

*Your Magazine for Air Force Weather*

# OBSERVER

September/October 1997 ~ *Special Edition* ~ Vol. 44, No. 7



## AIR FORCE WEATHER STRATEGIC PLAN

*A road map for reengineering  
Air Force Weather*

# AIR FORCE WEATHER STRATEGIC PLAN



**DIRECTOR OF WEATHER  
DEPUTY CHIEF OF STAFF, AIR AND SPACE OPERATIONS  
HEADQUARTERS UNITED STATES AIR FORCE  
WASHINGTON DC 20330-1490**

The Air Force Weather Strategic Plan provides the roadmap we will use to dramatically improve how we operate in the future. It is the culmination of 12 months of work by our functional experts from Air Force Major Commands (MAJCOMs), Major Army Commands (MACOMs), the Air Force Weather Agency, Air Staff, and members of the Air Force Center for Quality Management Innovation. The reengineered Air Force Weather will further enable us to always have a "total mission" focus while providing on-target, fine-scale, highly accurate, relevant weather support for flying and ground operations, resource protection, and national programs. The solution is focused on the operator: terrestrial and space centers providing global *strategic-level* support; regional weather hubs (operational weather squadrons) generally aligned under the NAFs providing fine-scale, highly accurate, relevant, focused *theater-level* support; and combat/unit weather teams at individual bases and posts, providing relevant, mission-specific, *tactical-level* support.

The Air Force Weather Strategic Plan outlines a Total Force, wall-to-wall reengineering effort that will enable Air Force Weather to significantly improve operational capabilities. Each and every member of the Air Force Weather team is key to the successful implementation of the plan. With everyone's hard work and support we will realize our shared vision: *Air Force Weather, the operator's choice for air and space weather information on demand for Global Engagement; providing the knowledge needed to "Own the Weather."* Together we will dramatically improve weather operations as we go forward into the 21<sup>st</sup> Century.

*Thank you for  
your hard work  
and support!*

A handwritten signature in black ink, reading "Fred P. Lewis".

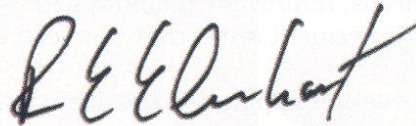
FRED P. LEWIS  
Brigadier General, USAF

# AIR FORCE WEATHER STRATEGIC PLAN

## FOREWORD

The enclosed Strategic Plan — a Total Force, wall-to-wall road map for reengineering Air Force Weather — is right on track. Air Force Weather recognized their career field had serious challenges — manning shortfalls, low experience in wing-level units, and an inefficient organizational structure — and with the assistance of the Air Force Center for Quality Management Innovation took actions to solve the problems within existing resources.

This plan prepares Air Force Weather to meet the needs of the 21<sup>st</sup> Century. With an improved mission focus, career paths, organizational structure, and numerous other initiatives outlined in the Strategic Plan, Air Force Weather is set to optimize their contribution to Air and Space power. We applaud their efforts to improve operational support and offer their reengineering approach as a model for retooling for the 21<sup>st</sup> Century.



**RALPH E. EBERHART**  
General, USAF  
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The OBSERVER is printed by Western Press, 79 Progress Parkway, Maryland Heights, Mo. 63043. Mailing list inquiries should be directed to (314) 878-5700, faxed to (314) 878-5796 or sent by E-mail to "[western@ix.netcom.com](mailto:western@ix.netcom.com)".

## EXECUTIVE SUMMARY

**1. BACKGROUND.** Air Force Weather (AFW) Reengineering is a Total Force, wall-to-wall, functional area initiative. The reengineering effort will improve support to the warfighter and other operators to make AFW the joint warfighters' choice to "own the weather for battle". AFW is facing many challenges today. The reduced manpower and grade structure of the weather flights, personnel tempo, continuous OJT of school graduates at our field units, low reenlistment rates, and an 85% forecaster manning level has resulted in an environment where AFW can no longer effectively mentor and train new people to deliver quality support. There is a compelling case for change.

### **2. DISCUSSION.**

a. This reengineering plan was developed in partnership with functional experts from wing weather flights, Air Force Major Commands (MAJCOMs), Major Army Commands (MACOMs), the Air Weather Service, Air Staff, and Air Force Center for Quality Management Innovation. The plan provides improved mission focus, establishes NAF-aligned operational weather squadrons, improves capabilities AF-wide, and achieves economies and efficiencies. The six primary improvement areas that this plan addresses are given below:

- Focus weather support on the operator by optimizing the Air Force Weather processes, structure, and career path.
- Expand space and terrestrial weather observing capabilities, infuse meteorology, and exploit science and technology to enhance operator support.
- Implement the end-to-end processes, organization, and systems that provide a seamless transition of AFW operations from peace to war.
- Revolutionize training—create a continuous, efficient, and effective training process.
- Implement end-to-end communications and software capabilities to provide fast, responsive, reliable, and relevant weather information to the operator.
- Implement an operator-focused AFW metrics program.

b. Central to reengineering AFW is the new operational concept and organizational structure. The plan proposes 11 worldwide operational weather squadrons (regional hubs) which will help improve weather forecast accuracy to the operator. Forecasting, routine aircrew weather briefings, and resource protection functions will be transferred from base/post-level to the regional hubs. The new operational concept and improved organizational structure allows AFW to significantly improve operational weather support while sufficiently manning the regional hubs and wing-level Combat/Unit Weather Teams (CWTs) to improve training and functional oversight. CWTs will have experienced weather warriors who are capable to deploy with their respective customers. CWTs will work directly with the operators, tailoring hub forecast products for mission applications supporting the full gambit of operations, from training to combat. This will improve operational weather support for combat missions, flying safety, and resource protection from severe weather. Economies of effort and efficiencies will be achieved through the new organizational structures and realignment of functions performed at the tactical, theater, and strategic levels.

c. The AFW reengineering effort will not only improve weather support for the operator, it will also improve all aspects of AFW. These include an enhanced operator/mission focus; new technology delivering more relevant, fine-scale, and accurate weather information; a more streamlined career field structure and revolutionized training program; and a capability to provide functional mentoring for weather people at all levels.

d. Following approval of the plan, more detailed action plans, program plans, and implementation plans will be developed and executed. Implementation will begin in the fall of 1997, and be phased over a six-year period using the concept of "build a little, test a little, field a little." An analysis of manpower and equipment requirements for both CWTs and the hubs determined existing manpower and funded programs are sufficient to standup the new operational concept although some cross MAJCOM flow of personnel will be required.

**3. CONCLUSION.** This plan will improve Air Force Weather operations and results will be as follows:

a. Weather products meet the needs of Air Force, Army, and other operators—relevant, customer focused, fine-scale, and highly accurate; forecast accuracy will be improved by 15 percent.

b. More experienced people at the CWTs—weather experience at this level will increase from 4.3 to 7.3 years.

c. A more continuous, efficient, and effective training process—the training and mentoring of weather people, teaching them the "Art of Weather Warfare" will be vastly improved.

d. More efficient use of resources—CWTs will have additional time for mission-focused training and dedicated operator support.

e. The reengineered HQ USAF/XOW Field Operating Agency (FOA) will be more operations focused, with an end-to-end weather systems perspective.

f. The transition from peacetime to wartime will be seamless—directly improving readiness.

g. The CWTs will be totally mission and operations focused—in garrison and deployed.

h. The total AFW organization and career field will be optimized. The actions will solve the current manpower shortfall of 545 weather personnel.

Air Force Weather stands at a cross-road: stay as is and allow weather operations to continue to slowly deteriorate, or act now to be the joint warfighter's choice to own the weather for battle.

# AIR FORCE WEATHER STRATEGIC PLAN

## ***Operations Focus: The Key to Success . . .***

Tailored information describing the operational impact of the air and space medium in which the Air Force, Army and other operators fly, maneuver, train, and fight will be just as important in the 21st Century as it was in World War II. Air Force Weather (AFW) is charting a course to bring a new level of operational weather support to the joint warfighting team. This strategic plan for reengineering AFW encompasses the mission, principles, goals, and objectives that will usher mission-tailored and combat weather into the next century. The Air Force vision of global engagement and Army Vision 2010 provide AFW a strategic focus for enhancing weather support. The Air Force core competencies—Air and Space Superiority, Global Attack, Rapid Global Mobility, Precision Engagement, Information Superiority, and Agile Combat Support, along with Army operational concepts—Project the Force, Protect the Force, Shape the Battlespace, Run Decisive Operations, Sustain the Force, and Gain Information Dominance, are dependent to varying degrees on accurate, timely, relevant, and focused weather support.

To help build the world's most respected air and space force, this strategic plan describes a bright and bold new future where AFW will significantly improve capabilities to provide operational customers the on-target weather support they need. AFW will conduct and support operations worldwide in accordance with this vision: ***AF Weather—the operator's choice for air and space weather information, on demand, for Global Engagement—providing the knowledge needed to own the weather.*** The purpose of the AFW Strategic Plan is to provide the roadmap that will ensure the operators "own the weather for battle" and maximize decreasing resources for global engagement. It systematically reengineers AFW's products, processes, organization, training, and technical tools for the 21st Century. This plan outlines a Total Force, wall-to-wall reengineering of AFW to allow us to dramatically improve support to the warfighter.

The Chief of Staff of the Air Force (CSAF) recently stated, "In a time of increased operations and reduced budgets, the Air Force must change the way it does business." Four main areas are driving AFW's need to change:

- *Customer requirements are changing.* Operators require more focused, tailored, responsive, fine-scale, highly accurate, and relevant weather support. Demands are ever increasing—personnel operations tempo drives nearly continuous deployments while home station workload remains constant.
- *Resources are changing.* AFW is a smaller, less experienced force, operating with reduced budgets. Outsourcing and privatization (O&P) will produce a greater portion of the force that is nonmilitary, changing the environment in which AFW builds and sustains readiness.
- *Acquisition is changing.* Changes in acquisition are characterized by more rapid prototyping, more open architectures, and an increase in competition of commercial/government off-the-shelf equipment/software.
- *Technology is changing.* The information age, with increased emphasis on system interoperability and readily available product visualization, is changing future operational concepts.

AFW must also change to maximize its contribution to the Air Force, Army, and other customer's

# AIR FORCE WEATHER STRATEGIC PLAN

missions. AFW has identified six main action areas to guide the overall improvement of weather operations:

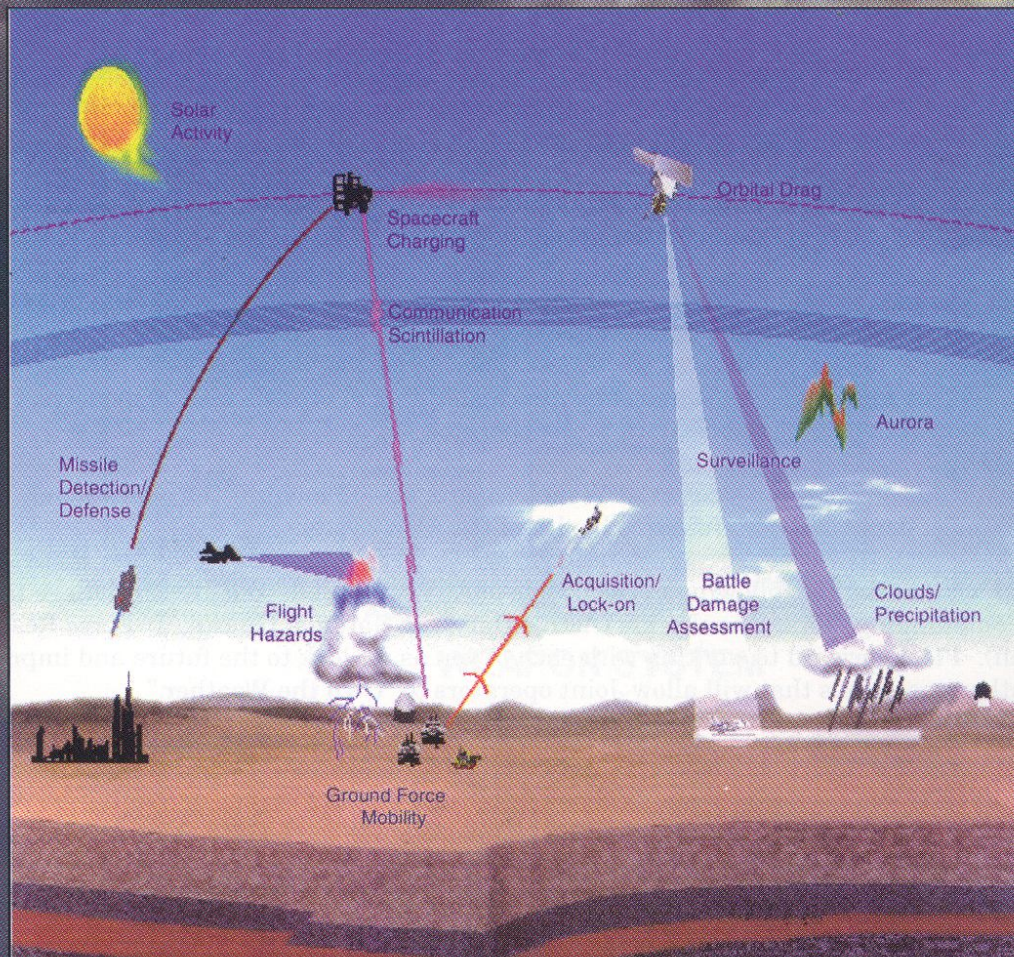
- Focus operations on the operator by optimizing the Air Force Weather processes, structure, and career path to put experienced people at the tactical level, and reduce AFW funding.
- Expand space and terrestrial weather observing capabilities, infuse meteorology, and exploit science and technology to enhance operator support, resulting in an improvement in AFW operational forecast accuracy and product timeliness.
- Implement the end-to-end processes, organization, and systems that provide a seamless transition of AFW operations from peace to war.
- Revolutionize training—create a continuous, efficient, and effective training process to build the premier combat weather force focused on operations.
- Implement communications and software capabilities to provide fast, responsive, reliable, and relevant weather information to the operator.
- Implement an operator-focused AFW metrics program to monitor the operational, technical, personnel, and resource health of the AFW system.

In closing, I would offer the following to the people of AFW: It is indeed a great privilege to be part of such an outstanding “Total Force” team (Active Duty, Air National Guard, Air Force Reserve, and civilian). I look forward to working with each of you as we look to the future and improve Air Force Weather operations that will allow Joint operators to “Own the Weather.”



FRED P. LEWIS, Brig Gen, USAF  
Director of Weather  
DCS/Air and Space Operations

# AIR FORCE WEATHER STRATEGIC PLAN



“We must continue to work each and every day to become:  
The Operators’/Warfighters’ Choice for Air and Space Weather  
Information on demand for Global Engagement; Providing the  
Knowledge Needed to Own the Weather”

*Brig. Gen. Fred P. Lewis*

# AIR FORCE WEATHER STRATEGIC PLAN

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## I. INTRODUCTION

The purpose of the AFW Strategic Plan is to provide the roadmap that will ensure the operators “own the weather for battle” and maximize decreasing resources for global engagement. It systematically reengineers AFW’s products, processes, organization, training, and technical tools for the 21st Century.

The term “weather,” used throughout this plan, refers to terrestrial weather, climatology, and space weather. It encompasses both the observing and forecasting functions.

The term “Combat/Unit Weather Team (CWT)” refers to the cadre of weather personnel located at Air Force bases/Army posts providing mission-tailored support to accomplish the operator’s mission.

The term “AFW” refers to the total weather force (Figure 1): active duty, civilians, Air National Guard (ANG), and Air Force Reserve Command (AFRC), to include our Individual Mobilization Augmentees (IMAs).

## DEMOGRAPHICS - 4FY97



	<u>AD</u>	<u>ARC</u>	<u>TOTAL</u>
OFFICER	700	211	911
ENLISTED	2,409	521	2,930
CIVILIAN	256	70	326
CME	73	0	0
TOTAL	3,438	802	4,240

**ARC = AFR + ANG + IMA**

Figure 1

# AIR FORCE WEATHER STRATEGIC PLAN

## Cascading Guidance

While global challenges provide a framework for shaping our future, cascading guidance is the foundation upon which our Strategic Plan is built and evolves from the Air Force Vision—Global Engagement. The Air Force core values and vision, along with AFW enduring principles and mission guide our planning efforts. The AFW strategic planning vision, envisioned end state, goals, and objectives are linked in succession. Action plans provide the final links in the roadmap to accomplish the AFW reengineering effort. Collectively, they form the strategic guidance and are the basis for the AFW Strategic Plan. That cascading guidance is illustrated in Figure 2.

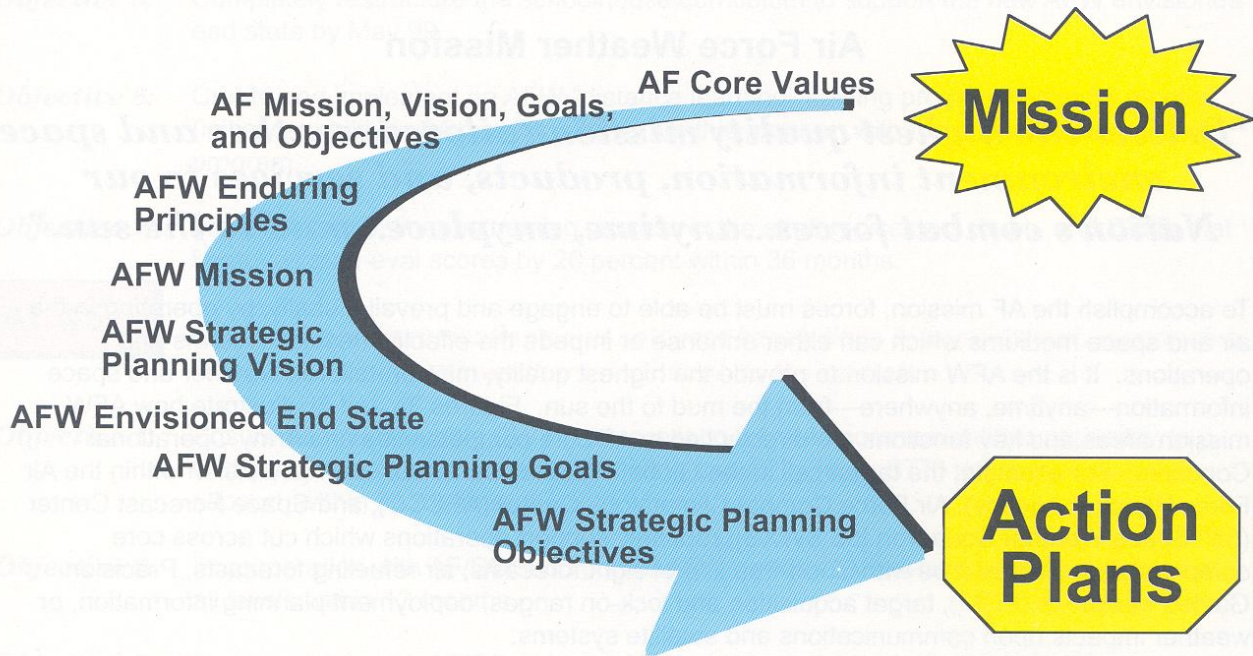


Figure 2

## II. MISSION & VISION

### Air Force Mission

*“To defend the United States through control and exploitation of air and space.”*

The USAF mission is the defense of US interests by controlling and exploiting air and space mediums. This translates to concepts of operation that involve worldwide projection of air and space power.

### Air Force Weather Mission

*“Deliver the highest quality mission-tailored weather and space environment information, products, and services to our Nation’s combat forces...anytime, anyplace...mud to the sun.”*

To accomplish the AF mission, forces must be able to engage and prevail globally, by operating in the air and space mediums which can either enhance or impede the effectiveness of systems and operations. It is the AFW mission to provide the highest quality, mission-tailored weather and space information—anytime, anywhere—from the mud to the sun. Figures 3a and 3b illustrate how AFW mission areas and key functions are directly tied to AF core competencies and Army Operational Concepts. For example, the target cell in the Global Weather Center Division (a division within the Air Force Weather Agency), Air Force Combat Climatology Center (AFCCC), and Space Forecast Center (55<sup>th</sup> Space Weather Squadron [55 SWXS]) routinely support operations which cut across core competencies whether it be with cloud-free line of sight forecasts, air refueling forecasts, Precision Guided Munitions (PGM), target acquisition and lock-on ranges, deployment planning information, or weather impacts upon communications and satellite systems.

#### WHAT WE PROVIDE

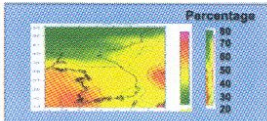
##### TERRESTRIAL WEATHER



##### SPACE WEATHER

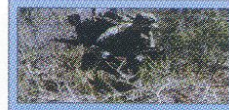


##### CLIMATOLOGY



#### HOW WE PROVIDE IT

##### DEPLOYED/COMBAT OPS



##### FIXED-BASE OPS



##### REACH-BACK TGT FCSTS



#### AIR FORCE CORE COMPETENCIES

Air and Space Superiority  
Global Attack  
Rapid Global Mobility  
Precision Engagement  
Information Superiority  
Agile Combat Support

Ensure Operators  
“Own the Weather for Battle”

Figure 3a

## AFW KEY FUNCTIONS LINKED TO AIR FORCE CORE COMPETENCIES

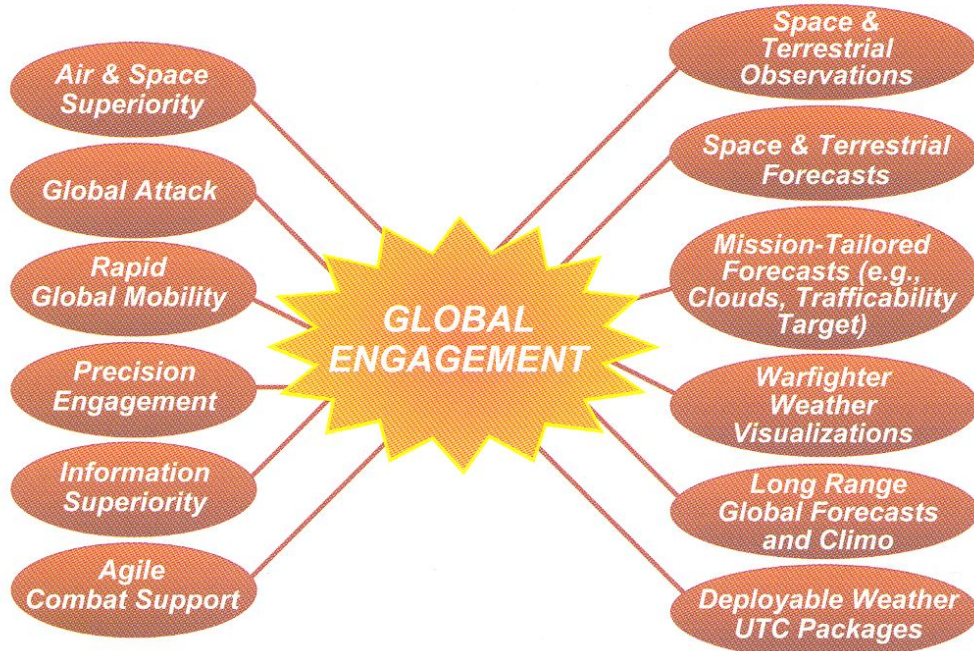


Figure 3b

### Air Force Vision Statement

***“Global Engagement: A vision for the 21<sup>st</sup> Century Air Force.”***

The vision is our flight plan to the year 2025 and reflects senior AF leaders’ belief that in the 21<sup>st</sup> Century the strategic instrument of choice will be air and space power. It encompasses four central themes and six core competencies. The critical themes are: integration of air and space, the airman of tomorrow, commitment to innovation, and increased efficiency through outsourcing and privatization.

### Air Force Weather Vision Statement

***“Air Force Weather, the operator’s choice for air and space weather information on demand for Global Engagement; Providing the knowledge needed to own the weather.”***

Sun Tzu said, “Know the ground, know the weather; your victory will then be total.” Throughout history there are countless examples of impacts of weather on military operations. Weather has been both the enemy and ally for military commanders. The AFW vision is to provide Air Force and Army forces worldwide the high quality weather information needed to “Own the Weather”—to anticipate and exploit it in order to gain the winning edge. Key to providing the knowledge needed to own the weather is becoming the operator’s “choice for air and space weather information.” “On demand for Global Engagement,” is equally important and means AFW personnel deploy into combat theaters with the warfighters providing weather support from the “mud to the sun.”

## III. THE NEED FOR CHANGE

The Air Force Weather (AFW) reengineering effort began with the establishment of a dedicated Integrated Process Team (IPT) drawn from AFW resources and the AF Center for Quality and Management Innovation. This team carefully mapped key processes and collected interview data from customers. Analysis revealed that while AFW has many strengths, there are many opportunities for improvement.

### Opportunities for Improvement

The areas below encompass many areas of change that can be exploited to provide more relevant support to operators and improve forecast accuracy.

- **Mission Focus.** AFW must move away from a peacetime mindset and focus on mission support and warfighter operations. An improved understanding by weather people of the operation and mission will lead to improved weather support.
- **Organizational Change.** An optimized organization and career path can put more experienced people at the operational and tactical levels. It will provide infrastructure, grades, experience, and the opportunity to mentor and train AFW people to produce dramatic improvements in weather operations.
- **Training.** Effective training will ensure the right training is provided at the right time to ensure mission-ready weather people are available wherever and whenever needed. New technologies, such as distance learning, can be exploited to assure training for all, reduce time away from station, and decrease the current heavy training burdens in operational units.
- **Technological Innovations.** Communication and computer technology offer vast opportunities to provide first-in tactical communication systems that acquire and disseminate weather information in real-time, worldwide. They allow modeling of the air and space environment in sufficient detail to meet operator requirements.
- **Leveraging Other Agencies.** Decreasing resources in other departments and agencies offers incentive for strategic partnerships to achieve greater economies and efficiencies, improving operational weather support.
- **Total Force Enhancements.** Significant improvements in weather operations can be achieved by fully utilizing Air National Guard and Air Force Reserve weather forces. Guardsmen and Reservists must play an enhanced role in helping AFW meet its wartime requirements.

## IV. ENVISIONED END STATE

The AFW envisioned end state will be fully integrated into Joint and Component (Air Force and Army) operations at all levels—from first-in, bare base to full up deployed capability—throughout the spectrum of warfare from campaign planning to execution—any place, any time. It will provide a full suite of products and services tailored to specific operator needs over standard Department of Defense (DoD) communication architectures. It will fully utilize state-of-the-art science and technology to ensure operators are armed with the world's best weather information so they can “anticipate and exploit” the weather (versus “cope and avoid”), thus providing the combat winning edge.

This plan guides the development of an end state which: (1) optimizes the AFW organization (to include outsourcing and privatization where smart), (2) upgrades science and technology (leveraging non-DoD initiatives), (3) integrates weather communications into common military architectures, and most importantly, (4) improves focus on military operations—all accomplished while reducing costs. This envisioned end state will be specified in three separate but linked areas: operational processes and organization, technology (communications, computers, and science), and training and career progression.

To optimally support Air Force core competencies and Army Vision 2010 operational concepts, AFW will restructure its weather operations processes, organization, technology, training, and career path. This will improve the accuracy, relevance, and operator focus of weather operations. The AFW reengineering effort modifies current paradigms, which are focused on peacetime and home station day-to-day support, rather than deployed or mission specific operations. The three major areas of the envisioned end state are:

- **Operational Processes and Organization.** The revolutionary transformation of AFW to the envisioned end state streamlines products and processes, which eliminates redundancy and rework—meaning fewer blue-suit people needed to generate higher-quality information for the customer. Continual, systematic improvement, cost avoidance, and cost savings are also outcomes under the reengineered structure. **The entire restructure of AFW is planned within existing and programmed resources.**
- **Technology.** Technology enables progress—the revolutionary changes needed for greater operational efficiency. Smart technology choices must support weather operations both in peace and war. This will enable AFW, for the first time, to simultaneously field weather information systems to the Active and Reserve components to increase the capabilities of the Total Force. Key processes such as battlespace observations, weather prediction models, and automated forecasting techniques are all supported by recent advances in technology. The information revolution has also produced simplified visualizations, which enhance operational decision tools as well as a more rapid distribution of the right information at the right time to the right end user. Solutions for tactical communications, a long-standing difficult challenge, also appear within grasp. Relevant, customer-focused weather information translates to more “bombs on target” and direct operational savings (a factor continually noted from wargaming studies and analyses). Improved weather technologies translate into enhanced combat readiness and opportunities to exploit weather information for advantage over an adversary, as well as better resource protection for our people and high-value AF assets.
- **Training and Career Progression.** Improved training and career progression are essential elements in the new envisioned end state. AFW must compensate for decreased experience levels by growing people in a quality environment so we can systematically sustain the pool of experienced people who are so critical to success. AFW will build experience by more effectively structuring training and career progression right from the start in the new paradigm.

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New AFW people will, after initial training, be assigned to hubs (operational weather squadrons) where they learn from experienced mentors and gain tools and confidence needed for follow-on CWT assignments—in a direct link with the operator and other customers. We will gain increased training efficiency from streamlining technical training, immediate reinforcement of training with quality On-the-Job programs, and an integration of new AF technologies, such as distance learning. Additionally, increased job satisfaction from the mentoring environment should lead to better retention rates that reduce recruiting and training loads and costs, while building valuable operational experience.

## Operational Processes and Organizational Structure

This change moves much of the “back room” or forecast production of the weather station of the past to a regional facility. This will improve forecast quality, gain economy, and establish an effective training environment, while strengthening the critical interface to the operator. The buildup of resources at the operational level reflects the theater focus of operations and the regional nature of weather impacts. As shown in Figures 4a and 4b, the formation of regionalized worldwide hubs results in CWTs receiving similar support whether in-garrison or deployed—thus operational support processes will be the same in peace and war. Figure 5 further illustrates the roles of the Strategic Weather Centers, the operational-level Weather Squadrons/Hubs, and tactical-level Combat/Unit Weather Teams (CWTs) in the new structure. This optimized organizational structure greatly reduces redundancy, while ensuring AFW is the operator’s choice for air and space weather information on demand for Global Engagement—providing the knowledge needed to **“Own the Weather.”** It does this by putting a “critical mass” of people at regional hubs to focus on producing fine-scale, highly accurate, relevant weather products for use by the CWT with the operators. In the regional hub, precious manpower and expertise can be focused on the bad weather situations and/or operationally critical missions. At the tactical level, the CWT will now have the time and people to focus on providing highly accurate, mission tailored weather products for the operators and other customers. **The teamwork between the regional hub and CWTs will ensure flying safety is improved.**

### WHY REENGINEER?

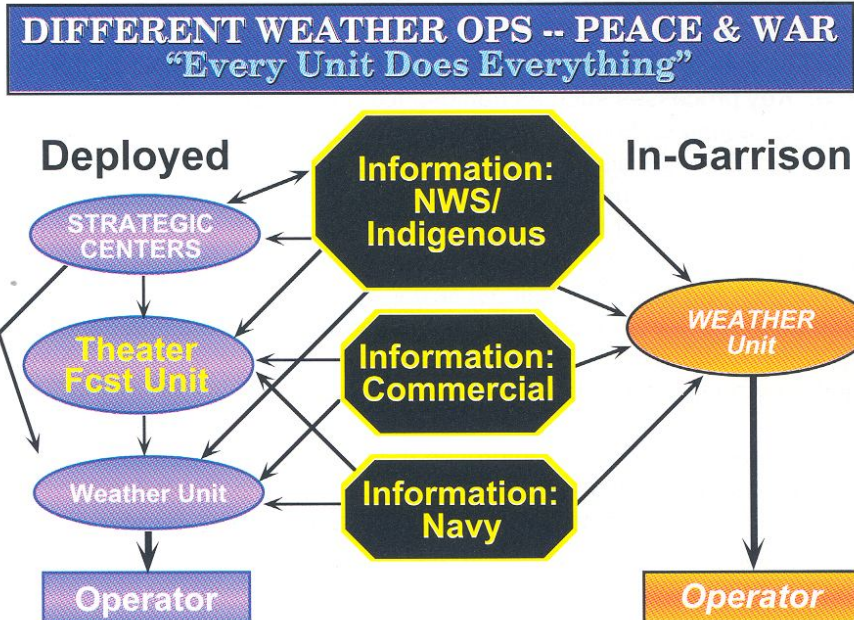


Figure 4a

## ENVISIONED END STATE

Same Weather Ops -- Peace & War

### Tiered Production

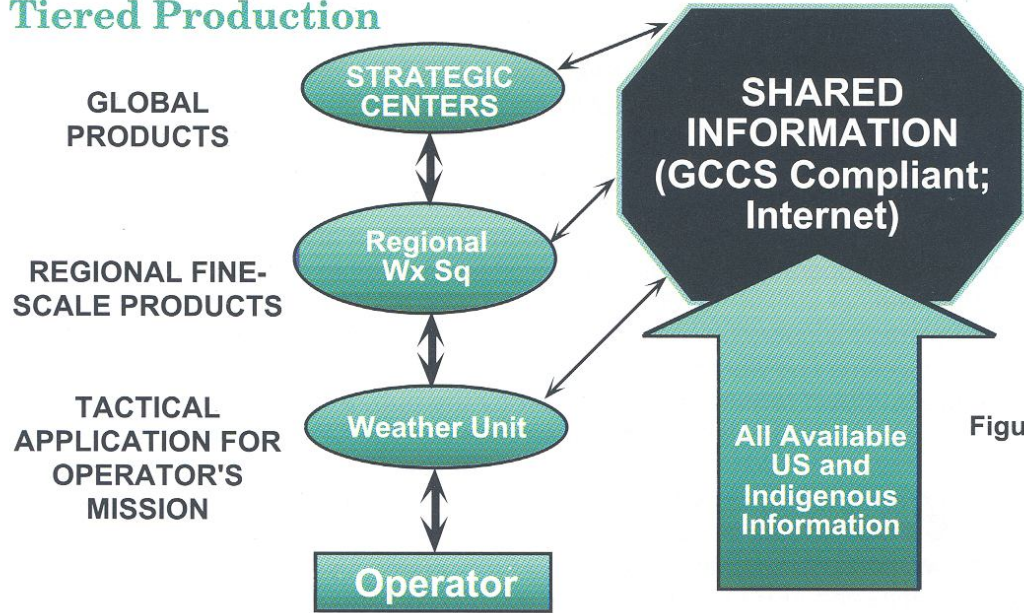


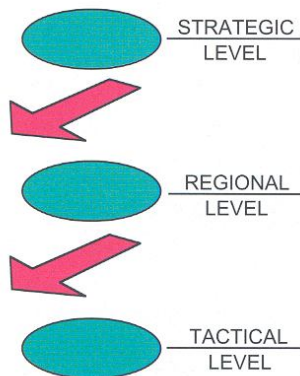
Figure 4b

## OPTIMIZED OPERATOR FOCUS

### AS IS PROCESS

FUNCTIONS PERFORMED:

- Global Data Collection
- Global Analyses/Fcsts
- Global Dissemination
- Limited Theater Data Collection
- Limited Analysis/Fcst Support
- Not fully Integrated in Support Structure
- Global/Local Data Collection
- Theater/Local Analyses/Fcsts
- Theater/Local Dissemination
- Some Mission Tailored Applications



- Redundancy Between Units/Levels
- Value-Added Not Maximized

### TO BE PROCESS

FUNCTIONS PERFORMED:

- Global Data Collection
- Global Analyses/Fcsts
- Global Dissemination
- Theater Data Collection
- Theater/Local Analyses/Fcsts
- Theater/Local Dissemination
- Theater/Mission Tailored Applications
- Local Data Collection
- Mission Tailored Applications
- Local Product Dissemination

- Little Redundancy
- Tailored Products for the Warfighters
- Maximize Value-Added

Figure 5

# AIR FORCE WEATHER STRATEGIC PLAN

## Combat/Unit Weather Teams (CWTs)

After having had required training and a hub assignment, experienced weather people will be assigned to CWTs, thus increasing average experience levels from 4.3 to 7.3 years. Personnel assigned to CWTs will be trained in all facets of operational weather support—observing, forecasting, and aircrew briefings. Some manpower (average of 4 positions from each base), along with more workload than positions moved (which equates to 6 manpower spaces by consolidating duplicate functions performed by bases), will move from the current weather flights to form regional hubs.

CWTs assigned to deployable units will remain with their operational customers and deploy with them during exercises, contingencies, and conflicts. Emphasis will shift from in-garrison operations to a wartime focus; however, non-deployed CWT members will remain at home station to advise their customers during flying operations and/or severe/significant weather events. The focus will be the “mission,” not the weather station. CWT resources will be employed by the local Wing/Division commander to optimally support the operational mission. Technology will provide the same equipment to do the job in peacetime and wartime, ensuring people train the way they fight. **To ensure operator and CWT weather support requirements are met by the hub, a “weather support contract” (or memorandum of agreement) will be established between the CWT and the supporting hub.**

Experienced ANG CWTs will continue to be integral to weather support and the total AFW team, supporting a variety of missions, several of which will possibly be new under the reengineered AFW (Table 1). IMAs will continue to augment the active force at every level. IMAs will be members of some CWTs supporting ANG and AFR units as they successfully do now. The current IMA alignment by command shown in Table 2 may change as active duty requirements solidify.

## RESERVE FORCES AIR NATIONAL GUARD WEATHER FLIGHTS

AS IS			TO BE		
● CURRENT STRUCTURE			● CURRENT MODIFIED		
- ARNG	42/114/122	(278)	- ARNG	42/114/122	(278)
- SOF	12/28/14	(54)	- SOF	12/28/14	(54)
- CONUSA	2/10/6	(18)	- CONUSA	2/10/0	(12)
- MOB SITE	14/61/68	(143)	- MOB SITE	0/14/0	(14)
- TAWDS	0/6/0	(6)	- ANG/AFRC	6/19/3	(28)
- ANG/AFRC	6/19/3	(28)	- AC Augm	20/18/17	(55)
- AC Augm	20/18/17	(55)	- ADMIN*	0/8/18	(26)
- ADMIN*	0/8/18	(26)	● POTENTIAL REALIGN/ADDS		
● TOTAL		(608)	- Avn Bns	0/52/13	(65)
			- Bomber Cells	5/17/5	(27)
			- ANG/AFRC	9/12/0	(21)
			- Hub Ops	0/28/0	(28)
			● TOTAL		(608)

*(Numbers represent officer/forecasters/observers)  
\* Not weather AFSC*

Table 1

## RESERVE FORCES IMA AUTHORIZATIONS BY COMMAND

COMMAND	Officers	Enlisted
ACC	28	13
AMC	27	3
AFMC	2	0
AFSPC	5	0
AF OPS GRP	1	0
AFWA	8	0
PACOM	1	0
STRATCOM	1	0
USSPC	3	0
HAF	1	0
PACAF	2	0
ACOM	0	2
AFSOC	1	0
OSI	1	0
AETC	1	0
AF ELEMENT	1	0
AIA	1	0
<b>TOTAL</b>	<b>84</b>	<b>18</b>

Table 2

### Operational Weather Squadrons/Hubs

Eleven operational weather squadrons will serve as regional hubs (Figures 6-9). The general mission of the regional hub is to provide theater-scale battlespace forecasts, drop zone/range/AR forecasts, fine-scale target forecasts, and issue weather warnings and terminal forecasts for Air Force and Army installations within their area of responsibility (AOR). They will also provide mission weather briefings to NAF and Echelon Above Corps (EAC) decision-makers and transient aircrews operating at installations within their AOR. In most cases, these hubs will also support CWTs that are deployed within the hub's AOR. An AFWA SOF Weather Operations Cell (SOFWOC) will provide OWS products and services for worldwide SOF.

In the envisioned end state, virtually all weather warning and Terminal Aerodrome Forecasts (TAF) responsibilities currently performed by individual base/post weather stations and Global Weather Center (GWC) Division of the Air Force Weather Agency (AFWA) will be migrated to regional hubs. To perform their duties, the regional hubs will have continuous, near real-time (notionally, updated every 2-3 minutes) observations and other sensor inputs for all locations for which they provide TAFs and resource protection. This includes gunnery ranges, Army training centers, and operations areas not collocated at Air Force bases or Army airfields. The AFW system architecture and technology acquisitions will be essential to providing timely, accurate forecasts and warnings to military installations. As mentioned earlier, to ensure operator and CWT weather support requirements are met by the hub, a "weather support contract" (or memorandum of agreement) will be established between the CWT and the supporting hub.

# AIR FORCE WEATHER STRATEGIC PLAN

Regional hubs will take on the prime role in producing fine-scale battlespace forecasts—for targets, drop zones, refueling routes, etc. The hubs will refine fine-scale gridded forecasts produced at the GWC Division of the AFWA and will produce weather products for the execution of operator missions within their AOR. Current plans are to retain operational specialized weather squadrons supporting the space launch mission. The 30 WS (Vandenberg AFB) and the 45 WS (Patrick AFB) will continue to produce a full spectrum of specialized weather products for high-value space and missile launch operations. Additionally, specialized weather squadrons will most likely continue to exist within AFMC to support weapons acquisition and weapons test facilities. Although these AFMC squadrons will receive operational weather support from a regional hub, they will continue their unique roles in support of the AFSPC and AFMC missions.

The regional hubs will also provide technical support to the CWTs within the hub's AOR. Furthermore, the hubs and CWTs will continually coordinate forecasts and specific requirements, teaming to provide optimum support to the operator. Teamwork will be essential for successful operations.

Air Reserve Component (ARC) resources will be used to augment regional hubs.

## ENVISIONED END STATE OPERATIONAL WEATHER SQUADRONS & CONTINGENCY SUPPORT

### Duplication Eliminated

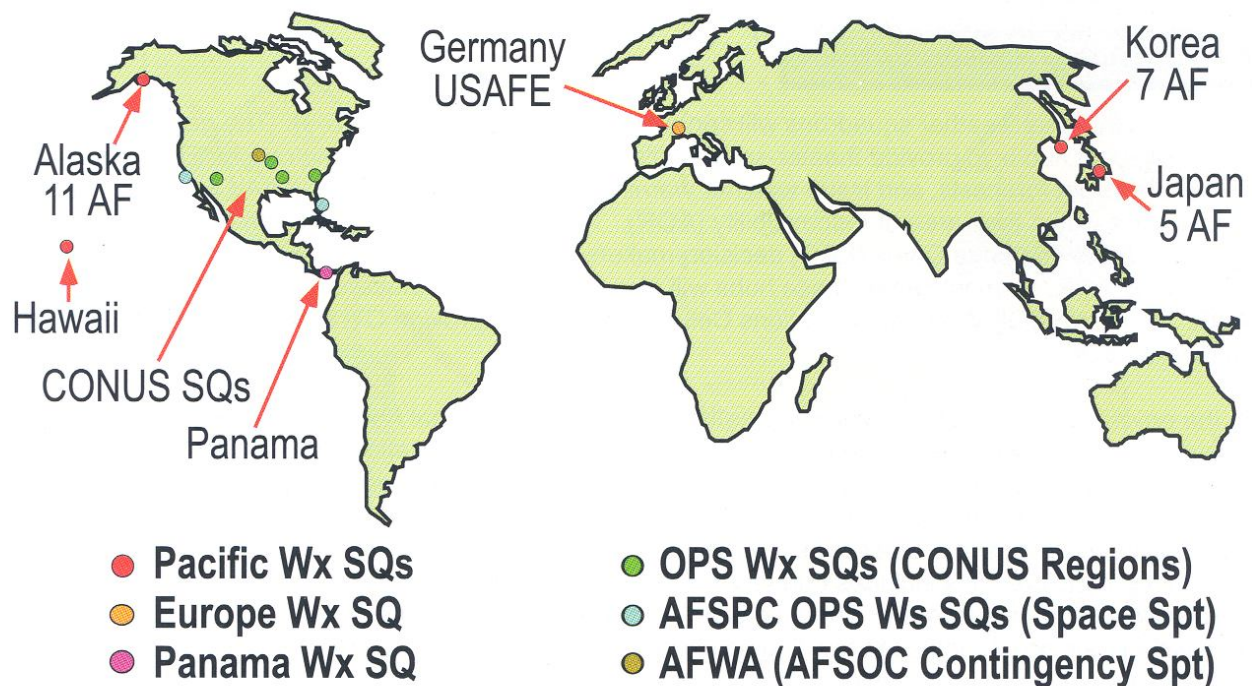


Figure 6

# AIR FORCE WEATHER STRATEGIC PLAN

## OPS WEATHER SQs PLUS SUPPORT LOCATIONS (CONUS)

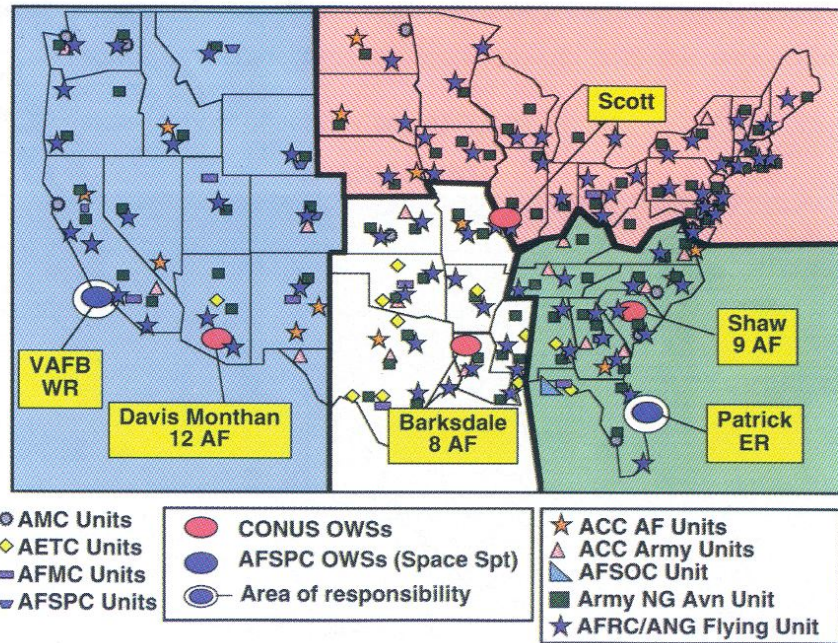


Figure 7

## OPS WEATHER SQ PLUS SUPPORT LOCATIONS (USAFE)

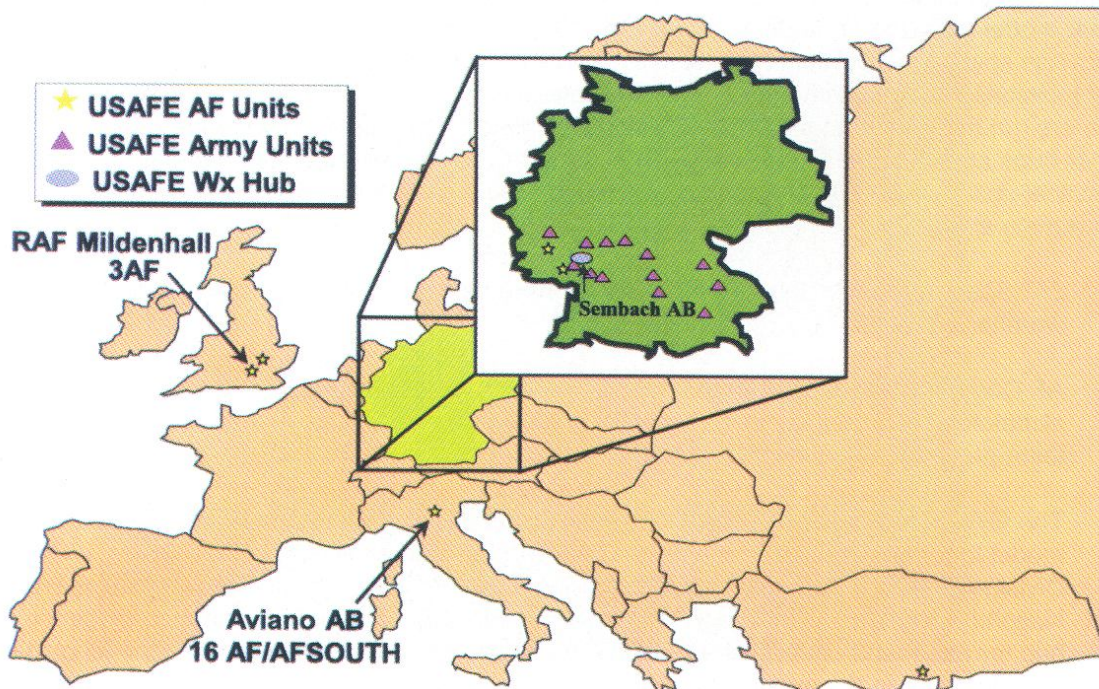


Figure 8

## OPS WEATHER SQUARDONS PLUS SUPPORT LOCATIONS (PACIFIC)

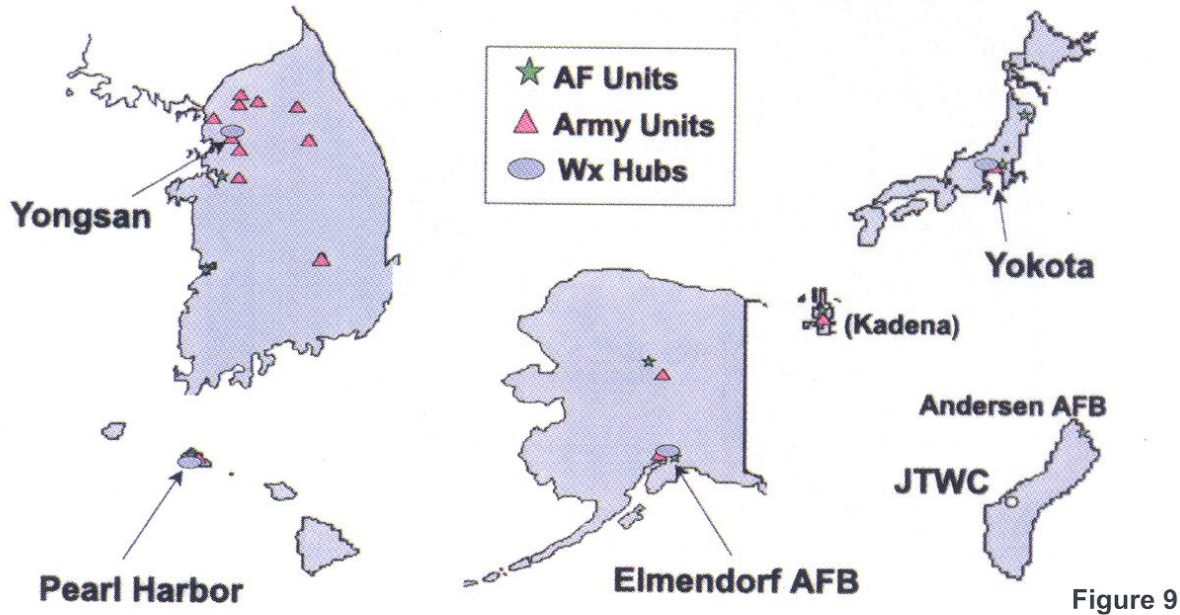


Figure 9

### Strategic Centers

As shown in Figures 10 and 11, there are five centers at the strategic level. The general mission of the strategic centers is to provide large-scale (campaign or global level) planning and execution weather guidance and outlooks, climatology, space-environmental warnings and outlooks, and fine-scale weather model data and products to support theater/regional hubs. In addition, each of the strategic centers has specialized product and service responsibilities which further subdivides the strategic center missions into complementary (non-duplicative) production areas. Supported operations and customers run the gamut from National Military Command Authority and National Programs to regional weather hubs and, in some limited cases, CWTs. In the envisioned end state, virtually all theater-scale and tactical-scale weather analysis and forecasting will be migrated to regional hubs. The exceptions, which remain at strategic centers, are as follows:

- 55<sup>th</sup> Space Weather Squadron (55 SWXS): Retains responsibility for production of all space weather products.
- AF Combat Climatology Center (AFCCC) will retain responsibility for the production of all climatological products. Hubs and CWTs will serve as conduits at their respective levels, and tailor products as necessary.
- The GWC Division of the AFWA will retain responsibility for the production of fine-scale weather model forecast databases as well as CINC target weather forecasts (first-guess). The GWC Division will also retain responsibility for fine-scale cloud forecasts for battlefield operations and National Programs. It will be the regional hub for AFSOC/SOCOM, and a contingency regional hub for any area not covered by MAJCOM-required hubs. The GWC Division will also serve as a backup hub in the event that any other hub is rendered inoperable.

# AIR FORCE WEATHER STRATEGIC PLAN

- Joint Typhoon Warning Center (JTWC) retains current responsibilities for typhoon and tropical cyclone forecast products.
- Tanker Airlift Control Center (TACC) Weather retains responsibility for global reach weather support to AMC.

The centers, within their respective AORs, will compile databases of observations, analyses, forecasts, and weather satellite information capable of supporting military air and space operations worldwide. Some IMAs with unique skills will be employed at Strategic Centers in consulting or special assignment functions. The centers will be capable of distributing databases and/or derivative products using a smart push/warrior pull approach. The envisioned end state requires these centers to: upgrade their infrastructure to an open systems environment and to allow exploitation of commercial off-the-shelf (COTS), improve interoperability within DoD, and to lower overall costs. It further requires improved weather modeling (discussed in Technology Section) and product distribution capability. Finally, the above thrusts will be undertaken in a manner that leverages cost-effective ongoing initiatives in other US government and civil sectors.

## STRATEGIC CENTERS

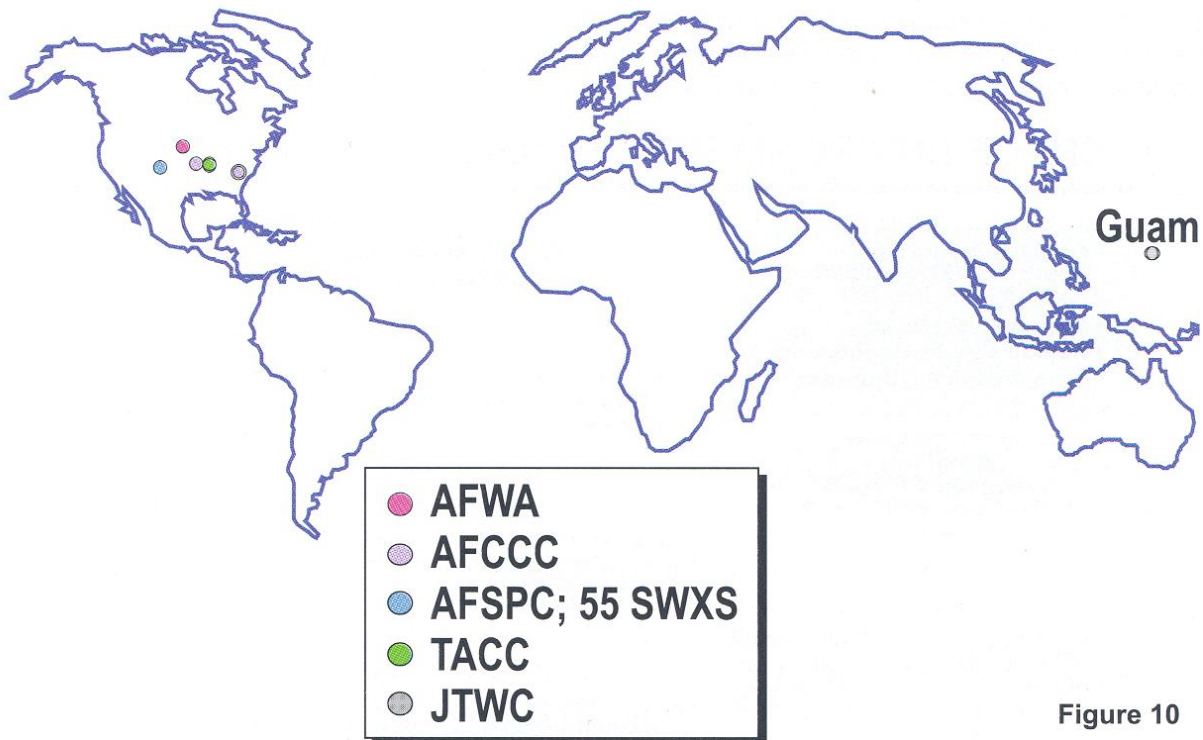


Figure 10

## CONUS Strategic Centers

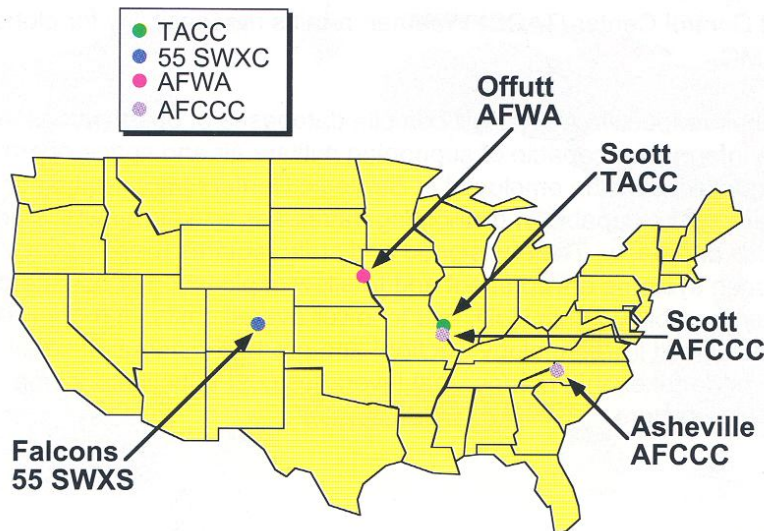


Figure 11

### Space Weather

Responding to DoD's growing exploitation of space systems, the space environment operations function will be streamlined and integrated to meet increasing customer needs (Figure 12). AFSPC is lead command for acquisition and modernization of ground and space environment capabilities, while AFW forces located at regional hubs and CWTs will expand their involvement in identifying and coordinating space weather information requirements and in delivering tailored products to the operator. As a result, this fusion of air and space weather information will provide operators a comprehensive "mud to sun" battlespace environment depiction.

## SPACE ENVIRONMENT: Streamlined & Integrated

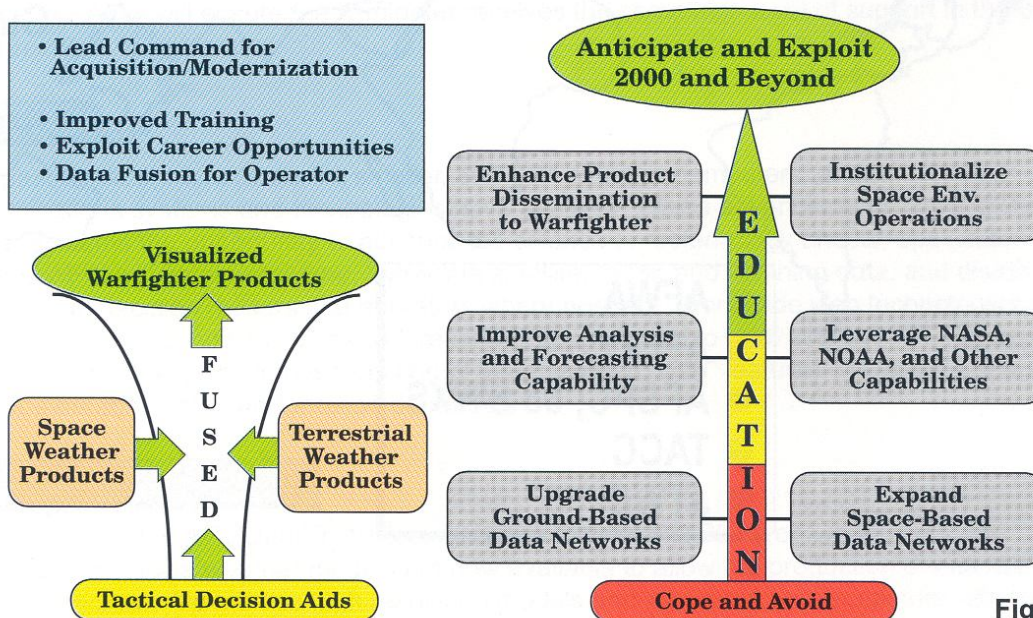


Figure 12

## Technology

### Technological Architecture

In response to DoD downsizing, AFW must restructure its resources in order to improve its support to the operator. The 1997 USAF Scientific Advisory Board (SAB), Quick Look Study, *Weather Monitoring and Forecasting in Theater*, documented the need for improved communication and forecasting systems, fine-scale weather models, and theater weather observations (Figure 13). Recent advances in computing, communications, and meteorological capabilities have made technology the enabler for the AFW reengineering effort. The reorganization of weather resources into centralized hubs, producing detailed meteorological products for distribution to the CWTs and operators, allows AFW to take advantage of the highly efficient, cost effective client/server architecture for data processing, access, and distribution.

## ENVISIONED END STATE

### SCIENTIFIC ADVISORY BOARD RECOMMENDATIONS (EXPLOIT TECHNOLOGY)

#### RECOMMENDATIONS:

- Improve theater weather observations
- Improve theater weather forecasts

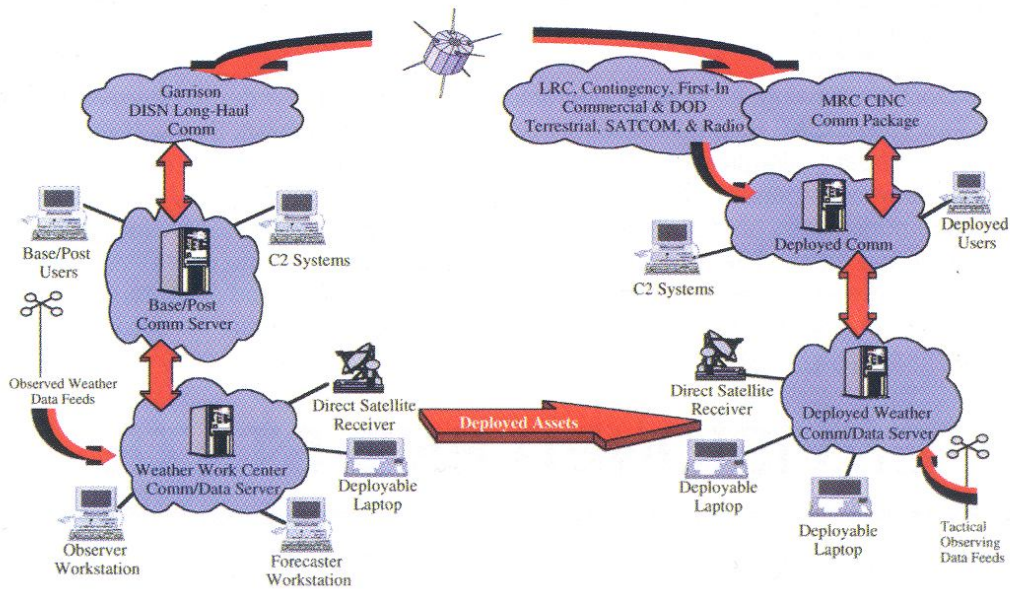
#### ACTIONS:

- Exploit new & existing measurement platform technology -- aircraft, UAV, microwave, radar, etc.
- Demonstrate and field simple covert ground station
- Implement fine scale, highly accurate forecast models

Figure 13

Past weather systems consisted of different computer and communication combinations for both peace and war, creating operational and training nightmares. Now, by fully exploiting a client/server architecture and tactical communications capabilities, weather forecasting systems can operate on scaleable hardware platforms using the same software at home-base and at deployed locations (Figure 14). All systems and networks that directly support the operator will be fully Defense Information Infrastructure and Common Operating Environment compliant. This provides for a seamless transition from peace to war and maximizes interoperability with C2 systems and software. AFW will be postured to train as it fights and directly support the warfighter—yielding optimal wartime readiness. Under the reengineering effort, AFW will implement solutions that address the recommendations identified in the SAB study for both active duty and ARC forces.

## IN-GARRISON / DEPLOYED ARCHITECTURE



## SAME IN PEACE AND WAR

Figure 14

### Communications

In accordance with CJCSI 6211.021, communications connectivity will primarily be provided by the Defense Information Systems Agency's Defense Information System Network (DISN) common user transports and military services. These communications networks use the same tools and protocols as the commercial networks to maximize the use of COTS software and hardware. During the early period of all deployments and throughout military operations, other than Major Regional Conflicts, AFW will rely heavily on first-in tactical communication capabilities. Using the right communications systems for the situation, AFW will ensure the warfighter receives the same high level of support in the deployed environment as in garrison.

### Forecast System

In the past decade, more powerful, smaller, and cost effective computers, and more robust bandwidth communications systems and technologies have evolved. These advancements have afforded AFW forecast systems the opportunity to advance the science of meteorology and its application to the operator. AFW will obtain real-time, fine-scale satellite, radar, and lightning data, and distribute the information to decision makers and operators where needed. Worldwide web technologies allow AFW to monitor weather conditions, provide forecasting support, and to brief aircrews, all from remote locations. Additionally, the implementation of the advanced "web" features will provide one virtual, worldwide database of operator tailored products.

### Fine-Scale Atmospheric Models

As pointed out in the AF Scientific Advisory Board's Quick-Look Study on weather (Figure 13), operational, fine-scale weather models are now available to allow the production of relevant and highly accurate forecasts. With these high resolution models and new graphical computers with high-

# AIR FORCE WEATHER STRATEGIC PLAN

resolution terrain depiction, operators will have the ability to visualize and “fly” through weather in an animated 3-D space giving them the best possible information to “own the weather for battle” (Figures 15 and 16). Likewise, modeling of the space environment is improving as our understanding of the science improves, and visualization of the space environment is now being developed/investigated. Although weather and space environment models are improving, they still need continuous input of observational measurements to provide even better forecast accuracy. In addition, they need highly trained weather forecasters to most effectively interpret their results.

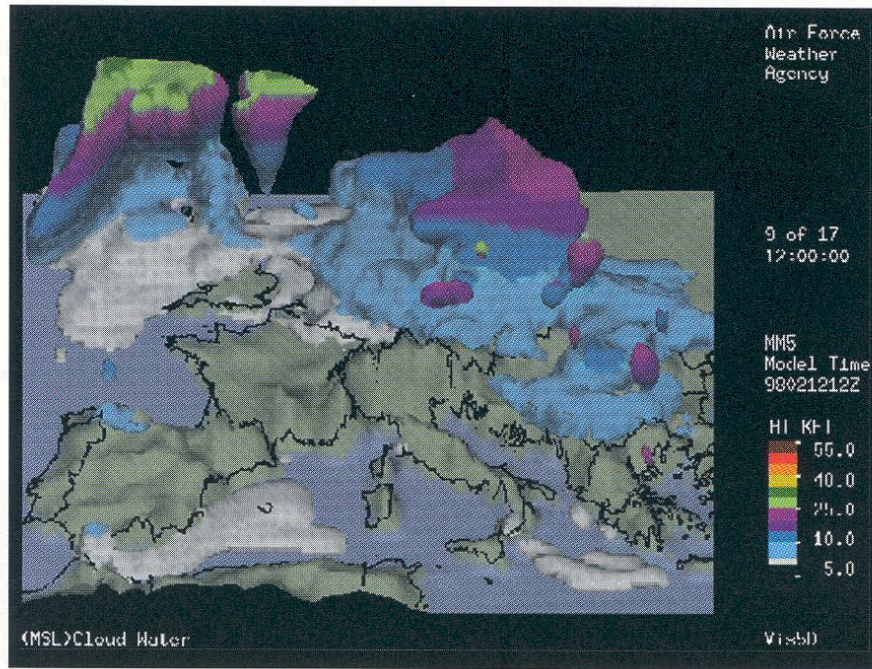


Figure 15

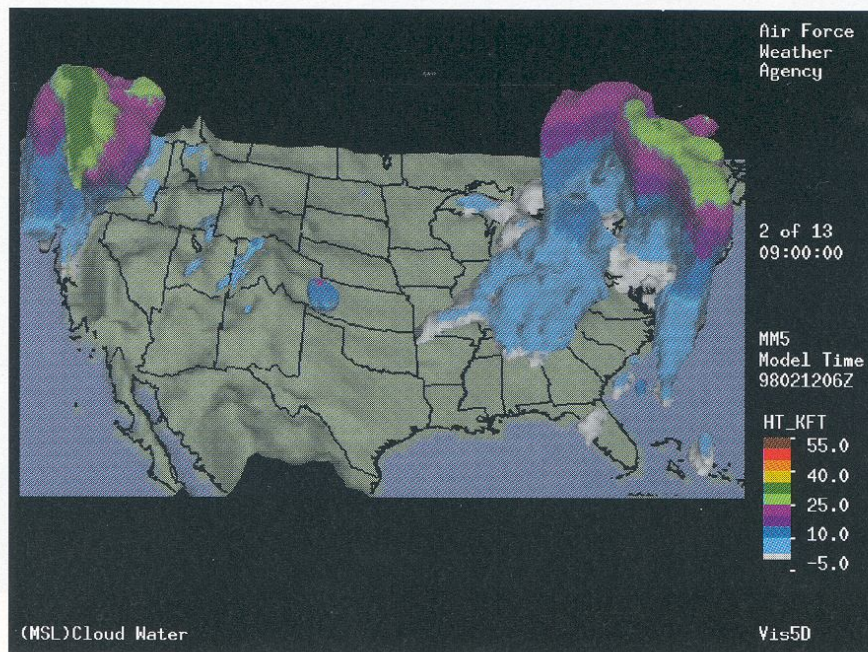


Figure 16

# AIR FORCE WEATHER STRATEGIC PLAN

## Observational Technology

Consistent with the SAB recommendations (Figure 13), AFW will exploit existing measurements from theater aircraft, satellite cloud measurements, earth observing satellites, space environment sensors from all satellites, and opportunities from future operational observational platforms (e.g., UAVs). By actively exploiting the collection, dissemination, and assimilation of observational data into the modeling and warfighting decision process, AFW will acquire more accurate, timely, and targeted observations to further improve accuracy of forecasts.

Implementing a comprehensive solution using the technological advancements in computers and computer applications, communications, forecasting systems, fine-scale modeling, and weather observations will give the warfighter the ability "to own the weather for battle" as depicted in the envisioned end state (Figures 17-19).

## ENVISIONED END STATE

### SAME SOFTWARE--PEACE & WAR

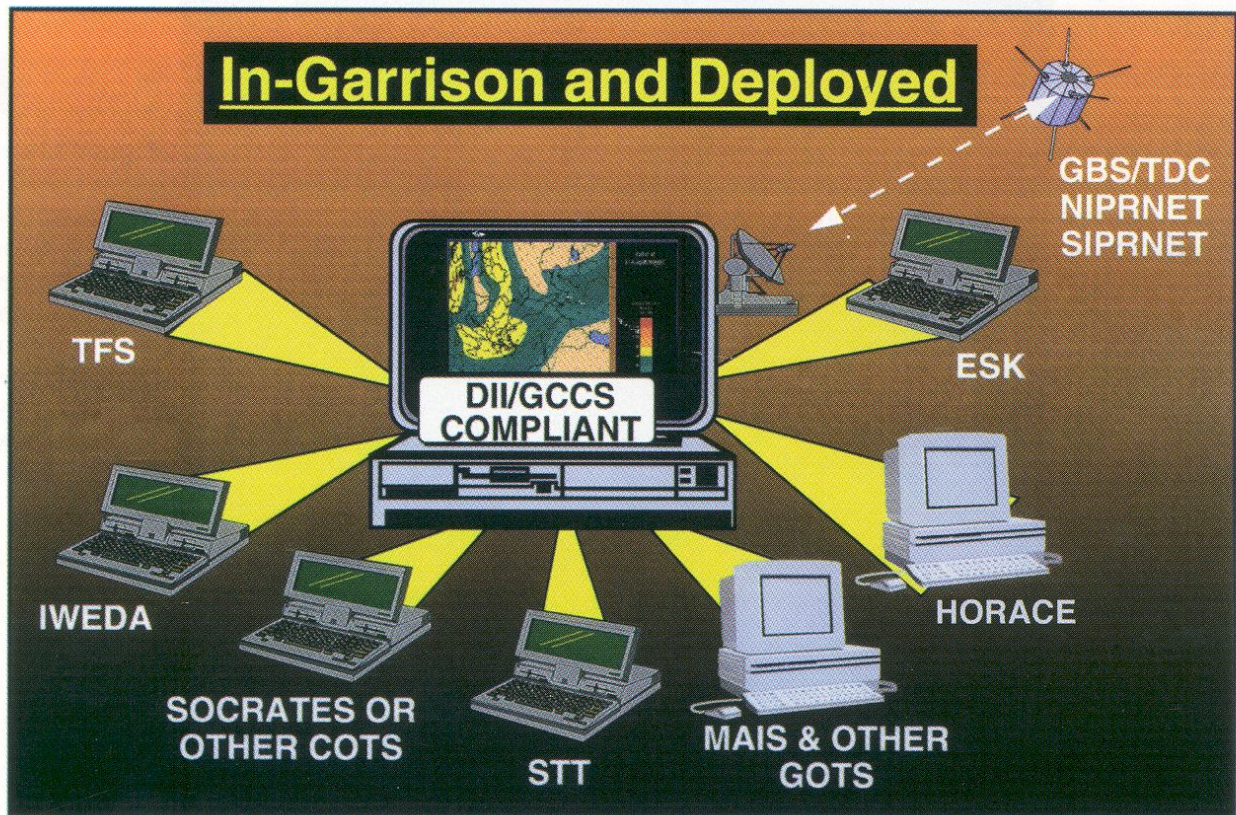


Figure 17

## CWT TECHNICAL END STATE

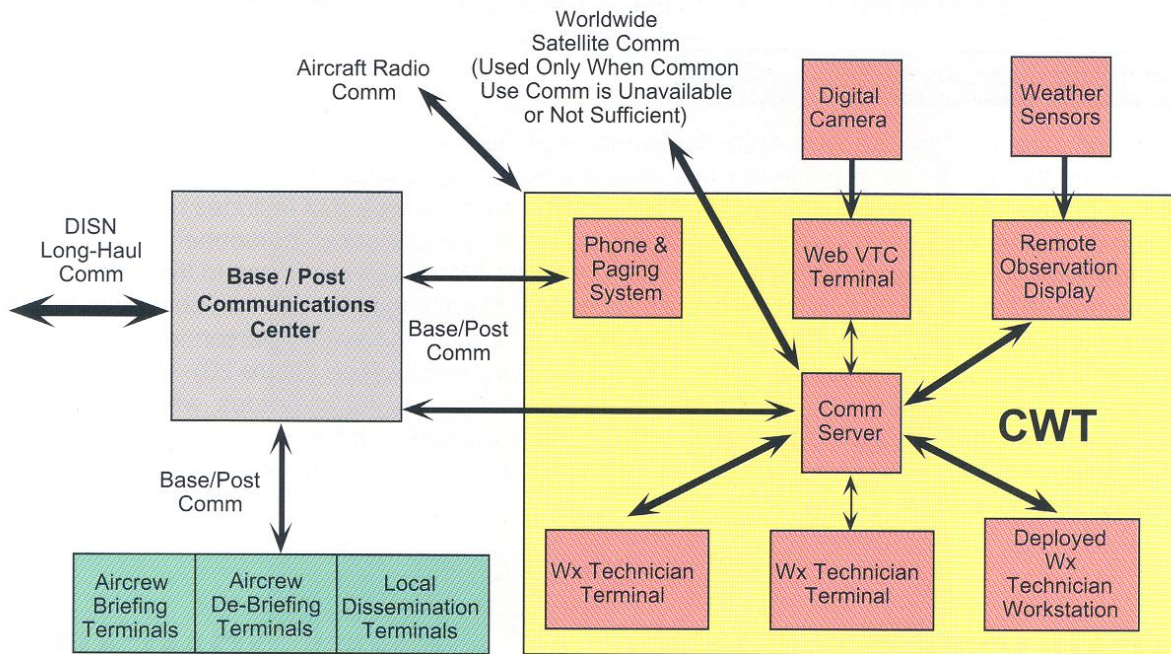


Figure 18

## HUB TECHNICAL END STATE

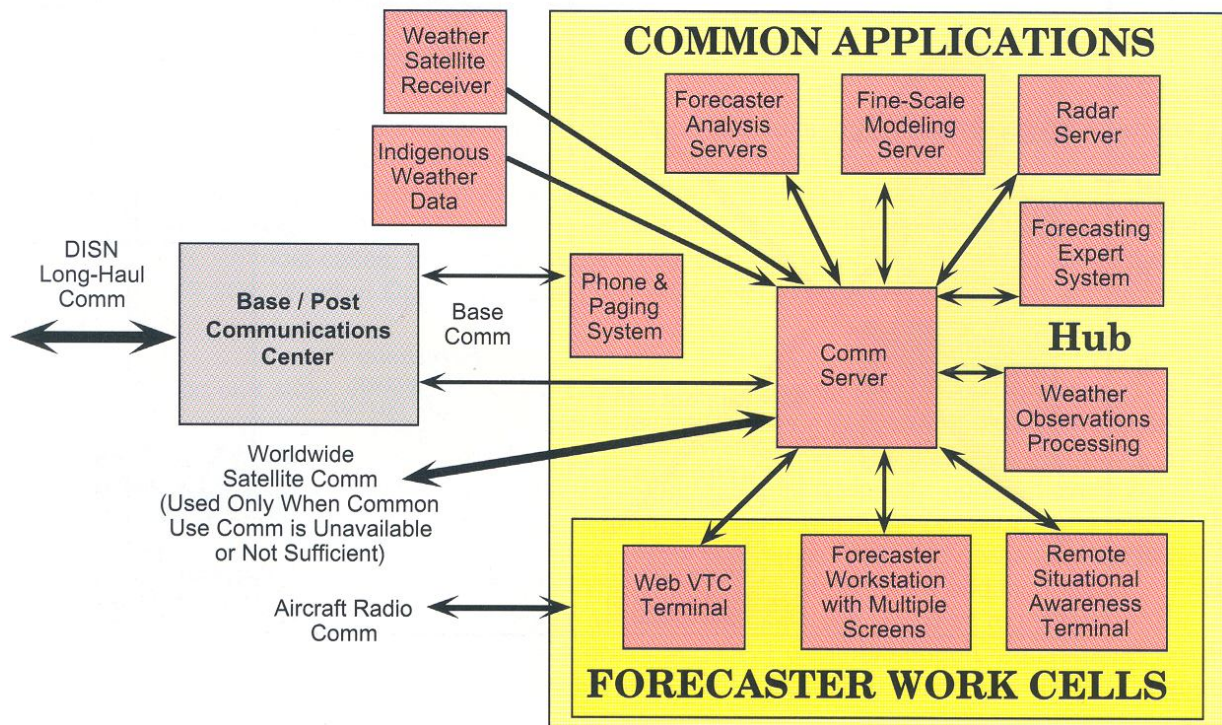


Figure 19

# AIR FORCE WEATHER STRATEGIC PLAN

## Training and Career Progression

### Enlisted Training and Career Progression

Training and career progression are essential elements of the new envisioned end state, and will be accomplished through an appropriate mix of in-residence training, distance-learning courses, and structured on-the-job training (OJT). An organizational structure change that includes regional operational weather squadrons, enabling a critical mass of very experienced personnel to mentor the pool of low-experience personnel that arrive directly from the formal schools is key to the AFW reengineering efforts. Also, we will change past paradigms of training to be weather observers first, and then becoming a weather forecaster. This practice caused a break in weather personnel's technical development and produced a non-standard Air Force career structure (see Figure 20)—the use of manpower was not optimized. We will also create duty environments, for all grades, which are fully integrated into weather warfighting operations. The changes outlined above will not only foster job satisfaction but will also create a career mentoring environment which builds professional commitment to integrity, service, and excellence.

## ENLISTED TECHNICAL DEVELOPMENT

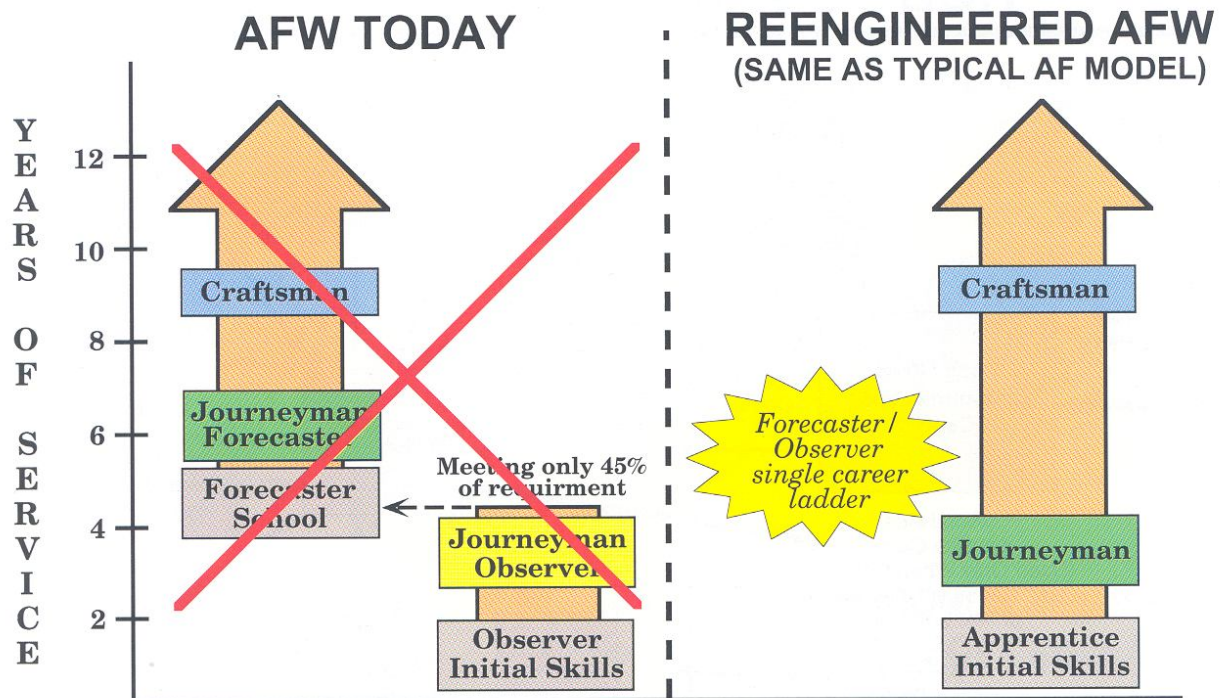


Figure 20

# AIR FORCE WEATHER STRATEGIC PLAN

## Initial Skills Training and Career Progression (Figure 21)

In close coordination with AETC and other military services, AFW will follow prescribed processes to "retool" the curriculum taught in AETC weather officer and enlisted initial skills training courses to target hub duty position task proficiencies. For enlisted apprentices, this training will focus on the collection (metwatch), analysis, and forecasting of weather information and processes in the production of weather warfighting products. Initial-skills training will be accomplished primarily in the apprentice in-residence course taught by AETC. Completion of the course results in award of the 3 skill level weather AFSC to the individual. All AFW enlisted personnel, upon entering the 1W0X1 career field, will attend this initial-skills course. Following successful completion of this course, airmen are assigned to a weather hub where the capability will exist to train, mentor, and grow personnel into experienced forecasters.

Air National Guard (ANG) personnel will perform 75 days of follow-on training at the regional hubs to refine newly acquired weather skills. However, due to the nature of ANG wartime taskings, their first assignment will normally be to a CWT. The ANG training program at Camp Blanding, Florida, will continue to emphasize practical hands on experience for new weather technicians, focusing on Army tactical support in the field.

## ENLISTED CAREER FLOW

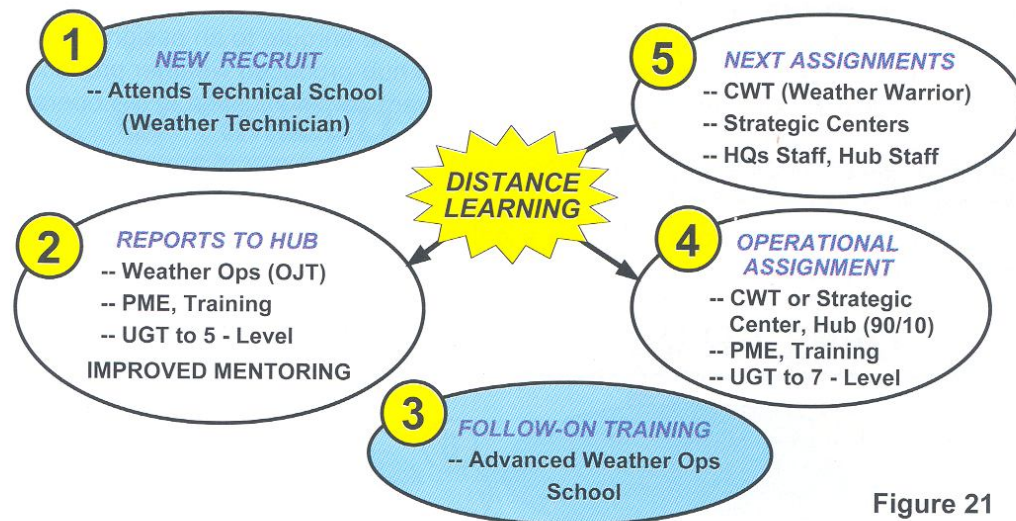


Figure 21

## On-the-Job Training (OJT) and 5 Skill Level Upgrade Training (UGT) (Figure 22)

After completing Initial Skills Training, newly assigned weather apprentices (3 skill level) will enter OJT/UGT. The new OJT training structures will place inexperienced people in regional weather hubs where they will build experience and confidence on the shoulders of experienced mentors using the latest tools in terrestrial and space weather technology. OJT programs will consist of master training programs, standardized position qualification, upgrade training packages, and outsourced training programs integrating new training technologies such as distance learning. This training process, along with completing the weather Career Field Development Course (CDCs), normally takes about 2 years.

## ENVISIONED END STATE Enlisted Career Flow Optimized

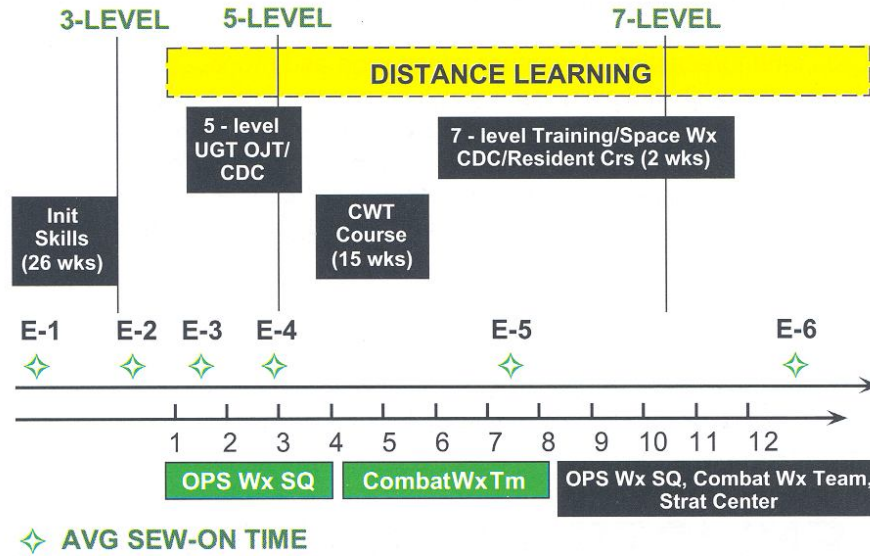


Figure 22

### CWT Course and Career Progression

Hub experienced forecasters (5-levels) will attend a CWT course enroute to an assignment as “combat warriors” in base-level CWTs. Training will focus on tailoring hub-produced weather products for specific operational missions and timely, accurate, and relevant communication to the operator.

### Officer Training and Career Progression

Officer training and assignment options will follow a logical progression to ensure officers are properly mentored in both military weather and warfighter operations (Figure 23).

## OFFICER INITIAL CAREER FLOW

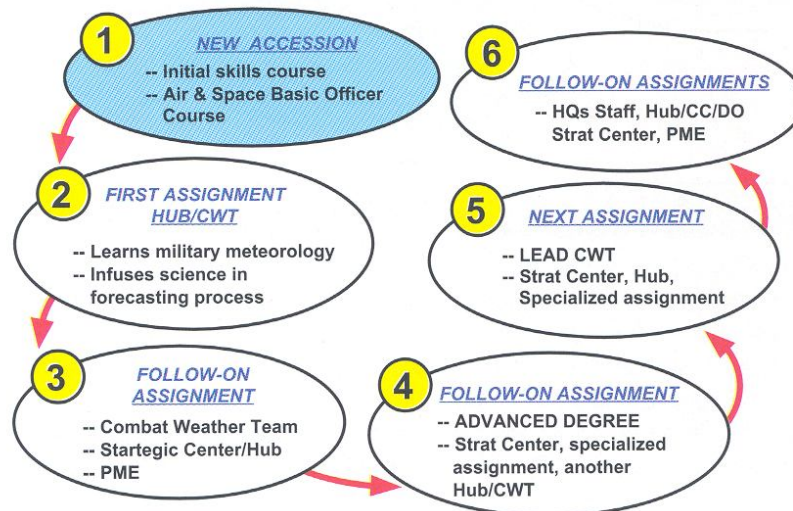


Figure 23

# AIR FORCE WEATHER STRATEGIC PLAN

## Career Progression (Figure 24)

There will be no changes to entry level requirements in the weather career field for officers. Weather officers enter active duty with a degree in meteorology, providing the career field with the needed scientific foundation. Most officers will initially be assigned to a regional weather hub, where they will learn military meteorology. In addition, they will be able to use their recently acquired degree to infuse science (latest forecasting techniques and up-to-date meteorological information) into their unit's operations while supporting their customers. Reserve component officers will normally follow the same progression, except for Standard Assignment Path, which will be determined by the unit of assignment.

## ENVISIONED END STATE Officer Career Flow Optimized

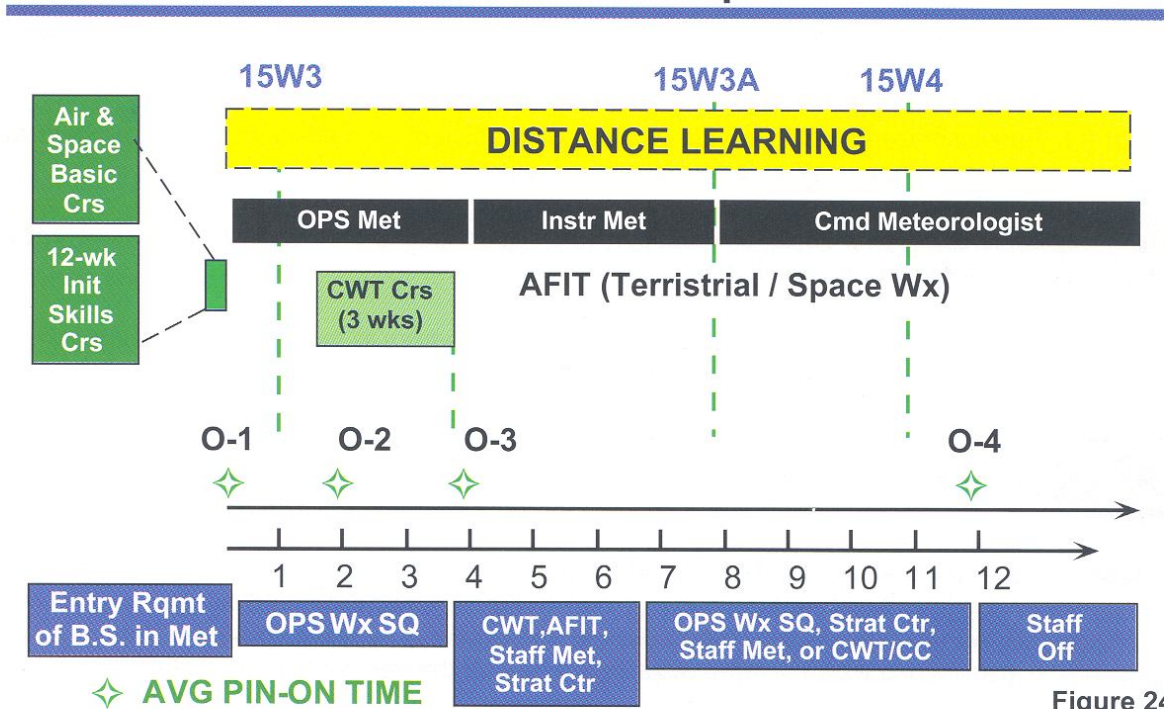


Figure 24

## Support Tools for OJT

Supplemental training required to support OJT and to qualify weather personnel to manage unique equipment and perform specialized tasks at the hub and CWT will be available through AETC and contractor, in-residence, and distance-learning courses. New requirements for supplemental training will be identified locally and routed through the appropriate MAJCOM functional manager to be addressed by the AFW utilization and training process.

# AIR FORCE WEATHER STRATEGIC PLAN

## V. GOALS AND OBJECTIVES

### Overarching Goal

*Provide the world's best weather information—accurate, relevant, and timely—to America's air, space, and ground forces*

**Goal #1:** Focus weather support on the operator by optimizing the Air Force Weather processes, structure, and career path to put experienced people at the tactical level, and reduce AFW funding needs.

**Goal #2:** Expand space and terrestrial weather observing capabilities, infuse meteorology, and exploit science and technology to enhance operator support, resulting in an improvement in AFW operational forecast accuracy by 15 percent and product timeliness by 30 percent.

**Goal #3:** Implement the end-to-end processes, organization, and systems that provide a seamless transition of AFW operations from peace to war.

**Goal #4:** Revolutionize training—create a continuous, efficient, and effective training process to build the premier combat weather force focused on operations.

**Goal #5:** Implement communications and software capabilities to provide fast, responsive, reliable, and relevant weather information to the operator.

**Goal #6:** Implement an operator-focused AFW metrics program to monitor the operational, technical, personnel, and resource health of the AFW system.

### GOAL #1:

**Focus weather support on the operator by optimizing the Air Force Weather processes, structure, and career path to put experienced people at the tactical level and reduce AFW funding needs.**

**Objective 1:** Reorganize AFW to create staffed, trained, equipped, and operations-focused regional hubs (weather squadrons) in appropriate theaters with Combat/Unit Weather Teams (CWTs) which are fully integrated into operations at appropriate AF and Army installations within 4 years (establish tests in 2 theaters within 15 months).

**Objective 2:** Restructure Air Force Weather Agency (XOW Field Operating Agency) within 36 months—reducing resources by 10%, improving operational focus, and improving quality and accuracy of weather support by 15%.

**Objective 3:** Develop, publish, and implement within 9 months an AFW career path that will lead to experienced, ready-to-deploy weather operators.

**Objective 4:** Complete implementation of a single career ladder for AFW enlisted force by 2001 (develop and establish the program that will implement the single career path within 6 months).

**Objective 5:** Pursue the use of outsourcing and privatization (O&P) in a way that sustains readiness and improves operator support (initial plan for AFW within 6 months).

# AIR FORCE WEATHER STRATEGIC PLAN

**Objective 6:** Revamp and implement the stan-eval program to ensure it supports the new AFW envisioned end state/organizational structure within 12 months.

**Objective 7:** Establish functional policy and guidance within 18 months that implements the processes, structure, training, and career path given the envisioned AFW end state outlined in this plan (initial guidance published within 9 months).

## GOAL #2:

*Expand space and terrestrial weather observing capabilities, infuse meteorology, and exploit science and technology to enhance operator support, resulting in an improvement in AFW operational forecast accuracy by 15 percent and product timeliness by 30 percent.*

**Objective 1:** Improve space weather observing by exploiting existing/emerging platforms to sense weather information (initial capability within 36 months).

**Objective 2:** Improve terrestrial weather observing by exploiting existing/emerging platforms to sense weather information (initial capability within 24 months).

**Objective 3:** Establish an accelerated weather system acquisition and maintenance program within 9 months which will result in the fielding of an end-to-end integrated weather support architecture that is consistent with the Joint Technical Architectures and which will provide highly accurate, timely, and relevant battlespace information to operators within 36 months.

**Objective 4:** Fully implement an integrated, robust suite of four-dimensional, operator-focused visualizations for worldwide operations within 36 months (initial capability in 6 months).

**Objective 5:** Implement state-of-the-art fine-scale forecast models within 9 months for two CINC AORs, and the US, and for a worldwide 6-simultaneous AOR plus US capability within 18 months.

**Objective 6:** Field an automated, worldwide pilot briefing system that meets the needs of Total-Force customers within 24 months (75 percent fielding and worldwide capability within 9 months).

**Objective 7:** Support AF and DoD Modeling and Simulation activities with realistic and highly accurate air and space representations to aid operator decisions, acquisitions, and training within 36 months (initial data repository capability within 18 months).

**Objective 8:** Fully exploit current and near-term internet and state-of-the-art communications technologies to develop flexible in-place and deployable capabilities for operator support within 24 months; investigate and create a "virtual weather station" for use by AFW people to support operational missions from anywhere in the world within 30 months (initial capability in 12 months).

**Objective 9:** Transition the space environment model (from Space Environmental Technical Transition (SETT) contract) from the current development effort to an operational capability Dec 99.

**Objective 10:** Provide improved tactical decision aid support for warfighter weapons systems within

# AIR FORCE WEATHER STRATEGIC PLAN

36 months (initial upgraded capability in 18 months).

**Objective 11:** Increase the amount of worldwide observational data currently used by 10 percent within 36 months and by 25 percent in 7 years (e.g., satellite, National Technical Means, radar, lightning, wind, space, etc.).

**Objective 12:** Fully integrate weather information into AF and Joint C2 Systems (e.g., AFMSS, Theater Battle Management Core System, GCCS architecture, GCSS, etc.) within 36 months.

**Objective 13:** Enhance climatological support for the operator within 36 months by improving the usability of products while improving the accuracy and extent of the climatological data repository by 15% (initial improved capability in 18 months).

**Objective 14:** Implement within 24 months a CINC, first-look target weather cell within the GWC Division of the AFWA that can provide highly accurate, relevant target weather information for any target, anytime, anywhere in the world.

## GOAL #3:

*Implement the end-to-end processes, organization, and systems that provide a seamless transition of AFW operations from peace to war.*

**Objective 1:** Implement AF weather functional and technical weather architectures that ensure the use of the same techniques, procedures, organizational structures, and systems in peace and war within 5 years (complete a detailed action plan in 9 months and field initial consolidation in 18 months).

**Objective 2:** Taking into account the new envisioned end state/functional architecture for AFW, within 36 months modify wartime deliberate/contingency plans to fully exploit the Total Force and the hub/CWT framework.

**Objective 3:** Implement within 36 months; the technical architecture that provides highly accurate, fine scale 4-D weather information to CWTs for use in supporting their customers whether operating at home station or in a deployed environment.

**Objective 4:** Establish and fully document within 24 months the requirements for the future weather systems needed to support and help implement the AF vision of Global Engagement.

**Objective 5:** Establish the AF Combat Weather Center as the premier combat weather reinvention laboratory within 36 months. Create a test bed within 36 months for home-station and deployed weather operational concepts and equipment to help implement a seamless transition from peace to war in AFW (initial capability in 9 months).

## GOAL #4:

*Revolutionize training—create a continuous, efficient, and effective training process to build the premier combat weather force focused on operations.*

**Objective 1:** Implement a weather capabilities awareness program within 18 months for operators and other AFW customers that enables the operator to better anticipate and exploit the weather through a full understanding of AFW capabilities.

**Objective 2:** Create a comprehensive training program to include formal schoolhouse and on-the-job

# AIR FORCE WEATHER STRATEGIC PLAN

training programs for core observing and forecasting skills (including tactical skills) applicable to active duty, Guard, and Reserve Forces for supporting both AF and Army operators by Fall 98 (initial capability on-line in Mar 98 to begin training new recruits and the AFW enlisted force).

- Objective 3:** Implement a process to train weather people on operator missions at all levels, including AF, Army, SOF, and joint (JFACC, JFLCC, JMFU, etc.) missions within 36 months (field limited-capability version within 18 months).
- Objective 4:** Establish and implement the capability to train AFW officers, enlisted, and civilians in the "art of weather warfare" in the reengineered AFW within 24 months.
- Objective 5:** Completely restructure the schoolhouse curriculum to support the new AFW envisioned end state by May 99.
- Objective 6:** Create and implement an AFW "distance learning" training program within 36 months (initial capability in 24 months). Integrate this program with the schoolhouse training program.
- Objective 7:** Implement a continuous training process in the strategic centers, hubs, and CWTs that improves stan-eval scores by 20 percent within 36 months.

## GOAL #5:

*Implement communications and software capabilities to provide fast, responsive, reliable, and relevant weather information to the operator.*

- Objective 1:** Ensure each deployable CWT has access to a first-in communications capability (e.g., GBS) and has a robust satellite receiving capability (e.g., STT) to improve operator support, within 36 months.
- Objective 2:** In cooperation with AF/SC, incorporate AFW needs in AF-planned communications at all levels within 12 months.
- Objective 3:** In cooperation with AF/SC, migrate AFW communications to DoD standard communications within 36 months.
- Objective 4:** Migrate to "international data set" standards for the transmission/receipt of weather information within 24 months.

## GOAL #6:

*Implement a operator-focused AFW metrics program to monitor the operational, technical, personnel, and resource health of the AFW system.*

- Objective 1:** Determine within 6 months the set of metrics that will provide the ability to monitor the operational, technical, personnel, and resource health of the end-to-end AFW system.
- Objective 2:** Fully implement a program to collect and monitor the set of AFW metrics from Objective 1 within 18 months. (Initial capability within 9 months).
- Objective 3:** Update this strategic plan annually based on evolving AF/Army strategic guidance and AFW metrics

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## VI. IMPLEMENTATION STRATEGY

Activation of the AFW Reengineering plan will begin in the fall of 1997 with full implementation phased in over a 6-year period. Figure 25 shows the initial target implementation timeline. Under the concept of "build a little, test a little" the organizational structure, CONOPS, training philosophy, technology exploitation, and communication integration will be refined during this process. The implementation of this effort will be accomplished within existing AFW program resources. The phased implementation approach will allow a smooth and gradual transition with improved support to the warfighter's operations. Organizational changes will begin with the stand up of the Alaskan hub in October 1997. This will be a test bed to validate and refine the concepts laid out in this strategic plan.

### Initial Target Implementation Timeline IMPLEMENTATION

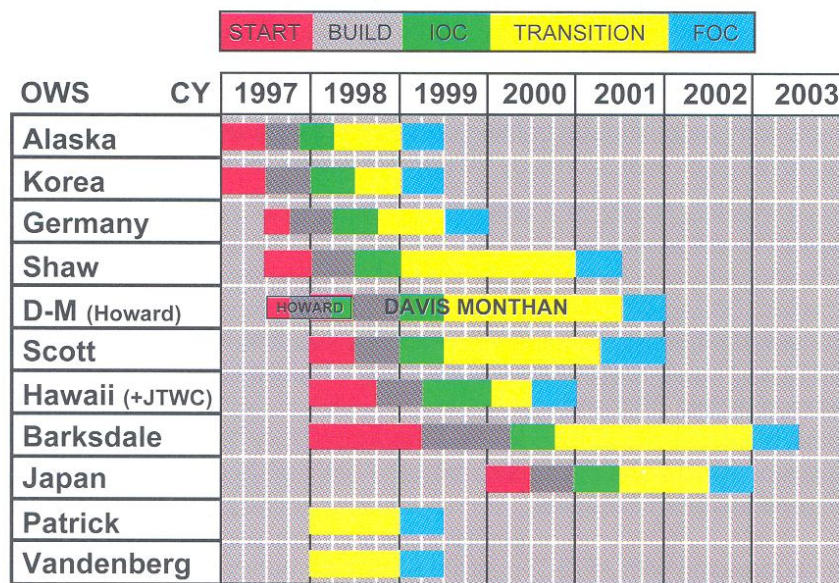


Figure 25

As mentioned above, the implementation of this effort will be accomplished within existing AFW program resources. Preliminary analysis indicates sufficient resources exist (see Section VII—Cost/Benefit Overview for more details) within AFW to complete the reengineering effort; however, existing programs and priorities will need to be adjusted accordingly. By using contract personnel to perform selected functions (like global-scale icing, turbulence, and thunderstorm forecasts) at the Global Weather Center division (AFWA), additional manpower can be moved to form a nucleus for hub implementation and operation. Some weather manpower resources will migrate from existing base-level weather stations and the Air Force Weather Agency (FOA) to form the new hubs. Formation of the regional hubs and implementing new operational concepts will solve AFW's current 545 manpower shortfall. The bottom line: Preliminary analysis reveals the CWTs and regional weather hubs can be formed through existing weather resources.

Installation level functions and responsibilities will gradually transfer to the hub as manpower authorizations and personnel migrate from base/post weather units and the FOA. The first hub (Alaska) will have an Initial Operational Capability (IOC) in the fall of 1997, and implementation will culminate with Full Operational Capability (FOC) of all hubs by the summer of 2003. By July 1998, the Alaskan hub will have assumed nearly all of the agreed upon responsibilities (in a memorandum of agreement

# AIR FORCE WEATHER STRATEGIC PLAN

between the Hub and the supported AF/Army units as described earlier) and the base/post weather units will have evolved into fully operational CWTs. Lessons learned from the Alaskan hub will be incorporated into follow-on hubs.

## Initial Target Technical Timeline

Technology will be the enabler that makes many of these organizational and operational changes possible. Figure 26 shows typical tasks and associated timelines during the stand up of a hub. Robust communication systems and state-of-the-art science, to include fine-scale, highly accurate weather models, will allow the hubs to produce relevant and very accurate products. The application of the same software in peace and war will reduce the training burden on AFW while allowing for a seamless transition as operations shift from peacetime support to a wartime environment. Reliable and responsive first-in communications will ensure the warfighters receive the same high level of support in the deployed environment as they do at home station or in-garrison. The technology will be incrementally phased into the hubs and CWTs. The "build a little, test a little, field a little" concept will be used to refine the amount and type of technology and communication needed to optimize this new organizational structure and meet operational weather support requirements. Acquiring the necessary systems and networks, and implementing the envisioned end-state will be accomplished by leveraging existing resources at the centralized hub locations. Additionally, through modifications to some existing AFW programs, new and improved open-systems equipment have recently been acquired. Reengineering will allow this new equipment to be configured to operate with the same software in peace and war. Additionally, technology improvements will be implemented at space weather observing sites around the world.

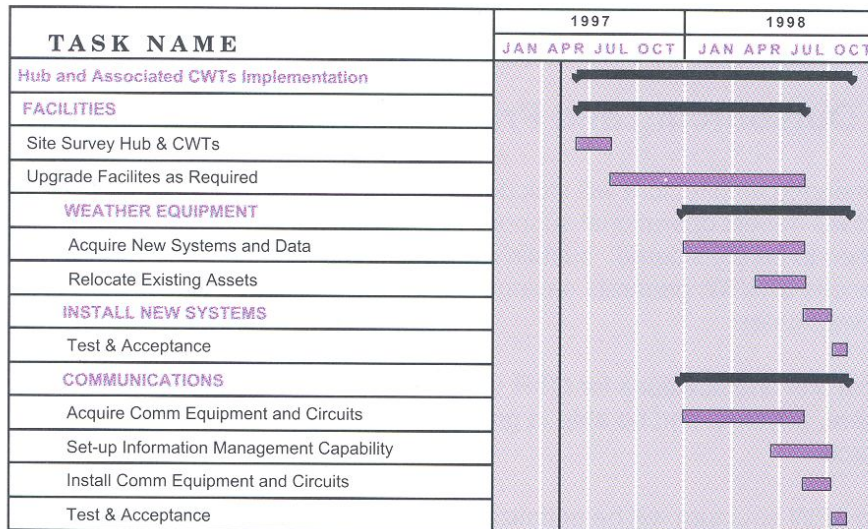


Figure 26

## Initial Target Training Timeline

At the same time the hubs and CWTs are being stood up, technological improvements will be ongoing within the strategic centers (AFWA, AFCCC, 55 SWXS, JTWC, and TACC) to improve their ability to support the hubs and CWTs. Training must change to keep pace with the organizational, operational, and technological changes previously mentioned (Figure 27). Most importantly, the enlisted weather career path is changed from the dual track observer/forecaster to a single weather technician career path. Under this concept, the enlisted weather technician will then be 3-, 5-, or 7-level skilled (who are to perform both observing and forecasting tasks qualified at their respective skill level). As a result, the

# AIR FORCE WEATHER STRATEGIC PLAN

weather enlisted skill level progression will look like the traditional AF career path, and allow the weather schoolhouse to revise its curriculum to turn out productive weather technicians from the initial skills course. **In close coordination with AETC and other military services, AFW will follow prescribed procedures to “retool” the curriculum taught in AETC weather officers and enlisted initial skills training courses to target regional weather hub duty position task proficiencies.** Since the hubs will have a “critical mass” of weather personnel, to include experienced officers and NCOs, they will have an enhanced capability to train and mentor the graduates of the initial skills courses. These graduates will then be available to the CWTs on their next assignment.

## Initial Target Training Transition Timeline

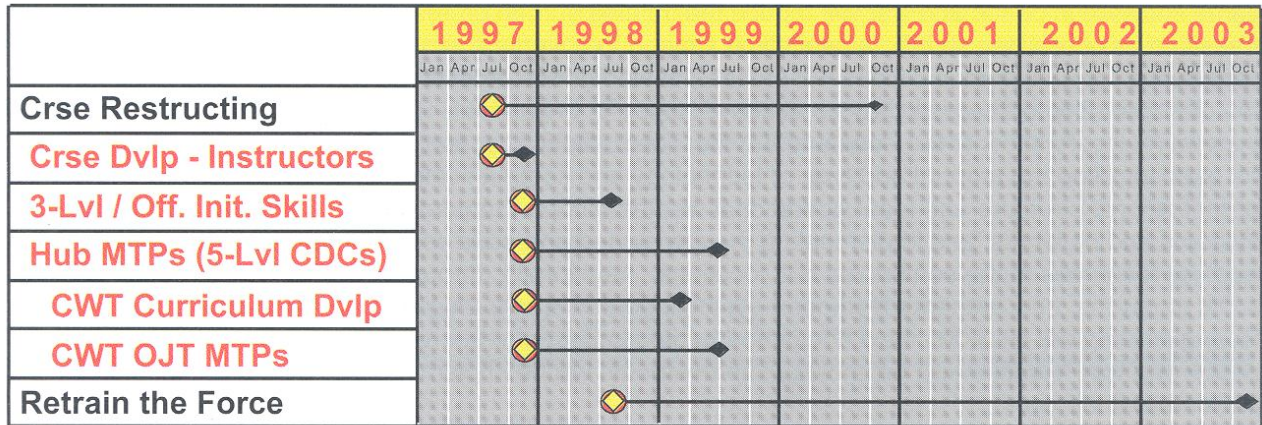


Figure 27

## Outsourcing and Privatization (O&P) Strategy

The AFW Reengineering architecture will include outsourcing and privatization (O&P) initiatives where it makes sense and will benefit operational support. As AFW evaluates outsourcing and privatization, the following goals need to be considered: sustain readiness; improve the performance, quality, efficiency, and cost effectiveness of AFW; generate savings for AF modernization; and focus personnel and resources on the warfighter.

As we identify locations and functions for O&P, we must preserve our capabilities to support the warfighter anywhere, anytime, and be able to grow weather warriors to sustain an experienced and capable career force.

The reengineered AFW structure will be optimized to facilitate O&P initiatives. AFW O&P strategy will concentrate on the non-military essential and government civilians positions not only within the weather career field, but also non-weather personnel (e.g., communications and computer operations and weather maintenance) supporting AFW operations. Locations or functions that are not forward based and do not have UTC taskings are candidates. CONUS locations or functions with augmentation UTCs are secondary candidates when UTC taskings can be realigned. In either course of action, AFW will be working closely with AF/DP to ensure career field sustainment, to maintain readiness, and maintain experience and technical leadership within the AFW enlisted and officer corps.

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## VII. COST/BENEFIT OVERVIEW

The Reengineering of AFW will focus on improved support to the operator. Primary goals are to improve accuracy of forecast products by 15 percent, timeliness of products and services by 30 percent, reduce manpower by FY03 and beyond, and to reduce out-year funding costs. Preliminary analysis indicates sufficient resources exist within AFW to complete the reengineering effort; however, existing programs and priorities will need to be adjusted accordingly. Upon reaching FOC, additional resource savings are expected. There will be numerous benefits to AF and Army operational commands while the costs involved with the implementation will be kept within current AFW resource limits. Within AFW, savings will be achieved with the consolidation of FOA units and operations and cost avoidance of 545 manpower shortfalls. The migration to an organizational structure (regional hubs or squadrons) which will significantly reduce future infrastructure costs by having 13 regional hubs vice the 132 base weather station forecast centers of today. The base weather stations or CWTs of the future will need some technology, but only 20 to 30 percent of what is currently required.

The cost-benefits ratio to the warfighters will be significantly better but may be more difficult to quantify. A Martin Marietta study identified that a 10 percent improvement in forecast skills could have provided a \$1.25 billion cost savings in improved target kills in a Korean war scenario (Figures 28 and 29). Fuel savings in improved wind forecasts equates to millions of dollars saved by the strategic airlift force. In addition, a timely weather warning or advisory for severe weather which allows operators to hanger aircraft could save millions, or billions in the case of the B-2. For Army Land Force Commanders, accurate weather forecasts enables the commanders to focus resources on high payoff targets, matching weapon systems most capable of performing in the predicted weather environment. Bottom line: commanders use the weather effects information to save lives and maximize lethality of combat power. Consistently accurate takeoff/recovery, enroute, and target forecasts, that enable warfighters to avoid weather aborts and focus all resources on targets unrestricted by weather allow commanders to "own the weather for battle."

## FUTURE LEVERAGE PAYOFF (PGMs)

### WHAT DOES A 10% IMPROVEMENT IN FORECASTING MEAN?

- Significant Cost/Kill Savings Result from Better Cloud Cover, Ceiling, and Visibility Forecasts
  - \$125K Savings Per PGM Kill
  - 10,000 Kills = Savings of \$1.25B
  - Increased Probability of Kill
- Ref: Martin-Marietta Report 1992-93

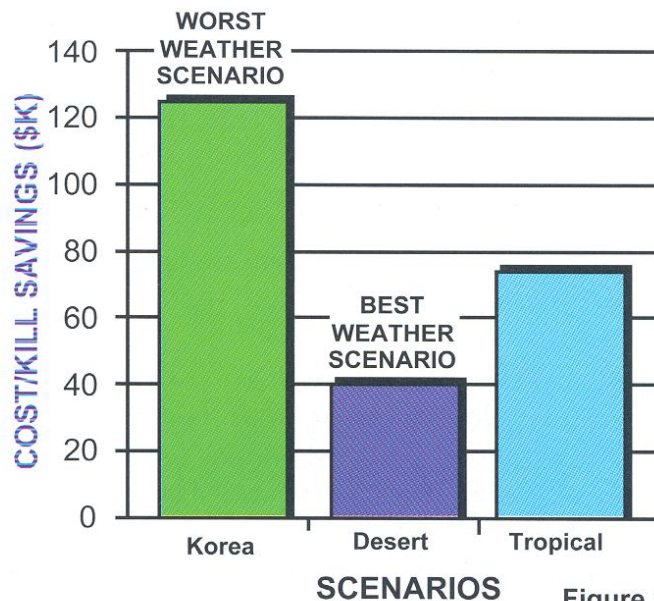


Figure 28

## LEVERAGE PAYOFF

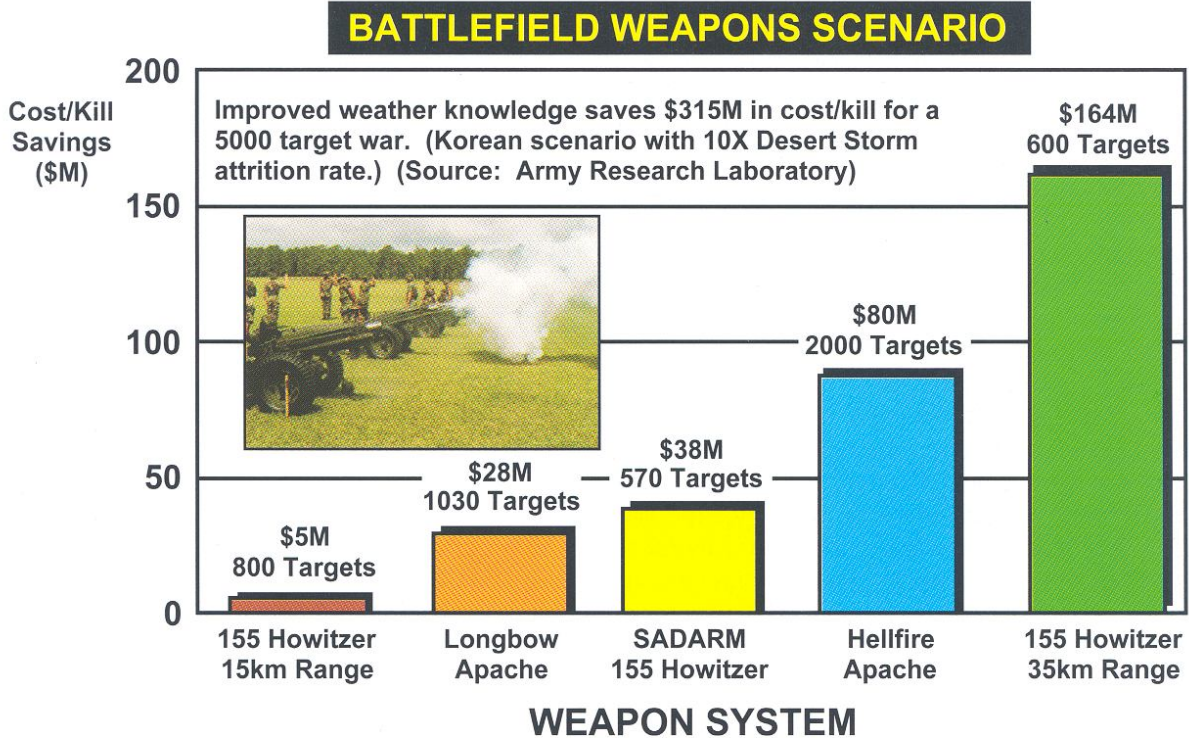


Figure 29

Although a formal cost analysis has not been completed, the reengineering effort will yield great savings now and in the future both in terms of cost avoidance and in strategic positioning for real returns on technology investments. Some cost savings/benefits will be as follows (Figures 30 and 31):

## BENEFITS

- Enhance operator support by improving forecast accuracy by 15% ("Own the Wx")
  - More weapons on target
    - Provides winning edge and shortens war
    - Saves over \$315M in Korean War Scenario (Martin Marietta studies) -- saves lives
  - Flying safety and resource protection improved
- Optimize structure and career path -- put higher skilled people with operator
  - Field level experience from 4.3 to 7.3 years
  - Establish single weather career ladder
  - Achieve 65% first term retention rate
  - Enhance "Reach Back"--reduce footprint 30%

Figure 30

## BENEFITS (cont)

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- Create a continuous, efficient and effective training process--focused on combat ops
  - Replace PCS school (250/yr) with shorter TDY course
  - Save resources with distance learning
- Implement more efficient organization structure (enable with technology)
  - Manpower shortfall of 545 resolved
  - Reduces AFW funding costs in out years
  - Reduces manpower in out years
- Improve health of weather career field

Figure 31

Manpower cost avoidances: 545 manpower positions required by MAJCOMs today to fix day-to-day ops tempo, experience level, training, and mentoring shortfalls.

- Reduced future acquisition and operations and maintenance costs—13 high tech regional weather hubs vice 132 weather stations of today.
- Migrating to integrated new weather systems will reduce the overall cost of ownership.
- Outsourcing and privatization—wartime taskings better aligned and an organizational structure that will allow the AF to be better postured to consider additional functions.
- Streamlined training and a single career field—formal training potentially reduced by a total of 4 weeks—a 10 percent savings which equates to approximately 4 man-years in TDYs alone. Distant learning savings are yet to be determined.
- New technology which will allow the operators to “see” the severe weather situation well in advance with a high degree of accuracy, allowing customers to evacuate/hanger high cost resources—billions of dollars of potential savings.
- Deployable communications systems and an organizational support structure which will allow operators “reach back” and reduce weather personnel deployment footprints by 30+ percent, depending on scenarios.
- Increased reenlistment rates resulting in lower TDY school costs and more productivity for the Air Force. A 20-30 percent improvement from lows of 38 per cent that occurred in late 1996 to 50-60 percent and more by providing our enlisted force with the training, organizational structure, and technology to achieve success.
- Extremely accurate and fine scale products that will allow operators “to own the weather for battle,” and anticipate and exploit weather vice cope and avoid—savings in reduced combat casualties immeasurable.

## AIR FORCE WEATHER STRATEGIC PLAN

The true out-year cost savings will be significant. A return on reengineering investments is virtually assured since the AFW model is from a proven business formula which uses prudent regionalization to gain efficiency while reducing the complex personnel and logistic requirements forward. Manpower for both the CWTs and regional hubs will be initially robustly structured to ensure success until technology is in place. As implementation occurs, new manpower standards will be initiated and the sizes of regional hubs and CWTs may be reduced. Additional manpower savings when compared to FY97 levels can be expected by FY03 and beyond.

## VIII. CONCLUSION

Air Force Weather is at a true cross-road: We can stay as is or we can act now to implement the major shift in operational weather support philosophies outlined in this strategic plan. This plan must be implemented so we can improve Air Force Weather operations and support for the warfighter and other operators.

### REENGINEERING RESULTS



Figure 32

Figure 32 (above) summarizes the results of implementing the AFW reengineering plan:

a. Weather products meet the needs of the operator—relevant, customer focused, fine-scale, and highly accurate. In fact, forecast accuracy will improve by 15 percent.

b. By only assigning experienced people to CWTs, weather experience for people supporting the “tip of the spear” customers increases from 4.3 to 7.3 years. Additionally, as shown in Figures 33a and 33b, by retooling the weather career path and putting more experienced people at CWTs, the effective weather technician manning is improved.

c. A continuous, efficient, and effective training process is created. The training and mentoring of weather people, teaching them the “Art of Weather Warfare,” is vastly improved.

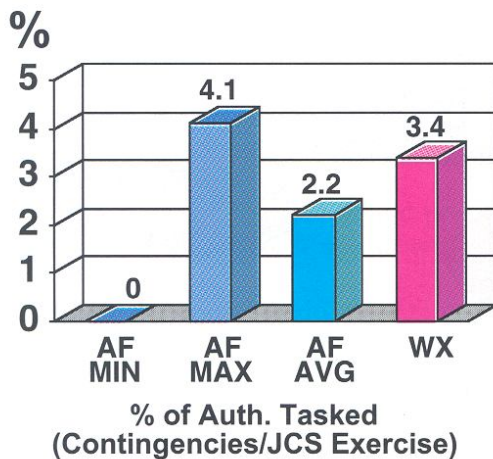
d. By more effectively using our weather resources, CWTs will have additional time for mission-focused training.

e. The reengineered FOA will be more ops focused, with an “end-to-end” weather systems perspective.

- f. The transition from peacetime to wartime operations will be seamless—ensuring much improved operator support when they need it the most.
- g. Weather people assigned to base-level weather units, the CWTs, will be totally mission and operations focused...in garrison and deployed.
- h. The total AFW organization and career field, to include career flow and technical development, is optimized. These actions will reduce the acquisition and O&M costs and manpower in the out-years.

## PERSONNEL TEMPO--PRE-REENGINEERING

### Organization and career field not optimized



#### WX FLIGHT DEMOGRAPHICS:

##### From a 18-person Unit

- 2.2 in certification training
- 1.0 deployed (FTX, Palace Tenure)
- 1.5 on Leave
- 0.5 TDY for misc. courses
- 1.5 for 85 percent manning in forecasters (10)

Leaves **11.3** Fcstrs & Obsvrs to perform **total** mission

#### KEY FACTORS

Small unit size - reduced flexibility  
 Most of home station workload remains  
 AFW Forecaster Manning 85 percent  
 Manpower Shortfall: 545

Figure 33a

## PERSONNEL TEMPO--POST REENGINEERING

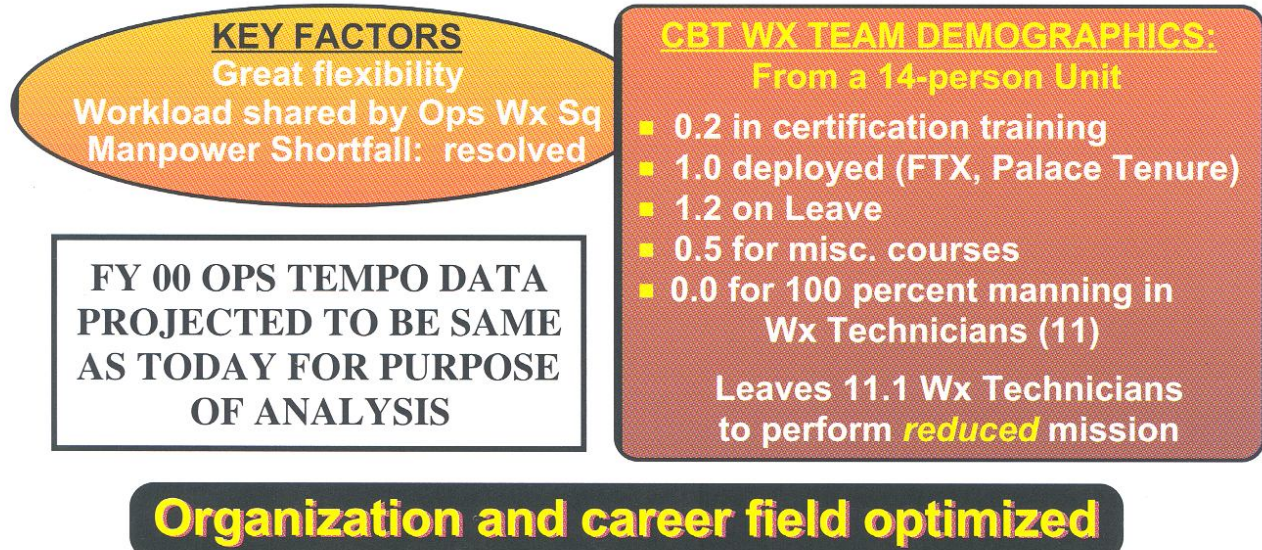


Figure 33b

The Air Force Weather Strategic Plan is a living document. When changes occur to Air Force doctrine and missions, this plan will be revisited and updated.

- Implementation planning begins where strategic planning ends
- During implementation planning, a realistic approach will be developed to achieve the vision based on available resources
- Implementation plans will identify logical steps for achieving the Air Force Weather management vision with available resources
- Implementation plans will present a schedule with key milestones, define project initiatives, and include refined resource estimates (funding and personnel)
- Implementation plans will also identify dependencies among the Air Force Weather objectives, and present a logical sequence of project initiatives to ensure smooth implementation

Bottom Line: We have the right plan, the right people, and the drive to improve operational military weather support for the Air Force and Army. As General Fogleman, former CSAF, stated, "We can no longer operate with the paradigms and constructs that we have been operating with since 1945." Air Force Weather **MUST** change to improve weather operations for our customers—the operators and warfighters.

