Your Magazine for Air Force Weather

OBSERVER

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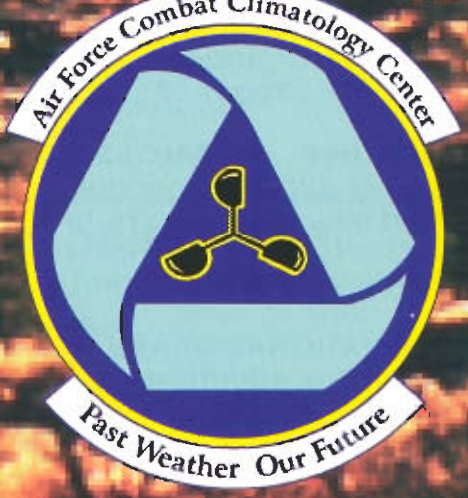

AFCCC

PAST WEATHER -- OUR FUTURE

What's Inside for July 1996

SPOTLIGHT

The Air Force Combat Climatology Center -- See how this one-of-a-kind center makes past weather their future ...

... **Pages 12-15**

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Air Weather Service

***OBSERVER* Editorial Staff**

Air Force Director of Weather
Brig. Gen. Thomas J. Lennon

Commander, Air Weather Service
Col. Joseph D. Dushan

Vice Commander
Headquarters Consultant
Col. Gerald F. Riley, Jr.

Editor
Staff Sgt. Steve Elliott

Headquarters Consultants
Maj. John Pino
Capt. Vicki Michetti
Capt. Rick Davila
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1st Lt. Jahna Schadt
Senior Master Sgt. Mike Spaulding
Staff Sgt. Rich Slominsky
Ms. Patricia Warner

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Scott AFB, IL 62225-5206

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perspectives *from the top*

Let's Face The Facts

Our Technical Expertise Affects Operations Worldwide

by Brig. Gen. Thomas J. Lennon
Air Force Director of Weather

On recent visits to see the troops, I have called attention to a chart that shows Air Force Weather (AFW) cloud forecast skill compared to persistence. It's a surprise to many to see a sharp drop off in skill from 1978 to 1986.

Since 1986, our ability to forecast ceilings below the 3,000-foot mark has shown no improvement. We're just barely above persistence. The solution to reversing this trend is improving the skills of our forecasters. The technical expertise of our force has a direct impact on Air Force operations worldwide.

Since clouds are of such great importance to combat operarions, I have thrown the spotlight on a new technical health metric that measures our ability to forecast low clouds against persistence. We chose persistence because it represents a basic forecast. We add value to operations when our forecast skill is better than persistence.

The new weather rhreshold is ceiling and visibility above and below 1,500 feet and 3 miles. You may think 1,500 and 3 aren't critical thresholds for your particular mission; however, if you can correctly forecast clouds and visibilities at that altitude, you can do so for other levels as well. There are those who say keeping books on ourselves is not necessary. My experience tells me units that keep statistics, or meaningful metrics, perform better than those that don't.

I'm convinced this new program will work and I've instructed my staff to make this new metric and threshold a Special Interest Item for the AFW Stan/Eval visits. I believe our skill scores will improve, but we can't rely entirely on new technologies.

Former President George Bush once remarked, "Technology is the key to the future and people are the key to technology."

What I see is, that since the 1970s, we have acquired new technologies on the belief that they would improve our forecast products and allow us to downsize at the same time.

The Automated Weather Distribution System (AWDS) does not reduce manpower slors and increase forecast skill. AWDS is a tool that trained forecasters use to become effective in their business.

What about NEXRAD? Although the mean warning rime for hail and tornadoes has increased, the number of "false alarms" has increased as well. What's going on? My gut tells me that we ignored the facts about the weather business: it's a mix of science and art. Probably as much art as science at times. These new tools are powerful, but are nor an end to themselves and must be tempered by forecaster experience.

Nothing in the foreseeable future will replace the experience you bring to the weather business. That's why I've fought so hard against those who would drastically downsize AFW and said "no" to those who want to replace all observers with automated weather observing systems. Investing in people is the answer and always will be.

I said earlier that clouds are of great importance to combat operations. In fact clouds are the number one weather problem for fighter pilots dropping Precision Guided Munitions (PGMs). DESERT STORM bore this out; we told our shooters to stay above 10,000 feet because of the Iraqi air defense threat.

This restriction resulted in problems because you can't successfully drop a PGM without a clear view of the target and the probability of a cloud ceiling increases in the vertical. This held true again, during DELIBERATE FORCE, rhe NATO air campaign in Bosnia. With more accurate forecasts, you can help put many more bombs on target.

What about the future? Our defense budget continues to shrink but rhat doesn't mean we can't improve our support to the warrior. AFW is and has always been blessed with great thinkers and doers. We've played a positive role in every major war and military operation since our inception in 1937.

James Whalen, president of Ithaca College had this to say about change, "Failure comes only when we refuse to face facts and fail to exert leadership."

The key is you. Each of you will determine whether or not we successfully retool AFW to meet the post-Cold War era. I have confidence that you will conquer the challenges that lie ahead so AFW can provide the winning edge on the battlefield.

> **"AFW is and has always been blessed with great thinkers and doers. We've played a positive role in every major war and military operation since our inception in 1937."**
>
> ***Brig. Gen. Thomas J. Lennon***
> ***Air Force Director of Weather***

Have a question for General Lennon? Write to: HQ USAF/XOW, 1490 Air Force Pentagon, Washington, D.C. 20330-1490.

command line

The Role Of The Weatherman

Understanding Who And What We Are

by Col. Joseph D. Dushan
Commander
Air Weather Service

It will be a surprise to very few of you that Air Force weather support was badly bent, if not totally broken, in the aftermath of the Air Force restructure and drawdown.

Since then, leaders at every echelon have spent enormous energy trying to repair the damage and regain capabilities vitally important to the Department of Defense.

One of the more obvious examples is the often misunderstood "Back to Basics" initiative.

Apparently, some insist on viewing the program from a consistently negative bias and claiming hurt feelings about what the program does or does not suggest.

I've even heard of one group who dissected every line of an *OBSERVER* article looking for hidden nuances. Good grief! It's like listening to Beatles records played backwards to hear naughty words!

Perhaps the most fundamental question we need to answer in our quest for a return to the basics is: "Who Are We?"

Air Force Director of Weather Brig. Gen. Thomas J. Lennon makes a telling and timeless point in his article: *"These new tools are powerful, but are not an end in themselves. Nothing in the forseeable future will replace the experience weather people bring to the business."*

Since we can't replace lost experience overnight, let's apply lessons we learned long ago that remain as valid and fresh today as yesterday.

One of my good friends — and a highly respected leader in the Air Force weather business — retired Col. Bob Gottuso wrote to share some articles he'd saved from his active duty years. He told me in his letter: *"As I needed to be inspired by this guidance then our young people of today also need a true course by which to steer."*

Col. (later brigadier general and the first non-rated commander of Air Weather Service from 1970-1973) William H. Best, Jr., concluded a detachment commander conference in November 1965 with comments entitled The Role of the Weatherman.

> **"There are never guarantees and there are no easy answers. Success in this or any other worthy endeavor is the result of muscle, brains, and determination, applied as a team to accomplish tasks as well as they can be in order to reflect our pride in ourselves and our institution."**
>
> ***Col. Joseph D. Dushan***
> ***Commander, Air Weather Service***

Brig. Gen. John Collens sent them to all AWS units in September 1974, saying: *"These words are as applicable today as they were then. The only thing that has changed is that we are doing the same demanding jobs with fewer people."* Sound familiar?

Here, then, are General Best's ideas on who we are:

■ A weatherman's most important characteristic is his ability to show concern for the problems of the people he supports. For example, the detachment commander makes points with his wing commander by sweating out missions, aircraft launches and recoveries with him when adverse weather is a problem, and during an ORI by getting no more sleep than other staff officers.

■ A weatherman's most important asset is credibility. If a customer believes we're doing our best, that we will "cooperate with the devil himself" in order to improve our service, that we will spare no pains to provide decision assistance in accomplishing the mission, then he will exploit our product and we will succeed.

■ Taking and disseminating weather observations is the most important technical task a weather man performs. And it is the thing we do best.

■ The primary job of a forecaster is to advise the operator how he can complete his mission in spite of weather obstacles. Air Force people don't care about your forecast per se; they want to consummate the mission.

Well, there you are. Simple, isn't it? If we hold steadfastly to a clear understanding of who we are and what our role must be, we can succeed.

There are never guarantees and there are no easy answers. Success in this or any other worthy endeavor is the result of muscle, brains, and determination, applied as a team to accomplish tasks as well as they can be in order to reflect our pride in ourselves and our institution.

You are ready. I'm absolutely confident in your abilities. Now, simply lead off with your left foot and "Forward, March!"

Have a question for Colonel Dushan? Write to: HQ AWS/CC, 102 W. Losey St., Rm. 105, Scott AFB, Ill. 62225-5206.

enlisted view

Practice Makes Perfect

'Knowledge is the most powerful tool we possess'

by Airman 1st Class
Sara Peterson
31st OSS/OSW, Aviano AB, Italy

(Note from Air Force Superintendent of Weather Chief Master Sgt. Jim Hoy: "We received this letter from Airman 1st Class Sara Peterson, stationed at Aviano AB, Italy. Air Force Director of Weather Brig. Gen. Thomas J. Lennon has addressed the importance of weather observations in earlier editions of the OBSERVER. He stressed that we all, airman through chief master sergeant, second lieutenant through general, are observers. This letter provides a view that all of us in weather need to remember.")

Practice makes perfect. Remember that old, but true, adage? That simple statement is the key to more accurate observations.

Accurate and timely observations are our goal. In the ever-changing Air Force, we must keep in touch with these goals. No one in the Air Force meets that goal like the airmen who observe the weather day in and day out. Past, present, and future observers do a better job observing than anyone else in the weather career field.

It is no great mystery why I give so much credit to my peers. After all, observers stay the best at their job because of proficiency. Also, observing and forecasting are very tedious professions. "Attention to detail" is a statement we all live by.

When observers become forecasters, their primary focus changes, as do the details they concern themselves with. The career progression, at this point, broadens the forecaster's realm of weather knowledge.

Forecasters are not so concerned with the "now" weather as they are with the "future" weather.

This change in focus encompasses everything from the work process to the use of tables and memorized data. Very few people have the ability to be "up to speed" at both. This does not mean that a forecaster loses his or her ability to observe. What it does mean is that whichever craft you practice most is your forte. Therefore, observers observe best and forecasters forecast best.

"AFW must invest time in young airman. The term 'apprentice' has lost its meaning. There is a tremendous need to revitalize the aggressive, continuous training program once designed for observers to apprentice the art of forecasting."

Airman 1st Class Sara Peterson
31st OSS/OSW
Aviano AB, Italy

With these things in mind we need to ask ourselves a serious question: "What is the future of observing and how can we make our observers even better?"

Today, most observers are not in a Remote Observing Site (ROS) performing a continuous weather watch. Instead, they are in the base weather station performing a basic weather watch in every sense of the word. Most of the time and effort of today's observing shift is spent accomplishing clerical duties that have little or nothing to do with weather observing, and often little to do with weather at all.

This is surprising considering those recent advances in technology make many of these duties either non-essential, or easy enough to be done without the observer's assistance. This is a waste of valuable and expensive training.

AFW must invest time in young airmen. The term "apprentice" has lost its meaning. There is a tremendous need to revitalize the aggressive, continuous training program once designed for observers to apprentice the art of forecasting.

The program should act as a step between observing and forecasting school. This program should also be designed to teach airman the purpose of their job and its meteorological significance.

After all, to truly report what is taking place, the observer must understand why it is taking place. This training program needs to take the stigma of impossibility out of forecasting. Forecasting is indeed an art that needs to be shared with airmen if we are ever going to overcome the recent experience deficit in our career field.

If observers were more educated in the field of meteorology they could and would produce even better products for the customers. Therefore, we must move our focus from clerical training to forecaster training.

This will ensure the future of not only observing, but the whole of AWS. Knowledge is the most powerful tool we possess.

To ensure that "practice makes perfect" we must actively make use of this tool.

"Choose The Weather For Battle"

Contact Chief Hoy at DSN 224-7410 or by electronic mail at "jhoy@pafosu3.hq.af.mil"

back to *basics*

Making It Work

Benefits Make The Challenges Worthwhile

by Capt. Frederick A. Eckel
Chief, Weather Operations
374th OSS/OSW, Yokota AB, Japan

"Choose The Weather For Battle"

Back to Basics (BTB) ... you've heard the words, seen the plan, and get the general idea, but how do you make it work?

The Air Force Weather Stan Eval team recently noted that the Yokota AB Weather Flight has implemented BTB principles for a while now. As the chief of weather operations, I'd like to share my thoughts about how we made Back to Basics work.

Getting started is the easy part. A major objective of the BTB program is to get the science of weather back into operations in order to continuously improve forecasting.

As weather officers, start by identifying your unit's biggest forecast problem(s) or weakness(es) based on your customers' mission and the local forecast regime.

Then focus your energy on researching this problem and creating some kind of tool as a forecast aid. Your challenges to this are the distractions of other responsibilities and the formidable task of training.

Ideally, weather officers would come to work each day and spend 90% of their effort on improving the flight's forecasting. Unfortunately, that percentage is cut way down by all of the other essential duties of a weather officer.

What it comes down to is "time management". In order to make time to work on BTB projects, work efficiently! Get things done right the first time so they don't come back to waste your time later. Delegate work when possible, but track it closely.

You may even have to set aside regularly scheduled time when you lock yourself in a room, unplug the phone and do nothing but BTB work. That sounds extreme, but it may be necessary in order to get this key duty done.

The other challenge is training. Time again is a factor. A weather flight is normally manned just to do the job of forecasting and observing, which leaves little time for training.

Schedule regular training shifts if possible. Maintain a solid FOT program that includes new ideas as well as review training. Pass on your ideas and insight through seminars at station meetings.

> **"A major objective of the Back To Basics program is to get the science of weather back into operations in order to continuously improve forecasting."**
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> ***Capt. Frederick A. Eckel***
> ***Chief, Weather Operations***
> ***374th OSS/OSW, Yokota AB, Japan***

Additionally, the final result of your efforts must be in a format everyone can understand and use. If you create a tool for forecasting fog that takes 3 hours of intense calculations, it won't be much use to the counter forecaster.

Those are the challenges. What you have working for you is knowledge, imagination, and hopefully enthusiasm.

Your potential knowledge is not only derived from your college education but also from all the resources you have at your finger tips. Most weather flights have extensive technical libraries to look through. Subscribe to various weather periodicals through your base library. Request articles or specific information from the AWS technical library. A meteorologist never stops learning.

Imagination is a quality that all weather people must have to a certain degree in order to be effective forecasters. Use your imagination to figure out the best way to apply your knowledge to the project you are working on. Be inventive in creating a new tool to help tackle the forecast problem. Never be afraid to try something new. Great advances often start out as crazy ideas.

Enthusiasm is critical to the success of the BTB program. You need it for yourself to help bring out imaginative ideas and effectively apply your knowledge.

You also need to pass it on to other personnel in the unit to get them excited and involved. Many forecast problems are so complex that there is no way you can handle it alone. Be the focal point, but get as much input from your people as possible. Tie in their experience with your scientific knowledge, a match made in heaven for great weather forecasting.

Well that is an overview of how I made BTB work for the Yokota AB Weather Flight. Each of you will have to decide what's best for your unit.

By applying your knowledge along with the correct mix of good time management and an effective training program, the BTB program will do wonders for your unit's forecasting abilities.

Have questions or comments about the new "Back To Basics" initiatives? Contact Lt. Col. Hoofard or Senior Master Sgt. Ramirez at DSN 426-4390 or CMCL (703) 696-4390.

officer talk

Making Major

Promotion Board Results Show Many Variables

by Maj. John D. Murphy
Air Weather Service
Chief of Personnel

The purpose of the officer promotion system is to select those officers who have clearly demonstrated the potential to serve in more demanding leadership positions.

The Air Force only promotes officers in sufficient numbers as vacancies occur to maintain the strength of the service in each grade. Reasonable progression to the next grade helps retain a highly qualified and motivated officer corps.

Promotion board objectives include providing a stable, consistent, and visible promotion pattern for all competitive categories and providing accelerated promotion opportunities for officers who show exceptional potential.

On the other hand, Air Force downsizing has had a direct impact on promotion opportunities; competition is keener than ever since fewer people are being promoted. Reaching the rank of major is more difficult because the drawdown eliminated hundreds of promotion opportunities.

Let's talk now about the results of the most recent majors' board (convened March 4 at the Air Force Personnel Center, Randolph AFB, Texas).

First, congratulations to those selected. You've survived your first competitive promotion since your promotions up to the rank of captain were virtually automatic. Promotion to major is the first head-to-head competition with others in your peer group — it's when you find out how you're doing relative to your year group.

Those selected for promotion have "weathered the storm" of the force drawdown. You were offered cash to leave in the form of voluntary separation incentives and special separation benefits and other reduction-in-force programs. Making major is the closest you can come to getting tenure in the Air Force — receiving job and retirement benefits that go with the rank.

The demographics of the weather officers meeting the CY96A Major Selection Board are outlined below:

EXPERIENCE	ELIG. (%)	PROMOTED (%)
ROTC Commission	40	68.7
OTS Commission	60	54.2
Regular Commission	93	60.5
SOS Completed In-Res.	85	61.8
Adv. Academic Degree	82.5	60.6
Weather/Space AAD	97.5	69.6
Wing Weather Officer	72.5	72.4
Staff Experience	35	85.7
Army Experience	30	50
FOA Experience	57.5	73.9
Flight Commander	40/(27.5)	56.2/(72.7)

(Note: The eligible column represents the percentage with a given experience, the promoted column represents of those eligible with the experience, the percentage that were selected for promotion by the CY96A board.)

What do all these numbers mean? No single assignment/experience will make or break your career. What you do with each assignment is what's important. You need to make the most of every job you're given.

In reviewing the careers of all the eligible officers, I found many defied conventional wisdom and were promoted — many others followed the normal course of events and were deferred. This shows it's what is in the record that's important and not how the resume reads.

Remember, you're promoted based on 10 or 11 Officer Performance Reports and not just the top one — your record should stand on its own.

It is important where you are and what your job is when your board meets, since you're being measured against your peers on the level of responsibility you hold.

Consider the level of your assignment carefully when you're about to meet a board and carefully consider any move just before your board meets (since you'll be the new person on the block).

The final area I'd like to address is the masking of advanced academic degrees (AADs). The decision not to consider AADs in the majors' board was made to make the competition more equitable.

The Air Force has switched the AAD focus from when an officer is developing their technical expertise to the time when management and advanced education are more appropriate. The Secretary and Chief of Staff of the Air Force have said that "many young officers were busy trying to advance in their careers and were unable to pursue AADs."

The idea behind the masking was to remove any hint of bias in the promotion process (similar to removing photographs from promotion folders). Since 83.3% of the weather officers promoted possessed an AAD, it's hard to claim that an AAD is for naught. An AAD has never been a guarantee of promotion, but it doesn't hurt.

AADs will still be considered for more senior ranks (during O-5 and O-6 promotion boards). Finally, if you went to AFIT, your training reports still identify your AAD completion and your PRF can refer to it whether it's in your Officer Selection Brief or not.

(Editor's note: A complete weather major's promotion list is included on page 23. Congratulations to all those selected.)

If you have specific career questions, suggestions for future articles, or issues which you need answered, my mailing address is: Maj. John Murphy, HQ Air Weather Service, Director of Personnel (AWS/RMP), 102 West Losey St., Room 105, Scott AFB IL 62225-5206 or DSN 576-4895, ext. 344, or E-Mail "murphyj@hqaws.safb.af.mil".

weather history

Did You Know?

Weather Support During Many Battles

by Ms. Lil Wilbur
Air Weather Service
Chief of History

Did You Know that by 1966, American aircraft stories in Vietnam were totaling over 13,000 a month! There were 29,488 target forecasts issued between July and December 1966.

In support of the concept of weather and its effects on battle, Gen. William C. Westmoreland, Commander, U.S. Forces in Vietnam said, "No other U.S. military commander ever had the advantages of the outstanding weather support I have had at my disposal."

More recent examples of Air Weather Service support are evident in our presence during the Cuban Missile Crisis of 1962; the Yom Kippur War of 1973; the Panmunjom tree-trimming incident in Korea in 1976; and the attempted rescue of hostages from Tehran in 1980.

DID YOU KNOW?

Air Weather Service personnel have deployed for many contingency operations, so it was no surprise when Det. 1, 5th Weather Squadron, found themselves deployed once again in 1990.

It began as an ironic coincidence. The majority of the weather folks from Fort Campbell, Ky., had just returned from a trip to Fort Bragg, N.C., in August 1990. They had deployed to support the "Screaming Eagles" of the 101st Airborne Division during exercise "INTERNAL LOOK" that just happened to center around a fictional foe in the Persian Gulf.

Within three weeks, Iraqi forces were invading Kuwait and these folks were sent off again ... only this time the deployment would be real-world!

The Fort Campbell unit became Det. 9, 1690th Weather Group (Provisional) and remained in Saudi Arabia during the entire operation. When the dust settled and the reports were done, Capt. Mike McDonald had this to say: "This contingency tested the very core and fabric of what Army support weather teams are all about ... living in the desert for months under extremely austere conditions, what some consider a trademark of the 101st, can quickly separate the wheat from the chaff. I can proudly state that there was very little chaff."

"Did You Know that 'AWS' has not always stood for Air Weather Service? AWS had also stood for Aircraft Warning Service, a vital function to the nation's defense at a time when enemy air attacks were expected on both coasts."

Ms. Lil Wilbur
Air Weather Service Chief of History

DID YOU KNOW?

Air Force Weather has participated in deployment operations worldwide including: DESERT STORM, SOUTHERN WATCH, UPHOLD DEMOCRACY, Joint Task Force BRAVO; and in addition provided support during exercises such as BRIGHT STAR (Egypt), RESTORE HOPE (Somalia), and TEAM SPIRIT (Korea).

These deployments demonstrate the scope of support provided by the AirForce Weather community. Weather is a vital element in effective warfighting and as long as we have weather people of the highest caliber we will continue to provide top-notch data when and where needed.

DID YOU KNOW?

"AWS" has not always stood for Air Weather Service? When I attended the Air Weather Association Reunion in May, I learned that AWS had also stood for Aircraft Warning Service. Ms. Terri Hardy, an assistant in the history office researched this to determine whether it was fact or fiction and provides the following in response:

"AWS was the acronym for Aircraft Warning Service, a vital function to the nation's defense at a time when enemy air attacks were expected on both coasts." The Aircraft Warning Service was operated by some 6,000 female volunteers and a few soldiers, many of who worked as ground observers or in the information and filter centers.

At that time the Army and Air Forces felt that effective operation of the stations required full-time personnel subject to military discipline. This need was met by the assignment of women from the Women's Army Auxiliary Corps (WAACS), who began to arrive at the posts in September 1942, immediately after completing their basic training at Fort Des Moines.

As the probability of an air attack on the United States began to diminish, the War Department decided, early in 1943, to replace the WAACS once again with civilians at all Aircraft Warning Stations except those where it was impossible to obtain volunteer support.

Did You Know is brought to you by the Air Weather Service History Office. Materials used come from various sources including AWS Historians past and present. If you have stories, artifacts, old emblems, photos, etc...contact Ms. Wilbur by E-mail at "wilburl@hqaws.safb.af.mil" or call (618) 256-5654, ext. 258 or DSN 576-5654, ext. 258.

making *the grade*

What The Boards Look At

Hints about the E-8 evaluation board process

by Chief Master Sgt.
Richard R. Des Jardin
Chief of Weather Operations
18th Air Support Operations Group
Fort Bragg, N.C.

I had the opportunity to sit on the recent senior master sergeant evaluation board held at Randolph AFB, Texas.

I would like to pass on what I can about the evaluation board process.

(Those people whose records went before the board can get a copy of the selection folder reviewed by the board by writing or faxing to: HQ AFPC/DPPBR2, 550 C St., West Suite 5, Randolph AFB, TX 78150-4707; Fax number: DSN 487-4255)

All board members receive a thorough in-brief that includes an in-depth profile of the eligible pool of E-7s, take an oath not to divulge results of the board, and review the whole person concept and the scoring scale. They then perform trial scoring runs of selection folders of individuals no longer eligible for promotion ro senior master sergeant.

> **"Completing all PME and getting at least the associate's degree in your specialty can make a difference in board score."**
>
> ***Chief Master Sgt. Richard R. Des Jardin***
> ***Chief of Weather Operations***
> ***18th ASOG, Fort Bragg, N.C.***

The purpose of trial runs is to ensure all board members score to the same standard. The entire board first individually scored a group of 10 selection folders (from a past board), then an open discussion followed, where board members discussed what they thought was good or bad within the folders. From this, a board standard was formed and individual panels were formed.

The panels were composed of two chief master sergeants and one colonel. Panels were established based on Air Force Specialty Codes (AFSC). One panel reviewed a complete AFSC.

After the initial trial scoring run, each panel scored another 40 selection folders. The overall pattern of how the panel members scored records were charted to look at the scoring trend. The chart provided panel members a graphic representation that compared everyone's scoring.

From this information, it was determined if panel members tended to score too high or too low in relation to the other panel members. After this was determined, adjustments were made before the scoring process began.

Once the actual scoring of selection folders began the process went very smoothly. An average of 200-240 folders were scored each day.

Board members had as much time as they needed to score each. Scoring consisted of a point scale between 6 and 10 in half-point increments. The scoring scale equated to the following scale:

ABSOLUTELY SUPERIOR	10
OUTSTANDING RECORD	9.5
FEW COULD BE BETTER	9
STRONG RECORD	8.5
SLIGHTLY HIGHER THAN AVERAGE	8
AVERAGE	7.5
SLIGHTLY BELOW AVERAGE	7
WELL BELOW AVERAGE	6.5
LOWEST IN POTENTIAL	6

The only time selection folders were discussed between panel members was when there was a difference of more than one point between panel members (split); i.e., a 7, 8, 8.5 score. The panel members would resolve this split after discussion among themselves.

If the panel members couldn't agree, then the board president (a one-star general) was consulted.

The board process was based on the whole person concept that determined how each selection folder was scored. It was based on the following:

FACTOR	EVALUATED FROM
Performance	EPRs/ APRs
Professional Qualities	Expertise within Specialty
Leadership	Supervisor/ Staff
Job Responsibility	Scope/ Exposure
Breadth of Experience	Where/ What/ When
Specific Achievements	Awards / Decorations/EPRs/APRs
Education	Level / Utilization

After taking part in the board process, I've found there are key areas that individuals, supervisors, and raters can improve upon. Of course, these areas are my views and do not reflect Air Force policy.

JOB DESCRIPTION

The job description should clearly describe the individual's duties, level of responsibilities, reflect the number of individuals supervised directly, along with the size of the section, unit, etc., for which the individual is responsible.

When writing job descriptions, realize that it will be read by people who have no idea what weather people do. A poorly written job description does a disservice to the individual you're trying to get promoted.

RATER'S RATER AND SENIOR RATER'S ENDORSEMENTS

A well-written endorsement jumps out at you. It tells the board member this person has earned promotion; not just flowery words or phrases that say nothing of substance.

Get the Senior Rater's endorsement. Without it you're at a disadvantage when your records are compared with other individuals in your career field that received the senior rater's endorsement.

PROFESSIONAL MILITARY EDUCATION (PME)

Completion of PME and the level of education attained were other areas that impacted overall board scores. The promotion to the senior ranks is extremely competitive.

Completing all PME and getting at least the associate's degree in your specialty can make a difference in board score.

salutes

AIR FORCE MERITORIOUS SERVICE MEDAL

Capt. Jay Fitzgerald, 60th OSS/WX, Travis AFB, Calif.
Lt. Col. Joseph L. Czarniecki, 2nd WF, Fort McPherson, Ga. (1st OLC)

AIR FORCE COMMENDATION MEDAL

Staff Sgt. Lajana Griffin, 39th OSS/OSW, Incirlik AB, Turkey
Staff Sgt. David K. Wilson, OL-A, 18th WS, Fort Belvoir, Va. (3rd OLC)
Staff Sgt. Patricia M. Callaghan, OL-A, 18th WS, Fort Belvoir, Va.
Master Sgt. Louis Miller, 319th OSS/OSW, Grand Forks AFB, N.D.
Tech. Sgt. Paul W. Shelley, HQ AMC/TACC/WXC, Scott AFB, Ill. (2nd OLC)

ARMY COMMENDATION MEDAL

Tech. Sgt. John H. Reid II, 146th WF, Pittsburgh, Pa. (2nd OLC) (ANG)

AIR FORCE ACHIEVEMENT MEDAL

Senior Airman Rodney Stovall, 39th OSS/OSW, Incirlik AB, Turkey
Tech. Sgt. William E. Andrus, 16th OSS/DOW, Hurlburt Field, Fla.
Staff Sgt. Robert S. Yelton, 16th OSS/DOW, Hurlburt Field, Fla.
Senior Airman Joseph E. Carder, 25th ASOS, Wheeler AAF, Hawaii
Master Sgt. Christopher M. Rambali, 2nd WF, Fort McPherson, Ga.
Airman 1st Class Antonio Presley, 3rd ASOS/WE, Fort Wainwright, Alaska
Airman 1st Class Pamela Nelson, 3rd ASOS/WE, Fort Wainwright, Alaska

ARMY ACHIEVEMENT MEDAL

Senior Airman Ronald L. Richards, 25th ASOS, Wheeler AAF, Hawaii
Tech. Sgt. Rudy B. Tingelhoff, 2nd WF, Fort McPherson, Ga.
Staff Sgt. James D. Anderson, 2nd WF, Fort McPherson, Ga.

AIR RESERVE FORCES MERITORIOUS SERVICE MEDAL

Senior Master Sgt. Forrest L. Hendricks, 146th WF, Pittsburgh, Pa. (4th OLC) (ANG)
Master Sgt. Michael L. Graf, 146th WF, Pittsburgh, Pa. (4th OLC) (ANG)
Staff Sgt. Robert W. Beveridge, 146th WF, Pittsburgh, Pa. (2nd OLC) ANG)
Staff Sgt. Andrew J. Evans, 156th WF, Charlotte, N.C. (ANG)
Staff Sgt. Howard D. Speer, 156th WF, Charlotte, N.C. (ANG)

PROMOTIONS

Mark Kaster, Det. 7, 617th WS, Grafenwoehr AAF, Germany
Gary L. Welch, 314th OSS/OSW, Little Rock AFB, Ark.

Gregory J. Goar, 60th OSS/WXL, Travis AFB, Calif.
Noreen L. Balos, 60th OSS/WXE, Travis AFB, Calif.

Freddy L. Proctor, 181st WF, Dallas, Texas (ANG)

Christopher M. Rambali, 2nd WF, Fort McPherson, Ga.

Donald E. Channel, Jr., 105th WF, Nashville, Tenn. (ANG)
Joel J. Jordan, 113th WF, Terre Haute, Ind. (ANG)
Patrick B. King, 207th WF, Indianapolis, Ind. (ANG)

Kimberly K. Bassett, 16th OSS/DOW, Hurlburt Field, Fla.
Troy Schulz, Det. 7, 617th WS, Grafenwoehr AAF, Germany
John Lawless, 3rd ASOS/WE, Fort Wainwright, Alaska
Don Garrett, 17th ASOS, C Flt., Fort Benning, Ga.
Cindy L. Batilla, 209th WF, Austin, Texas (ANG)
John E. Koltes, 181st WF, Dallas, Texas (ANG)

David B. Greer, 156th WF, Charlotte, N.C. (ANG)
Peter D. Favorite, 208th WF, Minneapolis, Minn. (ANG)
Robert E. Malseed, 203rd WF, Fort Indiantown Gap, Pa. (ANG)
Carrie A. Meyls, 203rd WF, Fort Indiantown Gap, Pa. (ANG)
Ruben Torres, 203rd WF, Fort Indiantown Gap, Pa. (ANG)

Morgan T. Mullings, 21st ASOS/ASW, Fort Polk, La.
Jennifer Gumaer, 18th WS, Fort Bragg, N.C.
Gerald T. McPhearson, 16th OSS/DOW, Hurlburt Field, Fla.
Kelly Nagy, 57th OSS/OSW, Nellis AFB, Nev.
Patricia Ihle, 57th OSS/OSW, Nellis AFB, Nev.
Jennifer Nichols, 57th OSS/OSW, Nellis AFB, Nev.
Greg Adams, 17th ASOS, C Flt., Fort Benning, Ga.
Daniel K. Ackerman, 104th WF, Baltimore, Md. (ANG)

Stephanie M. Robson, 146th WF, Pittsburgh, Pa. (ANG)

HAILS AND FAREWELLS

Airman Jerod B. Webb — to 314th OSS/OSW, Little Rock AFB, Ark., from Keesler AFB, Miss.
Airman James L. McKenzie — to 314th OSS/OSW, Little Rock AFB, Ark., from Keesler AFB, Miss.
Master Sgt. Greg Myles — to Scott AFB, Ill., from 7th OSS/OSW, Kelly AFB, Texas
Staff Sgt. Paul Cafiso — to 7th OSS/OSW, Kelly AFB, Texas, from Wright-Patterson AFB, Ohio
Staff Sgt. Linda Kiff — to 39th OSS/OSW, Incirlik AB, Turkey, from Kelly AFB, Texas
Senior Airman Rik Heruska — to 39th OSS/OSW, Incirlik AB, Turkey, from Fort Brag, N.C.
Senior Airman Marty O. Gameon — to 16th OSS/DOW, Hurlburt Field, Fla., from Keesler AFB, Miss.
Staff Sgt. Troy Schulz — to Air Force Global Weather Central, Offutt AFB, Neb., from Det. 7, 617th WS, Grafenwoehr AAF, Germany
Staff Sgt. Clifford Lacroix — to Det. 7, AFGWC, Tinker AFB, Okla., from Det. 7, 617th WS, Grafenwoehr AAF, Germany
2nd Lt. Dean J. Carter — to 9th OSS/OSW, Holloman AFB, N.M., from AFROTC Det. 595, North Carolina State University, Raleigh, N.C.
Senior Master Sgt. Manuel M. Vela, Jr. — to 319th OSS/OSW, Grand Forks AFB, N.D., from 18th WS, Fort Bragg, N.C.
Senior Airman Martha Roberts — to 319th OSS/OSW, Grand Forks AFB, N.D., from Keesler AFB, Miss.
Senior Airman Kelvin Van Wright — to 60th OSS/WXE, Travis AFB, Calif., from Keesler AFB, Miss.
Capt. Martin R. Martino — to 2nd WF, Fort McPherson, Ga., from HQ AWS, Scott AFB, Ill.
Tech. Sgt. Keith E. Wagner — to 2nd WF, Fort McPherson, Ga., from Det. 2, 607th WS, Camp Humphreys, Korea
1st Lt. Robert Kraetsch — to 31st OSS, Aviano AB, Italy, from HQ AWS/XON, Scott AFB, Ill.
Master Sgt. David D. Hiatt — to 3rd ASOS/WE, Fort Wainwright, Alaska, from Dyess AFB, Texas
Airman Carlisle Hill — to 3rd ASOS/WE, Fort Wainwright, Alaska, from Keesler AFB, Miss.
Airman 1st Class Hilton Wells — to 3rd ASOS/WE, Fort Wainwright, Alaska, from Fort Polk, La.
Airman Brenda Frickel — to 3rd ASOS/WE, Fort Wainwright, Alaska, from Keesler AFB, Miss.
Airman 1st Class Clint Dobry — to 3rd ASOS/WE, Fort Wainwright, Alaska, from Fort Belvoir, Va.
Tech. Sgt. Kenneth A. Phelps — to 24th WS, Howard AB, Panama, from HQ AMC/TACC/WXC, Scott AFB, Ill.
Tech. Sgt. Paul W. Shelley — to HQ AMC/TACC/WXC, Scott AFB, Ill., from Osan AB, Korea
Master Sgt. Frank Henry — to HQ AMC/TACC/WXC, Scott AFB, Ill., from Misawa AB, Japan
Tech. Sgt. Steven D. Pratt — to 17th ASOS, C Flt., Fort Benning, Ga., from Elmendorf AFB, Alaska
Tech. Sgt. John Farris — to 17th ASOS, C Flt., Fort Benning, Ga., from Fort Lewis, Wash.
Airman 1st Class Kathleen Liddle — to 17th ASOS, C Flt., Fort Benning, Ga., from Keesler AFB, Miss.
Staff Sgt. David Moman — to Lajes AB, Azores, from 4th OSS/OSW, Seymour Johnson AFB, N.C.
Airman Elroy Muse — to 4th OSS/OSW, Seymour Johnson AFB, N.C., from Keesler AFB, Miss.
Airman 1st Class Larry Stevens — to 4th OSS/OSW, Seymour Johnson AFB, N.C., from Keesler AFB, Miss.

RETIREMENTS

Ms. Judy D. Wyatt (secretary), 2nd WF, Fort McPherson, Ga.

SEPARATIONS

Staff Sgt. William E. Grissom, 42nd OS/OSW, Maxwell AFB, Ala.

EDUCATION

NCO Academy

Tech. Sgt. William J. Murtagh, OL-A, 18th WS, Fort Eustis, Va.

Airman Leadership School

Senior Airman Chris Smoke, OL-B, 18th WS, Fort Eustis, Va.
Senior Airman John Lawless, 3rd ASOS/WE, Fort Wainwright, Alaska
Senior Airman Travis Harrington, 17th ASOS, C Flt., Fort Benning, Ga.
Senior Airman Matthew Timmerman, 4th OSS/OSW, Seymour Johnson AFB, N.C.

Weather Apprentice Course Graduates (Class 960218)

Airman Robert Skelton (Distinguished Graduate)
Airman 1st Class Katherin Anholt
Airman 1st Class Timothy A. Blair
Airman 1st Class Brian P. Kolts
Airman 1st Class Dalia Deleon
Airman 1st Class David S. Gray
Airman 1st Class Susan E. Long
Airman Kevin A. Boehm
Airman Tasha N. Fisher
Airman Gregory Hightower
AirmanPatrick Holler
Airman Timothy Johnson
Airman Andrea L. Kinsey
Airman Corey B. Lane
Airman James McKenzie
Airman Tina Steinbrunner
Airman Diane S. Ward
Airman Jerrod B. Webb
Airman Cindy A. Wright

Weather Apprentice Course Graduates (Class 960311)

Airman Bret A. Schumacher (Distinguished Graduate)
Airman 1st Class Julie A. Dawson
Airman 1st Class Matthew B. Hill
Airman 1st Class Helen D. Long
Airman 1st Class Scott S. Radden
Airman 1st Class Mark E. Smith
Airman 1st Class Steven D. Walker
Airman Linward C. Edwards
Airman Brenda C. Frickel
Airman Kevin M. Gore
Airman Cyathia J. Marsh
Airman Elroy L. Muse II

Weather Apprentice Course Graduates (Class 960315)

Airman 1st Class Nicholas Barnhardt (Distinguished Graduate)
Airman 1st Class Clarise Hill
Airman 1st Class Cecil Kelly
Airman Margaret Cash
Airman Joel Decker
Airman Charles Doss
Airman Donnie Rose
Airman Jill Schweigert
Airman John Sheedy
Airman Ursula Smith

Weather Apprentice Course Graduates (Class 960404)

Airman 1st Class Trent S. Miller (Distinguished Graduate)
Staff Sgt. Marie M. Colomer
Senior Airman Michael D. Gordy
Airman 1st Class Larry D. Sosbey, Jr.
Airman Heath M. Alexander
Airman Adrian L. Freeman
Airman Leah E. Harris
Airman Eric M. Isrow
Airman Christy M. Rivers
Airman Paul A. Wilkerson

Weather Apprentice Course Graduates (Class 960408)

Airman 1st Class Stacy R. Branch
Airman 1st Class Michael P. Desselle
Airman 1st Class Geoffrey M. Lamson
Airman 1st Class Andrew J. Trimble
Airman 1st Class Russell J. Whitehurst
Airman Jelani H. Brooks
Airman Paul M. Burr
Airman Christopher R. Kieszniowski
Airman Gerry Q. Thompson
Airman Joseph B. Wiles

Weather Apprentice Course Graduates (Class 960423)

Staff Sgt. Candace A. Jongetjes-Pursel
Senior Airman Kyong Kim
Airman 1st Class Michael N. Boyer
Airman 1st Class Michale J. McDonough
Airman 1st Class Michael L. Larson
Airman Bryan M. Deluca
Airman Shannon B. Ahern
Airman David K. Speed
Airman Amanda K. Bailey
Airman Chad L. Helmer
Airman Raquel Lopez

Weather Technician Course Graduates (Class 951003)

Airman 1st Class Gregory W. Ball — to Elmendorf AFB, Alaska (Distinguished Graduate)
Staff Sgt. Doug Eschelbrenner — to Buckley ANGB, Colo.
Senior Airman Christopher Hahn — to HQ AFGWC, Offutt AFB, Neb.
Senior Airman Keith A. Moore — to Tyndall AFB, Fla.
Airman Stacey K. Stianac — to Grand Forks AFB, N.D.
Staff Sgt. John C. Towney — to Pittsburgh ANG, Pa.

Airborne School

1st Lt. Joe Benson, 19th ASOS/CDW, Fort Campbell, Ky.
Senior Airman Guy Bishop, 19th ASOS/CDW, Fort Campbell, Ky.
Airman 1st Class Brett Bell, 19th ASOS/CDW, Fort Campbell, Ky.

Ground Survival School

Capt. Brian Griffit, 19th ASOS/CDW, Fort Campbell, Ky.

Jumpmaster School

1st Lt. Jason Hoffman, 19th ASOS/CDW, Fort Campbell, Ky.
Tech. Sgt. John Walsh, 19th ASOS/CDW, Fort Campbell, Ky.

WSR-88D UCP Mangers Course

Staff Sgt. Iwana L. Burleson, 21st ASOS/ASW, Fort Polk, La.
Master Sgt. Marc A. Pope — 17th ASOS, C Flt., Fort Benning, Ga.

Naval Senior Enlisted Academy

Senior Master Sgt. Lawrence J. Alexander, 16th OSS/DOW, Hurlburt Field, Fla.

AWDS Mangers Course

Staff Sgt. James Haavisto, 319th OSS/OSW, Grand Forks AFB, N.D.
Tech. Sgt. Harold D. Effert, HQ AMC/TACC/WXC, Scott AFB, Ill.

Artic Survival School

Airman 1st Class Antonio Presley, 3rd ASOS/WE, Fort Wainwright, Alaska

Community College of the Air Force (Weather Technology)

Tech. Sgt. Harold D. Effert, HQ AMC/TACC/WXC, Scott AFB, Ill.
Tech. Sgt. Jerry L. Scholl, HQ AMC/TACC/WXC, Scott AFB, Ill.
Staff Sgt. Cary R. Fitzsimmons, HQ AMC/TACC/WXC, Scott AFB, Ill.
Master Sgt. Mark Mireles, 17th ASOS, C Flt., Fort Benning, Ga.

Electro-Optics Course, Keesler AFB, Miss.

Capt. Curtis Wiustead, 17th ASOS, C Flt., Fort Benning, Ga.

Weather Officer Initial Skills Course

2nd Lt. Colin Sindel, 17th ASOS, C Flt., Fort Benning, Ga.

Bachelor of Science in Workforce Education and Development

Master Sgt. Douglas A. Rishel, HQ AWS/XON, Scott AFB, Ill., from Southern Illinois University-Carbondale (with honors)
Tech. Sgt. Mike McAleenan, HQ AWS/XON, Scott AFB, Ill., from Southern Illinois University-Carbondale (with honors)
Tech. Sgt. Arlen Lewis, HQ AWS/XON, Scott AFB, Ill., from Southern Illinois University-Carbondale (with honors)

AWARDS

21st Operations Squadron/18th ASOG NCO of the Quarter

Tech. Sgt. William T. Wheaton, 21st ASOS/ASW, Fort Polk, La.

21st Operations Squadron Airman of the Quarter

Senior Airman Brian Hearn, 21st ASOS/ASW, Fort Polk, La.

314th OSS/314th OSS/OSW Company Grade Officer of the Quarter (Jan.-March 1996)

2nd Lt. Darryl S. Leon, 314th OSS/OSW, Little Rock AFB, Ark.

314th OSS/314th OSS/OSW Airman of the Quarter

Airman 1st Class Shawn T. Koch, 314th OSS/OSW, Little Rock AFB, Ark.

314th OSS/OSW NCO of the Quarter

Staff Sgt. William T. Marshall, 314th OSS/OSW, Little Rock AFB, Ark.

55th OSS Company Grade Officer of the Quarter (Jan.-March 1996)

Capt. James G. Saccomando, 55th OSS/OSW, Offutt AFB, Neb.

55th OSS NCO of the Quarter

Staff Sgt. Mark Sheldon, 55th OSS/OSW, Offutt AFB, Neb.

76th OSS/OSW Airman of the Quarter

Airman 1st Class Che Abustan, 76th OSS/OSW, Kelly AFB, Texas.

76th OSS/OSW Forecaster of the Quarter

Staff Sgt. Galo Garcia, 76th OSS/OSW, Kelly AFB, Texas.

39th OSS NCO of the Quarter

Tech. Sgt. Rich Nieman, 39th OSS/OSW, Incurlik AB, Turkey.

18th WS Senior NCO of the Quarter

Master Sgt. Joshua L. Godsey, OL-B, 18th WS, Fort Eustis, Va.

OL-A, 18th WS/18th WS NCO of the Quarter

Staff Sgt. Carlton W. Hatfield, OL-A, 18th WS, Fort Belvoir, Va.

18th WS Airman of the Quarter

Airman 1st Class Christine A. Waicukauski, 18th WS, Fort Bragg, N.C.

OL-A, 18th WS Airman of the Quarter

Senior Airman Bryan R. Pontius, Fort Belvoir, Va.

AFSOC Weather Airman of the Year (1995)

Senior Airman Marcia L. Lindstrom, 16th OSS/DOW, Hurlburt Field, Fla.

AFSOC Weather Observer of the Year

Airman 1st Class Angela M. Zephier, 16th OSS/DOW, Hurlburt Field, Fla.

16th OSS Airman of the Quarter

Airman 1st Class Amy E. Whiteman, 16th OSS/DOW, Hurlburt Field, Fla.

Det. 7, 617th WS Airman of the Quarter

Airman Heather Burdash, Det. 7, 617th WS, Grafenwoehr AAF, Germany

Det. 7, 617th WS NCO of the Quarter

Staff Sgt. Clifford Lucente, Det. 7, 617th WS, Grafenwoehr AAF, Germany

Air Force Forecaster of the Year (Pierce Award)

Staff Sgt. Shawn Dahl, 319th OSS/OSW, Grand Forks AFB, N.D.

319th OSS NCO of the Quarter

Staff Sgt. James Haavisto, 319th OSS/OSW, Grand Forks AFB, N.D.

319th OSS/OSW Airman of the Quarter

Airman James Adams, 319th OSS/OSW, Grand Forks AFB, N.D.

60th OG Airman of the Quarter

Senior Airman Kenneth A. Perland, 60th OSS/WXP, Travis AFB, Calif.

57th OSS Airman of the Quarter

Airman 1st Class Kelly Nagy, 57th OSS/OSW, Nellis AFB, Nev.

57th OSS/57th OG/57th Wing NCO of the Quarter

Master Sgt. Jeff Dunn, 57th OSS/OSW, Nellis AFB, Nev.

27th OSS/OSW Forecaster of the Quarter

Staff Sg. Kirk D. Bailey, 27th OSS/OSW, Cannon AFB, N.M.

27th OSS/OSW Observer of the Quarter

Airman 1st Class Angela M. Gregoire, 27th OSS/OSW, Cannon AFB, N.M.

314th OSS/OSW Forecaster Technician of the Quarter

Staff Sgt. William T. Marshall, 314th OSS/OSW, Little Rock AFB, Ark.

314th OSS/OSW Observer Technician of the Quarter

Airman 1st Class Shelton D. Robinson, 314th OSS/OSW, Little Rock AFB, Ark.

42nd OS/OSW NCO of the Year

Staff Sgt. David R. Thiery, 42nd OS/OSW, Maxwell AFB, Ala.

42nd OS/OSW Airman of the Year

Senior Airman Steve Ball, 42nd OS/OSW, Maxwell AFB, Ala.

42nd OS Company Grade Officer of the YEar

Capt. Robert J. Moore, 42nd OS/OSW, Maxwell AFB, Ala.

AETC Senior NCO of the Year

Master Sgt. Richard A. Pratt, 42nd OS/OSW, Maxwell AFB, Ala.

AETC NCO of the Year

Tech. Sgt. Steven M. Pickard, 42nd OS/OSW, Maxwell AFB, Ala.

42nd OS/OSW Forecaster of the Year

Staff Sgt. William E. Grissom, 42nd OS/OSW, Maxwell AFB, Ala.

42nd OS/OSW Observer of the Year

Senior Airman Michael L. Etan, 42nd OS/OSW, Maxwell AFB, Ala.

Scholarship for Outstanding Airman (SOAR) to ROTC

Senior Airman Michael L. Etan, 42nd OS/OSW, Maxwell AFB, Ala.

TACC/WXC NCO of the Quarter

Tech. Sgt. Scott C. Copeland, HQ AMC/TACC/WXC, Scott AFB, Ill.

HQ AFSPC/DO Senior NCO of the Quarter

Master Sgt. Kim L. Van Vleet, HQ AFSPC/DOW, Peterson AFB, Colo.

BIRTHS

Nancy Elaine Patten — to 2nd Lt. JacLyn T. Patten and Brandan Patten, 16th OSS/DOW, Hurlburt Field, Fla.
Matthew Orion Dahl — to Staff Sgt. and Cindy Dahl, 319th OSS/OSW, Grand Forks AFB, N.D.
Benjamin Thomas Godin — to Senior Airman Dan and Allsem Godin, 319th OSS/OSW, Grand Forks AFB, N.D.
Rachel U'lani Curtis — to Staff Sgt. Jay S. and Melanie Curtis, 60th OSS/WX, Travis AFB, Calif.
Trevor Logan Gregoire — to Airmen 1st Class Angela M. and Christopher A. Gregoire, 27th OSS/OSW, Cannon AFB, N.M.

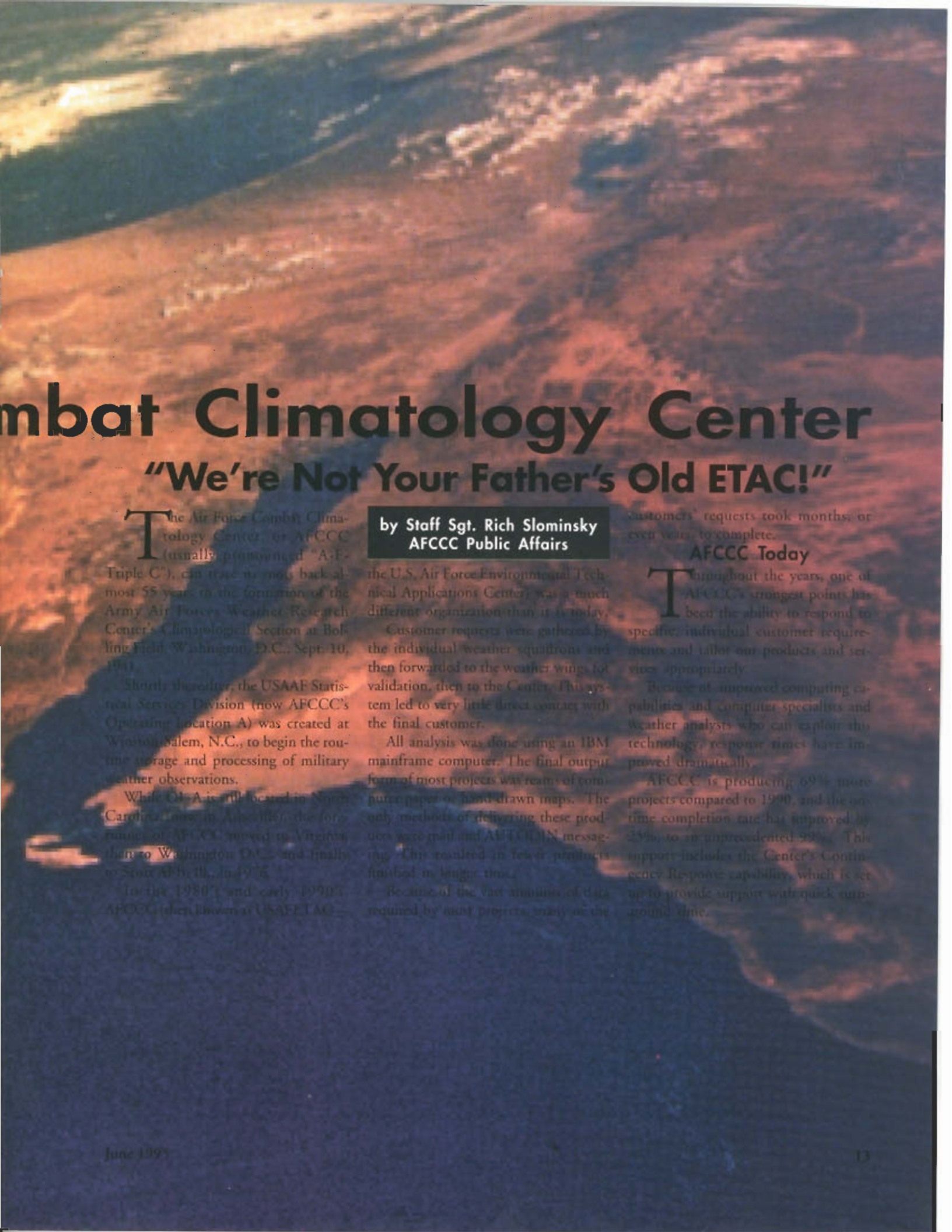
AFCCC

The Air Force Con

AFCCC VISION

The recognized leader in DoD climatological support:

- ☐ through the right mix of people and technology.
- ☐ by applying all the nation's climatic resources.
- ☐ producing tailored and on-line products.



mbat Climatology Center

"We're Not Your Father's Old ETAC!"

by Staff Sgt. Rich Slominsky
AFCCC Public Affairs

The Air Force Combat Climatology Center (or AFCCC (usually pronounced "A-F-Triple C"), can trace its roots back almost 55 years to the formation of the Army Air Forces Weather Research Center's Climatological Section at Bolling Field Washington, D.C., Sept. 10, 1943.

Shortly thereafter, the USAAF Statistical Services Division (now AFCCC's Operating Location A) was created at Winston-Salem, N.C., to begin the routine storage and processing of military weather observations.

While OL-A is still located in North Carolina, [illegible] the forerunner of AFCCC moved to Virginia, then to Washington D.C., and finally to Scott AFB, Ill., in 1976.

In the 1980's and early 1990's AFCCC's mission moved to USAFETAC (the U.S. Air Force Environmental Technical Applications Center), was a much different organization than it is today.

Customer requests were gathered by the individual weather squadrons and then forwarded to the weather wings for validation, then to the Center. This system led to very little direct contact with the final customer.

All analysis was done using an IBM mainframe computer. The final output form of most projects was reams of computer paper or hand-drawn maps. The only methods of delivering these products were mail and AUTODIN messaging. This resulted in fewer products finished in longer times.

Because of the vast amounts of data required by most projects, many of the customers' requests took months or even years to complete.

AFCCC Today

Throughout the years, one of AFCCC's strongest points has been the ability to respond to specific, individual customer requirements and tailor our products and services appropriately.

Because of improved computing capabilities and computer specialists and weather analysts who can exploit this technology, response times have improved dramatically.

AFCCC is producing 69% more projects compared to 1990, and the on-time completion rate has improved by 25% to an unprecedented 99%. This support includes the Center's Contingency Response capability, which is set up to provide support with quick turnaround time.

One of the best examples of a center-wide contingency response tasking came from the U.S. Transportation Command (USTRANSCOM) in support of Operation JOINT ENDEAVOR in Bosnia. AFCCC provided everything from computer-generated topography maps of the area to snow cover data for the Bosnian theater.

In addition to ground information, USTRANSCOM needed displays of flight-related data. We provided graphical displays portraying the probability of low ceilings and visibilities, highlighting the time of day with the worst and best conditions.

Another form of support available to our customers are automated forecaster aids. These programs are designed by our Visual Basic programming team for use with the Microsoft Windows environment.

There is a wide range of programs, each with a wealth of information. The Cloud Ceiling Climatology (CCCLIMO), our first program released on CD-ROM, displays probabilities of cloud ceilings at various heights, for different months and times of the day. The Electro-Optical Climatology program (EOCLIMO) provides atmospheric transmittance values and how weather impacts transmittance for locations worldwide.

A new version of UACLIMO has been released, which is a program that provides upper air climatology data for user-defined flight routes, and standard heights in the atmosphere. Besides creating programs for wide release, we can produce programs for specific customers. For example, the TOWER program takes millions of wind observations recorded by the network of sensor towers at the Vandenberg AFB (Calif.) Launch Facility and summarizes the information to a more useable form to assist in launch planning.

The center's most widely distributed product produced on a monthly basis is our theater climatic probabilities. Charts are produced currently for four theaters — Bosnia, Southwest Asia, Korea, and Central America/western South America. This project is a prime example of the total team effort required at AFCCC to produce quality products. Database managers and communications specialists at OL-A, Asheville, N.C., and AFCCC at Scott AFB collect and store the millions of weather observations required to produce climatic probabilities.

Meteorologists scrutinize these observations and check their quality. Computer graphics specialists generate the maps and charts that are our final product. Instead of reams of computer paper, our customers receive quality graphics that can be incorporated directly into planning or theater overview briefings.

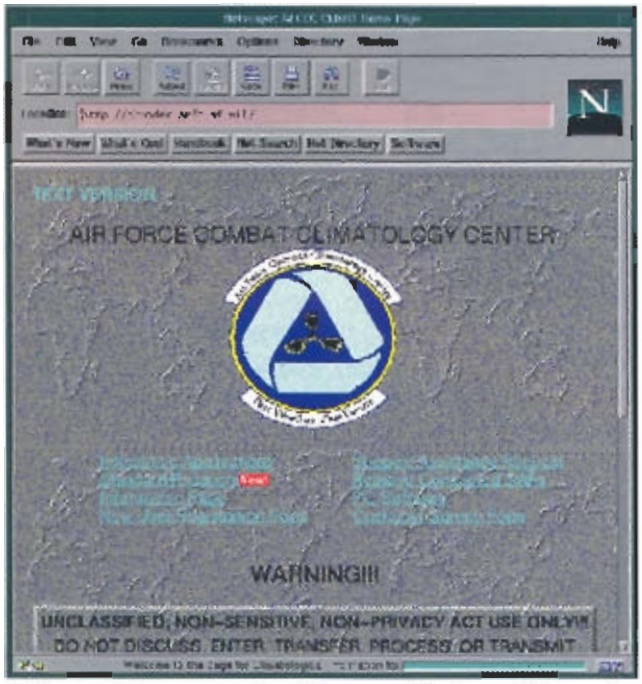
Located within AFCCC is the Air Weather Service Technical Library (AWSTL). It is the largest single-site military meteorological library in the world, and provides services to all Air Force Weather units, as well as, other Department of Defense and government agencies.

photo courtesy of AFCCC

The Air Weather Service Technical Library, the largest single-site military meteorological library in the world. The AWSTL provides services to all Air Force Weather units, as well as other Department of Defense and government agencies. Among the services provided by AWSTL are document loans and purchases, literature searches, distribution of ***small computer programs, language translation services, and publishing.***

MISSION STATEMENT

Develops and produces special weather impact information used in planning and executing worldwide military operations of the Air Force, Army, Navy, and Marine Corps, unified commands, and allied nations; in the engineering design and employment of weapon systems; and in weather-sensitive, multibillion-dollar National Programs controlled by the Secretary of the Air Force. Serves as the DOD lead in air an space weather modeling and simulation.



Using a web browser such as Netscape, Mosaic, or Microsoft's Internet Explorer, customers can connect with AFCCC and instantly access a variety of standard products and existing PC programs created at AFCCC.

Among the services provided by AWSTL are document loans and purchases, literature searches, distribution of small computer programs, language translation services and publishing.

AFCCC also utilizes these library reference materials extensively in preparing descriptive climatologies. These narratives are used for planning, contingency support, and training. They can be characterized by the area and amount of time considered. On one end of the spectrum, a point study usually covers one site and only a few weeks of interest. Conversely, a regional climatology requires thousands of work hours to produce and covers a vast area. The Equatorial Africa Regional Climatology was used extensively, and at times exclusively, during the U.S. Rwanda relief effort.

An added value is the ability to deliver products quickly. AFCCC has incorporated the Internet as a major link with our customers. This link is most apparent in AFCCC's World Wide Web (WWW) home page.

Using a web browser such as Netscape, Mosaic, or Microsoft's Internet Explorer, customers can connect with AFCCC and instantly access a variety of standard products and existing PC programs created at AFCCC.

In addition, using automated forms right on our Homepage, customers can submit new requests for products. To access the AFCCC home page, point your Web browser to "http://thunder.safb.af.mil".

AFCCC: The Next Generation

This is a very exciting time to be at the new Air Force Combat Climatology Center. Within the last year, we have changed our name, our mission focus, our commander, and all our division chiefs.

Our mission increased, adding another division — the DoD Executive Agency for Air and Space Modeling and Simulation. Over the course of the next 5 years, we are planning and executing some far-reaching programs:

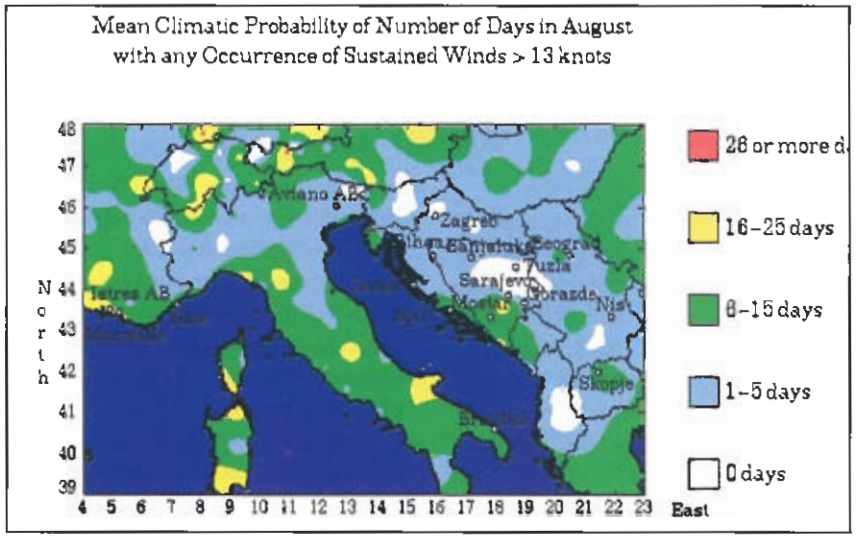
■ AFCCC-R: This multimillion dollar hardware replacement program will replace our aging mainframe computers with new client-server workstations. New database structures and visualization tools will be introduced throughout our operations. By 2001, virtually all products will be visually-based and readily available to the warfighter via graphical interface at all security classifications.

■ The Consolidation of ASPAM Processing: AFCCC currently accomplishes the climatological (historical) processing of the Atmospheric Slant-Path Analysis Model (ASPAM) on both mainframe computers with significant quality control.

Air Force Global Weather Central accomplishes a similar processing of "real-time" ASPAM on their mainframe computer. By the end of 1998, all ASPAM processing will be completed by AFCCC on workstation computers for all classification levels.

■ The High Resolution Climate Project: AFCCC has shown a proof of concept for modeling high resolution climate data for data sparse regions of the world. By 2001, we plan to have the capability to provide high resolution, gridded climatological products to the warfighter for any place in the world at a 10-kilometer or less resolution.

Technology alone won't make AFCCC a successful organization. The proper blend of people and machines will always be needed to create the high quality climatological products our customers have come to expect.



An AFCCC product showing weather patterns over the Baltics.

Tactical Weather

Army, Air Force Partnership Helps Warfighters

by Gene Barnes
Joint Development Coordinator
Army Research Laboratory R&D
Combat Weather Facility

Tactical Weather (TAC WX) is a revolutionary concept in Army weather support operations being tested in the prairies and deserts of Fort Hood, Texas, and Fort Irwin National Training Center, Calif.

At the heart of the initiative is a prototype of the Integrated Meteorological System (IMETS) Block II called the Tactical Weather System (TWS).

The leading-edge TWS resulted from the partnership of Air Force Weather (AFW), Army Research Laboratoty, Army Space Command (ARSPACE), and Project Director-Integrated Meteorological System.

It represents the digitized weather element of Brigade Task Force XXI (BTF XXI) — a major advanced warfighting experiment (AWE) in the Army's FORCE XXI Program.

FORCE XXI is the Army's visionary campaign to leverage American technology to build the Army of tomorrow. Vital to the new Army will be its ability to exploit information, including weather and its effects on combat operations.

TAC WX combines Army and Air Force weather and space research and development with operational and leadership expertise of Air Force weather warriors from the Combat Weather Facility and the 3rd Weather Squadron.

Three components make up the "Owning the Weather" technologies of the TWS: the Deployable Weather Satellite Workstation (DWSW), the Forecaster Workstation (FWS) and the Weather Effects Workstation (WEW). Like the IMETS Block II, the components are transported by High Mobility Multipurpose Wheeled Vehicles (HMMWV) and set up in the combined HMMWV and Standardized Integrated Command Post System (SICPS) shelter configuration with tent extension.

Representing the contribution of space-based assets to improved meteorological surveillance of the battlefield, ARSPACE is providing the DWSW, a surrogate for the Small Tactical Terminal (STT) which will be fielded across AFW. During BTF XXI, the DWSW will acquire and process high resolution (as low as 0.55 km. per pixel) imagety and vertical sounder data (wind, temperature, and moisture fields at altitudes from surface to 50,000 feet) from both polar orbiting and geostationary weather satellites.

The FWS will use Air Force Tactical Forecast System (TFS) software to acquire and process weather data from Air Force Global Weather Central (AFGWC) in the form of vector graphics, raster scan, uniform gridded data fields (UGDF) and alphanumeric data.

The TFS capability will allow the BTF XXI weather team (WETM) to monitor and forecast synoptic scale weather events for deployed forces.

The third element of the TWS is the WEW, developed at the ARL Battlefield Environment Directorate. The WEW will ingest AFGWC databases to initialize mesoscale tools. In addition to being able to automatically display, contour and streamline data fields on terrain map backgrounds over the area of interest, the WEW produces Army electro-optical decision aids and downwind messages.

The most powerful tools on the WEW are the ARL Atmospheric Sounding Program (ASP) and the Battlescale Forecast Model (BFM). Using current data and BFM output, the ASP predicts atmospheric moisture, icing, turbulence, and convection anywhere over the area of interest. The BFM forecasts temperature, humidity, and winds over complex terrain at resolutions down to 2.5 Km for up to 24 hours.

The BFM and ASP, together with other forecaster input, will also drive the new UNIX-based version of the Integrated Weather Effects Decision Aid (IWEDA). The resulting "Owning the Weather" products will feed the TWS homepage, weather impact visualizations and databases.

Army customers will then be able access the IWEDA weather database and run their own weather-driven applications on a "client-server" basis. They will also have the capability to "down load" weather products such as imagery and weather effects predictions to their own Army Battle Command System (ABCS) workstations.

Key to the success of BTF XXI weather operations is the BTF XXI WETM. Complementing technology, the "man-in-the-loop" element adds the human interface with the Army customer. After an intensive equipment familiarization and training period at Fort Hood, the BTF XXI WETM will participate in a series of "ramp-up" exercises with their 4th Infantry Division customers in the summer and fall of this year. The training will culminate in the BTF XXI AWE at NTC in March 1997 where the WETM will deploy the TWS and support a "digitized" brigade task force which includes a large number of Army airframes.

Concepts and techniques evaluated in BTF XXI will have far reaching impacts on how we do business. Many of the technologies demonstrated in BTF XXI will be fielded in the near future as part of the Block II IMETS.

Overall, the partnership of the Army-Air Force weather research and development community and skilled AFW personnel is forging the future of weather support operations for the Army well into the 21st Century.

air force global *weather central*

Welcome to AFWIN

Accessing Global products on the Internet

by Col. Jack Hayes
Commander
Air Force Global Weather Central

In our ongoing effort to make Air Force Global Weather Central better, we have created AFWIN: the Air Force Weather Information Network. No single initiative better typifies our efforts to reinvent centralized weather support products, and make our products more useful and accessible.

Four months in the making from concept to reality, this new on-line service puts more than 500 products at your fingertips with an easy point-and-click product retrieval capability. AFWIN features a wide variety of visualizations, charts and meteorological satellite (METSAT) products. We have also included "hot links" to several other weather home pages on the Internet and an extensive help feature for on-the-spot instructions and assistance.

AFWIN visualizations are produced from high-resolution output data from the AFGWC Relocatable Window Model. These include easy-to-read forecasts of winds at several levels in the atmosphere, surface temperatures, cloud ceilings, 12-hour precipitation totals, low level wind shear and thunderstorm probability. Visualized contrail forecasts from the new AFGWC model are also available on AFWIN.

Finally, you can retrieve visualizations of 1,000-500 millibar (mb) thickness contours and 500mb heights and isotachs out to 10 days from the National Centers for Environmental Prediction Medium Range Forecast Model.

Manually produced charts such as the Military Weather Advisory (MWA), surface analyses and forecasts, icing and turbulence hazards, and thunderstorm probabilities are all still available on AFWIN, as are a wide selection of polar orbiter and geostationary METSAT data. We enhance some images through a technique called multi-spectral analysis to help discern specific information such as relative cloud heights.

Several new products are under development and may be available in the very near future, including observed and forecast cloud fields from AFGWC's Real-Time Nephanalysis and High Resolution Cloud Prediction models, worldwide observations the user can identify by ICAO and Skew-T plots for selected upper air soundings over Southern Europe. You can view these new products on the AFGWC test page at this URL:

"hrtp://afwin.offutt.af.mil:443/testpage/docs/".

A new "Aircrew" button on the main menu provides quick access to aircrew forecast products. Hit the "News" button for updates; users can give us feedback by using the "Feedback" button. AFWIN also allows easy access to several other weather-related home pages. With the click of a mouse, you can view satellite-radar composites over the continental United States from Michigan State University. Other links allow quick and easy access to home pages at the Air Force Combat Climatology Center, the National Hurricane Center, the Navy's Fleet Numerical Meteorology and Oceanography Center and several universities.

Several organizations at AFGWC are responsible for identifying new AFWIN requirements, developing and validating new products, and assisting users. The Current Operations Branch identifies and validates requirements for new products and assists users with gaining access to AFWIN.

The Products Improvement Brauch also develops software to create the new products. This branch also painstakingly validates the visualization products on AFWIN by comparing visualizations to observed data or satellite data.

See AFGWC, continued on Page 22

weather *warriors*

Analogues + Empirical Rules = Better Forecasts

by retired Maj. Gen. John W. Collens
AWS Commander (1974-75)

The title above is not new math. It has been in use by the best forecasters in Air Force Weather since the beginnings of the Air Weather Service. You can benefit from their experience.

In an earlier OBSERVER article (March 1996, Vol. 43, No. 3), I related how terrain alters the patterns that must be considered when producing the terminal forecast. Now turn to other influences that will make your forecasts more accurate by using pages from weather history — analogues and tried-and-true empirical rules.

During a tour at Sembach AB, Germany, in the mid-1950s, our weather detachment applied the analogue tool to produce a forecast of pending weather that was to cripple operations for weeks to come.

It was winter and forecasters typically looked to the West for approaching frontal systems. However, the cold front marching across England and France would run into an even colder frontal system being fed by an arctic polar air mass encroaching from Russia. The result was a warm frontal occlusion.

The warm frontal occlusion is an uncommon event, not typically seen in the United States. However, it is one that has historically halted military operations in western Europe. By referring to analogues for the area, we were not caught off-guard.

We had subscribed to the German Weather Service's book of historical weather maps (analogues). In them, we saw that our local surface and upper air analyses looked like the ones that had produced a long-lasting freeze in the past.

Instead of forecasting a typical cold front passage, we told our flying wing to expect a warm frontal occlusion with an ice storm, snow, and continued below-freezing temperatures for weeks. The Sembach runway, along with others in Germany and Eastern Europe, became paved ice rinks. Air operations came to a halt for days.

Had an enemy chosen that time for an attack, our defending air operations would have been paralyzed (a la World War II's Battle of the Bulge).

"Good weather warriors will forewarn the units they support of events that will cripple military operations by using all the tools available to them."

Retired Maj. Gen. John W. Collens
AWS Commander (1974-75)

While we couldn't alter the weather that was forecast, we did our joh well. That bolstered the confidence the Sembach flying wing had in its weather people.

Good weather warriors will forewarn the units they support of events that will cripple military operations by using all the tools available to them. Their performance reports will reflect the talent that went into providing superior advice.

Analogues are but one of those tools. Combined with thorough analysis and knowledge of terrain influences, you won't be caught off-guard and deliver the wrong advice to warfighting forces.

Until meteorology becomes a pure science, remember — it also embraces an art form ... the math in this articles' title.

The next lesson in "Meteorology 101" will address the use of empirical rules that you (or those before you) develop. All weather forecasters should employ every available tool when producing the local (or extended) forecast. Reputations depend on it.

An Army Field Manual (Weather) from World War II addressed the "Haboob." What is it? If future wars occur in North Africa, the Middle East, Southwest Asia, or other desert areas, forecasters should be aware of this weather-related event. I experienced it in Dhahran, Saudi Arabia. Was it a Haboob that resulted in the aborted rescue operation in Iran (Desert One)?

Weather warriors ... prepare. The pages of history are calling.

(Note from the Headquarters Air Weather Service Aerospace Sciences Division: Retired Maj. Gen. John Collens is on-target with his assessment of the value of the analogue technique in forecasting applications. You may be more familiar with the terms "weather pattern recognition" or weather regimes", but the concept is the same — know the weather patterns that affect your operations area and the sensible weather that's associated with them. We've already distributed a publication explaining the importance of weather regimes and pattern recognition, and we plan to supplement our Met TIPs forecaster aid with a regionalized weather regime section in the near future.)

Air National Guard

Add These To Your Weather Almanac Pages

104th WEATHER FLIGHT (Maryland)
2701 Eastern Blvd.
Baltimore, Md. 21220-2899
DSN 243-6563
CMCL (410) 833-5687
FAX: CMCL (410) 833-6366
Point of Contact: Master Sgt. Chuck Lake
E-Mail: clake@mdmtn.ang.af.mil

105th WF (Tennessee)
240 Knapp Rd.
Nashville, Tenn. 37217-2538
DSN 778-6302
CMCL (615) 355-5602
FAX: DSN 778-6731
POC: Master Sgt. Frank Carr
E-Mail: carr%wf%118aw@anbna.ang.af.mil

107th WF (Michigan)
25060 Plattsburg St.
Selfridge ANGB, Mich. 48045-4914
DSN 273-5504
CMCL (810) 307-5504
FAX: DSN 273-5149
POC: Master Sgt. Ken Grieve
E-Mail: kgrieve@mimtc.ang.af.mil

110th WF (Missouri)
10800 Lambert International Blvd.
Bridgeton, Mo. 63044-2371
DSN 693-6331
CMCL (314) 263-6331
FAX: DSN 693-6105
POC: Master Sgt. Steve Rawling
E-Mail: rawling%fw%131tfw@most1.ang.af.mil

111th WF (Texas)
14657 Sneider St.
Ellington ANGB, Texas 77034-5586
DSN 954-2544
CMCL (713) 929-2544
FAX: DSN 954-2633
POC: Master Sgt. Jeff Goldman
E-Mail: goldman%wf%147fg@txefd.ang.af.mil

113th WF (Indiana)
824 E. Vanatti Circle
Terre Haute, Ind. 47805-5012
DSN 724-1266
CMCL (812) 877-5266
FAX: DSN 724-1130
POC: Master Sgt. Doug Greenwell
E-Mail: greenwell%ms%181fg@inhuf.ang.af.mil

116th WF (Washington)
307 6th St.
McChord AFB, Wash.
DSN 984-2081
CMCL (206) 984-2081
FAX: DSN 984-5391
POC: Master Sgt. Terry Gibson
E-Mail: tgibson@wacpm.ang.af.mil

120th WF (Colorado)
19089 E. Breckenridge Ave.
Aurora, Colo. 80011-9527
DSN 877-9787
CMCL (303) 340-9787
FAX: DSN 877-9694
POC: Tech. Sgt. Dave Shanteau
E-Mail: shantean%we%200as@cobkf.ang.af.mil

121st WF (Washington, D.C.)
3252 E. Perimeter Rd.
Andrews AFB, Md. 20762-5011
DSN 858-6679
CMCL (301) 981-6679
FAX: DSN 858-6146
POC: Master Sgt. Sue Murray
E-Mail: smurray@dcadw.ang.af.mil

122nd WF (Louisiana)
400 Russell Ave.
New Orleans, La. 70143-5012
DSN 457-8424
CMCL (504) 391-8424
FAX: DSN 457-8303
POC: Tech Sgt. Charles Patterson
E-Mail: patterson%we%159fg@kanbg.ang.af.mil

123rd WF (Oregon)
6801 NE Cornfoot Rd.
Portland, Ore. 97218-2797
DSN 638-4566
CMCL (503) 335-4566
FAX: DSN 638-5253
POC: Master Sgt. Dan Johnson
E-Mail: dljohnson@orpdx.ang.af.mil

125th WF (Oklahoma)
4200 North 93rd East Ave.
Tulsa, Okla. 74115-1699
DSN 956-5272
CMCL (918) 832-8272
FAX: DSN 956-5363
POC: Master Sgt. Doug Cox
E-Mail: dcox@oktul.ang.af.mil

126th WF (Wisconsin)
350 East College Ave.
Milwaukee, Wisc. 53207-6298
DSN 580-8479
CMCL (414) 747-4479
FAX: DSN 950-5760
POC: Master Sgt. Dave Rogers
E-Mail: rogers%dsc%128arg@wimke.ang.af.mil

127th WF (Kansas)
P.O. Box 19061
Forbes Field, Kan. 66619-0061
DSN 720-4695
CMCL (913) 862-9151
FAX: DSN 720-4512
POC: Staff Sgt. David Gogian
E-Mail: dgogian@TYRELL.NET

131st WF (Massachusetts)
1 Tank Destroyer Blvd.
Barnes MAP
Westfield, Mass. 01085-1385
DSN 636-9232
CMCL (413) 568-9151, ext. 232
FAX: DSN 636-9505
POC: Master Sgt. Henry Chase
E-Mail: chase%fs%104fg@mabaf.ang.af.mil

140th WF (Pennsylvania)
1337 Fairchild St.
Willow Grove ARS, Pa. 19090-5320
DSN 991-1320
CMCL (215) 443-1320
FAX: DSN 991-1872
POC: Master Sgts. George Hathaway
E-Mail: ghathaway@panxx.ang.af.mil

146th WF (Pennsylvania)
Pittsburgh International Airport
300 Tanker Road #4254
Corapolis, Pa. 15108-4254
DSN 277-7435
CMCL (412) 474-7435
FAX: DSN 277-7646
POC: Tech. Sgt. Dave Tucker
E-Mail: tucker%sc%171arw@papit.ang.af.mil

154th WF (Arkansas)
Camp Robinson
North Little Rock, Ark. 72118-2200
DSN 962-5087
CMCL (501) 212-5087
POC: Master Sgt. Stanley King
E-Mail:
154wf%others%ngbdialin@angrc.ang.af.mil

156th WF (North Carolina)
3920 Hercules Ave.
Charlotte, N.C.
DSN 583-9137
CMCL (704) 391-4137
FAX: DSN 583-9196
POC: Master Sgt. Allan Cecil
E-Mail: acecil@ncclt.ang.af.mil

159th WF (Florida)
Rte. 1, Box 465
Camp Blanding Training Site
Stark, Fla. 32091-9703
DSN 960-5449
CMCL (904) 533-5449
FAX: DSN 960-5405
POC: Master Sgt. Jon Carillon
E-Mail: carillon%cs%125fg@fljax.ang.af.mil

See ANG, continued on Page 23

Navy-Air Force Weather leading the way with faster ATM communication

by Capt. Sylvia Taylor
USAF .FNMOC Monterey

In mid-February, the Navy and Air Force began installing a national asynchronous transfer mode (ATM) network which will connect the nation's major meteorology and oceanography (METOC) processing centers.

The Navy-Air Force (NAVAF) High Speed ATM Weather Communications Network (HAWCNET), providing high speed data transmission up to 45 million bits (megabits) per second, connects the Fleet Numerical Meteorology and Oceanography Center (FNMOC) in Monterey, Calif.; the Air Force Global Weather Central (AFGWC) in Offutt AFB, Neb.; the Naval Oceanographic Office (NAVOCEANO), at Stennis Space Center, Miss.; and NOAA's Office of System Operations (OSO) in Silver Springs, Md.

What Is ATM?

In data transmission, a stream of O's and 1's, called bits, is organized into structures corresponding to the type of service used. A "cell" is a fixed-length block of information or a fixed-sized packet of bits and data.

Asynchronous means data can be placed into any open cell. To explain the difference between channelized and unchannelized (asynchronous) networks, let's compare them to highways. A channelized network is like a busy highway with only one entrance and traffic entering at various rates.

Gaps which form in the traffic cannot be filled. If no information is present in a given space, these networks send a special packet to indicate the line is ready for traffic.

Users of a channelized network are charged a set fee whether information is being sent or not. However, on an ATM highway, cells of information, enter at various points, eventually filling open spaces and creating bumper to bumper traffic. Space is maximized by plugging the cell into any available opening. Different media -- voice, video or data — can be sent simultaneously.

"Transfer mode" refers to the main technique of transmitting, multiplex switching and receiving information on the network.

Take, for example, a post office customer who drops a letter into a mailbox without knowing exactly how it will get to the addressee. The mail may go by plane, train, road vehicle etc., depending upon where the post originates and where it is going.

Similarly, in ATM, a header on the cell identifies who the traffic belongs to and where it will go; ATM selects the best route to the destination based on the availability of open pathways called virtual channels.

ATM treats traffic on demand; no traffic results in no bandwidth drain and lower usage charges. ATM is based on connections, vice channelized circuits, between dedicated points.

Spare capacity on the lines can be shifted from one network to accommodate "bursts" of data usage and peak demand.

Why ATM?

The Navy and Air Force METOC communities need a communications architecture that can support current and future Numerical METOC Prediction and Meteorological Satellite data sharing requirements.

These requirements and joint cooperation are governed by the NAVAF or Navy-Air Force Initiative. A working group, organized in 1993, developed a joint communication plan for transferring METOC data between the processing centers, and developed an architecture to satisfy near and long term requirements based on timeliness of data delivery, robustness and throughput. The existing communications architecture, the Shared Processing Program (SPP), did not satisfy these requirements. Highly structured and inflexible, the SPP is also limited in its transmission rate capability.

To pass the amount of data NAVAF requires, dedicated circuits would have to be installed between each of the four sites.

Each site would be billed for full usage of the line whether data were going across or nor. Though, NAVAF would use 14 megabits, at most, they would pay full T-3 (45 megabits) service over thousands of miles. Any NAVAF growth would be constrained by these rates.

In contrast, by choosing an ATM network, NAVAF pays only for T-3 connection service to the local point of presence within a few hundred miles. They are charged only for the data actually going across the line.

Under a contract awarded last November, the vendor provides service for up to 45 megabits with the ability to expand to OC-3 (155 megabits). The vendor is also responsible for supporting future requirements of OC-3 data transfer rates.

Contract Specifications

The contract provides for the lease of ATM data communications service to support four METOC sites. The government has the option ro extend this service to other METOC sites and DoD users during the contract's four-year period. The estimated life cycle cost is over $3 million.

The contract proposals were reviewed for technical specifications, and the contract awarded to MCI.

MCI has agreed to meet the data transfer requirements 90 percent of the time. For example, METSAT data will be shipped simultaneously to all three sites from AFGWC in 300 seconds. Different data types can be staggered if delivery times are close.

With the speed of the ATM, data can reach their destinations in seconds!

MCI is also responsible for around the clock service and full maintenance for ATM service and termination equipment.

Future Capabilities

As requirements grow, so can the ATM network. If data requirements exceed T-3 or DS-3 capabilities (45 megabits), MCI will upgrade the connections to OC-3 speeds.

The contract provides for expansion to other METOC sites including the Air Force Combat Climatology Center, Naval Pacific Meteorology and Oceanography Center, the Naval Ice Center, the Naval Atlantic Meteorology and Oceanography Center, the Naval Pacific Meteorology and Oceanography Center West, the Naval European Meteorology and Oceanography Center, Automated Data Weather Switch at Tinker AFB, Okla., the National Hurricane Center, National Climatic Data Center, Naval Research Laboratory Washington, and the National Geophysical Lab, Colo.

With HAWCNET, duplication of effort will be eliminated, allowing the services to do what they do best — serve the warfighter in the most efficient and reliable manner.

Spacecraft Sends Best Images Yet of Earth's Northern, Southern Lights

Scientists working with NASA's recently launched polar satellite have released the best images ever made from space of the Earth's aurora.

The new spacecrafr data shows remarkably clear views of the aurora borealis in the daytime.

The new images and information will help scientists to better understand the transport of energy from the Sun to the Earth hy rhe solar wind. The satellite's cameras also has acquired the first global images of rhe Earth's aurora in X-rays.

Data from the spacecraft is transmitted several times each day via the Deep Space Network to NASA's Goddard Space Flight Center, Greenbelt, Md., where it is processed and distrihuted for analysis. Goddard is managing the program and is responsible for operating the spacecraft.

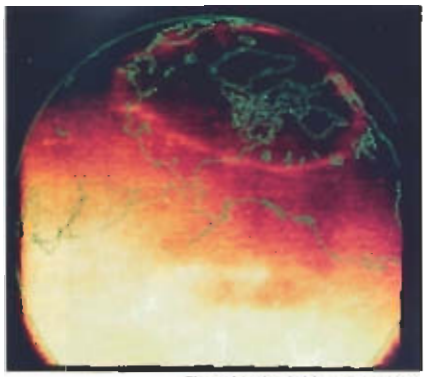


Photo downloaded from the Internet

The complete Northern Auroral Oval as captured by the Polar satellite.

The satellite was launched from Vandenherg AFB, Calif., Feh. 24 and is orhiting the Earth every 17-1/2 hours in a large, elliptical orbit that carries the satellite high over the northern polar region. The satellite is a principal component of NASA's Global Geospace Science program.

The images (see above photo) may be viewed and downloaded from the Internet using the following Universal Resource Locator (URL):

http://pao.gsfc.nasa.gov/gsfc/newsroom/flash/flash.htm

Put THIS on your "Hot List"

Air Weather Association

http://www.infi.net/~cwt/awa.html

The association was chartered in 1987 for men and women whose armed forces careers were with Air Force weather units - past and present. Before then, there was no fraternal weather service organization dedicated to those who serve or served in a ground or aerial reconnaissance weather unit or weather training function.

Nostalgia binds us together and "we take care of our own." Camaraderie is our goal for all who identify with Air Force weather support, now or in prior years. We maintain a cenrral locator, publish an annual newsletter and a separate roster of our members, hold reunions, and list in the newsletter those reunions of weather units known to us. Our reunions attract over 700 persons.

Our lifetime membership cost is unique - just $9 for you, and your surviving spouse continues as a member without cost during her/his lifetime. For that nominal sum, you receive a distinctive five-color membership lapel/tie tack pin or ladies pendant; the annual newsletter and rosrer; alerts of forthcoming weather unit reunions; and a central locator.

Volunteers conduct our programs so that all funds go to providing you with the publications via third-class mail and operating a computer-based locator file. We are an IRS-recognized nonprofit association enjoying tax-exempt status. This has allowed us to establish an Outstanding (Weather) Airmen of the Year trust fund where we honor those selected by the Air Force and present them with a cash reward. Contributions to the fund are tax deductible.

"Take Care Of Our Own" became more rhan a motto when we sponsored a Memorial Fund for the surviving families of those weathermen who perished en route to the Gulf War in 1990. Our members and the Associarion treasury contributed $30,000 to that worthwhile cause.

Join us now and receive rhe latest publications, the membership pin or pendant, and have your name listed in the next roster. We are your only means of keeping in touch with former weather associates.

Write to: AIR WEATHER ASSOCIATION, 1879 Cole Rd., Aromas CA 95004; and check our Internet site! *(by C.W. Tazewell, AWA Webmaster)*

AFGWC,
continued from Page 17

The Systems Management Branch oversees continued development and enhancement of the AFWIN system itself.

This fall, AFGWC will consolidate AFWIN and the Air Force Dial-In Subsystem (AFDIS) to eliminate duplication of effort and to redirect limited assets toward one superior system under the AFWIN umbrella.

In order to minimize the impact to AFDIS users, AFWIN will facilitate direct dial-in access. AFWIN will expand to provide alphanumeric products and gridded data fields that are currently available from AFDIS.

Another initiative underway is to make AFWIN available over the Secret-level Internet Protocol Network (SIPRNET). This secret level AFWIN (SAFWIN) will allow classified users the same easy access to weather data that AFWIN users now enjoy, but in a secure environment.

Additional future enhancements to AFWIN include a satellite image looping capability, retrieval of gridded model output and access to alphanumeric products including worldwide observations, TAFs, upper air soundings and AFGWC bulletins.

The numbers we have collected to date show that AFWIN has been a tremendous success.

As of May 31, there were more than 300,000 "hits" from 766 authorized users since January. Currently, these users access AFWIN an average of 2,200 times per day.

Access to AFWIN's operational products is restricted to users with a valid need for this information.

To request access, click on the "new users" key and provide the information requested. AFGWC will validate the request and issue a user ID and password. AFWIN puts AFGWC at your fingertips! Have you visited us lately? If not, look us up at "http://afwin.offutt.af.mil:43" and see what's new from AFGWC.

Air Force Weather Master Sergeant Selectees

Name	Command	Location
Jaime Acres	ACC	Seymour Johnson AFB, N.C.
James C. Adams	AFSOC	RAF Mildenhall, U.K.
Paul A. Armitage	AFMC	Eglin AFB, Fla.
Bruce J. Babcock	AFMC	Wright-Patterson AFB, Ohio
Clayborn C. Barnett	AWS (AFGWC)	Offutt AFB, Neb.
Catherine L. Bird	PACAF	Eielson AFB, Alaska
Gregory A. Bond	AETC	Reese AFB, Texas
David A. Brann	AETC	Keesler AFB, Miss.
Michael G. Brooks	PACAF	Eielson AFB, Alaska
Derrick R. Brown	ACC	Langley AFB, Va.
Duane P. Bullard	USAFE	Ramstein AB, Germany
Scott C. Copeland	AMC	Scott AFB, Ill.
Howard A. Cowell, Jr.	AMC	Dover AFB, Del.
Kim R. Danielson	PACAF	Osan AB, Korea
David C. Dickinson	AETC (CWF)	Hurlburt AFB, Fla.
Michael C. Dore	AETC	Keesler AFB, Miss.
Harold D. Eifert	AMC	Scott AFB, Ill.
Mark L. Elyea	AFSPC	Peterson AFB, Colo.
Jerry L. Farley	AETC	Keesler AFB, Miss.
Garland K. Head	AWS (AFGWC)	Offutt AFB, Neb.
Courtenay Headland	AETC	Keesler AFB, Miss.
Keith A. Hermanson	AFSPC	Falcon AFB, Colo.
Dennis D. Hern	PACAF	Anderson AFB, Guam
Jeffrey L. Isom	AFMC	China Lake, Calif.
Doretta D. Johnson	AWS (AFGWC)	Offutt AFB, Neb.
Kenneth C. Kerns	AWS	Scott AFB, Ill.
Gary W. Kimsey	ACC	Ellsworth AFB, S.D.
Ralph F. Ley	AETC (CWF)	Hurlburt Field, Fla.
Raul Loyo-Rodriguez	AETC	Laughlin AFB, Texas
Mike McAleenan	AWS	Scott AFB, Ill.
Lorne E. McClard	AFSPC	Falcon AFB, Colo.
Stephen McConnell	PACAF	Osan AB, Korea
Gary D. Mercer	USAFE	Stuttgart-Vahingen, Germany
Theodore Mustaikes	AWS (AFGWC)	Offutt AFB, Neb.
David W. Oetting	AMC	Fairchild AFB, Wash.
Timothy J. Oropeza	ACC	Moody AFB, Ga.
Dale S. Russett	AETC	Keesler AFB, Miss.
Timothy J. Schiedt	USAFE	Stuttgart-Vahingen, Germany
David L. Scott, Jr.	USAFE	Stuttgart-Vahingen, Germany
Robert Silvernail	ACC	Dyess AFB, Texas
Stephen Turkovich	AWS (AFGWC)	Offutt AFB, Neb.
Bradley K. Wasson	PACAF	Osan AB, Korea
Phillip W. Watts	PACAF	Kunsan AB, Korea
William T. Wheaton	ACC	Barksdale AFB, La.

ANG,

continued from Page 19

164th WF (Ohio)
Rickenbacker IAP
7556 South Perimeter Rd.
Columbus, Ohio 43217-5910
DSN 950-3361
CMCL (614) 492-361
FAX: DSN 950-4400
POC: Master Sgt. Darryl Walters
E-Mail: dwalters@ohlck.ang.af.mil

165th WF (Kentucky)
1019 Old Grade Lane
Louisville, Ky. 40213-2664
DSN 989-4445
CMCL (502) 364-9445
FAX: DSN 989-4618
POC: Master Sgt. Mike Walters
E-Mail: walters%do%123aw@kysdf.ang.af.mil

181st WF (Texas)
8150 West Jefferson Blvd.
Dallas, Texas 75211-9570
DSN 874-3358/57/59
CMCL (214) 269-3358/57/59
FAX: 874-3331/3405
POC: Master Sgt. Edgar Ibe
E-Mail: eibe@txnbe.ang.af.mil

195th WF (California)
106 Mulcahey Dr.
Fort Hueneme, Calif. 93041-4003
DSN 893-7539/7/6/8
CMCL (805) 986-7539/7/6
FAX: DSN 893-7571
POC: Master Sgt. Louis Loleas
E-Mail: lloleas@cantd.ang.af.mil

199th WF (Hawaii)
1102 Wright Ave.
Wheeler AAF, Hawaii 96854-5200
DSN 864-1232
CMCL (808) 656-1232
FAX: CMCL (808) 656-2897
POC: Master Sgt. Pete Spurlin
E-Mail: 199wf@pafsc3.hqpacaf.af.mil

200th WF (Virginia)
291 Thunderbolt Ave., Rm. 8
Sandston, Va. 23150-2513
DSN 864-6585
CMCL (804) 236-6585
FAX: DSN 864-6054
POC: Master Sgt. Steve Gamache
E-Mail: gamache%wf%192fg@varic.ang.af.mil

202nd WF (Massachussetts)
158 Reilly St., Box 28
Otis ANGB, Mass. 02542-5028
DSN 557-4907
CMCL (508) 968-4907
FAX: DSN 557-4069
POC: Master Sgt. Colleen Archer
E-Mail: archer%do%102fw@mafmh.ang.af.mil

203rd WF (Pennsylvania)
125 Pinegrove St.
Fort Indiantown Gap
Annville, Pa. 17003-5002
DSN 491-8674
CMCL (717) 861-8674
FAX: DSN 491-8322
POC: Master Sgt. Mike Sema
E-Mail: sema%wx%203wf@pamdt.ang.af.mil

204th WF (New Jersey)
3305 Feiebelkorn Rd.
McGuire AFB, N.J. 08641-6004
DSN 440-6932
CMCL (609) 724-6932
FAX: CMCL (609) 723-1054
POC: Master Sgt. Dave Easton
E-Mail: deaston@njwri.ang.af.mil

207th WF (Indiana)
2002 S. Holt Rd.
Indianapolis, Ind. 46241-4839
DSN 369-2404
CMCL (317) 247-3404
FAX: DSN 369-2187
POC: Master Sgt. Vince Delaney
E-Mail: vdelaney@inhuf.ang.af.mil

208th WF (Minnesota)
631 Minuteman Dr.
St. Paul, Minn. 55111-4116
DSN 825-8291
FAX: DSN 825-8292
POC: Master Sgt. Brian Magnuson

209th WF (Texas)
2210 W. 35th St.
Bldg. 9, Rm. 119
Austin, Texas 78763-5218
DSN 954-5109
FAX: DSN 954-5656
POC: Master Sgt. Dave Cornelius
E-Mail: dcornelius@txskf.ang.af.mil

210th WF (California)
1280 South Tower Dr.
Ontario ANG Station
Ontario, Calif. 91761-7627
DSN 947-3559, ext. 7472
POC: Master Sgt. Joe Martinez
E-Mail: martinez%im%210wf@cariv.ang.af.mil

ANG Weather Readiness Center (Florida)
Rte. 1, Box 465
Camp Blanding Training Site
Stark, Fla. 32091-9703
DSN 960-3388
FAX: DSN 960-3493
POCs: Master Sgt. Fran Alessi, Master Sgt. Jim Yackey, Master Sgt. Paul Castillo
E-Mail: alessi%others%ngbdialin@angrc.ang.af.mil
pcastillo@fljax.ang.af.mil

ANGRC/XOOSW
3500 Fletchet Ave.
Andrews AFB, Md. 20762-5157
DSN 278-8285/8932/8278
CMCL (301) 836-8285/8932/8278
FAX: DSN 858-2264
POCs: Mr. Ted Houghton, Senior Master Sgt. Mike Cavanaugh, Master Sgt. Guy Kessler
E-Mails: thoughton@angrc.af.mil
mcavanaugh@angrc.af.mil
gkessler@angrc.af.mil

AFW Major Selectees

Name	Command	Location
Asato, Blaine A.	PACAF	Kunsan AB, Korea
Bellaire, Paul J., Jr.	AETC	Tucson
Bramhall, Michael D.	AMC	Charleston AFB, S.C
Callahan, Kevin P.	USAFE	Incirlik AB, Turkey
Chapman, Spencer R.	AFMC	Hanscom AFB, Mass.
Christy, Steven R.	USAFE	RAF Lakenheath, U.K.
Coulter, John P.	USAFE	Ramstein AB, Germany
Dellarose, Devin J.	AWS (AFGWC)	Offutt AFB, Neb.
Fitzgerald, Jay S.	AMC	Travis AFB, Calif.
Goldizen, Derrill T.	AETC	Wright-Patterson AFB, Ohio
Grady, Rodney L.	AWS/SYA	Scott AFB
Guinn, Thomas A.	AMC	McGuire AFB
Hammett, James E., Jr.	NATO/SHAPE	Naples
*Hutchison, Timothy D.	AFPC	Randolph AFB
Johnson, Steven C.	AWS (CWF)	Hurlburt Field
Keith, Chan W.	AWS/CVV	Scott AFB
Martens, David L.	PACAF	Yong San
Michetti, Vicki D.	AWS/XOR	Scott AFB
Miner, Barbara D.	ACC	Ellsworth AFB
Schiano, Thomas L.	AFMC	Edwards AFB
Shapiro, Bruce G.	AWS (AFCCC)	Scott AFB
Spendley, William J., Jr.	USAFA	Colorado Springs
Staley, Michael C.	AWS (AFGWC)	Offutt AFB
Talbert, Michael L.	AETC	Wright Patterson AFB
Van Knowe, Glenn E.	AWS (AFCCC)	Scott AFB
*Zuccarello, Louis V.	AWS/XOR	Scott AFB

** Denotes ISS Candidates*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