THE MOBILITY FORUM

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Full Spectrum Readiness: AIRLIFT

Global Readiness Contingency Planners

2019 MOBILITY GUARDIAN

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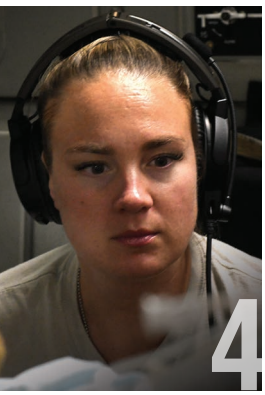

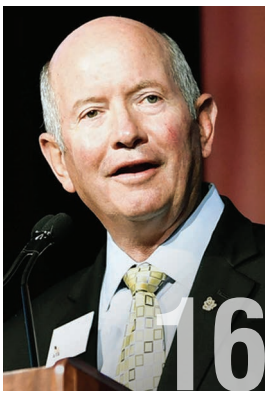

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AIR MOBILITY COMMAND
Gen Maryanne Miller

DIRECTOR OF SAFETY
Col Brandon R. Hileman
brandon.hileman@us.af.mil

EDITORS
Kim Knight
kim.knight@schatzpublishing.com
Sherrie Schatz
Sheree Lewis
sheree.lewis@schatzpublishing.com

GRAPHIC DESIGN
Elizabeth Bailey

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Happy Holidays from Air Mobility Command Headquarters!

Gen Maryanne Miller, AMC Commander

As we approach the holiday season, we reflect on another busy year for AMC. We ushered in a new era of aerial refueling with the delivery of the first KC-46 Pegasus. We delivered hope to Mozambique in response to Cyclone Idai, the country's worst storm in more than three decades. We reopened Prince Sultan Air Base in Saudi Arabia to counter the growing tensions in the Middle East and guaranteed strategic deterrence for America via around-the-clock tanker alerts. We tested our readiness with our joint and multinational partners at MOBILITY GUARDIAN, gaining new insights to increase our lethality. We made ground in the pursuit of license reciprocity for spouses as we strive to make assignment transitions easier for our Airmen. We embraced innovation by introducing and testing the use of 3D printers for crafting aircraft maintenance parts.

We have accomplished a great deal as a team. As we enter this holiday season, please take the time to relax with your families and loved ones so you come back recharged and focused. You've earned it. To our deployed Airmen and their families: we cannot thank you enough for the time and sacrifices you make during this season. Remain focused on the task at hand and return safely. We will take care of the home front while you are away.

As you enjoy time with family and friends this holiday season, remember your wingmen. For some, this season can be a difficult time of the year. A phone call or invitation to dinner can go a long way toward showing our teammates how important they are and that they are not alone.

For some, this season can be a difficult time of the year. A phone call or invitation to dinner can go a long way toward showing our teammates how important they are and that they are not alone.

Thank you for your commitment to the mission and, most importantly, to each other. As a team, we make the mission happen 24 hours a day, 365 days a year. Your hard work and professionalism move the mobility mission forward. I wish you all very safe, restful, and happy holidays!

– Gen Maryanne Miller
Commander, Air Mobility Command

Delivering Hope … Our Airmen Are Our Most Valued Resource

BY CMSGT TERRENCE GREENE, COMMAND CHIEF OF AIR MOBILITY COMMAND

The National Defense Strategy (NDS) drives how we do business here in Air Mobility Command (AMC). The NDS describes today's strategic environment as one in which peer adversaries challenge American dominance in every domain. AMC's mission as the "preeminent leader in rapid, large-scale mobility operations" is paramount to the NDS. The threat is real. Our strategic competitors increasingly develop capabilities that can deny or degrade our access and freedom of movement to which we have grown accustomed as a command. In response, AMC transitioned to a warfighting command that, according to Gen Miller's intent, "is on a rapid and deliberate journey to seamlessly integrate into joint and coalition multi-domain operations in order to fight and win in every domain."

Achieving this intent requires that we improve our readiness, acquire and modernize equipment and aircraft, and develop our force. These priorities are already at the forefront of the command's collective mind. For example, Exercise MOBILITY GUARDIAN 2019 demonstrated our readiness to operate in a contested and expeditionary environment. I was impressed at how 4,000 of our Airmen worked with Joint and Coalition partners to make this exercise a stunning success with valuable learning objectives and integrated operations. Furthermore, in our continuing effort to acquire the most advanced weapon systems and equipment, we recently delivered our 19th KC-46 Pegasus to its new home, welcoming a new era of air refueling capability.

I have absolute confidence that we will overcome our adversaries and reinforce our decisive role in the NDS. I am confident we will succeed because of the incredible men and women of this command. It is our Air Mobility warriors who will lean in to the mission and endure long operational hours to project decisive strength across contested domains and deliver hope … always! It is their proven tenacity, innovation and warrior spirit to tackle any obstacle that gives me confidence in our command's ability as a Total Force to underwrite the rapid global mobility needs called for in the NDS.

The exceptional Airmen of our command have always delivered hope to our brothers and sisters in arms. Nearly 47 years ago, our C-141 Starlifters airlifted 591 American POWs from Southeast Asia to the United States. It was not the aircraft nor the equipment, but the Airmen who made that mission a success. Today, we continue this mission of delivering hope. When one of our brothers or sisters is in need, we will stop at nothing to save a life, as evidenced by the recent 8,000 mile, 19 hour, non-stop aeromedical evacuation flight from Afghanistan to Texas.

Our modern-day Starlifter, the C-17 Globemaster III, was supported by two tankers and an 18-person medical team to transport a critically wounded service member to Brooke Army Medical Center. This remarkable mission could never have been accomplished without the dedication and support of Air Mobility warriors. My heartfelt appreciation, admiration, and thanks to the men, women, and families of Air Mobility Command.

Capt Natasha Cardinal, 86th Aeromedical Evacuation Squadron critical care nurse, monitors her patient during a flight from Bagram Airfield, Afghanistan to San Antonio, TX, Aug. 18, 2019.

USAF photo by A1C Ryan Mancuso

FLIGHT SAFETY

Global Readiness Contingency Planners

A joint medical team from the Mississippi Air National Guard's 183rd Air Evacuation Squadron and Joint Base San Antonio, TX, prepares a C-17 Globemaster III to receive patients, June 6, 2018.

USAF photo by MSgt Keyonna Fennell

BY MS. JEN YATES,
618 AOC CHIEF OF SAFETY

For an aircrew member, transporting personnel or cargo to far reaches of the globe is a normal event. The understanding of what goes on behind the scenes before receiving a mission packet varies with the level of experience that an aircrew member has. Air Mobility Command hosts a short familiarization course for aircraft commanders and aircrew instructors. During that time, aircrew members get a broad overview of the roles and how they affect crew members during missions at the 618th Air Operations Center (AOC), Scott Air Force Base (AFB), IL. One of the planning divisions that affects aircrew the most is the Global Readiness Directorate (XOP).

XOP is the 618 AOC focal point for U.S. Transportation Command's (USTRANSCOM) validated Aeromedical Evacuation (AE), Time Phased Force Deployment Data, and Contingency Response force requirements. The directorate verifies the feasibility of the USTRANSCOM requirements and plans accurate, executable contingency airlift, AE, and Global Air Mobility Support System resources to project mobility forces around the globe. XOP has three subdivisions: Airlift Plans, AE, and Mission Support.

Maj Jason Taylor is assigned to the Contingency Plans division as part of the career-broadening Phoenix Torch program, which was established to develop officers. Before arriving at the 618 AOC, Taylor was a C-17 Instructor Pilot assigned to Joint Base Charleston, SC, and Joint Base Pearl Harbor-Hickam, HI. To become an XOP planner, Taylor attended three weeks of Basic and Intermediate Global Mobility Operations Training and had approximately two weeks of in-house, hands-on training.

XOP planners coordinate with multiple agencies, especially for more remote and complex locations. A planner works with USTRANSCOM on questions or needed clarifications regarding mission requirements and then reaches out to Defense Attaché Offices, Airfield Managers, or base operations to ensure that all the essentials are met for a crew to fly to a specific location.

According to Taylor, on average, the office plans five to ten missions a day, and that does not include the "re-cuts," which refers to replanning a mission due to changes. Planners are available 24/7, as needed, during large contingency operations and are always on call for requirement/mission changes. Surges occur during hurricane season, humanitarian events, or global conflicts.

Mission planning can be an arduous process for more complex locations. In general, missions into Africa present the greatest challenges due to language barriers, little enroute support, working with the Defense Attaché Office, or long diplomatic clearance lead times—to provide just a few examples. In addition, the planners usually prepare before having all the details by basing their plan on decisions that were made on similar missions. Taylor said, "It is fitting the puzzle together," and unfortunately, sometimes the last piece of the puzzle comes in, and the entire process must start over again. Planners often rework the same mission repeatedly due to frequent changes in requirements. They are constantly balancing users' requirements with crew rest, determining which assets will be available to fly the mission, and identifying any possible threat for the mission location.

Taylor will soon be finishing up his time as a Phoenix Torch and will return to flying. He plans to share the knowledge he gained at the 618 AOC because he now has a better understanding of what goes on behind the scenes before he receives a mission packet.

He also said that knowing who to call is essential; he now has a deep understanding of the various roles within the 618 AOC.

His parting advice: "If you see a better way, tell the TACC [Tanker Airlift Control Center, Scott AFB, IL] sooner rather than later. We will try to work with you to make the mission better."

LINE OPERATIONS SAFETY AUDIT
Proactively Identifies Threats to Avoid Mishaps

BY MR. BRIAN RISLEY, HQ AMC FLIGHT SAFETY

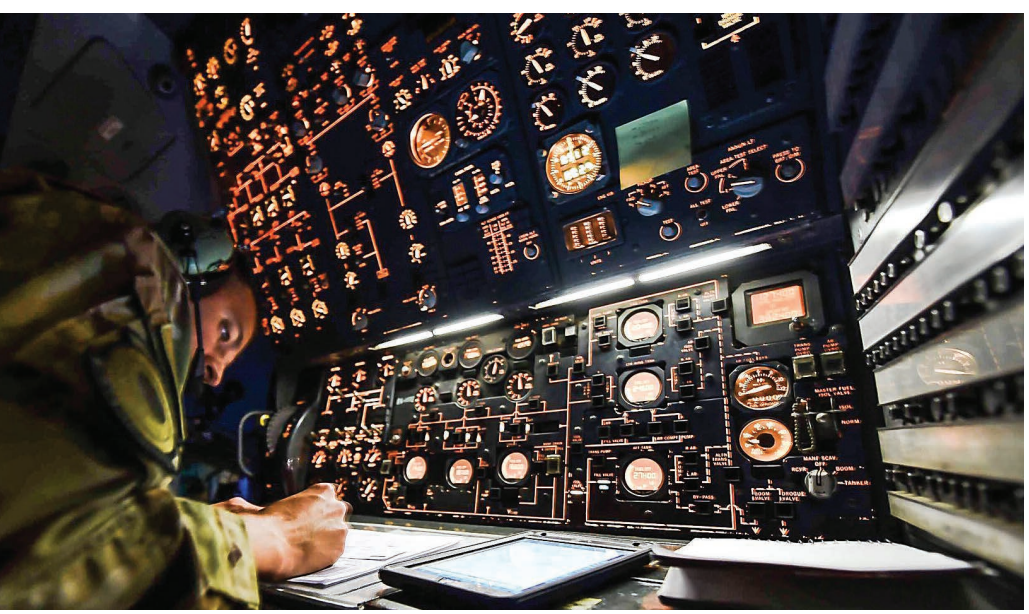
Managing risk has become increasingly important regardless of the area concerned, especially when it comes to aviation. The Air Force Aviation Safety Programs (ASP) are three data-driven, proactive programs used to identify risks, analyze collected data, and prevent future mishaps. Military Flight Operations Quality Assurance (MFOQA) data show when flight parameters are exceeded. The Airman Safety Action Program (ASAP) is an identity-protected, self-reporting system designed to encourage the voluntary reporting of issues that increase risk to flight operations.

The Line Operations Safety Audit (LOSA) is distinct from, but complements, MFOQA and ASAP. LOSA could be compared with a patient's annual physical examination. The patient has a battery of tests done, blood pressure checked, cholesterol, and so forth, all in hopes of identifying early signs of an upcoming health problem. If those signs are addressed early and effectively, the exam could save the patient's life. LOSA collects information on the health of a system by identifying threats to the aircrew that may ultimately lead to a mishap. In 2010, Air Mobility Command (AMC) adopted the LOSA program from the airlines after witnessing its proven success.

To objectively collect data and provide a diagnostic snapshot of strengths and weaknesses in a community as it conducts its daily business requires extreme trust between the operator and the observer. The crew members must be assured that they are not to be penalized for mistakes or actions and that they are not on an evaluation checkride of any sort. LOSA is nonpunitive, anonymous, and completely voluntary for those being observed. Even the aircraft commander has the right to deny the observer access for any reason. As stated in a memorandum published by Gen Maryanne Miller, Commander of Air Mobility Command, on March 11, 2019, "A Just Culture should be continuously promoted and reinforced through leadership actions throughout organizations by encouraging members to address hazards and mitigate risk without fear of adverse actions."

The majority of AMC aircraft are on a four-year LOSA schedule. To kick off a LOSA cycle, a Threat and Error Matrix workshop is conducted by our LOSA contractor. In the workshop, subject matter experts (SMEs) with specific aircraft experience formulate a specific list of criteria that will be used by a team of observers in the following phase. These SMEs are typically a collection of experienced instructor or evaluator aircrew members.

LOSA observers are then recruited through solicitations from AMC Safety to all wings and sister commands. The LOSA observers are Mission Design Series experts and are trained to observe. Many tend to be volunteers from the Air National Guard or



TSgt Matthew Blevins, Flight Engineer from 9th Air Refueling Squadron, Travis AFB, CA, tracks flight data above Oregon while aboard a KC-10 Extender, Sept. 13, 2019.

USAF photo by SrA Christian Conrad

Left to right, A1C David Bolind, A1C Jared Aitken, and MSgt Joseph Dwulit, assigned to the 171 Air Refueling Wing, inspect the autopilot system in the cockpit of a KC-135T near Pittsburgh, PA, July 11, 2018.

USANG photo by SSgt Bryan Hoover

Air Force Reserves. Over a period of several months, these observers watch different crews on a variety of missions, noting all the threats encountered, how crew members respond to the threats, and if they (or any support agencies) make any errors and why. The observers also record whether the threat is mitigated properly. If the threat is not mitigated properly, it likely will lead to what is referred to as an undesired aircraft state. All this information can then be analyzed with the objective of preventing a future occurrence. LOSA observations are done across the globe, proportional to the number and type of missions conducted by the fleet.

Following the observation period, all the data are analyzed by a contractor and input into a database. Later, a working group of SMEs, known as "The Roundtable," reviews and validates the data. The C-5 LOSA Roundtable was held at Scott Air Force Base, IL, in April of this year. One observation revealed that scheduled sorties frequently did not match the circadian rhythm of the aircrew, which led to excessive fatigue. Several observations detailed increased cargo load times on the ground due to a combination of cargo configuration changes and degraded loading equipment aboard the aircraft. Those circumstances could drive crews to compromise safety and rush to make a scheduled takeoff time.

Once the data are thoroughly vetted, a safety investigation board (SIB) convenes to review all the findings and make recommendations to the AMC Commander on how to mitigate the risks found and prevent potential mishaps. A SIB is typically assembled following a mishap to investigate the incident, report its findings, and make recommendations to prevent a similar mishap in the future. A LOSA SIB convenes before a mishap occurs, but it receives the same focus and treatment. The LOSA SIB consists of an O-6 Board President, investigating officer, pilots, other aircrew members (dependent on the aircraft type), a recorder, and other SMEs as needed. The recommendations of the LOSA SIB are briefed directly to the AMC Commander. Once approved by the command, each recommendation becomes an actionable item to be addressed in a timely manner with due attention from leadership.

LOSA is a robust program that has proven successful. LOSAs have identified threats such as an inadequate weather radar on the C-21. The upgrade was approved, funded, and accelerated thanks to the LOSA effort. Almost the entire C-21 fleet is now equipped with a new, fully capable weather radar system and controller. Other successful outcomes following a LOSA SIB include procedural changes, checklist rewrites, systems replacement, and even changes affecting the current culture.

AMC Flight Safety is currently finalizing a C-5 LOSA and is overseeing LOSAs for the C-40, C-21, and C-17 aircraft. AMC is looking to expand LOSA into fields beyond aircraft operation, such as maintenance and Aeromedical Evacuation (AE). Working with an AMC AE team, AMC Flight Safety is making groundbreaking efforts to conduct the first-ever AE LOSA.

Combined with MFOQA and ASAP, LOSA gives AMC a powerful tool to help prevent mishaps. Using the analyses from these programs, commanders are able to assess risks and adjust policy and training to mitigate those risks, identify material requirements, or accept the risk as necessary for mission accomplishment.

"Reach 75, Say Altitude"

BY MR. CHARLES CAMP, AMC MFOQA PROGRAM MANAGER, AND MR. BRIAN GREER, KC-135 MFOQA FLIGHT DATA ANALYST

"Reach 75, say altitude,"—a request that causes a pang in your stomach followed immediately by a quick look at your altimeter. Before you answer, you have a quick discussion with the crew in the cockpit to confirm that you have the correct altimeter value set—or at least a setting that your crew believes is correct. Sound familiar? Be honest; we have all been there, but maybe you are asking yourself just how pervasive is this issue, and why should we care.

This article will examine Line Operations Safety Audit (LOSA) observations, Airman Safety Action Program (ASAP) submissions, and Military Flight Operations Quality Assurance (MFOQA) analysis to show that misset altimeters is an issue across all Mission Design Series (MDS) in the Mobility Air Forces (MAF) and that the altitude transition level is a major cause for altimeter errors for both climbouts and descents.

Air Mobility Command has conducted LOSA observations since 2010 on almost every MDS currently flying in the MAF. Most aircraft systems have been through the LOSA process multiple times. With no exceptions, altitude deviations were highlighted as a trend item in every LOSA report. For example, one LOSA report stated that primary altimeter setting errors occurred at a rate of 12 percent of observations and that those errors were mismanaged by the crew 78 percent of the time. Furthermore, those errors resulted in undesired aircraft states (UAS) 69 percent of the time. A different MDS LOSA report stated that the observers saw primary altimeter errors on 13 percent of flights with a mismanagement rate of 71 percent. A third MDS LOSA report detailed this error at a rate of 11 percent with a mismanagement rate of 57 percent by the crews of that MDS. Clearly, an outsider riding along on a mission sees misset altimeters as an issue, but what are crews reporting?

The ASAP system provides crews with a tool for self-reporting mistakes and safety issues. Although the rate of ASAP submissions by MAF crews was low in 2009, the number has since increased. From the inception of the ASAP system, MAF crews have reported altimeter-setting issues and those issues most often lead the monthly trends. A quick query of the ASAP database to find where the crew indicated a misset altimeter as the major contributor to an unsafe event was highlighted in 60 submissions. That search included both climbing through and descending past the transition altitude. More important, the error caused the crew to believe that their aircraft was at a higher altitude than it actually was *21 times*—that's more than one-third of the time!

Now I ask you, how many times have you made a mistake and elected not to submit an ASAP—for whatever reason? If you are honest with yourself, the number is high, so in reality, those misset altimeter events may be two (120) or three times (180) more frequent than the current submission rate shows.

Although the ASAP program relies on self-reporting, MFOQA analysis is derived from flight data captured by onboard sensors and retained for future examination. As mentioned previously, misset altimeters have been showing up as issues in several proactive safety programs. To see if MFOQA analysis could find all the incidents not observed by LOSA or reported by ASAP, the MFOQA analysts and software developers

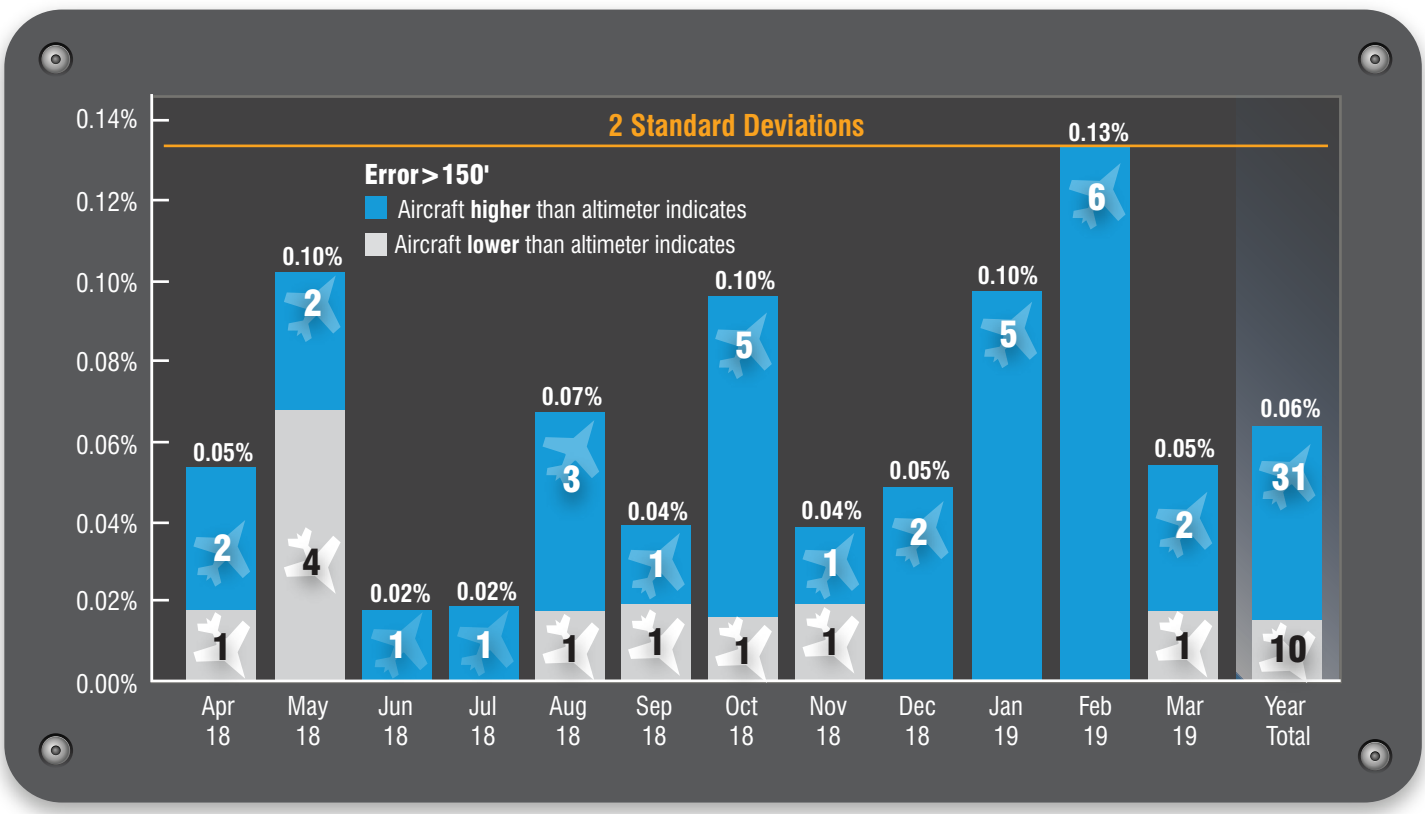
set out on a quest. Unfortunately, that quest proved very difficult because the transition altitude can vary per location; however, members of the MFOQA team focused their investigation on the landing phase and developed an ingenious trigger in the MFOQA software to determine when a crew landed with an incorrect altimeter setting. The analysis compared digital aeronautical flight information file touchdown zone elevation (TDZE) data with the recorded aircraft-captured pressure altitude at touchdown. When the difference was more than 150′ (high or low), the trigger fired. This trigger is available now in the KC-135R/T and the C-17, but the programmers are adding the trigger to other MAF MFOQA-capable MDSs as an MDS's software is updated.

In addition, analysts and programmers are investigating a way to include transition altitude analysis capabilities. The figure below provides an example of the KC-135 analysis.

The blue areas of the bars show altimeter discrepancies of 150′ high or greater, and the gray areas show discrepancies of 150′ low or greater (with high meaning that the aircraft is higher than the pilot thinks it is and low meaning that the aircraft is lower than the pilot thinks it is). Why is this analysis important? If a pilot descends to an altitude that is 200′ higher than is shown on the approach plate, the crew is not at the decision height and may proceed using incorrect information. The opposite (that is, a lower altitude) is even worse, for the aircraft would be below the altitude on the approach plate, which negates all obstacle protections and may result in a controlled flight into terrain (CFIT).

Following is an example of one of the high instances at an international airport. The approach plate shows the TDZE as 1,125′; however, the pressure altitude captured from the aircraft at touchdown showed 946′ with an altimeter setting of 30.13, for a difference of 179′. In addition, the Meteorological Terminal Air Report for the time of the approach showed an altimeter setting of 30.31, validating the difference.

In a worst-case scenario, the crew would go-around early on a low-visibility approach at 200′ height above airport (HAA). The crew would see 1,146′ at 200′ HAA (on the altimeter



KC-135 Landing Altimeter Setting Errors

with the wrong setting), but because the decision height (DH) is 1,325′ (which the crew would have seen earlier), the crew would go-around. An ASAP submission described how the crew followed that scenario exactly and elected to go-around because the field was not in sight. After catching the altimeter error, the crew then flew the same approach and landed.

So, what's the big deal? According to SKYbrary (an aviation safety site created by the International Civil Aviation Organization and the Flight Safety Foundation), several accidents and incidents have occurred wherein the incorrect altimeter setting was either a cause of or a contributing factor in an altitude-level deviation or CFIT/near CFIT, as in the following example:

> ***BE20/SF34, vicinity Stornoway UK, 2011.*** On 31 December 2011, a USAF C-12 Beech King Air descended 700 feet below the cleared outbound altitude on a procedural nonprecision approach to Stornoway in uncontrolled airspace in IMC [instrument meteorological conditions] and and also failed to fly the procedure correctly. As a result, it came into conflict with a Saab 340 inbound on the same procedure.
>
> The investigation found that the C-12 crew had interpreted the QNH [sea-level pressure] given by air traffic control (ATC) as 990 MB [millibars—Hector Pascal] as 29.90 inches, the subscale setting units used in the United States. The Saab 340 pilot saw the opposite-direction traffic on TCAS [traffic collision avoidance system] and descended early to increase separation.

Utilize solid crew resource management or cockpit resource management and PM skills to ensure that you have the right setting in your altimeters.

The C-12 crew was *670′ lower* than they thought they were! From MAF ASAP submissions, we know of a C-17 crew that misset their altimeter by 500′ high, a KC-135 crew that left 29.92 in their altimeter and were 400′ low throughout their approach, and a C-21 crew that thought they heard the controller tell them to set 29.97 inches when the controller had actually said 997 MB, which resulted in the aircraft being 500′ lower than the crew thought.

So, why are these errors happening? The *Air Force Instruction (AFI) 11-2 Mission Design Series (MDS) Volume 3* guidance requires the pilot monitoring (PM) to make altimeter callouts during climb and includes a requirement for both pilots to state the altimeter setting during descent. Unfortunately, LOSA observations show that the most frequent callout error was the omission of the transition altitude call, resulting in a 40 percent error rate. In those instances in which an omitted transition callout led to a primary altimeter setting error, the end result was a UAS 95 percent of the time.

What's the moral of the story? Utilize solid crew resource management or cockpit resource management and PM skills to ensure that you have the right setting in your altimeters. Review the details of other examples of misset altimeters provided by other crew members at the ASAP Scoreboard (**https://afsas.safety.af.mil/**). Finally, keep an eye on the monthly MFOQA products stored in your electronic flight bag—and Fly Safe!

Beech 200 Super King Air.
Photo courtesy of Skybrary.aero

Cultivating a SAFETY Culture Through Leadership

BY MAJ KEATON ASKEW AND MSGT JAMES MUSGRAVE, 60th AIR MOBILITY WING SAFETY, TRAVIS AFB, CA

Leaders have a responsibility for good order and discipline, setting the tone and establishing various cultures within their units. Whether it is a culture that values military heritage or a culture of innovation, the goal is always to be positive and constructive.

Unit chants, patches, mottos, morale shirts, intramural sports, First Fridays, and more are all aimed at establishing a cohesive team with one common ethos: effectively accomplishing the mission. In essence, a cohesive work family, built through camaraderie and relationships, affects mission success. The cohesive ethos highlighted herein is an "informed" safety culture that enables the mission and protects our most valuable resource—our Airmen.

How do you foster an informed safety culture within your unit?

Throughout the process of teambuilding, things that are important to supervisors naturally become valued to individual Airmen on respective teams. Therefore, establishing a collectively safe and healthful bond typically starts with the commander and quickly becomes the model within the unit. Whether it's wearing proper personal protective equipment, ensuring checklist discipline, or making responsible driving decisions, entry-level Airmen of any organization can have a significant effect on a unit's safety culture. Simply put, every Airman at every level participates in a safety system of processes.

The basis for an informed, safety-conscious organization is foundational attributes and the four subcultures, which are reporting, learning, just, and flexible. This informed culture is developed through teambuilding and relationships in which supervisors ensure a supported environment.

Clearly, in our Air Force, we insist on having an organization and environment free of discrimination and harassment—that is, a just culture—one in which all Airmen have a sense of security from reprisal. When we feel isolated or targeted, we will not contribute to a culture of reporting.

In a reporting culture, leaders receive what are known as leading and lagging indicators from mishaps and hazard report investigations. Leading indicators are the prevention measures to stay ahead of risk, whereas lagging indicators come from after-the-fact events. Both help in the overall data analytics process.

To support sufficient reporting, however, Airmen need to know and understand standards and procedures through a culture of learning. The learning process includes idea sharing for process improvement. Furthermore, supervisors must empower Airmen at all levels and foster a value of flexibility to allow for process and behavioral changes. Effective process improvement and innovation require all four subcultures to mold and meld into an overall informed culture. The linchpin of this culture-developing process requires teamwork, communication, and participation at all levels.

> **"Safety is not an additional duty … safety is a responsibility across all aspects of our mission."**

An informed safety culture ultimately enables mission success and protects our most valuable resource—our Airmen. Remember, creating a culture like this in your unit can start with just one person—you. What are you doing today to make your unit's safety attitude stronger?

As Maj Gen Sam Barrett, 18th Air Force Commander, Scott AFB, IL, said, "Safety is not an additional duty … safety is a responsibility across all aspects of our mission." The 60th Air Mobility Wing Safety Program has 22 roles feeding into the four subcultures, and any given Airman is directly tied to one or more roles steering the wing toward great success, ultimately ensuring that there are no bounds.

SEASONAL CONSIDERATIONS

Tackling the Holidays: Tips to Avoid Travel Stress and More

BY MR. FRANK WILCOX, STAFF WRITER

Almost everyone who travels this holiday season may encounter at least some travel stress. With the celebrations can come bigger crowds, tight schedules, and high expectations. Navigating all that can be challenging, so here are some tips on coping so you have a happier 2019 holiday season.

According to a *Self* magazine survey of mental health doctors from last year's holiday season, many strategies are available to mitigate holiday travel stress. Converting them into what works for you could lead to a jollier holiday.

Write down the situations that you think you might encounter during travel that will cause you stress.
A bit of preparation can go a long way in helping prevent stress, and seeing your thoughts on paper might reveal some avenues of relief for the weary traveler.

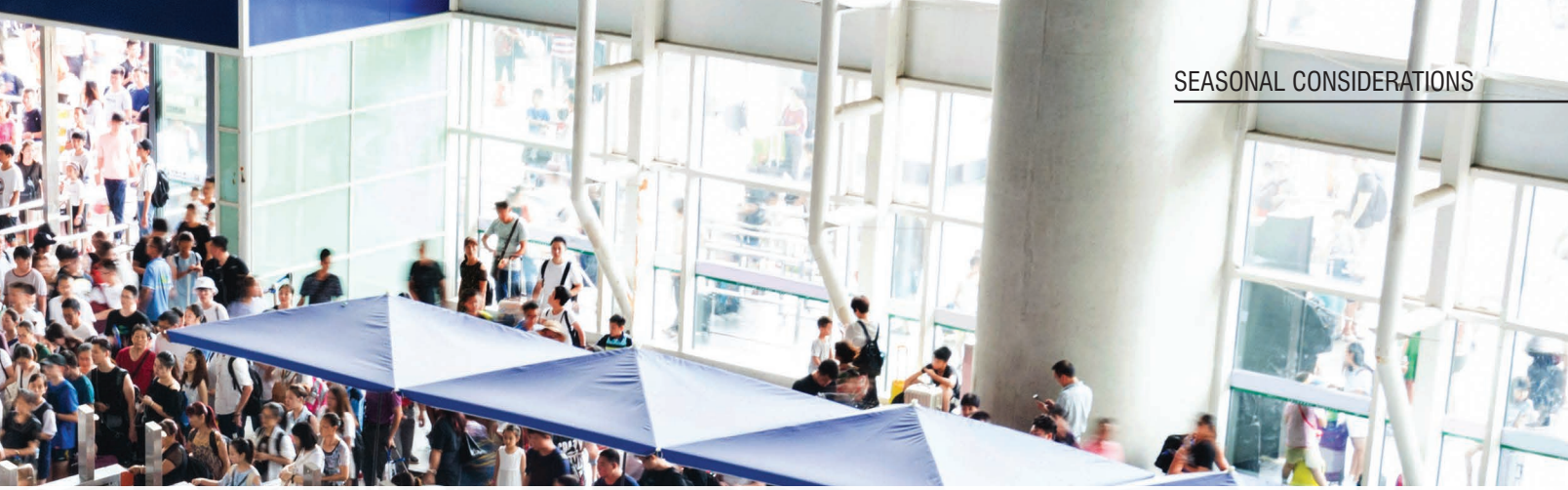
"This is called expressive writing," said Jason S. Moser, Ph.D., Associate Professor of Psychology at Michigan State University. "That effectively can 'offload' those thoughts and feelings on paper, make them more concrete, and facilitate rethinking and problem solving."

Identifying exactly what your specific concerns are regarding upcoming travel can help you brainstorm solutions to them—or at least help turn them into best-case scenarios. Worried about traveling with a cranky companion to the airport? Write down those stumbling blocks to a happy holiday now and come up with ways to deal with them well before they happen.

Do some stress release beforehand.
Whatever your preferred method of stress relief—be it working out, having a cup of tea, meditating, talking to a friend or counselor, or even just reading a book—make time to do it before you travel. You may not have as much (or any) time for this part of your personal routine during holiday travel, so take advantage of the opportunity while you can. The reduced stress you experience will hopefully carry over well into your trip.

Leave plenty of time to pack.
Sometimes, planning time to pack is not as much a problem as remembering what to pack. If there are some items that you absolutely cannot leave home without, consider making a list and posting it somewhere you can see it well ahead of time. Look at it when you pass by, and you may gradually memorize it. You could even pack those must-have items early so that all you will have to do when it is time to travel is pack the rest and go.

Travel at off-peak times if you can.
Sitting behind a long line of vehicles stuck at a standstill on the highway is no way to kick off a fun holiday. Leave early—maybe even earlier than you think you should—to get rolling before everyone else hits the road. Nothing can kill your holiday buzz like being stuck in a long holiday line, be it plane, train, or automobile. Beat



Whatever your preferred method of stress relief—be it working out, having a cup of tea, meditating, talking to a friend or counselor, or even just reading a book—make time to do it before you travel.

the stress by beating the crowds. Consider seeing if you can go on vacation a day or two earlier than the expected holiday rush or work remotely from your destination if you can and avoid holiday traffic altogether.

Give your passengers a prep-and-pep talk before the big journey.
Just like the pilot of an airplane, if you're the driver, you want the people riding with you to know what is OK and what is not. Lay down some ground rules, like no backseat driving or only one pit stop every two hours. Make sure they're prepared for the ride with distractions such as videos or games, have all the snack food they need, and have packed the necessities. Do one final check that you have the essentials with you (including passengers—no need to repeat "Home Alone") before you roll out.

Prepare for the worst and hope for the best.
Even the best-laid plans can go awry once they are in motion. Prepare to hit traffic in one form or another, and be prepared to be patient.

The National Safety Council recommends a few other holiday safety measures:

- **Decorate safely.** Each holiday season, emergency rooms see thousands of injuries from decorating. Make sure you keep dangerous poisonous plants away from small children and pets. If you are putting up a live tree, keep it properly watered and away from heat sources. Do not put breakable ornaments on the bottom branches, where children or pets can get them. Turn your tree lights off when you are not in the room.

- **Take special care with fire sources.** Candles and fireplaces offer special challenges to staying safe. Do not burn wrapping paper in the fireplace, and use a fire screen. Make sure you get your chimney cleaned once a year. Keep candles away from flammable material and extinguish them when you are not in the room.

- **Beware of food poisoning.** Food poisoning can really play havoc with a holiday. Make sure you wash your hands frequently. Keep raw meat away from fresh produce. Use a food thermometer for proper cooking and make sure not to cross-contaminate food. Put leftovers back in the fridge within two hours. Properly refrigerated foods will keep for three to four days as leftovers.

- **Give safely.** Buy only age-appropriate toys for children. Do not buy toys with small parts for young children. Avoid giving young children gifts that have magnets or button batteries, which can be harmful or fatal if swallowed.

With these tips, you will be on your way to having a merry holiday. Keeping safe and avoiding travel stress can go a long way to giving you more quality time with loved ones this season. You can appreciate those special moments more and wassail well into the new year!

Gail S. Halvorsen Aviation Education Center

BY MS. BRITTANY OLSON, STAFF WRITER

Col Gail S. Halvorsen (Ret.), the Candy Bomber
Photo by Steve Parsons Photography

Imagine having survived the deadliest conflict in history and losing everything and everyone you ever knew or loved. While the rest of the world is rebuilding and moving forward following the Second World War, you are held a prisoner in your own city, West Berlin, and forced to fend for yourself amid one of history's most dramatic standoffs initiated by the Soviet Union. You are merely a child who just survived Hitler's reign, food and water are an everyday scarcity, and the future appears bleaker than ever before, with little chance of your reaching adulthood. You are in dire need of a hero—or at the very least, a glimmer of hope.

That glimmer of hope for the children of West Berlin floated down from the heavens as chocolate candies attached to miniature parachutes, and the hero of the operation was U.S. Air Force Colonel Gail Halvorsen, better known as the Candy Bomber. Little did Halvorsen know that sharing candy with a group of 30 children on the other side of the air base fence and a burning desire to pay it forward would result in Operation Little Vittles and make him an international hero. "I have a lot of favorite parts in my life, but the one that stands out to me is the children of Berlin," recounted Halvorsen.

Following WWII, Germany was divided into four zones and occupied by foreign militaries. Whereas western Germany was controlled by the United States, Great Britain, and France, eastern Germany was governed by the Soviet Union.

In May of 1946, the United States, Great Britain, and France unified their German occupation zones to fortify West Germany as tensions with the Soviet Union escalated. The nations focused on Germany's economic revival and intended to establish a common currency for West Germany. The Soviet Union perceived the coalition as a threat, and on June 24, 1948, Soviet forces blocked all transportation routes by land and sea into West Berlin. The territory's 2 million residents were isolated from the rest of the world and deprived of food, water, fuel, and other necessities.

On June 26, 1948, the United States and British Air Forces responded to the Soviet blockade with an airlift task force referred to by the U.S. military as Operation Vittles. For 15 months, the U.S. Air Force contributed a fleet of 340 aircraft and aided in transporting more than 4,500 tons of food, water, coal, medical supplies, and other humanitarian aid daily to the residents of West Berlin. To this day, the Berlin Airlift was the largest humanitarian airlift operation executed in history, and it single-handedly liberated West Berlin from Soviet occupation and communist expansion. Most important, however, the humanitarian operation kept the hopes and dreams of freedom, unification with western Germany, and a better future alive for the men, women, and children of West Berlin.

Halvorsen was assigned to the Berlin Airlift on July 10, 1948, as a C-54 pilot responsible for airdropping humanitarian packages with flour, milk, meat, and coal. Wherever he was stationed, Halvorsen always carried a ration of chocolate and candy to share with the local children he met.

Halvorsen's epic journey as the Candy Bomber began while at the end of Tempelhof runway where he met a group of children on the other side of a barbed wire fence. At the time he had only two sticks of gum, which he broke into pieces for the children but promised to drop more goodies the next day.

He said "What impressed me most and what stays with me to this day is that these children, who had been through hell and didn't know when they might see their next meal, weren't interested in the treats; they just wanted to express their gratitude for what we were doing to free West Berlin of Russian control. It was such a different reaction from the other kids I met. They weren't begging for chocolate, unlike the kids in the States that would see a military guy coming off the

German children in West Berlin wave to an Air Force transport aircraft as it comes in to land at Templehof Airport during "Operation Vittles," better known as the Berlin Airlift in 1948.

USAF photo

Lt Gail Halvorsen, "The Candy Bomber," greets children of isolated West Berlin sometime during 1948-49 after dropping candy bars from the air on tiny parachutes.

Photo courtesy of Gail Halvorsen

base and shake him down for candy or a toy gun. Many of the kids were orphans; they knew what Hitler was like, but they were also aware of what the free world was like and wanted more of it, and so they were consumed by that greater goal for freedom. To get involved with them during that part of their life changed the rest of my life. The children were the true heroes."

The former Airman recalls children as young as 8 years of age saying in a grown-up manner "'We want freedom more than anything. If we don't get our freedom now, we'll never get it back. Just don't give up on us.' It gave me great admiration for the youth of West Berlin who were living in such disparate states, where they lost their mom or dad or both, and yet they were optimistic for a better future and didn't expect any handouts," explained Halvorsen.

The Airman's encounter with the first group of endearing children left him with a heavy heart and a burning desire to lift the spirits of the youth of West Berlin on a much larger scale. Originally, once a week, Halvorsen and his crew would pool their candy rations and airdrop the small amount of sweets they had by parachute to children waiting on the other side of the Berlin Tempelhof Air Base fence. In no time, the group of Berlin children grew exponentially in size, and American children and candy manufacturers from all over the world were contributing candy to what had become a full-blown operation known as Operation Little Vittles.

From 1970 to 1974, Halvorsen was reassigned to the Berlin Tempelhof Air Base and reunited with dozens of the Berlin children he had airdropped candy to over his seven-month deployment as a pilot for the Berlin Airlift. "It was incredible seeing the kids that caught the parachutes with candy all grown up with kids of their own. That was the completion of the circle. It was pretty incredible," noted Halvorsen. In 1999, he was inducted into the Airlift/Tanker Association (A/TA) Hall of Fame for his lifetime contributions to Air Mobility Command.

In 2016, Halvorsen and members of the Civil Air Patrol sought to keep the Candy Bomber's legacy and history alive and organized the Gail S. Halvorsen Aviation Education Foundation. The organization has since earned a Gold Seal of Transparency for its mission to advance aviation education, promote youth leadership development, and enhance community emergency response and humanitarian services.

In 2017, the foundation committed to constructing an 8,000-square-foot multiuse aviation education center at the Spanish Fork-Springville Airport near Provo, UT. The $5 million project is youth oriented and will house year-round STEM (science, technology, engineering, and math) education and courses on flight and aviation for local schools and private youth groups. Fundraising for the facility is on-going and has garnered the support of organizations and individuals worldwide.

In 2018, the A/TA Board endorsed and raised $30,000 to support the development of the Gail S. Halvorsen Aviation Education Center's Candy Bomber-Humanitarian Airlift exhibit, which will display memorabilia and artifacts from the Berlin Airlift that visually tell the story of the Candy Bomber and the effect that Operation Little Vittles had on the youth of West Berlin. Other exhibits will spotlight history's selfless mobility Airmen who are famous for their integral role in humanitarian operations.

2019 AIRLIFT/TANKER ASSOCIATION CONVENTION:

Compete-Deter-Win, Delivered and Fueled Today, Tomorrow, Together

Gen Maryanne Miller, AMC Commander, addresses audience members during the Airlift/Tanker Association's 51st A/TA Convention opening ceremony in Orlando, FL, Oct. 23, 2019.

USAF photo by SSgt Michael Cossaboom

Maj Mark Walkusky (fourth from left), AMC Cyberspace Operations and Plans Deputy, receives the Gen Ronald R. Fogelman Advanced Studies of Air Mobility Award during the Airlift/Tanker Association Convention opening ceremony in Orlando, FL, Oct. 23, 2019. The award recognizes the individual who excelled in peer review, leadership, presenting, academic performance, and physical fitness.

USAF photo by SSgt Michael Cossaboom

BY MS. KIM KNIGHT, STAFF WRITER

The 51st Airlift/Tanker Association (A/TA) Convention was held October 23–26 in Orlando, Florida, with the 2019 theme "Compete-Deter-Win, Delivered and Fueled Today, Tomorrow, Together." Nearly 2,000 Mobility Airmen from across the world gathered to engage in this professional development event.

In true A/TA tradition, the 23 seminar opportunities provided Mobility Airmen a diverse selection of informative presentations. In support of this year's theme, several seminars focused on the transformation of Air Mobility Command (AMC) into a warfighting command able to compete, deter, and win against future threats outlined in the National Defense Strategy. In contrast, retired Col Gail Halvorsen, the Berlin Candy Bomber who recently turned 99 years old, conducted a fascinating seminar on his humanitarian missions over Berlin following WWII. Another workshop provided an opportunity for innovative Airmen from across the command to pitch ideas for the Phoenix Spark Tank Competition and earn a chance to represent AMC at the Air Force contest.

Throughout the event, the convention recognized outstanding Airmen with achievements such as the Air Transportation Specialists, also known as the Port Dawgs, who received the honor of becoming the A/TA 31st Hall of Fame inductees. As a vital part of AMC's commitment to Rapid Global Mobility, the Aerial Port community ensures supplies are loaded and off-loaded in times of crisis and for those in need during humanitarian efforts. In addition, Port Dawgs facilitate loading passengers, including critically wounded patients, political leaders, and warriors returning home from deployment.

At the closing ceremony, Gen Maryanne Miller, Commander of Air Mobility Command, praised the loyalty and dedication of AMC personnel. "Since the last A/TA, you have relentlessly pursued the mission all around the world. We have flown 30,000 missions, aerial ports worldwide have carried one million passengers, Port Dawgs have loaded 700 million pounds of cargo for our Joint Force, and boom operators passed one billion pounds of fuel."

The incredible feats of Mobility Airmen in the last year was the focus as Gen Miller reflected on extraordinary examples of humanitarian efforts, an airdrop over a contested environment in support of an international partner, life-saving aeromedical evacuations (AEs), and numerous others.

Gen Maryanne Miller and Retired U.S. Army Air Corps Col Gail Halvorsen, the "Berlin Candy Bomber," listen to opening remarks at the A/TA Convention.

USAF photo

Retired Air Force Gen Duncan J. McNabb, Airlift/Tanker Association Chairman, addresses members during the A/TA Convention opening ceremony.

USAF photo by SSgt Michael Cossaboom

CMSgt Terrence Greene, Command Chief Master Sergeant for AMC, Scott AFB, IL, addresses members at the A/TA Convention.

USAF photo

"Our airdrop crews, from the skies above, deliver the supplies to sustain and maintain the fight at all the hotspots around the world," Gen Miller said. "Over the dark skies of Afghanistan, you were there when our partners were pinned in by the Taliban and out of options."

After receiving a short notice airdrop request from the Afghan National Army, AMC was there to deliver combat airpower for our partners. In an extremely compressed timeline, the team worked to coordinate the effort with our Afghan partners and reconnaissance aircraft to clear and secure the drop zone and complete the mission undetected. With a first-pass success mentality, our Airmen helped keep the fight at the enemy's doorstep.

In October 2018, when Hurricane Michael unleashed its fury on Tyndall Air Force Base in Florida, the catastrophic 150 mile per hour winds brought down power lines and trees and ripped the roofs off hangars and other buildings on the base. Only hours after the storm passed, a contingency response team was there to assist in reopening the base in the wake of the natural disaster. Their priority was reopening the airbase as quickly as possible to ensure incoming aircraft could offload the much-needed supplies.

"Mobility professionals are highly-trained, prepared, and ready to offer support whenever and wherever required," Gen Miller said. "By connecting command post controllers, leveraging the maintainers, and establishing operations, the cross-functional teams come together and bring order from absolute chaos, and our AE crews are always poised and ready to care for fellow citizens in harm's way."

Gen Miller emphasized that AMC shrinks the globe, and no expense is spared to save a life. As the wings of hope, the inspirational AE journey of Reach 797 recently made national headlines to save the life of a critically wounded Special Operations soldier. It took 4 days, three aircraft, 18 medical personnel, and 24,000 gallons of fuel for non-stop transport for the soldier. The 618th Air Operations Center planned every detail of the highly complex 8,000 mile flight from Afghanistan to Brooke Army Medical Center in San Antonio, Texas, which required two nighttime aerial refuelings to complete the mission.

Standing before the packed auditorium of Mobility Airmen, Gen Miller said, "We believe in and know the power of serving others, no matter the cost. As Airmen, we succeed and invest our skills, our talents, and our lives in this country and each other. As Airmen, we are never alone."

Photo, top of page: Matthew Donovan, Under Secretary of the Air Force, addresses members during the A/TA Convention opening ceremony.

USAF photo by SSgt Michael Cossaboom

MOBILITY GUARDIAN 2019 HIGHLIGHTS FUTURE OF WARFARE

Aeromedical Evacuation Team members load simulated patients onto a KC-135 Stratotanker assigned to Fairchild AFB, WA, Sept. 16, 2019 during Exercise MOBILITY GUARDIAN 2019.

USAF photo by SSgt Dustin Mullen

BY MS. KIM KNIGHT, STAFF WRITER

The 2019 MOBILITY GUARDIAN (MG19) exercise took place September 8–27 at Fairchild AFB, WA. The highly coordinated event included more than 2,500 Airmen and 1,500 joint and international partners as well as 52 aircraft. Participants deployed to various locations throughout Washington State to partake in Air Mobility Command (AMC)'s premier exercise and put their skills and agility to the test.

"Shoulder to shoulder with our partners, MOBILITY GUARDIAN offered an opportunity to test the success of Air Mobility Command's transformation into a warfighting headquarters to ensure we are more seamlessly integrated into coalition and joint operations, more responsive to the Combatant Commanders, and able to posture our mobility forces to compete, deter, and win with speed and agility," said General Maryanne Miller, Commander of Air Mobility Command.

MOBILITY GUARDIAN 2019 was our safest MG exercise to date. Planners created challenging scenarios, and the crews were vigilant managing the risks involved. Risk management was prevalent from the initial planning through execution and that showed during the day-to-day operations. The end result was that we had no major mishaps and every crew and aircraft returned home safe to their home units and countries.

"In line with Air Mobility Command's transformation into a warfighting headquarters, large-scale exercises like MOBILITY GUARDIAN 2019 allow us to prepare for full-spectrum conflict and test our capabilities in a contested, degraded, and operationally-limited environment," Miller added.

Col Derek Salmi, Commander of the 92d Air Refueling Wing (ARW), Fairchild AFB, WA, said the exercise provided Airmen, sister services, and international partners an invaluable opportunity for joint training in simulated contested environments that have been outlined in the National Defense Strategy. "One of the unique aspects about the U.S. is our extensive network of allies. In part, AMC's ability to extend global reach depends on that network so opportunities like this allow us to train and to build those relationships and learn from each other," he said.

MOBILITY GUARDIAN's purpose is to build interoperability through challenging scenarios that push the boundaries for all involved.

A1C Avery Johnson, right, 92d Operation Support Squadron Aircrew Flight Equipment Technician assigned to Fairchild AFB, WA, helps 1 Lt Dallin Larson, left, 93rd Air Refueling Squadron KC-135 Stratotanker pilot assigned to Fairchild AFB, put on an Aircrew Eye and Respiratory Protection System (AERPS) during Exercise MOBILITY GUARDIAN 2019.

USAF photo by SSgt Dustin Mullen

Airmen perform decontamination procedures on KC-135 Stratotanker aircrew and passengers at Yakima Air Terminal-McAllister Field, WA, during Exercise MOBILITY GUARDIAN 2019.

USAF photo by SSgt Dustin Mullen

Identifying strengths and weaknesses as a joint force and international coalition during the MG19 exercise allows for strategic changes to be made before threats emerge to ensure AMC is always ready as a mobility enterprise for the nation.

The 92 ARW conducted a joint exercise with the Army 82d Airborne Division from Fort Bragg, NC. The joint forcible entry exercise began with several C-130s and C-17s at Pope AFB, NC, and ended six hours away over drop zones in Yakima, WA. The nighttime airborne assault jump is an example of being able to airdrop airborne units into a contested environment while flying through ranges with simulated threats likely to be encountered in the current international conditions. In another simulated hostile environment, 470 paratroopers were airdropped by U.S., Australian, Canadian, United Kingdom, and New Zealand aircrews.

"It tested their tactics, techniques, and procedures to see where we need to be, what we might need to adjust, and how to better enhance training moving forward," Salmi explained. "Not only to get the 82d Airborne in there but also to prove we can resupply them and keep the airfield open while the environment is contested."

He cited cyberwarfare, particularly involving installations, as another aspect of the future of conflict needing to be addressed in MG19. He explained that cyber-oriented training was essential during the exercise to enhance participants' training for combating high-end threats.

DAYS / MISSIONS: 15/388

FOBs Opened: 3

AeroMed Evac Totals:

- **Missions: 64**
- **Patients: 1,633**

Airland Totals:

- **Passengers: 987**
- **Cargo: 3,291 short tons**

Airdrop Totals:

- **Personnel: 472**
- **Container Delivery System: 306**
- **Heavy Equipment Platforms: 37**

Air Refueling Totals:

- **Missions & Receivers: 94 / 168**
- **Fuel Passed: 644K lbs**

FAFB ISB Fuel Totals:

- **Issued: 2,562,965 gal**
- **Received: 1,661,316 gal**
- **FORCE Bladder: 552,399 gal**

"Exercising through communication degradations here at the installation level tested our ability to generate air mobility when we don't necessarily have the communications we are accustomed to," he said. "We may face nontraditional security threats that we need to respond to while keeping our focus on getting aircraft airborne to carry out our commander's priorities."

Preparing for the near-peer adversaries of the modern world is critical to implementing the 2018 National Defense Strategy. In turn, exercises like MG19 become even more vital in improving the readiness and interoperability of all components while developing the leaders of tomorrow.

Miller said, "This year's MOBILITY GUARDIAN scenario offered participants a taste of the future of warfare, which will be increasingly joint and coalition, trans-regional in nature, and will require us to act with greater speed and precision."

Cold Weather Ops Q&A: How Prepared Are You?

BY MR. MATTHEW LIPTAK, STAFF WRITER

The thermometer has started to plunge, and there may be no end in sight until the warmer seasons arrive. It is time for cold weather operations once again. You may be experienced and well trained in cold weather ops, but how deep is your knowledge really? TMF dug up some numbers that even veteran cold-weather warriors might find surprising. Check out the answers below, and get ready to turn up the heat.

Q If you are out on duty, it's 20 degrees below zero Fahrenheit, and you don't have any facial protection, how long before your exposed cheeks get frostbite?

A With a wind speed of just 5 mph, your cheek will freeze in 17 minutes, but if the wind speed is up to 30 mph, those dimples of yours will freeze in just 6 minutes.

Q If it is just 10 degrees Fahrenheit outside and the wind is whipping around you at 20 mph, what is the wind chill temperature?

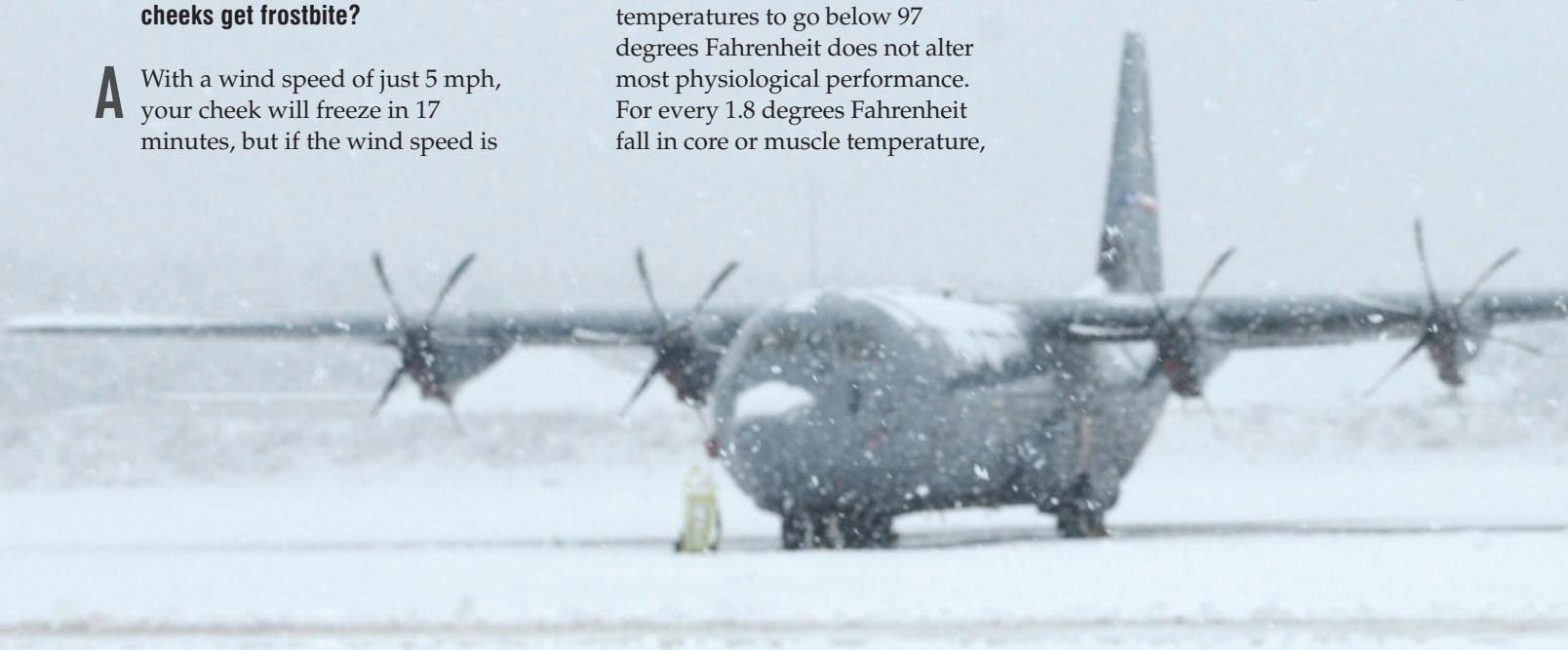
A Keep those gloves on. The temperature plus wind chill factor means that it feels like 9 degrees below zero.

Q How does the cold affect your core body temperature?

A Cold stress that does not cause a decrease in core body temperature of more than 0.9 degrees Fahrenheit or allow muscle temperatures to go below 97 degrees Fahrenheit does not alter most physiological performance. For every 1.8 degrees Fahrenheit fall in core or muscle temperature, however, maximum endurance exercise is lowered by about 5 percent, exercise endurance time is lowered by 20 percent, and maximum strength and power output is lowered by 5 percent.

Q How does your skin temperature affect your ability to get the job done?

A Pain sensations increase when skin temperatures decrease to 68 degrees Fahrenheit, and manual dexterity declines after finger-skin temperatures decrease to 60 degrees Fahrenheit because of cooling of tissues and decreases in joint mobility. Tactile sensitivity is reduced as skin temperatures drop



below 43 degrees Fahrenheit. Those changes occur due to decreased tissue temperatures, so an individual can have a normal body core temperature but still experience a significant decline in performance of gross and fine motor skills because the hands and fingers are cold.

Q What is the effect of all this cold on your brain?

A Cold strain can degrade mental performance on complex thinking tasks by 17 to 20 percent. Memory registration for newly presented information is impaired when core temperature falls between 94 and 95 degrees Fahrenheit, and short-term memory declines up to 20 percent with significant peripheral cooling even with no change in core body temperature. A person's ability to remain vigilant declines when the core body temperature is decreasing. Activities that require continuous, rapid, and accurate responses are impaired by 13 percent at low ambient temperatures that cause skin temperatures to fall.

So what's the verdict? Cold weather operations can be very challenging, and the dangers need to be taken seriously. Safety is a prime objective, so pay special attention to your regs and SOPs during this often uncomfortable time of year. Observe your recommended work/rest cycles; increase surveillance with self and buddy checks; wear appropriate layers and wind protection; avoid sweating; and make sure warming facilities are provided. Follow proper procedures, and all your fingers and toes will be available to join you on duty in the summer.

SrA Damian Halpin, 86th Aircraft Maintenance Squadron Crew Chief, stands on the flightline as he observes deicing operations for aircraft at Ramstein AB, Germany.

USAF photo by A1C Joshua Magbanua

SEASONAL CONSIDERATIONS

Safety on the Road: Prepare for Winter Weather

BY MR. ROBERT WOODS, STAFF WRITER

Inevitably, the seasons change, and along with them, road and driving conditions. There are many things you can do to make it through the cold season without accident or incident. Some of them involve prepping your car. Some of them involve prepping yourself. Others involve how to deal with snow and ice while driving.

Here are a bunch of ideas to keep you, your vehicle, and your passengers safe this winter. You may have heard a few before, but several will probably be new to you. Look them over. You may be happy you did when the temperatures begin to drop and the snow piles up. Happy driving!

- **Ready your car:** Check the battery. What percentage of power does it have left? Consider buying a new one before the temperatures drop suddenly, which might put your battery out of commission for good. If you are going to keep an ailing battery, make sure you have jumper cables with you and that you know how to use them, or sign up with AAA or find out if your insurance coverage has roadside assistance, and have the number handy.

- **Consider getting snow tires.** Will you need them? Is the cost and inconvenience of storing tires justified by the increased traction and stability they will give you on a wintry road? Think about what the weather has been during past winters, or research it. Remember: with potential climate change comes even more unpredictable weather.

- **Take it for a snowy spin.** When you are able, before you take your car out into heavy traffic during the winter, take it to an isolated parking lot or paved area that has snow. Drive around a bit. Get used to how your car reacts in these wintry conditions. How does it brake? How does it accelerate? How does it feel when the stability control or other safety features engage?

- **Be ready for that first winter drive.** The U.S. Department of Transportation reports that 17 percent of all accidents occur in wintry conditions. Many of those accidents probably happen on the first day winter hits with force. Drivers may have forgotten how to drive in the snow and ice. Some will slide off the side of the road—or worse—when they overreact to a loss of traction and hit the brakes hard. One of the keys to safe winter driving is using the brakes sparingly and lightly.

Hit them hard on a snowy or icy surface and you may lose control. When you see a stop sign or ramp ahead, start to slow down well in advance so you can distribute the deceleration over a larger area and gradually lower your speed. This can help you retain control.

- **Drive slow.** Drive slow. Drive slow. Probably the most important thing you can do in snowy or even blizzard conditions is slow your speed. You may get there later than you want, but it is a lot more likely you will get there. You have more control of your car at slower speeds because you will give yourself more time to react to any problems that come up while driving. If you're going 40 mph or less, or if visibility is bad, remember to turn your hazard lights on.

- **Follow the lines, and don't crowd snowplows.** It may be tempting to just follow the taillights of the car in front of you when visibility gets bad. But what happens when that car goes off the road? Instead, try to follow the painted road lines if you can to stay on track. If the middle line is obscured, look to the white painted line to your right. Give snowplows plenty of space; they make wide turns and turn and stop often.

- **Prepare for the worst by preparing an emergency kit.** Stock your car with essentials, such as a nonperishable, high-energy food, such as chocolate or energy bars; water; a blanket and some extra winter clothes; medicine; a snow shovel; an ice scraper or deicer; jumper cables; a flare; and an extra power pack for your cell phone. Consider keeping an old-fashioned map in the kit, too, and know how to use it. Put this kit in your vehicle a couple weeks before you expect the weather to change. You do not want to be caught out in a freak winter storm unprepared.

- **If you are stuck in a whiteout, do not wander away from the car.** People have died just a few steps from their vehicles because they left their vehicles in freezing conditions, couldn't find their way back because of poor visibility, and suffered hypothermia. It may be tempting to go for help, but if you are on a main road, you are most likely better off waiting for emergency services to come to you. Being prepared for being stranded for a while will make that wait a lot easier on you and your passengers.

- Conserve energy when stranded. If you get stuck, prepare to be there for a while. Do not run your car constantly in case it is a long wait. Start the car every half hour or so for a few minutes to run the heat and turn on the radio. Watch your cell phone battery. Conserve your own energy too. Break out that blanket and winter clothes.

- **Stay upbeat.** Keeping a positive attitude in a stressful situation is not easy, but it can make things easier on both you and your passengers. Remember, although the situation may seem dire if you suddenly find yourself driving or even stranded in bad conditions, you will eventually get out. Storms pass. Cars get back on the road. Before you know it, you will be at your destination in a warm room, maybe sipping a cup of hot chocolate—and you will have quite a story to tell!

CARGO CITY
Delivers on Capabilities

BY MR. MATTHEW LIPTAK, STAFF WRITER

"Cargo City is AFCENT's [U.S. Air Forces Central Command] busiest aerial port of debarkation and is critical to supporting cargo movement throughout the AOR [area of responsibility]. Cargo City, as it stands, is a temporary solution as part of a much larger vision to fully integrate Kuwaiti and U.S. capability on West Mubarak," said Col Gage Handy, Commander, 387th Air Expeditionary Group (AEG), Cargo City, Kuwait.

The facility opened on May 19, 2019, as an interim solution to the closing of Abdullah Al-Mubarak Air Base in Kuwait as a base of operations due to the commercial expansion of adjacent Kuwait International Airport. Cargo City will be used for U.S. coalition forces until the construction of the new West Al-Mubarak Air Base is complete.

West Al-Mubarak Air Base's construction was underway concurrently with the commercial expansion of the airport, but progress on the airport work went faster than expected, and both the coalition forces and two other Kuwaiti air bases were given one year to vacate.

Col Adrienne Williams, 387th Air Expeditionary Group (AEG) Commander, and CMSgt Charles Lane, 387th AEG Command Chief, cut the ribbon to signify the official opening of Cargo City during the Cargo City Ribbon Cutting Ceremony, which took place near the Kuwait International Airport, May 19, 2019.

USAF photo by TSgt Robert Cloys

Photo, left: Col Williams and CMSgt Lane shake hands after they cut the ribbon signifying the official opening of Cargo City.

Photo, right: TSgt Aimee Bravo, 387th Expeditionary Security Forces Squadron, emcees the Cargo City Ribbon Cutting Ceremony near the Kuwait International Airport, May 19, 2019.

USAF photos by TSgt Robert Cloys

Cargo City as an interim location may not have been part of the original plan, but due to need and on an abbreviated timeline, the United States and its Kuwaiti partners joined forces to quickly establish a strategy for the way forward. More than 20 groups had to coordinate to make the planning for Cargo City a success. Regular meetings, attended by at least 50 people from various Kuwaiti entities, were consistently scheduled to keep participants informed and to ensure that the project milestones were achieved.

The new location is expected to be well suited for the task at hand, with 150,000 square meters of cantonment space, of which 33,000 square meters were allocated for the United States. Work to complete the facility called for 1.24 million cubic meters of fill. The effort required roughly 400 trucks to haul soil and rock to the site every day for almost four months.

The transfer of operations to the newly created Cargo City moved cargo and troop debarkation farther west to an empty cement ramp not originally connected to any runway but still at Kuwait International Airport.

When the move from Cargo City to the new West Mubarak Air Base is complete, the interim Cargo City facility is expected to be used as a permanent cargo holding area for the Kuwaiti airport—the original plan for that section of the airport.

"Cargo City is the Gateway," said Lt Col Matthew S. Vogel, former Deputy Commander of the 5th Expeditionary Air Mobility Squadron (EAMS), Cargo City, Kuwait. "This location is vital to the U.S. military, as it provides surge capacity for all military branches in all scenarios which occur in and around the AOR. Additionally, Cargo City is the central location for Army and Air Force personnel within Kuwait to process arriving and departing troops, which then continue to all locations within Central Command."

The whole experience of creating Cargo City was a positive one that has reinforced the strong, ongoing, successful relationship between the United States and Kuwait.

Vogel related that the biggest challenge of getting Cargo City up and running was making sure the requirements of the USAF were understood and carried out by the non-U.S. agencies and contractors. When the date to start operating at Cargo City was set, they had only a short time to end operations in the old facility and transfer them to the new one.

Col Adrienne Williams, former Commander of the 387 AEG said, "As with any major move, there are many opportunities to succeed. The Airmen of the 386th Air Expeditionary Wing (AEW), 387 AEG, and 5 EAMS had to think outside of the box constantly, finding innovative solutions to each problem set encountered. This particular base shutdown was very sensitive due to the fact that we were located on a host nation Air Force Base, which, in return, was located on the international airport."

The significance of creating a major U.S. Coalition debarkation point that required a mosaic of players to come together in a short period of time is widely recognized. The whole experience of creating Cargo City was a positive one that has reinforced the strong, ongoing, successful relationship between the United States and Kuwait.

"It is truly spectacular to be part of this historic move, a move towards the future highlighting the progress developing all around us," said Williams. "The new location will continue to build upon our lasting friendships and bonds, ensuring the strong partnership between the United States and Kuwait for generations to come."

AMC PRIORITIES

Enterprise Learning Office

BY MS. BRITTANY OLSON, STAFF WRITER

The mission and vision of Air Mobility Command's (AMC) Enterprise Learning Office (ELO) is to "transform the way we approach learning in the command."

A crucial element to providing agile support and readiness to address any tactical situation for the Air Force in a technology-driven modern world is the continuous development, education, and training of Airmen. AMC's ELO at Scott Air Force Base (AFB), IL, was established to implement a progressive approach to learning that inspires innovative thinking and positions ongoing Airman education and training as less of a task and more of an empowering, lifelong process. The goal is to transform learning to optimize an Airman's contributions to the mission, readiness, resiliency, and innovation of his or her unit and the Air Force.

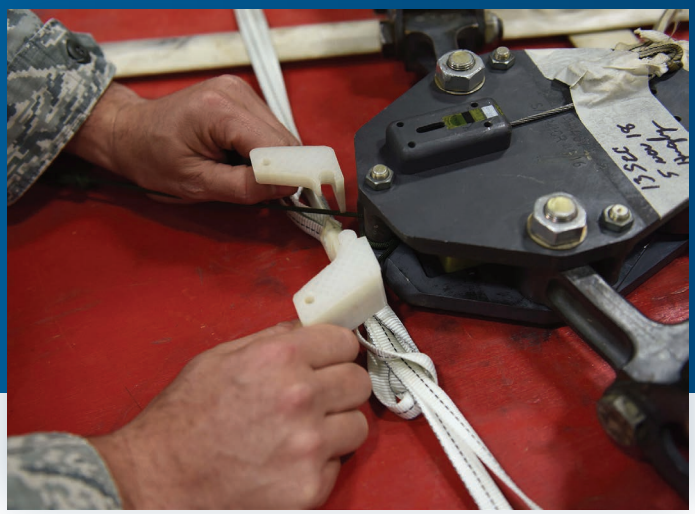
In early 2018, the ELO's Chief Learning/Innovation Officer, Mr. Shane Hershman, was tasked with implementing transformative hands-on learning methods and technologies that directly elevate innovation and out-of-the-box thinking within AMC and prepare Airmen for approaching future challenges by fostering effective lifelong learning throughout every stage of their careers.

In 2016, the ELO initiated a revamp of AMC's learning curriculum and dissemination of information to comply with point-of-need learning, which makes information available to Airmen on a need-to-know basis and not before. Learning at the point of need is proven to limit duplication and redundancy and to reduce the amount of time that Airmen are required to spend in formal training.

When Hershman first joined the ELO, he was responsible for implementing a second phase of AMC's learning transformation initiative. His team analyzed recommendations and problems facing the Expeditionary Operations School and the Air Force. The office looked to academia and industry for data on best practices and pioneering solutions to those problems. The information was then given to the client within AMC to facilitate the implementation of new technologies and blended or distributive learning approaches. The ELO recently met with Delta Airlines to learn how AMC can improve the ongoing training of aircraft maintainers. Based on the information provided, Hershman's team suggested creating a YouTube library with videos on predictive maintenance that refresh Airmen on how to perform specific skills.

In October of 2018, the Directorate of Strategic Plans, Requirements, and Programs raised the Air Force's commitment to innovation to the next level by holding AMC's very first Phoenix Spark Tank competition at the 2018 Airlift/Tanker Association (A/TA) Symposium in Grapevine, Texas. The competition was created to expedite innovation initiatives within AMC and inspire Airmen of all ranks to pursue innovative ideas that will maintain Air Force readiness or improve operational efficiency by exponentially reducing the time and money that is allocated to a task. Hershman and his team vetted and selected four finalists from 73 ideas submitted on the competition's IdeaScale Portal. Finalists pitched

> The next step for the ELO is to restructure the Spark Tank program and streamline the ideation process and development of ideas between wings, the Air Force, and other DoD components to reduce the duplication of project submissions and product testing.



SSgt Travis Alton, 19th Logistics Readiness Squadron Parachute Rigger, secures an M-1 Parachute Release Timing Block Fail-Safe, to an M-1 Parachute Release Device at Little Rock AFB, AR, Nov. 15, 2018. Alton won Air Mobility Command's first Phoenix Spark Tank competition at the 2018 Airlift/Tanker Association Symposium for developing the fail-safe to prevent parachutes from being detached from cargo too early. The block is projected to save the Air Force $1.6 million on training load damages if approved for use.

USAF photo by SSgt Mercedes Taylor

Maj Keith Nordquist, 458th Airlift Squadron C-21 Formal Training Unit Chief, presents his idea for a flight training device to a group of judges at the Spark Tank competition March 4, 2019, at Scott AFB, IL. Nordquist proposed a flight simulator that will help keep C-21 aircrews combat-ready and capable on the aircraft's new avionics upgrades while still learning legacy systems during the transition period.

USAF photo by A1C Kristin Savage

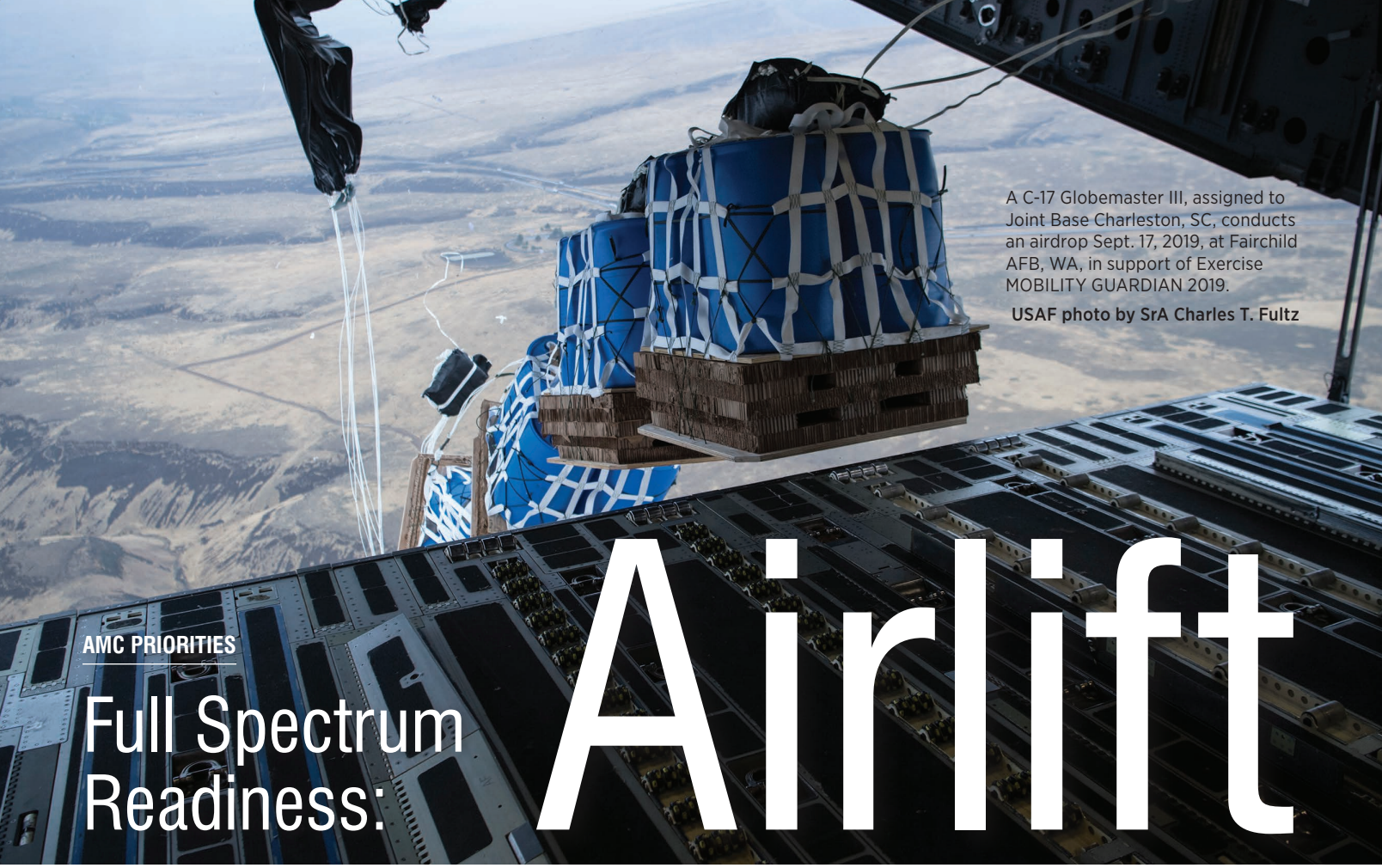
their ideas in Shark Tank fashion to a panel of judges, which included Gen Maryanne Miller, Commander of Air Mobility Command, and VOX Space President Mandy Vaughn. The panel selected one finalist to represent AMC at the Air Force-wide Spark Tank cup in Orlando, FL. All four projects are in the process of being implemented at the operational level within the command.

The next step for the ELO is to restructure the Spark Tank program and streamline the ideation process and development of ideas between wings, the Air Force, and other Department of Defense (DoD) components to reduce the duplication of project submissions and product testing. "Squadron, headquarters, the Air Force, and DoD are siloed when it comes to brainstorming ideas, testing innovative approaches, and allocating resources to research and prototype development. There currently is little collaboration between wings or departments. In fact, most wings hold their own Spark Tank competitions, so our first challenge is to get all of the wings and headquarters to work together and implement force-wide procedures to ensure each wing and all departments are aware of what the others are doing and how far along they are in a project's development," stated Hershman. As part of the program's restructure, Spark Tank competitions at the wing level will be streamlined and lead up to the annual AMC-sanctioned Spark Tank competition that will be held at the A/TA Symposium.

Hershman's vision for innovation is to centralize the decision-making process for the approval, funding, and implementation of innovation submission and to position AMC Headquarters as the facilitator from the idea phase, to concept submission, and finally to implementation, beginning at the wing level. The ELO is in the process of integrating an automatic reply application that notifies Airmen in real time when an idea submission form has been received for the same idea. The software will track the stages of development of similar ideas to prevent Airmen from dedicating hundreds of hours on developing proof of concept for an idea, just to find out months later that a working prototype was already created by Airmen from another wing.

AMC's first Innovation Summit will be held this spring at Scott AFB to bring all the wings together to facilitate discussion concerning internal policy development and procedures for ideation and innovation development at the wing level and beyond. For idea submissions, the ELO is going to conduct a 24/7 Innovation Campaign on IdeaScale for AMC.

Hershman's advice to Airmen contemplating whether or not they should pursue an idea is to "keep submitting your ideas! We look at every submission, so don't give up. I think our younger crop of squadron commanders are pushing for us, which is motivating. I've talked to quite a few innovators at the wing level who are coming up with ideas, and they are so passionate and excited. We have a great momentum going right now."



A C-17 Globemaster III, assigned to Joint Base Charleston, SC, conducts an airdrop Sept. 17, 2019, at Fairchild AFB, WA, in support of Exercise MOBILITY GUARDIAN 2019.

USAF photo by SrA Charles T. Fultz

AMC PRIORITIES

Full Spectrum Readiness: Airlift

BY MS. BETTY NYLUND BARR, STAFF WRITER

Airlift began during World War I, when a handful of soldiers were flown from one airfield to another in Illinois. It has grown into not only a means of providing equipment and troops for fighting wars but also a humanitarian source of lifesaving provisions.

But what is *Full Spectrum Readiness* as it applies to airlift?

First, let us define *airlift*. Merriam-Webster describes airlift as "a system of transporting cargo or passengers by aircraft often to or from an otherwise inaccessible area." That definition is simple and clear, but insufficient to fully capture the vital function of this first of the four mission components of the Air Mobility Command (AMC).

Gen Maryanne Miller, AMC Commander, put it more comprehensively: "Our mission is to facilitate the rapid aerial delivery of cargo and personnel ... AMC delivers these effects to wherever they are needed, whenever they are needed, under any circumstances."

The U.S. Transportation Command (USTRANSCOM) website describes the types of airlift services provided by AMC. *Channel cargo service* is a scheduled airlift between two locations that is provided to Department of Defense (DoD) activities throughout the world. *Distribution channels* are recurring channel services that are scheduled on the basis of the volume of traffic, on the basis of operational necessity to support a mission-sensitive area, or to support quality of life in a remote area. *Contingency channels* are channel services that occur on the basis of operational necessity to support mission, operations, and contingencies directed by the Secretary of Defense according to the Joint Chiefs of Staffs DoD Transportation Movement Priority System.

A *Special Assignment Airlift Mission (SAAM)* provides a specific service for a user at a prearranged time and date. SAAMs are used instead of channel missions because of the unusual nature or sensitivity of the mission, urgency of the cargo, or delivery to places outside established channels.

Joint Operational Support Airlift (OSA) Missions include OSA missions; transportation of military or DoD civilians on official business; and movement of high-priority passengers and cargo that are time, place, or mission sensitive. The Joint Operational Support Airlift Center (JOSAC) at Scott AFB, IL, coordinates OSA flights and all DoD fixed-wing OSA requirements within the continental United States.

To dive deeper into the concept of airlift, one must consider various

scenarios in which airlift may serve the joint forces of our military.

Picture our hard-fighting troops, defending freedom for us and our allies. They are short on sleep, food, and even water—yet they continue in the face of great physical danger and stress. Enter AMC airlift with supplies and additional troops.

Next, consider our troops in remote, war-torn areas, with injured comrades or civilians. They have the trained medics, but medicine, cleansing supplies, and medical equipment are becoming more and more scarce. AMC airlift arrives with exactly what the doctor(s) ordered, and lives will be saved.

In a final scenario, troops have been fighting far longer than anyone had imagined. The enemy seems to have an unending supply of weapons and ammunition, but our troops are becoming concerned because theirs are running out. Here comes AMC airlift with more weapons and ammo.

Now that we have a more comprehensive idea of what constitutes an airlift, we should understand why Full Spectrum Readiness is necessary.

Airmen can be called on to go anywhere at any time of the day or night, and they are expected to be *ready*. Lives depend on them.

Readiness begins with sufficient, high-quality training, such as MOBILITY GUARDIAN, AMC's flagship exercise for large-scale Rapid Global Mobility operations. Airmen must be ready to deal with challenging situations intuitively—because of their training.

Another challenge Airmen must prepare for is mobility operations in contested environments. "There is always fog and confusion in war. The enemy always gets a vote in what you do, especially in Afghanistan. There is the risk of aircraft damage or injury to personnel," said Lt Col Jonathan Esses, 41st Airlift Squadron (AS) Commander, Little Rock AFB, AR. The 41 AS was awarded the 2018 General Joseph Smith trophy for being the most outstanding airlift squadron in AMC by leading the largest wing exercises, delivering major overseas airdrops, and achieving the lowest C-130J mishap rate for eight years.

"Full Spectrum Readiness requires leaders to not only properly equip their Airmen but also ensure they are trained for tomorrow's fight," said MSgt Kristine Dreyer, AMC Public Affairs.

Throughout a world in which weapons, crusades, and armies are constantly evolving; in which natural disasters present hardships to communities that may already face the challenges of poverty or the residual effects of previous weather events; and in which funding for military and humanitarian efforts is subject to the whims of the current political forces, Airmen maintain a strong, steady lifeline for the warriors who protect our freedom and for people in lands devastated by war and nature's vagaries. Full Spectrum Readiness makes that possible.

A U.S. Army High Mobility Artillery Rocket System (HIMARS), 17th Field Artillery Brigade, Joint Base Lewis-McChord, WA, is offloaded from a C-17 Globemaster III, 60th Air Mobility Wing, Travis AFB, CA, during Exercise MOBILITY GUARDIAN 2019.

USAF photo by TSgt Larry E. Reid Jr.

SSgt Tony Johnson, left, and SSgt Andre Buckmon, both 517th Airlift Squadron C-17 Globemaster III Loadmasters assigned to Joint Base Elmendorf-Richardson, AK, prepare cargo for an airdrop sortie during Exercise MOBILITY GUARDIAN 2019.

USAF photo by TSgt Larry E. Reid Jr.

The 815th Airlift Squadron completes an airdrop of container delivery systems during the Joint Airborne Air Transportability Training exercise, Arctic Anvil, Oct. 1-6.

USAF photo by MSgt Jessica L. Kendziorek

Five Fast Facts on Icing and Deicing

BY MR. MATTHEW LIPTAK, STAFF WRITER

"I was saying to one of the new guys who was in the bucket with me earlier, it's kind of like playing a video game," Senior Airman Ian Bartlett, Aircraft Maintenance Squadron Crew Chief said. "You are shooting the liquid at a plane ... It's kind of fun."

That deicing liquid is part of the routine maintenance of prepping an airplane to fly in freezing conditions. Maybe you are a flyer who has gone through this routine before, or maybe you have just been a passenger. Whatever the case, icing is something that needs to be addressed for safe flight to happen in the colder months, and it can be mitigated with the deicing process.

Here are some facts about icing that you may not be aware of:

1. **Icing adds weight to the aircraft, which is problematic for several reasons.** Ice increases drag and decreases lift; that will definitely affect flight performance. Vibration can occur on rotors and propellers as a result of the ice, too, which can require more power to maintain flight. If ice builds up on the outside of the aircraft, brakes and landing gear may not function properly, radio communication may be lost, false instrument readings may occur, and outside vision will probably be reduced or may be completely lost.

2. **One type of aircraft icing is structural.** Structural icing is icing that collects on the structure of the aircraft when surface and air temperatures are at or below freezing. Clouds are the most prevalent type of water in the air. Freezing rain is the other most likely visible form of moisture that can cause icing. Precipitation is the most dangerous of all the different icing conditions because of the speed at which it can build up and the difficulty of removing it.

3. **Three subcategories of structural icing are clear, rime, and mixed.** Clear ice is the most dangerous. It is hard and shiny, and it is very difficult to remove with deicing equipment. Clear ice is found most often where you find high moisture content in the clouds and temperatures slightly below freezing. It adheres to the aircraft's surfaces and can build to a dangerous level in a short time. Rime ice is milky and granular in appearance, making it more brittle and easier to remove than clear ice. It is made up of small water droplets that freeze when they strike the surface of the aircraft, and a lot of air usually gets trapped in with the water. It is not as heavy as clear ice, either, so its weight is less of an issue. Mixed ice is a mix of small and large water droplets, sometimes with snow or ice particles mixed in. It builds rapidly, and ice particles can become embedded in clear ice, making a rough surface.

4. **Induction icing can materialize in the air induction systems, by which air is taken into the engines.** It may also condense in the fuel systems under a wide range of weather conditions, and it can affect the entire power plant. Carburetor icing is a subcategory within induction icing that is extremely dangerous and often results in total engine failure. This type of icing forms during fuel vaporization combined with the expansion of air as it passes through the carburetor. It can also form when temperatures are above freezing. Be aware that this might happen, and keep on the lookout.

5. **In 2015, a deicing simulator was introduced.** The simulator helps Airmen learn and train on deicing procedures without actually using the equipment. The simulator resembles a video game, with controls that are an exact replica of the controls in the deicing cab. "It helps students with muscle memory," said TSgt Chris Runge, 92d Maintenance Group (MXG) Development Element Noncommissioned Officer in Charge (NCOIC). "It allows them to get to a level they wouldn't normally get to in a short time period."

As always, safety is a precursor to all flights, whether you're in temperatures above freezing or below. The Air Force is particularly aware of the dangers of icing and is exacting when it comes to mitigating these potentially unsafe conditions. Icing can be a challenge to safe flight, but corrective action can be taken.

"The Air Force policy is that pilots will not take off with ice, snow, or frost adhering to the wings, control surfaces, engine inlets, or other critical surfaces

of the aircraft. Tests have proven that ice, snow, or frost formations having a thickness and surface roughness similar to medium or coarse sandpaper on the leading edge and upper surface of a wing can reduce lift up to 30 percent and increase drag up to 40 percent," said TSgt David Lamb, 92d MXG Maintenance Qualification Training Program (MQTP) instructor. "If anything is left on the plane, it can interfere with the aircraft's lift and be potentially dangerous."

Airmen assigned to the 732d Air Mobility Squadron deice a C-17 Globemaster III out of Joint Base Lewis-McChord, WA, while conducting flight operations at Joint Base Elmendorf-Richardson, AK. During the harsh Alaskan winters, deicing keeps aircraft operational by removing layers of snow, ice, and frost that could adversely affect flight.

USAF photo by Alejandro Peña

Global Patient Movement:

Moving America's Ill and Injured Warfighters Safely, Securely, and Soundly

BY MR. MICHAEL P. KLEIMAN, U.S. TRANSPORTATION COMMAND

Every day, the U.S. military conducts an average of 35 aeromedical evacuations, transporting sick and wounded active duty service members, as well as other patients from around the world, to locales with appropriate medical treatment facilities.

Serving as the Department of Defense's (DoD's) single manager for global patient movement, one of its five Unified Command Plan responsibilities, United States Transportation Command (USTRANSCOM) executes this critical mission through the U.S. Air Force's aeromedical evacuation system, which provides safe, secure, and sound in-flight health care to the ill and injured transiting the skies.

"Global patient movement and warfighting readiness go hand in hand. For example, our aeromedical evacuation professionals comprehensively assist more than 500 patients with various levels of medical care per month," said U.S. Air Force Col John Andrus, Director, USTRANSCOM Command Surgeon Directorate. "Similar to a symphony orchestra that consists of numerous musicians playing in harmony to generate incredible sounds, the global patient movement process also features many moving parts, which come together in unity to enable and ensure superior in-transit medical support to America's warfighters."

The initial phase of the global patient movement process begins with a decision by the treating medical team that a patient needs to move to a higher level of care. Next, the involved senior medical authority requests patient movement through the USTRANSCOM Regulating and Command and Control Evacuation System, the DoD's automated, electronic information tool utilized by the three USTRANSCOM patient movement requirements centers. These facilities are known as the Theater Patient Movement Requirements Center (TPMRC) – Americas, Scott Air Force Base, IL; TPMRC – East, Ramstein Air Base, Germany; and TPMRC – West, Joint Base Pearl Harbor-Hickam, HI.

Then, the appropriate TPMRC receives and validates the requested requirement. During the validation process, a flight surgeon determines the individual's capability to fly and if allowed to do so, ensures the availability of an attending physician and a bed at the destination. The team also addresses flight specifics, including altitude restrictions, patient positioning, and special equipment. In addition, the servicing TPMRC coordinates other support, such as enroute care and ground transportation to the accepting medical treatment facility.

A standard aeromedical evacuation flight crew consists of two flight nurses and three technicians. To ensure America's ill and injured warfighters are transferred safely, securely, and soundly, a Critical Care Air Transport Team (CCATT), specialized in transit support, is utilized. This team is comprised of one physician, one intensive care unit nurse, and one specially-trained respiratory technician. The CCATT can assist up to four patients.

"A majority of our patient movement requirements come from U.S. Central Command, U.S. European Command, U.S. Indo-Pacific Command, and U.S. Northern Command. We're responsible for management of these patients globally. On the other hand, for patients located in austere places, a contract conveyance, such as International SOS, provides aeromedical evacuation support," said U.S. Air Force Lt Col Sean Wilkinson, Chief, Global Patient Movement Integration Cell, USTRANSCOM Command Surgeon Directorate. "The TPMRC ensures the appropriate level of care is maintained throughout the global patient movement system. For example, we make sure an advanced cardiac life support ambulance is waiting at the destination for an in-transit, critical care patient."

In his position, Wilkinson, a 28-year career Airman and advanced practice nurse, serves as a unifying hub in the global patient movement system, connecting information generated by the three TPMRCs and subsequently relaying the data to the USTRANSCOM director of operations and to Andrus for their decision(s). As the connector of the system's (global patient movement) many moving parts, he likens his role to that of a conductor leading an orchestra as per Andrus' quoted example.

Wilkinson is also the lead global patient movement planner for defense support of civil authorities. Following Hurricane Dorian's devastation of the Bahamas in September of 2019, he assisted in preparing MacDill Air Force Base, FL, and Scott Air Force Base, IL, to host aeromedical evacuation personnel, aircraft, and equipment from seven different bases readied to respond, but the call for support from U.S. Northern Command did not come.

Nevertheless, the global patient movement system continues to respond—every 90 minutes—in transporting America's ill and injured warfighters safely, securely, and soundly wherever and whenever needed.

"The U.S. government will spare no expense to get patients back for definitive medical care," Wilkinson stated. "The global patient movement system is not replicated anywhere else."

USTRANSCOM exists as a warfighting combatant command to project and sustain military power. Powered by dedicated men and women, it underwrites the lethality of the joint force, advances American interests, and provides our nation's leaders with strategic flexibility to select from multiple options and create multiple dilemmas for adversaries.

Maj Mark Cheney (left), 59th Medical Wing (MDW) Anesthesiologist, TSgt Bryan Sundstrom (middle), 59 MDW Cardiopulmonary Technician, and Capt Elena Vulgamott (right), 59 MDW Critical Care Registered Nurse, prepare a simulated patient for transport during a Critical Care Air Transport Team demo at Joint Base San Antonio-Lackland, TX, July 12, 2018. The transport teams are composed of medics who have gone through rigorous training to perform these high-stress and fast-paced missions.

USAF photo by SrA Stefan Alvarez

SAFETY CULTURE

To Sleep or Not To Sleep—That Is the Safety Question

BY MR. DON MILLER, STAFF WRITER

Occurrences of fatigue among non-flight crew Airmen go back at least to 2005, when an Air Force Research Laboratory Shift Work Fatigue Survey concluded that "Fatigue management and sleep hygiene training should be made mandatory for shift workers and their schedulers, managers, and supervisors." The survey also found that "The rest days in a shift work schedule should be treated in the same manner as the formal, inviolable crew-rest periods for aircrews."

As recently as 2015, however, a U.S. Department of Defense (DoD) survey showed that 50.1 percent of Airmen reported getting less sleep than they needed. Clearly, a lot of work remains to ensure that Airmen get the rest they need so they can accomplish their jobs without incident.

The Air Force recognizes the problem and is addressing the challenge of fatigue for non-flight crew Airmen, but the problem persists. To increase education measures, the Air Force disseminated information about fatigue and its management to Airmen. The Air Force Medical Operations Agency has developed and published the Air Force Fatigue Management Guide. The guide covers subjects such as understanding the nature of fatigue, fatigue countermeasures, good sleep habits, and advice for handling unavoidable sleep loss.

Still, fatigue continues to be a real problem, which Airmen may just accept as going with the territory of their duties. According to the 2015 DoD survey, 20.3 percent of Airmen were moderately or severely bothered by sleep-related lack of energy, and 7.5 percent took sleep medications daily or almost daily. Additional research published in *Nature Medicine* in 2017 indicates that being sleep deprived for 17 hours is similar to the effects of a blood alcohol concentration (BAC) of 0.05 percent, and after 24 hours that number grows to a BAC of 0.1 percent—or legally intoxicated.

Needless to say, combining a functionally inebriated loadmaster with the task of squaring away aircraft cargo for flight is not an optimal situation. As recently as 2016, however, the Air Force itself was reporting that similar conditions existed in non-aviation areas of the service.

A report by the United States Air Forces in Europe-Air Forces Africa Safety Office in 2016 proposes the following fictional scenario to be not uncommon among its overly hardworking Airmen.

Consider the following scenario. *You are a shift worker working 11 a.m. to 11 p.m. You stay an hour later in order to fulfill the requirements of your additional duties and realize that you have mandatory training at 7 a.m. the following morning. You have a 30-minute drive home. You arrive at your house, trying to be quiet so you do not wake your family. You think about your sleeping 4-year-old who you have not spent much time with for days because of your shift. You finally get to sleep at 2 a.m., setting your alarm for 6 a.m. You get up the next morning after only getting 4 hours of sleep and drive in to your mandatory appointment. You drive back home at 9 a.m. hoping to get some rest.*

But once you arrive at home, your 4-year-old is excited to see you at this time of day and wants to spend time with you. You decide to spend time with her, so you stay awake until your shift, which begins at 11 a.m. You report to work tired but drink energy drinks throughout the day. That evening, you drive home at midnight, in the dark, having only slept 4 hours in the last 48 hours.

The report goes on to propose Fatigue Risk Management Systems (FRMS) as a critical element to stem the problem of fatigue among non-flight crew Airmen. The report said, "Fatigue Risk Management System is a vital system that provides Commanders and Airmen with the tools necessary to appropriately manage fatigue risk."

The systems are not magic bullets, but they can mitigate the potentially dangerous occurrence of fatigue into something that is more manageable by distributing the weight and applying it to both Airmen and their Commanders. Previously, the report noted, some Commanders had not been as diligent in addressing fatigue as they might have been.

The FRMS can also offer strategies to contend with challenges in staffing and scheduling, the report noted. "There is a science to scheduling," the Safety Office emphasized. "While inadequate staffing may indeed be a burden that your unit bears, there are scheduling strategies that improve quality of life and ensure that Airmen are getting adequate rest."

Clearly, chronic fatigue among Airmen will be a challenge both for Airmen and for their Commanders into the future, but just accepting the risks that come with increased fatigue as part of the job does not adequately address the safety issue. A proactive attitude is required to mitigate the extra-long hours and difficult schedules Airmen are sometimes called on to endure.

Perhaps the Air Force should regard the rest days in shiftwork schedules the same way as the formal, inviolable crew-rest periods for aircrews—or perhaps more liberal use of FRMS would be enough to mitigate the risks to safety that fatigue creates.

The conclusion is obvious, however: according to the studies, Airmen are not getting enough rest. Until they do, related increases in safety for non-flight crew Airmen will continue to be a goal rather than a reality.

SAFETY CULTURE

2019 CRITICAL DAYS OF SUMMER Wrap-Up

BY MR. JOE HUGHES, CHIEF, HQ AMC OCCUPATIONAL SAFETY

With the passing of Labor Day, Air Mobility Command (AMC) concluded its Critical Days of Summer awareness campaign, which highlighted the increased risk to which our Airmen are exposed. The summer months bring increased travel, recreation, and other activities that have the potential to result in a mishap. AMC continues to combat those risks by conducting this annual safety campaign.

Unfortunately, AMC suffered two off-duty, private motor vehicle fatalities, with the Air Force losing a total of 10 Airmen this summer. Tragically, private motor vehicle accidents continue to be the leading cause of death. Personal risk management and sound decision making are critical to reducing and eliminating motor vehicle mishaps.

The theme for this year's campaign was "Take 3! seconds, minutes, or additional steps to effectively evaluate the associated risks so Airmen can make the best possible decision." All too often, people overlook minor details, do not complete an effective risk assessment, or simply ignore the known risks, which leads to injuries or even death.

This year's campaign began with a kickoff video from the AMC Commander and Command Chief. In addition to the video, units were provided with small-group discussion topics designed for engagements between supervisors and work center personnel. These small-group discussions get Airmen thinking about potential consequences of their actions or inactions and ultimately help improve their personal risk management decision making.

Alcohol continues to be a factor in the majority of fatalities. It can make people feel confident, less inhibited, and more euphoric. Alcohol has an especially high and often negative impact on those who display unnecessary risk taking and poor choice management. Although it can be a great way to socialize or relax when used responsibly, alcohol can be an insidious enemy to our world-class Airmen and society at large when misused.

Even though the summer campaign has ended, please stay focused, always vigilant, and aware of your surroundings. Sound risk management in your decision making process can lead to better choices and be the difference between life and death. Leadership, supervision, and Wingmen are the backbone to effective mishap prevention.

TAKE 3! **seconds, minutes, or additional steps to effectively evaluate the associated risks so Airmen can make the best possible decision.**

MISHAP-FREE FLYING HOUR MILESTONES

8,500 HOURS

9 AS, Dover AFB, DE
Lt Col Kevin M. Woods
MSgt Johnny Crump

121 ARW, Rickenbacker IAP, OH
SMSgt Paul Emler

7,500 HOURS

189 AW, Little Rock, AR
Lt Col Donald Hullet

6,500 HOURS

189 AW, Little Rock, AR
MSgt Bobby Dugger

5,000 HOURS

9 AS, Dover AFB, DE
Lt Col Kenneth E. Dixon
Maj John W. Trombetta Jr.
MSgt Benjamin R. Fay
MSgt Jesse Tallamantes

189 AW, Little Rock, AR
Col Dean Martin
Lt Col Steve Brock
Lt Col Michael Culley
Lt Col John Judy
Lt Col Steve Morris
Lt Col Scott Sims
Lt Col David Walsh
Maj Steven Bear
MSgt Hugh Welch
Mr. Paul Hehnke
Mr. Phillip Moorehouse

344 ARS, McConnell AFB, KS
Col Mark E. Baran
MSgt Edward L. Soto

349 ARS, McConnell AFB, KS
Lt Col Brian C. Smith

350 ARS, McConnell AFB, KS
Maj Neil F. Godwin
Maj Andrew K. Teigeler

3,500 HOURS

9 AS, Dover AFB, DE
Lt Col William J. Jones
Lt Col Craig D. Lindstrom
Maj Billy R. McGee
Maj Thomas A. Moseder
SMSgt Jeremy A. Frappier
MSgt Cravenkeo Khamone
MSgt Christopher E. Lewis
MSgt Clint A. Montoya
MSgt Joseph L. Pinkerton
MSgt Antonio A. Torres
TSgt Joshua C. Cutrer
SSgt Jarryd A. Morgan

167 AW, Martinsburg, WV
Maj Christopher G. Kerker
Capt Samuel C. Harrison

189 AW, Little Rock, AR
Col Christopher Montanaro
Lt Col Sonny Baxter
Lt Col Justin Brumley
Lt Col Dan Carpenter
Lt Col Joseph Geaney
Lt Col John Latour
Lt Col Toby Morrow
Lt Col Darril Norris
Lt Col Jason Priddle
Lt Col Christopher Raymond
Lt Col Jay Southerland
Lt Col Brian Wester
Maj Thomas Guillebeau
Maj John Lax
Maj Jason Martinez
Maj Austin Schlech
Capt Daniel Maslowski
CMSgt Chad Cooley
CMSgt Brian Rohauer
SMSgt Travis Alkire
SMSgt Gregory Armstrong
SMSgt Joshua Atkins
SMSgt Matthew Hunter
SMSgt Phillip Pulliam
MSgt Avery Adkins
MSgt Eric Anderson
MSgt Steven Bryan
MSgt David Long
MSgt James Miller
MSgt Adam Palmer
MSgt Matthew Smith
TSgt Darin Jacek

344 ARS, McConnell AFB, KS
Col Kenneth E. Moss
Lt Col Kenneth Y. Louie
Maj Derek J. St. John
SMSgt Patrick R. Martin
SMSgt Lindsay S. Moon

349 ARS, McConnell AFB, KS
Lt Col Daniel J. Schone
Lt Col Lucas D. Spathes
Maj Troy M. Breland
Maj Phillip T. Krauss
Maj Steven D. Marks
CMSgt Derrick W. Grant
MSgt Cleigh M. Robbins
MSgt Jeffrey J. Sparks
MSgt Jesse P. Wright
MSgt Christophe S. Yontz

350 ARS, McConnell AFB, KS
Lt Col Daniel W. Barrows
Lt Col Joseph W. Carr
Lt Col Ryan J. Hughes
Lt Col Frank W. Rovello
Maj Christopher A. Baisch
Maj David P. Jung
Maj Jamaal D. Neal
Maj Brian J. Potter
Maj Tyler F. Sickles
Capt Matthew P. Biga
Capt Richard A. Duarte
SMSgt David A. Lang
MSgt Jacob S. Jewell
MSgt Jeremy D. Pratt
TSgt Christopher D. Huber
TSgt Blake J. Landry
TSgt Chelsea J. Thornhill

2,500 HOURS

9 AS, Dover AFB, DE
Lt Col David C. Caswell
Lt Col John J. Florko
Lt Col John M. Habbestad
Lt Col Andrew M. Stein
Maj Patterson S. Hill
Maj James R. Howayeck
Maj William A. Milburn
Maj Shannon L. Murphy
Maj Vishal K. Patel
Maj Andrew J. Snow
Maj Robert A. Willoughby
Capt Scott T. Ellison
Capt Tristan B. Everett
Capt Dustin J. Suire
SMSgt Louis V. Davis
SMSgt Steven M. Foley
MSgt Travon T. Cromwell

MISHAP-FREE FLYING HOUR **MILESTONES**

MSgt Jeremy L. Huff
MSgt Andrew McKenzie
MSgt Keith R. Myers
TSgt Steven P. Bird
TSgt Christopher E. Clark
TSgt Garrett L. Hall
TSgt Phillip J. Hall
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TSgt Cody E. Lammy
TSgt Justin M. Leonard
TSgt Justin S. Marriott
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TSgt Frederick J. Raffaelli
TSgt Robert C. Wink Jr.
SSgt Zachary M. Fannin
SSgt Derrico A. Minor
SrA Warren M. Darrow

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Col Richard C. Tanner

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Maj Harry F. Zinsser
Capt Michael W. Stark

189 AW, Little Rock, AR
Brig Gen Thomas Crimmins
Lt Col Jason Cooper
Lt Col Kenda Garrett
Lt Col Jeff Grimes
Lt Col Harvey Heck
Lt Col Sarah O'Banion
Lt Col Mario Ortega
Lt Col Ryan Workman
Maj James Anderson
Maj Seth Connell
Maj Justin Fitzpatrick
Maj Janelle Guillebeau
Maj Kenneth Hoekman
Maj Zach Johnson
Maj David Jones
Maj Jesse Klaetsch
Maj Brian Robinson
Maj Joshua Shaudys
Maj Bill Swank
Maj Ryan Trueman
Capt Alex Darby
CMSgt Gary Hendrickson
MSgt Jason Bobo
MSgt Erin Evans
MSgt Michael Fish
MSgt Michael Price
MSgt Jason Prichard
MSgt David Roles
MSgt Bob Shapard
TSgt Eric Cross
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TSgt Derek T. Lyles
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SSgt Devaughn T. Granger

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MSgt Charles C. Adams
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Lt Col Kevin E. White
Maj David M. Akins
Maj Aaron R. Brown
Maj Richard D. Durstein
Maj Eric J. Gall
Maj David N. Henderson
Maj Schuyler A. Henry
Maj Brett C. McAuliff
Maj Jason T. Osgood
Maj Sierra M. Smith
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HQ AMC/SEE, 618.229.0927 (DSN 779)

Please submit as shown in the listings above (first name, last name, sorted alphabetically within rank).

QUICKSTOPPERS

Wear Your "Sunglasses" at Night

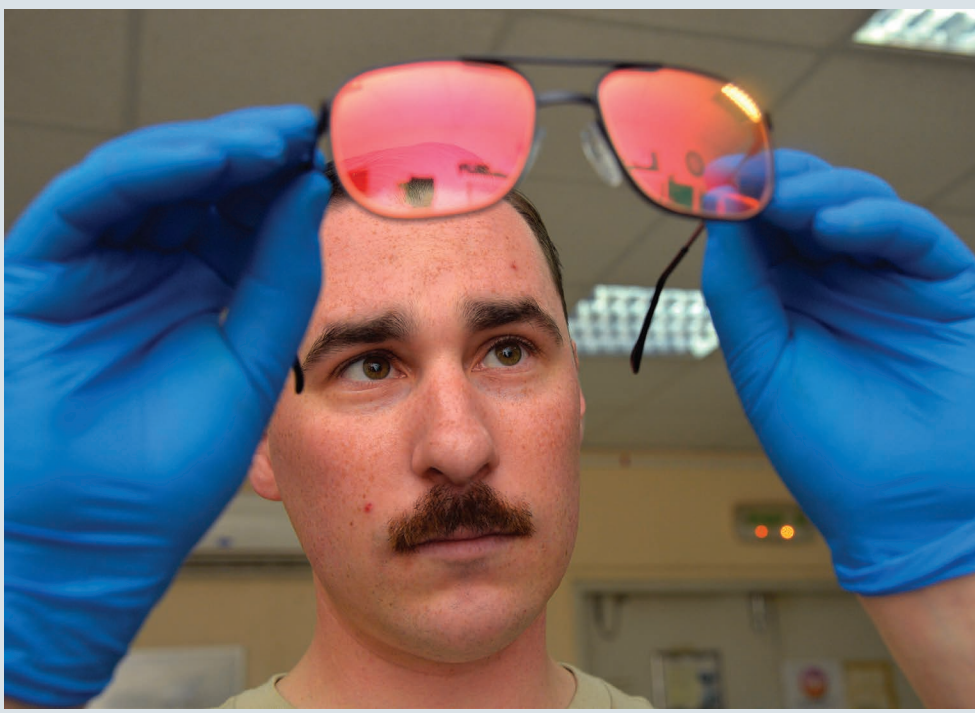
BY MAJ JONATHAN R.N.K. WEAVER,
HQ AMC FLIGHT SAFETY

Aircrew Laser Eye Protection (ALEP) glasses are almost universally hated by pilots. Many complain that the ALEPs make it hard to see cockpit instrumentation and acquire visual waypoints and airfields outside the aircraft at night, but most of those comments are anecdotal. To date, only two crews have filed Airman Safety Action Program (ASAP) reports that directly state they believe ALEPs interfered with their mission. On the other hand, seeing instrumentation is also very hard after a laser is shined in the pilot's eyes, and at least seven ASAPs have recommended aircrew usage. Lasers directed at aircrews around the world have varied from small hand-held objects to directed energy weapons and caused injuries ranging from temporary blindness to permanent loss of vision. The military is not alone in facing this threat: the Federal Aviation Administration (FAA) reported 6,754 laser strikes on U.S. aircraft in 2017. Totals for the military are typically reported to intelligence units, and exact figures are available through classified channels.

Newer generations of ALEPs are now under development to increase visual acuity while maintaining eye protection for crews. The new glasses are tinted lighter than the dark red glasses most crews are familiar with, allowing for better cockpit visibility at night. In addition, many commercial firms, such as Airbus, are working to develop and field protective films that can be applied to cockpit glass to protect aircrews, negating the need for protective glasses.

On the legal side, the *FAA Modernization and Reform Act of 2012* made it a federal crime to aim a laser at an aircraft within the United States. The Federal Bureau of Investigation (FBI) now offers a reward of up to $10,000 for information leading to the arrest of individuals who aim lasers at aircraft. Those offenders also face up to five years in federal prison and a hefty monetary fine. Overseas, our base law enforcement entities work with our host nation partners to pass information to local police and military forces to deal with their own citizenry "outside the wire."

Although we may never be able to completely defeat the threat posed to aircrews by lasers, vigilance in wearing the proper eye protection and reporting all events are key to maintaining the safety of our enterprise.



An Aircrew Flight Equipment Technician assigned to the Expeditionary Operations Support Squadron at an undisclosed location in Southwest Asia ensures that a pair of aircrew laser eye protection (ALEP) glasses are free from scratches and hold a tinted reflection.

USAF photo by TSgt Christopher Boitz

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A DAY IN THE LIFE

SrA Connor O'Connell-Keleghan, 93rd Air Refueling Squadron KC-135 Stratotanker Boom Operator, conducts pre-flight operations before an air refueling sortie during Exercise MOBILITY GUARDIAN 2019 at Fairchild AFB, WA, Sept. 24, 2019. Exercise MOBILITY GUARDIAN is Air Mobility Command's premier, large-scale mobility exercise. Through robust and relevant training, MOBILITY GUARDIAN improves the readiness and capabilities of Mobility Airmen to deliver rapid global mobility and builds a more lethal and ready Air Force.

USAF photo by TSgt Larry E. Reid Jr.