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Training tomorrow's weather warrior



Observer
The Magazine for the Weather Professional

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The Tuskegee Airmen, an all African American detachment in the Air Corps or Army Air Forces, supported an active flight training program, with minimal and substandard training program of their own. The Tuskegee Weather Detachment was formed March 21, 1942.

Corrections

The Jan/Feb '05 Observer was printed as *Vol. 51 No. 6*, but was actually *Vol. 51 No. 1*. Volume 50 was completed with the Nov/Dec '04 issue.

The XOO-WR and XOO-WX information of the Air Force Weather Organizational chart, Page 9, of the 2005 Almanac was incorrect. See Page 19 for correct reprint.



On the Cover

The cover is a graphic depiction of the tools and equipment; Air Force Weather professionals and their functions; and how through proper training and support they transform with technology to support the Air Force's mission by providing the best quality weather support at the right time, right place.

Photo illustration by Ms. Jodie Grigsby.



First Command makes first impressions

by Chief Master Sgt. Mark Anderson
Air Education and Training Command Weather Chief
Randolph AFB, Texas

Most of us move to a new job with high expectations and initial impressions. Sometimes those expectations are right on the money and sometimes they are not very realistic. This has been my experience the past two years since I've assumed the Weather Chief position here at Air Education and Training Command.

Headquartered at Randolph AFB, Texas, AETC was established July 1, 1993, as a result of the merger of Air Training Command and Air University. As the "First Command," we are the first to touch the lives of every Air Force member, and we all know first impressions are lasting.

My first impression was like that of many others who enlisted as basic trainees into the Air Force and AETC. I got a bad haircut, and later found out I had to pay for it. I thought people at Lackland AFB had hearing problems since they yelled everything. I was relieved to complete my training, and I swore I would never return. But, destiny has a strange way of showing us both sides of the coin, and almost 20 years later I returned to San Antonio. However, now I have a much clearer perspective.

First Command's mission is to recruit, train and educate professional Airmen to sustain the combat capability of America's Air Force. Our Air Force has the largest training program in the free world, managed by AETC.

At the beginning of World War II, Air Training Command trained more than 13 million people. The Command operated more than 600 installations, from 1942 to 1993, compared to only 13 today. In the 1940's, the Command's headquarters was located in Fort Worth, Texas, and at Barksdale AFB, La. The Command later moved to

Scott AFB, Ill., in 1949 and then to Randolph AFB, in 1957.

The training mission is divided into basic military, technical and flying training across two Numbered Air Forces. The first stop for all Air Force, Air National Guard and Reserve Airmen is Basic Military Training at Lackland AFB, Texas. Approximately 36,000 new Airmen completed this intense, six-week program in 2004.

After BMT, these Airmen, and more than 3,000 new officers commissioned through Air University, enter technical training in their career specialties at five principal AETC bases. Second Air Force, at Keesler AFB Miss, is responsible for basic military and technical training, the next stop for a weather Airman.

Nineteenth Air Force at Randolph AFB conducts flight training. Student pilots begin with introductory flight training, then attend Euro-NATO joint jet pilot training or joint specialized undergraduate pilot training. These "white-jet" bases generate 200 to 300 sorties daily, demanding extensive, top-quality weather support.

After the introductory and primary phases, pilots pursue one of several advanced tracks, conducting follow-on training in a litany of aircraft.

With AETC's 13 major bases, 1,850 aircraft, 200,000 people, and task of producing the world's greatest mission-ready Airmen, our weather community is busy. It's amazing to see what our units and people accomplish daily.

I'm thankful I got to return and experience the valuable mission of this command and its people. Yes, you'll find you still have to pay for that first haircut, whether good or bad, and the yelling still continues, but you'll also find that you work with some of the greatest people.

I take my hat off to all the men and women of AETC, and the Air Force Weather community. You impress me everyday.



36,000 recruits graduated from basic military training in 2004. Airman Basic Wendell Rush stands in front of his fellow Airmen prior to Basic Military Training graduation here Oct. 6. Photo by Senior Airman Chad Hackney.

AETC Fast Facts

- ◆ AETC, at Lackland AFB, Texas, has 45,000 people; 10,000 more people than U.S. Air Forces in Europe.
- ◆ The Command owns the most aircraft and flies more than 580,000 hours yearly.
- ◆ AETC ranks second among MAJCOMS in number of bases, wings and people.
- ◆ 71,000 active-duty members, 89,000 dependents, 8,000 reservists, 19,000 civilian and 10,000 contract personnel call AETC home.
- ◆ Owns and operates more than

1,850 aircraft and flies and trains on almost every aircraft in the inventory.

- ◆ Includes two numbered Air Forces, 13 major bases/wings, Air University, Air Force Recruiting Service and multiple units at bases CONUS- and worldwide.
- ◆ AETC's mission begins with AFRS, comprised of four groups, 28 squadrons and 1,400 recruiters. They are located at 1,000 offices across the United States, Europe and the Pacific, recruiting the young Airmen needed to meet the Air Force's diverse demands.

Are you

‘Forecast Ready’?

by Col. Beth McNulty
U.S. Air Force Reserve IMA to Air Force Weather
Agency Commander
Offutt AFB, Neb.

How does a person become a “Forecast Ready” forecaster?

The short answer is: training, training, training.

Forecast Ready forecasters with solid background and knowledge can produce a reasonable weather forecast based on the data available. They can track changes or updates needed as the atmosphere changes. These forecasters are adept at identifying the forecast problem of the day.

Training, self-study and experience are useless until that knowledge is put to work. Many people believe that forecasting is just an application of training. Yes and no. The key is to apply training, through systematic use of the forecast funnel, to identify the daily forecast challenge and then develop a forecast.

Forecaster training consists of basic requirements, learned through formal training in schools; intermediate requirements, gained from experience, online programs, seminars, and forecast reviews; advanced training through self-study and experience; and application.

The basic forecaster requires knowledge of synoptic and dynamic meteorology, atmospheric thermodynamics, and remote sensing platforms. A forecaster needs to know how to develop and read surface and pressure level charts, use vertical soundings, locate areas of instability, lift, and moisture, and determine how these areas will come together to become weather systems.

Soundings graphically display atmospheric thermodynamics and show aspects of vertical and horizontal stability. Remote sensing platforms, whether meteorological satellites or radar, give a near real-time picture of the atmosphere’s response to moisture.

A forecaster reaching the intermediate level of skill and experience adds mesoscale meteorology, climatology, and additional remote sensing tools to their toolkit. The dynamic and thermodynamic principles for mesoscale meteorology are the same as those for the larger scale. A

solid working knowledge of climatology plays a role in developing forecasts. The three most relevant parts of climatology are seasonal, semi-annual, and annual weather patterns; and climate types such as arid, semi-arid, steppe or savanna, maritime or continental. A forecaster uses climatology to anticipate the effects an unusual weather pattern will have. This is especially true in data sparse regions.

A forecaster at the advanced level understands isentropic theory, storm scale dynamics, and anticipates how the radar and meteorological satellite data will evolve over time, ranging from the next half-hour or hour, to several hours or days, based on their knowledge of the environment.

Systematic forecast development employs the forecast funnel to use the available data, eliminate personal biases, anticipate change, and explain the reasoning behind the forecast. A forecaster creates a mental concept of how the weather should develop over the next few hours or days using available data such as observations, soundings, radar, meteorological satellite, and models solutions. This mental image is the first stage in developing a forecast.

Using the forecast funnel ensures consistency with the data, and averts any attempt to force the forecast to fit personal biases. The data will lead the forecaster to the forecast problem of the day. The key here is to let the data guide the forecast, and avoid forcing the data into a predetermined forecast.

A forecaster must anticipate how conditions may change enough to render the present forecast unrepresentative. These potential changes are the forecast challenge. This information allows a forecaster to determine where to focus when monitoring the product. Knowing what elements to monitor allows for updates to the forecast as needed, preferably well ahead of the anticipated change in weather. Finally, forecasters must be able to explain their reasoning.

In Air Force Weather this is usually included on the forecast worksheet. This information is a useful briefing tool, and a good place for the next person to start the forecast process. It covers what, why, how, and when a forecaster expects a weather system to affect the mission, either directly or indirectly.

A systematic forecast process analyzes the challenges and uncertainties inherent in the weather pattern. Therefore, forecasters must ensure all data are reviewed, personal biases removed, and that the final product represents the best forecast at the time it is issued. The forecast funnel allows forecasters to recognize when conditions are verifying the model data, to apply their meteorological training, and to gain valuable experience.

You cannot be a “Forecast Ready” forecaster unless you can apply your knowledge and training to the mission at hand. It takes hard work, training, and independent study, but it’s worth it.

TRAINING VIEWS FROM

by Chief Master Sgt. Jeffrey Fries
Air Force Weather Agency
Offutt AFB, Neb.

This past year was one of the busiest years in the Field Operations Division. We concluded our first round of standardization and evaluation visits to the Operational Weather Squadrons and augmented many standardization and evaluation visits to combat weather teams around the world.

During these visits, we heard comments that it seems the weather functional community has not learned to integrate training into its daily operations. To correct this trend I would like to offer the following points of view to answer the most common myths of AFW training. The first one has lingered for decades.

“Training! We are not manned for that ...” or
“We don’t have the time to train!”

This perspective is really an excuse for not operating efficiently. Actually, the best explanation of this view is that we do not get authorized positions to do training. According to manpower experts, training is an embedded workload accomplished by journeymen and craftsman for the purpose of building and maintaining mission capability. For as long as I can remember, training was accomplished in addition to normal duties.

We have a legacy of developing unwieldy training binders. We stocked the bookshelves of the weather units with volumes of mobility, continuation, and specialty training binders that were normally maintained by an administrative staff. Although well intentioned, these programs and methods of training are administratively demanding. The following are warning signs of an ineffective training program:

1. A unit of 10 to 15 people needs a dedicated training manager to deliver and document a variety of training programs.

STANEVAL

2. Training is considered a luxury, or a chore, and is only done in addition to normal duties.

3. The only means of accomplishing training objectives is by cycling unit technicians through ‘T’ shifts.

4. The unit leadership constantly remind technicians to complete ‘mandatory training.’

5. Technicians are rushed through qualification training to fill holes in a duty schedule.

If your unit falls into all five categories, then significant changes are needed. If it identifies with three or less, this indicates a need to reevaluate leadership objectives.

The second perspective that gets our attention as standards evaluators is:

“I’m just here to do the weather.”

This perspective is interesting when one considers that flying units and Army maneuver units’ primary duties in garrison are to prepare for deployment and operations in an expeditionary environment. By extension, the weather unit assigned or attached to these units should be in the same mode.

However, this is not generally the case. Somehow, technicians are still being sent to forward deployed locations with their host or parent units; or they join a reserve component unit which is engaged in accelerated training at a range, MOA or military training center and we “just do the weather.”

We often find weather technicians huddled off somewhere, only performing support missions. Weather personnel should be performing in an operator’s mindset, and operating with their host or parent units to ensure development of a go-to-war capability. Focusing primarily on “doing the weather” and using all the garrison tools and goodies robs weather



forces of the opportunity to train as we fight and fight as we train. Our findings indicate that some units have not yet integrated fully with their host or parent units, and it’s largely indicative of weather units that have broken the code on integrating training into operations.

According to relevant Air Force instructions and guidance,

“Every day is a training day.”

Units employing this approach understand that training is the building of a capability and that continuous training is the intended method of meeting mission needs and goals.

Air Force Instruction 36-2618 *The Enlisted Force Structure* states that NCOs in charge are charged with the continuous development of the people they supervise and lead. Chapter

Air Force Weather Knowledge Center

by Mr. Ron Pagitt
Air Force Weather Agency
Training Division
Offutt AFB, Neb.

With today’s technological advances, most people are familiar with some form of online learning.

You may have taken courses such as the Information Assurance Awareness Training or Operational Risk Management training online

five of AFMAN 15-129 *Air and Space Weather Operations - Processes and Procedures* explains the specific requirements of the weather community for a “rigorous continuous training program.”

This captures all elements of technical proficiency both in garrison and in an expeditionary environment. Primary emphasis is placed on routinely integrating training into day-to-day operations with minimal concern for that series of binders on the bookshelf gathering dust.

Help is on the way. Recent advances in distance learning software and web-based applications will go a long way in AFW training such as the Air Force Weather Knowledge Center.

The AFWKC is a leading edge program managed by Air Education and Training Command as a technology demonstrator for future Air Force education, training and knowledge management that will be used by every career field.

We’ll see increased emphasis on training, education and force development in the future. I encourage everyone to take a good look at your unit’s training processes and take those first steps towards completely integrating training into operations.

MTR *for* Managers



by Air Force Weather Agency
Training Division Staff Report
Offutt AFB, Neb.

The Air Force Weather Management Training Reference is an interactive Web-based continuity book for AFW managers.

Each subject category was researched and the applicable references have been identified for quick access. The MTR target audience is AFW first-time flight level leaders.

The MAJCOM managers saw the need for a management reference that could fill the gap of knowledge that someone usually acquires after numerous years on the job.

Previously, there were no formal methods for training new AFW managers and leaders at the flight level. Instead, they received their training through experience, and on the job training.

The MTR was developed to reduce the gap in training time by providing new leaders with a training source in advance.

The MTR is a flash-enabled, Web-based interface that links to existing materials on the Web. There are three primary knowledge areas: Weather Doctrine, Process Management and Mission Support, and Resource Management. The user determines the material he or she is looking for and finds the appropriate link to go get the information.

Users can bookmark the website and refer back to the MTR whenever they have questions. The links point to outside references. The links, references, and sources for information will be updated continuously. Users can access the MTR on the AFWA Training web site at: https://wwwmil.offutt.af.mil/afwadnt/Training_Products/Management_UTR/Index.htm

information at your fingertips

and maybe even enrolled in a distance learning university course.

As communication technology advances, the methods for delivering training will also evolve and advance to keep pace. For Air Force Weather, the solution is the Air Force Weather Knowledge Center.

Available worldwide, the AFWKC is much more than just an online library; it is a robust program where any user can download its contents. The AFWKC incorporates Air Education and Training Command’s Electronic Training Record.

The ETR will track a person’s training from when he or she enters the AFW career field to when they

separate or retire. Additionally,

some other features available are online courses, access to transcripts, reference library, and a help and support desk.

The online offerings will offer core weather courses as well as general Air Force knowledge courses, such as Law of Armed Conflict. The training division at AFWA will develop the core weather courses based on demand and the requirements of the career field manager, as well as the Major Commands.

The AFWKC library is a useful tool. You will be able to conduct topic or keyword word searches and find any files or documents that match your search parameters. The support

desk will allow you to open trouble tickets, ask questions, or get assistance with troubleshooting problems you encounter while using the program.

In the future, managers at differing levels will be able to assess the effectiveness of their unit’s training by using online testing functions and reporting; managers will finally be able to answer, “What is the value added of this training?”

As the Air Force continues fighting the War on Terrorism, it is vital that everyone receives the required training, from people at their home stations, to those on the front line.

The AFWKC truly delivers training anytime and any place, and transforms the AFW approach to training while taking it to the next level.

With today's technological advances the Air Force has to take a new look at the way it fights and trains. Because, it's not always easy to get people to sit in a traditional classroom, Air Force Weather has created an innovative program which brings the training to the people called

...

Advanced Distributed Learning

by Mr. Ron Pagitt
Air Force Weather Agency Training Division
Offutt AFB, Neb.

As the saying goes, "People love progress, but hate change." In today's military, one of the only constants is change. Today, forces deploy more frequently and to more locations than before. With more emphasis on force shaping, smaller budgets, and increased reliance on technology, Air Force Weather had to take a new look at the way it designs, develops, conducts, and delivers training the result is known as Advanced Distributed Learning.

We can no longer rely on yesterday's training strategies to satisfy tomorrow's rapidly changing training requirements. As technological advances continue at a rapid pace, the weather forecaster's job skills will become obsolete and they will require a new set of skills to maintain their competitive advantage on the battlefield.

Brig. Gen. Thomas Stickford, Director of Air Force Weather said recently, "It is vital that we use this resource [our people] wisely by ensuring we expertly train our people to exacting standards to meet the mission needs."

According to the 2003 Department of Defense Training Transformation Plan, "... The dramatic transformation of America's strategic environment has had a major impact on our military forces, and demands an equally dramatic transformation in how we prepare the forces for combat and non-combat operations. To transform the total force and meet combatant commanders' needs in this new environment, we need to transform the way we conduct training."

Air Force Weather Agency's Training Division has partnered with Headquarters Air Education and Training Command to develop new ADL capabilities in an effort to ensure AFW forecasters receive the best quality training.

The Air Force uses ADL to describe learning that takes place without requiring the presence of an instructor. ADL training is delivered using a wide variety of technologies.

The two most common are computer-based and web-based training programs. As the Air Force continues to change to meet the Expeditionary Air Force model, AFW is also changing to meet the training challenges of tomorrow.

The training division at AFWA has developed training strategies and systems that are consistent with the Air Force's vision for ADL, which is to leverage technology to provide the right training and education to the warfighter anytime, anywhere.

Leveraging technology:

It is important that technology doesn't drive training solutions, but is used as an enabler in providing training. Advances in technology provide flexibility on how, when, and where training is accessed and provides the tools to measure and track performance.

ADL technology is another method of instruction that complements both traditional training methods and the most recent advances in instructional system design and technology.

The Warfighter

The warfighter is the driving force behind the Air

Force's strategy in developing an ADL capability. It is essential that future training systems have the capability to support the warfighter at home or in a deployed environment. Today's warfighter has to be highly adaptive and often deploys on short notice to support a wide variety of missions.

The ADL program strategies have the capability to rapidly prototype learning solutions and deliver them to forecasters in the field.

Training: anytime, anywhere

In the future, weather forecasters will not structure their work around available training and education classes, but will receive training and take courses anywhere in the world, whether deployed or at home station. In order to meet rapidly changing requirements from combatant commanders, AFW must have the capability to provide efficient and effective training to forecasters anytime, anywhere. The outlook is to deliver more training outside the traditional classroom. The goal is to provide the majority of proficiency and qualification training in the workplace where it is readily available and can be applied in a short period.

ADL can respond quickly and adapt continuously to the changing strategic environment and potential challenges posed by changes in technology. The training division is at the forefront of actively developing the Learning Management System that will be incorporated in the Air Force Weather Knowledge Center. The AFWKC will be an integral part of this enterprise-wide approach for leveraging all Air Force resources and technologies.

As AFW continues to develop new ADL capabilities, it will ensure that the needs of trainees and learning objectives are its primary goals. The training division at AFWA will continue to develop transitional strategies that will ease the migration from traditional training to the new ADL training strategies.

This will be made possible through leaders at all levels, who will play a role in preparing the AFW community for change, as new training solutions and systems are delivered to the field.

COMET

A look beyond laser disc

by Capt. Danielle Lewis
Air Force Weather Training Division
Offutt AFB, Neb.

When an Air Force Weather person is asked about the Cooperative Program for Operational Meteorology, Education, and Training, the most common reaction is to reference the laser discs used throughout the 1990s. These modules were too long and technical to be relevant to Air Force forecasting operations. However, since the late 1990s, and due to force shaping initiatives, the Combat Weather Teams no longer develop training programs for their teams.

Instead, technical advancements have created a shift towards more web-based training, with COMET leading the way with high quality, thorough training materials. In addition, working with the U.S. Navy and AFW, COMET provides modules relevant to all Department of Defense forecasters, making COMET the provider of choice for technical information to the AFW community.

Currently there are more than 40 modules accessible from the COMET Website. Nevertheless, development of new materials is ongoing in order to keep up with AFW requirements and to provide a reliable source of training materials for CWT use. For example, the distance learning course *Mesoscale Meteorology: A Primer for Forecasters* contains the module *Forecasting Dust Storms*, which was used to train some DoD forecasters during Operation Iraqi Freedom. The course also contains *Radiation Fog*, *Mountain Waves*, *Downslope Winds*, and the newly released *Severe Convection II: Mesoscale Convective Systems*, which is a thorough overview of MCSs.

Another training course available from COMET is the *Distance Learning Aviation Course 1*. This course is a ten-module series covering the processes of forecasting fog and stratus. *DLAC 2* is currently in development, and will cover convective systems. As the requirements and technologies change, AFWA's training division will continue to work with COMET and leverage their capabilities to provide relevant training and education for the warfighter.

COMET modules are just one facet of future developments towards modernizing AFW training. With the Air Force Weather Knowledge Center and Advanced Distributed Learning, the training division at AFWA is transforming the training approach and will continue to take it to the next level to support warfighters.

For more information, visit the COMET Website at <http://meted.ucar.edu>.



Senior Airman Nicole Carpenter, 15th Operational Weather Squadron, Scott AFB, Ill, holds the Kestrel 4000 while Senior Airman Lee Shipley, Det. 2, 7th Weather Squadron, Hanau, Germany, records the information on AF Form 3803 Surface Weather Observations, during observation lab of CWTO course. Photos courtesy of 335th TRS.

by 335th Weather Training Flight
Staff Report
Keesler AFB, Miss.

Like the weather, there is one thing certain about the Air Force, it is always evolving. To meet these changing needs, AFW is starting at the root ... the Schoolhouse. In the weather training business, only one thing is sure – change is imminent.

“After spending more than 15 years at the weather schoolhouse, I can testify to that,” said Ms. Vickie Simants, Weather Training Flight, Chief of Training Development.

“Both the school and the career

field have been fortunate in that our training development office is one of the most stable at Keesler AFB,” said Ms. Simants.

According to Ms. Simants, Mr. Lenny Caruso has been at the school for 33 years, Mr. Ed Ring for 19 years, and Mr. Don Jones, a relative newcomer, has been with the unit for three years. “With this stability comes the knowledge, expertise, and caring to develop the best weather training possible,” she said.

There are even more changes on the horizon. The U.S. Marine Corps finalized plans in October 2004 to join the Forecaster Apprentice course.

In order to keep the field informed on how the formal training courses have evolved, the following are some recent changes.

The Craftsman Course

The Craftsman Course was converted to a correspondence course. The in-resident 7-level Craftsman Course was replaced with a career development course. The training focuses on improving weather NCO technical capabilities instead of management skills.

“The course must be related directly to their [craftsman] duties. It should be a course where training is linked to and driven by utilization,” said retired Chief Master Sgt. Ron Mueller, former 7th Weather Squadron Chief Enlisted Advisor.

The new 7-level CDC adds to the material taught in the old Craftsman Course by building on the technical capabilities of weather NCOs.

The CDC was derived from line

items included in the latest 1W0X1/A Career Field Education and Training Plan, dated July 2004. The plan provides advanced training in areas such as radar interpretation, physics, meteorological satellite, convective and non-convective severe weather, and the operational impacts of both solar- and terrestrial-based weather.

“The course will be a challenge for all those involved. This material is not a review. Each volume picks up where previous resident courses and CDCs left off. Prerequisite knowledge in most areas is assumed,” said Senior Master Sgt. Robert Silvernail, primary course author.

Another topic will be operational weather concepts and principles.

“This one contains the impacts of terrestrial and solar weather, Air Force and Army tactics, military decision making, and administration and management topics,” said Tech Sgt Eric Jackson CDC Writer.

“In addition, students will obtain a better understanding of how their particular role affects each echelon of military planning, focusing on Army and Air Force operations,” he said.

Combat Weather Team Operations and Officer Course

The specialty training standard and course training standard was revised to better define the Combat Weather Team Operations course requirements.

“N-TFS is a ‘train as you fight’ system; therefore, operators must be proficient in all aspects of system operations, including former system manager type functions”, said Retired Chief Master Sgt Paul Leidig, former Air Force Weather Career Field Manager and now instructor in the CWTO course.

CWTO students already have the basic knowledge of N-TFS when they arrive from the OWSs; so many basic operations were eliminated, making

room for advanced operations and the new hands-on portion of the course.

“Each student will now receive hands-on experience on set-up, teardown, troubleshooting, product generation, product display, and system configuration of both a garrison N-TFS and a deployable N-TFS,” said Tech. Sgt. Steven Baldinger, former N-TFS System Manager course instructor and the current CWTO course instructor.

In addition to N-TFS changes, the tactical laboratory block of the course was also improved; adding N-TFS colored terrain map backgrounds to enhance the weather graphics. The target acquisition weather software graphics are also being incorporated into the execution and planning briefs.

Weather Officer Space Course

Due to the enormous growth in space-related technology and an increasing knowledge of the space environment, there is an ever-increasing need to understand the space environment and its impacts on Department of Defense operations.

The new space environment block

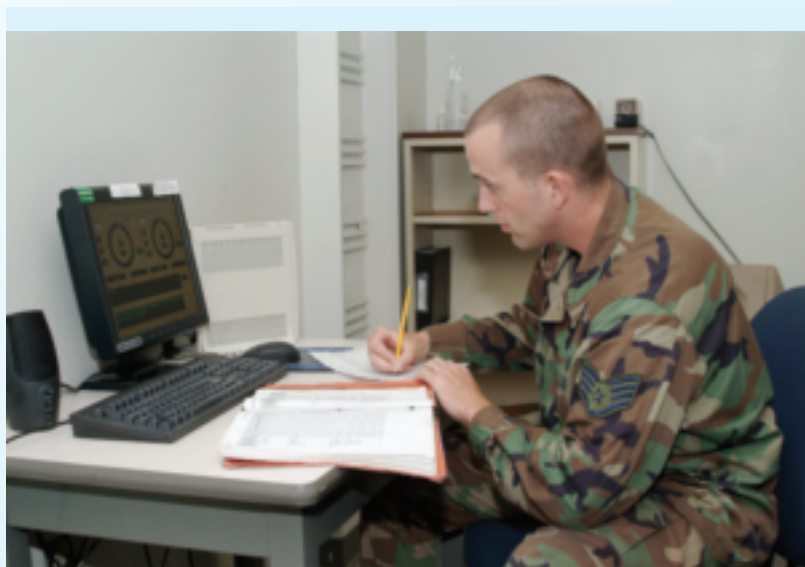
includes information related to space environment products, applying products to operations, and space environmental impacts on DoD and other operations.

According to Mr. Arthur Nelson, Weather Flight space instructor, the DoD’s increased reliance on space exploitation demands that AFW gain a broader knowledge-base of the total aerospace environment.

Mr. Nelson said, because they teach space environmental impacts to all DoD, including how it affects naval operations, they refer to the total aerospace environment as “Sun to Sea.”

“Our weather officers receive training on how the sun and the near-Earth environments can impact national systems. This training, complemented with far more detailed education in the Space Environment Course, ensures Air Force Weather personnel are ready to support evolving DOD space-based missions,” he said.

Further changes can be expected for formal training at the Weather Training Flight as new requirements for the weather career field from all services are implemented.



Staff Sgt. David Simpson, OL-A, 607th Weather Squadron, Seoul AB, Korea takes an observation using the Operator Interface Device of the FMQ-19, Automated Meteorological Station, while attending the Combat Weather Team Course.



Airman 1st Class Jack Cotham (left), Staff Sgt. Charles Andrews and Senior Airman Micki Erdelac, combat weather students in the 335th TRS, assemble a tactical very small aperture terminal. The TVSAT transmits and receives large volumes of weather data via satellite. Photo by Ms. Kemberly Groue.

Weather on the Frontline

Staff Sgt. Sherdean Brisendine, 455th Expeditionary Operations Group forecaster.

When it comes to weather, there are significant differences between briefing pilots of fixed-wing aircraft, like the A-10 and those piloting helicopters, like the CH-47 Chinook and AH-64 Apache. Helicopters travel at much lower altitudes than fixed-wing aircraft, and since the weather can be more turbulent closer to the ground, it can be more challenging.

Infrared, visible, laser and GPS are the four major types of guidance systems for the weapons systems used by the Air Force today, according to Tech. Sgt. Gabriel Lacayo, instructor supervisor for the combat weather team course.

“Weather troops even have the ability to provide inputs to the mission commander during the planning stages on what the best time and angle of attack will be based on each individual target and its sensor,” Sergeant Lacayo noted.

About 30 percent of Air Force weather technicians directly support Army customers.

“The people who are regularly embedded with Army units are able to provide weather information important to that unit’s mission,” she continued.

The weather is vital to the success of Operation Enduring Freedom and the forecasters are aware of their impact.

“I’m very proud to be here at this crucial time,” Sergeant Brisendine said.

by 455th Expeditionary Operations Group Public Affairs and 81st Training Wing Public Affairs Staff Report
Keesler AFB, Miss.

For almost three years, Keesler’s combat weather team operations officer course has given enlisted weather forecasters and weather officers crucial skills to support combat weather team operations worldwide.

“Whatever they’re flying, we’re there, and wherever there’s operational planning, we’re there,” said Senior Master Sgt. Richard Conklin, 335th Training Squadron weather training flight superintendent.

No matter what the season, weather changes quickly in the mountains of Afghanistan. Within 30 minutes, the sky can go from clear blue to dark and stormy, or the wind can pick up drastically, whipping up dust and reducing visibility to nearly zero.

With air and ground forces con-

ducting operations around the clock, many organizations need to know what the weather is, or what it will be in the future.

Airmen who trained at Keesler are making sure those units are armed with accurate information.

Annually, 210 enlisted members and 20 officers take the 12-week course. Enlisted students that come through the course have already passed through Keesler’s 30-week weather apprentice course, while officer students have previously taken the 12-week weather officer course.

Students typically return to the weather schoolhouse for the combat weather team operations course after their first assignment, usually with an operational weather squadron aligned with one of the numbered Air Forces.

Accurate weather prediction is extremely important to mission accomplishment.

“If the crosswinds are too high or the visibility is too low, the weather can cancel a mission,” explained

ANG weather warriors get new training center

by Staff Sgt. Stephen Hudson
Florida National Guard Public Affairs
Camp Blanding, Fla.

The Florida Air National Guard officially opened the new \$4.1 million Weather Readiness Training Center facility during a ceremony here Jan. 21.

The new complex replaces the World War II-era building the Weather Readiness Training Center has been housed in since it opened in 1992. Along with 10,300 square feet of classroom space, the center has nearly 16,000 square feet of dormitory space, 3,550 square feet for the 159th Weather Flight, and 70 acres for field training. Classes began in the new facility Jan. 4.

During the ceremony Brig. Gen. Thomas Stickford, Director of Weather, touted the importance of the new center.

"This is a marvelous facility here at Camp Blanding," General Stickford said.

"The WRTC has filled a niche that we couldn't fill in another fashion. They do an absolutely fantastic job of preparing our weather warriors to go out into harm's way and take care of business."

He said the new facility will "go a long way" to providing a service to warriors who go to the school. Construction on the center began in November 2002 and was completed January 2005.

Each year the center supports more than 200 students and 19 staff members along with the 15 Airmen and officers from the 159th Weather Flight. The students, who are active duty Air Force, Air National Guard, and Navy, are taught hands-on weather forecasting in combat environments. Much of the training includes field exercises.

According to Maj. Loretta Lombard, school commandant, many of the center's graduates have gone on to serve in Operations Noble Eagle, Enduring Freedom, and Iraqi Freedom.

A former student at the WRTC, Tech. Sgt. John Hawkins, was on hand for the ceremony and talked about the training he received at the school. Hawkins said the course proved to be very useful while he was deployed to Afghanistan with a Special Forces Group providing forecasting, weather briefings, and forward observing.

Sergeant Hawkins, a member of the Texas Air National Guard's 181st Weather Flight, said the training he received as a student in 2002 was "crucial" to the work he did overseas.

"Everything I learned here I used in Afghanistan. I felt confident in my capabilities because of what I learned here," he said.

Joint SWO training

Course aims to provide intelligence weather officers with hands-on training to operate in a joint environment.

by Mr. Bill Simcox
304th Military Intelligence Battalion
Ft. Huachuca, Ariz.

A new Joint Intelligence-Combat Training Center was recently opened to provide state of the art training to U.S. Air Force intelligence officers at all levels.

The training will equip intelligence officers with the tools they need to perform successfully in joint, Coalition and inter-agency, and contemporary operating environments.

This new facility opened March 23, 2004.

The U.S. Army Intelligence Center established the JI-CTC to provide realistic, individualized and collective training for intelligence professionals.

Training is tailored to the locations the officers will be assigned to throughout the Joint, and Coalition communities.

Eager to begin training in their new facility, classes 04-001, Military Intelligence Officer Basic Course and 04-503, Staff Weather Officer Course occupied the facility a day before the official opening of the building to conduct the Caspian Sea scenario capstone exercise.

This exercise for the staff weather officers lasted three days and nights. They provide weather support for offensive and stabi-

lization operations.

To add realism to the scenario, an Integrated Meteorological System was placed in each tactical operation center. An IMETS Data Acquisition System was used to ingest data from the Air Force Weather Agency and disperse the data to the four IMETS.

Each TOC had its own standard operating procedures to include Air Force Manuals, checklists, operations order, light data, maps, and appendices. Each TOC also had its own Kestrel mini-observing kit to take observations.

The students operated as if they were supporting their customer at a tactical location, providing three- and five-day weather forecasts, staff briefings, weather effects products and IMETS overlay products.

However, working out of a new facility brought some challenges. It took many hours working with the equipment, assistance from AFWA experts, and the base communication squadron to troubleshoot and connect the data feed equipment.

This effort yielded big dividends as all the IMETS in each TOC location performed flawlessly. The IDAS was also a success.

Another great success was the ability, through the internal LAN, of the ASAS-Light operator to pull weather products directly from the IMETS ... a truly joint system.

Overall, the three-day exercise was a great success, with only minor technical issues that were later resolved.

The experience for the students and the Army intelligence community was a positive one. The students all shared positive reviews. Now the IMETS is a permanent fixture in the TOCs and ready for the next SWO students as they train for their first joint Army, Coalition assignment.

Brig. Gen. Thomas Stickford, Director of Air Force Weather, discusses his vision for Air Force Weather with a group of new Weather Forecaster Apprentice students. Courtesy photo.



General Stickford visits The Schoolhouse

by Mr. Edward Ring
335th Weather Training Flight
Keesler AFB, Miss.

Brig. Gen. Thomas Stickford recently visited the 335th Weather Training Flight at Keesler Air Force Base, Miss. The General, a 27-year veteran, became the Director of Weather in July 2003. He often takes time to visit the various weather functions.

"I am impressed with the entire operation that trains and educates our weather warriors at Keesler. We definitely have professionals serving professionals," said General Stickford.

The General said he is pleased with the outstanding processes the schoolhouse employs as well as the people at Keesler who are instrumental in shaping the future of today's weather professionals.

"It's so very important what they do. The 335th has been entrusted with some of the best and brightest [Airmen] America has to offer. It's critical that we grow this human treasure into the absolute best weather force we can, and I believe that is being done. It is obvious to me that the NCOs, civilians, and officers in the squadron cadre are top-notch and committed to their task. Their product shows it," he said.

One highlight for the students as well as the General was the opportunity to have lunch together.

According to General Stickford, the expression of the students' enthusiasm and desire to get out into the

field and start doing the important work they are being trained to do was infectious.

"This was so gratifying to me knowing that our future is in good hands," the General commented.

"The opportunity for the Chief [Chief Master Sgt. Lee] and I to visit weather functions at Keesler was time well spent. From the schoolhouse to the CWTs [Combat Weather Teams] to the Hurricane Hunters, we saw great things happening.

These great things are happening because the people involved are committed to excellence. They are professionals, who are proud of their Air Force and of their profession ... meteorology," he said.

Farewell Mr. Black

72nd OSS Forecaster retires after 43 years



by 72nd Operational Support Squadron
Staff Report
Tinker AFB, Okla.

It's not often someone appears in your life and makes a profound impact. An impact that leaves a never-ending void in the lives of everyone they've known.

For the 72nd Operational Support Squadron, Tinker AFB, Okla., and the Air Force Weather family this impact was felt Dec. 30 when Mr. Rodger Black, 72nd OSS forecaster, retired after 43 years of combined military and civilian weather service.

"It will be hard for many to forget Mr. Black. His grandfatherly growl resonates through the ears of everyone who called for their flight briefings. While some people may try to forget the initial fear, most people will agree that, similar to a grumpy grandfather, Mr. Black always provided them with the best service," said Master Sgt. Michael J. Maytes, 72nd OSS Combat Weather Team NCO in charge.

Mr. Black's 43-years forecasting experience bestowed upon him a vast array of knowledge and experience that was a valuable contribution to the success of the 72nd OSS and the Air Force.

"There are those who will miss him when they call for flight briefings, those who will be happy not to get a loud "grumpy" Mr. Black, and then there are the wise ones who know when they talked to Mr Black, they always got the best and most reliable forecast.

Growing up in northeastern Ohio, Mr. Black joined the Air Force Sept. 13, 1961. Besides completing tours of duty in Florida and Germany, he spent the majority of his 22 years of active duty assigned to Tinker AFB, travelling extensively as part of a mobile rawinsonde team. They launched balloons into the atmosphere to gather weather data.

Mr. Black was sent on temporary duty to Florida during

the Cuban Missile Crisis. He served six months during the Vietnam War as well as deployments to Thailand, Iran, Brazil, Ethiopia and the Nevada Test Site. In 1984, he retired from the Air Force as a senior master sergeant and made his home in Midwest City, Okla. After Mr. Black's retirement from active duty, he dabbled in other vocations, but soon returned as a civilian at the weather station in 1985.

During his 43 years, he has seen the weather career field transformed from using hand-drawn charts and teletype printers, to computerized graphics and the Internet. He has also experienced the evolution of the Air Force uniforms. The last 10 to 12 years of his career, he saw AFW undergo a total reengineering to the current Operational Weather Squadrons. Now the OWSs issue warnings and watches for bases throughout their region.

Mr. Black has earned his share of awards. He was nominated as one of the 12 Outstanding Civilian Employees at Tinker, AFB in 1999; Air Force Material Command Civilian of the Year in 1997; and he received enough quarterly awards to fill the walls of his home. In 1995, he provided selfless assistance immediately after the bombing of the Murrah Building in Oklahoma City, Okla., which garnered him the Exemplary Civilian Service Medal.

According to Mr. Black, one of his greatest joys is seeing young Airmen he worked with in the past, as they progress through their careers and step into leadership positions as senior noncommissioned officers and officers.

When asked what he'll do with all his free time, Mr. Black paused and said, "After spending years, getting up at 4:30 a.m., I have definitely earned a break by sleeping in."

Mr. Black said that he also looks forward to putting more time into improving and enjoying his golf game.

"I need to find something with better hours to keep me busy ... but, not too busy," he added.

7th WS 'Cadre Focus' training



by 7th Weather Squadron
Staff Report
Germany

The 7th Weather Squadron is moving at lightning speed towards a new training initiative known as Cadre Focus.

Cadre Focus is a premiere, just-in-time combat field skills training course that builds on the training courses currently being conducted at the 335th Weather Training Flight, Keesler AFB, Miss., and 7th Weather Squadron, Fort Huachuca, Ariz.

The Army's combat-tested V Corps Weather Team conducts the training and molds these deploying Airmen from disparate detachment into cohesive, trained and ready combat weather team.

The 7th Weather Squadron is com-

prised of 112 men and women located at detachments throughout Germany and Italy. They provide weather support to U.S. Army Europe. They have been intricately involved in the War on Terror since the early stages of Operation Iraqi Freedom and Operation Enduring Freedom, deploying more than 100 Combat Weather Teams and serving more than 12,000 combat days. Today, they continue to maintain a strong presence in these ongoing campaigns.

This is a substantial commitment for the squadron. Therefore, with this responsibility, it is imperative that all Airmen are trained and ready to deploy.

The 7th WS detachment deployed with their supported Army warfighters during combat operations. In preparation, they participated in exer-

cises with their Army units and received convoy maneuver to contact training; nuclear, biological and chemical warfare training; soldier skills; field skills; combat lifesaver skills; and weapons training.

However, the different services have varying deployment cycles; Army units typically deploy for one year and under the Air Expeditionary Force construct, AFW Teams deploy for 120 days. This often causes training challenges. AFW individuals, who haven't attended pre-deployment ramp-up training with their Army warfighters, would arrive in country to support a warfighter. However, they don't often receive the necessary familiarization training prior to working together.

The 7th WS saw a need to improve mission effectiveness and responded with the implementation of Cadre



Staff Sgt. Richard Wilson, U.S. Army V Corps Chemical Detachment, teaches the proper wear of the Ground Crew Ensemble to a student. Photos courtesy of 7th WS.



Cadre attendees learn map reading techniques.

Focus training. The purpose of this training is to ensure people are tactically and technically prepared prior to a deployment. Designed to be realistic, students are deployed to a 3,000-acre training area for five days where they attend classes, eat Meals Ready to Eat and sleep in tents. Students arrive from various locations throughout Germany and Italy, to attend the five-day training. The training includes instructions on maintaining vehicles and generators. They are also trained on conducting simulated combat convoys.

“Convoy operations have been identified among the most dangerous activities in a combat zone; therefore, training in this area is crucial,” said Maj. Paul Roelle, Det. 11, 7th WS commander.

They are taught convoy procedures, entering and exiting vehicles and recognizing hazards. Finally, instructors organize mock ambush points and the class is given a route map and left to conduct their own convoy. They have to maneuver through mock AK-47s, RPGs and Rocket Launchers, simulated mines and live fire at the convoys, as well as setup diversions, he explained.

Students are given feedback on their performances. Additionally, students are issued practice M-16s so that they can gain an appreciation for maintaining accountability for their weapons. They also get real M-16s to

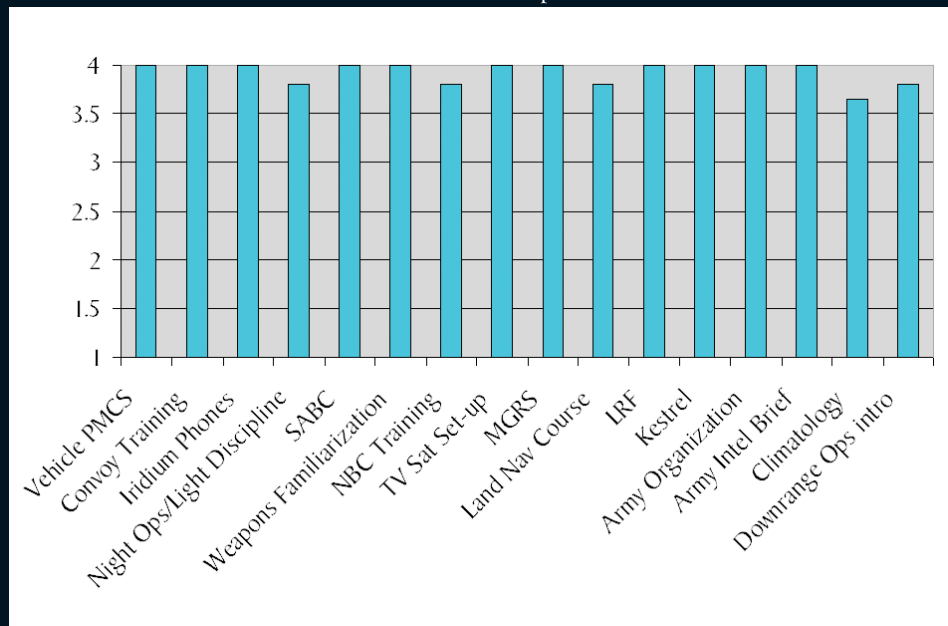
practice cleaning, disassembling and reassembling at a level above and beyond what they receive at normal range training.

Another aspect of the training includes administrative functions. Feedback from the initial course indicated that students returning from deployments indicated that they did not understand how the command and control functions were structured during their deployment. In response, a briefing for deploying officers and

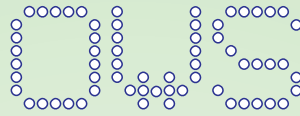
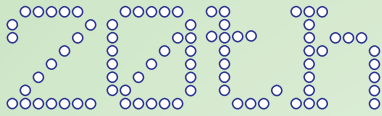
NCOs on unique deployment awards and decorations procedures was added to the course.

Generally, the students arrive for this course with limited Army soldiering skills and minimal tactical meteorological experience.

However, through the joint effort of expert Army and Air Force instructors, Cadre Focus transforms them into a team prepared and ready, tactically and technically, for whenever they are called upon.



The chart above depicts a cumulative score of the students' satisfaction rating of the various courses based on surveys taken upon completion of each course. The rating is based on a scale of one to four, with four being the best.



Unit training program prepares AFW future leaders

by Maj. Randall Bartlett
20th Operational Weather Squadron
Yokota AB, Japan

For new weather officers there are numerous training requirements needed to develop and progress through their careers. The first step to develop them from the novice to expert level begins with their initial assignment to an operational weather squadron.

The 20th Operational Weather Squadron, Yokota AB Japan, has tailored and fine-tuned a set of training processes, which will allow new accession weather officers to master all required tasks successfully.

The 20th OWS's Master Training Outline for officers incorporates outlines used for both initial skills course trainees and experienced forecaster outlines. The primary elements of our MTO are as follows:

Orientation and familiarization

All newly assigned personnel are familiarized with the key functions, mission and leadership aspects of the unit.

Assessments

After the familiarization process, everyone receives a battery of assessment tests to include general forecasting, upper air and surface analysis, Radar and METSAT. Based on the results of these assessments, the unit creates an individualized training plan for each new officer or experienced enlisted forecaster. The 3-level trainees also complete initial assessments; how-

ever, their training plan is more structured.

Proficiency Training

There's an extensive videotape library of teaching lectures, more than 40 hours worth, on meteorological subjects that are complimented by written examinations. This is a valuable resource, which is used to reinforce difficult meteorological concepts for newly assigned officers, as well as a refresher course for experienced forecasters.

METSAT training and certification

Hands-on training and technical information is provided, followed by knowledge and performance checks.

Operation floor simulation lab

This portion of training provides real-time training experience. They use equipment and procedures similar to those used on the operations floor.

Trainees demonstrate and explain meteorological reasoning throughout the production of all forecast products. This complements the knowledge most officers already have from attending the weather officer course.

Radar training and certification

Based on the initial assessment scores, the training is tailored to fill any needed knowledge areas. A comprehensive OPUP and master station control function overview are provided as well as individualized hands-on instruction on the training system. We then provide a thorough knowledge and performance check, providing positional certification on operating and using radar.

Certification on the Operations floor

This is the last part of the formal training process, where the officer trainees complete the positional qualification at the TAF Cell position.

After an officer trainee gains some experience working the different TAF Cell positions, they begin training in one of the more advanced positions, such as the Analysis or Briefing Cells.

There are currently ten operational chairs per shift at the 20th OWS: five TAF Cell positions (three in Korea, two in Japan), two Hazard Cell positions, one position each for Analysis and Flight Weather Briefings, and a Lead Meteorologist position that coordinates and oversees the operations floor.

The Analysis Cell is at the top of the forecast funnel, with the Briefing Cell and the Hazard Cells farther down, and the TAF Cells at the bottom. The lead meteorologist's responsibility is to ensure that all products and information that leave the floor are timely, accurate, and consistent with all other products. Therefore, new officers receive guidance on the skills they need to master positional certification in the five TAF Cells successfully.

As an additional training resource, new officers are encouraged to consider enrolling in the 1W051 Career Development Course. The CDC forecasting information supplements their previous meteorological training and melds with their understanding and mastery of the initial TAF Cell positional qualification.

In addition to the technical training, each officer receives professional development training. Monthly professional development seminars highlight topics such as professional relationships, enlisted promotions, the assignment system, and the Air Force Institute of Technology educational opportunities.

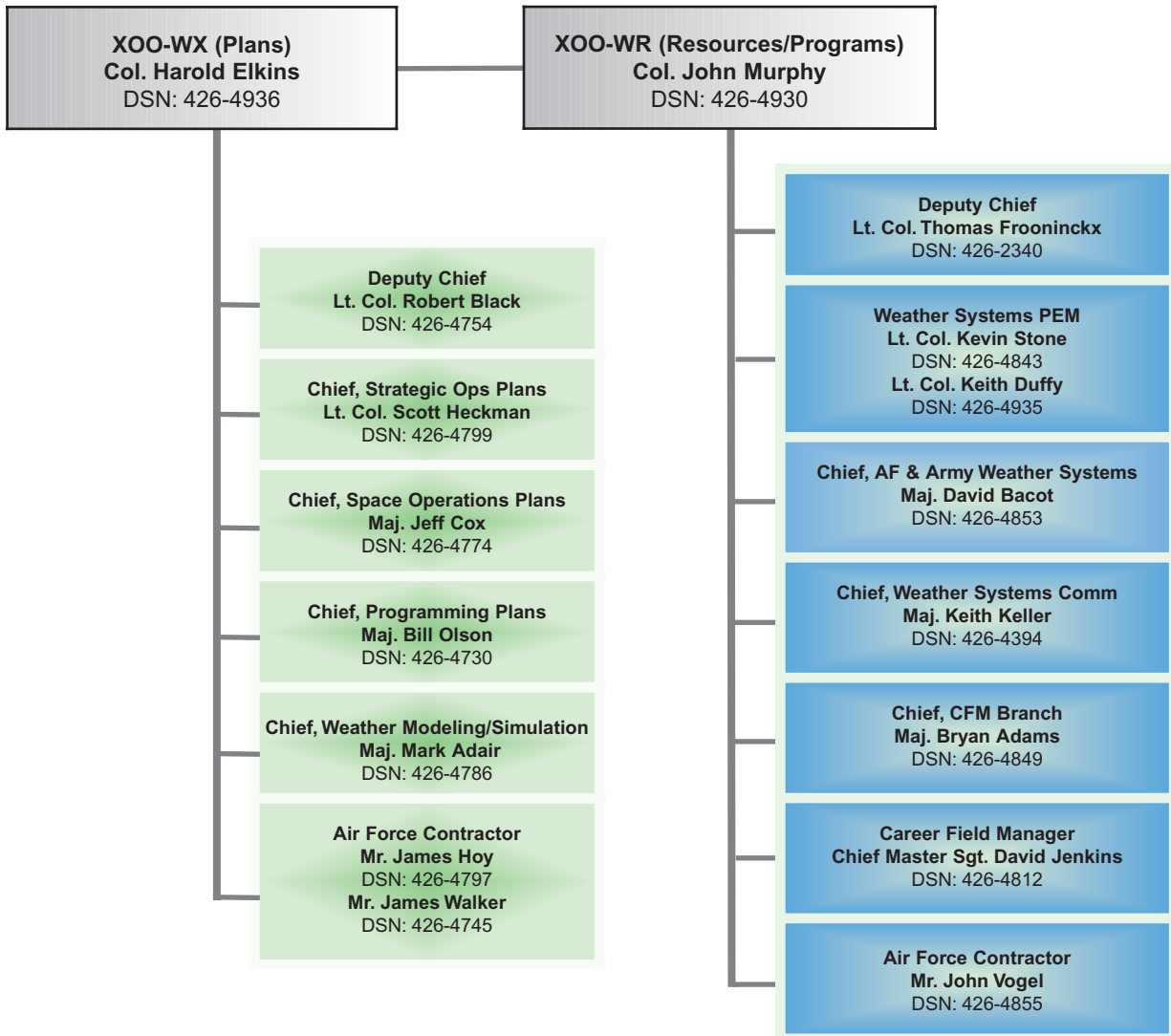
The 20th OWS focus on officer-ship and professional mentoring, combined with an intensive meteorological technical training, provides a solid foundation upon which to build. It provides future AFW leaders the skills they need to succeed.



Master Sgt. (retired) Danny Howard Smith died Jan. 26, 2005 in Mesa, Ariz., at age 47.

He retired from the U.S. Air Force in 2003, after 25 years of service. He is survived by his wife, Gemma; son, Scott; daughter, Alani; parents, Norman and June; and sisters, Donna and Elizabeth.

Donations can be mailed to:
The Smith Children Education Fund
 P.O. Box 433
 Chandler, AZ 85224-0433



Editor's Note
 The XOO-WR and XOO-WX information of the Air Force Weather Organizational chart, Page 9, of the 2005 Almanac was incorrect. This reprint reflects the correct information.

NPOESS:

Editor's Note: This article is the 2nd in a series on the National Polar-orbiting Operational Environmental Satellite System. The article reviews how NPOESS supports global military operations. Article is reprinted with permission from the Earth Observing Magazine.

Weather Warriors

Five days prior to the ground invasion of Iraq, Grey Beret Sergeant Charles Rushing crept under the cloak of darkness to Bubiyan Island, just off the Iraqi coastline. His mission was to study fog and surf trends along the shore in preparation for a nighttime helicopter raid and amphibious landing by U.S. and British Special Forces. His weather intelligence would provide critical information to helicopter pilots to navigate hazardous conditions on the night of the raid.

As U.S. and British Special Forces set out for the fog-enshrouded Iraqi coastline by air and sea, the U.S. Army's Third Infantry Division's combat weather team assembled at the northern Kuwaiti border with Iraq. They were tasked to produce weather analyses for mission-specific locations and to provide a near continuous stream of weather intelligence from inside Iraq.

Sandstorms and Snow

The ground war commenced on March 20, 2003, and the Third Infantry Division began its furious race through the desert toward Baghdad. As a front swept east across the Mediterranean, forecasters warned to prepare for "the mother of all fronts."

The largest sandstorm to hit southern Iraq in decades engulfed a 300-mile-wide area and blasted tremendous walls of dust into the atmosphere.



Meanwhile, the Saddam Fedayeen used the cover of the blinding storm to attack the stalled Army convoys. The same system that blinded troops in southern Iraq created a different set of weather challenges for operations in northern Iraq. Sleet, snow, and heavy cloud cover over Bashur Airfield jeopardized a large and daring combat jump.

The Critical Nature of Weather Information

In Iraq, as in other military operations, weather can be either friend or foe. Ground observations can provide important "weather intelligence" about a particular area, however they come with inherent risks for military personnel. Space-based Earth observing systems also provide critical information, and usually with minimal risk.

In the 21st Century, weather satellite systems will have higher spatial and temporal resolution for improved support of military operations. The foundation of that support will come from the National Polar-orbiting Operational Environmental Satellite System.

Satellites provide an unprecedented and unique source of information for military operations. From support of ground troops to weapons deployment and the need to make rapid tactical decisions, Earth observation data is invaluable to our nation's global military mission. Polar orbiting and geostationary satellites both play an important role, particularly in combat situations.

According to Retired Brig. Gen. David L. Johnson, the Air Force Director of Weather from 2000 to 2003, input from the Combat Weather Team is a vital part of the mission planning process.

"In the first three months of [the war on terrorism]," Johnson said, "15 percent of the targets ... and 30 percent of the weapons were changed as a result of what the weatherman said," he said.

Weather Satellites and Warfare

Shortly after the launch of the first civilian weather satellite in April 1960 (TIROS I - Television Infrared Observation Satellite) the Department of Defense recognized the utility of earth imaging from space for military support. Beginning in 1962, low-Earth orbit weather satellites were launched to fly in front

Supporting Global Military Operations

by Mr. Dave Jones
Mr. Craig Nelson
and Lt. Col. Mike Bonadonna



(Center) At sea aboard USS Kitty Hawk 9CV 63, May Class Kieth Phillips, San Antonio, Texas, prepares to a height of 20,000 feet and provide important weather data will significantly increase the frequency and density of millions of weather balloons. Kitty Hawk is the Navy's and is homeported in Yokosuka, Japan. (Below left) uses a combination of infrared data with a special visible streak shows a vigorous aurora over Norway and Sweden. Photo by U.S. Navy Mate Air Lindsay Mintum.



spectral features on MODIS are paving the way for VIIRS. The Air Force Weather Agency and the U.S. Naval Research Laboratory in

of imaging reconnaissance satellites to identify cloud-free areas of interest suitable for photography. These early operational weather satellites were later publicly identified as the Defense Meteorological Satellite Program.

Imagery: A Picture is Worth a Thousand Words

History has shown that when users of satellite information work together with researchers to define the next generation of sensors, significant improvements arise and all benefit. The best characteristics of current images used on DMSP and POES satellites are being combined in the development of the Visible/Infrared Imager Radiometer Suite that will fly on the NPOESS Preparatory Project in 2006 and on NPOESS beginning in 2009.

The VIIRS imager will detect atmospheric particles with much higher precision and clarity than is currently available to prepare those on the ground, over the sea, and in the air, for rapidly changing environmental conditions.

The 22-channel (visible to long-wave IR) VIIRS will fly on NPP and on all NPOESS platforms to provide complete global coverage in one day at horizontal spatial resolutions of 370 meters (for cloud imagery) and 740 meters (for other products) at nadir. VIIRS will carry forward the capability to image at a near constant horizontal resolution across its 3,000 kilometer swath.

This is a significant improvement over current instruments. The near-constant, high resolution is important because data at the edge of scan from real-time imagery may be the only information available for military field units in a specific area.

VIIRS will also retain the DMSP capability of constant illumination across the day/night terminator and will be able to image from full nighttime conditions on one side of the Earth to the other side.

Current military users of the multi-

Monterey, Calif., are using real-time multi-spectral images from MODIS to monitor and predict dust storms in the Middle East and Southwest Asia. These often violent storms interfere with troop and equipment movement, air operations, and weapons targeting. The multi-spectral techniques are also being used to support a variety of operational forces in battlefield situations. Additionally, the military has access to near real-time imagery from other sectors of the world where environmental factors could impact operations.

Phenomena on the Earth's surface can also be imaged in the microwave portion of the electromagnetic spectrum. Although providing lower spatial resolution pictures, microwave images have a distinct advantage because they can penetrate clouds and adverse weather conditions.

The passive microwave imager on NPOESS, the Conical-scanning Microwave Imager/Sounder, will provide a significant breakthrough for the Navy and for other operational units by imaging both wind speed and direction over open water. The CMIS instrument improves quality of measurements over what is currently available and will fly in each of the three NPOESS orbits.

Weather Forecasting for Military Operations

Sounding data such as atmospheric vertical temperature and moisture profiles, from POES and DMSP currently comprise approximately 90 percent of all the data assimilated into global numerical weather prediction models run at the Navy's Fleet Numerical Meteorology and Oceanography Center and at NOAA's National Centers for Environmental Prediction.

The advanced sounders on NPOESS are expected to lead to significant improvements in numerical weather prediction in the next decade, which is the key to providing critical environmental information to planners and long-range missions.

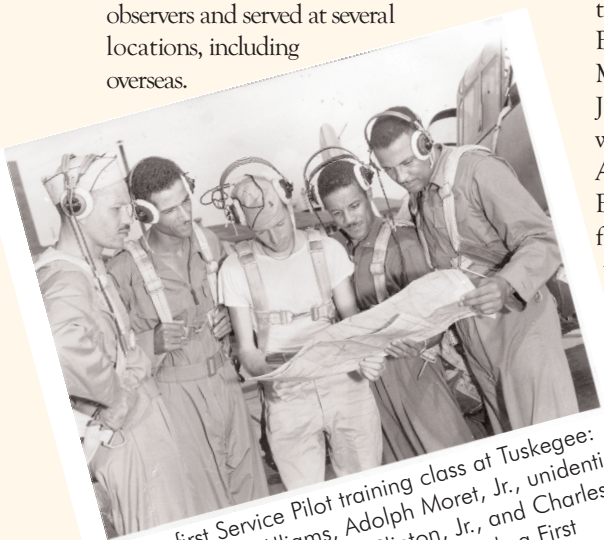
July 27, 2002. (Above right) Aerographer's Mate 3rd launch a weather balloon. Weather balloons rise to gather data for the Kitty Hawk battle group. NPOESS provides a variety of atmospheric measurements similar to having only permanently forward deployed aircraft carrier. This Defense Meteorological Satellite Program image shows a visual sensor that can see lights at night. The yellow balloon was launched on Oct. 30, 2003.

TUSKEGEE WEATHER pioneers

by Mr. Jerry White
HQ Air Force Reserve Command
History Office
Warner Robins AFB, Ga.

Breaking new ground was a regular event at Tuskegee Army Air Field, Ala. during World War II. However, today many of these accomplishments are still virtually unknown. One of these almost unknown events was the creation of an all African-American weather detachment to support an active flight training program. Unlike other bases where an experienced weather officer or non-commissioned officer from one of the Army Air Force's most technically demanding specialties was available to build a base weather station staff around, Tuskegee started from scratch.

There were no African-Americans in the Air Corps or Army Air Forces prior to 1941, including the weather service. Also, there were no African-American forecasters or observers in the Weather Bureau, at least none who were commissioned or enlisted for wartime service. From this barren start, by 1944 at least 15 officers and approximately 40 enlisted men were trained as forecasters and observers and served at several locations, including overseas.



AAF's first Service Pilot training class at Tuskegee: (L-R) Archie Williams, Adolph Moret, Jr., unidentified instructor, James O. Plinton, Jr., and Charles Stephens. Archie Williams was already a First Lieutenant when the course was conducted. The other three were cadets who were then appointed flying officers after graduation on Nov. 29, 1944.

The Tuskegee Weather Detachment was formed on March 21, 1942. They were originally organized as part of the Tuskegee Army Flying School, Tuskegee Institute, Ala. Detachment personnel received technical supervision and guidance from the 4th Weather Region at Maxwell Field, Ala., and, after April 1943, the Weather Wing at Asheville, N.C. On March 17, 1944, they were placed directly under the 4th Weather Region, which had moved to Atlanta, Georgia. September 1944, the detachment was redesignated the 67th Army Air Force Base Unit. Planning for this started a year earlier on March 22, 1941 when the 99th Pursuit (later Fighter) Squadron was formed at Chanute Field, Ill.

Although pilots from the Tuskegee flight-training program were not yet trained, the 99th was organized to create an enlisted cadre for technical training. It was manned by a mix of African-American Regular Army troops of the 24th and 25th Infantry Regiments and enlistees, many with college experience or diplomas.

In addition to training enlisted men in a wide range of mechanical skills and other specialties needed for an operational combat squadron, at least five men trained as weather observers: John B. Branche, Victor O. Campbell, Walter E. Moore, Paul V. Freeman and James G. Johnson. All five original weather cadres were later commissioned through the AAF Officer Candidate School at Miami Beach, Fla. These individuals were the first of 40 enlisted men who served in the weather detachment during the war.

According to historical records, only 15 African-American weather officers were trained during WWII. This low number reflects the segregated nature of the AAF during that time. The first African-American cadet was Wallace P. Reed, who entered the second meteorological aviation cadet class at the Massachusetts Institute of Technology on July 1, 1941. After a three week orientation at Mitchell Field on Long Island, N.Y., he was assigned as the

Tuskegee station weather officer. He replaced the two white officers who had been detailed to open the station but apparently never actually worked at Tuskegee. He held that position until the end of the war.

More African-American weather officers arrived at Tuskegee in December 1942. These officers were soon assigned to flying squadrons that later deployed to the Mediterranean as part of the 332nd Fighter Group. In addition to Tuskegee, African-American weather officers served with segregated units during the war at Selfridge and Oscoda Fields in Mich.; Walterboro, S.C.; Freeman Field, Ind.; and Godman Field, Ky.

Lieutenants John Willis and Horace King were among the weather officers assigned to the 477th Bombardment Group, another segregated unit training at various times at Selfridge Field, Freeman Field and finally Godman Field.

After Tuskegee flight operations ended in 1946, most African-American personnel who stayed in the AAF were sent to Lockbourne Field (now Rickenbacker Air National Guard Base) near Columbus, Ohio. Weather personnel started receiving new assignments after President Harry S. Truman signed an executive order, which established the President's Committee on Equality of Treatment and Opportunity in the Armed Services. This started the process of desegregating the military. The 332nd Fighter Wing, the Air Force's only segregated operational unit, was inactivated in 1949.

The Tuskegee weathermen's success was reflective of a tradition of service. Their performance matched the professionalism for which the Buffalo Soldiers of the pre-war 9th and 10th Cavalry Regiments and 24th and 25th Infantry Regiments were famous. This legacy, combined with the technical and academic expertise needed to succeed in one of the Army Air Forces most technically advanced skills, resulted in a record of achievement and laid the groundwork for future gains.

A part of history

Archie Williams ... an AFW hero, a U.S. Olympian

by Mr. Jerry White
HQ Air Force Reserve Command
History Office
Warner Robins AFB, Ga.

Archie Williams, 1936 Olympic Gold Medal winner was later Archie Williams, Air Force Weather officer and pilot. With a need for thousands of weather officers in the expanding Army Air Forces in World War II, a Meteorology Aviation Cadet program trained more than 5,600 weather officers by the last graduating class in mid-1944.

This program took only the best and brightest young men and, in nine months, provided nearly the equivalent of a graduate degree in meteorology.

While the pressure to perform was intense, one 1943 cadet had already succeeded in the demands of appearing on the world stage.

Archie F. Williams was one of the legendary African-American track stars whose decisive victories at the 1936 Berlin Olympics publicly demolished Hitler's propaganda of Aryan supremacy.

Growing up in Oakland, Calif., he initially started college at San Mateo Community College, south of San Francisco. After one year, in the fall of 1935, he transferred to the University of California at Berkeley for the mechanical engineering program.

Coming under the tutelage of Cal's legendary track coach, Brutus Hamilton, he gained notice in the spring of 1936 at the Long Beach Relays and Pacific Coast Conference track championship. He then went to the NCAA track meet in Chicago and earned an invitation to the Olympic trials after setting an NCAA record of 46.1 seconds in the 400 meter sprint.

Winning at the Olympic finals in New York City, he traveled to Germany with Jesse Owens and the rest of the Olympic track team where he earned his gold medal in the 400 meter dash. Archie's track career was cut short in 1937 after tearing a hamstring muscle.

An early aviation enthusiast, he completed the Civilian Pilot Training program after graduating from Berkeley in 1939.

He was one of 91 African-Americans to earn their private pilot license in CPT's first year. He worked for an airport flying service at Oakland Airport, Calif., building up his flying time and earning a flight instructor license.

In August 1941, Capt. Williams moved to Tuskegee, Ala., and worked as a civilian flight instructor for the Tuskegee Army Flying School, teaching both CPT students and some of



Lt. Col. Archie Williams as a weather officer with the 20th Weather Squadron at Tokyo Japan, fall 1950.

the first Tuskegee pilot candidates. Not eligible for military flight training, but having earned an engineering degree, he was offered the Meteorology Aviation Cadet program. He graduated from the UCLA program and was commissioned on Sept. 6, 1943.

Returning to Tuskegee, virtually the only base available for black AAF officers at that time, now 2nd Lieutenant Williams first worked in the base weather station as a forecaster and briefing officer. He was able to get into a flying instructor course in September 1944 and was one of the first four Tuskegee-trained service pilots. He then transferred to the Basic Flight Instruction course and taught both instrument flying and weather classes to cadets at Tuskegee.

Archie Williams remained in Air Weather Service the rest of his career, as weather officers who were also rated pilots were almost always in short supply. As a forecaster with the 20th Weather Squadron in Japan during the Korean War, he managed to log four B-29 combat missions over North Korea.

He retired at March AFB, Calif., on May 31, 1964 as a lieutenant colonel and command pilot. Before retiring, he completed his teaching certification. After teaching for one year in Riverside, he moved to Marin County, California, where he taught math and physical science at Sir Francis Drake High School for 20 years.

Lt. Col. Archie F. Williams died June 23, 1993, leaving his widow, Vesta Williams and two sons, Carlos and Archie, Jr.

Fast Facts

◆ John B. Branche graduated from Cornell's Medical School in 1953 and trained as a pediatrician.

◆ Benjamin Bullock graduated from Western Reserve University in 1950 with a degree in dentistry.

◆ On Sept. 1, 1980, Col. James O. Ivory, a 1961 Tuskegee Institute graduate with a degree in chemistry, became the first African-American weather officer promoted to the grade of colonel.

He had already made history as the first African-American weather officer to command a squadron, the 25th Weather Squadron at Bergstrom AFB, Texas, in 1979. After being promoted to colonel, he was also the first to command a weather wing, the 2nd Weather Wing, Wiesbaden Germany, from June 1983 to June 1985.

Salutes

RETIREMENTS

Lt. Col. Randall Skov, 2nd WF, Fort McPherson, Ga.
Capt. Charles West, 53rd WRS, Keesler AFB, Miss.
Master Sgt. James Farmer, 45th WS, Patrick AFB, Fla.
Master Sgt. Karl Kleinbeck, AFCWC, Camp Blanding, Fla.
Master Sgt. John Sanchez, 1st WS, Fort Lewis, Wash.
Master Sgt. Terry Tinter, 45th WS, Patrick AFB, Fla.

AWARDS AND DECORATIONS

HQ AIR FORCE AIRMAN OF THE YEAR

Senior Airman Jay Sablan, HQ AFWA, Offutt AFB, Neb.

BRONZE STAR

Lt. Col. Peter Clement, 18th WS, Fort Bragg, N.C.

DEFENSE MERITORIOUS SERVICE MEDAL

Lt. Col. Thomas Moore, 28th OWS, Shaw AFB, S.C.
Lt. Col. Randall Skov, 2nd WF, Fort McPherson, Ga.
Maj. Keith Komar, 1st WS, Fort Lewis, Wash.
Chief Master Sgt. Dale Roth Jr., HQ AMC/A36W, Scott AFB, Ill.
Senior Master Sgt. Raymond Moore, 28th OWS, Shaw AFB, S.C.
Senior Master Sgt. Joel Rzepecki, 28th OWS, Shaw AFB, S.C.
Master Sgt. Philip Borneman, 18th WS, Fort Bragg, N.C.
Master Sgt. James Farmer, 45th WS, Patrick AFB, Fla.
Master Sgt. Lawrence McCoy, Jr., HQ AMC/A36W, Scott AFB, Ill.
Master Sgt. Bobby Rains, 28th OWS, Shaw AFB, S.C.
Master Sgt. John Sanchez, 1st WS, Fort Lewis, Wash.
Master Sgt. Terry Tinter, 45th WS, Patrick AFB, Fla.

AIR FORCE COMMENDATION MEDAL

Capt. Stephen Davis, 28th OWS, Shaw AFB, S.C.
Capt. Richard Shull, Jr., 28th OWS, Shaw AFB, S.C.
Senior Master Sgt. David Jenkins, 18th WS, Fort Bragg, N.C.
Tech. Sgt. Tamiko Black, 45th WS, Patrick AFB, Fla.
Tech. Sgt. Timothy Harrell, 28th OWS, Shaw AFB, S.C.
Staff Sgt. Braulia Mora, 18th WS, Fort Bragg, N.C.

ARMY COMMENDATION MEDAL

Capt. Andrew Geyer, 18th WS, Fort Bragg, N.C.

Capt. Brian Powers, 18th WS, Fort Bragg, N.C.
2nd Lt. Shawn Hannah, 1st WS, Fort Lewis, Wash.
Tech. Sgt. Jason Colon, 18th WS, Fort Bragg, N.C.
Tech. Sgt. Greg Healy, 1st WS, Fort Lewis, Wash.
Tech. Sgt. Shane Wagner, 18th WS, Fort Bragg, N.C.
Staff Sgt. Jason Dobbins, 1st WS, Fort Lewis, Wash.
Staff Sgt. Maricia McLennon, 1st WS, Fort Lewis, Wash.
Staff Sgt. Victor Renderos, 1st WS, Fort Lewis, Wash.
Staff Sgt. Dawn Ross, 1st WS, Fort Lewis, Wash.
Staff Sgt. Mark Sterling, 18th WS, Fort Bragg, N.C.
Staff Sgt. Daniel Sullivan, 28th OWS, Shaw AFB, S.C.
Staff Sgt. Daniel Vanmeter, 18th WS, Fort Bragg, N.C.

AIR FORCE ACHIEVEMENT MEDAL

Capt. Justin Palmer, 18th WS, Fort Bragg, N.C.
Staff Sgt. Janel Heidebrink-Uiterwyk, 45th WS, Patrick AFB, Fla.
Senior Airman Andrew Haight, 28th OWS, Shaw AFB, S.C.

ARMY ACHIEVEMENT MEDAL

2nd Lt. Shawn Hannah, 1st WS, Fort Lewis, Wash.

MILITARY OUTSTANDING VOLUNTEER SERVICE MEDAL

Senior Master Sgt. Rudy Tingelhoff, 28th OWS, Shaw AFB, S.C.
Senior Airman William Spearman, 28th OWS, Shaw AFB, S.C.

JOINT SERVICE COMMENDATION MEDAL

Senior Master Sgt. Donovan Williams, 2nd WF, Fort McPherson, Ga.

Education

WEATHER OFFICER'S COURSE

1st Lt. Todd Burch, 28th OWS, Shaw AFB, S.C.
1st Lt. Mark Cuthbert, 19th ASOS, Fort Campbell, Ky.
1st Lt. Rene Jursik, Czech Republic
1st Lt. Chad Raynak, USAF OWS, Sembach AB, Germany
2nd Lt. Michelle Bishop, USAF OWS, Sembach AB, Germany
2nd Lt. Rebecca Bisette, 11th OWS, Elmendorf AB, Alaska
2nd Lt. Kevin Blumberg, 28th OWS, Shaw AFB, S.C.
2nd Lt. Kenneth Chilcoat, 26th OWS, Barksdale AFB, La.
2nd Lt. Adam Dea, 15th OWS, Scott AFB, Ill.
2nd Lt. Hasa Petrit, 15th OWS, Scott AFB, Ill.
2nd Lt. Petrit Hasa, 15th OWS, Scott AFB, Ill.

2nd Lt. Janelle Holt, 20th OWS, Yokota AB, Japan
2nd Lt. Daniel Hussey, 28th OWS, Shaw AFB, S.C.
2nd Lt. Brian Koenke, 28th OWS, Shaw AFB, S.C.
2nd Lt. Alexandra Leaman, 4th OSS, Seymour-Johnson AFB, N.C.
2nd Lt. Chandra LeCompte, USAF OWS, Sembach AB, Germany
2nd Lt. Jennifer Lipscomb, 28th OWS, Shaw AFB, S.C.
2nd Lt. Richard Monson, 26th OWS, Barksdale AFB, La.
2nd Lt. Clint Montgomery, 28th OWS, Shaw AFB, S.C.
2nd Lt. Michael Morgan, 25th OWS, Davis-Monthan AFB, Ariz.
2nd Lt. Douglas Oltmer, 26th OWS, Barksdale AFB, La.
2nd Lt. Michael Ottenweller, 11th OWS, Elmendorf AFB, Alaska
2nd Lt. Hsien Liang Tseng, USAF OWS, Sembach AB, Germany
2nd Lt. Dustin Prockish, 15th OWS, Scott AFB, Ill.
2nd Lt. Shane Rueber, 17th OWS, Hickam AFB, Hawaii
2nd Lt. Timothy Villaran, 25th OWS, Davis-Monthan AFB, Ariz.
2nd Lt. Sean Wile, USAF OWS, Sembach AB, Germany

COMBAT WEATHER TEAM OPERATIONS COURSE

Capt. Bradley Stebbins, 65th OSS/OSW, Lajes Field AB, Azores
1st Lt. Howard Moore, 607th WS, Yongsan AIN, Korea
1st Lt. Eric Muller, 1st WS, Fort Lewis, Wash.
1st Lt. Joseph Ratka, 9th OSS, Beale AFB, Calif.
1st Lt. Jonathan Wilson, 26th OWS, Barksdale AFB, La.
2nd Lt. Joseph Reich, 49th OSS/OSW, Wright Patterson AFB, Ohio
Staff Sgt. James Brown, 612th ABS, Soto Cano AB, Honduras
Staff Sgt. Jason Campbell, 55th MSS, Offutt AFB, Neb.
Staff Sgt. Keith Coleman, 55th MSS, Offutt AFB, Neb.
Staff Sgt. Charles Frye, 15th ASOS, Tinker AFB, Okla.
Staff Sgt. Michael Garrett, 335th TRS/UOA, Keesler AFB, Miss.
Staff Sgt. Richard Landsverk, 18th OSS, Kadena AB, Japan
Staff Sgt. Richard Long, HQ AFWA, Offutt AFB, Neb.
Staff Sgt. Jack Manigold, 15th RS, Indian Springs, Nev.
Staff Sgt. Brian Merrifield, 28th OWS, Shaw AFB, S.C.
Staff Sgt. David Olds, HQ AFWA, Offutt AFB, Neb.
Staff Sgt. Dennis Pierce, 17th ASOS, Fort Benning, Ga.
Staff Sgt. Nicklaus Reed, JSOC/WX, Fort Bragg, N.C.
Staff Sgt. Sean Reynolds, Det. 1, 607th WS, Camp Stanely, Korea
Staff Sgt. James Shoquist, 55th OSS, Offutt AFB, Neb.

Senior Airman Desmond Bell, 86th OSS, Sheppard AFB, Texas
Senior Airman Benish, JTF Bravo, Enrique Soto Cano, Honduras
Senior Airman Jessica Blanchard, 71st OSS, Vance AFB, Okla.
Senior Airman Bradley Boatman, 25th OWS, Davis-Monthan, Ariz.
Senior Airman Travis Boyer, Det. 5, 10th CWS, Fort Bragg, N.C.
Senior Airman Steven Camillieri, 14th OSS, Columbus AFB, Miss.
Senior Airman Jonathan Camp, 47th OSS, Laughlin AFB, Texas
Senior Airman Nicole Carpenter, 15th OWS, Scott AFB, Ill.
Senior Airman Matthew Chouinard, 90th OSS, F.E. Warren AFB, Wyo.
Senior Airman Christopher Davidson, 314th OSS, Little Rock AFB, Ark.
Senior Airman Guadalupe Degado, Det. 5, 7th WS, Katterbach, Germany
Senior Airman Micah Denton, Det. 2, 10th CWS, Fort Campbell, Ky.
Senior Airman Amy Dynan, 52nd OSS/OSW, Spangdahlem AB, Germany
Senior Airman Courtney Erickson, 325th OSS, Tyndall AFB, Fla.
Senior Airman Brooks Franklin, 89th OSS, Andrews AFB, Md.
Senior Airman Javier Gonzalez, 39th OSS, Incirlik AB, Turkey
Senior Airman Jason Griffin, 2nd OSS, Barksdale AFB, La.
Senior Airman Pawnsawan Harkins, 20th OSS/OSW, Shaw AFB, S.C.
Senior Airman Glenn Harrison, 3rd ASOS, Fort Wainwright, Alaska
Senior Airman Jonathan Henderson, 18th WS, Fort Bragg, N.C.
Senior Airman Sophia Hess, OL-A 607th WS, Camp Eagle, Korea
Senior Airman Adam Hogge, 16th OSS, Hurlburt Field, Fla.
Senior Airman Tara Hoger, Det. 11, 7th WS, Heidelberg AAF, Germany
Senior Airman James Jansen, 51st OSS, Osan AB, Korea
Senior Airman Katie Knight, 18th WS, Fort Bragg, N.C.
Senior Airman Lydia Martinez, 607th WS, Yongsan AIN, Korea
Senior Airman Treska McCullough, 75th OSS, Hill AFB, Utah
Senior Airman Katerina McDonald, 15th OWS, Scott AFB, Ill.
Senior Airman Kristinlee Petko, 377th SPTG/OTW, Kirtland AFB, N.M.
Senior Airman Travis Rieken, 45th WS, Patrick AFB, Fla.
Senior Airman Jason Roden, 75th OSS, Hill AFB, Utah
Senior Airman Adam Saunders, 90th OSS/OSW, F.E. Warren AFB, Wyo.
Senior Airman Ann Seng, 7th OSS, Dyess AFB, Texas
Senior Airman Lee Shipley, Det. 2, 7th WS, Hanau, Germany
Senior Airman Kevin Strattan, 15th RS, Indian Springs, Nev.
Senior Airman Christopher Walters, 607th WS, Yongsan, Korea
Senior Airman Jeffery Williams, 3rd OSS, Elmendorf AFB, Alaska

Senior Airman Randall Vink, 19th ASOS, Fort Campbell AIN, Ky,
 Senior Airman Valerie Vink, 19th ASOS, Fort Campbell AIN, Ky,
 Senior Airman Adam Zappia, OL-H AFWA, Hanscom AFB, Mass.
 Airman 1st Class Daniel Alexander, 325th OSS, Tyndall AFB, Fla.
 Airman 1st Class Jacqueline Bertelsen, 4th OSS, Seymour Johnson AFB, N.C.
 Airman 1st Class Michael Bouth, 6th OSS, MacDill AFB, Fla.
 Airman 1st Class Cie Brown, 47th OSS, Laughlin AFB, Texas
 Airman 1st Class Cassandra Camberos, OLC Det.1 607th WS, Camp Stanton, Korea
 Airman 1st Class Mary Combs, 49th OSS, Holloman AFB, N.M.
 Airman 1st Class James Etheridge, 50th OSS, Whiteman AFB, Mo.
 Airman 1st Class Kevin Fleming, 14th OSS, Columbus AFB, Miss.
 Airman 1st Class Paige Frye, 72nd OSS, Tinker AFB, Okla.
 Airman 1st Class Oscar Gonzales, 27th OSS, Cannon AFB, N.M.
 Airman 1st Class Brian Hager, 22nd OSS, McConnell AFB, Kan.
 Airman 1st Class Robby Haliburton, 57th OSS, Nellis AFB, Nev.
 Airman 1st Class Clayton Jackson, 1st WS, Fort Lewis AIS, Wash.
 Airman 1st Class Thomas Lee, 18th OSS, Kadena AFB, Japan
 Airman 1st Class Dominick Martin, 7th WS, Grafenwoehr, Germany
 Airman 1st Class Matthew Mattern, 18th OSS, Kadena AFB, Japan
 Airman 1st Class Eric Neu, 56th OSS, Luke AFB, Ariz.
 Airman 1st Class John Radovan, 52nd OSS, Spangdahlem AB, Germany
 Airman 1st Class Melinda Reep, 43rd OSS, Pope AFB, N.C.
 Airman 1st Class Mark Robinson, HQ AFWA, Offutt AFB, Neb.
 Airman 1st Class Wesley Sheppard, 22nd OSS, McConnell AFB, Kan.
 Airman 1st Class Adam Sikora, 57th OSS, Nellis AFB, Nev.

WEATHER CRAFTSMAN'S COURSE

Tech. Sgt. Alan Arnold, 375th OSS, Scott AFB, Ill.
 Tech. Sgt. Clayton Eyley, 171st ARW, Pittsburgh, Pa.
 Tech. Sgt. David Ivey, 26th OWS, Barksdale AFB, La.
 Tech. Sgt. Michael Sanborn, 25th OWS, Davis-Monthan AFB, Ariz.
 Staff Sgt. Michael Adcock, HQ AFWA, Offutt AFB, Neb.
 Staff Sgt. Tamara Aldrich, 21st OSS, Peterson AFB, Colo.
 Staff Sgt. Charles Andrews, 305th OSS, McGuire AFB, N.J.
 Staff Sgt. Brian Bridges, 20th OWS, Sembach AB, Germany
 Staff Sgt. Joshua Buck, 509th OSS, Whiteman AFB, Mo.
 Staff Sgt. Jamie Christopher, 28th OWS, Shaw AFB, S.C.
 Staff Sgt. Stephen Cox, Det.7, 7th WS, Heidelberg, Germany
 Staff Sgt. Jeffery Curtis, HQ AFWA, Offutt AFB, Neb.
 Staff Sgt. Jackie Dalzell, Det.5, 7th WS, Katterbach, Germany
 Staff Sgt. Anthony Danner, 57th OSS, Nellis AFB, Nev.
 Staff Sgt. Kevin Edwards, 26th OWS, Barksdale AFB, La.
 Staff Sgt. Myria Edwards, 57th OSS, Indian Springs AFB, Nev.
 Staff Sgt. James Ellzey, 159th WF, Camp Blanding, Fla.
 Staff Sgt. Benjamin Ferguson, USAFE WS, Sembach AB, Germany
 Staff Sgt. Douglas Fortin, 20th ASOS,

Fort Drum, N.Y.
 Staff Sgt. Kristy Fry, 27th OSS, Cannon AFB, N.M.
 Staff Sgt. Jennifer Gillen, 3rd WS, Fort Hood, Texas
 Staff Sgt. Kimberly Hawn, Det.10, 7th WS, Giebelstadt AAF, Germany
 Staff Sgt. Amy Hilbun, 13th ASOS, Peterson AFB, Colo.
 Staff Sgt. Celena Jones, 26th OWS, Barksdale AFB, La.
 Staff Sgt. Nysheema Jackson, 31st CCS, Tinker AFB, Okla.
 Staff Sgt. Najimah Jones, 31st CCS, Tinker AFB, Okla.
 Staff Sgt. Selena Jones, 26th OWS, Barksdale AFB, La.
 Staff Sgt. Jennifer Kaminski, HQ AFWA, Offutt AFB, Neb.
 Staff Sgt. Chad Kesterson, 57th OSS, Nellis AFB, Nev.
 Staff Sgt. Rashid Lamb, 15th OWS, Scott AFB, Ill.
 Staff Sgt. Alden Lang, 1st WS, Fort Lewis, Wash.
 Staff Sgt. Gary Long, 28th OWS, Shaw AFB, S.C.
 Staff Sgt. James Lopez, 25th OWS, Davis-Monthan AFB, Ariz.
 Staff Sgt. Brandi Lorenzen, HQ AFWA, Offutt AFB, Neb.
 Staff Sgt. Jason Mai, 28th OWS, Shaw AFB, S.C.
 Staff Sgt. Jack Mangold, 25th OWS, Tucson, Ariz.
 Staff Sgt. Anthony Marks, 80th OSS, Sheppard AFB, Texas
 Staff Sgt. Jeremy Montgomery, Det.6, 7th WS, Wiesbaden AB, Germany
 Staff Sgt. Thomas Morales, HQ AFWA, Offutt AFB, Neb.
 Staff Sgt. Donald Morgan, 25th OWS, Davis-Monthan AFB, Ariz.
 Staff Sgt. John Nagy, 52nd OSS, Spangdahlem AB, Germany
 Staff Sgt. Gregory Parker, 16th OSS, Hurlburt Field, Fla.
 Staff Sgt. Judd Porter, 3rd WS, Fort Hood, Texas
 Staff Sgt. Annette Prato, HQ AFWA, Offutt AFB, Neb.
 Staff Sgt. Jennifer Ramsey, 28th OWS, Shaw AFB, N.C.
 Staff Sgt. Amanda Regler, AFWA, Offutt AFB, Neb.
 Staff Sgt. Andrew Riker, HQ AFWA, Offutt AFB, Neb.
 Staff Sgt. Jacob Richmond, HQ AFWA, Offutt AFB, Neb.
 Staff Sgt. Andrew Robinson, 28th OWS, Shaw AFB, S.C.
 Staff Sgt. Yaphet Rodriguez, Det.1, 18th WS, Fort Eustis, Va.
 Staff Sgt. Sara Rought, Det.1, 18th WS, Fort Eustis, Va.
 Staff Sgt. Joshua Roznowski, 607th COS, Osan AB, Korea
 Staff Sgt. Nicolas Ruiz, 56th OSS, Luke AFB, Ariz.
 Staff Sgt. Christopher Shipman, 20th OWS, Sembach AB, Germany
 Staff Sgt. James Shryock, 2nd OSS, Barksdale AFB, La.
 Staff Sgt. Daniel Sullivan, 28th OWS, Shaw AFB, S.C.
 Staff Sgt. Ryan Trickey, 17th OWS, Hickam AFB, Hawaii
 Staff Sgt. Joseph Walz, 1st OSS, Peterson AFB, Colo.
 Staff Sgt. Amber Wilkinson, 3rd WS, Fort Hood, Texas
 Staff Sgt. Aaron Wood, 46th WS, Eglin AFB, Fla.

WEATHER FORECASTER APPRENTICE COURSE

Master Sgt. Eric Smith II, 26th OWS, Barksdale AFB, La.
 Tech. Sgt. Hilario Flores, 210th WF

March AFB, Calif.
 Tech. Sgt. Stephen Gammon, 25th OWS, Davis-Monthan AFB, Ariz.
 Tech. Sgt. Milan Gerber, 25th OWS, Davis-Monthan AFB, Ariz.
 Tech. Sgt. Jeffery Hawks, 25th OWS, Davis-Monthan AFB, Ariz.
 Tech. Sgt. Brian Jones, 25th OWS, Davis-Monthan AFB, Ariz.
 Tech. Sgt. Christian King, 28th OWS, Shaw AFB, N.C.
 Tech. Sgt. Gessica Rahim, 26th OWS, Barksdale AFB, La.
 Tech. Sgt. John Svendsen, 15th OWS, Shaw AFB, S.C.
 Tech. Sgt. Michael VanDenburgh, Davis-Monthan AFB, Ariz.
 Tech. Sgt. David Waugh, 15th OWS, Scott AFB, Ill.
 Tech. Sgt. Dennis Wengert, 26th OWS, Barksdale AFB, La.
 Tech. Sgt. Jeffrey Wheelis, 25th OWS, Davis-Monthan AFB, Ariz.
 Petty Officer 2nd Class Joseph Collum, USCG, Kodiak NAS, Alaska
 Staff Sgt. Charles Andrews, 305th OSS/OSW, McGuire AFB, N.J.
 Staff Sgt. Patrick Brodigan, 26th OWS, Barksdale AFB, La.
 Staff Sgt. James Cunningham, 199th WF, Wheeler AAF, Hawaii
 Staff Sgt. Refugio Guajardo, 209th WF, Camp Mabry, Texas
 Staff Sgt. Michael Moore, 26th OWS, Barksdale AFB, La.
 Staff Sgt. Jamie Hardin, 209th WF, McCord AFB, Wash.
 Staff Sgt. Christopher Hovanec, 28th OWS, Shaw AFB, S.C.
 Staff Sgt. Darrell Hughes, 28th OWS, Shaw AFB, S.C.
 Staff Sgt. Jason Lesch, 28th OWS, Shaw AFB, S.C.
 Staff Sgt. Raymond Polasky, 28th OSS, Ellsworth AFB, Ala.
 Staff Sgt. Douglas Simmons, 107th WF, Selfridge ANGB, Mich.
 Staff Sgt. Douglas Spires, 28th OWS, Shaw AFB, S.C.
 Staff Sgt. Robert Yoas, 2nd OSS, Barksdale AFB, La.
 Senior Airman Nathan Aldrich, 116th WF, Austin, Texas
 Senior Airman Andrea Allen, 125th WF, Tulsa, Okla.
 Senior Airman Kristopher Bell, OL-A, Det.2, 10th CWS, Hunter Army Airfield, Ga.
 Senior Airman Steven Davies, 105th WF, Nashville, Tenn.
 Senior Airman Micki Erdelac, 21st OSS, Peterson AFB, Colo.
 Senior Airman Shelly Green, 171st Air Refueling Wing, Pittsburgh, Pa.
 Senior Airman Paul Gulli, 305th OSS, McGuire AFB, N.J.
 Senior Airman Keegan Iversen, 208th WF, Minneapolis, Minn.
 Senior Airman Sara Petersen, 305th OSS, McGuire AFB, N.J.
 Senior Airman Karl Johnson-Pickett, 127th WF, Forbes Field, Kan.
 Senior Airman Keegan Iversen, 208th WF, Minneapolis, Minn.
 Senior Airman Travis McDonald, 26th OWS, Barksdale AFB, La.
 Senior Airman James Rapach, 26th OWS, Barksdale AFB, La.
 Senior Airman David Rehnblom, 127th WF, Forbes Field, Kan.
 Senior Airman Sarah Segree, 2nd OSS, Barksdale AFB, La.
 Senior Airman Brandon Titus, 25th OWS, Davis-Monthan AFB, Ariz.
 Airman 1st Class Sara Arroyo, USAFE OWS, Sembach AB, Germany
 Airman 1st Class Nickolas Barringer, USAFE OWS, Sembach AFB, Germany
 Airman 1st Class James Bickford, 26th OWS, Barksdale AFB, La.

Airman 1st Class David Brown, Yokota AB, Japan
 Airman 1st Class Mistey Brownen, 17th OWS, Hickham AFB, Hawaii
 Airman 1st Class Mitchell Burke, 25th OSW, Davis-Monthan AFB, Ariz.
 Airman 1st Class Alfred Cannin, 113th WF, Terra Haute, Ind.
 Airman 1st Class Mark Casey, 17th OWS, Hickham AFB, Hawaii
 Airman 1st Class Adam Chaffin, 28th OWS, Shaw AFB, S.C.
 Airman 1st Class Jerry Conley, USAFE OWS, Sembach AB, Germany
 Airman 1st Class Jonathan Cosner, USAFE, Sembach AB, Germany
 Airman 1st Class Jack Cotham, 75th OSS, Hill AFB, Utah
 Airman 1st Class Michael Cull, 25th OWS, Davis-Monthan AFB, Ariz.
 Airman 1st Class Erin Daley, 26th OWS, Barksdale AFB, La.
 Airman 1st Class Robert Dalton, 26th OWS, Barksdale AFB, La.
 Airman 1st Class Samantha Dichoso, 28th OWS, Shaw AFB, S.C.
 Airman 1st Class Joshua Dillard, 25th OWS, Davis-Monthan AFB, Ariz.
 Airman 1st Class Todd Feeley, USAFE OWS, Sembach AB, Germany
 Airman 1st Class Karl Fernando, 25th OWS, Davis-Monthan AFB, Ariz.
 Airman 1st Class Zachary Frakes, 17th OWS, Hickam AFB, Hawaii
 Airman 1st Class David Glowacki, 28th OWS, Shaw AFB, N.C.
 Airman 1st Class Benjamin Hall, 17th OWS, Hickam AFB, Hawaii
 Airman 1st Class Benjamin Hartzell, 25th OWS, Davis-Monthan AFB, Ariz.
 Airman 1st Class Jacob Holmes IV, 25th OWS, Davis-Monthan AFB, Ariz.
 Airman 1st Class Ryan James, 15th OWS, Scott AFB, Ill.
 Airman 1st Class John Jenkins, 28th OWS, Shaw AFB, S.C.
 Airman 1st Class Ryan Kardell, 25th OWS, Davis-Monthan AFB, Ariz.
 Airman 1st Class Derek Krahn, 20th OWS, Yakota AB, Japan
 Airman 1st Class Kellen Kroening, 128th ARW, Mitchell Field, Wis.
 Airman 1st Class John Lawson, 20th OWS, Yokota AB, Japan
 Airman 1st Class Timothy Lawson, 28th OWS, Shaw AFB, S.C.
 Airman 1st Class David Litwin, USAFE, Sembach AB, Germany
 Airman 1st Class Megan Mahoney, Camp Blanding, Fla.
 Airman 1st Class Trent Meyer, 11th OWS, Elmendorf, Alaska
 Airman 1st Class Benjamin Minton, 28th OWS, Shaw AFB, N.C.
 Airman 1st Class John Mitchem, 3rd WS, Fort Hood, Texas
 Airman 1st Class Michael Nelson, 28th OWS, Shaw AFB, S.C.
 Airman 1st Class Joseph Oney, 165th WF, Louisville, Ky.
 Airman 1st Class Michael O'Rourke, 25th OWS, Davis-Monthan AFB, Ariz.
 Airman 1st Class Tia Pickett, 20th OWS, Yakota AB, Japan
 Airman 1st Class William Price, 20th OWS, Yakota AB, Japan
 Airman 1st Class Jeanie Ray, 25th OWS, Davis-Monthan AFB, Ariz.
 Airman 1st Class Joseph Ritter, 25th OWS, Davis-Monthan AFB, Ariz.
 Airman 1st Class Shawna Rouse, 15th OWS, Scott AFB, Ill.
 Airman 1st Class Russell Sargent, 17th OWS, Hickam AFB, Hawaii
 Airman 1st Class Kimberly Sims, 26th OWS, Barksdale AFB, La.
 Airman 1st Class Jordan Smith, 28th OWS, Shaw AFB, N.C.
 Airman 1st Class Brianna Still, 28th

OWS, Shaw AFB, N.C.
Airman 1st Class Gregory Sweeney, 26th OWS, Barksdale AFB, La.
Airman 1st Class Billy Tate III, 28th OWS, Shaw AFB, S.C.
Airman 1st Class Timothy Turner, 28th OWS, Shaw AFB, S.C.
Airman 1st Class Scott Tyler Jr., 11th OWS, Elmendorf, Alaska
Airman 1st Class Andrew Veach, 26th OWS, Barksdale AFB, La.
Airman 1st Class Olivia Vicks, 25th OWS, Davis-Monthan AFB, Ariz.
Airman 1st Class Brandon Waller, 26th OWS, Barksdale AFB, La.
Airman 1st Class Herman Wheat, 26th OWS, Barksdale AFB, La.
Airman 1st Class Heather Whitehall, 25th OWS, Davis-Monthan AFB, Ariz.
Airman 1st Class Brian Williams II, 25th OWS, Davis-Monthan AFB, Ariz.
Airman 1st Class Charles Williams Jr, 17th OWS, Hickam AFB, Hawaii
Airman 1st Class Nicholas Wilkinson, USAF OWS, Sembach AB, Germany
Airman 1st Class Dustin Winkler, 26th OWS, Barksdale AFB, La.
Airman Alan Abernethy, USAF OWS, Sembach AFB, Germany
Airman Nikole Adams, 26th OWS, Barksdale AFB, La.
Airman Daniel Alexander, 28th OWS, Shaw AFB, S.C.
Airman Zachary Allen, 26th OWS, Barksdale AFB, La.
Airman Sean Beacham, 28th OWS, Shaw AFB, S.C.
Airman Marvin Boyd, 28th OWS, Shaw AFB, S.C.
Airman Trevor Branch, 17th OWS, Hickam AFB, Hawaii
Airman Carly Bronson, 26th OWS, Barksdale AFB, La.
Airman Lisa Cavalier, 20th OWS, Yokota AB, Japan
Airman Jory Chrisman, 28th OWS, Shaw AFB, S.C.
Airman Tobias Conn, 25th OWS, Davis-

Monthan AFB, Ariz.
Airman Christopher Delgado, 26th OWS, Barksdale AFB, La.
Airman Nicholas Dixon, 26th OWS, Barksdale AFB, La.
Airman Thomas Forsyth, USAF OWS, Sembach AFB, Germany
Airman Johnathan Foulkrod, 25th OWS, Davis-Monthan AFB, Ariz.
Airman Nick Franklin, 28th OWS, Shaw AFB, S.C.
Airman Samantha Griggs, 28th OWS, Shaw AFB, S.C.
Airman First Class Chelsi Hedrick, 25th OWS, Davis-Monthan AFB, Ariz.
Airman Amber Hilliard, 28th OWS, Shaw AFB, S.C.
Airman Mylesa Huntington, 25th OWS, Davis-Monthan AFB, Ariz.
Airman Thomas Jenkins, 20th OWS, Yokota AB, Japan
Airman Kimberly Jennings, 25th OWS, Davis-Monthan AFB, Ariz.
Airman Stefan Kubian, 15th OWS, Scott AFB, Ill.
Airman Kevin Kirk, 28th OWS, Shaw AFB, S.C.
Airman Bryant LaMay, 26th OWS, Barksdale AFB, La.
Airman Keith Miller, USAF OWS, Sembach AFB, Germany
Airman Nathan Morton, 25th OWS, Davis-Monthan AFB, Ariz.
Airman Keith Munsell, 25th OWS, Davis-Monthan AFB, Ariz.
Airman Christopher Mutchler, 26th OWS, Barksdale AFB, La.
Airman Dustin Nivens, 15th OWS, Scott AFB, Ill.
Airman Jennifer Nunn, 26th OWS, Barksdale, La.
Airman Tara Patterson, 25th OWS, Davis-Monthan AFB, Ariz.
Airman NiCole Pawlowicz, 25th OWS, Davis-Monthan AFB, Ariz.
Airman Philip Price, 17th OWS, Hickham AFB, Hawaii
Airman Stephanie Rodriguez, 15th OWS,

Elmendorf AFB, Alaska
Airman Justin Rogers, 26th OWS, Barksdale AFB, La.
Airman Kate Stellinga, 28th OWS, Shaw AFB, S.C.
Airman Brian Stollery, 26th OWS, Barksdale AFB, La.
Airman Hannah Story, 25th OWS, Davis-Monthan AFB, Ariz.
Airman Cynthia Thrift, 25th OWS, Davis-Monthan AFB, Ariz.
Airman Tiffany Van Winkle, 28th OWS, Shaw AFB, S.C.
Airman Jennifer Zopolos, 17th OWS, Hickham AFB, Hawaii
Airman Basic Amanda Knight, 28th OWS, Shaw AFB, S.C.

WAR PLANNERS COURSE

Maj. Joseph Golemboski, 2nd WF, Fort McPherson, Ga.

N-TFS SYSTEM MANAGER COURSE

Mr. John Diorio, AFWA, Offutt AFB, Neb.
Tech. Sgt. Christopher Campbell, USAF OWS, Sembach AB, Germany
Staff Sgt. James Funkhouser, 366th OSS, Mountain Home AFB, Idaho
Staff Sgt. Nicolas Ruiz, 56th OSS, Luke AFB, Ariz.

AERIAL RECONNAISSANCE STORM QUALIFICATION COURSE

1st Lt. Tina Young, 53rd WRS, Keesler AFB, Miss.

BASIC AERIAL RECONNAISSANCE QUALIFICATION

Capt. Deeanne Lufkin, 53rd WRS, Keesler AFB, Miss.
2nd Lt. Eileen Govan, 53rd WRS, Keesler AFB, Miss.
2nd Lt. Nicole Mitchell, 53rd WRS, Keesler AFB, Miss.

AIR AND SPACE BASIC COURSE

2nd Lt. Eileen Govan, 53rd WRS, Keesler AFB, Miss.

AIRCREW SURVIVAL SCHOOL
Capt. Deeanne Lufkin, 53rd WRS, Keesler AFB, Miss.
2nd Lt. Eileen Govan, 53rd WRS, Keesler AFB, Miss.

NONCOMMISSIONED OFFICER ACADEMY

Distinguished Graduate
Tech. Sgt. Martha Horner, 325th OSS, Tyndall AFB, Fla.

AIRMAN LEADERSHIP SCHOOL

Levitow Award
Staff Sgt. Brandin Coy, 47th OSS, Laughlin AFB, Texas

Distinguished Graduate

Staff Sgt. Michael Farr, Det.1, 18th WS, Fort Eustis, Va.
Senior Airman Ryan McDonald, Det.11, 7th WS, Heidelberg, Germany
Senior Airman Brian Smith, Det.1, 18th WS, Fort Eustis, Va.
Senior Airman Edgar Wingo, Det.5, 7th WS, Katterbach, Germany

Leadership Award

Staff Sgt. Kathleen Williams, 47th OSS, Laughlin AFB, Texas
Senior Airman Daniel Mike, Det. 2, 7th WS, Hanau, Germany

GENERAL'S COIN

Mr. John Shaughnessy, 2nd WF, Fort McPherson, Ga.
Lt. Col. Randall Skov, 2nd WF, Fort McPherson, Ga.
Lt. Col. Randall Skov, 2nd WF, Fort McPherson, Ga.
Senior Master Sgt. Clyde Hunter, 2nd WF, Fort McPherson, Ga.

Learmonth SRNCO re-enlists with a splash

Air Force Weather Agency Public Affairs Staff Report
 Offutt AFB, Neb.

An Air Force Weather Agency Airman assigned to the Det. 1, Learmonth Solar Observatory, Australia, dove into six more years of his Air Force career when he took his Oath of Enlistment underwater.

He is Master Sgt. Richard McCarthy, and



Capt. Bagby (left) administered the Oath of Enlistment to Master Sgt. McCarthy (right) during his underwater reenlistment ceremony. Courtesy photo.

he has been diving into everything he pursues since his arrival to the detachment. He received his promotion to master sergeant, he began surfing, re-certified as a scuba diver and learned kite surfing.

Therefore, when it was time for him to re-enlist it was no surprise when he decided to take the plunge, headfirst. Joined by his wife Miyuki, Capt. William Bagby, Det.1 Commander, Master Sgt. Jack Gist, Det.1 Superintendent, Staff Sgt. Brian Capps, and dive master and boat captain Mr. Alec Nowak, Sergeant McCarthy headed out to the depths of the Indian Ocean.

However, due to wind conditions they changed their plans and moved to more shallow waters.

“Nearing the marina, it became obvious that the winds had churned the water to the point that the low-slung boat would not be making the trip that day,” said Capt. Bagby.

Nevertheless, everyone understood that flexibility was the key, and quickly made alternate plans as they went to a dive spot 500 meters from shore.

“We geared up and kicked our way out in the tumultuous water and descended to the sandy bottom. On such a windy day, the visibility was not the greatest, but the water was warm and the marine life plentiful,” Capt. Bagby said.

But, how did they keep the reenlistment documents dry? The re-enlistment papers were signed before they went in the water.

“All that remained was to perform the ceremony on the ocean floor,” Capt. Bagby explained.

Everyone agreed that Sergeant McCarthy’s decision to dive into his career was a win-win situation for the Air Force and all who were present. As an added bonus, the ceremony attendees saw sightings of crayfish, lobsters, tropical fishes and a large turtle.

However, with his snorkels still wet, along with the ink on his reenlistment papers, Sergeant McCarthy still yearned to be in the water and decided to make the most of the windy conditions so he went kite-surfing.

“Looks like Sergeant McCarthy plans to make the most of his next six years,” said Capt. Bagby.

Story compiled from information courtesy of Det. 1, Learmonth Solar Observatory, Australia.

Tech. Sgt. Jason Colon
18th Weather Squadron, Fort Bragg AIN N.C.
NCOIC, Aviation Brigade Combat Weather Team
Years in service: 12 years
Hometown: Bronx, NY
Role Model: My role model is my father who is a chief master sergeant in the Air Force.
Hobbies: Golfing

Most memorable Air Force Weather Experience:
Oddly enough, I had the greatest time at the NCO Academy. I met some of the best NCOs, and at the same time re-blued myself. I have never been assigned to a regular Air Force unit. I have only been assigned Army support assignments, so it was nice to “Cross (back) into the Blue.” This phrase applies to people already in the service, and not just new recruits. I encourage all NCOs to take advantage of all the opportunities at the Academy.

Also, working with special operations has shown me how the weather impacts even the smallest part of the mission. Remember we, Army and Air Force Weather personnel, are an integral part of all operations, and do not ever think otherwise.



WEATHER WARRIORS



Tech. Sgt Paul “Rodrigo” Rogers
25 ASOS CWT, Wheeler AAF, Hawaii
NCOIC, Mission Support Element
Years in Service: 13 years
Hometown: Belleville, Ill.
Role Model: My Father-in-law. He is supportive and

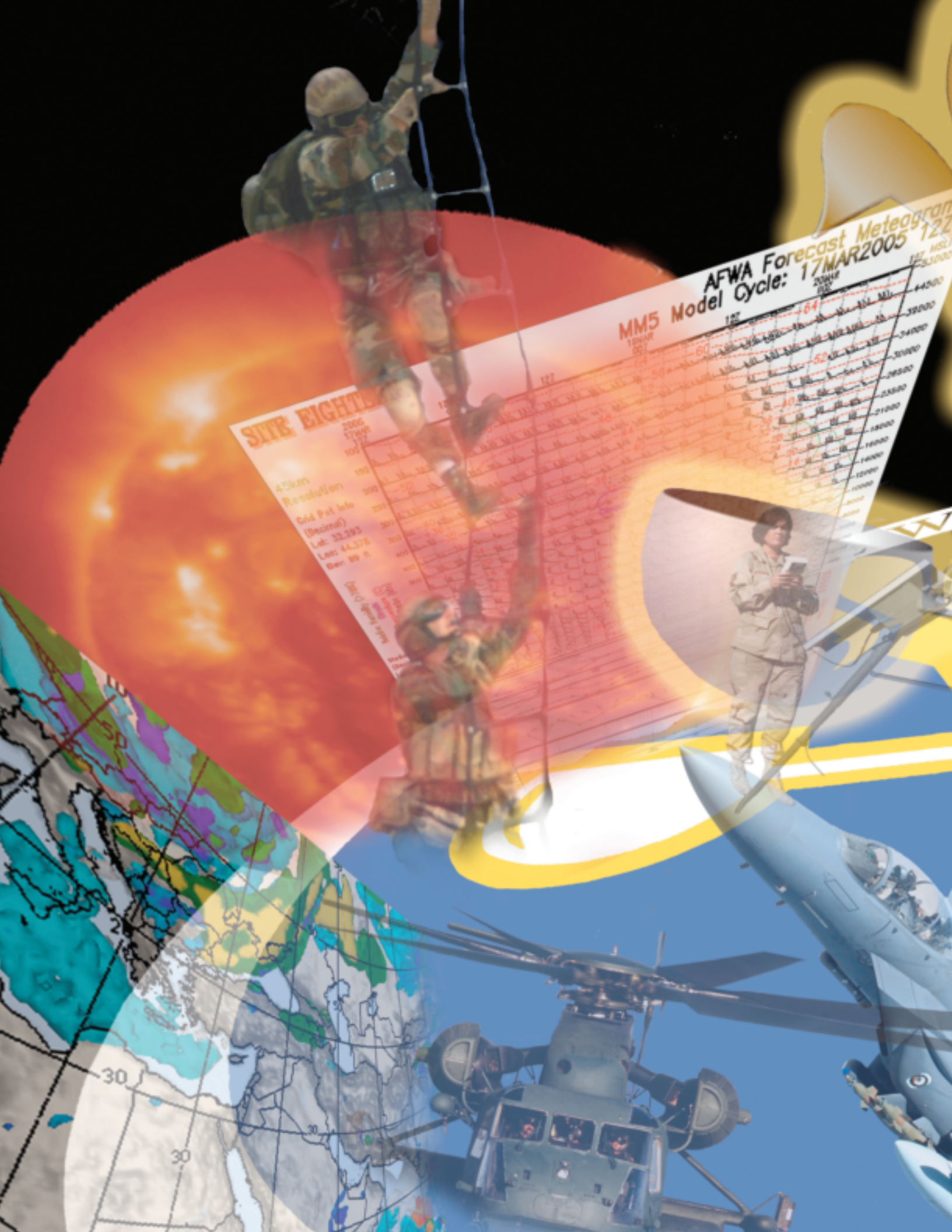
involved with his children, but not always controlling.
Hobbies: Home improvement projects and having fun with my children.

Reason joined the Air Force: That is in the past. I am staying in the service because it changed my character and I like the people I work with.

Personal motto: Integrity always

Most memorable Air Force weather experience: Our Combat Weather Team provided support for a four-day, multi-agency water rescue exercise. Two of us were able to participate in a MEDEVAC UH-60 simulated water crash. We covered emergency evacuation procedures and survival tactics prior to take-off while we waited for a search and rescue team to arrive.

As we were about to egress the aircraft, you could see the water 10 to 15 feet below, churning from the force of the helicopter’s rotors. We leaped out and it was like jumping in a pool with all your clothes on. Even though I was only under the water for a few seconds, it was great coming back up.



AFWA Forecast Meteogr
MM5 Model Cycle: 17MAR2005 12Z

SITE EIGHT

2006
17 MAR
1051
100
45km
Resolution
Grid Pnt Info
(Decimal)
Lat: 32.293
Lon: 64.572
Bar: 99.6

100	105	110	115	120	125	130	135	140	145	150	155	160	165	170	175	180	185	190	195	200	205	210	215	220	225	230	235	240	245	250	255	260	265	270	275	280	285	290	295	300	305	310	315	320	325	330	335	340	345	350	355	360	365	370	375	380	385	390	395	400	405	410	415	420	425	430	435	440	445	450	455	460	465	470	475	480	485	490	495	500	505	510	515	520	525	530	535	540	545	550	555	560	565	570	575	580	585	590	595	600	605	610	615	620	625	630	635	640	645	650	655	660	665	670	675	680	685	690	695	700	705	710	715	720	725	730	735	740	745	750	755	760	765	770	775	780	785	790	795	800	805	810	815	820	825	830	835	840	845	850	855	860	865	870	875	880	885	890	895	900	905	910	915	920	925	930	935	940	945	950	955	960	965	970	975	980	985	990	995	1000
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