave extra space between your vehicle and others; even slight braking may send you into a slide.
4. Know proper braking procedures for your specific vehicle. For example, all-wheel drive and front-wheel drive stopping recommendations can vary. Throw in features like antilock brakes and electronic stability control and—well, you get the picture.
5. Accept that your four-wheel drive vehicle may actually need **more** distance to stop due to its weight.
6. Read and heed signage: shady spots, bridges, overpasses, and access ramps freeze first! (I've been in a vehicle spinning out of control on a sheet of ice covering an overpass. #majorpucker)
7. Watching the road as far ahead as possible gives you a few extra seconds of reaction time in case something goes awry.
8. Give road maintenance vehicles and snowplows plenty of room to work, following any local ordinances.
9. Ignore electronic devices while driving, and always drive sober.
10. Best pucker factor avoidance tip ever: buckle up!

OH, DEAR!

If you ignore my driving advice, at least carry a few survival tools. A small shovel may help you dig out of snow banks, and a tow chain is handy if anyone wants to pull you out. Also, pack a flashlight, warm blankets, and a few days worth of water and non-perishable food supplies (e.g., candy or nuts) in case nobody finds you right away. Good luck!

Global Air Mobility … Right Effects, Right Place, Right Time

BY MR. STEVE LOPEZ, 62 AW,
CHIEF, WEAPONS SAFETY

SSgt James Koenig, 92d Maintenance Squadron senior munitions inspection, prepares a munitions package for account delivery and storage at Fairchild AFB, Wash. Koenig conducts a receiving inspection when shipments arrive and ensures boxes haven't been damaged. Munitions storage then moves the ammo to a superstructure storage location.

USAF photo by A1C Mackenzie Richardson

To those of us in Air Mobility Command, this isn't just a catchy slogan. It is a challenge to provide safe and reliable delivery of assets for worldwide contingency operations, natural disaster relief, or multiservice mobility exercise support—on time, every time.

In addition to the aforementioned AMC axiom, every weapons safety manager (WSM) has also heard phrases such as risk management, risk assessment, risk analysis, or risk acceptance at one time or another. The phrase risk management is found 23 times in AFMAN 91-201, *Explosives Safety Standards*, and 31 times in AFI 91-202, *The US Air Force Mishap Prevention Program*. This speaks to the importance the Air Force has placed on risk management and its association to all operations, especially those involving ammunition and explosives.

AFI 91-202 states that a risk assessment supports decision-making processes by objectively identifying a hazard, assessing its risk, thoroughly analyzing potential options for risk mitigation, and making a recommendation. AFMAN 91-201 assists with decision-making by providing requirements for specific situations where explosives are involved, e.g., a list of all explosives to be used, a detailed list of locations where explosives will be deployed, accountability and reconciliation of all items, required separation distances, and PPE for exercises and training involving ammunition and explosives.

As previously mentioned, AMC Airmen take great pride in reliable delivery of assets worldwide; thus, air shipments are prepared and processed by AMC personnel in accordance with AFMAN 24-204, *Preparation of Hazardous Material for Military Air Shipment*. As WSMs, it is our responsibility to ensure requirements from all three regulations are met and implemented into the planning process of multiservice mobility operations when ammunition and explosives are involved. Equally as important, but not singularly the WSM's responsibility, is to communicate with all agencies (aerial port squadrons, maintenance squadrons, etc.) issues like:

- who will have ammunition and explosives,
- how the ammunition and explosives will be transported to and from the exercise location,
- where the ammunition and explosives will be stored for the duration of the exercise,
- where the ammunition and explosives will be employed during the exercise, and
- what actions are required for unused ammunition and explosives when the exercise is complete.

A great example of the dangers involved when exercise planning and communication breaks down can be found in an incident that took place in August 2017 at the 62d Airlift Wing, Joint Base Lewis-McChord (JBLM), Washington, during Exercise Mobility Guardian.

Carl Barnes (middle), 62d Maintenance Squadron munitions flight chief, conducts an inspection on a carton of ammunition while TSgt Christopher Groessler (left), 62d MXS NCOIC stockpile management and SrA Forrest Fender, 62d MXS munitions inspector, looks on at the munitions facility located on McChord Field, Wash., April 24, 2017.

USAF photo by SrA Jacob Jimenez

During the initial planning phase for Exercise Mobility Guardian, exercise planners asked several times whether ammunition and explosives would be involved. Each time, a negative response was given. As the multinational joint force exercise loomed near, no risk assessments were submitted and 62 AW/SEW remained under the impression that ammunition and explosives operations would not be present. Three months prior to STARTEX, when it was discovered that ammunition and explosives (blank small arms) would be used by one of the attending Army units, 62 AW/SEW initiated a plan to receive, store, issue, and account for the small arms ammunition and explosives. Whew, avoided that bullet … pun intended.

A few days before the exercise, the 62d learned that JBLM would receive 63 pounds of HC/D 1.1. It was for runway clearing operations on day three or four of the exercise by the same attending Army unit using the blank small arms ammunition and explosives. Because of poor communication between exercise planners and participants, planners were unaware of the type of ammunition and explosives arriving, where it was coming from, how it was getting to JBLM, who shipped it, or how it was packaged.

Due to the scope of Exercise Mobility Guardian, provisions in AFMAN 24-204 Chapter 3 granted four days prior to "shipment" of ammunition and explosives to JBLM, which gave the Army unit personnel authorization to "carry their basic combat load or individual issue of hazardous materials removed from its required packaging." An Army Engineer Battalion soldier's basic load might include an HC/D 1.1 cratering demolition charge and associated components, compared to an Air Force Security Forces member's basic load of HC/D 1.4 small arms ammunition and explosives.

So an Army Engineering Battalion was being deployed to JBLM with all the necessary ammunition and explosives on their persons to conduct runway clearing operations at an undisclosed exercise location! And they were arriving at JBLM three days prior to execution date, billeting in a hangar surrounded by over 250 military members from services and nations.

The 62 AW/SEW sprang into action and contacted MXS personnel to move the ammunition and explosives from the hangar to the munitions storage area until 10 hours prior to the Engineering Battalion forward deployed, obtained responsible commander acceptance for the temporary storage of ammunition and explosives assets in the hangar, and arranged disposal of all unused ammunition and explosives.

The takeaway from the incident is this: ensure communication with all units involved in multilateral exercises, understanding the function of each unit involved. When unsure, ask questions! Understand what authorization AFMAN 24-204 Chapter 3 waiver approval means, not only to Air Force units, but to all services.

Luckily, the coordinated actions of MXS supervision, 62 AW/SEW, and exercise planners ensured rapid mitigation of all ammunition and explosives hazards, and all participants returned to home station without any mishaps.

McConnell AFB Completes Construction on KC-46 Hangar

BY A1C ERIN MCCLELLAN, 22D ARW PUBLIC AFFAIRS

Team McConnell held a ribbon-cutting ceremony for the new KC-46 Pegasus three-bay hangar Oct. 16.

Since 2014, the installation has underwent $267 million of military construction to prepare for the airframe. Today, 14 of the 16 projects are completed and the base now stands ready to be the first to accept the new multi-role aircraft next year.

"The KC-46 will revolutionize air refueling," said Col. Josh Olson, 22nd Air Refueling Wing commander. "It is only appropriate that the home of air refueling take the lead with this new airframe, and that started with these 16 construction projects. They reflect years of hard work from individuals in our community who are literally laying the foundation for the future of our Air Force."

The construction on McConnell has been giving back to the local community since it began. Local companies were awarded $24 million in contracts, and $25 million worth of Kansas steel was used for the three hangars, 79 percent of which was recycled.

In addition, out-of-town workers supported the economy through hotel and housing rentals and the purchase of food, fuel, internet services and construction material. When additional workers were needed, the jobs were sourced to local laborers.

The sun rises over the KC-46 Pegasus three-bay hangar at McConnell Air Force Base, Kansas. All KC-46 construction on McConnell has been completed, and the base now stands ready to be the first to accept the new aircraft.

USAF photo by A1C Erin McClellan

"Because of the mission, work and effort [done at McConnell] America is safer, more secure place," said U.S. Senator Jerry Moran of Kansas. "Our ability to refuel around the globe is a determining factor of how safe and secure we are as a nation. While we are here as Kansans, we are also here as Americans recognizing a significant role in our national security that is derived from this Air Force base and these men and women who serve from here."

Thanks to three years of preparation, McConnell is now ready continue fueling the fight with the next generation of air refueling. The KC-46 is currently undergoing testing and evaluations and is slated to arrive here in spring 2018.

Leaders from the community and base officials cut a ribbon to celebrate the KC-46 military construction projects completion Oct. 16, 2017, at McConnell AFB, Kansas. In total, 16 projects were part of the $267 million in construction for the new weapons system set to arrive in spring 2018.

USAF photo by A1C Alan Ricker

Think You Can Walk and Talk?

BY MS. ARYN KITCHELL, STAFF WRITER

Cell phone use is not only dangerous behind the wheel, however. Texting while working—or even while walking—can lead to serious injuries.

Researchers from Ohio State University have found that the number of injured distracted pedestrians has risen higher than the number of distracted drivers. Most of these injuries came from people talking on their phones, not just texting, and the majority of the injured were males under the age of 31.

Even though we think we are good multitaskers, walking while using a phone is dangerous. Because of all the focus on texting while driving, I don't do it because I know that it can easily lead to an accident. But I don't automatically think the same way about walking while on my phone. As a college student, I see many people walking around campus with their heads down looking at screens and/or with headphones on, completely oblivious to the world around them. I do it, too. With all the traffic around campus—and other pedestrians, bicyclists, bus drivers, etc.,—an accident is just waiting to happen.

The biggest problem is our inability to admit that we are a part of the problem. A 2015 study surveyed 6,000 people in the United States; even though 78 percent of them recognized that walking while distracted was a serious problem, only 37 percent admitted that they walk while talking on the phone.

Cell phone use on the job can also have negative consequences. While you're on the clock, you are being paid for your time. Taking advantage of that by using your cell phone for personal use (texting, watching videos, or playing games) may lead to disciplinary repercussions.

More important than that is the possibility of an accident. Using your cell phone on the job, especially in a hazardous situation, can cause you to lose focus and lead to a mishap that injures you or others. This takes away valuable manpower from the mission.

The solution is to use common sense. If you can't resist checking your phone when you hear the alert, don't take it with you in the first place. Certainly, don't use it in areas where cell phone use is prohibited, and don't stand idly by while coworkers use their cell phone on the job. Let them know the safety risks.

We often feel like we need to be in touch with our friends, family, and the Internet constantly; and we assume our cell phone is the only way people can reach us in an emergency. But that isn't true. We need to stay aware of our surroundings when we're on the job or on the move. Safety should always be a No. 1 priority. That text can wait!

MISHAP-FREE FLYING HOUR MILESTONES

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McDill AFB, Florida
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A 62d Airlift Wing C-17 Globemaster III from Joint Base Lewis-McChord, Wash., flies over the Atlantic Ocean en route to Gabon, Africa.

USAF photo by TSgt Tim Chacon

7,500 HOURS

709 AS, Dover AFB, DE
CMSgt Larry D. Reed

6,500 HOURS

440 AW, Pope AFB, NC
Col Karl A. Schmitkons

5,000 HOURS

201 AS, JB Andrews, MD
MSgt Shant Paloulian

709 AS, Dover AFB, DE
Col William H. Gutermuth
Lt Col James S. Mann
MSgt William P. Adkins
MSgt Eric P. Staniland

3,500 HOURS

375 AW, Scott AFB, IL
Lt Col Geoffrey M. Ashby
Lt Col Christopher G. Seaman
Lt Col Wesley R. Sides

375 OSS, Scott AFB, IL
Capt James P. Bickel

2,500 HOURS

375 AW, Scott AFB, IL
Col John O. Howard
Col Kevin E. Schiller
Lt Col Jason P. Ceccoli
Lt Col James J. Chapa
Lt Col Thomas M. Knaust
Lt Col Brooke P. Matson
Lt Col Todd A. Matson
Lt Col Michael J. Schwan
Maj Timothy D. Farwell
Maj Brian A. Jones
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QUICKSTOPPERS

KC-135 Flight Deck Window

BY MR. LALO MAYNES,
HQ AMC FLIGHT SAFETY

Recently in the AOR, a maintenance member was opening the co-pilot sliding window from inside the KC-135 aircraft when the window assembly fell over off its track. Before hitting the flight deck floor, the window struck the Guard technician on the head, causing him to become unconscious for less than one minute. The technician sought medical treatment and was placed on quarters for two days.

Since June 2004, the KC-135 aircraft has sustained five (reported) mishaps where the cockpit sliding window fell to the flight deck floor. The average damage cost of these mishaps was just over $27,000 to repair or replace the window; however; in two of these five mishaps, maintenance members suffered head injuries when the technician lost control of the window as it fell out of its track.

In each of the five mishaps, the technicians were in a hurry or not focused on the window while removing it from its track. This is a very common task, and maintenance members can become lackadaisical during its removal and/or replacement. However, technicians (and pilots) must use caution when handling the window. Use both hands while moving the window from its track.

Are You Expecting to Make a Quick Stop?

BY MR. WAYNE BENDALL,
AMC HQ OCCUPATIONAL SAFETY MANAGER

As I write this "Quickstopper" article, I am reminded of the many times during the winter months over the years when I was unable to make quick stops (yes, pun intended). There have even been times when I was unable to stop at all because of the snow and ice here in Illinois. If you've never driven in those conditions, it is much different that driving on wet roads, which present their own set of hazards that can also lead to disastrous consequences.

I sometimes wonder if automobile drivers recall that posted speed limits are established with ideal road conditions in mind. Any variable—whether it be snow, ice, rain, or fog—alters the intent of the posted limits. When that happens, operators should adjust their speed to reduce the hazards presented by those climatic variables.

I'm certain that each geographic area presents it own unique hazards. What are yours? Are you applying risk management principles when they occur or are you driving along blissfully thinking you won't be the next accident victim? Do you think people get in the car to head to work, shopping, or a vacation thinking they're going to be a statistic before they return from their destination? The biggest challenge in applying risk management is not overlooking the first step: recognize the hazard. If you can do that, you just might eliminate the need to make a quick stop.

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A DAY IN THE LIFE

Aerial porters load cargo onto a C-17 Globemaster III aircraft in preparation for Hurricane Maria relief efforts, Sept. 30, 2017, at Travis AFB, Calf. The aircraft from March Air Reserve Base, Calif., delivered a 65-member Contingency Response Element to Aguadilla, Puerto Rico, to establish command and control of the airfield and provide aerial port and maintenance support during Hurricane Maria relief efforts.

USAF photo by TSgt Liliana Moreno