

Observer

The Magazine for Air Force Weather

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KEEPING
an EYE
ON THE
Future



Observer

The Magazine for Air Force Weather

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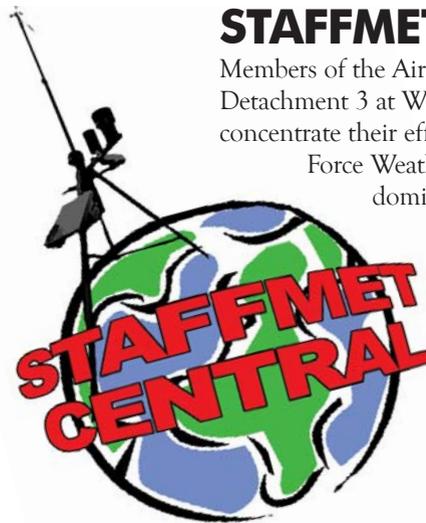
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JITT stands for "Just-In-Time Training," and is offered by the Air Force Combat Weather Center at Hurlburt Field, Fla., to any Air Force Weather warrior leaving on an Air Expeditionary Force rotation. This latest training initiative provides a 5-day course on the tactical equipment weather troops will encounter in the field.

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The Air Force Research Laboratory is developing tactical weather sensor nodes that can create a Cognitive Network for Atmospheric Sensing with hundreds of remote nodes relaying data to weather specialists.

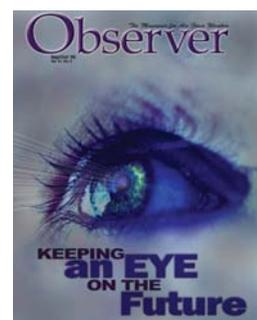
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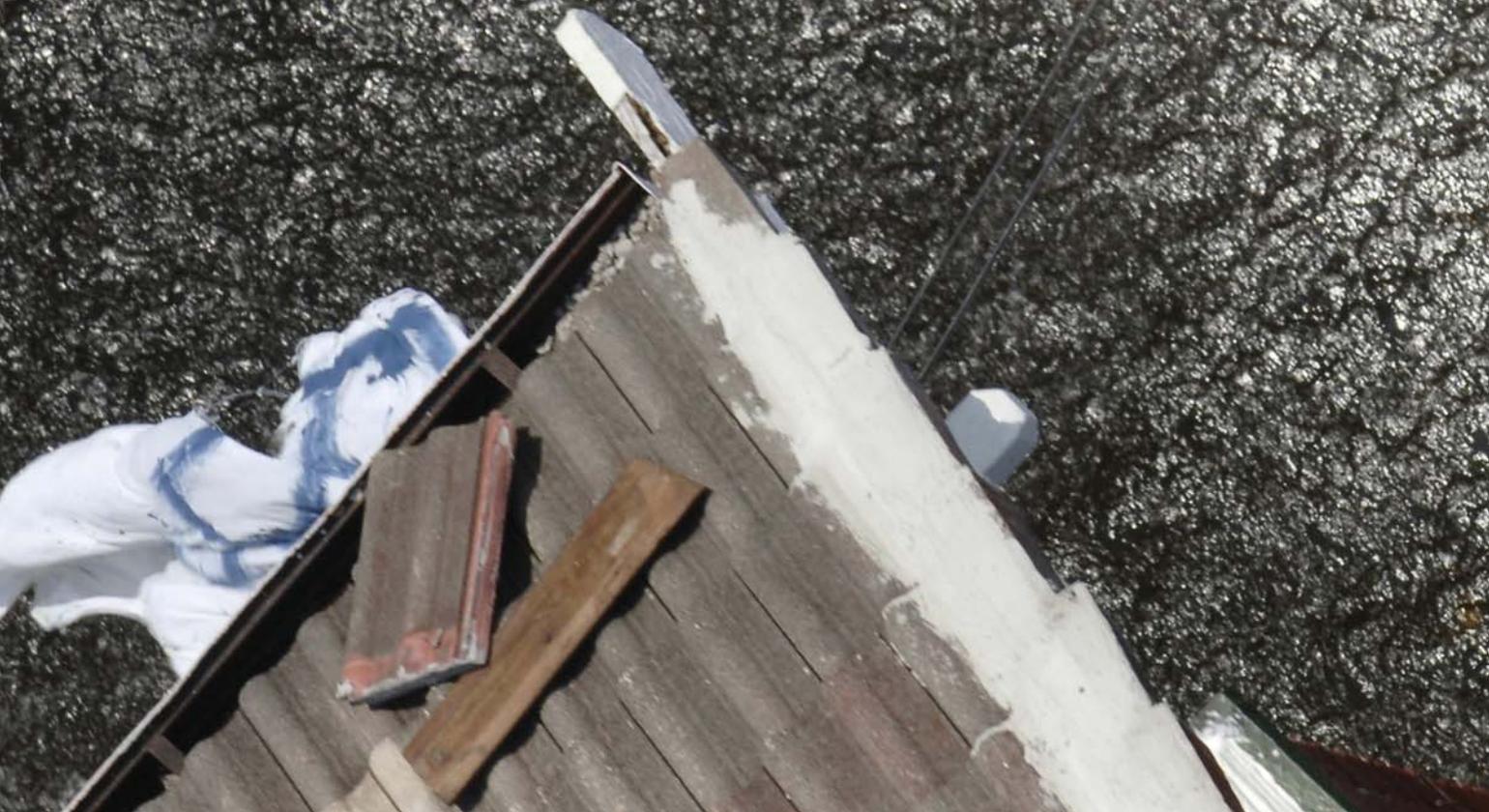
On the Cover

Research and development of new weather equipment and forecast models is vital to advancing Air Force Weather's information superiority - now, and in the future. Meteorologists and information and communication professionals around the world contribute to the technological advances of Air Force Weather. *Graphic illustration by Ms. Jodie Edwards.*



TO THE I

**Joint Task Force
Katrina members
render aid to
hurricane survivors
along Gulf Coast**



ESCUUE



Tech. Sgt. Lem Torres rescues a child Sept. 2 who was trapped in a New Orleans house flooded by Hurricane Katrina. Sergeant Torres is a pararescueman in the 38th Rescue Squadron, Moody Air Force Base, Ga. Photo by Staff Sgt. Manuel Martinez.

Katrina and Rita's one, two punch

by Mr. Miles Brown
Air Force Weather Agency
Public Affairs
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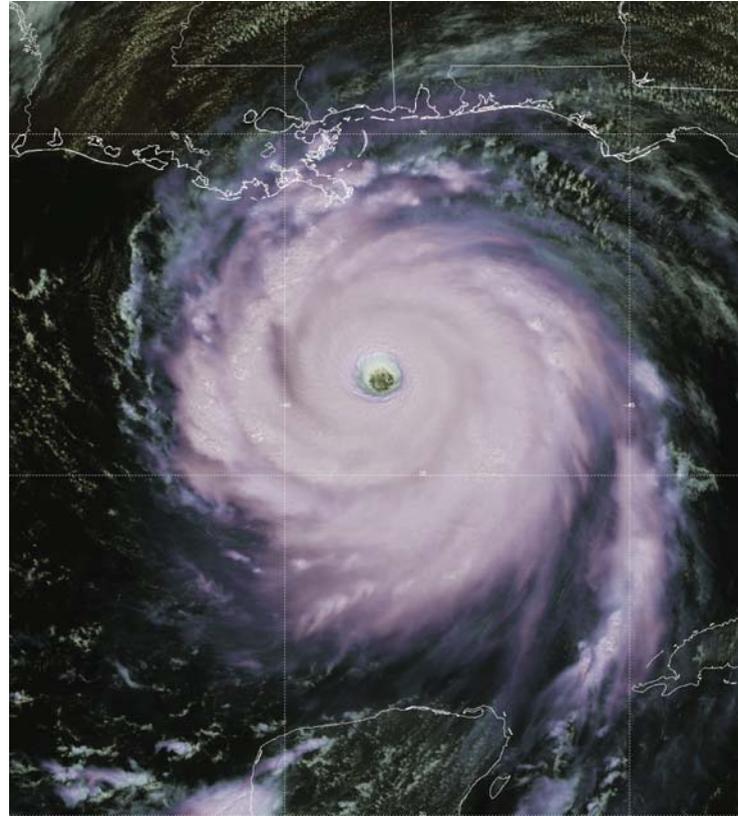
As Hurricane Katrina made landfall Aug. 29, the federal government ramped-up for one of the largest rescue and recovery efforts in the history of the United States ... just one day later, Air Force Weather specialists were notified that they were needed in New Orleans.

An Air National Guard's weather team activation started with a call and some hurried preparations.

"We received the deployment notification Aug. 30 to support response operations for Hurricane Katrina," said Lt. Col. Bill Darling, Commander of the 208th Weather Flight of the Minnesota ANG. "Within two hours, Staff Sgt. David Ward, Senior Airman Ryan Johnson and I filled the tasking and were packed and prepared to depart within 24 hours."

Due to damage across the entire Louisiana coast, the weather team did not depart for New Orleans until the morning of Sept. 3. They were on a C-130 loaded with enough food, water and supplies to be completely self-sufficient for 30 days, and headed for the Naval Air Station in New Orleans.

"We were originally tasked to set-up operations in



A Defense Meteorological Satellite Program image of Hurricane Katrina shows the massive size of this Category 5 storm prior to landfall. Image courtesy of AFWA.

Hammond, La., but at the last minute, we were diverted to NAS New Orleans to support the military airlift and Army helicopter search and rescue flights," said Colonel Darling.

"When we arrived, weather operations were non-existent. Navy operations were damaged from Katrina, and the Navy weather staff had to evacuate prior to the storm's arrival."

Within just a few hours of arrival, the weather team had set-up their TMQ-53 Automated Observing System and started briefing aircrews flying in and out of NAS New Orleans.

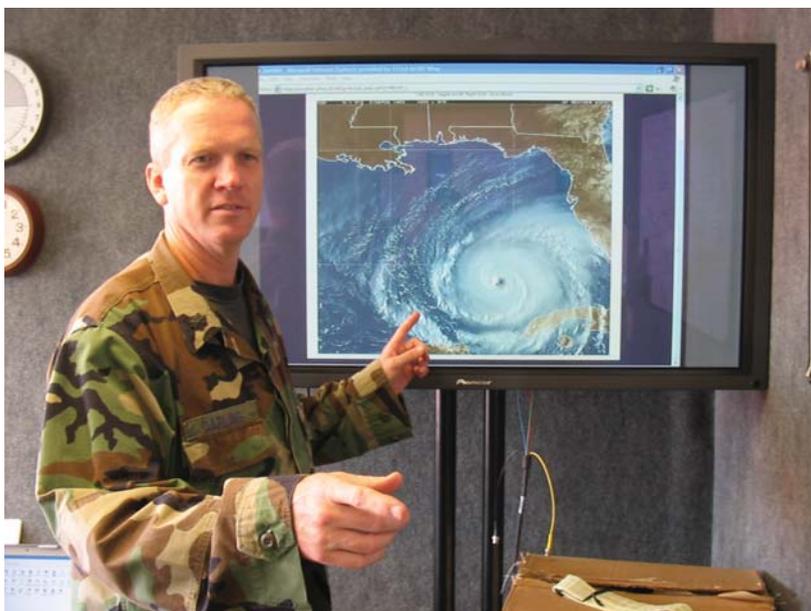
They supported the U.S. Army 1st Cavalry Brigade's UH60 Blackhawk and CH47 Chinook search and rescue missions and levee repair flights. Later that day, two members of the 3rd Weather Squadron out of Fort Hood, Texas, arrived on station and took ownership of 1st CAV briefings. The arrival of 1st Lt. Matthew Addison and Tech. Sgt. Scott Darling allowed the 208th's team a chance to move their operations to the Navy's air traffic control tower.

The team soon re-established complete services, including current weather observations in the control tower, by transmitting data using the TMQ-53 with remote modems and a borrowed Navy laptop computer.

"This was the first time since Katrina hit that the tower had any weather information," said Colonel Darling.

As a direct result, the Navy quickly re-established weather data transmissions to arriving and departing aircraft which improved flight operations and safety. All telephone and internet capabilities were knocked-out by the storm, but the weather team found several technicians from a local phone company who helped establish a satellite connection for both phone and Internet.

"This was vital because before reconnecting to the



Lt. Col. Bill Darling, 208th Weather Flight commander, briefs the Naval Air Station New Orleans base commander on the forecasted path and intensity of Hurricane Rita as it approaches the Louisiana coast. Photo courtesy of 208th Weather Flight.

Internet, our guys had no way to get critical weather data from the 26th [Operational Weather Squadron at Barksdale AFB, La.],” said Colonel Darling. “Once reconnected to the outside world, our team was capable of providing all the weather products needed to meet the variety of requirements and taskings involved with an operation of this size.”

The Katrina weather team added one more member, Senior Airman James Briede from the 164th Weather Flight, Ohio ANG, Sept. 6. Now they were fully manned and ready for “normal” operations. Those operations included daily staff weather briefings to the base commander, the Joint Task Force Katrina’s Joint Air Operations Center, the JTF Katrina Command and Control Center, and all transient aircrews. This was accomplished with three enlisted forecasters and one weather officer during 24/7 operations for weeks on end, and with complete customer satisfaction.

“Lt. Col. Darling and the entire weather team from the 208th have been outstanding throughout the Katrina recovery operation,” said Navy Captain A. J. Rizzo, NAS New Orleans Commander. “They arrived during the critical first week and immediately began providing 24-hour weather service during the unprecedented flight operation at NAS New Orleans. Our joint teammates from the Minnesota ANG provided that critical ‘first step’ in flight safety that directly contributed to the ability for our joint aircrews saving more than 9,500 hurricane survivors in the first two weeks of operations.”

If all that was not enough, the 208th weather team also had to prepare and forecast for the second major hurricane to hit the area this year – Hurricane Rita. As Rita approached the coast of Louisiana, the team generated warnings for everything from severe winds and lightning to tornadoes.



(Above) Students with the 332nd and 335th Training Squadrons at Keesler AFB, Miss., prepare to be evacuated to Shepard AFB, Texas, aboard a C-17 Globemaster III from the 58th Airlift Squadron, Altus AFB, Okla. Sept. 1. More than 2,400 students and non-essential personnel were evacuated from Keesler because of Hurricane Katrina's aftermath. Photo by Tech. Sgt. Mike Buytas. (Left) Staff Sgt. David Ward, 208th Weather Flight, holds the mast of a tactical mobile weather radar as Staff Sgt. Calvin Melendez, 31st Combat Communications Squadron from Tinker AFB, Okla., stretches guide wires to set-up the unit. Photo courtesy of 208th Weather Flight.



“At one point, we had to run through ‘tent city’ to warn our deployed military personnel of tornadoes in the area,” said Colonel Darling.

All in all, the ANG weather team from Minnesota experienced an ops tempo and forecasting opportunities rarely seen by most weather professionals.

“Our team has never forecasted or operated in a tropical storm environment, but in the end, they stood through Hurricane Rita and performed with exceptional accuracy,” said Colonel Darling. “We will take a lifetime of memories back to Minnesota and some newly honed skills that hopefully will never be needed back home.”

Weather research for America's space program

by Mr. William Roeder
45 Weather Squadron
Patrick AFB, Fla.

"T-minus ten minutes and counting ... halt countdown; we have lightning within five nautical miles."

This is a familiar scenario for Cape Canaveral and space launches in Florida, but with some innovative weather research, the men and women of the 45th Weather Squadron at Patrick AFB, Fla., are trying to dramatically reduce the mission scrub rate at the Cape.

The mission of the 45th WS is to "exploit the weather to ensure safe access to air and space" at Cape Canaveral Air Force Station, National Aeronautics and Space Administration's Kennedy Space Center and Patrick Air Force Base, Fla. The 45th provides comprehensive weather services for personnel safety, resource protection, pre-launch ground processing, day-of-launch, post-launch, aviation, and special operations.

These services are provided for more than 30 space launch countdowns per year for the Department of Defense, NASA, and commercial launch customers.

Weather presents significant challenges to space lifts. Some of the more important weather concerns include natural and rocket-triggered lightning, upper-level winds, boundary-layer winds, temperature, precipitation, cloud ceilings, visibility, and severe weather. Weather is the leading cause of scrubbed countdowns and launches.

The 45th's mission is complicated by the extreme forecasting challenges along the central coast of Florida, a location very close to the "Thunderstorm Capital" of the



A Boeing Delta II rocket lifts off from Cape Canaveral Air Force Station, Fla., June 23 carrying a replacement satellite for the Air Force's Global Positioning System into orbit. Photo by Mr. Carleton Bailie.

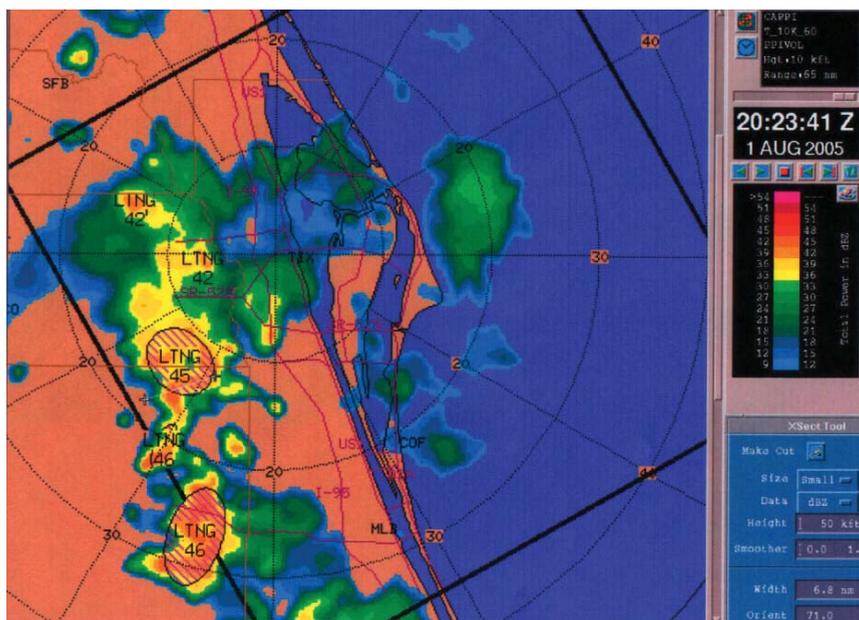
United States. With all these thunderstorms, the most frequent warning products issued are for lightning and convective winds.

Thunderstorm formation during the summer is dominated by numerous weak boundary layer interactions. They include the sea breeze front off the Atlantic Ocean and the Gulf of Mexico, the local Indian River and Banana River Breezes, and convective outflows. Additionally, horizontal convective rolls, lake breezes from Lake Okeechobee, soil moisture boundaries, and even cloud shadow boundaries come into play.

Due to the extremely challenging forecasting environment, the 45th WS participates in active operational research to help meet our customers' many stringent and uncommon requirements. This research focuses on the most important operational needs of our customers including lightning forecasting, improved lightning launch commit criteria, and convective wind forecasting. Additional research areas include special operational needs to include forecasting of boundary layer peak winds in our cool season, and low temperature forecasting. The squadron also provides extensive climatological assistance to our customers.

Thunderstorm and lightning forecasting is still one of the most vital forecasting areas for the 45th. The Weather Squadron has developed a process for forecasting the start of lightning. We begin with a new objective tool to predict the probability of lightning on any day during the Florida thunderstorm season. This tool combines the best two or three thunderstorm indexes with the lightning flow regime and the climatological probability of lightning for that day.

This new tool integrates the results of six theses from Florida State University and the Air Force Institute of Technology over the past eight years and provides a 48 percent gain in prediction skill over the previous objective tool. The Applied Meteorology Unit, a NASA contractor



This is an example of a layered vertical integrated liquid lightning advisory generated by the 45th Weather Squadron at Patrick AFB, Fla. Potential lightning areas are marked with a hatched highlight and a test message.

helping to transition new weather technologies and forecasting techniques, integrated the research findings into a technique to improve weather support for the space program.

The Squadron also monitors the evolution of mesoscale boundaries and the subsequent development of deep convection via satellite and radar throughout the day. Lightning advisories are issued based primarily on a set of radar-based rules for forecasting the start of lightning. The 45th created a layered Vertically Integrated Liquid product using the Integrated Radar Information System post-processor that automatically displays areas where lightning is likely to form.

The 45th WS has begun the acquisition of a new dual-polarization Doppler weather radar to further enhance thunderstorm and lightning forecasting abilities. The dual-polarization capability of this radar should improve lightning forecasting capability as well as the ability to detect damaging downbursts and hail.

To avoid natural and rocket-triggered lightning strikes to in-flight rockets, the squadron uses a set of Lightning Launch Commit Criteria weather rules. The 45th implemented a new LLCC for anvil clouds in the summer of 2005. This rule was the

result of a field experiment and extensive post-analysis including participation by the U.S. Air Force, NASA, and a host of government, civilian and university teams.

A research aircraft collected data across central Florida in June 2000, February 2001, and June 2001. Extensive analysis since then led to the development of the new LLCC for attached and detached anvil clouds.

The main feature of these new rules is a Vertically Averaged Height Integrated Radar Reflectivity threshold. The field experiment and post-analysis has shown that electric fields in anvil clouds below certain thresholds are insufficient for rocket-triggered lightning. This new rule provides an estimated 30 percent improvement in safe launch opportunity under most anvil conditions and up to an 800 percent improvement under some anvil conditions. The projected savings is \$75,000 per year by avoiding needless launch scrubs.

Operational research is just one tool the 45th Weather Squadron uses to “exploit the weather to ensure safe access to air and space.” Their creative and innovative weather practices coupled with sound Air Force Weather procedures provides their customers with total weather situational awareness.



by Maj. Paul Gehred
Air Force Weather Agency
Detachment 3
Wright-Patterson AFB, Ohio

It is historically fitting that the center of Air Force acquisition is built adjacent to Huffman Prairie where the Wright brothers introduced the art of modern aviation to the world more than 100 years ago. It is also fitting that the largest concentration of Air Force Weather staff meteorologists are found at the Air Force Weather Agency's newly activated Detachment 3 at Wright-Patterson AFB, near Dayton, Ohio, home to the Air Force Research Laboratory.

In the shadow of the Wright Memorial, Det. 3 staffmets concentrate on several key focus areas as Air Force Weather transforms into a more machine-dominated enterprise. These areas direct limited resources to analyze weather sensitivities and support require-

ments of dawning capabilities like the Airborne Laser, F/A-22, F-35, small unmanned aerial systems, high-altitude airships, and new tactical decision aids.

The detachment collects environmental impacts for use in operations, training, and testing for a variety of military capabilities. These impact thresholds are the foundation of the Army's Integrated Weather Effects Decision Aid and the Navy's Joint Thresholding Segment. The Army, Navy, and Air Force have a common requirement for a Tactical Decision Aid that provides quick identification and dissemination of weather effects on missions, systems, and operations. The end product of the Tri-Service IWEDA Project is to create a TDA that will assist the warfighter to quickly assess weather effects on the battlefield. With a forecaster in the loop, decision makers will receive a consistent, reliable, accurate rules-based calculation of environmental impacts on military assets. Quickly plotted across the area of interest, warriors can choose the right system to exploit existing weather conditions.

The detachment's leadership has always been guided with a warfighter's mindset. As Air Force weaponry gets more and more sophisticated, atmospheric dynamics become more and more important. This holds true not just for bullets and bombs, but also airdrops. The Joint Precision Airdrop System's goal is to provide the capability of delivering more than four tons of cargo from altitudes up to 35,000 feet above sea level. This would be done via autonomously guided precision airdrops from C-130 and C-17 aircraft to multiple impact points on the ground within a 100 meter radius.

Det. 3's meteorologists are also working with Air Force assets of a smaller scale. As Unmanned Aerial Systems get smaller, and are used in many wartime applications, they require highly defined wind field models, even in low threat operations.

Even the next generation fighters like the F-22 and F-35 are not without their weather concerns. These weapon systems use stealth technology to give them a huge advantage against conventional aircraft. However, stealth materials respond differently to lightning, precipitation, humidity, and temperature extremes. Staffmets concentrate on the differences and advise engineers of these concerns.

One of the Air Force's priorities is to give all combatant commanders a persistent view of their theater of war. Space assets can be assisted by high altitude dirigibles. The challenging issue is determining how High Altitude Airships will operate 24/7 in the thin atmosphere above 70,000 feet.

Detachment staffmets are researching these issues now and have recently published a technical report examining weather support to the F-22, and will soon publish reports on operational issues for small and micro UASs as well as concerns or issues with operating systems in the middle atmosphere above 65,000 feet.

No matter how future Air Force weapon systems evolve, the staffmets of Det. 3 will continue to provide Air Force leaders with cutting-edge meteorology and weapon-specific weather products. Their goal is to keep the U.S. military's combat edge in any weather condition.

The history of Detachment 3

The Air Force Weather Agency's Det. 3, which activated Oct. 1, evolved from the 645th Weather Squadron, which was activated Oct. 1, 1992 and replaced two Air Weather Service detachments - Det. 15, 15th Weather Squadron, 7th Weather Wing and Det. 1, 2nd Weather Squadron, 4th Weather Wing at Wright-Patterson AFB, Ohio. A year later, the 645th WS became the 645 Weather Flight. The unit then changed to the 88th Weather Flight, followed by the 88th Weather Squadron May 1, 1996.

In the past nine years, the Det. 3 staffmet team has earned two Air Force Outstanding Unit Awards and done very well in Air Force Materiel Command level awards, garnering seven Moorman Awards as the outstanding specialized support unit and also one Zimmerman Award for best climatology application. The detachment also managed Wright-Patterson's base weather station. In February 2003, contractors from Science Applications International Corporation of San Diego took charge of base daily weather operations.

Staffmets and tomorrow's war

by Air Force Weather Agency
Detachment 3
Staff Report
Wright-Patterson AFB, Ohio

"Do you think it's going to rain?"

Airmen in the weather career field probably hear this question about as often as Shaquille O'Neal is asked, "What's the weather like up there?"

A small cadre of weather experts known as staff meteorologists, or staffmets, would probably feel more comfortable if they were asked: "How will a dust storm degrade my ability to see the enemy when I use night vision goggles?" Or, "What's the best flight plan for the Airborne Laser so it can destroy an enemy's missile in the launch phase?"

Not sure how to answer these questions? Ask a staffmet. Their mission is to ensure scientists and program managers in Air Force Materiel Command take into account weather sensitivities in the acquisition lifecycle of all Air Force sys-

tems expected to perform the mission from sandstorms to magnetic substorms. Staffmets work to support next-generation war technology at many Air Force bases, including Edwards, Eglin, Hanscom, Kirtland, Rome, and Wright-Patterson.

Staffmets are civilian and military meteorologists with advanced degrees who assist in designing, developing, acquiring, and testing new weapons systems at product centers like the Aeronautical Systems Center at Wright-Patterson AFB, Ohio; test centers such as the Air Force Flight Test Center at Edwards AFB, Calif.; and at Air Force Research Laboratories across the country.

Staffmets also make sure Air Force Weather knows the kind of weather support these weapon systems will need five, 10, or even 20 years from now. That means no surprises for weather Airmen when the Air Force deploys new systems.

The nature of staffmet work is differ-

ent from typical weather support. Instead of focusing on tactical-level support or resource protection, staffmets forecast operational requirements of systems which won't be fielded for years. A fast-track program, like the bunker busters used in Operation Desert Storm, for example, was accelerated to meet an immediate wartime requirement and still took months to accomplish. Why? Because the Air Force process for acquiring a new system begins with requirements. A need is recognized and documented by the warfighter. Then it takes research, concept generation and prototypes before it can be tested and fielded. This process can take decades.

Programs such as the Airborne Laser have been researched since the late 1950s. Lasers are now powerful enough so that engineers can overcome atmospheric optical turbulence and take the program from the pages of science fiction to an actual Boeing 747 with a tail number. Staffmets at Hanscom AFB, Mass., Kirtland AFB, N.M., and Wright-Patterson have been vital to making the ABL vision a reality.

Staffmets specializing in atmospheric transmission with the Sensors Directorate of AFRL have also scored big successes with Intelligence, Surveillance and Reconnaissance platforms such as the Predator and Global Hawk. Their efforts have initiated programs to place weather sensors on next generation Unmanned Aircraft Systems for intelligence preparation of the battlefield environment.

The work of staff meteorologists across Air Force Materiel Command readies the Air Force's newest systems for the wide range of terrestrial and space weather encountered in an ever changing world.



A next-generation unmanned aerial vehicle, the Weatherscout, is launched on a test flight Oct. 18 at Andersen AFB, Guam. Staffmets specializing in atmospheric transmission have contributed to many of the UAV programs including the Predator and Global Hawk programs. Photo by Mr. Michael Dorus.

Planning for:

R&D

by Mr. Joe Raab
Air Force Weather Agency
Strategic Plans Branch
Offutt AFB, Neb.

If you've spent any time in Air Force planning circles during the past year or so, you've inevitably heard the term "capabilities based planning" mentioned.

What is CBP? CBP is defined as, "planning under uncertainty, to provide capabilities suitable for a wide range of challenges and circumstances, all designed to achieve certain battlespace effects." Sounds great so far, but why do CBP?

As most will notice, the world is changing, as are the threats to our Nation and the challenges we face as Airmen in the world's best Air Force. This volatile environment has necessitated a change in the way we plan for battle. Instead of focusing on fixed requirements for a specific weapon, platform, or system, we now seek to determine what capabilities are required to execute the Air Force mission ... and plan accordingly, with flexibility in mind.

This change in the planning process is predicated on direction given by the Chairman of Joint Chiefs of Staff, specifically the Joint Capabilities Integration and Development System described in CJCS instructions and manuals. The Air Force instructions add additional emphasis on the "what" and the "why" of supporting the mission, versus just the "how."

The former Air Force Chief of Staff, General John P. Jumper stated in his 2003 Chief's Sight Picture, "The bottom-line goal... is to give senior U.S. Air Force leadership an operational, capabilities-based focus for acquisition program decisionmaking."

What does the CBP process have to do with research and development? The CBP process feeds both the R&D and acquisition communities through a recurring cycle of rigorous analyses. This cycle includes a Functional Area Analysis, a Functional Needs Analysis, and a Functional Solution Analysis.

The **Functional Area Analysis** identifies operational tasks, conditions, and standards needed to achieve prioritized joint capabilities listed in the Air Force's Master Capability Library, both today and well into the future. In Air Force Weather, this essentially focuses on the questions of whom we support, what we support, why we provide support, and the level of detail we must provide.

The **Functional Needs Analysis** takes the analysis one step further, identifying functional area metrics and developing Measures of Effectiveness. Use of MOEs allows an objective and quantitative assessment of capabilities, facilitating the prioritization of gaps and shortfalls.

The FNA assesses the ability of current and programmed AFW capabilities to accomplish the tasks identified in the FAA. These gaps and shortfalls are a key input to the R&D community, ensuring limited resources are focused on delivering capabilities important to the Air Force.

The final step in the JCIDS planning process is the **Functional Solution Analysis**. This is where planners and operators partner directly with the R&D community to match potential solutions to capability shortfalls.

The first phase of the FSA is an analysis of doctrine, organization, training, materiel, leadership and education, personnel and facilities for possible non-materiel changes that may solve or temporarily mitigate shortfalls and gaps. The last phase is the Analysis of Materiel Approaches usually resulting in a new acquisition program.

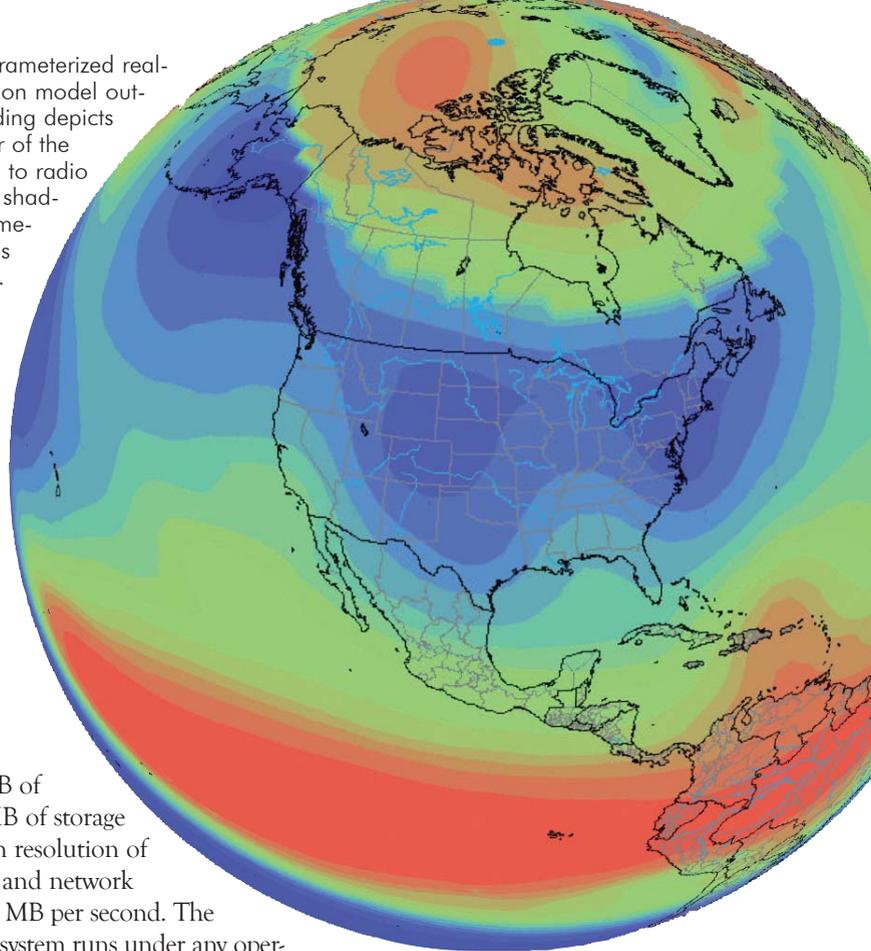
According to Lt. Col. Trey Cade, Chief of the Applied Technology Division at AFWA, "The involvement of the R&D community in the FSA is crucial because the analyses highlight where additional research is needed to resolve capability gaps and shortfalls. In addition, the FSA can identify a technology transition path that can quickly bring new and emerging technology into operations."

The result is improved capability of AFW to provide quality information about terrestrial and space environmental impacts to achieve combatant commanders' desired effects across air, space and land operations, said Colonel Cade.

"It is widely accepted that flexibility is the key to air power, and CBP is the key to battlespace air superiority," said Maj. David Beberwyk, AFWA's Strategic Planning and Program Support division chief.

"If the capabilities needed to execute a mission are known, and the Research and Development community is leveraged accordingly to fill voids, we'll be poised for any contingencies that face our nation in the future," he added.

This is an example of a parameterized real-time ionospheric specification model output. The blue and red shading depicts the height of the "F2" layer of the ionosphere which is critical to radio communications. The blue shading is altitudes of 200 kilometers while the red shading is altitudes of 400 kilometers.



New tool displays worldwide observations

by Maj. Daniel Rozema
Air Force Weather Agency
Technology Exploitation Branch
Offutt AFB, Neb.

Nearly three years ago, the Air Force Weather Agency's Weather Requirements Branch sent out a Joint Air Force and Army Weather Information Network survey to a myriad of customers. The goal was to determine what new capabilities they desired. Several of AFWA's customers requested greater leverage of the Aviation Weather Center's Aviation Digital Data Service for displaying worldwide observational data - and that is exactly what the Agency intends to do.

The new Weather Interactive Data Display System, or WIDDS, is slated for fielding on JAAWIN by the end of 2005. This is AFWA's new tool for displaying worldwide surface observations. The system will display everything from automated and manual observations and Terminal Aerodrome Forecasts to pilot reports. WIDDS visualizations don't stop there. In fact, they don't stop at the top of earth's atmosphere; they also include space weather visualizations of the magnetosphere and the ionosphere.

WIDDS is an entirely Java-based application that runs on any standard, robust personal computer with an Intel Pentium IV - 1.5 GHz or faster processor. The computer must also have at

least 256 MB of RAM, 30 MB of storage space, screen resolution of 1024 x 768, and network speeds of 10 MB per second. The data display system runs under any operating system that supports the Java Runtime Environment, including Microsoft Windows, Linux and Sun Solaris. The program runs as a stand alone from a user's computer after downloading the application via a link to JAAWIN. Data is automatically downloaded to WIDDS from the AFWA servers anytime users select a data type from the software interface. Anytime the application is started, a check for new upgrades and fixes occurs and these are automatically downloaded to the user's computer as they become available.

The display system has the capability to plot weather observations for any area in the world as long as the data is included in the AFWA database.

Once the data is plotted, information can be gained for any station by simply placing the cursor over the station plot. The period of observations displayed is determined by using the time slider bar at the bottom of the display. By simply clicking on the popup box, the data displayed in the box is copied to an electronic clipboard for printing or pasting into other documents. WIDDS users will be able to zoom in and out of areas of particular interest or pan to any desired area with ease.

Users will also have complete control of information displayed, including the ability to set data densities, the displayed parameters (temperature, dewpoint, station identifier, etc.), unit type, and five different METWATCH controls.

Future plans for WIDDS include the visualization of model output data for terrestrial models such as the Global Forecast System and the new Weather Research and Forecast Model and possibly output from the Global Assimilation of Ionospheric Measurements space weather model. WIDDS is also envisioned as a possible replacement for the venerable Interactive Grid Analysis and Display System, but this move is at least a couple of years away.

Fielding the Weather Interactive Data Display System is an important step forward in supporting Air Force Weather customers worldwide. As with all new systems, WIDDS will not be a perfect product when fielded. To improve and enhance this important warfighter tool, users are encouraged to forward constructive comments to AFWA's Technology Exploitation Branch.



RODEO 2005

Saddle up, take home the prize

by Capt. Mark Barbire
62nd OSS/OSW
McChord AFB, Wash.

The Rodeo is in town, and more than 800 competitors are vying for top honors as the “best of the best.” This year’s Air Mobility Command’s Rodeo 2005 competition featured teams from 25 U.S. bases and 15 nations. Among the countries represented were Brazil, France, Germany, Saudi Arabia and the United Kingdom.

During opening ceremonies in June, the AMC Commander, Gen. John Handy, issued a challenge to all teams. “My challenge for you is to compete hard, to play hard, to enjoy yourselves, but more importantly...be safe.” An important element of being safe includes having the most accurate weather forecasts. The 62nd OSS Combat Weather Team’s job was to ensure everyone had their weather situational awareness on track.

June’s competition, hosted at McChord AFB, Wash., was the first Rodeo held since the summer before the

September 2001 terrorist attacks. For those who are new to the Air Force or unfamiliar with the event, AMC Rodeos are international competitions between the world’s best airlifters. Rodeo provides an opportunity for the world’s best aerial refuelers and airlifters to showcase airdrop, air refueling, aeromedical evacuation, security forces competition, short field landings and related ground operations. More than 40 teams from the active duty Air Force, Air Force Reserve Command, and Air National Guard units as well as Allied Nations participated in this year’s competition.

Royal Air Force Wing Commander Martin Walsh, Rodeo 2005 chief umpire, emphasized the importance of weather when he said “because [the competitors] are the best of the best, the biggest challenges are the unpredictability of the weather or the environment.”

However, the men and women of the 62nd OSS/OSW at McChord don’t consider the weather in Washington unpredictable, but they would describe their forecasting mission as challenging.

The most challenging aspect of this year’s Rodeo for the CWT was managing the increased workload. The last time the event was held at McChord, the CWT consisted of 25 people. This year, the same amount of work and effort was accomplished by nine weather professionals. The team pro-



(Left) An aerial view of Mount Rainier near McChord AFB, Wash. The summit of Mount Rainier reaches 14,410 feet above sea level. The great height of Mount Rainier with respect to the rest of the Cascade Mountain Range helps McChord AFB weather technicians estimate cloud heights and determine if moderate turbulence is occurring when lenticular clouds are present.

(Right) Staff Sgt. William Bedford, a weather specialist with the 62nd Operation Support Squadron, McChord AFB, Wash., checks on the latest weather update prior to briefing aircrews during Rodeo 2005. Photos by Tech. Sgt. Jerry Morrison.

vided the Rodeo staff and competitors with two daily “stand-ups” and 163 sortie weather briefs for 42 separate aircraft and crews performing air refueling, medical evacuation, combat landings, and personnel and container delivery system drops.

The aircrew briefing cell was manned by Staff Sgts. Will Benford and Jeff Cerza, who provided all 163 sortie briefs over a 5-day period.

“If we did not have our local MEF [Mission Execution Forecast] worksheets the job would have required twice as much time,” said Sergeant Benford. McChord’s MEFs include 24-hour forecasts for all the local Air Refueling routes, Instrument Routes, Drop Zones and airfields on one sheet. Each forecast element is color coded for predetermined thresholds: green – no impacts, yellow – marginal impacts, or red – severe impacts.

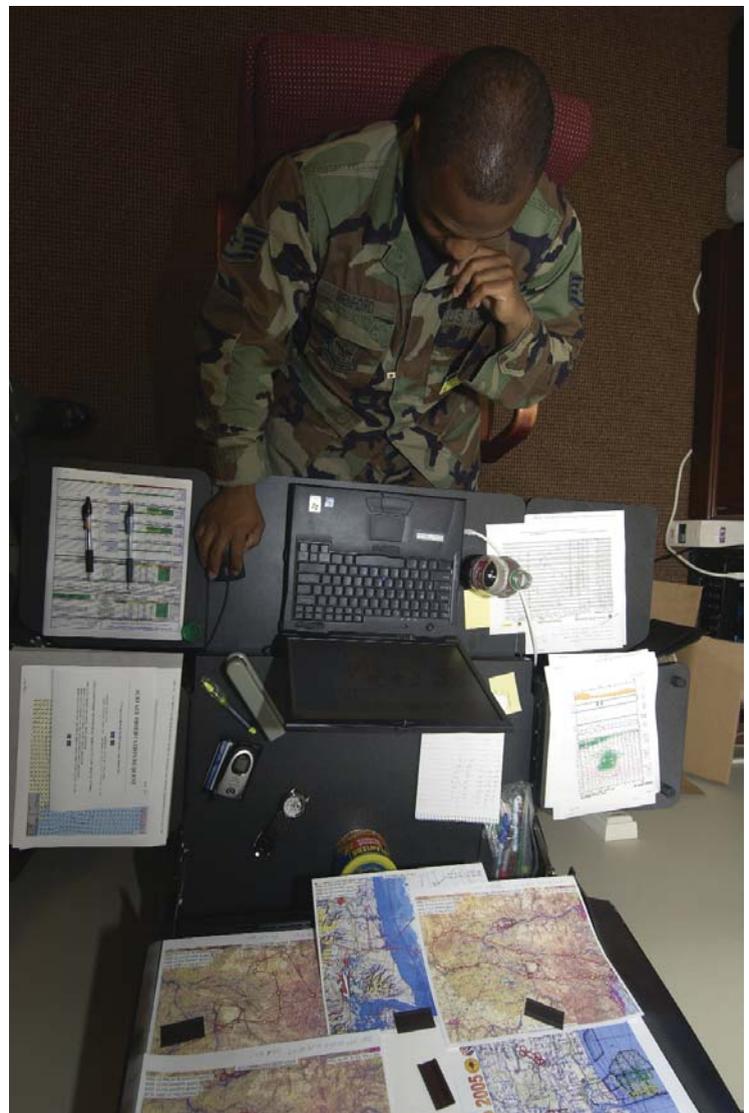
“The color coding made briefing the international crews much easier,” said Sergeant Cerza.

Making sure the aircraft commanders were aware of the impact of local weather was a big challenge to the many “transient” crews and the weather team. One significant impact at McChord is thunderstorms. The cloud tops are much lower than those found in the central portion of the United States. Local aircrews are informed of these local conditions during instrument refresher courses; however,

transient aircrews may not be aware of the dangers associated with these types of thunderstorms.

A C-5 Galaxy aircrew experienced this sort of danger firsthand when their aircraft was struck by lightning 20 miles after takeoff. A lightning watch had been issued by the 25th Operational Weather Squadron, Davis-Monthan AFB, Ariz., well in advance of the storm and the aircrews had been briefed by the CWT. The C-5 flew directly into a Pacific Northwest thunderstorm with a max top of no more than 25,000 feet – a garden variety rain shower in Kansas. The crew and aircraft escaped significant damage but they had to return to base and cancel their mission.

At the end of everyday, competitors and participants gathered at Rainier Ranch to hear the day’s competition results, unwind to live music, and socialize with fellow Rodeo participants. Those in attendance at the nightly gatherings would likely agree that General Handy’s goals were accomplished. Most importantly, everyone at Rodeo 2005 competed and played safely, no matter what the weather.



Answering the question: What is JITT?

by Technical Sgts. Todd Von Almen and Wayne Hardesty
Air Force Combat Weather
Center
Hurlburt Field, Fla.

Right now you might be asking yourself “What is JITT and how is it important to me?”

The members of the Air Force Combat Weather Center at Hurlburt Field, Fla., can answer that question. JITT stands for “Just-In-Time Training,” and is offered to any Air Force Weather warrior leaving on an Air Expeditionary Force rotation. This latest training initiative provides a 5-day course on the tactical equipment weather troops will encounter in the field. As with any training program, the Center has a definite goal in mind.

“The JITT goal is to prepare deploying weather personnel to meet the challenges and utilize all the deployed assets while in theater,” said Master Sgt. Tim Fields, the Training Division NCOIC at AFCWC. “We have developed lesson plans on the most commonly used weather systems in the field to ensure members are ready to setup, use and maintain these systems in the field.”

All of the training is completed in one week and covers the following capabilities:

■ **TMQ-53 Tactical Meteorological Observing System with Iridium Upgrade:** Provides the operator with a full spectrum of weather observations for a deployed

location and can disseminate that data to an array of customers to include the Operational Weather Squadrons. The Iridium upgrade provides a first-in capability to disseminate real time observations from the deployed locations worldwide. Training includes TMQ-53 set-up, tear down, preventative maintenance and trouble shooting, and the Iridium upgrade.

■ **Tactical Very Small Aperture**

Terminal: The primary source of weather data while deployed to the field. The T-VSAT provides the operator with a full spectrum of weather products at that location.

Instruction on software, antenna, spectrum analyzers and integration with the deployable N-TFS Server and Client are covered by this training.

■ **New-Tactical**

Forecast System: With the N-TFS laptop server and client, CWTs are finally able to harness the same capabilities deployed as in garrison. Why is it called a server and client? Because the laptop performs both functions, there is no

need for the CWT to deploy with two computers when one will do the job. Students will learn about administrator and user software functions, employment, deployed LAN setup and maintenance, and integration with the T-VSAT and TMQ-53.

To guarantee all of AFCWC’s trainers are extremely proficient, they undergo training and evalua-



Staff Sgt. Jason McGimsey, a computer systems programmer at the Air Force Combat Weather Center, Hurlburt Field, Fla., demonstrates lacing up the side of a modular tent during a practical exercise. The exercise is in support of the AFCWC’s latest training initiative for troops deploying on AEF rotations. Photo courtesy of Air Force Combat Weather Center.



Technical Sgt. Todd Von Almen, a weather operations analyst at the Air Force Combat Weather Center, Hurlburt Field, Fla., attaches an Iridium antenna to a tripod for use with the A/N TMQ-53 Tactical Meteorological Observing System. The weather sensor is used by deployed units to gather weather observations in support of base operations and local flying missions. Photo courtesy of the Air Force Combat Weather Center.

tion by the resident Subject Matter Experts on each deployable weather system. The training is then put to the test in a three and a half hour practical exercise evaluated by the SMEs. The evaluation is augmented by other AFCWC personnel taking notes on such things as best practices, mistakes, and safety.

“This process allows for continuous improvement of lesson plans and training practices on the deployable systems,” said Capt. Ken

Ferland, the AFCWC Training Division Chief. “The continuous cycle of training, performing, evaluating, and feedback is used to create a cadre of experienced, knowledgeable NCOs capable of stepping in to lend a hand in the training of any featured system.”

Just-In-Time Training may be just the ticket to ready any Air Force Weather specialist before a deployment. The lessons learned at the Center and in the field are evaluat-

ed, compiled and developed into lesson plans that give students the confidence to use deployed weather systems to their fullest.

JITT Class sizes and training date windows are limited. Please submit training requests as early as possible. Training requests are routed through respective MAJCOMs, to the Career Field Manager for validation and then on to AFWA's Training Division, who determines the most effective training delivery method.

BEING IN THE

by Airman 1st Class Randall Jennings
Air Force Weather Agency
Offutt AFB, Neb.

Soon, Air Force Weather specialists may have the capability to collect weather data from inside dangerous areas and analyze that data from a safer region using sensor node technology being developed at the Air Force Research Laboratory.

A sensor network tested this summer uses newly developed tactical weather sensor nodes. The nodes are made unique by adding an embedded computer, a Global Positioning System receiver, a wireless transceiver, and a battery. These additional components enable the sensor nodes to wirelessly communicate with each other and end users. They also automatically configure themselves onto a network once positioned in the field.

According to Capt. Kevin Bartlett, the branch chief and meteorological technical advisor of the Air Force Research Laboratory's Meteorology Operations Division at Rome, N.Y., future development will enable end users to obtain weather information from hundreds of deployed sensors.

"Information could be collected from hundreds of sensors within operational areas outside the airfield or base perimeter, such as critical mountain passes or drop zones behind enemy lines," said Captain Bartlett. "This could be especially beneficial in hostile or volatile areas."

Over a couple of days in the upper Midwest this summer, Captain Bartlett and an AFRL summer intern, Mr. Matt Luvera, got a chance to put the node sensor technology to the test - a field test. They assisted Dr. Doug Holzauer, the Information Technologies Computing program manager for AFRL, and his team of software and hardware engineers from Rome, N.Y. Together, they evaluated the latest capabilities of the Cognitive Network for Atmospheric Sensing during the National Guard's Global Patriot 2005 held at Volk Field, Wisc.

These improved capabilities were evaluated for real-world situations during the field experiments. During these tests, the AFRL team was able to wirelessly transmit weather observations from multiple geographical locations separated by up to 600 meters. Weather data hopped between nodes and to

the end user. The team compared measured weather parameters in ideal observation locations as well as tree-sheltered areas. Additionally, they operated the system for two days using power-aware computers, on-node processing of weather data, and embedded queries. The network alerted users when the preset threshold values were exceeded.

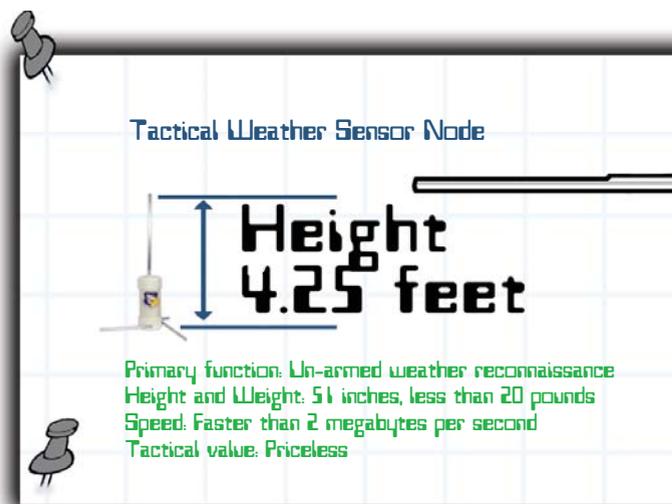
These experimental tactical weather sensor nodes with all the modifications and added capabilities are very portable. The entire system is packed into a rugged plastic tube 16 inches tall and six inches in diameter. The total weight of a node is less than 20 pounds.

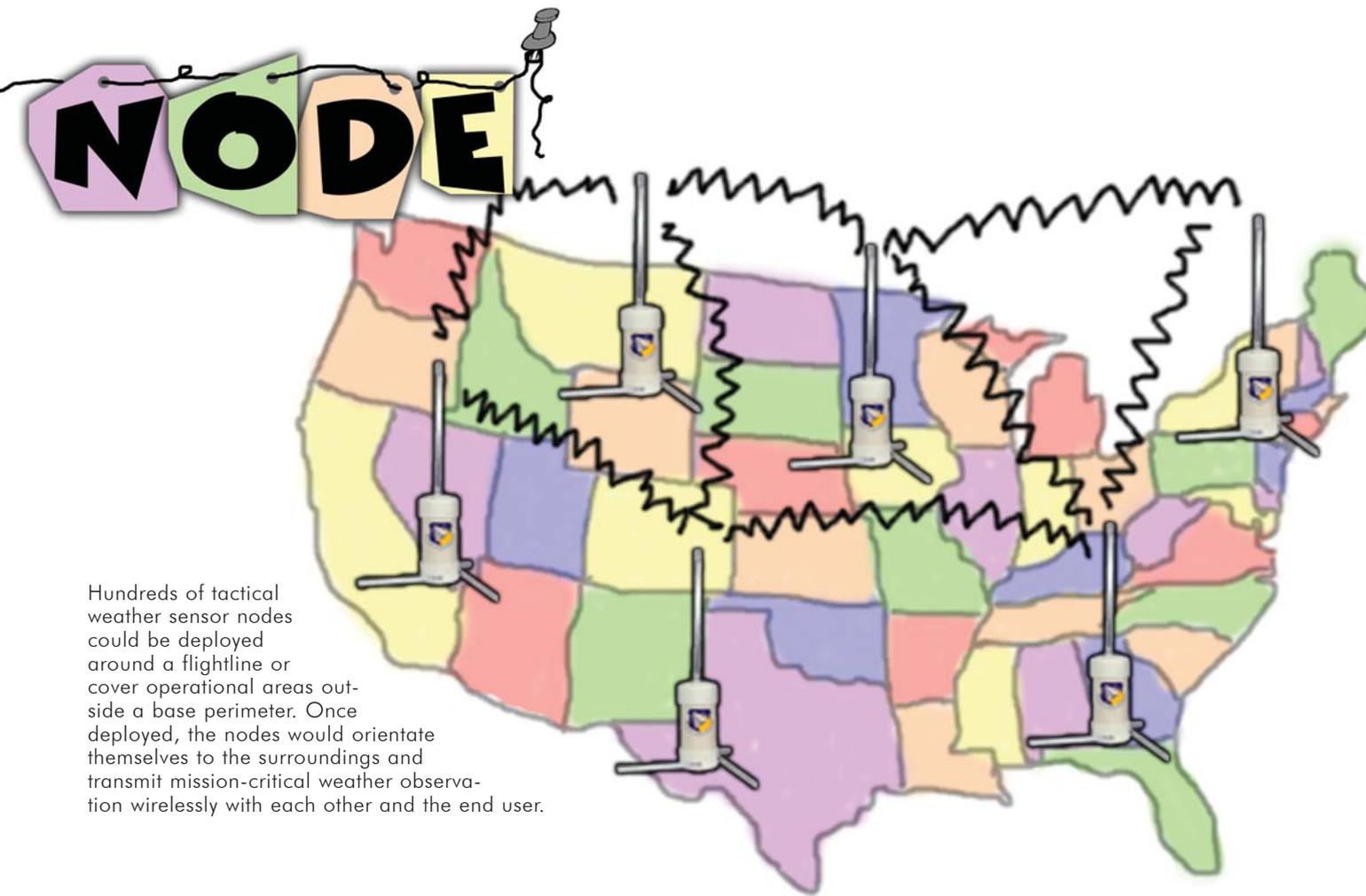
"The experimental models are intentionally made larger to allow easy modification during the test and evaluation process," said Mr. Holzauer. "The final production model will be much more compact. A major limiting factor for the final unit will be the size of the battery, which is tied directly to operational requirements."

The team is looking at new techniques to extend battery life and may incorporate the use of solar cells for the end product.

The test models already have some modifications in place. The nodes obtain GPS tracking data via an antenna attached to the top of the plastic tube. Extra capabilities can also be added by connecting a TACMET II tactical weather station to a sensor node. With a TACMET II attached, the sensor can also measure wind speeds and direction.

The Research Laboratory is attempting to overcome the information overload that would result from deploying a one-hundred-node network, said Captain Bartlett.





Hundreds of tactical weather sensor nodes could be deployed around a flightline or cover operational areas outside a base perimeter. Once deployed, the nodes would orientate themselves to the surroundings and transmit mission-critical weather observation wirelessly with each other and the end user.

"The embedded computer that resides on each sensor node will execute artificial intelligence programs," he said. "These programs mimic the human brain's cognitive ability to reduce the large amount of sensor data to decision-grade information."

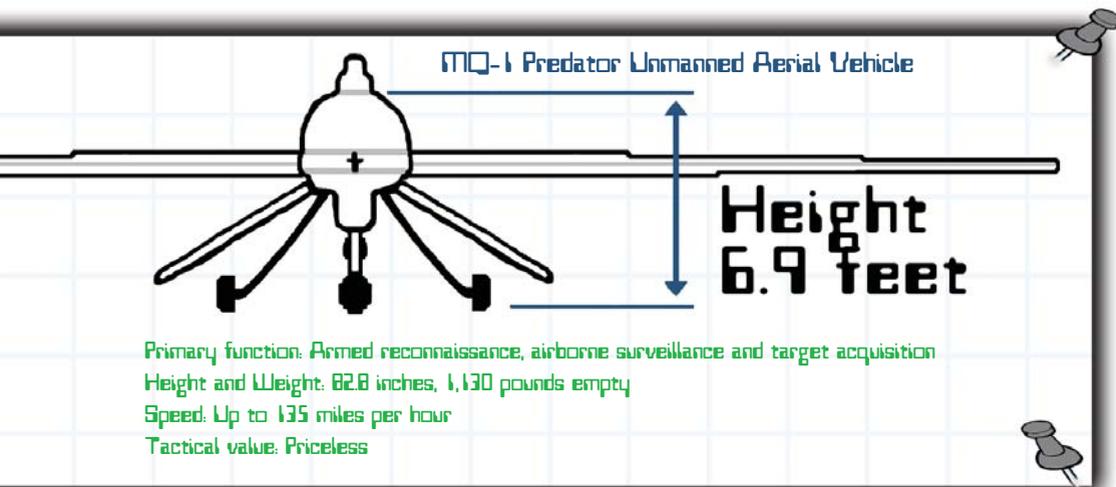
This information would then be sent to operational units. The team is also conducting additional research

aimed at developing the sensor's ability to evaluate its data quality and determine whether hostile forces have compromised data integrity.

The ultimate goal of the weather node network is to have a combat-ready, man-portable or air-droppable, disposable weather sensor network that is aware of its surroundings and orientation.

Additionally, the network will wirelessly feed remote weather observations or mission-critical data processed by the sensor nodes back to a combat weather team or operational weather squadron.

The future of remote weather observations may well rest in a weather sensor node housed in a tube about the size of an average microwave oven.



MQ-1 Predator Unmanned Aerial Vehicle

Height
6.9 feet

Primary function: Armed reconnaissance, airborne surveillance and target acquisition
 Height and Weight: 82.8 inches, 1,130 pounds empty
 Speed: Up to 135 miles per hour
 Tactical value: Priceless

Two Weeks of HOOAH!

by 7th Weather Squadron
Staff Report
Grafenwoehr, Germany

Would you willingly give up two weeks of your life to attend a beefed up version of basic training? Staff Sgt. Steve Cox, weather forecaster with Detachment 7, 7th Weather Squadron, did when he became the first Air Force NCO to attend and graduate the Army's Primary Leadership Development Course at Camp Normandy, Grafenwoehr, Germany.

Normally a month long course, Sergeant Cox had the pleasure of cramming four weeks of intense training into two weeks. That's 24 hours a day of crawling on the ground, mud in your face, killing bad guys, and becoming one with his Army team.

His fellow Airmen in the detachment describe Sergeant Cox as the ultimate team member. Tech. Sgt. Taylor Jacobs, Sergeant Cox's supervisor said "I knew Steve could not only complete this demanding course, but I also knew he would finish with pride and honor." Sergeant Jacobs was a driving force behind securing this unique professional military education for Sergeant Cox. He coordinated with the PLDC leadership to "grease the process." He also ensured Sergeant Cox understood exactly what he was signing up for. After hurdling some administrative road blocks, Sergeant Cox was turned over to the PLDC leadership - from there, it was game on.

"Since I joined the military I've heard things said about the Army that I found are not true," said Sergeant Cox. "While attending PLDC, I realized that the Soldiers in my company, especially my platoon, are very intelligent, extremely capable, and absolutely dedicated to being Soldiers first, technicians second. When I first began the course, I thought I'd made a mistake; but the Soldiers in my platoon, as well as our instructors, made it a blast. I owe a lot to my wife who supported my decision 100 percent, and to my detachment mates who stayed behind to carry out our mission while I was able to gain a unique perspective into Army operations and doctrine."

Long before Sergeant Cox committed to two weeks of Army mud-eating HOOAH, Brig. Gen. Mark Hertling, Commanding General of the 7th Army Training Command, envisioned the concept of a joint and multinational PLDC. Sergeant Cox's detachment commander, Capt. Ray McLeod, embraced General Hertling's vision and backed Sergeant Cox's decision to

step-up to the challenge.

"I am so proud of this young man," said Captain McLeod. "He looks out for his fellow Airmen and never seeks the spotlight. He makes everyone around him better by just doing what he does naturally." Sergeant Cox proved this by aiding his PLDC platoon to earn "Top Team Honors."

The Army training must agree with Sergeant Cox - he has volunteered to attend jump school at Fort Bragg, N.C., next time there is an open slot.



Staff Sgt. Steve Cox, a weather forecaster with Det. 7, 7th Weather Squadron at Grafenwoehr, Germany, stands in front of a destroyed MIG-23 while deployed to Balad AB, Iraq. Photo courtesy of 7th Weather Squadron.

Forecasting from both sides

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

All too often, people toil laboriously at their jobs without seeing the end results. Some in the military go through their day-to-day operations and still don't understand how they fit into their organization's big picture. Their jobs yield very little self-satisfaction and they may ask themselves, "Why am I here?"

Such was the case with Staff Sgt. Jeremy Montgomery, a battlefield weather forecaster with Detachment 6, 7th Weather Squadron at Wiesbaden, Germany. Prior to his current deployment to Afghanistan, Sergeant Montgomery worked at the 28th Operational Weather Squadron, Shaw AFB, S.C., as a forecaster. As an entry-level weather forecaster, Sergeant Montgomery said he knew his job was important, but that he didn't fully understand how important.

"All I knew for certain was that I wrote terminal forecasts. I knew that our additional forecast category thresholds were aligned with aircraft sensitivities. I was also aware of the spotlight charts that the local forecasters produced. But, I was not too aware of the impact on mission planning which my forecast had," he said.

The responsibilities at the 28th are vast. The squadron provides operational level weather products and information for Air Force, Army, Guard, and Reserve units in the Southeastern United States, plus deployed forces stretching from

Southwest Asia to Northeast Africa. Today, as a 7th WS member, Sergeant Montgomery directly supports Army warfighters both in-garrison and deployed.

The eye opener came for Sergeant Montgomery when he was deployed to Bagram AB, Afghanistan, the airfield for which he originally provided weather forecasts. Instead of providing the forecast to the unit, he was now at that unit providing mission execution data to pilots flying combat missions. He admits that as a weather apprentice, he did not fully understand the impact of his forecast.

"Now that I am in county and face-to-face with the customer, I have become that forecast's employer. I thought all my forecasts did was tell pilots whether they could fly or not. I can honestly say I knew very little about how the forecasts were actually employed. Now, I've seen how missions can be impacted by a single hub forecast," said Sergeant Montgomery.

According to Maj. Michael Petrocco, Commander of Det. 6, serving at an OWS and then deploying to the AOR that you once forecasted for is a unique opportunity, and also an excellent learning opportunity.

"Anytime we can get our folks to



Staff Sgt. Jeremy Montgomery, a weather observer with Det. 6, 7th Weather Squadron at Wiesbaden, Germany, uses a laser range finder while deployed to Afghanistan.

fly an actual mission, deploy with customers, and be exposed to both the tactical and operational levels, we are providing an invaluable service – not only to our forecasters, but also to our operators," he said.

Maj. Petrocco also thinks it is very important for all weather personnel to experience working both sides. Working with an OWS and a Combat Weather Team provides valuable experience and breadth to a weather forecaster career, he added.

Some Air Force Weather members may not get a chance to deploy to a region they had formerly forecast for from an OWS. But if that opportunity arises, it drives home the immediate impact and importance of the weather mission.

"Integrating with operations and knowing your customer and what's important to them is imperative and adds significant value to the end product," Maj. Petrocco said.



Lady of the Lake



The "Lady of the Lake" is what remains of a WB-29 Superfortress weather reconnaissance aircraft that rests in a water-filled gravel pit on Eielson AFB, Alaska. This aircraft was dropped from the Air Force inventory in 1955 because of a ground accident. The bomber was taken to the pond it currently rests in and used for open-water extraction training until it became too dangerous. Photos by Staff Sgt. Joshua Strang.

Setting the Pace



Airman 1st Class David Henry, an applications programmer at the Air Force Weather Agency, Offutt AFB, Neb., pushes his limits in the home stretch of 9th annual U.S. Air Force Marathon held Sept. 17, 2005, at Wright-Patterson AFB, Ohio – his first full marathon. Nine AFWA runners pushed their fitness level to extreme levels by training for and participating in this year's Air Force Marathon. This year, there were a total of 3,400 runners.

The AFWA runners began training for this event last spring and slowly built up their endurance through one of the hottest summers on record in Nebraska. The training paid off with all nine runners completing their respective races.

AFWA marathon runners: Maj. Tony Eckel – 3:04:34; Airman 1st Class David Henry – 4:04:49; Capt. Jason Kollars – 4:47:59; Senior Airman Isaac Altdorfer – 5:46:20; and Airman 1st Class Michael Chase – 6:08:53. AFWA half-marathon runners: Airman 1st Class Shaun Stoner – 1:24:10; Airman 1st Class Caleb Balduff – 1:51:41; Tech. Sgt. Ron Hansen – 2:14:12; Airman 1st Class David Schneider – 2:44:20.

Are you "setting the pace?" If you or your unit have a unique way of meeting or exceeding Air Force fitness standards, please submit a short summary of your program to the Observer staff at Observer@afwa.af.mil Please attach action photos of the training with your submission.

Joining the NCO Ranks

The following Air Force Weather professionals were selected for promotion to Staff Sergeant:

- Pamela Abshire**, 319th OSS, Grand Forks AFB, N.D.
Amy Acker, 80th OSS, Sheppard AFB, Texas
Ryan Adkinson, 19th ASOS, Fort Campbell, Ky.
Paul Alfred, 21st OWS, Sembach AB, Germany
Sakari Archuleta, AFCWC, Hurlburt Field, Fla.
Megen Arevalo, 37th OSS, Lackland AFB, Texas
Carissa Ballard, 18th WS, Fort Bragg, N.C.
Ashley Barnett, 2nd OSS, Barksdale AFB, La.
Desmond Bell, 80th OSS, Sheppard AFB, Texas
Kristopher Bell, 15th ASOS, Hunter AAF, Ga.
Richie Berge, 28th OSS, Ellsworth AFB, S.D.
Jonathan Berry, 366th OSS, Mountain Home AFB, Idaho
Eric Bevard, 60th OSS, Travis AFB, Calif.
Rikki Bland, 21st OWS, Sembach AB, Germany
Bradley Boatman, 607th WS, Camp Humphreys, Korea
Travis Boyer, Det. 5, 10th CWS, Fort Bragg, N.C.
Michelle Brandel, 7th WS, Katterbach, Germany
Adam Brown, 56th OSS, Luke AFB, Ariz.
Linda Brown, 20th OWS, Yokota AB, Japan
Jacquelyn Byers, 21st OWS, Sembach AB, Germany
Steven Camillieri, 14th OSS, Columbus AFB, Miss.
Nicole Carpenter, 607th WS, Camp Humphreys, Korea
Kenyatta Carter, HQ AFWA, Offutt AFB, Neb.
Matthew Ciampa, 28th OWS, Shaw AFB, S.C.
Seann Clark, HQ AFWA, Offutt AFB, Neb.
Audrey Coester, 11th OWS, Elmendorf AFB, Alaska
William Cooper, 15th ASOS, Hunter AAF, Ga.
Monica Cox, 28th OSS, Ellsworth AFB, S.D.
Micah Denton, Det. 2, 10th CWS, Fort Campbell, Ky.
Heinz Disch, 21st OWS, Sembach AB, Germany
Shemika Dixon, 607th WS, Yong San, Korea
Amy Dynan, 52nd OSS, Spangdahlem AB, Germany
Daniel Endris, 509th OSS, Whiteman AFB, Mo.
Stephen Ensminger, Det. 2, Sagamore Hill, Mass.
Micki Erdelac, 21st OSS, Peterson AFB, Colo.
Cortny Erickson, 325th OSS, Tyndall AFB, Fla.
Michael Funk Jr., 17th OWS, Hickam AFB, Hawaii
Angela Gales, 25th OWS, Davis-Monthan AFB, Ariz.
Christopher Gauss, 15th OWS, Scott AFB, Ill.
Javier Gonzalez, 39th OSS, Incirlik AB, Turkey
June Green, 199th WF, Wheeler AAF, Hawaii
Jeffrey Gropp, 28th OWS, Shaw AFB, S.C.
Albert Gsell, 1st WS, Fort Lewis, Wash.
Andrew Haight, 354th OSS, Eielson AFB, Alaska
Tyler Hamilton, 7th WS, Wiesbaden AAF, Germany
Cody Hansen, 2nd OSS, Barksdale AFB, La.
Pawnsawan Harkins, 20th OSS, Shaw AFB, S.C.
Joseph Hartranft, 6th OSS, MacDill AFB, Fla.
Jonathan Henderson, 18th WS, Fort Bragg, N.C.
Brian Henry, 19th ASOS, Fort Campbell, Ky.
Sophia Hess, Det. 2, Camp Humphreys, Korea
James Hilton, Det. 4, 10th CWS, Fort Benning, Ga.
Tara Hoger, 7th WS, Heidelberg, Germany
Maria Holda, 28th OSS, Ellsworth AFB, S.D.
Steven Hollatz, 15th ASOS, Hunter AAF, Ga.
Jeffrey Houser, 21st OWS, Sembach AB, Germany
Rebecca Hubbard, 9th OSS, Beale AFB, Calif.
Micah Hulme, 352nd OSS, RAF Mildenhall, United Kingdom
Cailin Humphries, 57th OSS, Nellis AFB, Nev.
Avalee Hungate, 72nd OSS, Tinker AFB, Okla.
Arjuna Hutchins, 17th OWS, Hickam AFB, Hawaii
Branden Huth, 19th ASOS, Fort Campbell, Ky.
Donna Hutt, OL-A, 353rd OSS, Taegu AB, Korea
Adrian Jackson, 30th WS, Vandenberg AFB, Calif.
Katrina Johnson, 51st OSS, Osan AB, Korea
Tristan Joy, HQ AFWA, Offutt AFB, Neb.
Joshua Keach, HQ AFWA, Offutt AFB, Neb.
Trevor Killip, Det. 3, 10th CWS, Fort Carson, Colo.
Sara Klobucar, 3rd OSS, Elmendorf AFB, Alaska
Katie Knight, 18th WS, Fort Bragg, N.C.
Bryan Lachney, 7th WS, Grafenwoehr AAF, Germany
Timothy Launius, 314th OSS, Little Rock AFB, Ark.
Raymond Lena, OL-K, Norman, Okla.
Sean Lewin, 89th OSS, Andrews AFB, Md.
Timothy Lindstrom, 25th OWS, Davis-Monthan AFB, Ariz.
Jessica Lukic, 3rd WS, Fort Hood, Texas
Relja Lukic, 3rd WS, Fort Hood, Texas
Richard Machina, 18th WS, Fort Bragg, N.C.
Lydia Martinez, 1st OSS, Langley AFB, Va.
Luis Matosramos, 607th WS, Camp Red Cloud, Korea
Jonathan Mayeux, 11th OWS, Elmendorf AFB, Alaska
Kent McCoy, HQ AFWA, Offutt AFB, Neb.
Leslie McDonald, 20th OSS, Shaw AFB, S.C.
Tobin Menard, 26th OWS, Barksdale AFB, La.
Lesley Meseck, 7th OSS, Dyess AFB, Texas
Jacqueline Miller, 18th WS, Fort Bragg, N.C.
Robert Miller, 4th OSS, Seymour Johnson AFB, N.C.
Christina Milner, 97th OSS, Altus AFB, Okla.
Stephen Moneer, 16th OSS, Hurlburt Field, Fla.
Joshua Moore, 26th OWS, Barksdale AFB, La.
Jason Noel, 55th OSS, Offutt AFB, Neb.
Tracy Nosekabel, 30th WS, Vandenberg AFB, Calif.
Simeon Ogles, 57th OSS, Nellis AFB, Nev.
Jeremy Olivier, 366th OSS, Mountain Home AFB, Idaho
Juan Orozco Jr., 100th OSS, RAF Mildenhall, United Kingdom
William Overbeck, 7th WS, Illesheim, Germany
Chase Oyer, 314th OSS, Little Rock AFB, Ark.
Bradley Peterson, 25th OWS, Davis-Monthan AFB, Ariz.
Michael Poulter, HQ AFWA, Offutt AFB, Neb.
Robert Prato, OL-A, Camp Zama, Japan
Sarah Ramos, 1st WS, Fort Lewis, Wash.
Robert Rath, 26th OWS, Barksdale AFB, La.
Travis Rieken, 45th WS, Patrick AFB, Fla.
Justin Ripley, 1st WS, Fort Lewis, Wash.
Jason Roden, 75th OSS, Hill AFB, Utah
Amy Rucoelizarraz, 607th WS, Yongsan, Korea
Timothy Scanlin, 11th OWS, Elmendorf AFB, Alaska
Randy Schilling, 1st WS, Fort Lewis, Wash.
Matthew Shaffer, 366th OSS, Mountain Home AFB, Idaho
Shera Shaffer, 366th OSS, Mountain Home AFB, Idaho
Lee Shipley, 7th WS, Hanau, Germany
Adam Sikora, 57th OSS, Nellis AFB, Nev.
Jaerynne Sixon, 4th OSS, Seymour Johnson AFB, N.C.
Orlan Sollano, HQ AFWA, Offutt AFB, Neb.
William Spearman, Det. 1, 10th CWS, Fort Lewis, Wash.
Ryeshod Spencer, 607th WS, Seoul, Korea
Gregory Spiker, 25th OWS, Davis-Monthan AFB, Ariz.
Matthew Staton, 1st WS, Fort Lewis, Wash.
Brian Stith, 377th MXG, Kirtland AFB, N.M.
Brian Stokes, (Undisclosed Location)
Kevin Strattan, 57th OSS, Nellis AFB, Nev.
Simon Swengler, 28th OWS, Shaw AFB, S.C.
Brandy Tamplain, 26th OWS, Barksdale AFB, La.
Robert Thomas, HQ AFWA, Offutt AFB, Neb.
Jessica Tipton, 16th OSS, Hurlburt Field, Fla.
Jennifer Torres, HQ AFWA, Offutt AFB, Neb.
Sheena Tucker, 15th OWS, Scott AFB, Ill.
Amielyn Tullock, 21st OWS, Sembach AB, Germany
Jan Turner, 355th OSS, Davis-Monthan AFB, Ariz.
Nicholas Uebelhor, 15th OWS, Scott AFB, Ill.
Stacy Vanden-Wyngaard, 437th OSS, Charleston AFB, S.C.
Carrie Volpe, 80th OSS, Sheppard AFB, Texas
Chad Walker, Det. 2, 10th CWS, Fort Campbell, Ky.
Melissa Weinbender, Det. 2, 607th WS, Camp Humphreys, Korea
Christopher White, 22nd OSS, McConnell AFB, Kan.
Melissa Wilhite, 319th OSS, Grand Forks AFB, N.D.
Shameeka Williams, 325th OSS, Tyndall AFB, Fla.
Jeffery Wilson, 21st ASOS, Fort Polk, La.
Michael Winders, 607th WS, Yong San, Korea
Gregory Wollmann, HQ AFWA, Offutt AFB, Neb.
Aimee Woods, 353rd OSS, Kadena AB, Japan
Joshua Woods, 374th OSS, Yokota AB, Japan
Timothy Yablonsky, 20th OSS, Shaw AFB, S.C.
Nicholas Zdrojowy, 57th OSS, Nellis AFB, Nev.



Tech. Sgt. Barbara Marting
 72nd OSS/OSW, Tinker AFB,
 Okla.
 Weather Technician
Years in Service: 6
Hometown: Rochester, Minn.
Role Model: My best friend,
 Susie, because she has such a
 great balance of priorities and
 can handle almost any situation
 with confidence and grace.
Hobbies: Watching movies and
 hiking
**Most Memorable Air Force
 Weather Experience:** Flying
 around Iraq in a helicopter and
 visiting Saddam Hussein's
 Baghdad palace complex. It was
 exciting to see sites that most
 people have only seen via televi-
 sion.

Weather Warrior

Tech. Sgt. Michael Dannelly
 75th OSS/OSW, Hill AFB, Utah
 Assistant Flight Chief
Years in Service: 13
Hometown: Edenton, N.C.
Role Model: Lance Armstrong – the
 guy conquered the sport that he loves
 in spite of a ridiculous number of
 obstacles. He's a testament to the old
 saying, "You can do anything you put
 your mind to."
Hobbies: Weight lifting, distance run-
 ning, ultimate frisbee and cycling
**Most Memorable Air Force Weather
 Experience:** I was so thrilled to PCS
 to Hill AFB, Utah, where they get a
 ton of snow, but hardly any severe
 weather. While working my first set
 of standby shifts at Hill, a tornado
 formed over the Great Salt Lake. For
 the first time ever, I had to tell Command Post to sound the siren. Sometimes forecasting is just too much fun.



Where in the weather world is ...

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

Leaving Michigan and heading for Lackland AFB, Texas, on a snowy day in January 1977, Mr. Dave Cramblet had no idea what lay ahead during his service to our country. That could be because he entered the Air Force in an “open/general” career track, but mainly because this career track has been anything but “general.”

After a 3-year stint typing Autodin messages and sitting at a telephone switchboard, then Airman Cramblet cross-trained into weather and found himself back in Michigan, at Wurtsmith AFB. He was doing what he always wanted to do – weather.

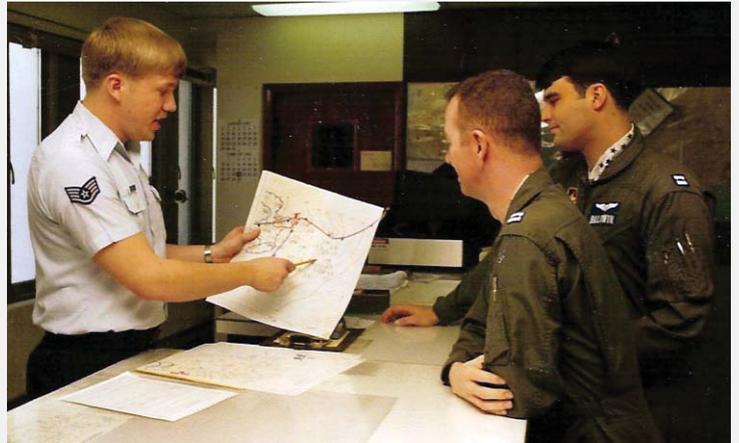
“Upon graduation from high school, my master plan was to get a degree in meteorology from Purdue University,” said Mr. Cramblet. “My decision to enlist came when the price tag for an out-of-state college was revealed to my folks.”

That decision worked out well for Mr. Cramblet, who is now a meteorological technician with the 46th Weather Squadron at Eglin AFB, Fla. He devoted more than 21 active-duty years to the Air Force. His weather career started at Wurtsmith AFB in 1980.

“That was during the days of SAC, alert pads, and B-52s and tankers loaded and ready to go,” said Mr. Cramblet. “It was a simpler time ... we knew who the enemy was, where they were, and what we were going to do if the balloon went up.”



Mr. Dave Cramblet, a meteorological technician with the 46th Weather Squadron at Eglin AFB, Fla., is primarily responsible for the squadron’s training program. He is also the unit supply and equipment custodian, and budget keeper.



Then Staff Sgt. Dave Cramblet, Det. 2, 26th Weather Squadron, briefs T-37 instructor pilots prior to a training mission at Wurtsmith AFB, Mich., in the summer of 1982. His primary mission was to support bomber and tanker missions. He also had to be ready to deploy at a moment’s notice to classified locations worldwide.

It was during his next assignment that Mr. Cramblet got his first taste of Army weather support. From 1984 to 1990, he was off to the great white north – namely Fort Richardson and then Elmendorf AFB, Alaska.

“My most interesting jobs were supporting Army units at both Fort Richardson and later in my career, Fort Eustis, Va.,” said Mr. Cramblet. “The field exercises were very challenging, but looking back, these were probably the best of times. I loved Alaska.”

Throughout his career, Mr. Cramblet has always valued the professional and personal relations he has built. Retired Chief Master Sgts. Matt Ulrich and Dick Prewitt have both inspired and mentored him during his diverse weather career.

“My biggest influence, meteorologically, was Dick Prewitt,” said Mr. Cramblet. “He was tough, but always treated me fair. You always made sure your ducks were in line before a daily METCON because you were definitely going to be quizzed – sometimes unmercifully. But it forced you to either re-think your career or learn your trade.

“Matt Ulrich challenged me to always do the right thing. I think the highest honor anyone can be given after a military career is for someone to say ‘he made a difference.’ Matt made a difference, and I truly hope somewhere along my career path, I did too.”

Looking back on more than 25 years of weather experience, Mr. Cramblet realizes the importance of education.

“The most important thing is to keep learning,” said Mr. Cramblet. “I love the weather career field because the weather changes every day, and what causes a certain phenomena one day may not cause the exact same phenomena the next. I love getting back to the basics of meteorology. Today’s weather forecasters should never lose sight of the basics ... the basics will never fail you in your career.”

Salutes

RETIREMENTS

Lt. Col. Michael Bramhall, HQ AFWA, Offutt AFB, Neb.
Maj. Troy Johnson, HQ AFWA, Offutt AFB, Neb.
Maj. William Miles, HQ AFWA, Offutt AFB, Neb.
Capt. David Paal, HQ AFWA, Offutt AFB, Neb.
Senior Master Sgt. Gary Mercer, 3rd WS, Ford Hood, Texas
Senior Master Sgt. Michael Sis, HQ AFWA, Offutt AFB, Neb.
Master Sgt. Robin Clark, HQ AFWA, Offutt AFB, Neb.
Master Sgt. John Clum, HQ AFWA, Offutt AFB, Neb.
Master Sgt. Shelia Dollison, AFCWC, Hurlburt Field, Fla.
Master Sgt. Lawrence Green, HQ AFWA, Offutt AFB, Neb.
Master Sgt. John Kramer, HQ AFWA, Offutt AFB, Neb.
Master Sgt. Catherine Livingston, HQ AFWA, Offutt AFB, Neb.
Master Sgt. Daniel Radebaugh, HQ AFWA, Offutt AFB, Neb.
Tech. Sgt. David Batchelor, HQ AFWA, Offutt AFB, Neb.
Tech. Sgt. Nathan Dixon, HQ AFWA, Offutt AFB, Neb.

AWARDS AND DECORATIONS

BRONZE STAR

Senior Master Sgt. Gary Mercer, 3rd WS, Ford Hood, Texas

MERITORIOUS SERVICE MEDAL

Lt. Col. John Shattuck, AFCWC, Hurlburt Field, Fla.
Lt. Col. Leanne Siedlarz, AFCWC, Hurlburt Field, Fla.

Maj. Michael Ceule, HQ AMC, Scott AFB, Ill.
Maj. Douglas Clark, HQ AMC, Scott AFB, Ill.
Maj. James Ulman, HQ AMC, Scott AFB, Ill.
Capt. Charles Spicer, HQ AFWA, Offutt AFB, Neb.
Senior Master Sgt. Gary Carter, HQ AFWA, Offutt AFB, Neb.
Senior Master Sgt. Michael Clark, HQ AMC, Scott AFB, Ill.
Senior Master Sgt. Mike Crain, AFCWC, Hurlburt Field, Fla.
Senior Master Sgt. Gary Mercer, 3rd WS, Fort Hood, Texas
Senior Master Sgt. Jerry Scholl, HQ AFWA, Offutt AFB, Neb.
Master Sgt. Giselle Kinsell, HQ AFWA, Offutt AFB, Neb.
Master Sgt. John Kramer, HQ AFWA, Offutt AFB, Neb.
Master Sgt. James Slisik, HQ AFWA, Offutt AFB, Neb.

AIR FORCE COMMENDATION MEDAL

Capt. Alexander Braszko, HQ AFWA, Offutt AFB, Neb.
Capt. Van Smith, HQ AMC, Scott AFB, Ill.
1st Lt. Toni Carter, HQ AFWA, Offutt AFB, Neb.
Master Sgt. James Lee, HQ AFWA, Offutt AFB, Neb.
Tech. Sgt. Noel Cumberland, HQ AFWA, Offutt AFB, Neb.
Tech. Sgt. Ron Hansen, HQ AFWA, Offutt AFB, Neb.
Tech. Sgt. Jacqueline Wood, HQ AFWA, Offutt AFB, Neb.
Staff Sgt. Daniel Bigley, AFCWC, Hurlburt Field, Fla.
Staff Sgt. Jerry Bruggeman, HQ AFWA, Offutt AFB, Neb.
Staff Sgt. David Carlson, HQ AFWA, Offutt AFB, Neb.

Staff Sgt. Michael Galbrath, HQ AFWA, Offutt AFB, Neb.
Staff Sgt. Timika Heath, HQ AFWA, Offutt AFB, Neb.
Staff Sgt. Randolph Rundio, HQ AFWA, Offutt AFB, Neb.
Staff Sgt. Jay Sablan, HQ AFWA, Offutt AFB, Neb.
Staff Sgt. Michael Schneider, HQ AFWA, Offutt AFB, Neb.

AIR FORCE ACHIEVEMENT MEDAL

Tech. Sgt. Richard Wright, AFCCC, Asheville, N.C.
Senior Airman Gabriel Ealy, 97th OSS, Altus AFB, Okla.
Senior Airman David Gilles, HQ AFWA, Offutt AFB, Neb.
Airman 1st Class Aron Alexander, HQ AFWA, Offutt AFB, Neb.

EDUCATION

NONCOMMISSIONED OFFICER ACADEMY

Distinguished Graduate

Tech. Sgt. Musette Willis, 18th OSS, Kadena AB, Japan

AIRMAN LEADERSHIP SCHOOL *Levitow Award Winners*

Staff Sgt. Joseph Round, 35th OSS, Misawa AB, Japan
Senior Airman Michael Schneider, HQ AFWA, Offutt AFB, Neb.
Leadership Award Winner
Senior Airman Michael Schneider, HQ AFWA, Offutt AFB, Neb.

WEATHER FORECASTER APPRENTICE

Tech. Sgt. James Campbell, 26th OWS, Barksdale AFB, La.
Tech. Sgt. Thomas Flynn, 15th OWS, Scott AFB, Ill.

Tech. Sgt. Brent Henke, 26th OWS, Barksdale AFB, La.
Tech. Sgt. Scott McComb, 25th OWS, Davis-Monthan AFB, Ariz.
Tech. Sgt. Rodney McDougal, 15th OWS, Scott AFB, Ill.
Tech. Sgt. Brian Nuss, 15th OWS, Scott AFB, Ill.
Tech. Sgt. Brian Patrick, 26th OWS, Barksdale AFB, La.
Staff Sgt. Drew Foote, 150th OSF, Kirkland AFB, N.M.
Staff Sgt. Chett Tyson, 127th OSF, Howell, Mich.
Senior Airman Jeffrey Clarke, 195th WF, Channel Island, Calif.
Senior Airman Michele Harris, 136th OSF, Fort Worth, Texas
Senior Airman Stephanie Mikesch, 170th OSS, Offutt AFB, Neb.
Senior Airman Mickey Steppe, 192nd FW, Sandston, Va.
Airman 1st Class Joy Arnold, 26th OWS, Barksdale AFB, La.
Airman 1st Class Angelica Asaeli, 25th OWS, Davis-Monthan AFB, Ariz.
Airman 1st Class Leona Baldwin, 17th OWS, Hickam AFB, Hawaii
Airman 1st Class Joshua Brueggen, 26th OWS, Barksdale AFB, La.
Airman 1st Class Brian Burgman, 25th OWS, Davis-Monthan AFB, Ariz.
Airman 1st Class Olatunde Cooper, 25th OWS, Davis-Monthan AFB, Ariz.
Airman 1st Class Justin D'Olimpio, 25th OWS, Davis-Monthan AFB, Ariz.
Airman 1st Class Lucas Dooley, 21st OWS, Sembach, Germany
Airman 1st Class Zachary Geeze, 26th OWS, Barksdale AFB, La.
Airman 1st Class Anthony Hartman, 21st OWS, Sembach AB, Germany
Airman 1st Class Leon Keochanthanivong, 15th OWS, Scott AFB, Ill.
Airman 1st Class Jeffrey Kincaid, 15th OWS, Scott AFB, Ill.
Airman 1st Class Michael Newton, 11th OWS, Elmendorf AFB, Alaska
Airman 1st Class Ryan Oftedahl, 28th OWS, Shaw AFB, S.C.

Airman 1st Class Christopher Saki, 17th OWS, Hickam AFB, Hawaii
Airman 1st Class Shawn Spence, 28th OWS, Shaw AFB, S.C.
Airman 1st Class Mikael Strahlem, 15th OWS, Scott AFB, Ill.
Airman 1st Class Jason Young, 177th FW, Egg Harbor Township, N.J.
Airman John Apple, 15th OWS, Scott AFB, Ill.
Airman Andrea Dill, 25th OWS, Davis-Monthan AFB, Ariz.
Airman Tara Evans, 26th OWS, Barksdale AFB, La.
Airman Ashley Minchuk, 21st OWS, Sembach AB, Germany
Airman Justin Novak, 25th OWS, Davis-Monthan AFB, Ariz.
Airman Corey Pack, 21st OWS, Sembach AB, Germany
Airman Justin Ray, 25th OWS, Davis-Monthan AFB, Ariz.
Airman Alanna White, 25th OWS, Davis-Monthan AFB, Ariz.
Airman Steven Yount, 26th OWS, Barksdale, La.

Combat Weather Team Course

Capt. David Huston, 11th OWS, Elmendorf AFB, Alaska
1st Lt. Tobi Baker, 15th OWS, Scott AFB, Ill.
1st Lt. James Mitchell, 28th OWS, Shaw AFB, S.C.
1st Lt. Jonathan Schuring, Det. 2, 607th WS, Camp Humphreys, Korea
2nd Lt. Jody Chevalier, 28th OWS, Shaw AFB, S.C.
Staff Sgt. Alfred Brooks, 86th AMS, Ramstein AB, Germany
Staff Sgt. Raphael Garcia, 15th OWS, Scott AFB, Ill.
Staff Sgt. Loyeatta Manley, 12th CTS, Fort Irwin, Calif.
Senior Airman Joel Arnett, 607th WS, Seoul, Korea
Senior Airman Nicholas Casler, 28th OWS, Shaw AFB, S.C.
Senior Airman James Goddard, 28th OWS, Shaw AFB, S.C.

Senior Airman Bessie Kredell, 16th OSS, Hurlburt Field, Fla.
Senior Airman Robin Lewis, 26th OWS, Barksdale AFB, La.
Senior Airman Wesley Magnus, 28th OWS, Shaw AFB, S.C.
Senior Airman Deanna Marks, 1st WS, Fort Lewis, Wash.
Senior Airman Jeremy Norris, 347th OSS, Moody AFB, Ga.
Senior Airman Daniel Perry, 78th OSS, Robins AFB, Ga.
Senior Airman Jennifer Pryer, 28th OWS, Shaw AFB, S.C.
Senior Airman Robert Rath, 26th OWS, Barksdale AFB, La.
Senior Airman Kelly Tobin, 15th OWS, Scott AFB, Ill.
Senior Airman Dylan Tucker, 3rd ASOS, Fort Wainwright, Alaska
Airman 1st Class Megan Farej, 28th OWS, Shaw AFB, S.C.
Airman 1st Class Sarah Uhlenhake, 71st OSS, Vance AFB, Okla.

Weather Officer Course

1st Lt. Brandon Le, 11th OWS, Elmendorf AFB, Alaska
2nd Lt. Jason Baker, 28th OWS, Shaw AFB, S.C.
2nd Lt. Kelly Benacquista, 11th OWS, Elmendorf AFB, Alaska
2nd Lt. Jennifer Janeczko, 21st OWS, Sembach AFB, Germany
2nd Lt. Jose Perales, 26th OWS, Barksdale AFB, La.
2nd Lt. Scotty Sproles, 28th OWS, Shaw AFB, S.C.

PROMOTIONS

The following Air Force Weather professionals were selected for promotion:

To Senior Master Sergeant:

Craig Kirwin, 1st ASOG, Fort Lewis, Wash.

To Technical Sergeant:

Daniel Bigley, AFCWC, Hurlburt Field, Fla.

