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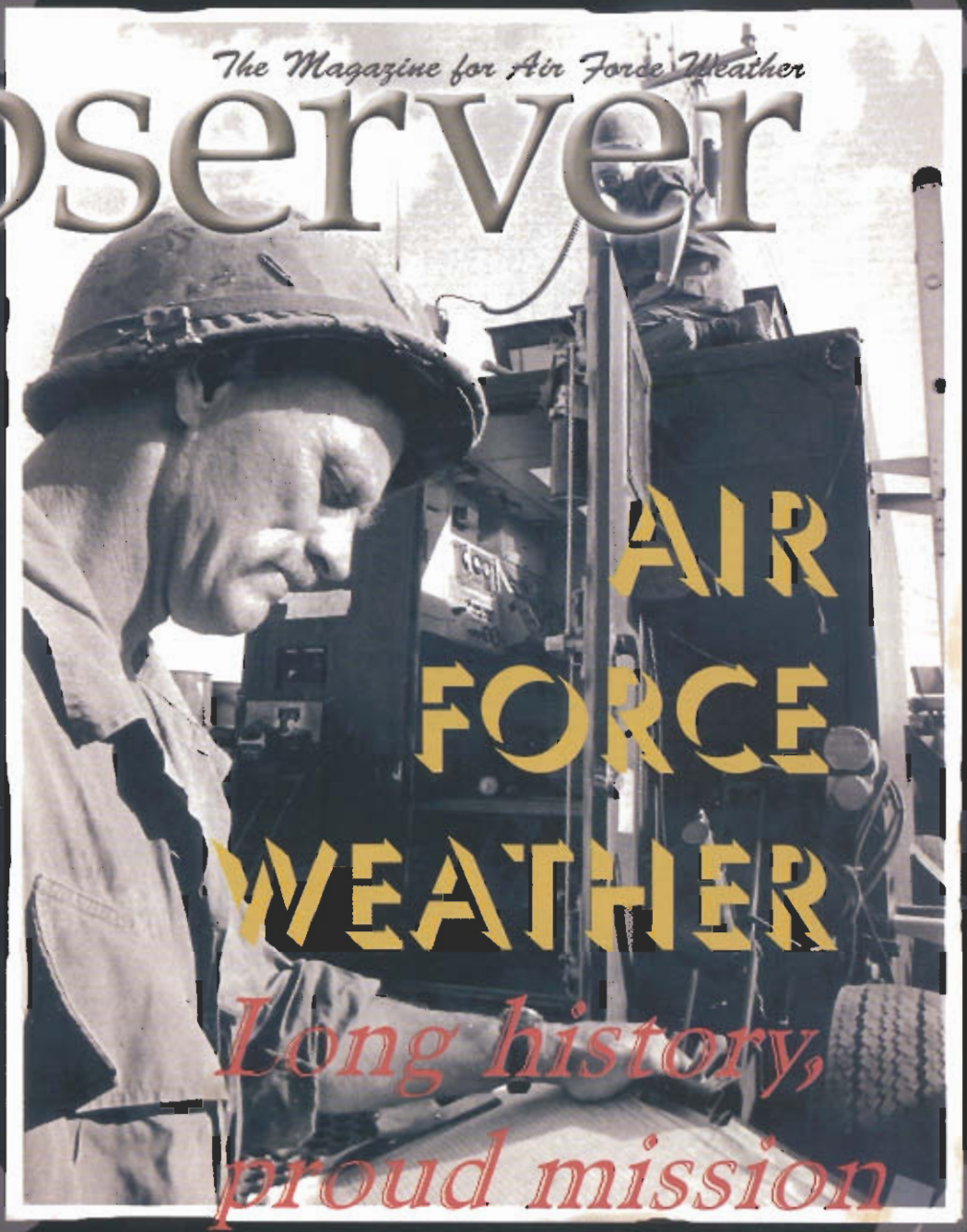

AIR FORCE WEATHER

Long history, proud mission

Observer

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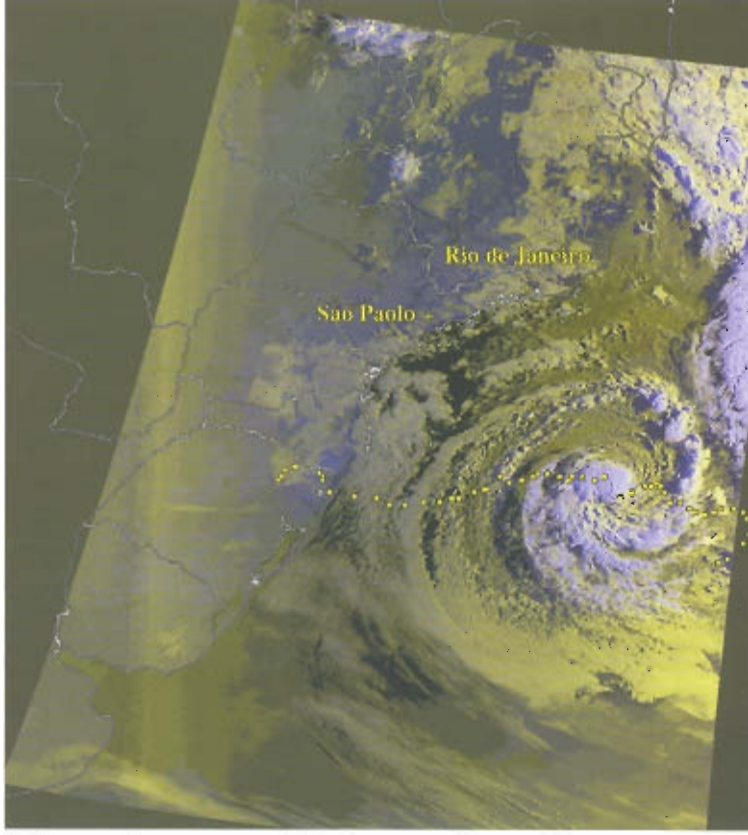
What's Inside:



Editorials

On the Cover

A photo collage depicting the long and distinguished Air Force Weather history. From World War II, to Vietnam, to the Korean War, weather observers provided much needed weather support as well as flew numerous combat missions. Photo illustration by Jodie Grigsby.

Community Outreach:

Every Airman a spokesperson

by Brig. Gen. Thomas Stickford
Headquarters U.S. Air Force Weather
Director of Weather

When does your work for the Air Force begin? I think most of us have the mindset that our day begins when we walk in the door of our offices and turn on our computers. I think we need to work together to change that mindset.

Each morning we get up, put on our Air Force uniform and get to work. We often don't think about our "military" presence in the community as we stop for a cup of coffee on the way to work, drop our children off at school, or grab the daily newspaper. Neither do we always realize that while we are in the uniform of our great Air Force, we represent the entire U.S. military. By wearing the uniform, whether we know it or not, we are making a statement without even opening our mouths.

That said, I'm asking you to go a step further, to take part in your community as an Air Force Weather representative and help to spread the AFW word. Have you reached out to your local recruiter to see what you can do to promote careers in Air Force meteorology? Have you signed up to volunteer to speak at a local high school or Air Force ROTC detachment? Do you know the Public Affairs officers in your local wing?

I encourage you to take the initiative and get involved. We can all remember the reason we decided to enter this proud service. For some of you, it was a military member who spoke to your class, or maybe your school took a tour of a military installation, or your parents took you to a military open house. Perhaps you had parents that served and you wanted to carry on the proud tradition. Whatever your reasons were to join the Air Force, more than likely you were influenced by a military member – someone who took the time to explain the vital role the Air Force plays in protecting this great country.

If you're not on the bandwagon already, I'd encourage you to take an interest in spreading the word about our career field. You should be proud of what you do everyday - I know I'm proud of you! It does my heart good to know you're out there as key members of the force that defends America. I know you are already doing so much for this country, so you may ask why should I take on the marketing of our career in Air Force Weather? My answer is that all Air Force people have a stake in our recruiting efforts; we are all recruiters!

In this highly competitive environment, the Air Force must continue to recruit America's best and brightest. Our force relies heavily on the latest technology to continue U.S. domination of the aerospace environment. We can't afford to lower our recruiting standard – we're committed to a quality force. The country deserves nothing less.

We need to also think beyond recruiting and think retention. Maintaining a force capable of responding rapidly to global crises requires that we retain experienced, highly trained airmen for a career in the Air Force. Meeting our retention goals complements our recruiting efforts. We must retain men and women with the crucial experience required for our continued success – men and women with experience that even the best recruiting campaign cannot replace. No one can tell the AFW story better than you.

I know many of you are already making marketing and recruiting part of your personal mission. We've already turned the corner on weather officer recruiting as weather officer accession targets were met for FY03 and are on track to exceed FY04 quotas. Many of you have worked with the Air Force Weather Agency Public Affairs office and have volunteered your time to speak to a class, represent an AFW Display, or spend a day being a mentor to an interested student. For those who accept the challenge, here are a few ideas that may get you started.

Volunteer to speak at high school, college, Junior ROTC, or Air Force ROTC detachment. Ask recent graduates who work with you to speak to their schools when they return to their home station on leave. Provide time for them to do so.

Invite your local recruiters to visit your unit for a first hand look at the opportunities in weather.

Get in contact with your local Public Affairs office and ask if your weather unit can be included in base tours, the base speakers bureau, and mentoring programs.

Participate in your installation's open houses and air show. Pull out your tactical equipment and let visitors take supervised weather observations.

Many of these suggestions are already being done on a limited basis. However, participation is often after a request and only by select weather units with no unified effort. I encourage individuals and weather units to be proactive in seeking opportunities to recruit and share the AFW story. The AFWA Public Affairs Office has resources available to assist units in their speaking and recruiting endeavors.

We are all representatives of this great country, the USAF, and AFW. We do our jobs proudly and without hesitation. Let that enthusiasm show in the community where you live.

My experiences

by Chief Master Sgt. Penny Braverman
Air Force Weather Enlisted Matters Chief

Most of my Air Force career I have, "supported" people, units, and aircraft that deployed to the combat zone. But, I have never been to one. Still, I feel that I have played an important part in operations. No, I have never worked at the "pointy end of the spear," but I know my efforts allowed that point to wield the full power of the world's supreme military force. And everyday I see and hear of the great things the men and women of Air Force Weather do to accomplish the same. As I look back at my career, I see it dotted with my contributions and efforts in significant and historic events and military operations.

During the Grenada incident, I worked at 7th WW as a climatologist and technical weather expert. I provided the climatology for the Mobility Air Command planners for their areas of interest. We also worked with the Environmental Technical Applications Center, now known as Air Force Combat Climatology Center, to provide climatological data as required. We were not the ones who issued the forecasts to the ground troops. Nor did we brief the pilots. Our efforts had a larger role in the total shape of the effort. Planners were prepared for the types of weather they could expect and adjusted accordingly.

When you are not in the front lines, it is easy to lose sight of where you fit in the big scheme and question the significance of your efforts. In this case, our efforts allowed military planners to literally anticipate the weather, fully exploiting it to our advantage.

During the first Gulf War, I was the Weather Station Operations, Chief , RAF Mildenhall, United Kingdom. We were the only 24-hour center open and we provided support similar to what a hub does today. When the war kicked off, our workload naturally increased, but our manning did not. We cancelled all leaves, temporary duty assignments, and prepared to deploy some of the people as needed. We went to 12-hour shifts for everyone.

As weather personnel passed through on their way to combat zones, they requested supplies, equipment, and most of all, current data to start with when they arrived at their deployed location. We made weather data packages for the weather people processing through so they would have information to start with upon arrival at the war.

We also made numerous packages for the pilots, and included a guide on how to read the symbols, METAR code, etc., as most were a little rusty but the cheat sheet package we created helped them get through.

We worked tirelessly to ensure that the mission was accomplished. We provided the routine weather products needed and identified additional unique mission items. We did what had to be done to accomplish our important mission. Yes, we did it from the safety of our office, and could go home to our families after the 12-hour shift. But we knew the urgency and importance of our job. You do not have to deploy to a combat zone, live in a tent, or wear a flack vest, to have an important job. Just by showing up everyday, doing what is asked, what is needed, you are contributing to the greater mission of our great military force.

"Remember that although you may not be deployed, you too will have to make sacrifices to accomplish the mission. The mission depends on your efforts."

I was also in the Pentagon when the plane hit the building, during the attacks on 9/11. After the attack, the then Director of Weather, Brig. Gen. D. L. Johnson, went down to the Crisis Action Team to help with maintaining continued weather products and information. I worked with the deputy to close up the office, notify the major commands, secure items, and get to safety.

When I reported for duty the next day I was assigned with the task of getting the office open and running data to the CAT as needed. I worked between the two places for the next couple of weeks; walking through the halls as the Pentagon was still burning was very eerie—black soot everywhere and on everything.

Sometimes you will face things that you will not have prepared yourself for. Things that you could not have even imagined. Your training will be your savior. Your leadership will lean on you during it. Your young troops will look to you for guidance to get through it. You do not have to be deployed to a combat zone to see the importance of your every action. Your job in Air Force Weather is vital to literally every mission that takes place. So yes, get the mission done and do it well. But remember that the people doing the mission are just as important. Take care of your boss, take care of the people who work for you, and take care of yourself.

I know most of us would like to deploy to a combat zone, it is what we are trained for. However, ***remember*** everyone has a part to play in the Air Force operations. What you do is vital and important.

Remember that although you may not be deployed, you too will have to make sacrifices to accomplish the mission. The mission depends on your efforts. ***Remember*** that you need to take care of those who do the mission. Our people are the reason we are the supreme military air power. Just ***remember***, no matter where you wind up, do the best you can and keep the faith. You are an essential part of the mission.

Airman Conner gives weather forecasts to pilots before their sorties and said he feels good when commended for an on-target prediction. But he's also developed a thick skin because forecasting the weather is a challenging and inexact science that no one can get correct every time. Photos by Master Sgt. Efrain Gonzalez.

He's not at the forefront, but his predictions affect the mission, and he's not afraid to make the call, he is the ...

Weather Man

by Master Sgt. Chuck Roberts
Air Force News Agency
San Antonio, Texas

Jason Conner may not have control over his job, but his personal life has been on solid ground since foregoing collegiate gridiron aspirations for an Air Force career.

The senior airman is a weather specialist at Holloman Air Force Base, N.M., where each day he combines computer technology, experience and common sense to predict something no one can control – the weather.

"There's no exact science to it. It's always different. Two plus two doesn't always equal four," said Airman Conner, whose 180 pounds appear stretched thin on his 6-foot- 4-inch frame. The "formula" seemed so overwhelming in technical school, however, that he panicked during the first week and wanted to cross-train.

Now, three years wiser to the ways of wind, rain and snow, the 23-year-old brings a calm and confident demeanor to a job that continues to be as challenging as it is rewarding.

"The amount of responsibility we have, it makes you feel good," he said, especially when a pilot returns from a sortie saying the forecast was "on the money." But a forecaster also needs thick skin, he explained, because if he's guilty of faulty forecasting and keeps a pilot on hold a few hours longer than predicted, the customer can sometimes get a bit grumpy.

"We have an interesting role in the mission," he said. "We're not on the front lines in an F-16. We're more like puppet masters. You never see us, but we're involved," he said, adding that the ultimate decision to cancel a sortie lies with the pilot.

"So you have to be calm and take it because weather is an inexact science. You are going to get it wrong sometimes. You just have to limit your wrongs, and make sure your wrongs were not way out in left field."

Left field is about where Airman Conner found himself a few years ago. Although he never played football until high school, he excelled as a wide receiver and kickoff returner. He's in the record books with the third-longest return in Arizona high school history with a 97-yard jaunt. He was in the process of attempting to be a walk-on player at the University of Arizona when he met a girl, fell in love, and got engaged.

"That's when my dad sat me down and said, 'You can't keep going down this path,'" and explained that with family comes responsibility. "He treated me like a man," said Airman Conner, who was only 19 at the time.

He took his father's advice and followed in his parents' footsteps and joined the Air Force. However, he and his fiancée parted paths shortly before he left for basic training.

After arriving at his first assignment, he met his future wife. She was a shy airman stationed with him at Barksdale Air Force Base, La. After spotting him at a local club, she sent a friend over as an intermediary.

The rendezvous led to marriage and then Jason Jr., now 1, soon followed. What comes next isn't written in stone.

"If there's one thing I've learned, it's not to get yourself locked into certain paths," he said. "If you're open-minded, you'll pick the right path nine times out of 10."

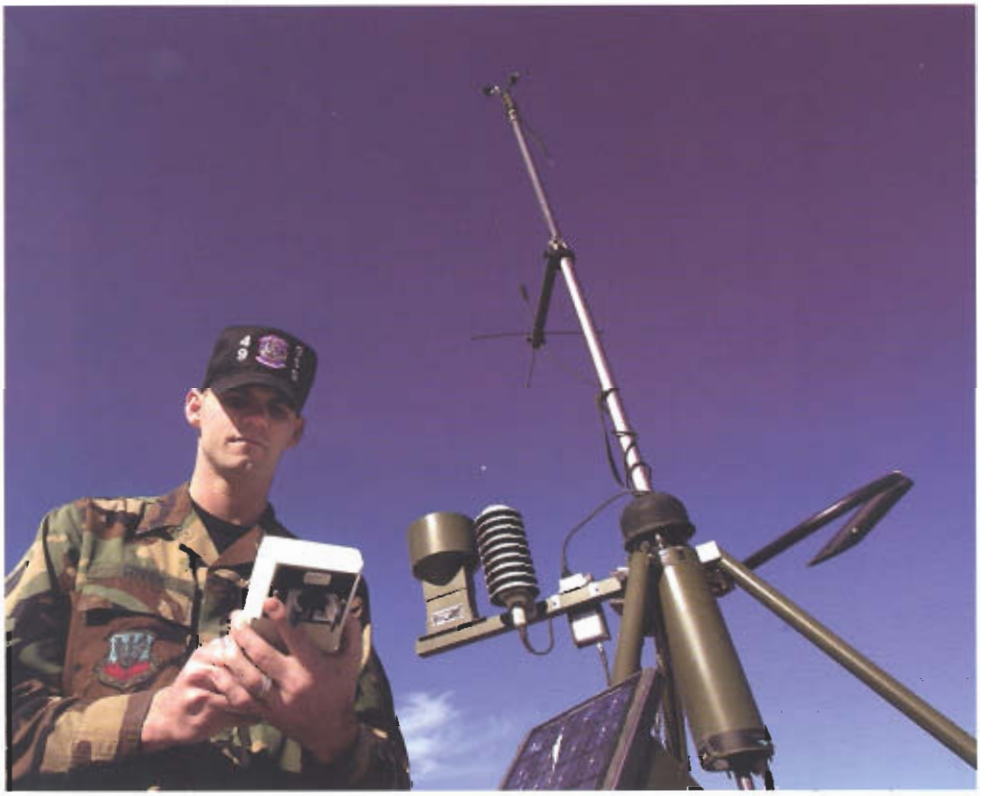
However, Airman Conner still contemplates a possible career in the Air Force, pursuing a degree in meteorology, and has definite plans to make sure his son becomes well acquainted with his grandparents. He said he loved being an Air Force "brat" living overseas and having the opportunity to "recreate myself every time we moved." But the experience came at the expense of seldom seeing his grandparents.

He's had the opportunity for extra quality time with his own son, however, while serving as Mr. Mom at times while his wife, Sarah, pursues a degree and an Air Force commission.

"I'll put my wife first. She's done so much for me, so the least I can do is watch my son while she goes to school."

As for the dream of pursuing a football career, he said the only way he can get there now is through his Madden NFL 2004 for the PlayStation 2 that puts him "in the game." He'll never reach those earlier dreams, but he's happy with the reality of a stable career, and a wife and son.

"I have a beautiful life," he said.



Checking the tactical meteorological observing system is one of the many duties Senior Airman Jason Conner does while working the weather desk at Holloman Air Force Base, N.M. The system is a tactical field weather station designed to be a mobile weather-gathering instrument for use in any field environment.

Senior Airman Jason L. Conner
Weather Forecaster
49th Operational Support Squadron, Operational Support Weather
Years in Air Force: 3 years
Hometown: Born at MacDill Air Force Base, Fla.
Reason for enlisting: Engaged at 19 and needed the stability
Assignments: Barksdale AFB, La., and Holloman AFB, N.M.
Coming up: Supporting wife's pursuit of a bachelor's degree and Air Force commission.
The best thing about the job: "There's no exact science to it – it's always something different."

UNIQUE WEATHER MISSION ENDS AT WING

by 1st Lt. Gerardo Gonzalez
52nd Fighter Wing
Public Affairs
Spangdahlem AB, Germany

Weather may be a topic of conversation for many but for some Spangdahlem Air Base communicators it has been their mission for over a decade, until now.

The Global Weather Intercept Program mission of the 52nd Communications Squadron Operating Location-C at Pruem Air Station ended which prompted the closure of this historic site.

"It's the end of an era," said Tech. Sgt. Joseph Rogers, 52nd Communications Squadron OL-C chief. "Life's been good ... not many rech sergeants in the Air Force can say they have their own base."

Pruem AB was activated in the early 1950's and hosted a number of different units and roles until 1991 when it inherited the GWIP mission following the closure of a site in Turkey, said Sergeant Rogers. Until 2000, the unit was a geographically separated unit from Sembach AB before being placed under the 52nd Fighter Wing.

The mission of the GWIP is to intercept foreign broadcasted weather data unavailable from other sources, according to Sergeant Rogers. The data is intercepted using high frequency radio receivers and relayed to the Air Force Weather Agency who then uses it for observation predictions, and ultimately to support military operations worldwide.

"The German Military Geophysical Office does the same thing for the Federal Republic of Germany," said the sergeant about one of the reasons for bringing Pruem GWIP operations to an end. "AFWA has an agreement with them to provide the data that we were providing them."

At the height of Sergeant Rogers' tour at Pruem, the site had about 35 military members assigned in addition to contractors and other civilian employees.

"There was a BX, shoppette, movie theater," he said. "Anything that Spangdahlem had, we had here."

Most of the buildings at Pruem AS are now empty. Eventually they will be demolished and probably returned to the Germans, said Sergeant Rogers. The only item that will remain is the contractor supported antenna tower that holds a variety of microwave relay dishes which was used for other missions.

"I'm glad to have been here and sad to see it go," said Sergeant Rogers. "But it's time to move on."

The Air Force still operates three other GWIP sites in Japan and two islands off the Atlantic and Indian Oceans respectively.

Tech. Sgt. Joseph Brown, 52nd Communications Squadron Operating Location-C Global Weather Spangdahlem Air Base, Germany. Sergeant Brown, 52nd CS OL-C chief, pulls out a high frequency radio receiver from a rack at Pruem Air Station Apr. 23. The GWIP mission at Pruem AS recently ended and the installation is slated to close this summer. Photo by 1st Lt. Gerardo Gonzalez.

'Beyond the Veil'

A look behind the scene of weather intelligence

by Tech. Sgt Mark Cornell
National Intelligence Community
Weather Branch
Offutt AFB, Neb.

For decades, weather personnel passing through the halls of Air Force Weather Agency have seen "the door." Behind this door lies a Sensitive Compartmented Information Facility within which weather operations for the national intelligence community take place.

Twenty-four hours a day, seven days a week, and year after year, dedicated, highly trained forecasters have worked tirelessly to carryout this highly classified and specialized mission. However, the beginnings of "the door" and this unique mission go back to before 1969 when Air Force Global Weather Central first opened its doors at Offutt Air Force Base. Here, we'll pull back the veil a bit and tell the history of a proud weather mission.

With the end of the Cold War, the fact of the existence of the National Reconnaissance Office was declassified in 1992. Subsequent declassification has allowed Air Force Weather Agency to acknowledge that it provides terrestrial and space weather products to enhance the NRO mission.

The beginnings of AFWA's cloud forecast mission goes back to the first NRO photo-reconnaissance satellite program called Corona. With the first launch of a Corona satellite in 1960, the NRO quickly learned that this limited resource required accurate cloud forecasts to optimize its ability to carry out imaging operations vital to national security. Weather operators in the field are well aware of the tactical use of Defense Meteorological Satellite Program imagery for conventional weather forecasting, but that's not what drove its existence. The NRO initiated the DMSP in 1961 to provide critical cloud information to maximize the effectiveness of this crucial strategic reconnaissance capability.

Originally, 2nd Weather Squadron forecasters occupied the SCIF in the old World War II Martin Bomber Plant, today Building D at Offutt Air Force Base and AFWA's current location. This is where NRO cloud forecasting took place with the aid of DMSP data. In 1969, 2nd Weather Squadron deactivated and Air Force Global Weather Central was officially stood up as a named organization under Headquarters Air Weather Service, with the SCIF's classified mission at its core.

Since the inception of AFGWC, highly trained forecasters have been turning data into knowledge to produce precision cloud forecasts for the NRO at Offutt Air Force Base. Up until 1998, the DMSP satellites were operated and controlled by the Air Force, also from Offutt AFB. Today, the DMSP command and control functions rest with the National Oceanic and Atmospheric Administration as part of the merger of military and civilian weather satellites under the National Polar-orbiting Operational Environmental Satellite System.

"The early years were challenging", says Senior Master Sgt. (retired) Ray Stark.

Except for a year of duty in Korea, Mr. Stark has been a SCIF forecaster since May 1968, first as a military forecaster for 2nd Weather Squadron and today as a civilian forecaster at AFWA. Ray has seen the total evolution of the mission from grease pencils and Polaroid film, to the modern computer forecast systems of today.

"We've gone from an event-driven 'sprint' cycle based on readout times of the polar-orbiting DMSP satellites, to an hourly production cycle using the $52 million Cloud Depiction and Forecast System II that leverages data from multiple sources to include geosynchronous satellites and surface observations, in addition to DMSP satellites" Mr. Stark said.

Target-specific forecasting has evolved to where AFWA provides cloud analyses and forecasts that are updated for NRO databases every hour and are global in coverage. Today, the impact of cloud forecasts on NRO imagery collection is astounding, as forecasts improve NRO's overall electro-optical imagery collection capability by 64 percent. Nevertheless, though the mission has dramatically changed over the years, three constants remain: Mr. Ray Stark, the SCIF, and the fact that DMSP remains a primary source of data for NRO cloud forecasts.

Over the course of more than 45 years, more than 900 dedicated men and women passed through "the door," providing an invaluable service to the national intelligence community. Their tireless efforts, combined with the investment in and exploitation of new systems and capabilities, have allowed AFWA to keep pace with changes in NRO operations, thus optimizing the gathering of vital information needed by the intelligence community, to ensure the nation's defense, security, and victory in the Global War on Terrorism.

Students pay respect as Senior Airmen David Carlson (right) and Marvin Morgan, members of the Air Force Weather Agency color guard, remove the tattered flag and prepare to raise a new one during a ceremony at Wilson Alternative Middle School, Omaha, Neb. Photo by Paige Hughes.

"Old Glory" still glorious

Airmen retire torn, tattered flag at local school

By Paige Hughes
Air Force Weather Agency
Public Affairs,
Offutt AFB, Neb.

The National flag flying over Wilson Alternative Middle School, Omaha, Neb. barely caught the breeze as it hung lifeless over the school with frayed edges and stripes of faded red and greying white.

A group of Air Force Weather Agency airmen, mentors for the students, noticed the worn and tattered flag on a routine visit.

"We were at the school one day and looked up and said 'that flag is pretty bad'. We asked the school if we could do something about it," said Staff Sgt. Damon S. Drake, a communications airman at AFWA.

Sergeant Drake and the other mentors collected donations from AFWA members to purchase a new flag. They agreed the flag had to be retired in accordance with United States Flag rules and regulations. They enlisted the aid of the AFWA color guard to perform an official flag retirement ceremony at the school.

A crowd of students, teachers and airmen gathered around the flagpole Wednesday, March 12, the day of the ceremony. Sergeant Drake read the details of the flag retirement, as the color guard slowly lowered the old "Old Glory." As custom dictates, the new flag, a vivid red, white and blue, was hoisted up briskly.

"We were excited about it, no one here has witnessed a flag retirement ceremony," said Ms. Jodi Pesek, building administrator for the school.

"I think the new flag will be respected because they gave it to us, they're showing respect to us," said Manuel "Manny" Mohr, 14. Sergeant Drake has mentored Manny since January, when he was transferred to the school.

The generosity of Sergeant Drake and the four other AFWA members goes beyond just providing a new flag.

They donate their time to the students, each spending an hour or more a week at the school through the "Flying High with the Wilson Doves" mentoring program. The program began in 2000 by an Omaha Public School administrator.

"It's a good feeling you get when you see the kids. They are excited to see you and you're not in a disciplinary role, you're a friend, a mentor to them," said Sergeant Drake.

According to Ms. Pesek, the flag ceremony was a way to reinforce patriotism at the school.

"Many of our student's mentors have been called away for service, they understand the people who care about them and spend time with them, are now out there fighting for them, " said Ms. Pesek.

As for Manny, he's full of patriotism and ready to enlist.

"I feel like being in the military, maybe the Army. I feel pride and faith," said Manny.

"Ceremony of Final Tribute"

The United States Flag Code 36s 176(k) states:

"The flag, when it is in such condition that it is no longer a fitting emblem of display, should be destroyed in a dignified way, preferably by burning."

The National Flag Foundation provides the following guide for retiring a flag before conducting a patriotic flag burning ceremony:

- Only one flag should be used in the ceremony, which is representative of all the flags to be burned in the service.
- The ceremony should be conducted our-of-doors. The ceremony should be held just before sunset. The retiring flag should be flown the entire day it is retired.
- The ceremony involves two color guards, one for the flag currently in use and a special color guard for the flag to be retired from service. Of course, this may be adapted if conditions necessitate.
- The color guard responsible for the flag receiving the final tribute moves to front and center. The leader should present this color guard with the flag, which has been selected for its final tribute and subsequent destruction. The leader should instruct the color guard to "hoist the colors."
- Leader comments: *(when the flag has been secured at the top of the pole)*

"This flag has served its nation well and long. It has worn to a condition in which it should no longer be used to represent the nation."

"This flag represenrs all of the flags collected and being retired from service today. The honor we show here this evening for this one flag, we are showing for all of the flags, even those not physically here."

- The leader should:
  - Call the group to attention;
  - Order a salute;
  - Lead the entire group in the Pledge of Allegiance to the Flag; and Order the flag retired by the color guard.
  - Slowly and ceremoniously lower and then respectfully fold the flag in the customary triangle.
  - Deliver the flag to the leader and rhen dismiss the group.

This concludes the Ceremony of Final Tribute.

JAAWIN, You've Come a Long Way

by Ken Smith
Air Force Weather Agency
Offutt AFB, Neb.

A long time ago, back in the early 1990s, the Air Force Global Weather Central stood up the Air Force Global Weather Central Dial-In System. This system allowed worldwide Department of Defense weather customers to download a handful of weather products. In the mid-1990s, Internet technology burst on the military scene and rapidly expanded across unclassified and classified networks.

In 1995, Navy Lt. Paul McCrone, while working in AFGWC's Producr Improvement Branch, hosted a prototype weather page on a server at Creighton University. This page contained a core suite of weather satellite, Relocatable Window Model, forerunner of today's Mesoscale Model 5, CONUS Military Weather Advisories, and hemispheric icing and turbulence products. Most importantly, it allowed senior decision makers to see the power of the emerging Internet technology in providing timely and responsive weather data to a myriad of customers. This proof of concept led to a fully funded, contracted effort called the Air Force Weather Information Network.

AFWIN became operational in 1996, for both NIRPNET and SIPRNET. In 1998, AFWIN became operational on the SCI network.

In 1997 and 1998, AFWIN evolved to the standard theater menus, which made it easier for customers to find products. On Oct. 2, 2000, the Air Force Director of Wearher, Brig. Gen. David Johnson, redesignated AFWIN as the Joint Air Force and Army Weather Network, to more clearly reflect the joint nature of the services JAAWIN provides.

In March 2002, JAAWIN was completely redesigned to make it easier to find products. Unlike the previous version of JAAWIN, the new version includes more clickable maps to access products. In addirion, we greatly expanded our weather radar and lightning capabilities, enhanced our interactive capabilities, added "live" thumbnails, and added more animations. Within the next year, we hope to unveil a "My JAAWIN" functionality that will allow JAAWIN's customers to customize their displays.

JAAWIN is much more than a capability for Air Force weather customers. It's used heavily by the US Navy, Army, and Marines. There are many US governmenral agencies, such as the National Weather Service, that use JAAWIN. In addirion, JAAWIN is used by many US allies. JAAWIN's product statistics bear this out. In February 2002, JAAWIN registered three million hirs (165 GBytes). In April 2004, the total grew to 15 million hits (515 GBytes). JAAWIN has come a long way in just a few years and we are very proud of our accomplishments.

Hurricane "Catrina" a first in the South Atlantic

by Paul McCrone
Air Force Weather Agency
Meterological Satellite
Applications Branch
Offutt AFB, Neb.

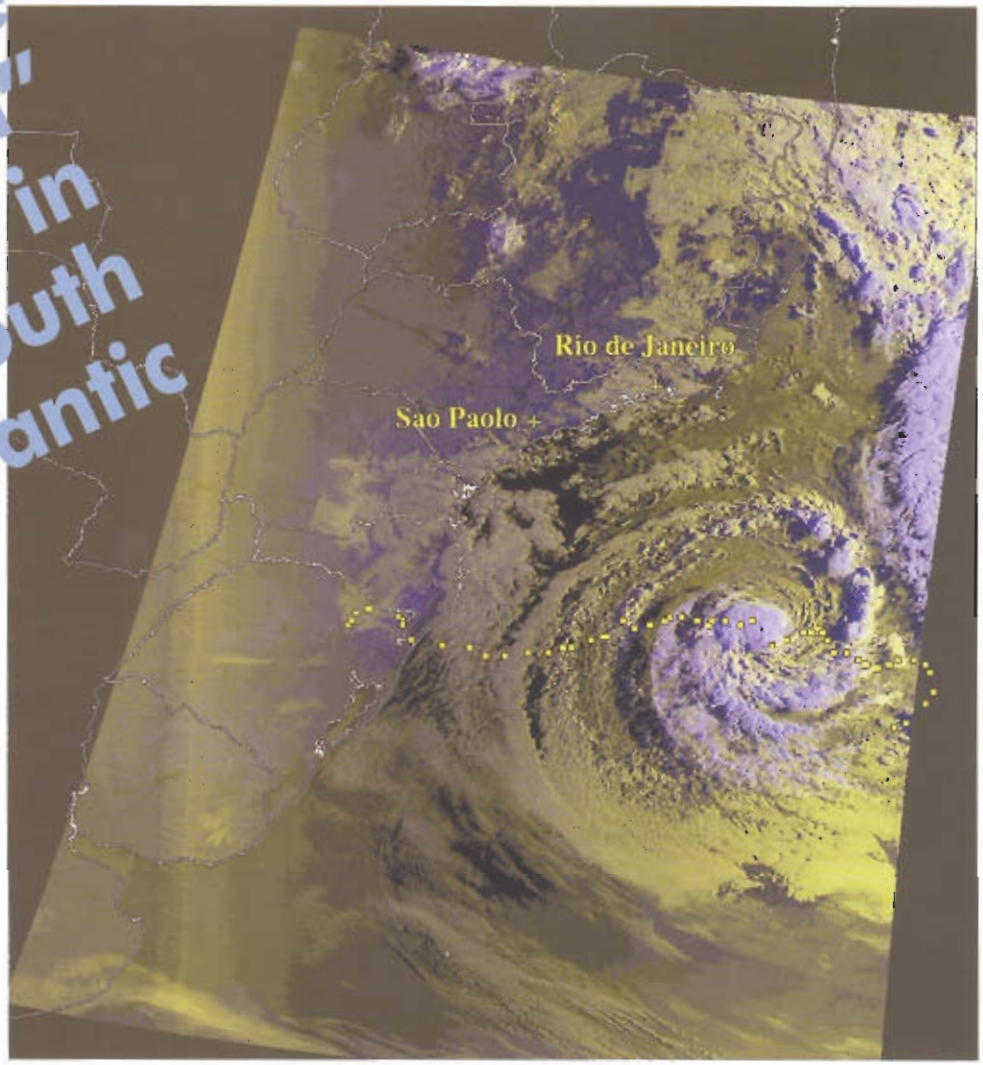


Image above is from the Defense Meteorological Satellite Program family of satellites. The picture is a smooth resolution (1.5nm) display over the storm during its hybrid stage. The image takes advantage of the multispectral technique. Multi-Spectral Imagery reveals low clouds in a yellow hue, high clouds in light blue, and thunderstorms as bright white. Hurricane "Catarina" as scanned by the DMSP F13 satellite. The image is a smooth resolution MSI from March 25, 0937 GMT. Early in its development, "Catarina" was a sub-tropical, hybrid system. The winds at this time were analyzed at 55 kts.

On March 26, a hurricane formed in the South Atlantic, off the southeast Brazilian coast. This low was informally called "Catarina" by Brazilian forecasters (the cyclone eventually made landfall in the Santa Catarina region of Brazil). The cyclone was not named according to any prescribed naming method, like the tropical storms of the North Atlantic. This was because there were no methods for naming, since this type of event was completely unprecedented - no hurricane had ever been observed in the South Atlantic before this time.

Not only was there no naming method, there was no weather organization with the official warning responsibility on hurricanes in this region.

The cyclone started its life cycle as a non-tropical low, initially generated by a strong subtropical jet stream on March 21. As the system developed, the core of the surface circulation became separated from the subtropical jet on March 23, and later that day began a rare transition into a cyclone (or low) that has both tropical and non-tropical characteristics. Such a low is also known as a "hybrid" storm or "subtropical cyclone". This transition took place from March 23 to 25.

As the separation between the low and the subtropical jet increased, the low started a relentless, recessive motion to the west, as seen in the track plots of the image above.

This brought the storm closer to the Brazilian coast, with a lack of shear, creating an environment that was conducive to the formation of a warm-core, inner eye-wall feature late on March 25. This means that the system had gained a fully 'tropical' structure. The system slowly developed, attaining hurricane intensity early March 26.

'Catarina' remained a potent storm until landfall in southern Brazil late March 27. As the storm went inland, it left several people dead, hundreds of people injured and homeless.

Tracking tropical cyclones worldwide has been an ongoing mission of the Air Force Weather Agency Meteorological

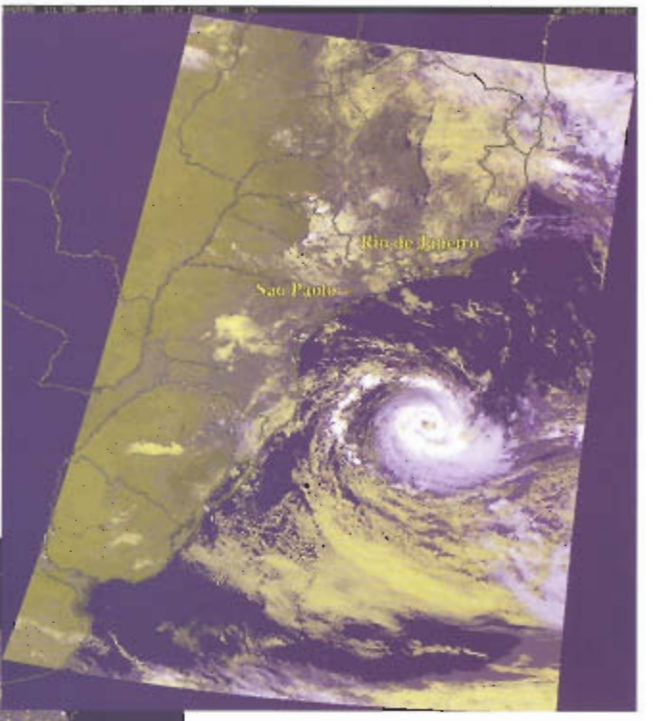
Satellite Applications Branch for many years. However, a tropical cyclone in the South Atlantic was a first for AFWA analysts. This presented several challenges to the Branch, once the decision was made to send position bulletins on "Catarina." Using the bulletin header for Northern Atlantic storms allowed for a method for sending position/intensity bulletins to other weather agencies. Utilizing existing links and pages on JAAWIN facilitated the distribution of image products for the storm out to the field rapidly.

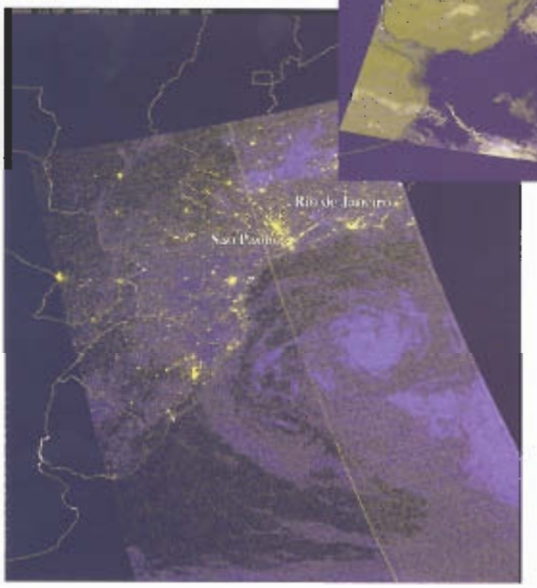
Ordinarily, forecasters expect to see high sea surface temperatures when hurricanes are generated. Typically, the SST's are 26 to 27 C or 79 to 80 F, for tropical cyclone development. However, this storm was in colder waters initially. From March 23 to 25, the SST's were closer to 22 C. However, as the storm progressed westward, the SST's in the South Atlantic became somewhat warmer at 24 to 25 C.

While this is still slightly cool for hurricanes, North Atlantic tropical storms have been known to survive and even thrive under such conditions. It is possible the 2 to 3 degree increase in SST was a significant contributing factor in the eventual development of this cyclone.

For more information, e-mail afwa.fxagm@afwa.af.mil

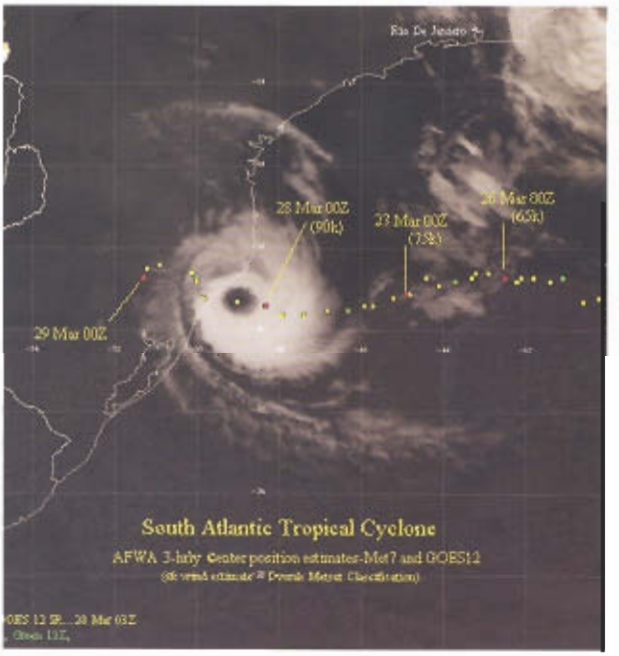
(Below) This graphic comes from the DMSP F15 satellite from 26 March 26 at 0111 GMT. At this stage, the storm began to form a well-defined eye feature, with maximum winds estimated at 60 knots. This image takes advantage of the DMSP ability to image at night. This product is another color composite. Visual data appears in yellowish shades, whereas the infrared imagery appears in blue. The storm is depicted in blue, due to the cold cloud tops, where the city lights of Sao Paola and Rio de Janeiro are clearly evident as bright yellow marks.





(Above) This graphic also comes from the DMSP F15 satellite. Twelve hours have passed since the previous image, and full daylight shines over the storm. Taken March 26 at 1228 GMT, this photo shows "Catarina" completing the transition to a warm-core hurricane. The storm has rapidly formed a well-defined eye, where hurricane force winds of 65 to 70 knots were analyzed by Air Force Weather Agency personnel. Note that this image takes advantage of the multispectral technique, revealing low clouds in a yellow hue, high clouds in light blue, and thunderstorms as bright white.

(Right) is a GOES-12 IR for March 28 at 0230 GMT. This is a summary of the storm track as the system made landfall. The hurricane's track is depicted with yellow squares for each 3-hourly position. The red points indicate the positions at 00 GMT each day.



First Flight Centennial Celebration

Air Force combat weather becomes a part of history

by 4th Operational Support Squadron Combat Weather Team
Staff report
Seymour Johnson AFB, N.C.

December 17, 1903 was a cold and windy day in Kitty Hawk, N.C., when brothers Wilbur and Orville Wright successfully completed a multi-year journey to be the first to produce a heavier than air vehicle capable of maintaining controlled flight. Now, 100 years later, the "Centennial of Flight" celebrated the Wright Brothers' accomplishments and highlighted the tremendous advances in modern aviation that continues to this day. The thousands of aviation enthusiasts were wowed by an airshow that included aircraft from the Royal Canadian Air Force, National Air and Space Administration, Commemorative Air Force civilian aviation, and all branches of the United States Armed Forces.

From Dec. 2 to 17, 2003, an Aerial Control Team deployed from Seymour Johnson Air Force Base, N.C., to support the more than 200 over flights and 21 aerial demonstrations during the six-day event. The team included Master Sgt. John H. Stevens and Staff Sgt. Jeffrey W. Hall, weather forecasters from the Strike Eagle Combat Weather Team. Working closely with the Federal Aviation Administration controllers, the Air Boss, and other members of the team, Sergeants Stevens and Hall provided extensive weather support for the 276 aircraft, covering all aspects of the airshow operations.

While used year-round as a civil aviation facility, Kill Devil Hills, N.C., has the bare minimum in observation equipment for routine use. To enhance support and give the ability to provide better wind and cloud observations, the team identified the need to deploy with a TMQ-53 Tactical Meteorological Observing System. With the Seymour Johnson TMOS in use for garrison operations, Sergeant Stevens coordinated with the Virginia Air National Guard to borrow another unit. This equipment was immediately recognized by customers as providing far superior data than was otherwise available. Pre-coordination with the Air Force Weather Agency established a "KQ" Identifier, allowing these observations to be available at more than 20 staging bases and other locations throughout the East Coast. Additionally, the 28th Operational Weather Squadron, Shaw AFB, S.C., provided round-the-clock terminal weather watch and warning support for the deployed location. In all, the team accomplished nearly 75 surface weather observations.

The weather for the first two days was spectacular, with aerial demonstrations wowing the crowd at every turn. Stunt pilots buzzed at what seemed to be only feet off the ground and the day's highlight was the demonstration of the Air Force Jump Team, swooping down from only 8,000 feet and hitting their mark with precision. On day three, flying demonstrations were completely washed out due to low clouds, low visibility and extensive rain throughout the day but visitors were not disappointed as there was plenty to do and see in the Wright Brothers Museum and on the grounds at the many booths and static displays.

Day Four dawned bright and sunny with the most awesome display of military airpower. With the day being solely devoted to the

history of military aviation, almost every type of aircraft in the U.S. inventory took part, from bombers and fighters to tankers and helicopters. Included in the demonstration were aircraft ranging from the early days of the Air Force to the brand new F-117 Nighthawk and the F-22 Raptor, which made its first-ever airshow appearance. With the extensive amount of low-flying air traffic, the deployed weather forecasters were continuously relaying information about the winds in and around the airfield. The success of the weather team was evident when country music star Aaron Tippin ended his song "Where the Stars and Stripes and the Eagle Flies" to the tune of four F-15E Strike Eagles flying by, catching everyone by surprise. Without the precise wind data necessary to enable the pinpoint timing of the fly-by approach, the magical moment would have been lost.

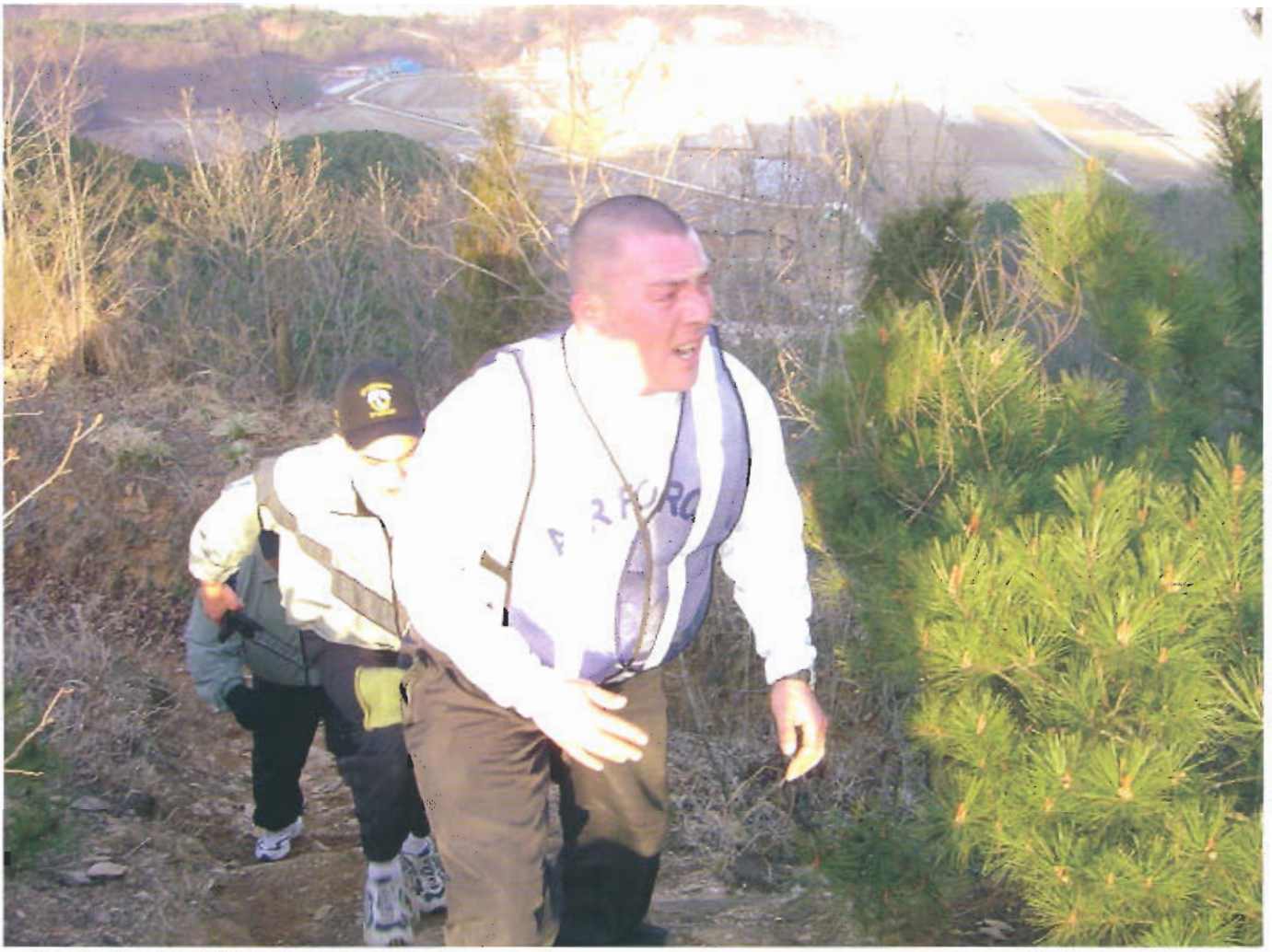
The final day was the most challenging on the schedule and included a visit by the Commander-in-Chief, George W. Bush, and an authentic re-enactment, timed to take place to the very minute, of the Wright Brothers' first flight. What made things even more difficult was the approach of a cold front, which brought extensive low ceilings, below 1,000 feet for much of the morning, and rain, hampering planned activities. In place early, the weather personnel were besieged for detailed forecasts to be used by Marine One to get the President to Kitty Hawk. The forecasters also provided key information to the Air Boss, enabling the success of the first-ever Air Force One fly-by with the President on-board. Later, the team kept a watchful eye as the crowd was treated to the B-2 Bomber, coming out of the clouds like a ghost and, within minutes, disappearing as if it were never there. The airshow was finally halted when the weather worsened, as the observers forecasted, but by then the crowd was eagerly anticipating the re-enactment on a now muddy piece of ground at the base of the Wright Brothers Memorial. An exact replica of the original Wright Flyer was rolled out onto its tracks and the gathering waited for what seemed like hours for the right wind conditions needed to get the aircraft off the ground. Finally the flyer rolled down the track but as the pilot pulled up the stick, it rose only a few feet and then came crashing back down into the mud. A second attempt was planned but a decrease in the wind to below three knots prevented another try. Even though the re-enactment did not succeed, it must be remembered the Wright Brothers made over 30 attempts on that fateful day before their flyer was lifted into the air.

Staff Sgt. Jeff Hall reads weather data off the Tactical Meteorological Observing System TMQ-53 TMOS.

Master Sgt. Jay Stevens briefs Air Boss Capt. Scott Taylor, 333rd Fighter Squadron Seymour Johnson AFB, N.C. on possible crosswinds during the First Flight Centennial Celebrations at Kitty Hawk, N.C. Photos courtesy of 28th OWS.

According to Lt. Col. Chris Ross, airshow coordinator, Seymour Johnson AFB, N.C., given the poor weather experience, air operations would have been severely hindered without the on-site weather support provided by Sergeants Stevens and Hall.

This was made possible by the support of the entire team. With the superior effort by Sergeants Stevens and Hall as well as the expertise of forecasters both from home station and the 28th OWS. The team members all agreed that this was definitely a once-in-a-lifetime opportunity that everyone involved would not soon forget.



Staff Sgt. Donald Milliman, station chief at CampStanton's combat weather team, trudges up a hill while two "Spur" holders follow closely behind shouting words of encouragement. Courtesy photos.

Weather gets all 'Spurred' up

by Paige Hughes
Air Force Weather Agency Public Affairs
Offutt AFB, Neb.

Silver spurs were recently awarded to Staff Sgt. Donald Milliman, the station chief of Camp Stanton's combat weather team after he completed a difficult induction with the 4th Squadron, 7th Cavalry Regiment, in Korea.

"I wanted to show the Army unit that not only was I here to support them but to also be a part of them, the 'one team one fight' concept," said Sergeant Milliman. The Order of the Spur recognizes members in a cavalry unit who have met specific qualifications.

The privilege of being awarded spurs in 7th U.S. Cavalry comes with hard work. Sergeant Milliman endured a grueling 30-hour physical and mental course, referred to as a Spur Ride.

The Spur Ride started before 6 a.m. with group physical fitness training. Individuals and their equipment were then inspected while Spur Holders taunted the candidates. With no time to recoup, candidates navigated various stations that tested initiative, military expertise, and stamina.

The day also included local history with an overview of the Korean War and a long hike to the location of the North Korean invasion.

"I could feel a chill in my bones standing where U.S. soldiers fought to protect and safeguard South Korea," said Sergeant Milliman.

The most exhausting of the Spur Ride events began at night. The candidates negoriated a twenty-five mile, nighttime course moving from station to station where military skills and tenacity were tested Most candidates

made the finish line by 10 a.m. the next day.

The tradition is rooted in knighthood, where the awarding of gilt spurs symbolized entry into the ranks and fraternity of mounted warriors. The aspiring squire had to perform some task or deed on the battlefield or tournament field to "win their spurs."

The spurs were buckled on during the appointment to knighthood and came to symbolize a knight above the sword, horse, or armor. No matter how destitute, a knight would never part with his spurs.

The spurs complete the Army's cavalry uniform, which is more noticeably recognized by the distinctive slouch hat. Sergeant Milliman bought his hat when he first arrived at the unit. "The spurs are awarded to you, but anyone assigned to a 'Cav' unit has the right to wear a Stetson one day out of a week," said Sergeant Milliman.

Wearing the traditional Stetson or 'Cav hat' is believed to have originated in early 1964 by Lt. Col. John B. Stockton, commander of 3/17 Cavalry at Fort Benning, Ga. Other cavalry squadrons adopted the hat as an effort to increase esprit de corps.

A group of soldiers with the 7th Cavalry Regiment complete the final leg of one of the initiation taskings. The group had to completes a number of grueling tasks with little rest to be awarded the coveted cavalry 'spurs.'

Sergeant Milliman said the unit camaraderie helped him succeed in the challenge. "I thank Staff Sgt. Sala for training us on the PT portion, Capt. Marin and Sgt. Mento for sponsoring me, and Chief Warrant Officer Cundiff for inspiring me along the run," said Sergeant Milliman.

Sergeant Milliman's supervisor is proud of his initiative to integrate into the team and unique mission of the unit. "His role is a very big responsibility for a staff sergeant and he represents the Air Force well," said Maj. Eric Grelson, commander, Detachment 1, 607th Weather Squadron.

Decked out with slouch hat and spurs Sergeant Milliman faces the day-to-day challenges of weather forecasting for the Army's most forward deployed heavy Divisional Cavalry Squadron.

"I want to say that I challenged myself and put forth the effort it took to make this a memorable assignment and being awarded the spurs allows me to always remember no matter where I go I will always be part of a special group of men and women," said Sergeant Milliman.

The group prepares to engage the enemy in a simulated initiation exercise. This is just one of seven taskings that must be sucessfully completed.

Weather observing and forecasting were just two of the few military career fields that women were permitted to perform in the early 1950s. Photos courtesy of the Air Force Weather History Office.

Weather WASP's

by Jerry White
Air Force Weather History Office,
Offutt AFB, Neb.

Women were first assigned to the Air Weather Service during World War II. In early 1943, the first enlisted Women's Army Corp women were assigned to stateside weather units and qualified as observers through on-the-job training. One class of women observers went through the forecasting school at Chanute Field, Ill., with five graduating in September 1944. There were no women meteorological officers in the Army Air Forces, although the Weather Bureau and Navy trained a few, because WAC officers were only assigned to administrative duty. One enlisted WAC observer was commissioned and assigned as the personnel officer for 3rd Weather Squadron in 1944. Perhaps the least known group of women in weather was a group of 15 Women's Air Force Service Pilots, or WASPs, assigned to the Weather Wing between Nov. 26, 1943 and Dec. 20, 1944.

There were two groups of World War II women pilots that made up the WASPs. The first was organized in 1942 by Nancy Harkness Love from women who already had significant flying time and experience. This group of 28 women delivered aircraft for the AAF Ferry Command, later part of Air Transport Command. They proved women could fly military aircraft. Because, that group was quite small, another source was needed and so Gen. Henry H. "Hap" Arnold brought in Jacqueline Cochran, a renowned and skilled woman aviator, to organize a training school. The school, initially located near Houston before moving to Avenger Field, Sweetwater, Texas, used the same instructors and equipment as the other contract schools providing pilots for the AAF. The students were selected from women who had private licenses or had completed the pre-war Civilian Pilot Training program offered at many colleges by the Civil Aviation Board.

The first class reported Nov. 12, 1942 and completed a course of ground school and flight instruction quite similar to the men being trained at that time, except for gunnery and close formation training. Early classes were 23 weeks with 115 flying hours, lengthened later to 30 weeks with 210 flying hours. Graduates were then hired as civil service employees and paid

$250.00 per month, plus $52.36 overtime pay for the normal forty-eight hour work week as provided by Public Law No. 49. All of the Weather WASPs came from the Avenger Field program.

In October 1943, then Col. (later Lt. Gen.) Oscar Senter, the Weather Wing Commander, notified his stateside weather units that because of "a critical shortage of pilots for combat duty," there were nine company grade male pilots in the Weather Wing or assigned units in primarily administrative duties who could "be released by Jan.1, 1944, provided 10 adequately trained WASPs are assigned to the Weather Wing on or before 1 December 1943 to replace them." On Nov. 11, 1943, Ms. Cochran notified Colonel Senter that she had ten women pilots who would report for duty on Nov. 26, 1943.

These women were Margaret M. Isbill, Virginia M. Hope, Yvonne C. Ashcraft, Dorothy I. McLean, Babette J. DeMoe, Hazel L. Doll, Neva J. Calderwood, Eunice M. Barrett, Dorothy C. Fowler and Jane L. Page. After a six-week indoctrination, three WASPs were assigned to HQ Weather Wing and one each to the seven stateside Weather Regions. An additional five were assigned on Feb. 5, 1944; these were Harriett C. Kenyon, Ethel E. Hoskins, Jane O. Robbins, Martha A. Wilkins and Barbara J. Manchester.

The WASPs flew mostly a variety of training and utility aircraft in an administrative support role such as flying inspection teams to bases and moving personnel and equipment between various weather units. Some Weather WASPs had the chance to check out in various fighters and bombers as well. While not required, some WASPs performed administrative and secretarial duties when not flying.

Of the 15 Weather WASPs, two resigned for personal reasons, two were reassigned to other commands and two separated on Nov. 21, 1944 to accept positions as ferry pilots with the Defense Plant Corporation, after it was announced the WASP program was being cancelled. The rest stayed until the program was inactivated on Dec. 20, 1944.

Their service was remarkably accident free; during their 13 months of service, only one pilot was grounded for two months from injuries received in a crash. Tragically, Virginia Hope and Margaret Isbill, the two WASPs released to fly for the DPC, were killed on Dec. 8, 1944 when the aircraft they and 13 other civilian pilots were passengers on crashed on takeoff at Omaha Municipal Airport, Neb. They were returning to Cimarron Airfield, Oklahoma City, after delivering airplanes to Omaha.

In a report on their service compiled in early 1945, all the WASPs received high marks from senior weather leadership and many received specific mention of their flying skills.

The heritage of WASPs in the Air Weather Service history did not end in December 1944. Former WASP Lenore McElroy was commissioned as a Women in the Air Force officer and served as a personnel officer in Japan with the 1st Weather Wing in the mid-1950's.

Closer to the weather arena was Mary Elizabeth (Betty) Scantland, who graduated with WASP class 43-W-6 on Oct. 9, 1943 and delivered aircraft ranging from trainers to P-47 Thunderbolts and P-51 Mustangs until the program's demise. After earning several civilian aviation ratings, she enlisted in the Air Force in October 1948, going through the first WAF basic training flight at Lackland AFB, Texas. Assigned as a weather observer at Langley AFB, Va. and then Mitchel AFB, N.Y., she completed forecasting school and had made staff sergeant when her application for a Reserve commission was approved. She was called up as a first lieutenant in December 1951 and was assigned as a weather officer in the 20th Weather Squadron in Japan the following summer during the Korean War. There, she served as a weather forecaster at Itazuke AB, providing weather forecasts that were radioed to B-29 crews bombing Korea from their bases in Guam. She returned to the United States in September 1953 and separated from the Air Force to attend college.

Women in the Air Weather Service, like those in the Air Force at large, had limited opportunities until restrictions on their service were lifted, in the 1970's. When the doors of opportunity finally opened, the women who entered had a heritage of service to build on, established by these and other women pioneers of Air Force Weather.

Two Army Air Forces weather observers prepare to launch and track a weather balloon.

U.S. weather disasters

1980 to 2003

The National Climatic Data Center is the "Nation's Score-keeper" interms of address-ing severe weather events in their historical perspective. As part of its responsibility of monitoring and assessing the climate the NCDC tracks and evaluates climate events, in the U.S. and globally, that have great economic and societal impacts. NCDC is fre-quently called upon to provide summaries of global and U.S. temperature and precipitation trends, extremes and comparisons in their historical perspective.

These statistics were taken from a wide variety of sources and represent the estimated total costs of these events, that is, the costs in terms of dollars and lives that would not have been incurred had the event not taken place. Insured and uninsured losses are included in damage esti-mates, and direct plus indirect deaths such as ones closely related to the event, or those that would not have occurred otherwise, are included in fatality totals. Economic costs are included for wide-scale, long-lasting events such as drought. Estimates are periodically updated as more data and information become available.

(Information courtesy of National Oceanic and Atmospheric Administration's National Climatic Data Center and at the Web site, http://www.ncdc.noaa.gov.)

2002

Widespread drought, spring through early Fall 2002. Moderate to extreme drought over large portions of 30 states, including the Western states, the Great Plains, and much of the eastern U.S.

2001

Tropical Storm Allison, June 2001. The persistent remnants of Tropical Storm Allison produces rainfall amounts of 30-40 inches in portions of coastal Texas and Louisiana, causing severe flooding especially in the Houston area, then moves slowly northeastward; fatalities and significant damage reported in Texas, Louisiana, Mississippi, Florida, Virginia, and Pennsylvania.

2000

Drought and Heat Wave. Spring to Summer. Severe drought and persistent heat throughout south central and southeastern states causing significant losses to agriculture and related industries. Estimates of more than $4 to $4.2 billion in damages; estimated 140 deaths nationwide.

2003

Hurricane Isabel, September 2003. A Category 2 hurricane makes landfall in eastern North Carolina, causing considerable storm surge damage along the coasts of North Carolina, Virginia and Maryland, with wind damage and some flooding due to 4-12 inch rains in North Carolina, Virginia, Maryland, Delaware, West Virginia, New Jersey, New York, and Pennsylvania;

1999

Hurricane Floyd, September 1999. Large Category 2 hurricane makes landfall in eastern North Carolina, causing 10-20 inch rains in two days, with severe flooding in North Carolina and some flooding in South Carolina, Virginia, Maryland, Pennsylvania, New York, New Jersey, Delaware, Rhode Island, Connecticut, Massachusetts, and New Hampshire.

Oklahoma-Kansas Tornadoes, May 1999. Outbreak of F4-F5 tornadoes hit the states of Oklahoma and Kansas, along with Texas and Tennessee, Oklahoma City area hardest hit.

1998

Hurricane Georges, September 1998. Category 2 hurricane strikes Puerto Rico, Florida Keys, and Gulf coasts of Louisiana, Mississippi, Alabama, and Florida panhandle, 15-30 inch 2-day rain totals in parts of Alabama and Florida.

1997

Nothern Plains Flooding April to May 1997. Severe flooding in the Dakotas and Minnesota due to heavy spring snowmelt.

1996

Hurricane Fran, September 1996. Category 3 hurricane strikes North Carolina and Virginia, more than 10-inches, 24-hour rains in some locations and extensive agricultural and other losses.

1995

Texas, Oklahoma, Louisiana, Mississippi severe weather and flooding, May 1995. Torrential rains, hail and tornadoes across Texas, Oklahoma and southeast Louisiana, southern Mississippi, with Dallas and New Orleans areas, getting 10-25 inches in 5 days, being hardest hit.

1994

Southeast Ice Storm February 1994. Intense ice storm with extensive damage in portions of Texas, Oklahoma, Arkansas, Louisiana, Mississippi, Alabama, Tennessee, Georgia, South Carolina, North Carolina, and Virginia.

1993

Storm and blizzard, March 1993. "Storm of the Century" hits entire eastern seaboard with tornadoes, high winds and heavy snows (2-4 feet).

1992

Hurricane Andrew, August 1992. Category 5 hurricane hits Florida and Louisiana, high winds damage or destroy more than 125,000 homes.

1989

Hurricane Hugo, September 1989. Category 4 hurricane devastates South and North Carolina with approximately 20-foot storm surge and severe wind damage after hitting Puerto Rico and the U.S. Virgin Islands.

1988

Drought and heat wave, summer 1988. Drought in central and eastern U.S. with very severe losses to agriculture and related industries.

1986

Southeast drought and heat wave, summer 1986. Severe summer drought in parts of the southeastern U.S. with severe losses to agriculture.

1985

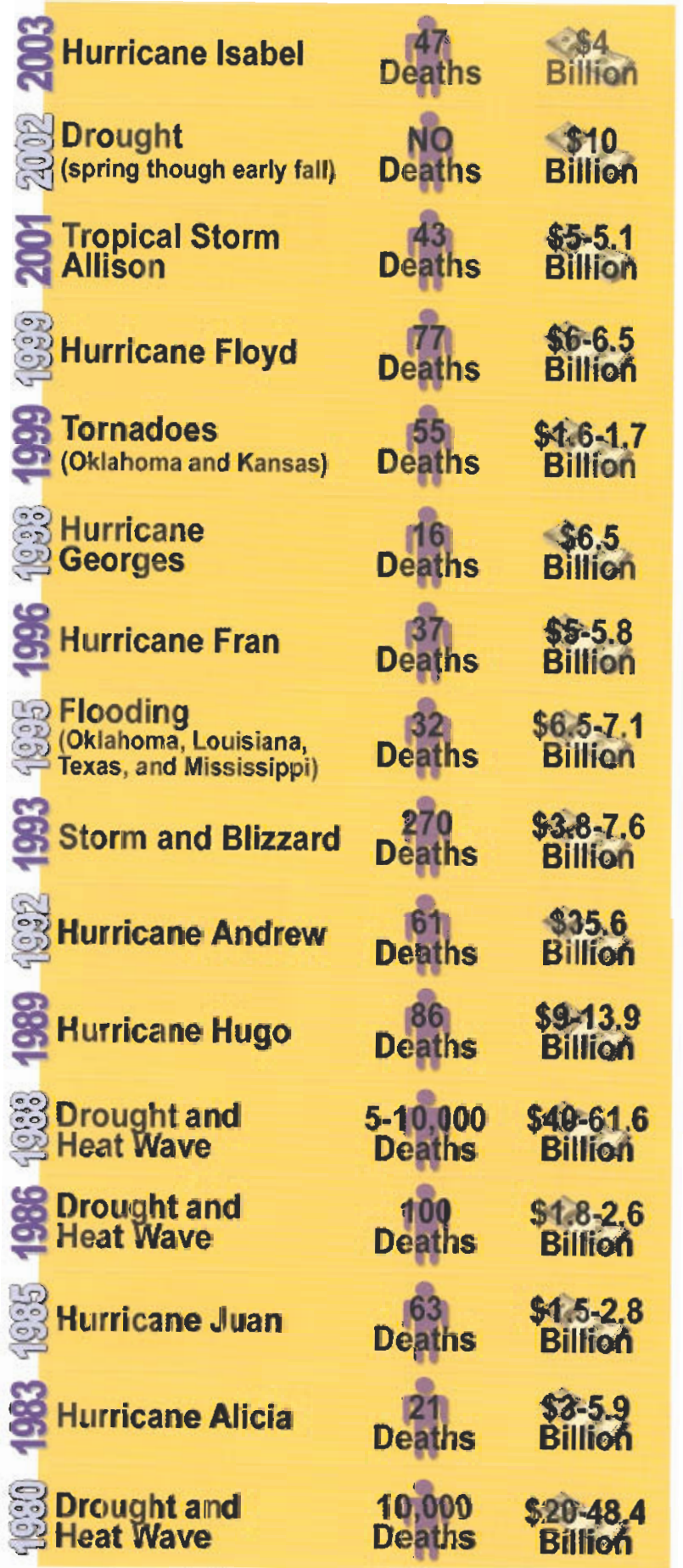
Hurricane Juan, October to November 1985. Category 1 hurricane in Louisiana and southeast U.S. Severe flooding.

1983

Hurricane Alicia, August 1983. Category 3 hurricane, Texas.

1980

Drought and heat wave, June to September 1980. Central and eastern U.S.



Damage figures, are the dollar cost normalized to 2002 dollars using a Gross National Product inflation/wealth index. Sources include Storm Data (NCDC publication), the National Weather Service, the Federal Emergency Management Agency, other U.S. government agencies, individual state emergency management agencies, state and regional climate centers, and insurance industry estimates.

Weather Warriors

by Lt. Col.
Michael Davenport
Air Force Special Operations Command
Hurlburt Field, Fla.

The record of the American military weather service is long and distinguished. As we know, the environment has often played a pivotal role in warfare from the campaign to the skirmish level throughout recorded history. Battlefield commanders have cursed the weather or thanked the gods, depending on the weather's impact on the outcome.

Air Force Weather Warriors, through our knowledge of the environment, and our application of that knowledge to military operations, bring valuable weather intelligence into the fight. We help the willing commander "own the weather." It is a profession that each of us can be extremely proud of.

Although, since World War II many Airmen served honorably with conventional army airborne forces and the precursors of today's Special Operations Forces, the Special Operations Weather Teams of today were shaped by one man's drive and vision. Col. Keith Grimes arrived on the Air Commando scene in the early 1960's – the right man, at the right place, at exactly the right time. The Air Force was beginning to build a counter-insurgency capability to meet the threat encountered in Southeast Asia. A U.S. Air Force Airman first, he stepped out of the traditional weather role and obtained certification as a Forward Air Controller.

That ability, as it turned out, was his ticket into a SEA nation. Once on the ground, he ran the entire country's air operations system; and more importantly, established an indigenous weather network that thrived for 10 years under the superb mentoring of Detachment 75 officers and non-commissioned officers. Before the weather network, 70 percent of close-air-support missions flown were ineffective due to unforecast ceilings and visibilities. But the skilled weather observations from this weather network greatly increased the effectiveness of CAS, and bad guys soon littered the landscape.

Colonel Grimes' highest profile mission was serving as lead meteorologist and assistant ground force commander in the Son Tay raid – the meteorological "go/no-go" thresholds for that mission are the most exacting that I've ever seen. Colonel Grimes' weather team's forecast was

a part of U.S. military history

spot-on, and the raid was executed as planned.

Colonel Grimes and his team continued to work at the forefront of all Air Commando missions ... Dominican Republic, sub-Saharan Africa, Greece, and Cambodia: in each case, their tactical skills earned them the right to be in the fight, but their weather expertise was the real reason that they were there. The men that Colonel Grimes called on to perform these often hazardous duties were often "out of the box" operators and thinkers, who possessed highly-developed and sharply-honed tactical skills, and were not content with watching the mission from a distance. But they were first and foremost top-notch weather officers and technicians.

The same is true of the Weather Warriors who train, deploy, and fight with America's Special Operations Forces today. Airmen going into harm's way to conduct a vitally needed mission. In recent combat operations around the globe, AFSOC weather Airmen have superbly supported joint, Army Special Operations Forces, Air Force Operations Forces, and Combat Search and Rescue Forces bringing focused meteorological expertise to commanders and operators. Special Operations Weather Teams were employed forward into non-permissive areas with Special Operations ground combat teams from all SOF components.

The human and remote sensor weather data they collected served the entire theater; from the "top of the funnel" at the Air Force Weather Agency, to the Combined Force Air Component Command, flying the current day ATO. SOF commanders are coming to a full understand of the capability their weather operators bring to the fight. The accomplishments are impressive and are far beyond the successes I thought that I would witness when I came into the Special Operations world more than 20 years ago.

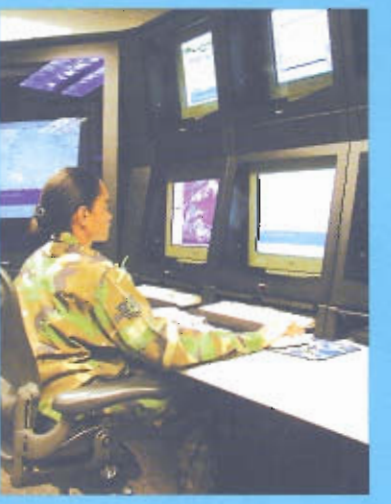
They succeeded, not because of outstanding training and equipment; but due to superb leadership and individual professionalism that overcame significant challenges in the way we currently train and equip our Airmen. This message, echoed by other ground combat Airmen, was the catalyst for launching the Battlefield Airmen Initiative.

I am encouraged by the recent Chief of Staff of the Air Force Battlefield Airmen Initiative, and hopeful that it will bring increased capabilities to Airmen that operate in hostile areas of the combat zone. The lethality and effectiveness of air power is tied to small teams of Airmen that operate in the deep battlespace, and the Air Force recognizes this. Army weather supporters are equal partners in the U.S. Air Force Battlefield Airmen initiative with other "deep in the battlespace" career fields.

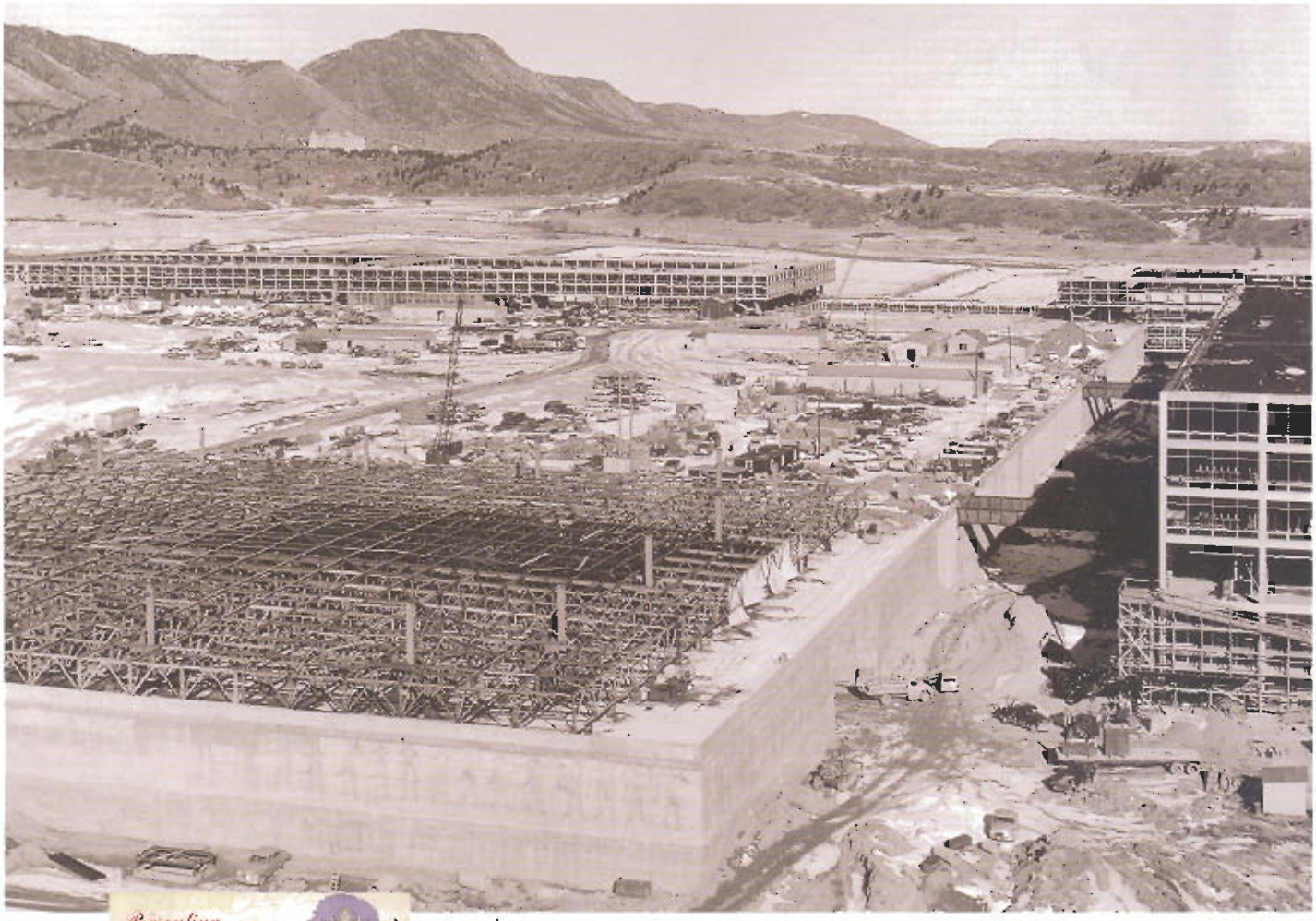
Through BA, we should be able to trade in our current processes of "hand-me-down" Army equipment and "seat-of-the-pants" tactical skills training for more standardized AF-funded processes that lead to a fully trained and equipped weather Airman. In addition to the USAF-wide BA Initiative, efforts are underway within the SOF community to solve advanced tactical skills training shortfalls, increase recruiting and improve the sustainment of our low density/high demand career specialty, to fully integrate our Reserve Component weather capability into the AFSOC team, and to develop innovative and responsive battlefield sensing instrumentation. The time is right gain support for these initiatives ... the way ahead is exciting!

To all in the AF Weather community – your contributions are important to the defense of this country, and the AF recognizes what you do and how well you do it. Just like the weather warriors that have served before you, you are conducting a vitally needed mission in support of your country. For SOF weather forces, your success brings increased responsibility and more missions. You are already being called on to do far more than you were three years ago, and the future looks like more of the same. Keep your heads down, and keep doing good.Y

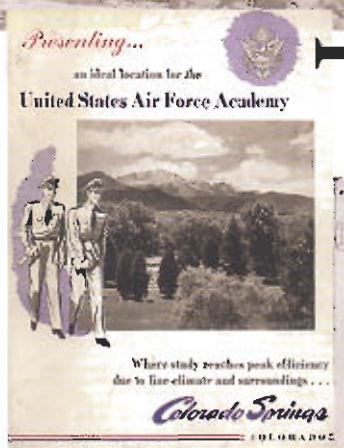
Correction



The cutline information for this photo, published in the Mar/Apr 2004 issue of the Observer Magazine "Vital Mission, a Tropical Paradise" page 19, was incorrect the cutline should have read - Staff Sgt. LeTonia James prepares a forecast at the Regional Graphics desk. Sergeant James is one of the weather technicians assigned to the 17th Operational Weather Squadron. The 17th OWS is responsible for an area of more than 106 million square miles, with nearly two billion people in 41 countries. Courtesy photo.



(Right) Air Force Academy construction which began in the summer of 1955. Photos courtesy of the Air Force Weather History Office.



(Right) Copy of the Air Force Academy brochure submitted by the Colorado Springs Chamber of Commerce as the best location for hte new service academy.

(For right and Bottom right) Copy of the Air Force Academy Act, the legislation that created the school, signed by President Dwight D. Eisenhower on April 1, 1954.

THE ACADEMY CLIMATOLOGY BUILT

by Al Moyers
Air Force Weather History Office
Offutt AFB, Neb.

On June 3, 1959, the first class of cadets graduated from the Air Force Academy. This class of 207 cadets was sworn in on July 11, 1955, at the Academy's temporary location on Lowry Air Force Base, near Denver, Colo. By August 1958, the new Air Force Academy was sufficiently complete that the cadet wing moved to the new campus.

The first Air Force Academy graduation was an historic occasion and the result of several decades of work. As early as World War I, military aviation pioneers such as Brig. Gen. Billy Mitchell begun advocating a separate military academy for the nation's growing air arm.

Following the establishment of the U.S. Air Force as a separate service in 1947, Department of Defense and Air Force leadership renewed planning for an Air Force Academy. In 1948, the first Secretary of the Air Force, Stuart Symington, argued, "The Air Force lacks an adequate source of officer personnel trained as professional Air Force officers from the beginning of their college careers."

The Department of Defense established a Service Academy Board of leading civilian and military educators in 1948 to plan for an academy that would meet the needs of the Air Force. The board determined that Air Force requirements could not be met by simply expanding the Army's or the Navy's service academies. The Board recommended a separate Air Force Academy be constructed.

In 1949, Secretary Symington, appointed an Air Force Academy Site Selection Board. This board reviewed more than 300 sites in 22 states and concluded that a site near Colorado Springs, Colo., was the best. However, their decision was never made public and the planning for the Air Force Academy stalled for several years in the wake of the Korean War and presidential elections.

Following his election in 1953, President Dwight D. Eisenhower, who as President of Columbia University had been a member of the 1948 Service Academy Board, began pressuring Congress for legislation for an Air Force Academy. On April 1, 1954, President Eisenhower signed the Air Force Academy Act, Public Law 325, authorizing construction of a new facility to house the Air Force Academy. President Eisenhower was joined at the Act's signing by Air Force Secretary Harold E. Talbott, Air Force Chief of Staff Nathan Twining and Lt. Gen. Hubert Harmon, special assistant for Air Force Academy matters and the Academy's first superintendent.

Soon thereafter, Secretary Talbott appointed a five-member Air Force Site Selection Commission. The members considered proposals for 580 sites in 45 states. In their report the commission narrowed the selection to three sites, Colorado Springs; an area on the south shore of Lake Geneva, Wisconsin; and a site on the eastern bank of the Mississippi River near Alton, Ill. Secretary Talbott announced in June 1954 that he had selected the Colorado Springs location.

More than 340 engineering firms competed for the right to design the new academy. The two leading contenders were the architectural firms of Skidmore, Owings and Merrill Associates and Kitty Hawk Associates headed by noted architect Frank Lloyd Wright. Wright withdrew his firm from the competition in July 1954. On May 14, 1955, Skidmore, Owings and Merrill Associate's design for the Air Force Academy was publicly unveiled. The new design features reflected Secretary Talbott's testimony before Congress that the Air Force wanted their academy "to be a living embodiment of the modernity of flying."

Construction on the Air Force Academy began on July 11, 1955. However, before the first spade of dirt was turned, members of Air Force Weather had assisted the architects and engineers in determining the best location of the Air Force Academy's airfield, buildings, athletic fields and other constructs.

Air Weather Service headquarters selected the 3rd Weather Group, headquartered at Ent Air Force Base, Colorado, to support the Air Force Academy Construction Agency. Under the leadership of Capt Richard D. Burris, the 3rd Weather Group's Consultant Services division conducted the meteorological study and prepared a climatology report for the Academy's construction.

This was no easy task as the proposed site was large and the terrain diverse. The 3rd's climatology report summarized the difficulty.

"The Air Force Academy site is so large and the terrain and exposure are so varied that one set of climatological data cannot be representative of the entire site."

The Colorado Springs proposal provided the Air Force some leeway in selecting the actual acreage its engineers thought appropriate for constructing the school and its facilities. The boundary selection was predicated primarily upon the setting of the Academy's airfield. The 3rd's meteorology consultants conducted a wind study to help determine the airfield location. The study concluded that orienting the runway north-northwest by south-southeast would minimize weather closings of the runway and provide for its use more than 95 percent of the time.

With the new academy's boundaries marked, work progressed on the land surveys. While the land was being surveyed, the 3rd's weathermen assimilated data from the AWS Data Control Division at Asheville, N.C.

They assisted the architects in making their selections for specific locations of the Academy's buildings and places of planned activities. For example, the 3rd's climatologists suggested building placements that put doorways in them so as not to be in the path of the prevailing winds to reduce the amount of snow, rain, and cold that is blown into the buildings. Their work aided in other issues such as determining water requirements for sprinkler systems and the size of heating and cooling units.

At the swearing in of the first class of Air Force Academy cadets, Secretary Talbott noted, "The Air Force Academy is built upon a proud foundation." No small part of that foundation, was the work of Air Force Weather. Secretary Talbott continued his speech that day, "For the Academy is a bridge to the future . . . this Academy, we are founding today, will carry forward that great effort [of building officers for the future]."

The Air Force Academy has done so for 50 years.

50 years of Joint Weather Prediction

by Al Moyers
Air Force Weather History Office
Offutt AFB, Neb.

(Right) Maj. Harold "Art" Bedient and (left) Dr. George P. Cressman at JNWPU.

(left to right) Col. Charles Benson (ret.) then, Air Force Weather Agency commander, Dr. Louis W. Uccellini, National Centers for Environmental Prediction director and Capt. Christopher Gunderson, Fleet Numerical Meteorology and Oceanography Center commanding officer cuts a cake in celebration of 50 years of joint weather prediction. Photo by Paige Hughes.

July 1 will mark the 50th anniversary of the formation of the Joint Numerical Weather Prediction Unit at Suitland, Md. The JNWPU was a combined U.S. Air Force, U.S. Weather Bureau, and U.S. Navy forecasting unit organized under the leadership of Air Force civilian meteorologist Dr. George P. Cressman.

The Joint Chiefs of Staff Joint Meteorological Committee approved the establishment of the unit in October 1953 "to provide routine operational forecasts of the 3-dimensional distribution of the meteorological elements by means of numerical computational techniques."

The introduction of the electronic computer made it possible for meteorologists to accomplish the atmospheric modeling computations derived from the theoretical work of the field's pioneers in the first half of the 20th century.

The work of the JNWPU introduced numerical weather prediction into operational forecasting in the United States during the 1950s, making meteorology more a field of science than art. The Air Weather Service quickly began integrating JNWPU products into its forecasting for the Air Force.

The AWS historian recorded in his report during the last half of 1957 that the "creation of the Joint Numerical Weather Prediction Unit at Suitland in 1954, and the installation there of an IBM-701 electronic computer, ushered in what Air Weather Service regarded as a new era in forecasting."

Prior to the formation of the JNWPU, the theoretical investigation of numerical weather prediction was simultaneously carried on at several institutions in the United States.

In addition to providing funding and manning for the most noted of these, the Meteorology Project at the Institute for Advanced Study at Princeton University, beginning in 1949 a small group at the Air Force's Cambridge Research Laboratory's Geophysics Research Division began their own investigation of numerical weather prediction.

This work culminated in February 1953 with the execution of the joint GRD-AWS Numerical Weather Prediction Project, known within AWS as Project DOOR-BELL. Project DOOR-BELL remained active through 1955. An Air Weather Service policy statement for the operational utilization of Joint Numerical Weather Prediction Unit products stated clearly the goal of the service's investigation and integration of numerical weather prediction.

"As Joint Numerical Weather Prediction Unit products are accepted, resources released will be diverted to meet the requirement for interpretation of prognostic charts."

	Model	Horizontal Resolution	Layers	Forecast Length
1955	JNWPU Barotropic Model	400 Km	3	24 hrs
1966	Primitive Equation Model	381 Km	6	72 hrs
1980	Global Spectral Model	250 Km	12	10 days
1982	Relocatable Window Model	92.6 Km	16	36 hrs
1992	Medium-Range Forecast Ensemble	105 Km	28	10 days
1996	Mesoscale Model version 5	45,15 and 5 Km	41	72 hrs

This chart highlights Operational Modeling Milestones in Numerical Weather Prediction. In some cases the figures are approximate and indicate Air Force Weather Agency specific dates or data. The primary source of information comes from the National Meteorological Center history.

Classified weather forecasts

AFWA turns on GTWAPS-S, now available on secure sites

by Paige Hughes
Air Force Weather Agency Public Affairs
Offutt AFB, Neb.

Classified weather model processing became a reality March 12 when Air Force Weather Agency turned on the Global Theater Weather Analysis and Prediction System-Secret level, or GTWAPS-S.

GTWAPS-S solves a decade long requirement to provide an operationally secure environment for numerical weather forecast products.

"We are bringing to bear a national capability for the global war on terrorism. Given our national military priorities, GTWAPS-S will be one of the most crucial capabilities the DoD possesses," said Col. Charles Benson, AFWA commander.

From ingest to output the GTWAPS-S infrastructure is dedicated to the classified environment. The budding technology ingests classified battlefield observations in the models, and tailors model runs and applications to specific theaters and missions. The end result is improved forecasts for the warfighter.

According to weather researchers, only recently has the capability been affordable. GTWAPS costs an estimated $670,000 to implement at AFWA.

The products are available to all SIPRNet users, which is a step towards getting weather data and products on the Department of Defense command and control systems. GTWAPS-S products are accessible on the Joint Air Force Army Weather Network secret and SCI sites. The selection includes meteograms, visualizations, and interactive applications much like those found on the unclassified site.

GTWAPS-S produces a 15 - kilometer window with two embedded five kilometer windows over the selectable regions in the world. The 45 kilometer "parent" window is no longer run, freeing processing to focus on the 15 kilometer windows. The higher-resolution data leads to higher-quality forecasts for weather operators.

The SWA 15 - kilometer window runs four times a day out to 48 hours; the two embedded, movable five kilometer windows run two times a day from six to 30 hours out. Output is standard gridded binary format. AFWA can send the model output to any customer possessing an application capable of ingesting classified GriB data.

The secure model run uses the National Centers for Environmental Prediction's half-degree Global Forecast System model to initialize AFWA's classified theater-based Mesoscale Model 5, a significant improvement from the coarser one-degree data used prior to GTWAPS-S implementation.

Next year, the MM5 model used for GTWAPS-S will be replaced with the Weather Research and Forecasting system. WRF is a landmark cooperative effort among scientists from the Air Force, Navy, National Center for Atmospheric Research, National Oceanic and Atmospheric Administration, and the Federal Aviation Administration. WRF is designed to be modular, and has flexible options that can be configured for both research and operations. Scientists can insert their own physics packages into the overall system with less effort than the current model used.

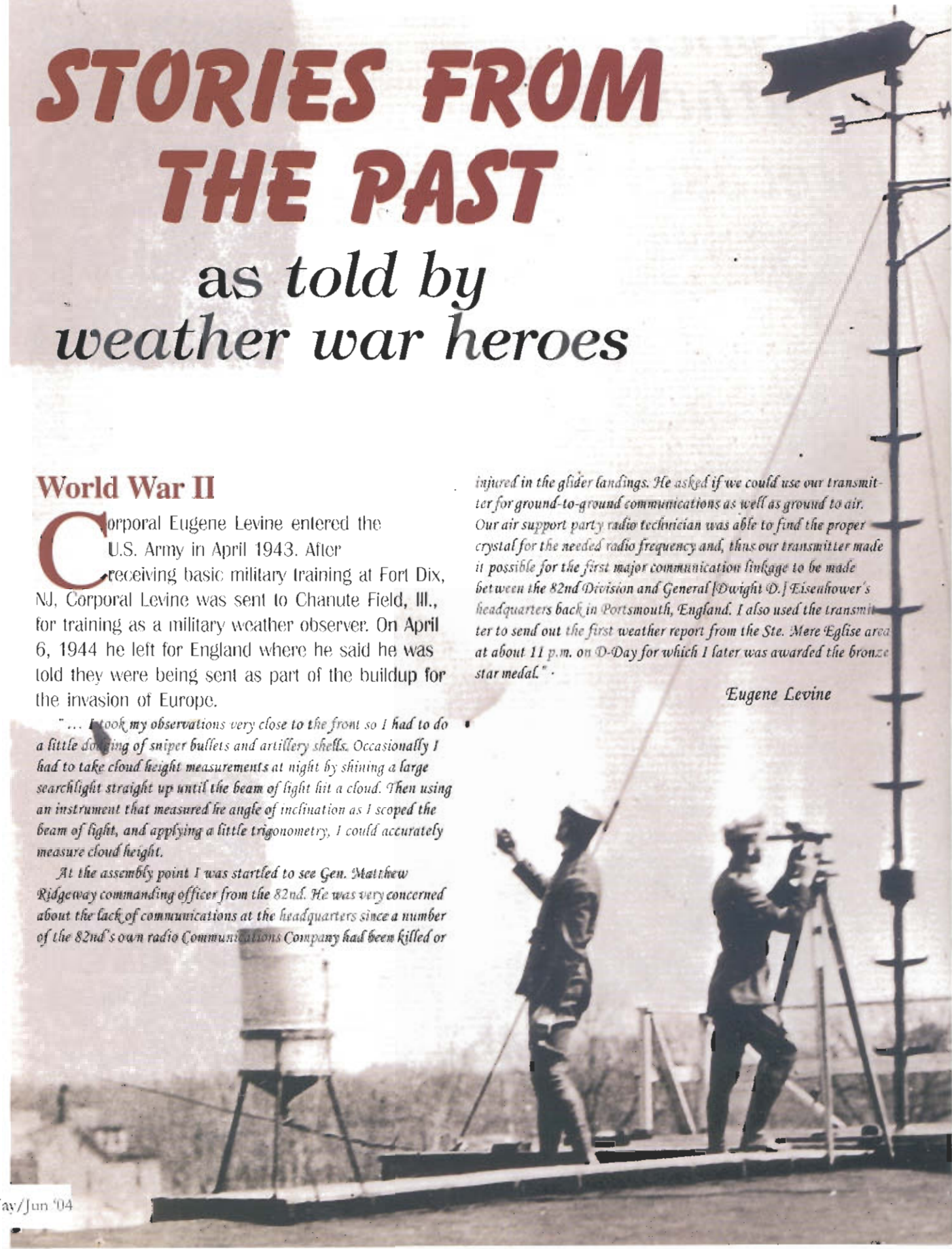
AFWA's Air and Space Science directorate pursued the implementation of GTWAPS-S in an effort to meet the needs of the field. "This is the first time we've had the ability to meet forecasting in a secure environment. The feedback we're getting from our customers is overwhelmingly positive," said Lt. Col. Mark Zettlemoyer, director of Air and Space Science.

With the success of GTWAPS-S, Air Force Weather Agency is poised to provide revolutionary capabilities now and in the coming years, changing weather forecasting for both the Air Force Weather Weapon System and the warfighters.

Dr. George P. Cressman receives Air Force civil service award for his work including JNWPU. Photo courtesy of the AFWA History Office

STORIES FROM THE PAST

as told by weather war heroes



World War II

Corporal Eugene Levine entered the U.S. Army in April 1943. After receiving basic military training at Fort Dix, NJ, Corporal Levine was sent to Chanute Field, Ill., for training as a military weather observer. On April 6, 1944 he left for England where he said he was told they were being sent as part of the buildup for the invasion of Europe.

"... I took my observations very close to the front so I had to do a little dodging of sniper bullets and artillery shells. Occasionally I had to take cloud height measurements at night by shining a large searchlight straight up until the beam of light hit a cloud. Then using an instrument that measured he angle of inclination as I scoped the beam of light, and applying a little trigonometry, I could accurately measure cloud height.

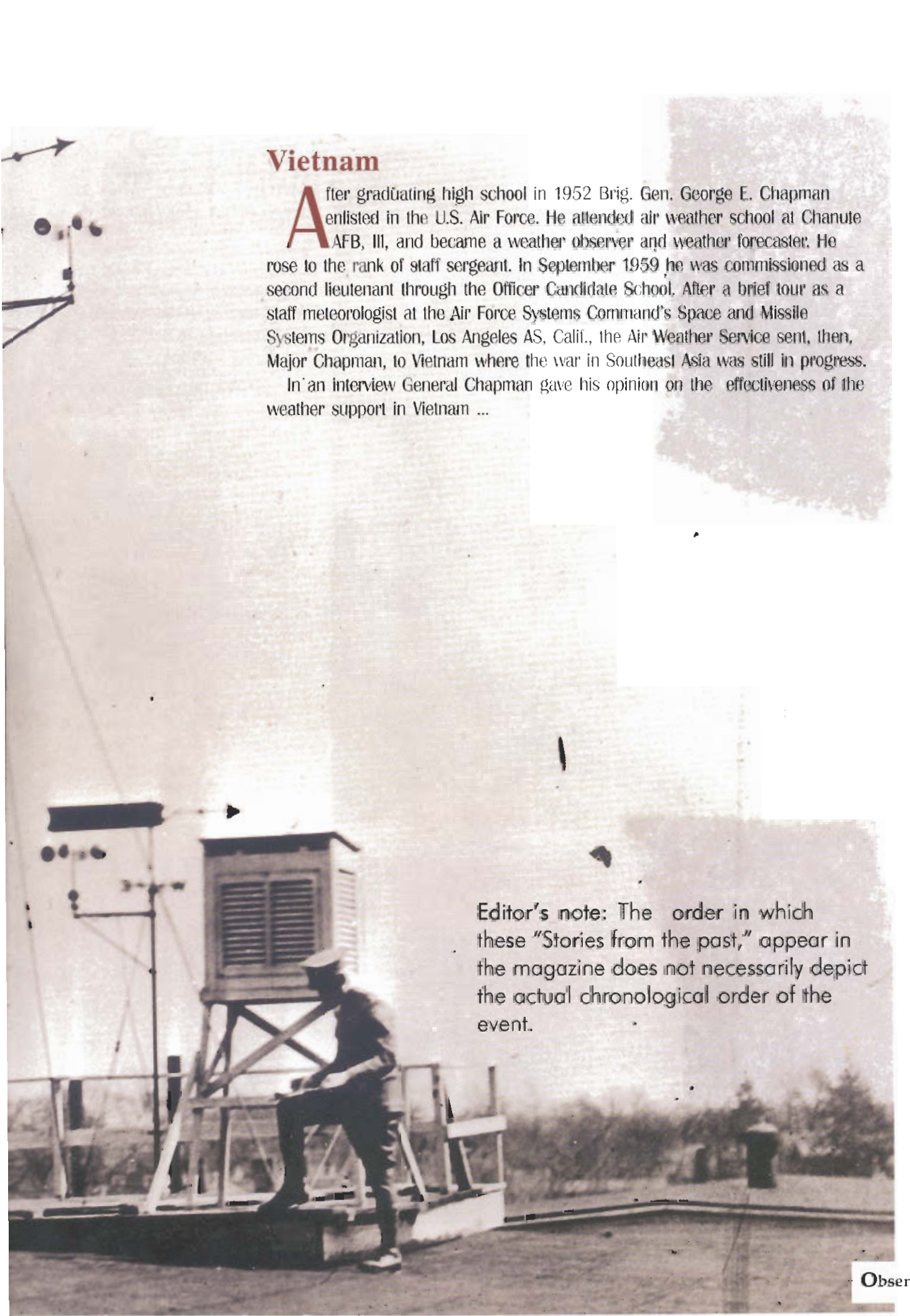
At the assembly point I was startled to see Gen. Matthew Ridgeway commanding officer from the 82nd. He was very concerned about the lack of communications at the headquarters since a number of the 82nd's own radio Communications Company had been killed or injured in the glider landings. He asked if we could use our transmitter for ground-to-ground communications as well as ground to air. Our air support party radio technician was able to find the proper crystal for the needed radio frequency and, thus our transmitter made it possible for the first major communication linkage to be made between the 82nd Division and General [Dwight D.] Eisenhower's headquarters back in Portsmouth, England. I also used the transmitter to send out the first weather report from the Ste. Mere Eglise area at about 11 p.m. on D-Day for which I later was awarded the bronze star medal."

Eugene Levine

Vietnam

After graduating high school in 1952 Brig. Gen. George E. Chapman enlisted in the U.S. Air Force. He attended air weather school at Chanute AFB, Ill, and became a weather observer and weather forecaster. He rose to the rank of staff sergeant. In September 1959 he was commissioned as a second lieutenant through the Officer Candidate School. After a brief tour as a staff meteorologist at the Air Force Systems Command's Space and Missile Systems Organization, Los Angeles AS, Calif., the Air Weather Service sent, then, Major Chapman, to Vietnam where the war in Southeast Asia was still in progress.

In an interview General Chapman gave his opinion on the effectiveness of the weather support in Vietnam ...



Editor's note: The order in which these "Stories from the past," appear in the magazine does not necessarily depict the actual chronological order of the event.

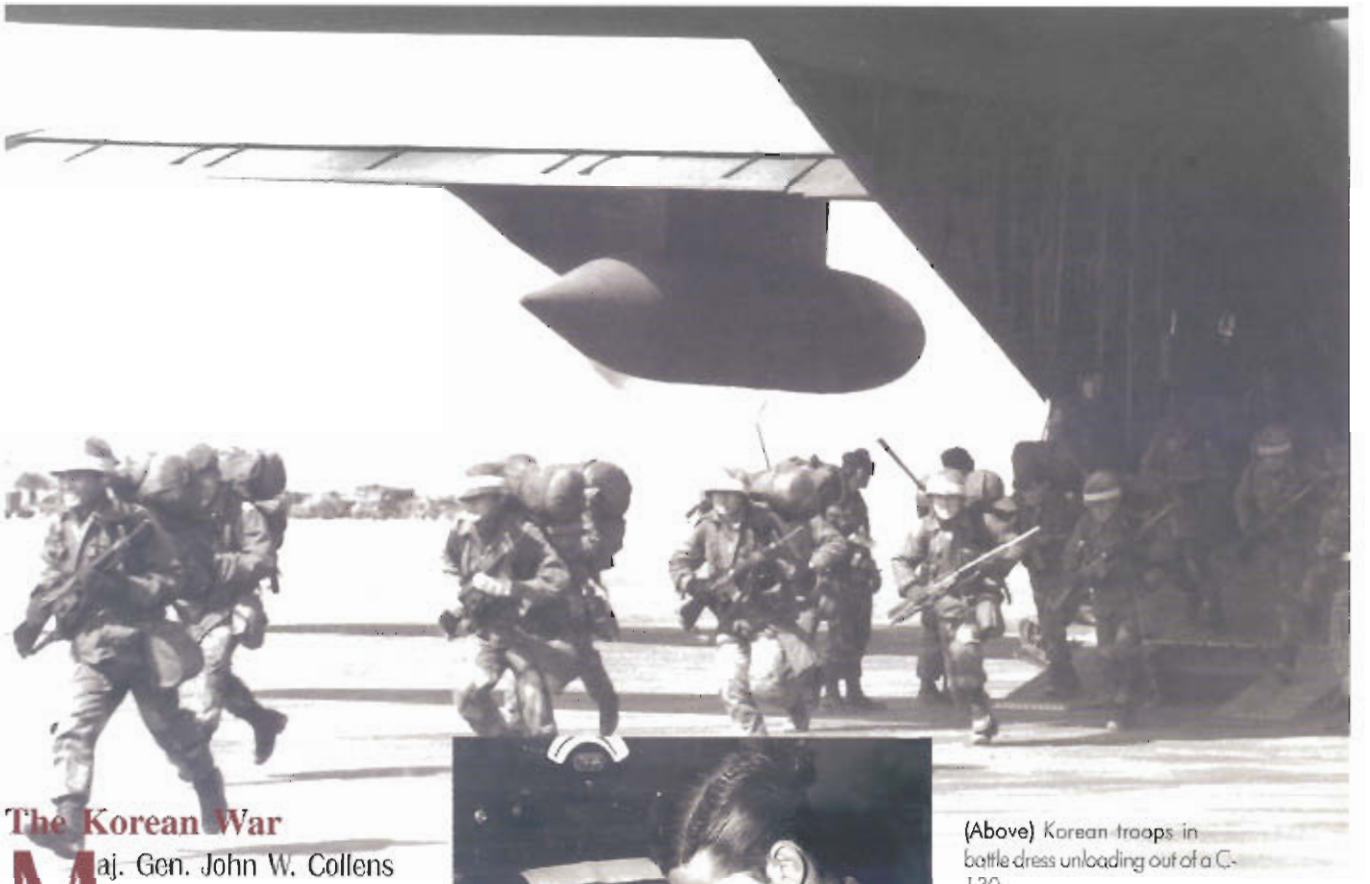
(Above) Mobile Weather Station, Vietnam.

" ... I would not say minimally important, but minimally effective. This is in the areas in which I was directly involved. I remembered a colonel that I worked for. He served consecutive, back-to-back tours at Cam Rauh Bay as the wing commander. He had already lived through one weather season or cycle. I found that just by his personal continuity files, he would challenge me in the weather support areas and suggest that something was going to happen. More often than I wanted to, it [the weather] happened the way he described it, not the way I forecast it. Although we built up good continuity files, [weathermen] had a difficult time relating to that climate and forecasting for it accurately until they had been there for a few months.

I do not think we were as effective as we could have been. I don't believe we were anywhere near as effective as we are, for instance, in supporting tactical operation in the United States today, or a tactical operation in Europe, or even, if you will, in other parts of the Pacific where we have people that are assigned for longer periods of time."

Brig. Gen.
George E. Chapman

(Right) Tan Son Nhot Air base, Saigon, Republic of Vietnam-Airman Second Class Cham Ekosharin, Royal Thailand Air Force weather observer tracks a weather balloon through the theodolite's gun sight as Staff Sergeant Adrian Fredrickson monitors the scale readings. Staff Sergeant Glan R. Allen follows the 'blip' through the telescope. The US airmen are stationed with 30th Weather Squadron, International Airport, Bangkok, Thailand.



(Above) Korean troops in battle dress unloading out of a C-130.

(Left) Fifth Air Force, Korea, Airman 1st Class Claude Kessinger, Tell City, Ind., computes the amount of moisture in the upper air. In back of the airman is the ground receiver which records the balloon's signals on a long roll of paper.

The Korean War

Maj. Gen. John W. Collens III volunteered to fly combat missions during the Korean War as part of the 6166th Tactical Weather Reconnaissance Flight, 67th Tactical Reconnaissance Wing. They were using B-26's, which was a non-instrumented airplane.

"... We were doing essentially the same thing the B-29s were doing, except we were not instrumented like they were. The only thing we had was a radar altimeter, which would tell us how high we were above the ground. We had a regular altimeter that we could set to sea level at 29.92, and you would get the difference of the height and therefore you had a pressure. The temperature gauge was okay, but it wasn't very good because it had all the friction and everything else on it. You had a qualified weather person in the right seat. It was a single-seat airplane. (This was the Douglas B-26, not the Martin B-26.) It only had a pilot and it was described as a fighter-bomber in World War II. So you had a pilot over in the [left] seat, you had a weatherman, and you had a navigator up in the nose. Back behind the bomb bay, inaccessible to the front end of the airplane, was the radio operator to send back data.

We went in harm's way every day. Every day we were subject to being shot at. It was tactical weather reconnaissance. We were doing visual observations – whether the weather was good or bad, where the clouds were, and whatnot. We had some routes that took us out over the water so that we could get some data that they needed.

So I joined this outfit and we flew those kinds of missions that were in harm's way. We had just very few of them where you went out collecting data in sparse areas. You would have a weather guy and a board in front of you. You would have the same thing the ground weather observer had, and by microphone you would call back to the radio operator and tell him to send [the data] back, and he'd type it up that way and send it by Morse code in numbers."

Maj. Gen.
John W. Collens III.

Weather award namesakes ...

Who are they ?

(Above) General William Best, Jr. returns to the 54th WRS Anderson AFB, Guom in Sep 71. U.S. Air Force photo.

Best Award

This award is named in honor of Brig. Gen. William H. Best, Jr. General Best was commander of Air Weather Service, 1970-1973. This award recognizes individual excellence by a member providing aerospace weather staffs support at squadron level and above or equivalent.

This award is present in enlisted, officer and civilian categories.

Dodson Award *(Outstanding Airman)*

This award is named in honor of Staff Sergeant Robert A. Dodson. Sergeant Dodson parachuted behind enemy lines with elements of the 82d Airborne on D-Day, June 6, 1944.

This award recognizes individual leadership and excellence by an airman performing duty in an Air Force Weather unit that conducts aerospace weather operations.

Jenner Award *(Outstanding Civilian)*

This award is named in honor of Mr. William A. Jenner. Mr. Jenner worked in or directed Air Weather Service training for more than 40 years.

This award recognizes individual leadership and excellence by a civilian performing duty in an Air Force Weather unit that conducts aerospace weather operations.

Merewether Award

This award is named in honor of Col. Arthur F. Merewether. Colonel Merewether was Chief of the Weather Section, Office of the Chief of the Air Corps, 1940-1942.

This award recognizes excellence by an individual or team making the most significant technical contribution to the aerospace weather operational mission.

Moorman Award

Named in honor of Lt. Gen. Thomas S. Moorman, Jr., who was the Air Weather Service commander, 1954-1958. This award recognizes the most outstanding Air Force Weather unit (of units not eligible for the Williams or Fawbush-Miller Awards).

(left) Brig. Gen. Thomas S. Moorman, Jr., Air Weather Service commander greets the staff of HQ, 2nd Weather Wing, upon his arrival in Furstenfeldbruck, Sept. 7, 1954. U.S. Air Force photo.

(Above) Air Weather Service vice commander visits Takhli RTAFB, Thailand. Pictured are Col. Williams R. Nelson, Commander, 474TFW, and Major Donald B. Hodges, Commander, Det 12, 10th Weo sq talking with Col. John W. Collens.

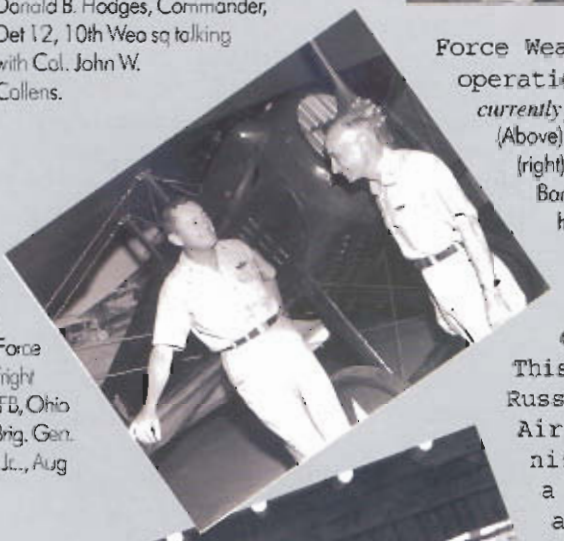
Collens Award

This award is named in honor of Maj. Gen. John W. Collens III. General Collens was commander of Air Weather Service, 1974-1975.This award recognizes the most outstanding Air National Guard weather flight.

Barney Award *(Outstanding Field Grade Officer).**

This award is named in honor of Col. William S. Barney. Colonel Barney was deputy commander, Air Weather Service, 1963-1967. This award recognizes individual leadership and excellence by a field grade officer performing duty in an Air Force Weather unit that conducts aerospace weather operations. **Award is not listed in the 2002 version of the AF/XO award AFI currently posted.*

(Above) The Legion of Merit and an album were presented to Col. William S. Barney (right) by Brig. Gen. Russell K. Pierce, Jr., Air Weather Service commander. Colonel Barney, who retired at the end of September 1967 after 30 years' service, was cited for his contributions to the weather service as AWS Vice Commander. Photo courtesy of http://www.arlingtoncemetery.net/wsbarney.htm



Col. Joseph D. Hornsby, Director Air Force Museum, Wright Pattatersn AFB, Ohio meets with Brig. Gen. R.K. Pierce, Jr.., Aug 1968.

Pierce Award *(Outstanding Non-Commissioned Officer).*

This award is named in honor of Maj. Gen. Russell K. Pierce, Jr. General Pierce commanded Air Weather Service, 1965-1970.This award recognizes individual leadership and excellence by a non-commissioned officer performing duty in an Air Force Weather unit that conducts aerospace weather operations.

pt. ndolph nkie" lliams (right) pects a eodolite with an Corps officer. pt. Williams is edionately known as "Father of Air Force eather."

Williams Award

This award is named in honor of Col. Randolph P. Williams. Colonel Williams argued for and organized the Air Corps Weather Service.

This award recognizes the most outstanding weather flight, detachment, combat weather team, or equivalent performing aerospace weather operations.

Fawbush-Miller Award

This award is named in honor of Lt. Col. Ernest J. Fawbush and Col. Robert C. Miller. Colonel Fawbush and (then) Major Miller developed successful techniques for forecasting severe storms and issued the first operational tornado forecast.

This award recognizes the Operational Weather Squadron performing the most outstanding weather support, operations, and training.

Capt. Robert C. Miller and Maj. Ernest J. Fawbush are credited with making the first tornado forcast.

Capt. Don Z. Zimmerman and Lt. Thomas S. Moorman look over the weather manual they co-authored.

Zimmerman Award

In honor of Brig. Gen. Don Z. Zimmerman. General Zimmerman was Director of Weather, Headquarters, Army Air Forces, in 1942. This award recognizes excellence by an individual or team demonstrating the best application of climatology in support of aerospace weather operations.

Grimes Award

This award was named in honor of Col. Keith R. Grimes. Colonel Grimes was instrumental in the organization and fielding of Special Operations weather support. This award recognizes the most outstanding weather flight, detachment, or equivalent supporting Special Operations or Army missions.

Capt. Kenneth Grimes (center) goes over Land Navigation training with two weather warriors during Exercise Turtle Creek 1.

The Spengler Award

award is named in honor of Air Force Reserve Brig. Gen. Kenneth C. Spengler. General Spengler was Special Assistant to the Commander, Air Weather Service, 1961-1975. This award recognizes excellence by an active Air Force Reserve weather Individual Mobilization Augmentee who makes an outstanding contribution to Air Force Weather and displays self-improvement and leadership.

Grisham Award *(Outstanding Company Grade Officer)*.

Named in honor of Col. Leon M. Grisham. Colonel Grisham, a highly decorated pilot-weather officer, flew combat missions in World War II and Korea. This award recognizes individual leadership and excellence by a company grade officer performing duty in an Air Force Weather unit that conducts aerospace weather operations.

AWS' first Korean War casualty 1st Lt Leon Grisham, (left) watches at a forward base in Korea in late June 1950 while 1st Lt John T. Gordon operates theodolite instrument.

Gardner Award *(Outstanding Senior Non-Commissioned Officer)*

Named in honor of Chief Master Sgt. William Gardner who served as the special assistant to the Air Weather Service commander, 1968-1970, a position equivalent to later senior enlisted advisors.

This award recognizes individual leadership and excellence by a senior non-commissioned officer performing duty in an Air Force Weather unit that conducts aerospace weather.

Air ★ Force ★ Weather ★ Award ★ Winners ★ Best ★ of ★ the ★ BEST

Grisham Award
Outstanding Air Force Weather Company Grade Officer

Capt. Joseph Benson,
HQ USAFE, Ramstein AB, Germany

★★★★★

Gardner Award
Outstanding Air Force Weather Senior Non Commissioned Officer

Master Sgt. Raymond Pelletier,
354th OSS/OSW, Eielson AFB, Alaska

★★★★★

Pierce Award
Outstanding Air Force Weather Non Commissioned Officer

Staff Sgt. Steven Giese,
15th ASOS/ASWC, Fort Stewart AIN, Ga.

★★★★★

Dodson Award
Outstanding Air Force Weather Airman

Senior Airman Kylee Reynolds,
d WS, 3rd ASOG, Fort Hood, Texas

★★★★★

Jenner Award
Outstanding Air Force Weather Civilian

Mr. Louis J. Riva,
HQ AFWA, Offutt AFB, Neb.

★★★★★

Best Award - Officer
Outstanding Staff Support

Maj. Mark Lajoie,
HQ AETC/DOYW, Randolph AFB, Texas

★★★★★

Best Award - Enlisted
Outstanding Staff Support

Master Sgt. James Moffitt,
45th WS, Patrick AFB, Fla.

★★★★★

Best Award - Civilian
Outstanding Staff Support

Mr. Kirk Lehneis,
88th WS, Wright-Patterson AFB, Ohio

★★★★★

Merewether Award
Most Significant Technical Contribution

Joint Typhoon Warning Center,
(Capt. Steven Vilpors, Master Sgt. Donald LaFramboise, Tech. Sgt. Jason Ronne, Staff Sgt. Gary Lam)
17th OWS, Pearl Harbor, Hawaii

★★★★★

★★★★★

Zimmerman Award
Best Application of Climatology

88th WS,
Wright-Patterson AFB, Ohio

★★★★★

Spengler Award
Most Outstanding Air Force Weather IMA

Lt. Col. Michael Kelly,
HQ AFWA, Offutt AFB, Neb.

★★★★★

Grimes/Williams Award
Outstanding Weather Flight

24th Special Tactics Squadron,
Pope AFB, N.C.

★★★★★

Moorman Award
Outstanding Specialized Weather Unit

7th WS, Campbell Barracks,
Heidelberg, Germany

★★★★★

Fawbush-Miller Award
Outstanding Operational Weather Squadron

28th OWS
Shaw AFB, S.C.

★★★★★

Collens Award
Outstanding Air National Guard Weather Flight

209th Weather Flight,
Austin, Texas

★★★★★

Capt. Kenneth Grimes being decorated by Brig. Gen. Norman L. Peterson. USAF Photo.

(Right) Brig. Gen. William H. Best, Jr. and two pilots from the 58th Weather Reconnaisance Squadron stand in front of a WB-57 at Kirtland AFB, New Mexico. U.S. Air Force Photo.

Weather Warriors

Airman 1st Class Benjamin John Lee
USAFE OWS Sembach AB, Germany
Regional desk weather technician, Central Europe Section
Years In Service: 2 years
Hometown: Albany, NY
Role Model / Why? My grandfather, Jacob Lee Sr., because he worked hard to raise a great family, and leaving behind no regrets.
Hobbies: Playing golf, working on cars, and travel.
Most Memorable AFW Experience: Having the opportunity to do the European American Forces Network Weather TV broadcast.

Tech. Sgt. Jeremy Thunberg
24th Special Tactics Squadron, Pope AFB, N.C.
Special Tactics Weather technician
Years in Service: 11 years
Hometown: St. Paul, Minn.
Role Model/Why?
My grandfather.
His way of life conveys a positive and motivating persona that sets the standard for role models. Throughout my life he has been one person that I could ask for mentorship and who provided honest feedback that has been invaluable time and time again.
Hobbies: Spending time with my wife, hiking, fishing and home improvements
Most Memorable AFW Experience:
Airborne assault in support of Operation Iraqi Freedom to establish a forward landing strip for follow on forces.

Salutes

RETIREMENTS

Maj. Peter J. Citrone
AFCWC/ OL-B White Sands Missile Range, N.M.
Master Sgt. Miles Brown
HQ Air Force Weather Agency
Master Sgt. Steven J. DeBree
53rd WRS Hurricane Hunters (AFRC) Keesler AFB, Miss.
Master Sgt. James Ellis, 15th OWS, Scott AFB, Ill.
Master Sgt. Raymond Perez, 3rd WS, Fort Hood, Texas
Tech. Sgt. Richard DeTrafford, 15th OWS, Scott AFB, Ill.
Tech. Sgt. Robert Hayes, Det. 5, 10th CWS, Fort Bragg, N.C.

Awards and Decorations

BRONZE STAR

1st Lt. Gary Clinton, 3rd WS, Fort Hood, Texas
Master Sgt. Raymond Perez, 3rd WS, Fort Hood, Texas

MERITORIOUS SERVICE MEDAL

Lt. Col. Charles Pappas, 15th OWS, Scott AFB, Ill. (2 OLC)
Maj. Jimmie Trigg, 15th OWS, Scott AFB, Ill.
Capt. Jeffrey Jarry, 15th OWS, Scott AFB, Ill.
Master Sgt. Gary Carter, 15th OWS, Scott AFB, Ill. (1 OLC)
Master Sgt. James Ellis, 15th OWS, Scott AFB, Ill. (2 OLC)
Master Sgt. Jeffery Johnson, Det 5, 10th CWS, Fort Bragg, N.C.
Master Sgt. Lawrence McCoy, 15th OWS, Scott AFB, Ill.
Master Sgt. Raymond Perez, 3rd WS, Fort Hood, Texas
Tech. Sgt. Toni Carter, 15th OWS, Scott AFB, Ill.
Tech. Sgt. Robert Hayes, Det. 5, 10th CWS, Fort Bragg, N.C.
Tech. Sgt. Taylor Jacobs, 15th OWS, Scott AFB, Ill.

JOINT SERVICE COMMENDATION MEDAL

Capt. William Schroeder, Det. 5, 10th CWS, Fort Bragg, N.C.
Tech. Sgt. James Morello, Det. 5, 10th CWS, Fort Bragg, N.C.
Staff Sgt. Joshua Lewis, Det. 5, 10th CWS, Fort Bragg, N.C.
Staff Sgt. Joshua Murray, Det. 5, 10th CWS, Fort Bragg, N.C.
Staff Sgt. Charles Rushing, Det. 5, 10th CWS, Fort Bragg, N.C.

AIR FORCE COMMENDATION MEDAL

Maj. Brett Scholten, HQ AFWA, Offutt AFB, Neb. (2 OLC)
Capt. Eric Christensen, 53rd WRS Hurricane Hunters, Keesler AFB, Miss.
Capt. Chad E. Gibson, 53rd WRS Hurricane Hunters, Keesler AFB, Miss.
Capt. Joseph Ludwig, 15th OWS, Scott AFB, Ill.
Capt. Charles Spicer, HQ AFWA, Offutt AFB, Neb. (1 OLC)
1st Lt. Michael Horner, 15th OWS, Scott AFB, Ill. (2 OLC)
1st Lt. John Syc, Det. 5, 10th CWS, Fort Bragg, N.C.
Master Sgt. Wesley Guinn, 28th OWS, Shaw AFB, S.C.
Tech. Sgt. Richard DeTrafford, 15th OWS, Scott AFB, Ill. (3 OLC)
Tech. Sgt. Stephen Meunier, 15th OWS, Scott AFB, Ill.
Tech Sgt. Samuel Pugh, 35th OSW, Misawa AB, Japan
Tech. Sgt. James Rogers, 15th OWS, Scott AFB, Ill. (2 OLC)
Tech. Sgt. Kevin Safreed, 28th OWS, Shaw AFB, S.C.
Tech. Sgt. Paul Teft, 28th OWS, Shaw AFB, S.C.
Tech. Sgt. Thomas Wenger, 28th OWS, Shaw AFB, S.C.
Staff Sgt. Ninfa Ramirez-Curoy, 35th OSW, Misawa AB, Japan

ARMY COMMENDATION MEDAL

Master Sgt. Terry Upchurch, 15th ASOS/OSW, Hunter AAF, Ga.
Tech. Sgt. Scotty Claar, 15th ASOS/OSW, Hunter AAF, Ga.
Tech. Sgt. James Morello, Det. 5, 10th CWS, Fort Bragg, N.C.
Staff Sgt. Angela Banks, 3rd WS, Fort Hood, Texas
Staff Sgt. Jessica Boyle, 3rd WS, Fort Hood, Texas
Staff Sgt. Montgomery Campbell, 3rd WS, Fort Hood, Texas
Staff Sgt. Everett Carson, Det. 5, 10th CWS, Fort Bragg, N.C.
Staff Sgt. Erik Gilliand, Det. 5, 10th CWS, Fort Bragg, N.C.
Staff Sgt. Jason Hawley, 15th ASOS/OSW, Hunter AAF, Ga.
Staff Sgt. Melanie Hurst, 15th ASOS/OSW, Hunter AAF, Ga. (1st and 2nd OLC)
Staf Sgt. Denesse Palmer, 15th ASOS/OSW, Hunter AAF, Ga.
Staff Sgt. Angel Rivera, 3rd WS, Fort Hood, Texas
Staff Sgt. Brock Taylor-Furman, 15th ASOS/OSW, Hunter AAF, Ga. (1st and 2nd
Senior Airman Charles Allen, Det. 5, 10th CWS, Fort Bragg, N.C.
Senior Airman Brian Nolan, 15th ASOS/OSW, Hunter AAF, Ga.
Senior Airman Kylee Reynolds, 3rd WS, Fort Hood, Texas
Senior Airman Lorne Steuer, 3rd WS, Fort Hood, Texas
Senior Airman Kimberly White, 3rd WS, Fort Hood, Texas

JOINT SERVICE ACHIEVEMENT MEDAL

Staff Sgt. Erik Gilliand, Det. 5, 10th CWS, Fort Bragg, N.C.
Staff Sgt. John Peters, Det. 5, 10th CWS, Fort Bragg, N.C.
Staff Sgt. Michael Rittner, Det. 5, 10th CWS, Fort Bragg, N.C.
Staff Sgt. Rosemburg Ortiz, Det. 5, 10th CWS, Fort Bragg, N.C.

AIR FORCE ACHIEVEMENT MEDAL

Tech. Sgt. Todd Morris, 15th OWS, Scott AFB, Ill.
Tech. Sgt. Mark Munoz, 3rd WS, Fort Hood, Texas
Staff Sgt. Alan Arnold, 15th OWS, Scott AFB, Ill.
Staff Sgt. Thomas Doerner, 15th OWS, Scott AFB, Ill.
Staff Sgt. Chad Gawel, 28th OWS, Shaw AFB, S.C.
Staff Sgt. Mark Hatten, 57th OSS/OSW, Nellis AFB Nev.
Staff Sgt. Rashid Lamb, 15th OWS, Scott AFB, Ill.
Staff Sgt. Keith Maslowski, 15th OWS, Scott AFB, Ill.
Staff Sgt. Robert Mariner, 15th OWS, Scott AFB, Ill.
Senior Airman Michael Bliss, 15th OWS, Scott AFB, Ill.
Senior Airman Matthew Bolin, 15th OWS, Scott AFB, Ill.
Senior Airman Christopher Bonanno, 15th OWS, Scott AFB, Ill.
Senior Airman Terrance Feagin, 15th OWS, Scott AFB, Ill.
Senior Airman Robert Frost, 15th OWS, Scott AFB, Ill.
Senior Airman-Donnabelle Kesler, 15th OWS, Scott AFB, Ill.
Senior Airman Tereasa Lang, 15th OWS, Scott AFB, Ill.
Senior Airman Joshua Rapp, 15th OWS, Scott AFB, Ill.
Senior Airman Melissa Safreed, 28th OWS, Shaw AFB, S.C.
Senior Airman Jasson Sjoberg, 15th OWS, Scott AFB, Ill.
Senior Airman Dianna Smith, 15th OWS, Scott AFB, Ill
Airman 1st Class Teneha Clemeats, 28th OWS, Shaw AFB, S.C.
Airman 1st Class Melissa Wilhite, 15th OWS, Scott AFB, Ill.
Airman 1st Class Terrijuana Wilson, 15th OWS, Scott AFB, Ill.
Airman 1st Class Aimee Woods, 15th OWS, Scott AFB, Ill.

ARMY ACHIEVEMENT MEDAL

1st Lt. Louis Escamilla, 3rd WS, Fort Hood, Texas
Staff Sgt. Jessica Boyle, 3rd WS, Fort Hood, Texas
Staff Sgt. Terri Pugh, 15th ASOS/OSW, Hunter AAF, Ga.
Senior Airman William Mendez, 3rd WS, Fort Hood, Texas
Senior Airman Luis Mateo Ramos, 3rd WS, Fort Hood, Texas
Senior Airman Lorne Steuer, 3rd WS, Fort Hood, Texas
Senior Airman Amber Wilkinson, 3rd WS, Fort Hood, Texas

AERIAL ACHIEVEMENT MEDAL

Maj. Richard Henning, 53rd WRS Hurricane Hunters, Keesler AFB, Miss.
1st Lt. Tina Young, 53rd WRS Hurricane Hunters, Keesler AFB, Miss.
Chief Master Sgt. Micheal Scaffidi, 53rd WRS Hurricane Hunters, Keesler AFB, Miss.
Master Sgt. Richard Cumbo, 53rd WRS Hurricane Hunters, Keesler AFB, Miss.

ARMED FORCES RESERVE MEDAL WITH MOBILIZATION DEVICE

Maj. Brett Scholten, HQ AFWA, Offutt AFB, Neb.
Capt. Charles Spicer, HQ AFWA, Offutt AFB, Neb.

ARMED FORCES EXPEDITIONARY MEDAL

Maj. Brett Scholten, HQ AFWA, Offutt AFB, Neb. (3rd Award)

AIR AND SPACE CAMPAIGN MEDAL

Maj. Brett Scholten, HQ AFWA, Offutt AFB, Neb.
Capt. Charles Spicer, HQ AFWA, Offutt AFB, Neb.

EDUCATION

STAFF WEATHER OFFICER COURSE

Senior Airman Teresa Colwell, 3rd WS, Fort Hood, Texas
Senior Airman Amber Wilkinson, 3rd WS, Fort Hood, Texas

WEATHER OFFICER'S COURSE

2nd Lt. Troy Chevalier, 28th OWS, Shaw AFB, S.C.
2nd Lt. David Clayton, 25th OWS, Davis Monthan AFB, Ariz.
2nd Lt. Nicholas Healy, 28th OWS, Shaw AFB, S.C.
2nd Lt. Mark Hoban, 193rd SOW/DOSW, Fort Indiantown Gap, Pa. (ANG)
2nd Lt. Blair Scholl, 26th OWS, Barksdale AFB, La.
2nd Lt. Michael Viggiano, USAFE OWS, Sembach AB, Germany
2nd Lt. John Zimmerman, 20th OWS, Yokota AB, Japan

WEATHER CRAFTMAN'S COURSE

Tech. Sgt. Robert Benton, III, 43rd OSS/OSW, Pope AFB, N.C.
Tech. Sgt. Robert Lenahan, 72nd OSS, Tinker AFB, Ok
Staff Sgt. Eric Apple, 116th W.F. Camp Murray, Wash.
Staff Sgt. Jody Ball, 10th SFG, Fort

Carson Colo.
Staff Sgt. Debra Chaves, 47th OSS/OSW, Laughlin AFB, Texas
Staff Sgt. Brian Clark, 7th OSS/OSW, Dyess AFB, Texas
Staff Sgt. Frederick Comstock, 122nd WF, Hammond LA (ANG)
Staff Sgt. Nathanael Farrington, AFWA/XOOS-AFN, Offutt AFB, Neb.
Staff Sgt. Daniel Hayes, 374th OSS, Yokota AB
Staff Sgt. Latoya High, 354th OSS, Eielson AFB, AK
Staff Sgt. Brian Hudgins, 341st OSS/OSW, Malmstrom AFB, Mont.
Staff Sgt. Sarah Kah, 92nd OSS, Fairchild AFB, Wa
Staff Sgt. Daniel Montville, 78th OSS/OSW, Robins AFB, Ga.
Staff Sgt. Bernard Moyer, Jr., 26th OWS, Barksdale AFB, La.
Staff Sgt. Stanley Novak, Jr., 62nd OSS/OSW, McChord AFB, Wash.
Staff Sgt. Michael Passananti, Det 11 7th WS, Heidelberg AIN, Germany
Staff Sgt. Thomas Quates, 25th OWS, Davis Monthan AFB, Ariz.
Staff Sgt. Zachariah Ridgeway, 14th OSS/OSW, Columbus AFB, Miss.
Staff Sgt. Ronald Sherard, 374th OSS, Yokota AB, Japan
Staff Sgt. Matthew Strachan, 7th OSS/OSW, Dyess AFB, Texas
Staff Sgt. Jason Tve, Det 2, AFWA, Offutt AFB, NE Sugarmore Hills
Staff Sgt. Aaron Wesson, 71st OSS/OSW, Vance AFB, Okla.
Staff Sgt. Carey Worster, 81st OSS, Keesler AFB, Miss.

WEATHER FORECASTER APPRENTICE COURSE

Tech. Sgt. John Steele, 104th WF, Camp Fretterd, Md. (ANG)
Staff Sgt. Mauricio Duque, 28th OWS, Shaw AFB, S.C.
Staff Sgt. Michael Gahagan, 25th OWS, Davis Monthan AFB, Ariz.
Staff Sgt. Wesley Hale, 120th WF, Buckley AFB, Colo. (ANG)
Staff Sgt. Ken Olney, 202nd WF, Otis ANGB, Mass. (ANG)
Staff Sgt. Bruce Pope, 156th WF, Charlotte, N.C. (ANG)
Staff Sgt. Aiesha Ronje, 125th WF, Tulsa Okla. (ANG)
Staff Sgt. Scott Seeley, 25th OWS, Davis Monthan AFB, Ariz.
Staff Sgt. Shirley Touchi, 199th WF, Wheeler AAF, Hawaii (ANG)
Senior Airman Megan Bohun, 28th OWS, Shaw AFB, S.C.
Senior Airman Thomas Cummings, 113th WF, Hullman ANGB, Terre Haute Ind. (ANG)
Airman 1st Class Eric Baker, 25th OWS, Davis Monthan AFB, Ariz.
Airman 1st Class Amber Barham, USAFE OWS, Sembach AB, Germany
Airman 1st Class James Barham, USAFE OWS, Sembach AB, Germany
Airman 1st Class Jon-Paul Brown, USAFE OWS, Sembach AB, Germany
Airman 1st Class Robert Clayton, 28th OWS, Shaw AFB, S.C.
Airman 1st Class Brandon Crouch, 120th WF, Buckley AFB, Colo. (ANG)
Airman 1st Class Landon Dick, 26th OWS, Barksdale AFB, La.
Airman 1st Class Monica Dick, 26th OWS, Barksdale AFB, La.
Airman 1st Class Stephen Doiron, USAFE OWS, Sembach AB, Germany
Airman 1st Class Jesse Duffy, 25th OWS, Davis Monthan AFB, Ariz.
Airman 1st Class Keith Flanigan, 26th OWS, Barksdale AFB, La.
Airman 1st Class Jason Foote, 15th OWS, Scott AFB, Ill.
Airman 1st Class Jeff Giordano, 28th OWS, Shaw AFB, S.C.
Airman 1st Class James Goddard, 28th OWS, Shaw AFB, S.C.
Airman 1st Class Kimberly Hardage, USAFE OWS, Sembach AB, Germany
Airman 1st Class Jesse Hardt, 28th OWS, Shaw AFB, S.C.
Airman 1st Class Brandon Healy, 26th OWS, Barksdale AFB, La.
Airman 1st Class Richard Holder, 26th OWS, Barksdale AFB, La.
Airman 1st Class Jennifer Jackson, 15th OWS, Scott AFB, Ill.
Airman 1st Class Joeseph Kay, 28th OWS, Shaw AFB, S.C.
Airman 1st Class Kevin Knapp, 25th OWS, Davis Monthan AFB, Ariz.
Airman 1st Class Sumaya Mendez, 25th OWS, Davis Monthan AFB, Ariz.
Airman 1st Class Brandon Meyers, USAFE OWS, Sembach AB, Germany
Airman 1st Class Diana Mitas, 17th OWS, Hickam AFB, Hawaii
Airman 1st Class Stephanie Michael, 26th OWS, Barksdale AFB, La.
Airman 1st Class Rick Olson, USAFE OWS, Sembach AB, Germany
Airman 1st Class Brian Patnode, 28th OWS, Shaw AFB, S.C.
Airman 1st Class Brian Powers, 17th OWS, Hickam AFB, Hawaii
Airman 1st Class Jennifer Quigg, USAFE OWS, Sembach AB, Germany
Airman 1st Class Corey Reimer, 15th OWS, Scott AFB, Ill.
Airman 1st Class Brandon Renko, USAFE OWS, Sembach AB, Germany
Airman 1st Class Robert Royals, 26th OWS, Barksdale AFB, La.
Airman 1st Class Brett Stallings, 28th OWS, Shaw AFB, S.C.
Airman 1st Class Deric VanBree, 25th OWS, Davis Monthan AFB, Ariz.
Airman 1st Class James Warrington, 26th OWS, Barksdale AFB, La.
Airman 1st Class Joshua Wisnewski, USAFE OWS, Sembach AB, Germany
Airman 1st Class Clint Woods, 25th OWS, Davis Monthan AFB, Ariz.
Airman Cassia Bass, 28th OWS, Shaw AFB, S.C.
Airman Scott Christesen, 26th OWS, Barksdale AFB, La.
Airman Monica DeWeese, 15th OWS, Scott AFB, Ill.
Airman Jacob Gannon, 25th OWS, Davis Monthan AFB, Ariz.
Airman Billy Harris, 20th OWS, Yokota AB, Japan
Airman Joshua Hjemvick, 28th OWS, Shaw AFB, S.C.
Airman Levi Houk, USAFE OWS, Sembach AB, Germany
Airman Stacy Hummel, 28th OWS, Shaw AFB, S.C.
Airman Chad Nahinger, 26th OWS, Barksdale AFB, La.
Airman Nicholas O'May, 20th OWS, Yokota AB, Japan
Airman Richard Puckett, 15th OWS, Scott AFB, Ill.
Airman Staci Reebenacker, 28th OWS, Shaw AFB, S.C.
Airman Brooke Silva, USAFE OWS, Sembach AB, Germany
Airman Steven Strength, USAFE OWS, Sembach AB, Germany
Airman Noel Spicknall, 15th OWS, Scott AFB, Ill.
Airman Cuong Sy, 25th OWS, Davis Monthan, Ariz.
Airman Dylan Wolfe, 28th OWS, Shaw AFB, S.C.
Airman Carth Yohn, 25th OWS, Davis Monthan AFB, Ariz.

COMBAT WEATHER TEAM OPERATIONS COURSE

Staff Sgt. Kevin Church, 8th OSS/OSW, Kunsan AB, Korea
Senior Airman Rebecca Church, 607th WS, Yongsan AIN, Korea
Senior Airman Tiffany Mitchell, 607th WS, Yongsan AIN, Korea
Senior Airman William Mitchell, Taegu AB, Korea
Senior Airman Sean Thomas, 352nd SOG, RAF Mildenhall, UK
Airman 1st Class Jonathan Berry, 366th OSS/OSW, Mountain Home AFB, Idaho
Airman 1st Class Adam Doerr, 3rd WS, Fort Hood, Texas
Airman 1st Class Daniel Haskell, 9th OSS, Beale AFB, Calif.
Airman 1st Class Melit Laurry, 46th WS, Eglin AFB, Fla.
Airman 1st Class Blair Subhivah, 3rd WS, Fort Hood, Texas
Airman 1st Class Ebony Walker, Det. 2, 607th WS, Camp Humphries, Korea

CONTINGENCY WARTIME PLANNING COURSE

Maj. Douglas Clark, Air Mobility Command, Scott AFB, Ill

COMBAT LIFE SAVER COURSE

1st Lt. Louis Escamilla, 3rd WS, Fort Hood, Texas
Master Sgt. Joseph Nichols, 3rd WS, Fort Hood, Texas
Staff Sgt. Jennifer Gillen, 3rd WS, Fort Hood, Texas
Senior Airman Luis Matos Ramos, 3rd WS, Fort Hood, Texas

SENIOR NCO ACADEMY

Senior Master Sgt. Randy Nelson, HQ AFWA, Offutt AFB, Neb.

NCO ACADEMY

Tech. Sgt. Cory Brown, Weather Readiness Training Center, Camp Blanding, Fla. (ANG)

AIRMAN LEADERSHIP SCHOOL

Senior Airman Amanda Burrows, HQ AFWA, Offutt AFB, Neb.
Senior Airman Damon Drake, HQ AFWA, Offutt AFB, Neb.
Senior Airman Adam Fisley, HQ AFWA, Offutt AFB, Neb. (Distinguished Graduate)
Senior Airman Cameron Haberlein, HQ AFWA, Offutt AFB, Neb.
Senior Airman Jacob Richmond, HQ AFWA, Offutt AFB, Neb. (Distinguished Graduate)
Senior Airman Guillermo Rosas, HQ AFWA, Offutt AFB, Neb.

SQUADRON OFFICER SCHOOL

Capt. Charles Spicer, HQ AFWA, Offutt AFB, Neb

NTFS MANAGERS COURSE

Staff Sgt. Anthony Danner, 57th OSS/OSW, Nellis AFB, Nev.

7-LEVEL COURSE

Staff Sgt. Mark Hatten, 57th OSS/OSW, Nellis AFB, Nev.

JUMPMASTER QUALIFICATION PME

Staff Sgt. Everett Carson, Det. 5, 10th CWS, Fort Bragg, N.C.
Staff Sgt. Charles Rushing, Det. 5, 10th CWS, Fort Bragg, N.C.

PROMOTIONS

TO MAJOR

Chad E. Gibson, 53rd WRS Hurricane Hunters, Keesler AFB, Miss.

TO MASTER SERGEANT

Amber Martinez, Weather Readiness Training Center, Camp Blanding, Fla. (ANG)

Coins

GENERAL'S COIN

Duane Chilton, 26th OWS, Barksdale AFB, La.
Mike King, 26th OWS, Barksdale AFB, La.
Maj. Chad E. Gibson, 53rd WRS Hurricane Hunters, Keesler AFB, Miss.
1st Lt. Jeff Gipson, 26th OWS, Barksdale AFB, La.
2nd Lt. Jonathen Wilson, 26th OWS, Barksdale AFB, La.
Master Sgt. Don Laframboise, 2nd OSS/OSW, Barksdale AFB, La.
Tech. Sgt. Phuoc Phan, 26th OWS, Barksdale AFB, La.
Staff Sgt. Jessica Moore, 2nd OSS/OSW, Barksdale AFB, La.
Staff Sgt. Barney Roberts, 26th OWS, Barksdale AFB, La.
Senior Airman Tiffany Coutee, 26th OWS, Barksdale AFB, La.
Senior Airman Jewanm McElroy, 2nd OSS/OSW, Barksdale AFB, La

CHIEF'S COIN

Master Sgt. Don Laframboise, 2nd OSS/OSW, Barksdale AFB, La.
Master Sgt. Alton Stiverson, 2nd OSS/OSW, Barksdale AFB, La.
Master Sgt. Cliff Weber, 26th OWS, Barksdale AFB, La.
Tech. Sgt. Vasquez, 26th OWS, Barksdale AFB, La.
Staff Sgt. Peter Medhurst, 26th OWS, Barksdale AFB, La.
Airman 1st Class Micah Denton, 26th OWS, Barksdale AFB, La.
Airman 1st Class Michael Dexter, 26th OWS, Barksdale AFB, La.
Airman 1st Class Laura Fairbanks, 26th OWS, Barksdale AFB, La.

Special Award

2003 SECRETARY OF THE AIR FORCE PUBLIC AFFAIRS DIRECTOR'S EXCELLENCE AWARD

Air Force Weather Agency Public Affairs Office
HQ AFWA, Offutt AFB, Neb.