

A photograph of a helicopter in a snowy landscape. The helicopter is the central focus, with its rotors visible. The background is filled with snow-covered trees and a water tower on the left. The overall scene is bright and wintry.

OBSERVER

YOUR MAGAZINE FOR AIR FORCE WEATHER

Nov/Dec 01

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Anticipating Wind,
Ice and Snow

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OBSERVER

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Wind Chill Chart

		Temperature (°F)																	
Calm		40	35	30	25	20	15	10	5	0	-5	-10	-15	-20	-25	-30	-35	-40	-45
Wind (mph)	5	36	31	25	19	13	7	1	-5	-11	-16	-22	-28	-34	-40	-46	-52	-57	-63
	10	34	27	21	15	9	3	-4	-10	-16	-22	-28	-35	-41	-47	-53	-59	-66	-72
	15	32	25	19	13	6	0	-7	-13	-19	-26	-32	-39	-45	-51	-58	-64	-71	-77
	20	30	24	17	11	4	-2	-9	-15	-22	-29	-35	-42	-48	-55	-61	-68	-74	-81
	25	29	23	16	9	3	-4	-11	-17	-24	-31	-37	-44	-51	-58	-64	-71	-78	-84
	30	28	22	15	8	1	-5	-12	-19	-26	-33	-39	-46	-53	-60	-67	-73	-80	-87
	35	28	21	14	7	0	-7	-14	-21	-27	-34	-41	-48	-55	-62	-69	-76	-82	-89
	40	27	20	13	6	-1	-8	-15	-22	-29	-36	-43	-50	-57	-64	-71	-78	-84	-91
	45	26	19	12	5	-2	-9	-16	-23	-30	-37	-44	-51	-58	-65	-72	-79	-86	-93
	50	26	19	12	4	-3	-10	-17	-24	-31	-38	-45	-52	-60	-67	-74	-81	-88	-95
	55	25	18	11	4	-3	-11	-18	-25	-32	-39	-46	-54	-61	-68	-75	-82	-89	-97
60	25	17	10	3	-4	-11	-19	-26	-33	-40	-48	-55	-62	-69	-76	-84	-91	-98	

Frostbite Times 30 minutes 10 minutes 5 minutes

$$\text{Wind Chill (°F)} = 35.74 + 0.6215T - 35.75(V^{0.16}) + 0.4275T(V^{0.16})$$

Where, T=Air Temperature (°F) V=Wind Speed (mph)

Effective 11/01/01

New wind chill temperatures implemented in U.S.

By Paige Rowland
AFW Public Affairs

Turning leaves and chilly, north winds are evidence of winter's fast approach. This season's wind chill temperatures, however, may not have the same "chilling" effect they had last year.

Air Force Weather personnel implemented a new Wind Chill Temperature Index on 1 Nov. for military installations worldwide. Meteorologists from the United States and Canada revised the current wind chill temperatures over concern for public safety and accuracy in wind-chill values.

"We'll have a better indication of how long a person can safely stay outdoors," said Lt. Col. David Smarsh, Air Force Weather's deputy for federal programs. Smarsh participated in a group formed by the Office of the Federal Coordinator for Meteorology last year to review the current index.

"Air Force Weather Agency entered the updated equation into their weather systems which produce climatology and weather products worldwide," said Smarsh.

The new, standardized index establishes more accurate temperatures than were previously indicated and is being implemented this season by the National Weather Service, the Department of Defense and the Meteorological Service of Canada.

According to recent studies, the current method used to determine wind chill temperatures overstates the effect of the wind, makes people think it feels colder than it really is and fools the public into thinking they can withstand colder temperatures.

"Injury can occur anytime temperatures fall below freezing, however, the severity increases with prolonged exposure at lower temperatures and greater wind speeds," said Air Force Surgeon General Lt. Gen. Paul Carlton, Jr.

See **Wind Chill**, Page 19

Chief's Mentoring: ISC Grads Excel

By Chief Master Sgt. Penny Braverman
AFW Chief Enlisted Manager

I receive many good news stories about the new airmen now coming into Air Force Weather. The stories range from how quickly they progress through training, to the quality and timeliness of products they issue to their customers. I wanted to share a few of these stories with the field units so you can get a feel for the pride these young troops display, and to demonstrate the capabilities of these new weather technicians.

The first area we looked at was training and what we found was amazing. These young airmen are working through the mounds of training paperwork with diligence and perseverance. Most trainees are completing the assigned tasks well ahead of schedule with enthusiasm and a thirst for knowledge.

Master Sgt. Wiseman, chief, XOW Operational Training, collected and reported the following: "We have had 41 troops take the C end of course examinations. Of these 41, 39 passed, with 3 passing after a retest. The other 2 trainees are awaiting a retest. Our end of course scores range from 57 to 94, with 3 troops earning honors in the 20th FW/CC '90s Club. Only one 3-level has completed the D course, earning an impressive end of course examination score of 94."

The next area investigated was production performance, including

Terminal Airdrome Forecasts, warnings, briefings, etc. Most 3 levels forecast in the TAF arena first with very interesting results – they could easily out-achieve more experienced and talented weather technicians. The experienced technicians were capable of more effective forecasting, but due to workload, they were stretched too thin to accomplish the forecasts as quickly and effectively.

The new airmen had an advantage to make up for their lack of experience. They had mentors – blue suiters, contractors, and civilians, who were easily accessible and provided steady guidance, ensuring the best product for the field.

Because of this advantage, and their close working relationship with their assigned Combat Weather Teams, the products new airmen issued were not only timely, but extremely accurate as well. The key is that the new airman and the experienced weather technicians instill trust and confidence in each other.

The following are just a few examples of the outstanding accomplishments of some of our newest ISC grads:

Airman 1st Class Jessica Kishimizu, 28th OWS, was the HQ 9th AF, Airman of the Quarter for July - Sept. 2000. She also won the Shaw AFB, N.C., Chiefs' Group J.J. Pollock Sharp Award. Kishimizu has become a very competent forecaster. Her flight commander checked her TAFVER for this quarter and, of 115 TAFs, she has verified at 95.6%.

Her WW/WA performance has been equally impressive. Kishimizu nailed a hail event at Ft. Knox by making maximum use of radar and upstream data/FCST Skew-T. She forecast ½-inch hail with full leadtime and only +26 minutes timing error. She is heavily involved in squadron functions and has been a valuable asset to CONUS Operations C Flight

and the 28th OWS.

Airman 1st Class Ryan Pittenger, 28th OWS, upon assuming shift duties, noticed an outflow boundary that was about to be intersected by a shortwave near Hunter AAF, Ga. He immediately issued a warning for 40-knot winds and hit it at 46 knots with full leadtime and -4 minutes timing error. He made outstanding use of radar and METSAT and was complimented by the standby forecaster from Hunter AAF.

We were all very impressed with the performance of the 15th OWS's **Chris Boczek**, **Airmen 1st Class Colby Nichols** and **John Peters**, the airmen are both recent Phase II grads. In addition to the TAF for Scott AFB, Ill., they were producing and metwatching the shadow forecasts for Ft. Drum, N.Y., and Wright-Patterson AFB, Ohio. They hit the cardinal hour at the 22-hour point for thunder mixed with rain and ice pellets with a BECMG Group. All the indicators were discrete; many experienced forecasters completely missed the event. When quizzed by their lead and the floor manager, they did an outstanding job of describing their prognosis and defending their conclusions.

You can see by these examples that reengineering works today, and will work in the future with your help and support. Keeping an open mind helps to create a healthy learning atmosphere. Ensuring opportunities for younger troops to provide input, seals the relationship.

The key – teamwork at all levels from the airmen in the hub all the way up the chain. Trust and confidence building is growing rapidly and Brig. Gen. **David L. Johnson**, Air Force director of weather, is always telling the troops these are the keys to our success. Everyone shares in the success and you all should be proud of our success story! ✎

AFWA Insite: Officer Portfolio: How's Yours?

By Col. Bob Allen
AFWA Commander

As an officer, do you know what's expected of you? If you're a supervisor of an officer, what kinds of career issues do you discuss during feedback sessions, or as a mentor? The quality of Air Force officers today is nothing short of outstanding. Competition is keen, and discriminators in records, even seemingly minor ones, may spell the difference between selection and non-selection – whether for key jobs, PME in residence, squadron command boards, or promotion.

Aerospace Leaders

First and foremost, regardless of your AFSC, you're an Air Force Officer...an Airman...becoming an Aerospace Leader. The Air Force will provide you a number of opportunities to develop. For the new officers, you start with the Aerospace Basic Course. The mission of the course is *"To inspire new USAF officers to comprehend their roles as airmen; one who understands and lives by USAF core values, articulates and demonstrates USAF core competencies, and who dedicates oneself as a warrior in the world's most respected aerospace force."*

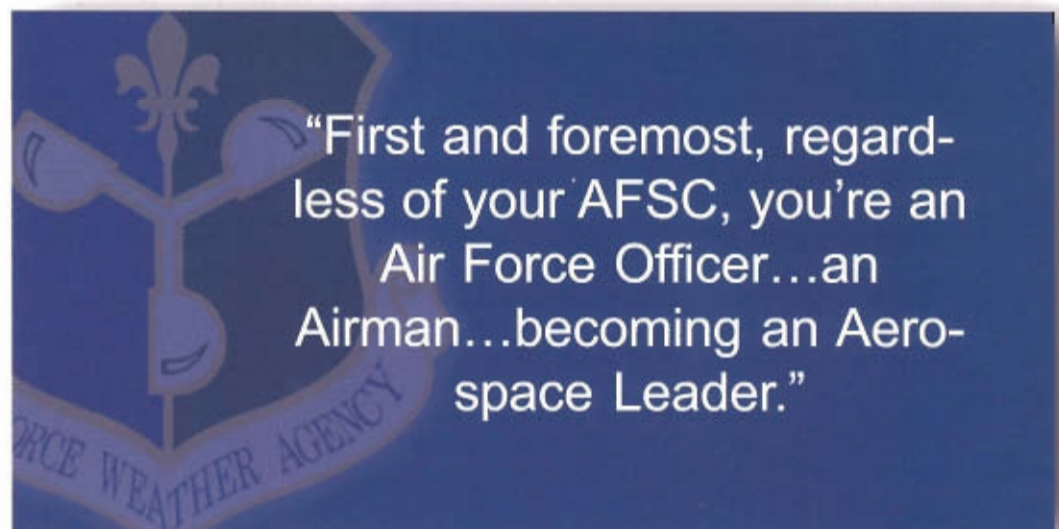
Additionally, officers should search-out reading material to enhance their careers. The Air Force Professional Reading Lists, located at http://www.af.mil/lib/csafbook/csaf_read_officer.shtml, provides the opportunity to learn more about your profession and its application. Brig. Gen. David L. Johnson, Air Force director of weather, has also approved the Professional Reading List for the weather career field.

Staying current on Air Force policy and current AF issues and priorities is also vital. Understand and apply Aerospace Doctrine, and educate the public where you have opportunities. The air force homepage, <http://www.af.mil/>, is a good place to start, along with Airman Magazine, also located on the Air Force homepage.

The final piece of your Aerospace leadership education is the *Aerospace Power Course*. This course is a self-paced, interactive course, consisting of 12 separate lessons. The course allows students to develop a broader comprehension of aerospace power principles, concepts, and applications. The course is primarily intended to better prepare Air Force officers in joint duty assignments to articulate and advocate aerospace power principles and beliefs, but can be beneficial to all aerospace power enthusiasts. The Aerospace Power course is also now available online, for users with high-speed Internet connections, at <http://www.ape.maxwell.af.mil/>.

Professional Military Education

PME commensurate with your grade is a must. The expectation that an officer will complete PME when



eligible is a fact of life that has not changed during my career (read that as: sign up when you get a line number). The thought that you'll wait until the next assignment to sign up for PME will undoubtedly cross your mind. Avoid the temptation. Almost every new job spells new challenges and more responsibility – in short, it never gets easier.

Don't wait until just before promotion boards to complete your PME. There are a myriad of surprises that

See AFWA, Page 20

AFSPC weather operations: Success in Space

By Capt. Christian Wohlwend
Chief, Space Environmental Operations

Space...the high frontier (the other version is copyrighted). At Vandenberg AFB, Calif., a small team of space weather experts turns the Air Force Weather Agency's and the Space Environment Center's space weather forecasts and observations into value added information for satellite operations, space warning support, space launch, and all other Space Command missions.

This small team is the 614th Space Operations Group's Aerospace Weather Team. Based out of the 14th Air Force's Aerospace Operations Center, the 614 SOPG/AWT is the only weather unit dedicated to meet the space and terrestrial weather needs of all the 14th's worldwide assets.

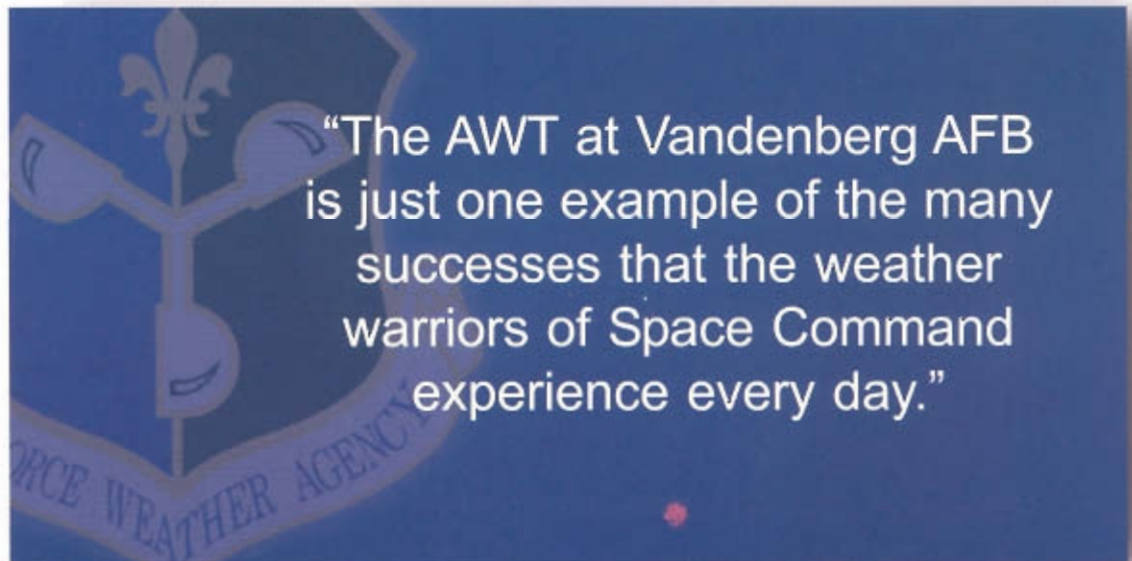
This specialized unit also provides support to customers from U.S. Space Command, Army Space Command, Air Force Space Command, and directly to the Commander of the 14th Air Force.

The AWT is the culmination of a 1999 agreement between SPACEAF, HQ U.S. Air Force/XOW, and IIQ AFSPC to re-align and reengineer space environment support. The AWT started with one assigned member and minimal operations capability in October 1999, and has since grown into a 6-person, 24 x 7 operation. Though not yet fully mission capable, the AWT is already providing outstanding space and terrestrial weather support to the entire military space operations community.

The team provides real-time aerospace environmental support to SPACEAF operations through satellite, radar, and communication anomaly assessments. They monitor the space and terrestrial weather

products tailored to their specific thresholds and requires units to report impacts back to the operations center. In order to assist with this support, the AWT created and controls a web page dedicated to providing site-specific terrestrial weather and space environment data. You can visit the page from your work computer at the AWT webpage located on the Vandenberg AFB homepage.

In the team's ever-growing mission, the AWT is now directly involved with space environment support to the 30th Space Wing's Launch Weather Officers at the Western Range, Vandenberg AFB, and are also picking up this requirement for the 45th Space Wing, Patrick AFB, Fla. The



environment and notify their customers around the world of detrimental activity likely to impact their operational capability. This service is particularly important for the geographically separated units in Space Command.

The AWT also provides space operators with theater-level reach-back support for the aerospace environment. Their unique position allows each space unit to receive

AWT also supplies space and terrestrial weather support to the broad missions of the 21st OSS/OSW at Peterson AFB, Colo., and the 50th OSS/OSW at Schriever AFB, Colo. These two units conduct space operations from numerous locations around the globe.

The AWT at Vandenberg AFB is just one example of the many successes that the weather warriors of Space Command experience daily. ♣

IG update

By Lt. Col. Kevin Witte
AFWA Inspector General

During this time of increased security awareness, I thought it appropriate to review Privacy Act policies. Any time a document has any protected information such as Social Security Numbers, members home phones and addresses, dates of birth, age, race, marital status, number of family members, educational level, or leave balance – you need to protect the information as stipulated under the Privacy Act of 1974.

You must include the following advisory at the beginning of the document (this includes emails):

This document contains information which must be protected IAW AFI 33-332 and DoD regulation 5400.11; Privacy Act of 1974 as amended applies, and it is For Official Use Only

Your responsibility as a sender/generator of privacy act material requires you to:

- * Ensure the recipient is authorized to receive the information
- * Balance the risk of disclosing the information with the information sensitivity
- * Properly place the Privacy Act notification on required documents, but don't stamp Privacy Act on everything, or the statement loses its significance.

So how is Privacy Act information related to For Official Use Only? Basically, Privacy Act information is a subset of FOUO information. All privacy act material is FOUO, but not all FOUO will have privacy act material in it. If a document contains Privacy Act material, it should be marked accordingly and not just marked FOUO.

Below is an example that should go on all documents that are For Official Use Only:

For Official Use Only

This is a privileged document. It will not be released (in whole or in part), reproduced, or given additional dissemination (in whole or in part), outside of command channels without prior approval of the commander or designee

Additional information on proper protection, storage, marking and release of FOUO material can be found in DoD Regulation 5400.7-R/AF supplement, dated 22 July 1999, or by contacting your Privacy Act monitor. ♡

Stop Loss affects AFW members

By Chief Master Sgt. Penny Braverman
AFW Chief Enlisted Manager

Stop loss affects Air Force Weather members! Active duty members planning to retire or separate within the next year should watch the e-mail, message, and letter traffic about the Air Force Stop Loss program.

Details of the Stop Loss implementation are still being worked out, so definitive guidance is not yet available. Program application is driven by manning shortfalls; therefore it will vary by career field and grade. The latest information we received was that the program would work in 90-day windows, but may be extended throughout the next year. Anyone planning to retire or separate before October 2002, should keep plans flexible.

The Air Force Deputy Chief of Staff/Personnel asked Brig. Gen. David L. Johnson, Air Force director of weather, if the weather career field needed to participate in the Stop Loss program, and if so, to provide justification. After evaluating the manning shortfalls documented in monthly status of resource and training system reports, XOW decided to include weather in the program. AFW will remain under the program until manning and training levels significantly improve. Until then, the career field can't afford to lose any trained people.

The most current information on Stop Loss restrictions is available on the Air Force Personnel Center homepage at <http://www.afpc.randolph.af.mil/>. Military personnel flights are contacting members affected by Stop Loss to review options under the program. Waivers from the program may be available, but each waiver request will be evaluated on a case-by-case basis in accordance with Air Force guidance. XOW will justify the Stop Loss requirement at least quarterly to AFPC, and recommend that the weather career field be removed from the program when manning and training levels are at sustainable levels. We will keep MAJCOMs informed as changes occur.

Once again, the key is to stay informed and work with your local MPE. ♡

AFW historians earn two AF-level awards

By Tech. Sgt. Miles Brown
AFW Public Affairs

The Air Force Weather History office and the newly assigned AFW historian were both awarded the 2001 Air Force Heritage Award, presented Oct. 12 by Col. Bob Allen, Air Force Weather Agency commander, on behalf of the Air Force Historian, Dick Hallion, Ph.D.

The Air Force History office deemed only four projects worthy of awards in the Air Force Heritage competitive category for 2001, and AFW historians garnered two of the four.

The history office, which consisted of Lillian Nolan, John Murphy, and Loraine Becker during the award period, was awarded the prestigious Heritage Project award by virtue of their efforts to establish the Air Force Weather Heritage Center, dedicated in May 2000. The center has more than 60 years of AFW operational history on display and reflects the sweeping impact AFW has on the execution of the full spectrum of AF, Army, and DoD mission areas. This unique AFW Heritage Center is located at HQ AFWA, Offutt AFB, Neb.

"Our office worked on this project for more than a year from the planning stages to the ribbon cutting last year,"

said Becker, AFW historian assistant. "We prepare and display only a small portion of the more than 20,000 historical artifacts, documents, and photos we have in our archives."

"Their efforts in preserving and portraying the career field's integral role in the business of all of the Air Force Major Commands and across all AF functional mission areas, is exceptionally significant to the Air Force History Program," said Allen.

Al Moyers, the current AFW historian, received his award in the multiple project category for his work with the Air Force Communications Agency, Scott AFB, Ill. Moyers traveled with the AFCA display, maintained the agency's website, and routinely contributed to the agency's periodicals.

"The Air Force has a long and proud heritage," said Moyers, "and I enjoy documenting and displaying the objects, which tell the story of that heritage for current and future generations."

Each year, a panel of senior Air Force historians and museum professionals judge all entries, and only those projects that preserve and reflect the distinguished history of the Air Force and its airman receive recognition. ✧



Al Moyers and Loraine Becker, Air Force Weather history office, examine a theodolite on display in the AFW Heritage Center, Offutt AFB, Neb. This theodolite, a AERO-1928-USN vintage 1937, was used to track the position of weather balloons to calculate wind speeds and direction. Theodolites like this were used by AFW units as recently as the early 1990s to track balloons.

Photo by Tech. Sgt. Miles Brown

AFWA Meteograms - A three step approach

By Lt. Col. Beth McNulty
AFWA Deputy Chief of Training

Need a forecast for anyplace in the world in a clear, easy-to-read format? A meteogram might be just the ticket. In fact, meteograms are among the most popular products available over JAAWIN. In October, more than 22,000 meteograms were requested, or about one every two minutes for the entire month! Forecasters have noted that meteograms simplify model forecast output into an easy to use, versatile, and complete tool of applied meteorology.

Currently, the Air Force Weather Agency creates meteograms for more than 2,400 locations around the world. They are based on numerical weather forecast output from the MM5 and the National Centers for Environmental Prediction's Medium Range Forecast models. The MM5 meteograms are created for locations within 45 km windows, and 15 km windows, when applicable. MRI meteograms include standard and upper-air meteograms. By using the JAAWIN's Interactive Meteogram and Skew-T tool (IMaST), forecasters can build meteograms from the AVN, NOGAPS, and Eta models. IMaST, recently added to JAAWIN-S, allows you to pick the ICAO or latitude and longitude for a forecast location.

AFWA meteograms provide a time-series, direct visualization of forecast conditions for the model grid point closest to the desired site – *important to keep in mind*. With MM5 meteograms, there are a series of six graphs. The top graph provides winds, moisture, temperatures, and clouds from the surface to 100 millibars. Line graphs

of sea level pressure and 1000-500 millibar thickness are grouped followed by absolute humidity and lifted index.

The wind graph includes both standard wind barbs and a line graph for wind speed. The precipitation graph is color coded for precipitation type (rain, thunderstorms, severe thunderstorms, snow, sleet, and freezing rain), and the temperature graph includes dewpoint and heat stress/wind chill (when applicable). Each of these forecast graphs are valid at three-hour increments out to 72 hours, or 48 hours for MM5 15 km windows.

With IMaST, forecasters can tailor the guidance they use in forecast preparation to the exact location they require and the mission being supported by using interactive meteograms on JAAWIN. If the mission is Army support, there's a meteogram for that. If the mission involves electro-optic weapons, there's a meteogram to fit.

Meteograms are also available for different grid scales, routine weather, and severe weather. An upgraded IMaST (called IGrADS) will be introduced in the next three to six months and will provide a user-defined meteogram. This feature will allow you to design your meteogram with the parameters most important for the mission you support.

Using Meteograms

The time-series graphs visualize active weather and alert the forecaster to closely evaluate the model in terms of observed conditions for the area.

Time-series graphs are also valuable in areas with plenty of data or data-sparse locations, since the graphic display simultaneously shows several inter-related variables in a compact package. The forecaster can review model forecasts without using several cumbersome map overlays. The meteogram's versatility is limited only by the forecaster's creativity in applying the information.

Three Steps to Analyze Meteograms

Since meteograms are sectioned, forecasters may see only a fragmented view of the model grid point forecast if he or she only looks at the individual sections without considering the relationships among the sections. The following three-step analysis pattern is taken from AFWA/DNT application note FYI 46 describing how to make an orderly and progressive evaluation of a meteogram. This evaluation pattern reverses the usual forecast funnel.

Step One: Evaluate individual variables for trends – Determine which part of the variable graph reflects diurnal effects and which reflects changes due to the movement of weather systems past the point.

Step Two: Evaluate the "graph stack" – Look for relationships among the variables. Note how changes in one variable cause changes in another, or result from changes in a

See **Meteogram**, Page 11

AFW Colonel earns Aviation Safety Well Done Award

By Chief Master Sgt. Penny Braverman
AFW Chief Enlisted Manager

Maj. Gen. Timothy Peppe, Air Force Chief of Safety and Commander of the Air Force Safety Center, presented Col. Timothy Miner, Reserve Assistant to the Air Force Director of Weather, the Aviation Safety Well Done Award in September. The award honors the contributions of the Spring 2001 "Thunderstorms and Flying" Internet course developed by Miner under the umbrella of the National Weather Association, the professional organization of operational meteorology. This is one of the few times that a military member has earned the Aviation Safety Well-Done Award without being in a cockpit, said Miner.

"It is significant that Air Force Weather should be honored for one of its proactive efforts to increase safety. Every day, the men and women of AFW are increasing aviation safety through environmental awareness in peacetime along with exploiting the weather in wartime," said Miner.

The free six-lesson, internet course is an aviation-oriented program designed for pilots from the military, commercial, and general-aviation segments of flying, as well as aviation meteorologists, airline dispatchers, and air-traffic-control personnel. The program lessons focus on basic thunderstorm meteorology, aviation hazards of thunderstorms, sensing and



Photo courtesy of Chief Master Sgt. Penny Braverman

Col. Timothy Miner, Reserve Assistant to the Air Force Director of Weather, receives the Aviation Safety Well Done Award from Maj. Gen. Timothy Peppe, Air Force Chief of Safety and Commander of the Air Force Safety Center.

avoiding thunderstorms in the terminal area and while enroute, microburst and wind shear systems and capabilities, and lessons from aviation accidents. Registered students can e-mail questions to the staff which is comprised of people from different organizations. The comprehensive scope of the program created a unique resource that will remain on the NWA website at <http://www.nwas.org/>.

When presenting the award, General Peppe cited the wide use of the course by aviators all over the world. Since the start of the course in April, more than 2,500 students from 20 different countries on six continents formally enrolled. Military pilots enrolled from all the services' active duty and reserve components. Statistics show that many more used the site as a resource for learning, with over one-quarter of a million different users accessing the material.

One of the strengths of the effort was the collaborative environment that came from working within the National Weather Association. Miner was able to get many different organizations and

individuals to contribute material. This resulted in the extensive scope of the course.

According to Miner, it was important to reach out to other aviation weather organizations like the NWS's Aviation Weather Center the Allied Pilots Association, and the National Oceanic and Atmospheric Administration's Aviation Operations Center, because much of today's military aviation takes place in joint-use fields and in civilian-controlled airspace.

Air Force Weather can take great pride in garnering the Aviation Safety Well-Done Award. The award affirms the significance that weather plays in keeping aviators out of harm's way. ♪



Mildenhall weather flight clears skies

By Tech. Sgt. Tim Hoffman
100th Air Refueling Wing Public Affairs

Rain, rain and more rain. Some people may think it is a snap to predict the weather in England, but that is not the case.

"It's a real challenge to predict past 48 hours here," said Capt. Brian Pukall, 100th Operations Support Squadron weather flight commander. "There's just little information available from the time a weather system leaves the East Coast of the United States until it gets here."

With no direct observation, the forecasters have only satellite information to rely on, while in the meantime, weather systems change rapidly while crossing the Atlantic. This makes extended forecasting difficult.

Yet, the information the weather flight provides is critical for aircrews who fly in Europe and for missions to most parts of Africa.

"Wind, clouds, icing and turbulence can all play a role in a flying mission," Pukall said. "For the (KC-135 Stratotankers), we also look closely at the refueling tracks. Sometimes, the crew may decide to alter the place or the time they hit the tracks to avoid poor weather."

Air refueling tracks are located in designated airspace where tanker aircraft meet and refuel receiver aircraft. Sometimes, they are several hours flying time from their home station.

"What we do is give the crews information they need to minimize risks from all forms of weather phenomena," Pukall said. "In effect, we help them make better decisions when it comes to operational risk management."

The expertise of the 16-person flight is called upon every day around the clock, and it's not easy to come by because the career field is so technical.

"We are forecasters, observers, work-group managers, combat engineers and radar equipment troubleshooters," said Staff Sgt. Michael Louridas, training noncommissioned officer for the flight. "Most people don't realize there are 27 different types of clouds, let alone how to identify them and predict what effect they will have on the forecast."

Besides the 100th Air Refueling Wing, 95th Reconnaissance Squadron and Navy aircraft based here, the weather team also takes care of many transient aircraft.

"We give seven to 10 weather briefings a day, plus several updates," said Staff Sgt. Trevor Crane, a weather forecaster. "Many times, aircrews are only on the ground here for an hour or two, and they just need to reverify the weather information they received before they left their last airfield."

"There are eight regional operational weather squadrons who provide forecasts and consolidate information for their area of responsibility," Pukall said. "For Europe, it's located at Sembach AB, Germany. We talk to them several times a day to update each other's information. This constant interaction ensures our customers get the most up-to-date and accurate information we have." ♪

Meteogram, Continued from Page 9

third variable. Look for timing in the variable changes that indicate weather system passage.

Step Three: Evaluate the time-height chart – Determine what changes are occurring in the upper atmosphere. Look for elevated systems indicated by trends toward building ridges or digging troughs."

The meteogram is a very useful tool for the forecaster. The same point forecast can be built by overlaying several plan view charts of different variables. Model forecast soundings also depict conditions at a point. These valid and time-honored forecasting techniques are, however, cumbersome to use if the forecaster is facing a time-crunch, or very limited access to data.

A meteogram uses just one computer screen to display data and will help the forecaster time features crossing the

station. AFWA meteograms greatly increase the capability of the forecaster to review model forecast data and make a forecast for specific purposes such as combat operations, flight training, storm potential, resource protection, drop zones, and battlefield conditions – including smoke dispersal, and airfield operations.

Where to Find More Information

AFWA's Air and Space Directorate training division, responsible for training materials for all of AFW, published "FYI 46 – Analysis and Interpretation of Meteograms," which explains how to read and interpret the product, and includes training exercises to help forecasters master the meteogram. After learning how to use the meteogram, forecasters will be able to exploit this technology to its fullest, and therefore anticipate and exploit the weather to the fullest. ♪

A Different "Hunter" Covers Alaskan Skies

By Master Sgt. Elaine Mayo
403rd Wing Public Affairs

Natives refer to it as Alyeska, "The Great Land." With 3 million lakes, 3,000 rivers, 30,000 miles of coastline, 100,000 glaciers and 66 million acres of undisturbed land, the nation's 49th state certainly lives up to its name. But behind Alaska's majestic beauty lies a harsh, austere environment.

Winter temperatures often dip well below zero, and there are only four or five main roads that criss-cross the vast terrain. It takes a hearty soul to tackle these tough conditions.

Members of the 53rd Weather Reconnaissance Squadron at Keesler AFB, Miss., accepted the challenge earlier this year as they deployed to Alaska to gather weather data. From Jan. 12 to Feb. 10, the Hurricane Hunters flew winter storm missions out of Elmendorf AFB for the National Centers for Environmental Prediction.

NCEP, part of the National Oceanic and Atmospheric Administration's National Weather Service, is the starting point for nearly all weather forecasts in the United States. They provide timely, accurate and continually improving worldwide forecast guidance products.

This wasn't the first year that the Hurricane Hunters had traveled to Alaska to gather data used to build weather forecast models. The squadron rotates each year between there and Hawaii to fly the missions.

"The National Weather Service uses these models to do its day-to-day forecasting," said Maj. Jonathan Talbot, an aerial reconnaissance weather instructor. "The weather forecasts seen on television, for example, come from a set of computer-generated simulations of what's going to happen over the next four to five days."

These simulations rely on what forecasters refer to

as initialization data.

"All over the world, weather balloons are launched at the same time to get profiles of the atmosphere. That's what forecasters call initialization data," Talbot said. "But, the models are only as good as the data. In the area over the Pacific Ocean, forecasters often guess at what's out there because there are no weather balloons. They use sensors on satellites, but the sensors are not as accurate as weather instruments. So, when big weather systems are in the area, they have to guess. That's why we (Hurricane Hunters) were up there in Alaska, to gather more accurate information."

Maj. Wesley Ardt, a staff planner and navigator with the 53rd WRS, agrees.

"The weather data is very sparse," he said. "We're the ideal platform to go out and get that data."

During their deployment to Alaska, a representative at the National Hurricane Center in Miami served as a liaison between the Hurricane Hunters and the NCEP, providing the 53rd with mission data and what tracks to fly.

"The NCEP determines which track to fly by running special computer models and looking at where the models differ," Talbot said. "This gives them an area in the Pacific where there is the most uncertainty in the data. If you collect data in that area, it takes out the uncertainty. Then the NCEP finds a track that will get us closest to that area of uncertainty."

On their first mission, the Hurricane Hunters flew a

necktie-shaped track off the southern coast of Alaska. In a typical mission, the crew drops eight to 25 dropsondes to collect the necessary data. For the necktie track, they dropped 22 dropsondes, each at a different altitude.

"The higher we fly, the more vertical space data we gather," Ardt said.

Equipped with a parachute, a dropsonde senses weather data during its descent to the ocean's surface and radios it back to the plane. Shaped like a cylinder, it works the same as a weather balloon, except its goes down instead of up. As a dropsonde falls, it measures temperature, pressure, humidity, and wind speed and direction. If dropped from an altitude of 30,000 feet, it takes about 10 minutes for a dropsonde to hit the water's surface.

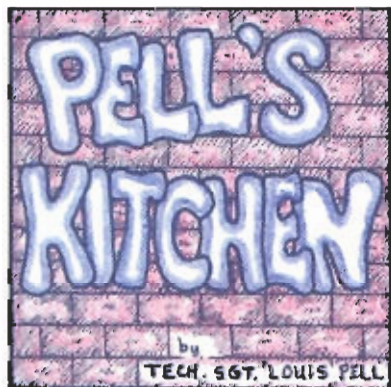
Once he receives all of the data, the dropsonde operator checks it and sends it via satellite link to the National Hurricane Center where it's processed and disseminated to the NCEP.

NOAA also flies winter storm missions. While the Hurricane Hunters were in Alaska, NOAA was in Hawaii flying similar tracks and providing data to the NCEP.

"We cover one-half of the ocean, and they cover the other half, so a lot of data is going into the same database," Talbot said.

Over the years, NCEP has found that the data collected by the 53rd improves the accuracy of computer forecasts for the entire country by about 40 percent to 50 percent, Talbot said. Therefore, the information benefits more than just the people living in Alaska.

Being able to more accurately predict the weather helps cities, states and emergency management agencies across the country better prepare for upcoming storms, potentially saving lives and millions of dollars in property. The Hurricane Hunters take that challenge very serious. That's why they are out there year after year, flying over the vast Pacific Ocean and Alaska – it saves lives! ♪



Blizzard out of the Blue

By Maj. Randall Bass
28th OSS/OSW Weather Flight Commander

It's a balmy April day at the base. The temperature is 72 F with a 15 knot wind from the Southeast. The golf course is full of people playing hooky from work, and kids have shorts on and are playing outside after school. Neighbors in the housing area are outside working on their lawns, and everyone has a big smile on their face as they enjoy one of the first warm days after a long winter. However, the personnel at the base weather station aren't out enjoying the day.

They're busy gearing up for a major winter storm. Two days later, the base is hit with 19 inches of snow, accompanied by 60-knot winds. While substantial damage to trees and power lines occurred throughout the area, the base sustained almost no damage due to the heads up provided by the weather station and precautions taken by the base. Sound far fetched? Not if you're assigned to Ellsworth AFB, S.D.

The above situation actually occurred 19 April, 2000, and similar events happen several times a year in South Dakota. For the men and women of the 28th Operations Support Squadron Weather Flight, it's a chance to put our skills to the test in providing resource protection for more than \$15 billion in base assets.

Forecasting major winter storms is a big challenge for any forecaster assigned to a northern tier base. The onset, duration, and intensity of the storm are just a few of the factors that must be forecasted. Various agencies on base want to know different things. The Operations Group commander wants to know the latest time he can recover aircraft, and if icing will be a factor before the onset of the storm – a critical parameter for the B-1 aircraft assigned to the base. Snow operators want to know when it will start, when it will end, and what the wind speeds will be. And almost everyone wants to know whether it will be

rain, snow, freezing rain, and, of course, “how much will we get?”

The preparation and forecasting for winter storms actually begins months before the event. How do you do that? Training. Personnel stationed here long before any of the current forecasters did an excellent job of putting together a Terminal Forecast Reference notebook. By learning what different weather regimes typically cause for the base, even junior forecasters have a pretty good idea of what to expect.

For Ellsworth, the most likely scenario for major winter storms is a Colorado Low that moves across Kansas and Nebraska, crossing between Omaha and Kansas City. At Ellsworth, back office personnel look 3-10 days out for signs of an impending event. The Medium Range Forecast (MRF) model is typically used. Is it perfect? No. But it's usually pretty good at predicting major



Snow removal after the 19 April blizzard that hit Ellsworth AFB, S.D.

changes, such as a significant warm-up followed by a substantial cold front. By the 60 to 72 hour point, other weather models are examined for indicators. The MM5 and ETA models are typically the models of choice.

At this time, the shift forecasters are briefed to be on the alert. Twenty-four to thirty-six hours before onset, collaboration with the 15th Operational Weather Squadron forecasters begins.

A good working relationship with the hub is essential. They'll handle the TAF and issue appropriate watches and warnings. The CWT's job is to pass on tips from experience and provide local guidance. Furthermore, the CWT will begin notifying base personnel of the impending storm. Advance notice is critical. The base senior staff need as much warning as possible to determine whether and when to close the base, cancel flights, and put additional personnel on standby

for snow removal, medical care, security, and feeding of personnel. Additionally, housing residents want to get to the commissary and stock up on supplies. If the first notice of a major storm is when the OWS forecaster puts it into the collaboration TAF, it's usually too late.

Once the watch is issued, the next step is to increase monitoring of the storm's movement. A 30-40 mile difference north or south in the track of a low can make the difference between a cold rain and brisk winds, severe cold with little snow, or an all-out blizzard.

This is another area where the TFRN comes in handy. The Black Hills are a major influence on the weather at Ellsworth, and the TFRN provides important information on how the topography in the region influences storm tracks and effects. The work schedule is adjusted, the Severe Weather Action Team (it's not just for

thunderstorms) is activated, and additional personnel are brought in. It's not uncommon to get stuck at the station for 24-36 hours, so two to four forecasters may be scheduled together. The weather station also has a working relationship with base transportation, who frequently pick up and transport forecasters to and from work via Snow Cats.

Assuming the station has a good handle on the storm, warnings are issued at least 3-6 hours before the onset. Even then, the job isn't done. As the storm progresses, observations are constantly taken. Visibilities can be reduced to zero as 40-knot sustained winds gust to 60 knots. Thunder crashes overhead as lightning further brightens already whiteout conditions. Wind chills drop below zero, frequently 30 to 40 degrees below zero. Have you ever tried to measure snow during a blizzard? The snow board is clear, but drifts are six to eight feet high. The rain gauge is good, if you can find it. Of course, that assumes you can even get out of the door, since the snow has piled up in front of it and it's frozen shut. Inside the weather station, forecasters continue to talk with the OWS and the local National Weather Service, as well as provide information to base customers about when the storm will end.

As the snow ends, the winds die down, and the clouds break, the base comes out of its shell and begins the task of getting back to normal. How did we do on the April storm? Our forecast was for 12-14 inches of snow, with wind gusts to 60 knots. We were 6 inches low on our snow, missed the winds by 1 knot, and had a timing error of 4 hours on our watch issued 24 hours earlier (it hit even earlier than we predicted). In contrast, the local TV weatherman said 1-2 inches of snow that afternoon, once it finally changed over from the rain. He never mentioned wind. The NWS went 8-10 inches of snow beginning late morning, with gusty winds at 25 to 35 knots.

The best critique came from the 28 BW Operations Group Commander, Colonel David McFaddin: "It is routine for the pros in our weather shop to alert us to impending severe weather when no one else sees it coming. These folks are indeed the "best of the best" at the top of their game." How do the CWT forecasters feel about the job they have done? Staff Sergeant Mark Cornell sums it up this way: "Few rewards can compete really. You know you just saved the taxpayer a great deal of money when everyone's notified and able to act in advance, and best of all, you may have just saved a life."

While we couldn't change the weather, the skillful forecasting and advance notice from the CWT and the OWS minimized the damage and impacts of this winter storm. ♡



Observing System 21st Century: Automated observing for Combat Weather Teams

OS-21 equipment, scheduled for delivery to Combat Weather Teams this spring, incorporates the latest weather observing technology and automates much of the observing work – but won't eliminate the continued need for Air Force Weather professionals

By Chief Master Sgt. Paul Leidig
AFW Career Field Manager

The 21st century has arrived with technology that automatically takes, records, and disseminates surface observations. In the next few months, Air Force Weather will begin fielding the Observing System-21st Century, OS-21, equipment to Combat Weather Teams throughout the world.

This automated observing equipment will streamline and simplify the observation process, but it won't relieve the weather personnel from all observing responsibilities. CWT members will still be responsible for verifying and reporting the weather observation; however, the enlisted/officer's role in the reengineered CWT environment and how they use automated observing technology will change the nature of AFW at the base level.

Combat Weather Team manpower requirements have decreased with the realization of reengineering. The organization structure has flattened by one flight management position and several enlisted manning positions to support local customer requirements. Manpower savings are realized by leveraging Operational Weather Squadron products and services to support the local customers. OWS support has decreased the

CWT workload to the extent that most units require only one officer or enlisted weather person per shift to supply the local weather support.

This weather professional is like the *quarterback* of a football team. The quarterback is responsible for airfield weather observations, developing mission execution forecasts, briefing local aircrews, answering phone calls, and interacting with the serving OWS to ensure timely and accurate weather support. This is a lot for the quarterback to handle!

The manpower equation considers all these duties and allows for one and a half people per shift. The extra half person is there to help out during the tough times – in the morning, when local flying surges; during severe weather when the phones start ringing off the hook; and when fog and stratus is taking the ceiling and visibility through special observation thresholds every 10 minutes.


It will be important to have a strong stand-by program and utilize this person effectively. Bottom line, the quarterback is very busy during bad weather and less busy during a clear summer day with light flying operations.

The quarterback is responsible to ensure an accurate observation is taken, recorded and disseminated in a timely manner. The system has the capability to observe all the required

elements, but these readings must be verified by the local weather specialist in accordance with Air Force Manual 15-135, Combat Weather Team Operations, to ensure accuracy. This requirement may change when automated systems establish an accurate track record.

On a nice summer afternoon, this process only requires the quarterback to walk outside, check the ceiling and visibility, verify the observations with the terminal display, and strike a key to transmit the observation. During periods of rapidly changing weather conditions, the weather professional will need to devote more attention to the observing function. This is where the stand-by person comes in handy. Ceilings levels may rapidly decrease, precipitation types may change without warning, winds will gust and atmospheric pressure can fluctuate. The quarterback must verify all the data before transmitting the local conditions to the OWS. During these periods, the CWT members must work together as a team to ensure all mission requirements are met.

Combat Weather Teams should welcome OS-21 with open arms. The system incorporates the latest weather observing technology to assist AFW professionals to be as efficient as possible. The CWTs should reorganize their structure now and replace the legacy observer/forecaster structure with a quarterback position to ensure a successful transition to the OS-21 system.

By maximizing OWS products and services and utilizing OS-21 technology, CWTs have the tools they need to help Air Force Weather *Anticipate and Exploit the Weather for Battle!* 

Helping Combat Weather Teams “Anticipate/Exploit Weather for Battle”

The Tactical Meteorological Observing System, TMQ-53, paves the way for weather warriors deployed anywhere

By Ed Robinson
AFWA Contractor

It's a fact – Air Force Weather units must be ready to deploy anywhere in the world at a moment's notice. At no time in recent history has this been truer than now. To help combat weather teams meet this challenge, the Air Force Weather Agency is fielding a new Tactical Meteorological Observing System, the TMQ-53. TMOS truly is the tactical observing system of the 21st Century.

The TMQ-53 replaces our aging tactical observing systems with a fully automatic suite of integrated weather observing sensors that can be set up and operational in less than an hour. Soon, units identified in the Air Staff's tactical fielding strategy will be equipped with this latest technology. In short, TMOS meets the needs of today's highly mobile forces by providing deployed CWTs with all the observing capability found in-garrison.

Deployed CWTs have relied on a mix of tactical sensors to support the customer for a long time. The GMQ-33, TMQ-34, and TMQ-36, coupled with the Manual Observing System Kit, have met the tactical needs of the weather community since the early 1970s. When first fielded, they represented the cutting edge of observing technology, but have always fallen short of providing ultimate capability and flexibility to the warfighter.

“Our inventory of tactical weather sensors is old and becoming increasingly unsupportable. It was clear AFW needed new tactical capability. The TMQ-53 provides that capability,” said Maj. Jim Mitchell, chief, Field Programs Division, HQ AFWA.

The TMOS is a commercial, off-the-shelf product that has all the weather observing capability found in a typical base weather station environment, excluding runway visual range. Specifically, the TMOS observes and reports surface wind direction and speed (including gusts), temperature, dewpoint, relative humidity, surface pressure, and precipitation (liquid, freezing, frozen). Additionally, the system can measure cloud heights from the surface to 25,000 feet, cloud amounts up to five layers, and lightning detection

(cloud to cloud, cloud to ground, and in cloud) out to 25 nautical miles.

A hand-held display module comes with each system that allows operators to initialize the system and provides a readout of all sensor information at the site. The entire system weighs just 216 lbs. and takes up less than one-eighth of a standard aircraft pallet. It can operate on DC, AC (110/220V), solar power or generator power provides maximum flexibility.

Another example of its flexibility lies in its design. The TMOS is a modular system. Operators can use as many or as few sensors as they require. The system's modularity also makes maintenance a snap – literally. One of the primary reasons a new tactical observing capability was so desperately needed was the continued unsustainable nature of legacy tactical equipment. The TMQ-53 solves this problem. Each system has a two-year warranty. Additionally, the TMOS modular design allows units to isolate problems to the modular sensor and replace that sensor. Units also have 24-hour access to support through the AFWA Consolidated Help Desk.

The brain of the system is a sophisticated software suite called MIDAS IV. MIDAS IV operates in a Windows NT environment and can reside on a unit's tactical N-TFS platform. The graphical user interface-based software is intuitive and flexible. It provides instantaneous graphical and numerical displays of all observed data and a 30-day archive. The unique-event monitor can be programmed to notify operators of the occurrence of user-defined weather events while monitoring system performance and sensor alarms. Another distinctive feature of the MIDAS IV is its ability to automatically generate METAR and SPECI observations. Operators can edit formatted observations prior to dissemination or simply let the system transmit them to the AWN, an OWS, or any other user-specified recipient.

Perhaps the most useful and unique feature of the TMQ-53 is its communications flexibility. It is fully Internet and NIPRNET ready. It comes with 225 feet of hardware and a pair of RF modems capable of transmitting up to five nautical miles (line of sight). As if that wasn't enough, a SATCOM solution is in the works and will be available in the near future. The TMOS represents a quantum leap forward in deployed observing.

See **TMQ-53**, next Page

"The TMQ-53 is one of AFWA's biggest successes because the men and women involved with delivering this system to the field put their all into it. From testing to training, everything was given exceptional care and attention," said Maj. Fred Williams, chief, Technology Branch, Air Force Combat Weather Center, Hurlburt Field, Fla.

So, how good is it? Although AFWA conducted extensive tests of the system to ensure it was the right system for our customers, nothing beats real-world feedback. Master Sgt. Rudy Tingelhoff, NCOIC, Combat Weather Operations, 25 OWS, Davis-Monthan AFB, Ariz., and his team took the TMOS out for a real world deployment to Columbia.

"The handheld display was easy to program and worked flawlessly, as did the MIDAS IV software. The sensor integration is outstanding," said Tingelhoff.

Early in the development of the program, AFWA made it a priority to ensure operators were given thorough

training so they could immediately maximize the benefits of the system. Working closely with AFCWC, a comprehensive training approach was crafted, resulting in Mobile Training Teams traveling to each overseas MAJCOM to provide just-in-time TMOS training. CONUS-based units sent people to Nellis AFB, Nev., to be trained by MTTs, staffed with certified trainers from the Weather Systems Support Cadre East at Robins AFB, Ga., and the WSSC West at Tinker AFB, Okla. This approach not only provided units with the training they needed to utilize their systems right away, it saved AFW hundreds of thousands of dollars versus the traditional MTT approach. Computer-based training completes the training picture by providing a comprehensive tool for follow-on training at the unit level.

The comprehensive test, evaluation, and deployment of this new TMOS ensures ease of operation and flexibility, while providing extreme reliability. From maintenance, to training, to sustainment, the TMQ-53 is the right tactical observing system for AFW now, and for the future. ♣



Photo by Staff Sgt. Arlo Taylor

Lending an old-fashion hand

Staff Sgt. Jacqueline Wood (right), Air Force Weather Agency, helps to assemble final food boxes with other volunteers from Air Force Sergeants Association Chapter 984, Offutt AFB, Neb. The chapter members collected food and distributed food boxes to Air Force families just before Thanksgiving. "The 50 volunteers put 279 food boxes together, each containing a turkey, potatoes, canned goods and bread," said Chief Master Sgt. Chris Flores, AFWA/SC Chief Enlisted Advisor and Chapter 984 president. "Our goal was to supply a complete Thanksgiving meal to military families that may have needed a little help during the holidays."

Several other AFWA members did most of the administrative work for the food drive, working with base first sergeants to make sure the food made it to the right families in time for the holiday.

Editor's Note

The Joint Typhoon Warning Center article in the Jul/Aug 2001 issue of the Observer describes the events surrounding Typhoon Cobra's devastating effects on Admiral Halsey's Task Force 38 in 1944.

This version of history is not the only rendition. Capt. (Navy ret.) Raymond Calhoun writes a different version of the events leading to this storm in a book titled: *Typhoon: The Other Enemy*. The book was published by the Naval Institute Press, ISBN No. 0-8702151-0-8, and is part of the Air Force Weather Professional Reading List.

Look for more interesting accounts of AFW events in the publications from the professional reading list, found on page 8 of the Jul/Aug 01 issue of the Observer.

Chief Justice recalls early weather days

By Stephanie Kenitzer
AMS Public Information Officer

Supreme Court Chief Justice William H. Rehnquist was first introduced to meteorology in the United States Army Air Force in 1943. Although he has not practiced in the field in more than 50 years, he recently entertained more than 100 attendees at the AMS Washington, D.C., meeting with his tales of weather observing during World War II.

Rehnquist started his meteorological career as a young student at Kenyon College in the fall of 1942. "College advisors urged students to enlist in some sort of military program which would allow students to continue their college education for a while," said the Chief Justice during the dinner presentation 23 Oct. Rehnquist signed up for a pre-meteorology program — an accelerated course in math and physics that was given at various small colleges across the country.

He was called up in March 1943, at a time when U.S. troops, which had landed in North Africa in November 1942, were about to drive the German troops out of North Africa. After some initial schooling in meteorology, Rehnquist transferred to Will Rogers Field in Oklahoma City, where he received on-the-job training as a weather observer. There he learned to plot synoptic maps from teletype reports, make hourly teletype reports of the weather at his station, and launch weather balloons to plot winds aloft.

Rehnquist's next duty station was Carlsbad, New Mexico. His most memorable experience there was a mistaken forecast given to the base commander. The commander wanted to fly a small plane from Carlsbad to



Kirtland Field in Albuquerque, and stopped in the weather office to get a forecast. "He was told that though there would be some squall lines in the area, he would be able to fly around them. Unfortunately, the squall lines were far more extensive and intense than we thought,

and he was forced to land his plane at a tiny auxiliary airport about 40 miles away from Albuquerque. The weather office at the base was in the doghouse for some time," said Rehnquist.

He was sent overseas as a weather observer in the summer of 1945, starting his tour of duty in Egypt, then on to Tripoli, Tunis, and finally ending up in Casablanca in December of that year. He returned to New York in mid-1946. Although the Chief Justice and many other weather observers were not recognized with many military honors, "the role of the meteorologist was critical during many occasions throughout the war, especially D-Day," said Rehnquist.

Even Eisenhower noted that the weather observations and forecasts were critical to the Allies' success in June of 1944, added Rehnquist, citing the General's diary entry for 3 June 1944. Eisenhower's order to land on the beaches of Normandy came after ongoing consultations with the Air Force Chief Meteorologist.

Even now, nearly 60 years later, Rehnquist continues to be fascinated by the weather. Experiments with cloud seeding and other advances in the field, added the Chief Justice, ensure that "the weather retains its interest for us all, just because it is often unpredictable in spite of the best efforts of the meteorologists." ♪

Wind Chill, Continued from Page 3

The new index also identifies wind chill temperatures that might produce frostbite on exposed skin in fifteen minutes or less.

Wind chill is a condition that relates the rate of heat loss from humans under windy conditions to an equivalent air temperature for calm conditions. A person is cooled at a faster rate under windy conditions than under calm conditions, given

equal air temperatures. The effects of the wind are most pronounced as winds increase to 50 mph.

The research conducted in the development of the new index was based on a heat transfer theory and validated on human subjects. The previous wind chill temperature index was developed in 1941 and used water-filled containers to measure cooling rates. Cylinders of water freeze faster than flesh, so the old index underestimated the time to

freezing and overestimated the chilling effect of wind.

More changes to the wind chill temperature index are expected by next winter. Researchers are working on developing an equation that takes into account solar radiation effects, or the sun's impact on the skin.

"The new wind chill index is a direct improvement to human safety and that's a priority in our job," said Brig. Gen. David L. Johnson, Air Force director of weather. ♪

can sidetrack the best of intentions, and waiting until your year of eligibility means you will be less competitive for earlier career milestones where the total officer package will also be evaluated. For example, an O-4 waiting until the year before primary zone for promotion to complete Air Command and Staff College, will find that his peers meeting squadron command boards will rate higher in the pecking order, everything else the same. This is a fact of life.

Technical Competency

Be an expert in your job. For company grade officers, this responsibility means focusing on acquiring depth of experience early through assignments "core" to your profession.

I strongly recommend that every officer join and participate in a "trade" organization relevant to their career field. The National Weather Association or American Meteorological Society are great organizations for weather officers, and the Armed Forces Communications Electronic Association works well for communication officers. They provide an excellent avenue to maintain your technical currency and are part of your professional "baggage."

Attain an Advanced Academic Degree and if possible, do it in your career field. Finishing your degree as a Captain is most times best. Trying to pack an AAD and PME between the Major and Lieutenant Colonel promotion boards is a challenge.

If you are fortunate enough to get an Air Force Institute of Technology assignment, COMPLETE IT WHILE YOU'RE IN SCHOOL! A training report in your record that says the

member failed to complete a degree program speaks volumes to a promotion board.

Assignments

Build depth in your career field early, breadth later in your career. There are lots of special assignments – some are directed, some are opportunities that come along. Avoid stringing several of these together, however. If you get out of the mainstream, it becomes difficult for a promotion board to figure out what you're really doing from a career perspective and for the board to understand your career progression.

Avoid homesteading! Six years on station, even with progression in job titles, will tend to make you less competitive...there are always exceptions, but on balance, it's a detractor.

Avoid multiple returns to Field Operating Agencies – HQ or subordinate units. Two tours between grades O-1 and O-5 are OK if they're well spaced, but I would avoid two FOA assignments with just a tour in-between. Make sure you're looking for jobs that show progression and the grade is right for the job.

In general, being a flight commander as a Major is not viewed as the right level job for a field grader. Again, there are exceptions, but make sure the rationale is clear and it's the right path.

Promotion Boards

So how does a promotion board view your portfolio? Diversity in assignments without creating a path that's clearly off the beaten track. Clear mission relevance, and progression in jobs. Does it look like the assignment trail is more focused on homesteading vice learning the Air Force? Advanced academic degree completed for Lieutenant Colonel

Board. Degrees are masked at the Majors' Board...but AFIT training reports are not removed! Appropriate PME completed for rank.

If PME was attended in residence, are there discriminators – DCI, outstanding in academics or some other portion of the curriculum? At the right point in the career, does the rater recommend for squadron command, typically Major and Lieutenant Colonel, and in-residence PME? Are there other discriminators such as unit, and more importantly, individual awards? Tiering remarks? Not everybody will have them and supervisors should ensure they don't create unrealistic expectations.

Seldom will any single event in a career be the sole factor in determining promotion – but the lack of any one may sure spell a no-promote. You've got to ensure you maintain the competitive edge. Your most important job is the one you have right now.

There is not a single path to a successful career. That's fortunate, because it ensures we have the opportunity for diversity in our careers. But don't stagnate and don't let your career track become too narrow. Balance diversity and have a clear focus on Air Force mission-impact opportunities, and take care of your personal and professional growth.

Finally, you are in control of your fate – and your records! Review them at least annually, and make a trip to Air Force Personnel Center, permissive TDY is allowed, if you're really concerned about your records. You can also submit a fax request for your Officer Selection Record to AFPC/DTB-BRI at DSN 665-2421, or call them at DSN 665-2371.

Getting nicked because your portfolio documentation wasn't accurate is unconscionable – and nobody knows when something is missing better than you! 🦋



Tech. Sgt. Troy Rames

AFCCC, AFWA, Asheville, N.C.

Operational Climatology Analyst

Years in service: 14

Hometown: Sioux Falls, S.D.

Role model / why? My parents. They always set a good example for me and my two older brothers. They worked hard and always made sure that they had time for us boys and the things in life that we needed, but that didn't mean spoiling us.

Hobbies: hunting, biking, and hiking

Most memorable AFW experience: We were notified at 0830 hrs that I needed to produce percent frequency of occurrences of strong winds and tail wind data for six headings approaching/departing Reagan International Airport, which was then closed due to the terrorist attacks on 11 Sep. The data needed to be to the Pentagon by 1000 hrs that morning for an Air Force XOW briefing to the AF/XO – it was

delivered in time. The information was later passed on to the Air Force Chief of Staff and was used in deliberations at the SECDEF and Presidential levels to help determine if new aircraft traffic patterns could be established to safely reopen the airport. It was very rewarding to know my product played a role in such an important decision made at the highest levels of our government.

WEATHER WARRIORS

Tech. Sgt. Daniel Oien III

45th WS, Patrick AFB, Fla.

Weather Team Chief

Years in service: 14

Hometown: Savannah, Ga.

Role model / Why? Master Sgt. James Moffitt. He is by far one of the best leaders I have had the privilege to work alongside and is the model for Air Force Core Values in action.

Hobbies: Golf, fishing and softball

Motto: Work Hard and Play Hard

Reason joined the Air Force: To serve my country.

Most memorable AFW experience: Serving as Weather Officer for both the Space Shuttle Atlantis and Space Shuttle Endeavor cross-continental Ferry Flights. Escorting the space shuttle from Edwards AFB to Kennedy Space Center gave me first-hand experience of the importance weather personnel play in ensuring unlimited access to space. I found it to be extremely challenging and rewarding.



Reserve program questions answered by XOW Staff

Recently, the staff has seen increased interest in the Reserve programs. Col. Tim Miner, Reserve assistant to Brig. Gen. David L. Johnson, Air Force director of weather, has put together some answers for questions received since the program started.

Q. Reserve Retirement Eligibility: Do retirees who opt to join the Air Force Reserve have to meet the requirement of the last 6 years of reserve affiliation in order to qualify for reserve retirement?

A. Air Force retirees who opt to join the Air Force Reserve do not have to meet the requirement of the last 6 or 8 years of reserve affiliation in order to qualify for reserve retirement. Title 10 USC, Section 12741, specifically excludes that requirement. High Year Tenure Rule of 33 years total active federal military service applies. All individual cases will be reviewed by an Air Force reserve recruiter for actual eligibility criteria.

Q. Will active duty retirees be eligible for Montgomery GI Bill Selective Reserve benefits and/or lose their active duty MGIB benefits upon entering the Reserves?

A. If AD retirees are eligible for AD MGIB, they will most likely be eligible for MGIB SR. A reservist would have to be able to commit to 6 years as a reservist to be eligible for MGIB SR. If the member has not used the 36 months of AD MGIB benefits, they will not lose those benefits when they become reservists. However, if the member is eligible for MGIB SR they can only receive/use 12 months of MGIB SR after they have used their 36 months of AD MGIB.

Q. Benefits: How will the drill weekend effect medical and dental entitlements of retirees?

A. Members will still retain retiree medical and dental benefits. (HQ USAF/REP)

Q. Pay: If an E-7 wants to come in and there is no available E-7 position, and the individual has to take off two stripes, what is the 1/30th going to be from their retirement pay, E-7 or E-5?

A. We are not encouraging members to take off stripes to re-enter the reserve. If that unit has a grade lower than the member's current grade, we would encourage an overgrade under the normal rules and boundaries of overgrading. (REP) If the member takes off a stripe, the 1/30th would come from his retirement grade. He would get paid as a reservist in whatever grade he is for reserve duty. A retiree will lose 1/30th of their retirement pay for each reserve day worked. If a member is paid for a drill weekend (two days), we would withhold 2 days of retired pay. For example, if retired pay for one month is \$1500, we would withhold \$100. ($\$1500 \div 30 = \$50.00 \times 2 \text{ days} = \100)

Q. What documents and items would Air Component retirees need to begin processing to the Reserves?

A. The following items will be required for all Reserve applicants:

- *Fully qualified in the AFSC required - cross training may be authorized, if in the best interest of the Reserve
- *Physically qualified
- *Meet current Air Force Reserve HYT/MSD rules
- *Active duty members with an approved projected retirement date are eligible
- *AF Form 1288
- *Copy of retirement order
- *AFSC qualification statement
- *Copy of last three performance reports
- *Copy of DD Form 214
- *Any other documents deemed necessary by the recruiter

*AT A MINIMUM, the normal Air Force Reserve accession application process will apply. Please see your Air Force Reserve Recruiter for further guidance.

If you're interested in renewing your career and learning more about the benefits of "rejoining", please call the Recruiting Opportunity Center at 800-295-4648. Leave a message with a daytime phone, and a recruiter will return your call.

SALUTES

Retirements

Lt. Col. Edwin Arrance, HQ AFWA, Offutt AFB, Neb.
Maj. James Kratzer, OL-B, AFCWC, White Sands Missile Range, N.M.
Master Sgt. Patrick Aldrich, 17th OWS, Hickam AFB, Hawaii
Master Sgt. Wendy Chesters, HQ AFWA, Offutt AFB, Neb.
Master Sgt. Christopher Imhof, HQ AFWA, Offutt AFB, Neb.
Master Sgt. Danny Leaphart, HQ AFWA, Offutt AFB, Neb.
Master Sgt. Mark Partridge, HQ AFWA, Offutt AFB, Neb.
Master Sgt. Timothy Scheidt, 92nd OSS/OSW, Fairchild AFB, Wash.
Master Sgt. Thomas Vangrinsven, HQ AFWA, Offutt AFB, Neb.
Master Sgt. Jay Welshonse, HQ AFWA, Offutt AFB, Neb.
Tech. Sgt. David Bigelow, HQ AFWA, Offutt AFB, Neb.
Tech. Sgt. Patricia Mumford, HQ AFWA, Offutt AFB, Neb.
Tech. Sgt. Joseph Pestana IV, 57th OSS/OSW, Nellis AFB, Nev.

Awards and Decorations

DEFENSE MERITORIOUS SERVICE MEDAL

Lt. Col. Mark Zettlemoyer, 17th OWS, Hickam AFB, Hawaii

MERITORIOUS SERVICE MEDAL

Lt. Col. Edwin Arrance, HQ AFWA, Offutt AFB, Neb.
Lt. Col. Michael Hemler, AFCWC, AFWA, Hurlburt Field, Fla. (3rd OLC)
Lt. Col. Loraine Pope, HQ AMC/DOW, Scott AFB, Ill. (2nd OLC)
Maj. Michael Adams, OII-II, AFWA, Hanscom AFB, Mass.
Maj. James Kratzer, OL-B, AFCWC, White Sands Missile Range, N.M.
Maj. Charles Harris, Det. 11, 7th WS, Heidelberg, Germany

Senior Master Sgt. Lloyd Johnson Jr., 2nd WF, Ft. McPherson, Ga.
Master Sgt. Louis Canjar Jr., HQ AFWA, Offutt AFB, Neb.
Master Sgt. Wendy Chesters, HQ AFWA, Offutt AFB, Neb.
Master Sgt. Charles Elford, HQ AFWA, Offutt AFB, Neb.
Master Sgt. Olivia Hawkins, HQ AFWA, Offutt AFB, Neb.
Master Sgt. Christopher Imhof, HQ AFWA, Offutt AFB, Neb.
Master Sgt. Duane Limberg, HQ AFWA, Offutt AFB, Neb.
Master Sgt. Mark Partridge, HQ AFWA, Offutt AFB, Neb.
Master Sgt. Timothy Scheidt, 92nd OSS/OSW, Fairchild AFB, Wash. (1st OLC)
Master Sgt. Jay Welshonse, HQ AFWA, Offutt AFB, Neb.
Tech. Sgt. Miles Brown, HQ AFWA, Offutt AFB, Neb.
Tech. Sgt. Craig Kirwin, 51th OSS/OSW, Osan AB, Korea

JOINT SERVICE COMMENDATION MEDAL

Capt. Jim Parsons, 57th OSS/OSW, Nellis AFB, Nev.
Capt. Donald Schiber, 17th OWS, Hickam AFB, Hawaii
Master Sgt. Jim Herron, 17th OWS, Hickam AFB, Hawaii
Tech. Sgt. William McMurtry, AFCWC, AFWA, Hurlburt Field, Fla.
Staff Sgt. Ralph Parker, 17th OWS, Hickam AFB, Hawaii

AIR FORCE COMMENDATION MEDAL

Maj. Angela Tady, Det. 7, AFWA, Tinker AFB, Okla.
Capt. Christopher Smithro, 55th SWXS, AFWA, Schriever, Colo.
Tech. Sgt. William Anders, Det. 5, 55th SWXS, AFWA, Palehua, Hawaii
Tech. Sgt. Thomas Beck, HQ AFWA, Offutt AFB, Neb.
Tech. Sgt. Randall Bennett, HQ AFWA, Offutt AFB, Neb.
Tech. Sgt. Lawrence Fiala, HQ AFWA, Offutt AFB, Neb.
Tech. Sgt. Joseph Pestana IV, 57th OSS/OSW, Nellis AFB, Nev.
Tech. Sgt. Frederick Reynolds, OH-H, AFWA, Hanscom AFB, Mass.

Staff Sgt. Richelle Greer, 57th OSS/OSW, Nellis AFB, Nev.

Staff Sgt. Barry Gregory, HQ AFWA, Offutt AFB, Neb.

Staff Sgt. Patrick Walker, HQ AFWA, Offutt AFB, Neb.

Senior Airman Amy Harmon, HQ AFWA, Offutt AFB, Neb.

Senior Airman Gwendolyn Smith, HQ AFWA, Offutt AFB, Neb.

Senior Airman Kristen Tombs, HQ AFWA, Offutt AFB, Neb.

ARMY COMMENDATION MEDAL

Staff Sgt. Suzanne Miller, Det. 9, 7th WS, Hohenfels, Germany

Staff Sgt. Troy Walker, Det. 12, 7th WS, Vicenza AB, Italy

JOINT SERVICE ACHIEVEMENT MEDAL

Capt. Brian Belson, 17th OWS, Hickam AFB, Hawaii

AIR FORCE ACHIEVEMENT MEDAL

1st Lt. Joel Fenlason, 3rd ASOS/WE, Ft. Wainwright, Alaska

1st Lt. Jerome Hernandez, 57th OSS/OSW, Nellis AFB, Nev.

1st Lt. Corey Wilson, 17th OWS, Hickam AFB, Hawaii

Tech Sgt. Mark Ditter, 17th OWS, Hickam AFB, Hawaii

Staff Sgt. Jeffrey Ball, AFCWC, AFWA, Hurlburt Field, Fla. (1st OLC)

Staff Sgt. Brian Bimberg, HQ AFWA, Offutt AFB, Neb.

Staff Sgt. Arlo Frederick, HQ AFWA, Offutt AFB, Neb.

Staff Sgt. Michael Oates, 30th WS, Vandenberg AFB, Calif.

Staff Sgt. Fred King, 341st OSS/OSW, Malmstrom AFB, Mont.

Staff Sgt. Joseph Scardo, Det. 5, 55th SWXS, AFWA, Palohua, Hawaii

Senior Airman Robert Brown, HQ AFWA, Offutt AFB, Neb.

Senior Airman Michael Deal, 30th WS, Vandenberg AFB, Calif.

Senior Airman Randi Facenda, 30th WS, Vandenberg AFB, Calif.

Senior Airman Amanda Johnson, 30th WS, Vandenberg AFB, Calif.

Senior Airman Tori Temple, 30th WS, Vandenberg AFB, Calif.

Airman First Class Latoya High, 30th WS, Vandenberg AFB, Calif.

ARMY ACHIEVEMENT MEDAL

Senior Master Sgt. Lloyd Johnson Jr., 2nd WF, Ft. McPherson, Ga.

Tech. Sgt. Wallace Tumblin, 3rd ASOS/WE, Ft. Wainwright, Alaska

Staff Sgt. Duane Bruce Jr., 3rd ASOS/WE, Ft. Wainwright, Alaska

Staff Sgt. Michael Gerlach, Det. 10, 7th WS, Giebelstadt, Germany

HUMANITARIAN SERVICE MEDAL

Capt. Peter Speicher, 341st OSS/OSW, Malmstrom AFB, Mont.

2nd Lt. Todd Gaston, 341st OSS/OSW, Malmstrom AFB, Mont.

Tech. Sgt. Bradly Hopkins, 341st OSS/OSW, Malmstrom AFB, Mont.

Tech. Sgt. Phillip Loomis, 341st OSS/OSW, Malmstrom AFB, Mont.

Staff Sgt. Clint Dobry, 341st OSS/OSW, Malmstrom AFB, Mont.

Staff Sgt. Lena Toner, 341st OSS/OSW, Malmstrom AFB, Mont.

NASA'S SILVER SNOOPY AWARD

Phil Harvey, 412th OSS/WF, Edwards AFB, Calif.

Education

WEATHER OFFICER COURSE

Capt. Joseph Landry, 25th OWS, Davis-Monthan AFB, Ariz.

1st Lt. Stephen Early, 88th WS, Wright Patterson AFB, Ohio

1st Lt. Randall Haerberle, 88th WS, Wright Patterson AFB, Ohio

1st Lt. Joseph Ludwig, 15th OWS, Scott AFB, Ill.

2nd Lt. Jay Anderson, 26th OWS, Barksdale AFB, La.

2nd Lt. Aaron Doriani, 12th OSS/OSW, Randolph AFB, Texas

2nd Lt. Rick Ernest, 28th OWS, Shaw AFB, S.C.

2nd Lt. Andrew Geyer, 18th WS, Ft. Bragg, N.C.

2nd Lt. Michelle LoBianco, 26th OWS, Barksdale AFB, La.

2nd Lt. Justin Palmer, USAFE OWS, Sembach AB, Germany

2nd Lt. Kathryn Payne, 20th OWS, Yokota AB, Japan

2nd Lt. Matthew Rosencrans, 78th OSS/OWS, Robins AFB, Ga.

2nd Lt. Robert Tournay, 28th OWS, Shaw AFB, S.C.
2nd Lt. Wesley Twohig, 10th CWS, Ft. Bragg, N.C.
2nd Lt. Stanley Yucha, 16th OSS/DOW, Hurlburt Field, Fla.

WEATHER CRAFTSMAN'S COURSE

Staff Sgt. Loline-Marie Djidade, 11th RS, Indian Springs, Nev.
Staff Sgt. Dominique Atkins, 11th OWS, Elmendorf AFB, Alaska
Staff Sgt. Malik Barnes, 412th OSS, Edwards AFB, Calif.
Staff Sgt. James Davis, 62nd OSS/OSW, McChord AFB, Wash.
Staff Sgt. Curtis Dunlap, 28th OWS, Shaw AFB, S.C.
Staff Sgt. Marie Colomer, 121th WF, Andrews AFB, Md.
Staff Sgt. Anthony Gomez, 116th WF, Camp Murray, Wash.
Staff Sgt. David Gray, 335th TRS, Keesler AFB, Miss.
Staff Sgt. Janel Heidebrink, 45th WS, Cape Canaveral AS, Fla.
Staff Sgt. Christine Johnson, 335th TRS, Keesler AFB, Miss.
Staff Sgt. Libby Jones, 75th OSS/OSW, Hill AFB, Utah
Staff Sgt. Rafael Kaup, 305th OSS/OSW, McGuire AFB, N.J.
Staff Sgt. Shawn Koch, 26th OWS, Barksdale AFB, La.
Staff Sgt. Larry Law, 314th OSS/OSW, Little Rock AFB, Ark.
Staff Sgt. David Martin, 107th WF, Selfridge ANGB, Mich.
Staff Sgt. Julie Moretto, 15th ASOS, Hunter AAF, Ga.
Staff Sgt. Jason Nuy, Det. 11, 7th WS, Heidelberg, Germany
Staff Sgt. John Rosario, 26th OWS, Barksdale AFB, La.
Staff Sgt. Joel Rybarezyk, 52nd OSS/OSW, Spangdahlem AB, Germany
Staff Sgt. Gregory Strong, 335th TRS, Keesler AFB, Miss.
Staff Sgt. Christina Timmerman, 335th TRS, Keesler AFB, Miss.
Staff Sgt. Musette Willis, 18th OSS/OSW, Kadena AB, Japan

FORECASTER COURSE

Staff Sgt. Mark Huschak, HQ AFWA, Offutt AFB, Neb.
Staff Sgt. Malvin Johnson, 200th WF, Richmond, Va.
Staff Sgt. Ernesto Ruiz, 325th OSS/OSW, Tyndall AFB, Fla.
Staff Sgt. Jill Schweigert, 57th OSS/OSW, Nellis AFB, Nev.
Staff Sgt. Jason Smith, 46th WS, Eglin AFB, Fla.
Staff Sgt. Amy Whiteman, 204th WF, McGuire AFB, N.J.
Senior Airman Kelly Allen, 1st OSS/OSW, Langley AFB, Va.
Senior Airman Amy Brannon, HQ AFWA, Offutt AFB, Neb.

Senior Airman Bradley Cogdill, 13th ASOS/WF, Ft. Carson, Colo.
Senior Airman Heather Durio, 57th OSS/OSW, Nellis AFB, Nev.
Senior Airman Anita Foy, 200th WF, Sandston, Va.
Senior Airman Richard Heruska, 46th WS, Eglin AFB, Fla.
Senior Airman Barry Lott, 16th OSS/DOW, Hurlburt Field, Fla.
Senior Airman Cade Mayer, 72nd OSS/OSW, Tinker AFB, Okla.
Senior Airman Kevin Nurre, HQ AFWA, Offutt AFB, Neb.
Senior Airman Jennifer McCaulley, HQ AFWA, Offutt AFB, Neb.
Airman 1st Class Amanda Boykin, 22nd OSS/OSW, McConnell AFB, Kan.
Airman 1st Class Debra Chaves, 47th OSS/OSW, Laughlin AFB, Texas
Airman 1st Class Mike Farr, Det. 1, 18th WS, Ft. Eustis, Va.
Airman 1st Class June Marie Trott, HQ AFWA, Offutt AFB, Neb.
MST2 Andrew Grow, Kodiak CGAS, Alaska

WEATHER FORECASTER APPRENTICE COURSE

Tech. Sgt. Ronald Bradford Jr., 25th OWS, Davis-Monthan AFB, Ariz.
Staff Sgt. David Tischhauser, 28th OWS, Shaw AFB, S.C.
Senior Airman Edward King, 123rd WT, Portland, Ore.
Senior Airman David Olds, 11th OWS, Elmendorf AFB, Alaska
Senior Airman David Simpson, 26th OWS, Barksdale AFB, La.
Senior Airman Jonathan White, 28th OWS, Shaw AFB, S.C.
Senior Airman Nathan Willems, 25th OWS, Davis-Monthan AFB, Ariz.
Airman 1st Class Michael Bliss, 15th OWS, Scott AFB, Ill.
Airman 1st Class Brittany Brodin, 159th WF, Camp Blanding, Fla.
Airman 1st Class Derrick Brown, 131st WF, Barnes ANGB, Mass.
Airman 1st Class Jason Conner, 26th OWS, Barksdale AFB, La.
Airman 1st Class Karen Dykeman, 25th OWS, Davis-Monthan AFB, Ariz.
Airman 1st Class Zane Dooley, 1st WS, Ft. Lewis, Wash.
Airman 1st Class Michael Funk Jr., 49th OSS/OSW, Holloman AFB, N.M.
Airman 1st Class Mathew Fossett, 120th WF, Buckley AFB, Colo.
Airman 1st Class Adam Garrison, USAFB OWS, Sembach AB, Germany
Airman 1st Class Nathan Johnson, 159th WF, Camp Blanding, Fla.
Airman 1st Class Takeyia McNair, 26th OWS, Barksdale AFB, La.

Promotions

Airman 1st Class Cole Moreland, 28th OWS, Shaw AFB, S.C.

Airman 1st Class Samuel Morris II, 46th WS, Eglin AFB, Fla.

Airman 1st Class Amanda O'Hara, 28th OWS, Shaw AFB, S.C.

Airman 1st Class John Palmer, 156th WF, Charlotte, N.C.

Airman 1st Class Preston Rice, USAFE OWS, Sembach AB, Germany

Airman 1st Class Renee Rich, USAFE OWS, Sembach AB, Germany

Airman 1st Class Christopher Shipman, 75th OSW, Edwards AFB, Calif.

Airman 1st Class Erick Slomkowski, 100th OSS/OSW, Mildenhall AFB, UK

Airman 1st Class Mark Stevens, 25th OWS, Davis-Monthan AFB, Ariz.

Airman 1st Class Jessica Stone, 104th WF Baltimore, Md.

Airman 1st Class Tierra Tine, 28th OWS, Shaw AFB, S.C.

Airman 1st Class Alicia Vogt, 55th OSS/OSW, Offutt AFB, Neb.

Airman 1st Class Antisha Walley, 26th OWS, Barksdale AFB, La.

Airman Aaron Dye, 22nd OSS/OSW, McConnell AFB, Kan.

Airman Jason Perry, 28th OWS, Shaw AFB, S.C.

US ARMY BASIC AIRBORNE COURSE

1st Lt. Michael Schwan, 18th WS, Ft. Bragg, N.C.

SNCO ACADEMY

Senior Master Sgt. Alfredo Dominguez, Det. 7, AFWA, Tinker AFB, Okla.

Senior Master Sgt. Rick Keil, HQ AFWA, Offutt AFB, Neb.

NCO ACADEMY

Tech. Sgt. James Clark, 55th SWXS, AFWA, Schriever AFB, Colo.

Tech. Sgt. Anthony Sansone, HQ AFWA, Offutt AFB, Neb.

Tech. Sgt. Jeff Vogel, HQ AFWA, Offutt AFB, Neb.
(Distinguished Graduate)

AIRMAN LEADERSHIP SCHOOL

Staff Sgt. Fred King, 341st OSS/OSW, Malmstrom AFB, Mont.

Senior Airman Gery Cook, HQ AFWA, Offutt AFB, Neb.

Senior Airman Casey Miles, HQ AFWA, Offutt AFB, Neb.

Promotion to Major:

Bryan Adams, HQ AFPC, Randolph AFB, Texas

Robert Asbury III, 20th OSS/OSW, Shaw AFB, S.C.

Randall Bartlett, Woodbridge, Va.

David Beberwyk, 45th WS, Patrick AFB, Fla.

Kurt Brueske, HQ USAFA, Colo.

David Byers, Utah State University, Logan, Utah

Louis Cantrell Jr., Texas A&M University, College Station, Texas

Theodore Danecki, HQ PACAF/DOW, Hickam AFB, Hawaii

Steven Dickey, HQ USAF/XOW, Washington, DC

Christopher Donahoe, HQ AETC/DOYW, Randolph AFB, Texas

Christopher Finta, 17th OWS, Hickam AFB, Hawaii

Mark Fitzgerald, 60th OSS/OSW, Travis AFB, Calif.

Clark Groves, NAIC, Wright-Patterson AFB, Ohio

Scott Hausman, HQ AFWA, Offutt AFB, Neb.

John Hennessey Jr., HQ USAF/XOW, Washington, DC

Ronnie King, 28th OWS, Shaw AFB, S.C.

Shannon Klug, 89th OSS/OSW, Andrews AFB, Md.

Tony Krogh, 88th WS, Wright-Patterson AFB, Ohio

Mark Lajoie, USCENTCOM, MacDill AFB, Fla.

Richard Lucci, 354th OSS/OSW, Eielson AFB, Alaska

Scott Magnan, Det. 6, 7th WS, Wiesbaden, Germany

Gary Marsteller, 314th OSS/OSW, Little Rock AFB, Ark.

Todd McNamara, AFIT, Wright-Patterson AFB, Ohio

Mark Mesenbrink, 75th OSS/OSW, Hill AFB, Utah

James O'Connor, Det. 3, 7th WS, Illesheim, Germany

James Parsons, 57th OSS/OSW, Nellis AFB, Nev.

Brian Pukall, 100th OSS/OSW, Mildenhall, UK

Cecilia Radsliff, ESC/ACW, Hanscom AFB, Mass.

Paul Roelle, AFCCC, AFWA, Asheville, N.C.

Patrick Rothbauer, Det. 10, 7th WS, Giebelstadt, Germany

David Runge, 7th WS, Heidelberg, Germany

Donald Shannon, NAIC, Wright-Patterson AFB, Ohio

Jeffrey Shull, USAFE OWS, Sembach, Germany

Christopher Smith, Utah State University, Logan, Utah

Christopher Stock, 4th OSS/OSW, Seymour Johnson AFB, N.C.

Robert Swanson Jr., HQ AFWA, Offutt AFB, Neb.

Sabrina Taijeron, 3rd WS, Fort Hood, Texas

Douglas Tunney, 335th Training Sq., Keesler AFB, Miss.

Richard Wagner, 46th TW, Eglin AFB, Fla.

Shannon Walker, 49th OSS/OSW, Holloman AFB, N.M.

John Werner, HQ AFSOC/DOW, Hurlburt AFB, Fla.

Derek West, 88th WS, Wright-Patterson AFB, Ohio

Mark Yeisley, USCENTCOM, Riyadh



Tech. Sgt. Donald LaFramboise, 20th OWS, received his General's coin for his work with the unit's LAN and developing the web pages for the OWS's 110 million square mile AOR with a point and click simplicity.



Staff Sgt. David Elliott, Det. 3, 7th WS, earned his General's coin for successful participation in a live-fire NATO/V Corps Exercise VICTORY STRIKE. He provided flawless mission briefs with a 100% sortie rate.



Brig. Gen. David L. Johnson, Air Force director of weather, presents his coin for superior performance to outstanding weather professionals across Air Force Weather.

Staff Sgt. Dan Sligar, 55th OSS/OSW, earned a General's coin for his work as the CWT workgroup manager/AMIS System Manager. Sligar engaged Offutt AFB computer network specialists and the 15th OWS to solve problems that prevented progress in the reengineering efforts.



Capt. Leon Perkowski, 7th WS, received his General's coin for spearheading the support to Joint HQ Center for NATO Exercise CONSTANT HARMONY 2000. He provided target planning/execution weather products to the NATO decision-makers, ensuring the exercise was successful.

General and Chief's Coin Corner

Senior Airman James Perkins, AFWA/SCSA, received his Chief's coin for diligently working for three days to correct the logic on flight planning software programs supporting AMC, ACC and the B2 program. Data accuracy is vital to the safety of flight for strategic and tactical aircraft and personnel.



Senior Airman Michael Downing, Det. 6, 7th WS, earned his Chief's coin for his outstanding initiative during the det's building renovation. He removed \$10K in obsolete equipment and meticulously inventoried and assured 100% accountability of Army computer equipment.

Chief Master Sgt. Penny Braverman, AFW chief enlisted manager, presents her coin for superior performance to outstanding enlisted weather professionals across AFW.



Tech. Sgt. Roland Gonzalez, Det. 12, 7th WS, earned his Chief's coin for providing mission-tailored forecasts in support of Joint Task Force Exercise VENETO RESCUE and follow on exercise, JOINT GUARDIAN, in Hungary.



Airman 1st Class Scott Beecher, Det. 5, 7th WS, received his Chief's coin for revamping the unit's observing program and improving error-free rates as well as providing support to the 1st Armored Division.



