

Observer

The Magazine for Air Force Weather

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Weather
Around
the **World**



Observer

The Magazine for Air Force Weather

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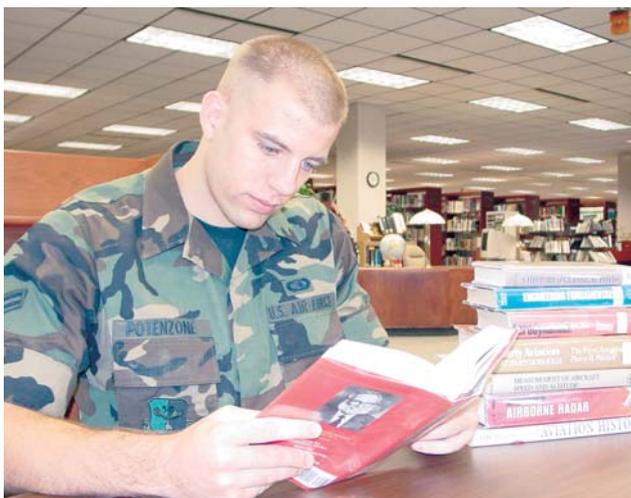
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Solar observers keep an eye on the sun's spikes, flares and emissions which can have profound affects on operations around the world. Space weather forecasters mitigate these effects by arming "boots on the ground" warfighters with the best solar warnings and products – wherever and whenever needed.



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On the air with AFN 12

The American Forces Network Weather Center, located at Offutt AFB, Neb., broadcasts local weather information to military members stationed at 117 locations throughout Southwest Asia, the European, Atlantic, and Pacific theaters. They provide a friendly voice and reliable local weather forecasts in a format most familiar to U.S. troops and their families located around the world.

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With improvements in the environmental situational awareness, the U.S. military is rapidly shifting its tactical and strategic focus from “coping with the weather” to anticipating and exploiting it for a military advantage. New and improved data from the National Polar-orbiting Operational Environmental Satellite System is one program being used to significantly accelerate this transformation.



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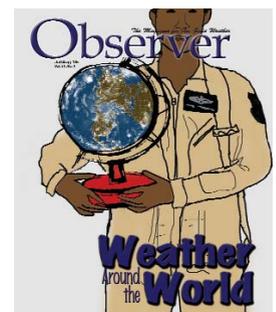
When it comes to predicting the effects of alto cumulus clouds blowing over the mountain ranges, aviators and base leaders at Bagram AB, Afghanistan, rely on the technical expertise of the 455th Air Expeditionary Wing’s Combat Weather Team. The team relies on technical equipment and old fashioned visual cues, and uses what cannot be changed about the weather, to an operations planning advantage.

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Staff Sgt. Jozsef Nagy, an Internet services technician with the Air Force Weather Agency, Offutt AFB, Neb., saves three children from drowning.

On the Cover

Weather is considered in every aspect of military operations, global deployments and system design and evaluation. Air Force Weather continues to be at the forefront, providing the warfighter with the most sophisticated and accurate weather forecasts – around the World. *Graphic illustration by Ms. Jodie Grigsby.*



SUN

watchers

Solar Observatories keep an eye on the weather, from the mud to the sun ... to boots on the ground



The U.S. Flag flies in front of an antenna located at the Sagamore Hill Solar Observatory. The Radio Interference Measurement Set antenna is 28 feet in diameter and a part of the Radio Solar Telescope Network, AN/FRR-95. Photo by Capt. Herbert Keyser.

by Capt. Herbert Keyser
Sagamore Hill Solar
Observatory
Hamilton, Mass.

Air Force Weather has long used the phrase, "From the Mud to the Sun." Most people who are a part of our mission know that the sun drives the weather on a day-to-day basis. They also know that AFW deals with space weather phenomenon. Some people may think that space weather only pertains to satellites. They may also think that it has nothing to do with the weather information we provide to the units with "boots on the ground." However, that could not be further from the truth.

Our knowledge of the sun's adverse effects on operations dates back to World War II. Operators noticed strong interferences across the British networks of the early warning radar. The leadership was concerned that it might be the Germans jamming the radar in preparation for an attack. After looking into the problem, researchers determined that the jamming always followed the sun and it wasn't observed at night.

They concluded that the sun caused the interference, and that it corresponded to a large flare reported Feb. 28, 1942. To this day, solar Radio Frequency Interference, or RFI, has major affects on operational systems.

Active research of the sun's effects on operations continued in the 1960's. The Air Force Cambridge Research Laboratory, now the Air Force Research Laboratory, conducted investigations into the radio emissions of the sun. At a radio research site in Hamilton, Mass., known as Sagamore Hill, researchers set up radios and antennae to track the sun's motion throughout the day. They collected and analyzed data on the emissions of the "quiet" sun when nothing eventful was happening. When the sun turned active, they discovered that not only was the background radio emission of the sun elevated, but it also emitted bursts of radio energy associated with solar flares and other phenomena. These emissions caused direct RFI, and provided information used to forecast other solar-related space weather.

Conjunction Junction

During the day, the sun will likely pass behind someone trying to transmit electronic signals. This is a condition known as conjunction. The sun emits stronger signals than communication satellites and will overwhelm the intended transmission with noise. This occurs regularly around the spring and fall equinox, causing radar receivers to be extremely degraded.

The sun routinely causes spikes on weather radar. This causes solar interference and conjunction which can affect anything that uses radio signals such as a tactical communications set, a GPS receiver, or a cellular telephone.

When the sun is active, the signal is so strong that the area affected by conjunction gets larger. Systems that withstand routine conjunctions become unusable as the Radio Frequency Interference becomes unmanageable. In addition, solar RFI can saturate antennae aimed well away from the sun.

Engineers designed some of today's major systems to handle normal solar RFI. The system either tracks the sun and filters out the noise, or the operator knows the indications of solar conjunction and responds accordingly.

Unfortunately, that's not true for many of the warfighters' tactical systems. Users of hand-held GPS receivers have no way of knowing that solar RFI is degrading one of the satellites. Therefore, radio operators in the field don't know when a frequency will be unusable because of space weather.

Operational Solar Observations

In the 1970s, Air Weather Service built the Radio Solar Telescope Network in order to observe, understand and mitigate the affects of solar activity. Now, the Solar Electro-Optical Observing Network consist of five sites: Palehua, Hawaii; Learmonth, Australia; San Vito, Italy; Sagamore Hill, Mass.; and Holloman AFB, N.M. They monitor the sun for mission impacting solar phenomena.

No one knows exactly when a mission-impacting radio burst will occur. Forecasters at the Air Force Weather Agency's Space Weather Operations Center and the National Weather Service's Space Environment Center monitor radio, optical, and X-ray emissions of the sun to forecast the potential for flare activity. If the centers forecast a large enough flare, the possibility exists for a large radio burst as well.

Solar radio emissions also provide clues to what's happening on the sun. The radio observatories help detect a phenomenon called proton flare. These flares are of particular interest to the military. During a proton flare, high-energy particles stream from the sun. These high-energy particles can cause numerous problems. The most talked about effect happens when this stream encounters spaceborne objects, bathing them in hard radiation. This creates equipment problems for satellites and even more serious health problems for astronauts and pilots flying at very high altitudes.

These particles travel just below the speed of light, arriving in the

near-earth environment within one half hour. This means that no more than five minutes can elapse from when the RSTN measures large radio bursts to when the customers receive their alert from the SpaceWOC. With our ever-increasing reliance on space-based systems for communications, navigation, and intelligence, any loss or degradation of a satellite is serious to the warfighter.

Proton flares also have considerable affect on the warfighter with "boots on the ground." Aside from the potential loss of satellite service, radio propagation can degrade or cutoff, especially when transmitting HF through the Polar Regions.

Different patterns of solar radio emission on the Solar Radio Spectrograph indicate several processes on the sun. Of particular concern to operators is an event called a Coronal Mass Ejection, which emits large amounts of solar matter into space. The SpaceWOC and SEC use available information from the SRS to determine if any of this ejected matter is heading towards the Earth, and forecast the impacts to communications, spacecraft tracking, navigation, and electric power grids.

The sun can have profound affects on satellite operations. As affects of the sun's spikes, flares and emissions challenge warfighters with "boots on the ground," the men and women of AFW will continue to arm them with the best solar weather warnings and products – wherever and whenever needed.

It started with a standard briefing. A briefing most new enlisted members arriving at their first duty station receive at First Term Airmen Centers across the Air Force. It ended with acceptance to one of the premier universities in the nation - the U.S. Air Force Academy.

When Airman 1st Class Chad Potenzzone, a computer system programmer apprentice with the Air Force Weather Agency, Offutt AFB, Neb., decided to enter the Air Force, he was not sure where his service would take him, but he did have ambition. After a briefing from an Academy graduate about the enlisted-specific admissions program, called Leaders Encouraging Airman Development, Airman Potenzzone wanted to be Lieutenant Potenzzone. This accomplishment would fulfill a deep-rooted dream to fly fighters for the Air Force.

"I came into the Air Force not knowing what to expect," recalls the Bloomfield, N.J. native, "but from the moment I entered AFWA, I knew that I wanted to make the Air Force my career.

"This place feels like one big family, and the briefing we received about LEAD during FTAC made me realize that a commission and pilot training were not out of my reach," said Airman Potenzzone.

It was probably his father who first planted the idea of flying Air Force fighters into Airman Potenzzone's head. "My Dad was in ROTC during college, but was unable to achieve his goal of becoming a fighter pilot because his parents died before he could finish school. He had to leave college to take care of the family," recalled Airman Potenzzone.

Now, Airman Potenzzone has the chance to enter the Academy from the enlisted ranks, but first he must complete a year in the USAFA preparatory school at the Academy in Colorado Springs, Colo. This opportunity would not be possible if Airman Potenzzone were not already a leader and outstanding performer both before his arrival on Offutt and in his current capacity as a programmer with AFWA, according to Lt. Col. Daniel Bates, the Information Systems Division Chief at AFWA.

"Airman Potenzzone will make an outstanding officer. He has the leadership qualities and the work ethic needed to succeed in this program. Most importantly, he has an incredibly positive attitude that will serve him well in accomplishing his goal to become an officer," said Colonel Bates.

Airman Potenzzone has always excelled both intellectually and athletically. During high school, he was a member of the National Honor Society and lettered

AFWA Airman



The Acad

n heads to ...



by Mr. Miles Brown
Air Force Weather Agency
Public Affairs
Offutt AFB, Neb.

Lenny

in varsity football, baseball and basketball. He continued to rise to the top during basic training, graduating with honors in the top 1.2 percent of his class. During his technical training at Keesler AFB, Miss., he also earned honors as the top graduate of his class.

“He [Airman Potenzone] continues to impress by completing his qualification training three months ahead of schedule while maintaining an outstanding 98 percent average,” said Col. John Lanicci, AFWA Commander. “He has done this and shown exceptional leadership qualities by stepping-up as a physical training leader for the Agency.”

The Air Force Academy is one of the most selective colleges in America. The selection process identifies young men and women who have the qualities and genuine motivation to succeed in a very challenging environment and whose primary goal is to serve our nation as an Air Force officer. The competition for an appointment is extremely high and all selected cadets must have a proven record of achievement in academics, athletics, extracurricular activities, and leadership, according to Col. William Carpenter, the Director of Admissions for the Air Force Academy.

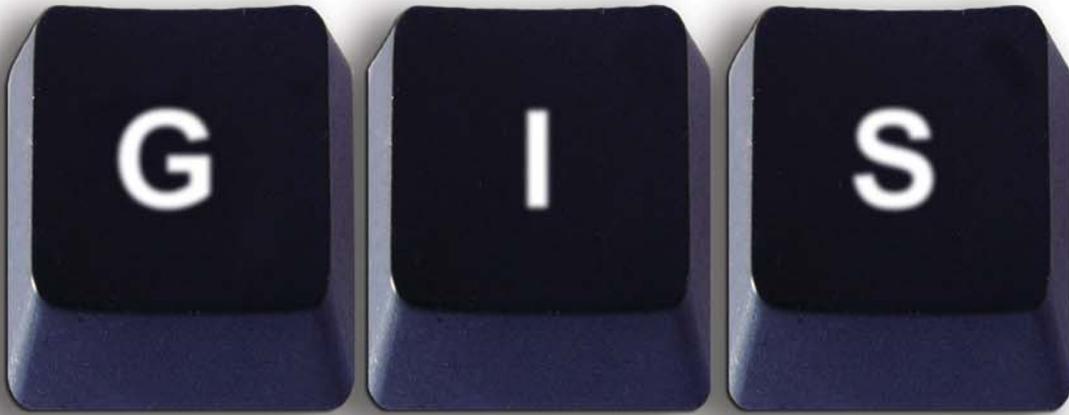
There are several programs for enlisted appointments to the Academy. Each year, 85 direct appointments for active duty airmen and 85 direct appointments for Reserve and National Guard enlisted members are available. Despite these avenues, fewer than 20 airmen take advantage of these direct appointment opportunities each year.

Another avenue to the Academy is through the Preparatory School. Each year, 50 of 235 prep school slots are offered to airmen of any status. The one year preparatory course offers students the chance to polish their skills prior to becoming an Academy cadet. The bulk of prior enlisted cadets currently attending the Academy secured their entrance through the LEAD program and those coveted 50 prep school slots annually.

Soon, Cadet Potenzone can show-off his potential by pursuing a degree in physics and trying to make the Academy football team. He also has his sights set on the Academy baseball team, but that may be a little too much for a first-year cadet, even an exceptional student athlete.

One thing is sure; soon-to-be Cadet Potenzone will do everything in his power to make his family, co-workers, and the Air Force proud – undoubtedly he will succeed, said Colonel Bates.

Airman 1st Class Chad Potenzone, a Headquarters AFWA computer system programmer, gets a head start on his reading as he prepares to attend the U.S. Air Force Academy Preparatory School. Airman Potenzone was selected for this program under the Leaders Encouraging Airman Development program. Photo by Mr. Miles Brown.



Geographic Information Systems

Influencing the future of weather mapping

by Airman 1st Class Shawn Johnson
HQ Air Force Weather Agency
Communications and Information Directorate
Offutt AFB, Neb.

Weather has always had an impact on military operations. From D-Day to Operations Enduring Freedom and Iraqi Freedom, it has played a role in the Nation's defensive and offensive operations.

Successful military operations require the most up-to-date and accurate weather forecasts possible. This requirement generated a need to integrate and deliver weather information in a standard format that is merged into a common operating environment as data and not just images. That new delivery system, known as Geographic Information Systems, now exists, and will be used for Air Force Weather products thanks to the efforts of the Information Technology experts at the Air Force Weather Agency.

Yesterday

Originally, weather forecasts were depicted with hand drawn maps and charts on a board. In the mid-1990s, Information Technology was heavily integrated into weather forecasting. Database information was stored in a gibbered binary format - a format that is still used today. This format can make getting the information more challenging. It must be translated into a usable, up-to-date format.

Air Force Weather leaders recognized the need to provide more user-friendly information to decision makers in a common operating environment. Therefore, the Air Force

Weather Agency's Communications Technology Branch was tasked with developing a program to provide combatant commanders with the most accurate information faster and directly to their systems.

Today

Civilian companies and government agencies such as the Department of Homeland Security and the National Geospatial-Intelligence Agency are already using GIS. With the system, they can integrate a myriad of data from various sources. The data is in a common format, and the various layers are compatible. This compatibility allows data layers to communicate with each other easily. This communication expands a data system's ability to create animated decision aids. GIS has also played a role in mapping weather related activities to include the worldwide Indian Ocean Tsunami Disaster Relief effort this spring.

With these demonstrated program capabilities, AFWA began exploring the use of GIS as a common operating environment for existing weather data systems. The Agency created a GIS programming team to implement GIS, thus improving command and control systems, and increasing the situational awareness of decision makers.

The team immediately faced some daunting challenges. They had to coordinate existing architectures with future GIS guidelines, train new members, and acquire the resources necessary to create a proof of concept. The team overcame those challenges, and the GIS demonstration Web site was launched in January.

The demand for GIS technology has also grown from the intelligence community.

"GIS is the preferred method to provide weather data to our Intel customers," says Tech. Sgt. John Goldtrap, the GIS team lead.

Tomorrow

The biggest influence on integrating weather information into a GIS format will come from the Joint Environmental

Toolkit. The JET is scheduled to be fielded in fiscal year 2007. This will cause a dramatic paradigm shift in how weather data will interact with other data.

With GIS, the impact to the warfighter will be enormous.

“A GIS capability is important to improving the integration of weather information with other types of information such as intelligence to enhance decision dominance for the war fighter,” says Lt. Col. Dan Edwards, Chief of the Strategic Center Programs Division at AFWA. “It allows a combatant commander to look at one computer screen and

get all the weather information needed to execute a mission,” he added.

Put simply, GIS will allow a combatant commander to click on any point on a map and get the weather information needed to ensure mission success. Many would like weather data displayed in a three-dimensional format. This may be possible in the near future using GIS technology.

Geographic Information Systems are revolutionizing the weather world of today, and will influence the weather world of tomorrow.

Looking into GIS future

The implementation of Geographic Information Systems across all Air Force Weather information systems is a daunting task. The following are just a few of the future plans for GIS.

- ❑ Expand GIS demonstration Web site and convert additional programs to utilize GIS formatting.
- ❑ Develop an application to de-grib information from older applications to make them more compatible with current GIS technology. Transfer the de-gribbed data into a geographically referenced format.
- ❑ Design hardware to incorporate GIS technology into the Joint Air Force and Army Weather Information Network system. JAAWIN is designed to disseminate meteorological and space weather information.
- ❑ Create a forward cache data base, to allow outside users access to timely data via the Web site.

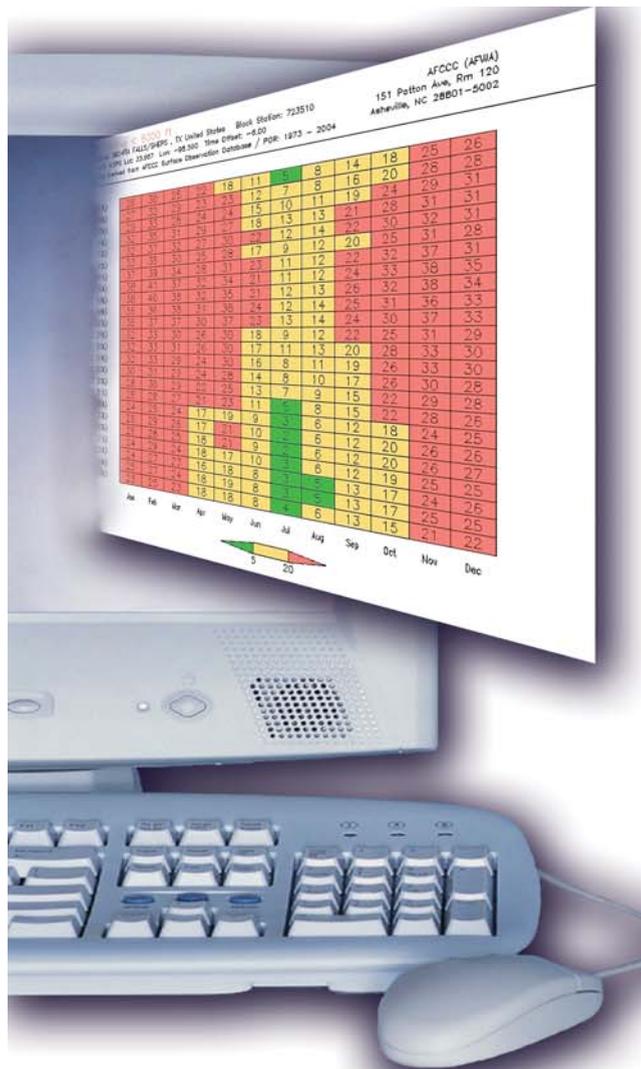
- ❑ Explore and create prototypes on client capabilities of the Commercial Joint Mapping Toolkit or C/JMTK.
- ❑ Provide satellite imagery in a near real-time environment to utilize components of C/JMTK.

- ❑ Employ cross-disciplinary capabilities of the C/JMTK to provide troops at the tip of the spear with a crucial edge in both two and three-dimensional realms.



New Climograms Reach Internet

AFCCC launches new product that provides user friendly, customer designed options



by Tech. Sgt. Benjamin Wretlind
Air Force Combat Climatology Center
Asheville, N.C.

The Air Force Combat Climatology Center launched its first "Climogram" product onto the Strategic Climate Information Service web site in June.

The product is designed with ceiling, visibility, and wind parameters, and includes the standard thresholds given in such products as the Operational Climatic Data Summaries. It also allows for thresholds that fall outside the standard suite.

This new application is technologically savvy and generates two-dimensional graphics in two formats: a red-yellow-green stop light chart version and a contour version.

The climogram is also user friendly. Users can modify certain aspects of the chart colors, contour intervals and stop light threshold values. They can also search for the location availability by entering a World Meteorological Organization number or an International Civil Aviation Organization airfield code or a partial number or code.

On both graphs, the months are depicted along the X-axis and hours are along the Y-axis. Time is expressed in both Zulu and local. There is also an option to set custom threshold values on the stop light chart or custom intervals and color values with up to 10 colors on the contour chart.

For example, if wing planners are concerned about ceilings of less than 6,000 feet at Wichita Falls, Texas, the application can display a stop light chart with user-defined values. One way to look at the problem would be to examine when the highest chance of ceilings less than 6,000 feet will occur.

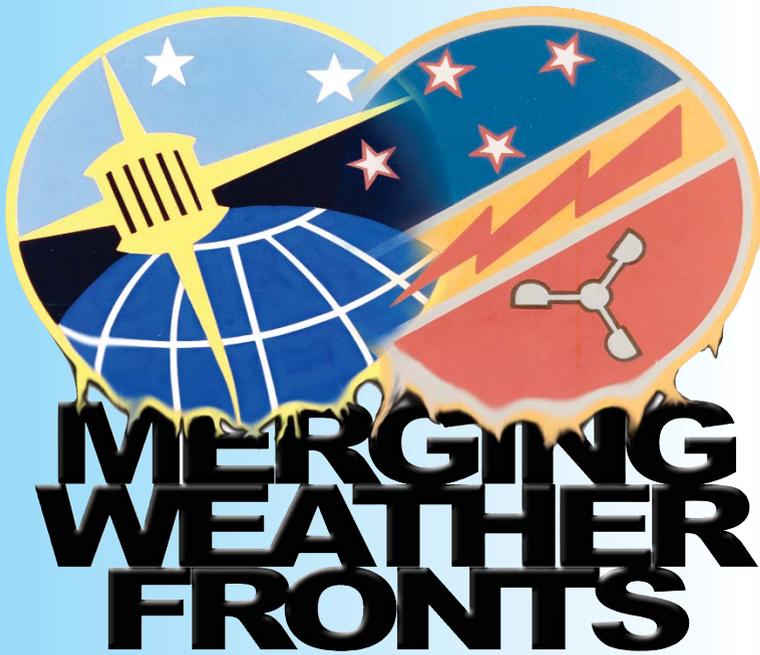
Currently, the available data for graphing consist of ceiling, visibility, and wind parameters at multiple values. While there are many more parameters available in the Period Of Record database, these three were deemed the most common and useful for this initial version of the application. The POR database consists of more than 800 Worldwide stations, which are all available for this application. Additional parameters will be added to future updates of the application.

As customers request additional data, AFCCC will generate summarized files for each block station or ICAO requested. Additional station requests can be submitted via a support assistance request through the AFCCC Web site. An analyst will create the station data and make it available to this application. Customers must keep in mind that the process to create a summarized station file is time intensive, and therefore, may take up to a week to process.

Customers can view this product on the AFCCC Web site via the products menu. Climograms can also be accessed through the map-based system on the site by clicking on a station dot and selecting - Climograms: Cig/Vis/Wind Params.

The Center also plans to expand this application to OCDS-based data, which are currently used in the production of regional and station narratives.

For more information, call the Air Force Combat Climatology Center at (828) 271-9018.



by 1st Lt. Steve Lipinski
17th Operational Weather
Squadron
Hickam AFB, Hawaii

A merger in the Pacific-theater weather community involving the 20th Operational Weather Squadron at Yokota AB, Japan, and the 17th Operational Weather Squadron at Hickam AFB, Hawaii, was recently announced by 5th Air Force officials.

Plans for this realignment have been circulating in the Air Force Weather community for two years. This announcement started the process of merging the two squadrons. However, it also raised some important questions.

Questions such as: Why realign weather assets in the first place? Who's going where? What is the timeline? How will it affect the warfighters in the Pacific theater?

The realignment plan is an effort to consolidate the operational weather support throughout the Pacific Air Forces. The plan was

approved by the PACAF commander to merge the mission, equipment and manpower of the 20th OWS at Yokota AB with the 17th OWS at Hickam by June 2006.

Officials said they are optimistic that this consolidation will improve weather support as the Air Force stands up warfighting headquarters in all geographic combatant commands.

"Our warfighting headquarters in Hawaii, the Kenney Headquarters, will particularly benefit now by having a single weather squadron that is responsible for their operations and is geographically collocated with their Air Operations Center," said Maj. Gen. David Deptula, PACAF Director of Operations.

This plan will increase the 17th OWS manpower from 52 to 112 people. This diminishes the need for duplicate resources such as two commanders and two directors of operations; it saves money, and reduces equipment and systems sustainment costs for Air Force Weather.

Now, the primary concern is in the timing. To minimize the impact on the daily mission, the move from Yokota to Hickam has to be a seamless transfer of weather support operations.

To accomplish this, the transfer is being done in stages.

A timeline was established so the transfer remains seamless to the operator, according to Maj. David Andrus, 20th OWS Director of Operations.

"We started with analysis which allowed the 17th OWS to get a good, solid top-of-the-forecast funnel view of the 20th OWS AOR. Now that the 17th has gained operational experience ... we're beginning the transition of hazards and graphics," he said.

By August, the 17th OWS assumed responsibility for flight hazards production and area weather advisories.

Lt. Col. Stephen Romolo, commander of the 17th OWS, commented that both squadrons are working hand-in-hand to ensure a seamless transition of support to the warfighters in the Pacific.

When asked about the prospect of the project he recently inherited, he replied, "The 17th OWS is looking forward to working with our new customers as the transition continues."

Another critical mission for the consolidated OWS will be training new apprentices to qualify as operational weather journeymen. The training flight at the 20th OWS "has a very mature and robust training program," said Lt. Col. Michael Farrar, commander of

the 20th OWS, Yokota AB. The folks in the 17th OWS training shop have been gracious in working with [Yokota]... so that the great progress achieved will not be lost," he said.

The 17th OWS will expand as more weather technicians are sent to Hawaii to fill job positions that were previously held at Yokota. This will increase the size of the classes by 150 percent. To accommodate this increase, the number of trainers will also increase from two to four instructors.

A similar expansion will occur on the operations floor at the 17th OWS. The operations floor would need to triple in size to accommodate the transition.

Maj. Chris Finta, 17th OWS Director of Operations, said this presented a major infrastructure challenge.

However, an innovative use of furniture coupled with a 360 sq. feet expansion of the floor space, provided by the 502nd Air Operations Squadron, enabled the merged squadrons to meet all peacetime and contingency operational requirements.

"When we transition each mission from Yokota to Hickam, the objective is for the warfighters not to notice the difference. If they do, then we've not done our job very well," said Colonel Romolo.

In June 2006, the newly reconfigured 17th OWS will stand up at Hickam AFB.

Much detailed planning and hard work has already been completed. Now, the remaining phases of the transition are being done in stages to ensure the merger remains seamless.



"On the Air"

with

AFN

WEATHER

by Senior Airman Heather Bellar
Air Force Weather Agency
Offutt AFB, Neb.

It's Friday morning. You grab a cup of coffee and turn on your favorite morning news program. You listen to the feature stories, which may or may not be of particular interest to you. Most likely, you're just waiting for the local weather forecast, so you can plan your activities for the weekend.

For military personnel stationed overseas, obtaining local weather information is not always that easy. That is where the American Forces Network Weather Center located at the Air Force Weather Agency, Offutt AFB, Neb., can save the day.

According to countless market studies, the weather is the number one reason audiences tune in to their local news stations. In the United States, this is a common and readily available amenity that many people take for granted. While stationed overseas, most U.S. government employees and their families have only one source for English-speaking broadcasts – the American Forces Radio and Television Service.

"In most overseas areas, local weather is broadcast in foreign languages and is usually based on the Celsius temperature

scale – not very user-friendly for the average American as they try to plan their non-operational activities," said Technical Sgt. Joni Spence, weather broadcast technician for the AFN Weather Center.

AFRTS provides worldwide programming through AFN, similar to commercial network programming in the United States. In 1996, AFRTS conducted a quality-of-life survey and discovered that the number two ranked issue was a lack of local weather information.

"Weather affects everything from planning family activities to organizing field exercises. High level operational briefings don't typically filter down to the individual level," said Maj. Brian Waranauskas, Chief of the Special Support Operations Branch at AFWA.

To answer this need, AFRTS teamed up with the HQ AFWA to create the AFN Weather Center, which began broadcasting in September 1998.

AFRTS supplies most of the equipment, and AFWA provides a military staff of eight to ten people to produce the broadcasts. The staff members are weather forecasters by trade, but the unique mission of the Weather Center requires them to also learn broadcasting techniques. The Defense Information School of Broadcast Training comes to AFWA twice a year to teach the weather forecasters the necessary skills to create professional quality shows. The Weather Center team also has annual training on the graphic technology used to build weather animations.

"Our broadcast technicians learn the



Staff Sgt. Keith Kaminski, an AFN weather broadcast technician, transfers the voice recording into the Weather Services International computer. The WSI computer combines voice-overs with weather graphics to create the daily weather forecast. Photo by Tech. Sgt. Claudette Hutchinson.



Staff Sgt. Keith Kaminiski, an AFN weather broadcast technician, records the daily Atlantic weather forecast in a sound-insulated recording booth. Photo by Tech. Sgt. Claudette Hutchinson.

latest skills right along side the weather producers of major networks like NBC,” said Tech. Sgt. Roscoe Moore, NCO in charge of the Weather Center.

The Weather Center produces 12 weather broadcasts daily, which are aired at approximately 117 locations throughout the European, Atlantic, Pacific, and Southwest Asia theaters. This includes two overview forecasts and one extended outlook forecast per day for each region. That’s more than 400 forecasts produced daily. AFN’s services support

nearly two million people around the world, including military members and their families, as well as Department of Defense civilians on bases and at embassies and consulates.

The mission of the AFN Weather Center is constantly evolving. A camera studio is included in the plans for AFWA’s new building, scheduled for completion in 2008. With the new studio, the Weather Center expects to produce live broadcasts by 2009, instead of the voice over graphics method currently

in use. Additionally, long-term plans are in the works for possible expansion into print, Web services, and radio.

“If we can provide the forecasts for each media type available to our troops, we can work toward greater continuity between reports than what is currently available,” said Maj. Waranauskas.

Thanks to ever-improving technologies, the Weather Center staff is consistently able to do more without increasing their personnel numbers, an important factor while the military continues to support the war on terrorism. Four years ago, they switched from manual data ingests to electronic ingests, saving countless man-hours. Automated forecasts were a major step forward.

They are currently anticipating a WSI upgrade, which will reduce the time required to create 3-D renderings from four hours to just 30 minutes. Such improvements, along with constant support from AFRTS, ensure that the Weather Center will continue to meet and exceed its operational goals.

The mission of the AFN Weather Center goes beyond just providing local weather. The favorite project of the weather center personnel is the Hometown Weather Report, designed to bring military and Department of Defense members a touch of home. Viewers are invited to send in their name, rank, and hometown to the center. One submission is featured each day with a three-day forecast for that town. As with all facets of the center’s mission, they are always working on new ways to improve and expand the impact of the Hometown show.

“This program gets people involved, boosts morale, and makes people feel more at home when they’re in a far away location,” said Sergeant Moore.

Weather affects every one, whether as a conversation starter with a stranger, while planning a family outing, or deciding to dig out the umbrellas instead of the golf clubs. The AFN Weather Center delivers accurate, understandable forecasts to those stationed far from home. Now, overseas personnel can also enjoy the convenience of local weather broadcasts.

NPOESS: 21st Century

Space-based military support weather on the battlefields

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

This is the 3rd and final article on the National Polar-orbiting Operational Environmental Satellite System. In this article, we review how NPOESS will support Air Force Weather mission and global military operations in the battlefield by exploiting the environmental weather data.

Battlefield Tactics

Weather is considered in every facet of military planning, global deployment, system design, and evaluation. In 2003, Peter B. Teets, then undersecretary of the Air Force, testified that, “the nation’s unparalleled ability to exploit weather and environmental data gathered from space is critical to the success of military operations.”

With improvements in environmental situational awareness, the U.S. military is rapidly shifting its tactical and strategic focus from “coping with weather” to anticipating and exploiting atmospheric and space environmental conditions for military advantage. New and improved data from NPOESS will significantly accelerate this transformation.

Weather affects every air mission, from an air drop of humanitarian aid to bombs on targets. While the effects of weather on ground-based aircraft can be serious, carrier-based air wings often have more critical problems. Launching aircraft from the deck of a carrier is highly dependent on wind speeds. Part of the success of the air campaign in Operation Iraqi Freedom was attributed largely to good weather for aircraft operations throughout the period. However, nearly 65 percent of all cancelled air sorties during a three-day period at the end of March 2003 were due to poor weather.

The high-spectral fidelity imagery, soon available from the Visible/Infrared Imager Radiometer Suite on NPOESS will present information in ways that will be more useful directly to warfighters and allow Combat Weather Teams to answer tactical questions with more confidence. For example, improved cloud deck information will help make decisions regarding aerial refueling, the operation of infrared-guided missiles, and the formation of contrails, which can reveal stealth aircraft.

Ground forces are frequently at the mercy of the weather.

Making sense of NPOESS sensors

The National Polar-orbiting Operational Environment Satellite System will collect and disseminate data about the Earth’s oceans, atmosphere, land, climate, and space environment. These environmental measurements are made available by a variety of instruments and sensors, both new and existing. The instruments include:

APS – Aerosol Polarimeter Sensor

The purpose of the APS is to retrieve information about aerosols and clouds in the atmosphere. This will enable scientists to determine the absorption and scattering characteristics of these atmospheric particulates and their effects on climate.

CMIS – Conical Microwave Imager/Sounder

CMIS will use the data from 77 microwave channels to produce products like atmospheric temperature and moisture profiles, snow and ice cover, sea surface winds, and soil moisture.

CrIS – Crosstrack Infrared Sounder

Measures Earth’s radiation to determine the vertical distribution of temperature, moisture, and pressure in the atmosphere.

OMPS – Ozone Mapping and Profiler Suite

Collects data to permit the calculation of the vertical and horizontal distribution of ozone in the Earth’s atmosphere.

SESS – Space Environment Sensor Suite

Collects data related to the neutral and charged particles, electron and magnetic fields, and optical signatures of the aurora.

VIIRS – Visible/Infrared Imager/Radiometer Suite

Collects visible and infrared radiometric data of the Earth’s atmosphere, ocean, and land surfaces. Data types include atmospheric, clouds, Earth radiation budget, land/water and sea surface temperature, ocean color, and low light imagery.

Information source:
<http://npoess.noaa.gov/>

Troops exposed to the elements are hampered by extreme temperatures, winds, dust, rain, and snow. With accurate weather forecasts and warnings, ground troops can prepare in advance for the extremes or camouflage themselves appropriately. The ability of the mechanized Army to move its weapons and equipment cross-country depends upon soil and vegetation type, soil moisture, precipitation, snow and ice cover. The Conical-scanning Microwave Imager/Sounder instrument on NPOESS will provide leading-edge measurements of surface wetness and soil moisture. Combined with data on vegetation and soil type derived from VIIRS, these measurements will allow the Army to plan maneuvers more effectively for tactical advantage and safety.

The Navy uses ocean surface wind and wave fields for routine ship routing as well as directing fleet sorties in emergencies. Accurate, time-critical forecasts of hurricane tracks, strike probabilities, and landfall are essential to the Navy at home and overseas. Microwave and multi-spectral imagery as well as atmospheric sounding data from NPOESS, combined with higher resolution Numerical Weather Prediction models are expected to improve the accuracy of hurricane track and landfall forecasts. With better data and forecasts, the Navy will avoid costly unnecessary sorties and have more time in areas of certain impact.

The Global Theater

The U.S. military is a global force that is constantly responding to dynamic, quick changing environmental conditions in hostile territory or in areas where access to ground-based meteorological observations is extremely limited, dangerous to gather or denied.

Operational polar-orbiting satellites, including Department of Defense Meteorological Satellite Program spacecraft, the National Oceanic and Atmospheric Administration's Polar-orbiting Environmental Satellites, and the future NPOESS, provide time-critical weather data globally to the military. In addition critical information is currently being gathered from the National Aeronautics and Space Administration's Earth Observation System Terra and Aqua satellites, to support military operations.

The military value of weather data is directly linked to timely delivery of "fresh" and accurate products to mission planners and battlefield commanders. The constellation of three equally-spaced, in time, NPOESS satellites, combined with larger swath-widths will ensure complete contiguous global coverage with refresh rates (local average time interval between consecutive measurements of a parameter at the same location) of four hours at the equator with faster rates in polar latitudes.

The high spatial, temporal, and spectral resolution of the



A thick band of dust snaking across the Red Sea between Egypt and Saudi Arabia on May 13, 2005, captured by the Moderate Resolution Imaging Spectroradiometer on NASA's Aqua satellite. Image courtesy of NASA.

instruments on NPOESS would be wasted if the data were not coupled with an equally fast delivery system. The NPOESS SafetyNet data relay network and the NPOESS ground processing system will improve delivery of processed data to users by a factor of five to seven compared to DMSP and POES. Current tests of the prototype system are demonstrating that nearly 80 percent of the processed global NPOESS data will be available to users within 15 minutes and 95 percent of the data will be available within 24 minutes. According to Mr. John Cunningham, System Program Director for the NPOESS Integrated Program Office, "this jump in data latency means you'll actually be observing the weather while it's still fresh." Rapid ingest of new data into Numerical Weather Prediction models will also facilitate improved nowcasts and forecasts.

NPOESS data will also be broadcast in real-time directly to combat units in the field or to carrier battle groups equipped with field terminals. Weather warriors attached to these units will receive NPOESS imagery and data for their area of interest as the satellite passes in range overhead. As technology improves, "net-centric" solutions may allow deployed units to be tied electronically into a larger infrastructure.

Improved weather information will significantly enhance the success of the Nation's global and at home military operations. It can also help prevent new or renewed strife worldwide. Today, nations are increasingly vulnerable to environmental catastrophes that can threaten people, economic or political stability, and lead to regional conflicts over scarce environmental resources. Movement of populations from rural to urban centers, particularly in coastal regions, has created increased competition for resources such as water and arable land. These changes demand improvements in precipitation forecasts for food production, warnings of natural disasters, and seasonal climate and drought forecasts, with the role of NPOESS as a critical component.



Senior Airman Laci Wood collects weather data from a TMQ-53 while Tech. Sgt. Carlton Hatfield readjusts the system's transmitter. It is one of several methods the 455th Air Expeditionary Wing's combat weather team at Bagram AB, uses to gather detailed weather updates hourly for pilots and Combined Joint Task Force 76 operations planners. Airman Wood is deployed from Eglin AFB, Fla., and Sergeant Hatfield is from Shaw AFB, S.C. Photo by Staff Sgt. Jennifer Lindsey.

C**ombat**

W**ea**ther

T**ea**m

forecasts mission success

by Staff Sgt. Jennifer Lindsey
455th Air Expeditionary Wing
Public Affairs
Bagram AB, Afghanistan

Cloud reading may seem an ethereal art, but predicting the effects of alto cumulus clouds blowing over the mountain ranges southwest of Bagram AB, Afghanistan, is pure science to aviators and ground troops traveling through those mountains.

Base leaders rely on the technical know-how of the 455th Air Expeditionary Wing's Combat Weather Team to use what cannot be changed for an operational planning advantage.

Combat weather specialists use a combination of technical equipment and old-fashioned visual cues to provide hourly forecasts to officials on base. In addition, the team distributes its data to military forecasting centers at Offutt AFB, Neb., and Shaw AFB, S.C.

Details on wind speed and direction, visibility, precipitation, temperature, and lightning detection forecasts are all more than "gee whiz" information, said Senior Airman Laci Wood, who is deployed from Eglin AFB, Fla. Pilots of all sorts – helicopters, commuter aircraft, fighter jets and airlifters – rely on updates for their flight planning and to help ensure a safe landing.

"Altitude, temperature and the dew point affect aircraft altimeter settings

[which pilots use] to assess how high from the ground they are in preparation for runway approach and touching down," said Lt. Col. John Cherrey, 81st Expeditionary Fighter Squadron commander and A-10 Thunderbolt II pilot.

Planners rely on accurate forecasts from the combat weather team to help ensure mission success, said Staff Sgt. Jim Moullet, who is deployed from Fort Polk, La.

During the Afghan national elections, planners positioned quick-reaction forces and air mobility assets to respond to insurgency around the polling areas, said Army Maj. John Bircher, a Combined Joint Task Force-76 operations planner deployed from Schofield Barracks, Hawaii. Planners coordinated with forecasters to determine how weather could affect aircraft and troop movement.

"We saw some of the worst weather here that day – cold temperatures, rain and snow," the major said, "but thanks to the forecasts, we adjusted our plans."

More recently, planners have monitored weather forecasts to predict humanitarian crises and prepare responses.

"We're gathering winter coats, heaters and food to provide to Afghans living in the higher elevations," Maj. Bircher said.

"Predicting what the weather is going to do next can be difficult and demanding work, but it's rewarding knowing that the work we do here is important," said Airman Wood.



Air Force Weather's Newest Masters and Techs



The following AFW Warriors were selected for promotion:

To Master Sergeant:

George Anghelescu, 48th OSS, RAF Lakenheath, England
Brent Baker, 55th OSS, Offutt AFB, Neb.
William Barnwell, 18th WS, Fort Bragg, N.C.
James Barton, 26th OWS, Barksdale AFB, La.
Willis Bearden, 15th OWS, Scott AFB, Ill.
James Bollinger, OL-K, Norman, Okla.
Scott Bradley, 437th OSS, Charleston AFB, S.C.
Randall Brooks, HQ AFWA, Offutt AFB, Neb.
Louis Brown, 31st CCS, Tinker AFB, Okla.
Duane Bruce, 15th OWS, Scott AFB, Ill.
Scott Butler, 3rd OSS, Elmendorf AFB, Alaska
Charlie Callison, HQ AFWA, Offutt AFB, Neb.
Werner Champion, AFCCC, Asheville, N.C.
Adam Christian, 17th OWS, Hickam AFB, Hawaii
Jason Clemens, 21st OSS, Peterson AFB, Colo.
Thomas Cross, 2nd OSS, Barksdale AFB, La.
Michael Dannelly, 75th OSS, Hill AFB, Utah
Dax Davis, TACC, Scott AFB, Ill.
John Dick, 26th OWS, Barksdale AFB, La.
Charles Dill, 80th OSS, Sheppard AFB, Texas
James Dixon, 20th OWS, Yokota AB, Japan
Robbie Ellis, 25th OWS, Davis-Monthan AFB, Ariz.
Carlomagno Erhardt, 18th OSS, Kadena AB, Japan
Mario Franklin, HQ AFWA, Offutt AFB, Neb.
Gerald Granahan, 607th WS, Yongsan, Korea
Gary Grimes, 314th OSS, Little Rock AFB, Ark.
Thomas Hakes, USAICS, Fort Huachuca, Ariz.
Sean Hansen, 3rd ASOG, Fort Wainwright, Alaska
Wayne Hardesty, AFCWC, Hurlburt Field, Fla.
Carlton Hatfield, 20th OSS, Shaw AFB, S.C.
James Heinrich, 3rd WS, Fort Hood, Texas
Brian Jacobi, 321st STS, Boblingen, Germany
Carl Jordan, 20th OWS, Yokota AB, Japan
David Jordan, 1st ACOS, Ramstein AFB, Germany
Dawn Kost, HQ AFWA, Offutt AFB, Neb.
Donald Kusz, AFCCC, Asheville, N.C.
Mark Kuttner, 56th OSS, Luke AFB, Ariz.

Krista Landreneau, 335th TRS, Keesler AFB, Miss.
James Lee, AFCWC, Hurlburt Field, Fla.
Jesse Lee, 509th OSS, Whiteman AFB, Mo.
Robert Lloyd, 28th OWS, Shaw AFB, S.C.
Richard Lopes, 27th OSS, Cannon AFB, N.M.
Robert Marlett, 335th TRS, Keesler AFB, Miss.
Edward Martin, 15th OWS, Scott AFB, Ill.
Shane McIntire, Det 5, Palehua, Hawaii
Jaime Mendez, ACSC, Maxwell AFB, Ala.
James Morris, 7th WS, Vicenza, Italy
Todd Morris, 607th WS, Camp Humphreys, Korea
Bruce Moser, 28th OWS, Shaw AFB, S.C.
Daniel Oien, HQ USAF, Washington, D.C.
Michael Pietrzak, 22nd OSS, McConnell AFB, Kan.
Otis Pless, 6th OSS, MacDill AFB, Fla.
Gary Rann, 71st OSS, Vance AFB, Okla.
John Robbins, 607th WS, Yongsan, Korea
Patrick Shannon, 28th OSS, Ellsworth AFB, S.D.
Anthony Soots, 15th OWS, Scott AFB, Ill.
Randy Taylor, HQ AFWA, Offutt AFB, Neb.
Paul Teff, 28th OWS, Shaw AFB, S.C.
Brenda Tillery, AFCWC, Hurlburt Field, Fla.
Thomas Tomich, HQ AFWA, Offutt AFB, Neb.
Paul Torres, 89th OSS, Andrews AFB, Md.
Seth Trent, 46th WS, Eglin AFB, Fla.
Philip Turner, 7th WS, Weisbaden, Germany
Joshua Turnier, 335th TRS, Keesler AFB, Miss.
Mario Viray, 28th OWS, Shaw AFB, S.C.
Robert Wagner, 27th OSS, Cannon AFB, N.M.
Erik Waugaman, 28th OWS, Shaw AFB, S.C.
Richard Wells, 28th OWS, Shaw AFB, S.C.
Kevin Wendt, AFCCC, Asheville, N.C.
Thomas Wenger, 28th OWS, Shaw AFB, S.C.
Todd Winters, 17th OWS, Hickam AFB, Hawaii
Burtice Wood, 26th OWS, Barksdale AFB, La.
Robert Yancey, 26th OWS, Barksdale AFB, La.

To Technical Sergeant:

Beth Adams, 43rd OSS, Pope AFB, N.C.
Jerome Adams, 335th TRS, Keesler AFB, Miss.
Steven Adams Jr., 10th CWS, Fort Campbell, Ky.
Eric Allen, USAFE OWS, Sembach AB, Germany
Estephany Allen, 436th OSS, Dover AFB, Del.
Keith Bachand, HQ AFWA, Offutt AFB, Neb.
Christina Bell, AOS, Langley AFB, Va.
William Bennett, 325th OSS, Tyndall AFB, Fla.
Katrina Blanchard, 20th OWS, Yokota AB, Japan
Adam Bolen, 607th WS, Camp Humphreys, Korea
Jessica Boyle, 3rd WS, Fort Hood, Texas
Jana Brown, 89th OSS, Andrews AFB, Md.
Jerry Bruggeman, HQ AFWA, Offutt AFB, Neb.
Charles Burdick, 19th ASOS, Fort Campbell, Ky.
Christopher Burgess, HQ AFWA, Offutt AFB, Neb.
Michael Burton, 10th CWS, Fort Campbell, Ky.
James Butterworth, AFCWC, Hurlburt Field, Fla.
Publio Casillas, 8th OSS, Kunsan AB, Korea
Jamie Ceier, 335th TRS, Keesler AFB, Miss.
Robert Clark, 39th OSS, Incirlik AB, Turkey
Burton Conner, 75th OSS, Hill AFB, Utah
Stepha Constantine, 16th OSS, Hurlburt Field, Fla.
Elizabeth Covairt, USAFE OWS, Sembach AB, Germany
Lowell Coxie, 7th WS, Grafenwohr, Germany
Mary Curtis, HQ AFWA, Offutt AFB, Neb.
William Darnell, BMSW, Hurlburt Field, Fla.
Jason Dobbins, 1st ASOG, Fort Lewis, Wash.
David Eisler, USAFE OWS, Sembach AB, Germany
Steven Fisher Jr., 28th OWS, Shaw AFB, S.C.
Robert Forton, AFCWC, Hurlburt Field, Fla.
Raphael Garcia, 15th OWS, Scott AFB, Ill.
Johndavid Gata, 335th TRS, Keesler AFB, Miss.
Christopher Gilbert, 607th WS, Yongsan, Korea
Kevin Goff, 436th OSS, Dover AFB, Del.
Brenda Graves, 28th OSS, Ellsworth AFB, S.D.
Patrick Gray, 49th OSS, Holloman AFB, N.M.

William Grissom, 45th WS, Patrick AFB, Fla.
Samuel Gutierrez, 15th OWS, Scott AFB, Ill.
Stephen Hale, 37th OSS, Lackland AFB, Texas
Jeffrey Hall, 335th TRS, Keesler AFB, Miss.
Travis Harrington, 46th WS, Eglin AFB, Fla.
Rodney Hattery, HQ AFWA, Offutt AFB, Neb.
Bryan Haught, 319th OSS, Grand Forks AFB, N.D.
Chad Helmer, 437th OSS, Charleston AFB, S.C.
Toby Helton, 375th OSS, Scott AFB, Ill.
Nolan Hildebrand, 15th OWS, Scott AFB, Ill.
Jon Hoagboon, HQ AFWA, Offutt AFB, Neb.
Gerardo Jaime, 25th OWS, Fort Sam Houston, Texas
Carla James, AFCWC, Hurlburt AFB, Fla.
Vincent Jones, Det. 4, Holloman AFB, N.M.
Steven Jurgilanis, 816th GMS, McGuire AFB, N.J.
Eric Kelley, 368th RCS, Spokane, Wash.
Cecil Kelly, USAFE OWS, Sembach AB, Germany
Scott Kelly, OL-K, Norman, Okla.
Megan King, 17th OWS, Hickam AFB, Hawaii
Rashid Lamb, 15th OWS, Scott AFB, Ill.
Geoffrey Lamson, 52nd OSS, Spangdahlem AB, Germany
Richard Landsverk, 18th OSS, Kadena AB, Japan
Corey Latiolais, 335th TRS, Keesler AFB, Miss.
Scott Losenicky, 55th OSS, Offutt AFB, Neb.
Kathy Lucia, 46th WS, Eglin AFB, Fla.
Christopher McBride, 25th OWS, Davis-Monthan AFB, Ariz.
Christopher McDermott, 46th OSS, Eglin AFB, Fla.
Randall McKillip, 20th OWS, Yokota AB, Japan
Jeffrey Michell, AFCCC, Asheville, N.C.
Jason Miller, HQ AFWA, Offutt AFB, Neb.
Donald Milliman, 31st OSS, Aviano AB, Italy
Michelle Moses, AFCCC, Asheville, N.C.
James Moullet, 21st ASOG, Fort Polk, La.
John Nagy Jr., 52nd OSS, Spangdahlem AB, Germany
Andrew Nichols, USAFE OWS, Sembach AB, Germany
Donna Nowalski, HQ AFWA, Offutt AFB, Neb.
Kevin Nurre, HQ AFWA, Offutt AFB, Neb.

Donald Odom, 52nd OSS, Spangdahlem AB, Germany
Jason Oliveira, 6th OSS, MacDill AFB, Fla.
Kathryn O'Neil, HQ AFWA, Offutt AFB, Neb.
Victor Pimentel, 720th OSS, Hurlburt Field, Fla.
John Platt, 81st OSS, Keesler AFB, Miss.
Terri Pugh, AFCCC, Asheville, N.C.
James Rafiner, 56th OSS, Luke AFB, Ariz.
James Raggett, USAFE OWS, Sembach AB, Germany
Karen Rattray, 7th WS, Weisbaden, Germany
Jeremy Reynolds, 20th OWS, Yokota AB, Japan
John Rivera, 56th OSS, Luke AFB, Ariz.
Kenneth Roberts, 8th OSS, Kunsan AB, Korea
Andrew Robinson, 28th OWS, Shaw AFB, S.C.
Miguel Rosado, 18th WS, Pope AFB, N.C.
Carl Schuett, HQ AFWA, Offutt AFB, Neb.
John Sheedy, US Southern Command, Fort Bragg, N.C.
Gary Spray, HQ AFWA, Offutt AFB, Neb.
Jason Stewart, 314th OSS, Little Rock AFB, Ark.
Earl Stoll, 75th OSS, Hill AFB, Utah
Bryan Stopp, AFCCC, Asheville, N.C.
James Storr, 30th WS, Vandenberg AFB, Calif.
David Strickland, 19th ASOS, Fort Campbell, Ky.
Randy Sunga, 1st OSS, Langley AFB, Va.
John Tarver, USAFE OWS, Sembach AB, Germany
Nathan Taylor, HQ AFWA, Offutt AFB, Neb.
Joseph Taylor, AFTAC, Patrick AFB, Fla.
Jilli Taylorfurman, Det. 5, Palehua, Hawaii
Elise Thompson, Det. 5, Palehua, Hawaii
Michael Thornbury, 65th OSS, Lajes Field, Azores
Timothy Verville, 5th OSS, Minot AFB, N.D.
Nathan Willems, 160th SOAR, Korea
Jacob Williams, AFCCC, Asheville, N.C.
Jerry Wimer, AFCCC, Asheville, N.C.
Jacqueline Wood, HQ AFWA, Offutt AFB, Neb.
Robert Yoas, 2nd OSS, Barksdale AFB, La.
Bradley Youngquist, HQ AFWA, Offutt AFB, Neb.



2nd Lt. Chris Higgins (left) trains for the lead forecaster position with 2nd Lt. Daniel MacKeen of the 15th OWS. Photo by Capt. Stan Paregien.

PASSION

makes Officer's career unique

by Tech. Sgt. Gerald Sonnenberg
932nd Airlift Wing Public Affairs
Scott AFB, Ill.

Passion is a powerful emotion and a driving force in people's lives. Whether it's for another person, a hobby, work, or country, it motivates and instills an intensity that is difficult to hide.

This is the case with 2nd Lt. Chris Higgins, a weather officer with the 932nd Airlift Wing's 12th Operational Weather Flight at Scott AFB, Ill.

His passion for the sky is reflected in his voice as he describes how his interest developed in second grade when his grandfather brought him outside their Missouri home to watch an intense thunderstorm rise up and churn above them.

"Ever since then, I've been fascinated with the mechanics of watching a perfectly calm sky quickly develop into a 50,000-foot storm cloud," said Lieutenant Higgins.

This fascination took him to St. Louis University where he earned his Bachelor of Science degree in meteorology in 1992. After spending two years as the chief meteorologist at KODE-TV in Joplin, Mo., Lieutenant Higgins moved back to St. Louis. He is now a weekend meteorologist and TV personality at FOX 2 News in St. Louis.

The son of a former Air Force captain and doctor stationed at the now closed Chanute AFB, Ill., Lieutenant Higgins considered joining the Air Force after graduating from St. Louis' De Smet Jesuit High School in 1988.

"I kind of wanted to join then, but I wasn't ready," he said. "I did get a taste for the military, having college room-

mates who were in ROTC [Reserve Officer Training Corps], but it wasn't for me at the time."

The terrorist attacks of Sep. 11, 2001, changed all of that for Lieutenant Higgins and his family.

"I was sitting in my living room with my then 2 ½ year-old son on my lap, watching the second plane hit the south tower," he said. "Through my emotion, I asked myself, 'What can I do to help?' I started doing research on the Air National Guard, and I later decided to join. I felt very strongly because I knew it was the right thing to do."

In April 2003, at the age of 33, he joined the military. That summer, he graduated from the Academy of Military Science in Knoxville, Tenn., the Officer Training School for the Guard and Reserve. For him, it was one of the most special moments of his life.

"My parents made the trip down. After the ceremony, I walked up to him [his Dad] and saluted, and he started crying when he saluted back. That was the first time I had ever seen him cry in my entire life," recalled Lieutenant Higgins.

After spending the first two years of his career in the Missouri Air National Guard at St. Louis Lambert International Airport, Lieutenant Higgins is now a member of the 12th OWF. He is responsible for accurately forecasting the weather over a 22-state region from the Midwest to the Northeastern United States.

The 12th OWF came into existence last winter and belongs to the 932nd, but it operates within the active duty 15th Operational Weather Squadron at Scott AFB. Lt. Col. Brian Bjornson

is the commander.

"With the addition of such a high-caliber, experienced meteorologist like Lieutenant Higgins, our ability to accomplish the 15th OWS mission just got a bit easier," said Colonel Bjornson.

Lieutenant Higgins enjoys his work in TV, except that there are no "do-overs."

"People don't remember the nine out of 10 forecasts, or better, you get right ... they only remember the one you got wrong," he said.

The lieutenant also loves public speaking, especially to school children. "It gives me the opportunity to talk 24/7 about what I think is the most fascinating science - meteorology."

In the Air Force, Lieutenant Higgins has found "fuel for the soul" when it comes to meteorology. He said the main difference between forecasting for Fox and the Air Force is in the details.

"The average person wants to know if it's going to rain so they can plan their day. But for the Air Force, the direction and speed of the wind can make a huge difference as to whether we can fly a mission," said Lieutenant Higgins.

Maj. Bridget Davis, 12th OWF commander, said Lieutenant Higgins loves his civilian job, loves doing the type of meteorology we do in an operational weather squadron, and loves serving his country.

"Think about it: no one 'needs' to serve his or her country; we are still a volunteer force. But we benefit from the experiences of serving our country," she said. "He brings a lot of weather experience to the flight, and we really look forward to him being able to work with the 15th."

'Excellent Center'

AFCCC team players receive public recognition

by Air Force Combat Climatology Center Staff Report Asheville, N.C.

Several members from the Air Force Combat Climatology Center, Asheville, N.C., were recently recognized for their outstanding contributions as public servants. They received awards through the Excellence in

Public Service program.

The program recognizes people in the public sector at the Federal, State, County, City, and Municipality levels who have made significant accomplishments during the previous year. The Excellence In Public Service program is in its 15th year and is sponsored by the Greater Asheville Public Service

Council.

There are 12 categories in the program. Each public sector can submit one nominee in each category. A panel then reviews the nominations and selects one person or team in each category. The panel also selects one person, or team, out of the category winners as the overall Public Servant or team of the Year.

The following are the AFCCC award recipients:

Outstanding Supervisor
Maj. Ann Gravier

Outstanding Technician
Tech. Sgt. Ben Wretlind

Outstanding Team
AFCCC Web Team

Mr. Joe Covert
Mr. Ray Kiess
Maj. Mike Staley
Tech. Sgt. Don Kusz
Tech. Sgt. Ben Wretlind
Staff Sgt. Jeff Michell
Staff Sgt. Bryan Stopp

Suzanne S. Turner Unsung Hero/Heroine
Ms. Lavonda Washburn

Airman saves children from drowning

by Ms. Jodie Grigsby
Air Force Weather Agency
Public Affairs
Offutt AFB, Neb.

An Airman here was expecting to have some fun in the sun on a recent weekend trip to the beach. He was not expecting to save children from drowning.

Staff Sgt. Jozsef Nagy, an Internet services technician with the Air Force Weather Agency, was attending a network management training class at Keesler AFB, Miss., when he and fellow classmates took a day trip to Pensacola Beach, Fla. Sergeant Nagy said it was a beautiful day, and the beach was packed with people soaking up some weekend sun. He was wading in the water when one of his classmates yelled, "Are those kids in trouble?"

Sergeant Nagy said he turned and noticed three children who were about eight feet in front of him; all appeared to be struggling in the water. He then saw a young boy, about 7 years old grab hold of an older girl. The girl, who was about 12 years old, went under the water from the weight of

the boy. He said it was then that another girl, who was about 8 years old, turned to him and asked, "Can you help us?"

"I didn't think; I just reacted," said Sergeant Nagy, who has been in the Air Force for six years.

Sergeant Nagy dove underwater and reached the children in a matter of seconds, pulling the older girl from under the water. He said the other two children grabbed hold of him almost instantly. At that point, he said he told them to calm down and that he was there to help. They were about 60 feet from the shore, and standing 6 feet, 3 inches tall, Sergeant Nagy said he could barely touch the ground. As he headed toward the shore, he had to tread water to keep his head, and the three children that clung to him, above water. He said the force of the waves was huge and that he had to fight with it to keep from losing ground.

"It felt like that with every two steps forward, the (waves) pulled us back one step," he said.

Sergeant Nagy, a father of a 3-year-old, said his parental instincts were in high gear, and he zeroed in on

getting everyone safely to shore. Once he reached shore, he said the two smaller children ran off without a word. The older girl sat there for a few moments as she caught her breath.

"You could tell she was tired, probably both physically and emotionally," he said.

Sergeant Nagy said he asked her if she was OK. She just nodded her head and then walked away.

"Knowing that they were OK was all the thanks I needed," Sergeant Nagy said.

But not everyone thinks he should go without recognition.

"The Air Force is about service and sacrifice, and Sergeant Nagy demonstrated both of these when he put his own life in danger to save three children from certain harm, and possible death," said Col. David Handle, AFWA's communications and information directorate director. "If that isn't heroism, I don't know what is."

Sergeant Nagy shrugs off his "hero" status and credits his Air Force training for his actions.

"The Air Force teaches you attention to detail, situational awareness and to stay calm under pressure," he said.

All of which served this Airman, and three young children, very well.

Staff Sgt. Gregory Adams
 Det. 4, AFWA, Holloman Solar Observatory,
 Holloman AFB, N.M.
 Chief of Solar Observatory Operations
Years in service: 10
Hometown: Miami, Fla.
Role Model? Staff Sgt. Wellerman, my Military
 Training Instructor in Basic Training. He taught
 me the importance of the core values, and that
 we are Airman first, AFSC's second. Now I am
 following in his footsteps to hopefully become a
 MTI with my next assignment.
Hobbies: Motorcycling, weight training and
 styling my hair.
Most Memorable Air Force Weather
Experience: My deployment to SW Asia. I had
 the opportunity to support joint operations,
 train tactical forecasters, and see action outside
 of weather - like prisoner security.



Weather Warrior

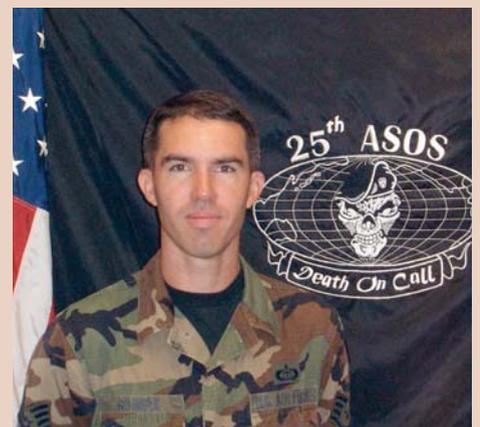


Staff Sgt. Rodney Hattery
 HQ Air Force Weather
 Agency, Offutt AFB, Neb.
 Meteorological Systems
 Information Administrator
Years in service: 7 years
Hometown: Kenton, Ohio
Role Model? Every NCO I
 have worked with in the
 weather career field as well as
 others. Whether they were
 older, younger, good or bad, I
 have learned something from
 each of them many times over.
 I believe they are the back-
 bone of today's Air Force.
 They support the daily mis-
 sion and people while making
 things happen. Especially the

stellar crew I am currently deployed with at Kandahar Airfield, Afghanistan. These people are awesome!

Hobbies: Keeping my wife happy

Most Memorable Air Force Weather Experience: While deployed at Tirana, Albania, as part of Task Force Hawk and Operation Shining Hope, I jumped from a hovering Blackhawk helicopter, to an austere mountaintop. There, I deployed and hid a remote miniature weather sensor package. Not only was the mission challenging, but also the information we gathered from the sensor was critical to ongoing helicopter operations through rugged mountain peaks. I realized at that moment, that where I stood, it was likely no other person had ever been there before. I was looking at a part of the world few have ever seen, and doing something that was unique even for a weather observer. I could only take in the sights for a second, but I still remember the view.



Tech. Sgt. Paul "Rodrigo" Rogers
 25th ASOS CWT, Wheeler AAF, Hawaii
 NCOIC, Mission Support Element
Years in Service: 13 years
Hometown: Belleville, Ill.

Editors Note: The wrong photo was printed of Weather Warrior Tech. Sgt. Paul "Rodrigo" Rogers in the March-April issue of the Observer. We apologize to Sergeant Rogers. This is a correction reprint.

Where in the weather world is ...

by Tech. Sgt Claudette Hutchinson
Air Force Weather Agency
Public Affairs
Offutt AFB, Neb.

When Hurricane Donna and three blizzards pummeled the east coast and his hometown of Long Island N.Y., in 1960, 12-year-old Bruce Telfeyan's curiosity of the weather was piqued. That season's weather events became the catalyst that permanently hooked him to the world of meteorology.

Mr. Telfeyan attended the Air Force Reserve Officer Training Corps from 1966 to 1970, and was commissioned at the University of Kentucky. He delayed his active duty entry to pursue his Master's of Science degree in Meteorology; following his natural path to becoming a weather officer. He then joined the Air Force in 1972 and served 21 years on active duty.

Thirty-three years later, the now retired lieutenant colonel is still a driving force in the weather community. He currently serves as the chief of the Technology Exploitation Branch at the Air Force Weather Agency, Offutt AFB, Neb.

"I enjoyed every assignment I had. My active duty experiences helped me to be more effective in my AFWA duties," said Mr. Telfeyan.



Mr. Bruce Telfeyan receives his gold oak leaves during his promotion ceremony in 1983. Pinning-on the rank are Col. R.G. Bradshaw (left) and Lt. Col. John Raymond (right).

While on active duty, Mr. Telfeyan served as the deputy director of weather at Headquarters Air Force Materiel Command, Wright-Patterson AFB, Ohio. He also served as the director of Meteorology and Oceanography, 6th Allied Tactical Air Force, Izmir, Turkey.

"My job in Turkey was a NATO position. This was my first encounter with terrorism," he said.

With more than 33 years in the weather business, the experiences of Mr. Telfeyan's are a laundry list of historical events to most of the younger weather force.

In 1969 he reported on the Apollo II moon landing. As a forecaster at the Air Force Global Weather Central in 1974, he forecasted on more than 148 tornadoes, he also observed the Omaha tornado of 1975.

While Mr. Telfeyan enjoyed his various weather positions, he said some of his most fulfilling experiences were outside the weather field.

Serving as Commandant of Cadets at AFROTC Detachment 470, University of Nebraska at Omaha, in the early 1980s was extremely fulfilling, he said.

"It is essential to mentor young people because they are the future of the Air Force. As a leader, it is very fulfilling to motivate and understand your people. Now 25 years later, I'm still in contact with some of my former cadets."



Mr. Bruce Telfeyan, Chief of the Technology Exploitation Branch at the Air Force Weather Agency, Offutt AFB, Neb., mentors Mr. Jeramie Lippman on the fine points of mesoscale models.

Salutes

AWARDS AND DECORATIONS

MERITORIOUS SERVICE MEDAL

Maj. Barbara Miner, HQ AMC, Scott AFB, Ill.

AIRMAN'S MEDAL

Tech. Sgt. Sean Hansen, Det. 1, Wurzburg, Germany

AIR FORCE COMMENDATION MEDAL

Maj. Barry Crook, 7th WS, Heidelberg, Germany
Capt. Paul Hanna, 7th WS, Heidelberg, Germany
Staff Sgt. Cedrick Orr, 7th WS, Heidelberg, Germany

ARMY COMMENDATION MEDAL

Maj. William Pryor, 7th WS, Heidelberg, Germany
Master Sgt. Arleen Jancic, 7th WS, Heidelberg, Germany
Tech. Sgt. James Morris, Det. 12, Vincenza, Italy
Tech. Sgt. Thomas Prochazka, OL-A, Coleman Barracks, Germany
Staff Sgt. Malik Barnes, Det. 5, Katterbach, Germany
Staff Sgt. Johnny Flores, Det. 2, Hanau, Germany
Staff Sgt. Sean Koch, Det. 1, Wurzburg, Germany
Staff Sgt. Jason Nuy, Det. 11, Heidelberg, Germany

AIR FORCE ACHIEVEMENT MEDAL

Staff Sgt. Cedrick Orr, 7th WS, Heidelberg, Germany
Senior Airman Mark Bryson, Det. 11, Heidelberg, Germany

EDUCATION

SENIOR NONCOMMISSIONED OFFICER ACADEMY

Distinguished Graduate
Master Sgt. James Slisik, HQ AFWA, Offutt AFB, Neb.

NONCOMMISSIONED OFFICER ACADEMY

Distinguished Graduates

Tech. Sgt. Delbert Friesen, HQ AFWA, Offutt AFB, Neb.
Tech. Sgt. Tracy Ulanski, HQ AFWA, Offutt AFB, Neb.

AIRMAN LEADERSHIP SCHOOL

Levitow Award Winners

Senior Airman Michael Bliss, Det. 10, Giebelstadt, Germany
Senior Airman Michael Jackson, 314th OSS, Little Rock AFB, Ark.

Distinguished Graduates

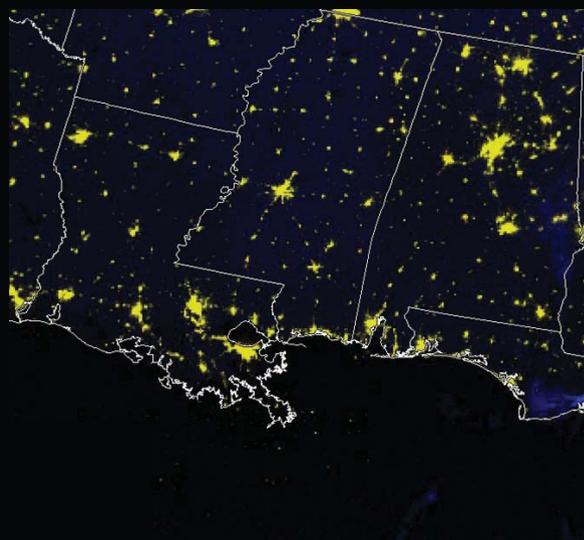
Staff Sgt. Anthony Scott, Det. 11, Heidelberg, Germany
Senior Airman Edgar Wingo, Det. 5, Katterbach, Germany
Leadership Award Winner
Senior Airman Daniel Mike, Det. 2, Hanau, Germany

WEATHER FORECASTER APPRENTICE

Tech. Sgt. Geoffrey Mason, 15th OWS, Scott AFB, Ill.
Tech. Sgt. Timothy Parkinson, 28th OWS, Shaw AFB, S.C.
Tech. Sgt. Eric Twitty, 25th OWS, Davis-Monthan AFB, Ariz.
Staff Sgt. Nathan Vandenberg, 105th WF, Nashville, Tenn.
Senior Airman Kevin Fedon, 155th ARW, Lincoln, Neb.
Senior Airman Kevan Matthews, 146th CWF, Pittsburgh, Pa.
Senior Airman Justin Van Meter, 123rd WF, Portland, Ore.
Airman 1st Class Jennifer Armitage, 20th OWS, Yokota AB, Japan
Airman 1st Class Alison Barrow, USAFE OWS, Sembach AB, Germany
Airman 1st Class Jack Boubelik, 28th OWS, Shaw AFB, S.C.
Airman 1st Class Joey Cedillo, 20th OWS, Yokota AB, Japan
Airman 1st Class Geoffrey Davies, 25th OWS, Davis-Monthan AFB, Ariz.
Airman 1st Class Nicole Davis, 15th OWS, Scott AFB, Ill.
Airman 1st Class Zachary Ferguson, USAFE OWS, Sembach AB, Germany

Airman 1st Class Adam Gagne, 17th OWS, Hickam AFB, Hawaii
Airman 1st Class Christopher Halskov, 20th OWS, Yokota AB, Japan
Airman 1st Class Karla Hause, USAFE OWS, Sembach AB, Germany
Airman 1st Class Claudine Hyppolite, USAFE OWS, Sembach AB, Germany
Airman 1st Class Lindsay Jewell, 17th OWS, Hickam AFB, Hawaii
Airman 1st Class Kevin Johnson, 15th OWS, Scott AFB, Ill.
Airman 1st Class Paul Kimmins, 17th OWS, Hickam AFB, Hawaii
Airman 1st Class Tina Lawson, 11th OWS, Elmendorf AFB, Alaska
Airman 1st Class Timothy Martinez, USAFE OWS, Sembach AB, Germany
Airman 1st Class Jonathan Maxwell, USAFE OWS, Sembach AB, Germany
Airman 1st Class Brian Osmundson, USAFE OWS, Sembach AB, Germany
Airman 1st Class Samuel Pelz, 15th OWS, Scott AFB, Ill.
Airman 1st Class Thomas Rauch, USAFE OWS, Sembach AB, Germany
Airman 1st Class Philip Richards, USAFE OWS, Sembach AB, Germany
Airman 1st Class Jeffrey Robbins, 17th OWS, Hickam AFB, Hawaii
Airman 1st Class Jacob Ruckman, 15th OWS, Scott AFB, Ill.
Airman 1st Class Ryan Siegfried, 26th OWS, Barksdale AFB, La.
Airman 1st Class Sara Snyder, USAFE OWS, Sembach AB, Germany
Airman 1st Class Jennifer Woods, 11th OWS, Elmendorf AFB, Alaska
Airman 1st Class Jowanna Young, USAFE OWS, Sembach AB, Germany
Airman Ramsey Brown, 15th OWS, Scott AFB, Ill.
Airman Daniel Carnley, 17th OWS, Hickam AFB, Hawaii
Airman Lyndsey Cash, 15th OWS, Scott AFB, Ill.
Airman Christie Crossley, 26th OWS, Barksdale AFB, La.
Airman David Drainer, 25th OWS, Davis-Monthan AFB, Ariz.
Airman Russell Garner, 17th OWS, Hickam AFB, Hawaii

LIGHTS OUT!



The Defense Meteorological Satellite Program nighttime image on the left shows wide-spread power outages after Hurricane Katrina ravaged the Gulf Coast of the United States in August. The image on the right provides a baseline for the area. These DMSP F-15 multispectral images use both infrared and visual satellite imagery to produce color composites that reveal clouds and lights. The infrared portion is in blue, showing clouds, and the visible portion is in yellow, showing city lights and fires. Images courtesy of the Air Force Weather Agency.

Airman Apryll Green, 28th OWS, Shaw AFB, S.C.

Airman Daniel Johnson, 17th OWS, Hickam AFB, Hawaii

Airman Bernard Long, 17th OWS, Hickam AFB, Hawaii

Airman Melinda Marsh, USAFE OWS, Sembach AB, Germany

Airman Lewis Phillips, 7th OWS, Hickam AFB, Hawaii

Airman Joseph Ramos, 25th OWS, Davis-Monthan AFB, Ariz.

Airman Staci Rhoden, USAFE OWS, Sembach AB, Germany

Airman Rachelle Smith, 17th OWS, Hickam AFB, Hawaii

Airman Jonathon Spillman, 25th OWS, Davis-Monthan AFB, Ariz.

Airman Sean Trosper, 28th OWS, Shaw AFB, S.C.

Airman Jared Wheatley, 11th OWS, Elmendorf AFB, Alaska

Airman Garrett Zacharias, USAFE OWS, Sembach AB, Germany

Airman Basic Martin Flowers, 28th OWS, Shaw AFB, S.C.

COMBAT WEATHER TEAM COURSE

1st Lt. Laura Bartlett, 18th ASOG, Fort McPherson, Ga.

1st Lt. Margaret Cowden, 25th OWS, Davis-Monthan AFB, Ariz.

1st Lt. Scott Guzewich, 15th OWS, Scott AFB, Ill.

1st Lt. Jason Noren, 17th OWS, Hickam AFB, Hawaii

Staff Sgt. Christopher McBride, 25th OWS, Davis-Monthan AFB, Ariz.

Staff Sgt. Donald Morgan, 7th OSS, Dyess AFB, Texas

Senior Airman Russell Beye, 607th WS, Yongsan, Korea

Senior Airman Michelle Bourke, 7th WS, Heidelberg, Germany

Senior Airman Devin Bourland, 89th OSS, Andrews AFB, Md.

Senior Airman Michael Broady, 13th ASOS, Fort Carson, Colo.

Senior Airman Lisa Cantin, 436th OSS, Dover AFB, Del.

Senior Airman Robert Curry, 18th WS, Fort Bragg, N.C.

Senior Airman Leslie Dailey, 25th OWS, Davis-Monthan AFB, Ariz.

Senior Airman Brandon Gorley, 15th ASOS, Hunter AAF, Ga.

Senior Airman Eli Huve, 22nd OSS, McConnell AFB, Kan.

Senior Airman Joseph Lydem, 612th ABS, Soto Cano AB, Honduras

Senior Airman Brandy Meier, Det. 3, Fort Carson, Colo.

Senior Airman Tamara Ross, 7th WS, Gebelstadt AIN, Germany

Senior Airman Joan Sallee, 36th OSS, Anderson AFB, Guam

Senior Airman Ray Smith, 21st OSS, Peterson AFB, Colo.

Senior Airman Ryan Snider, 19th ASOS, Fort Campbell, Ky.

Senior Airman Amanda Tokarz, 18th OSS, Kadena AB, Japan

Airman 1st Class Damien Rapp, 28th OWS, Shaw AFB, S.C.

WEATHER OFFICER COURSE

Capt. Troy Schulz, 3rd WS, Fort Hood, Texas

2nd Lt. Tyler Brock, 25th OWS, Davis-Monthan AFB, Ariz.

2nd Lt. Benjamin Burkel, 25th OWS, Davis-Monthan AFB, Ariz.

2nd Lt. James Caldwell, 28th OWS, Shaw AFB, S.C.

2nd Lt. Douglas Gautrau, 26th OWS, Barksdale AFB, La.

2nd Lt. Sara Jones, 28th OWS, Shaw AFB, S.C.

2nd Lt. David Kramer, 11th OWS, Elmendorf AFB, Alaska

2nd Lt. Martine Morris, 26th OWS, Barksdale AFB, La.

2nd Lt. Matthew Munson, USAFE OWS, Sembach AB, Germany

2nd Lt. Stephanie Rollefson, USAFE OWS, Sembach AB, Germany

2nd Lt. Emily Wood, 17th OWS, Hickam AFB, Hawaii

