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SECRETARY OF THE AIR FORCE**



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Weather

**FUNCTIONAL RESOURCE AND WEATHER
TECHNICAL PERFORMANCE EVALUATION**

COMPLIANCE WITH THIS PUBLICATION IS MANDATORY

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This instruction implements AFD 15-1, *Atmospheric and Space Environmental Support*. It provides guidance and procedures for measuring and evaluating the operational effectiveness and technical performance of atmospheric and space environmental support, collectively termed weather support. It applies to all Air Force organizations that provide or receive weather support. Check the appropriate Air Force Master Catalog to determine currency of cited publications. Send comments, suggested changes, or improvements through channels, to HQ USAF/XOWP, 1490 Air Force Pentagon, 20330-1490 for coordination. Major commands (MAJCOMs), Field Operating Agencies (FOAs), and Direct Reporting Units (DRUs) send one copy of supplements to HQ USAF/XOWP. Other commands send one copy of supplements to the next higher headquarters for coordination. Maintain and dispose of all records created as a result of prescribed processes in accordance with AFMAN 33-139, Vol. 4, *Records Disposition Schedule*.

(AFSPC) The OPR for this supplement is HQ AFSPC/XOSW (Mr. Alan Gibbs). This supplement supersedes AFI15-114_AFSPCSUP1, 1 Apr 98. This supplement implements and extends the guidance of Air Force Instruction (AFI) 15-114, ***Functional Resource and Weather Technical Performance Evaluation*** 7 December 2001. The AFI is published word-for-word without editorial review. This supplement describes AFSPC's procedures for use in conjunction with the basic AFI. It applies to Air Force Space Command (AFSPC) and its subordinate units. This supplement does not apply to Air Force Reserve Command or Air National Guard units. The reporting requirement in this directive are licensed under RCS: HAF-XOW(M)9202(Weather Support Evaluation Report). Upon receipt of this integrated supplement, discard the Air Force basic publication.

SUMMARY OF REVISIONS

This document is substantially revised and must be completely reviewed.

This revision adds functional resource evaluation requirements in order to evaluate the total readiness of the entire Air Force Weather (AFW) support system. This publication prescribes AF Form 3810, **Weather Warning and Weather Advisory Data**. It assigns HQ USAF/XOWP as OPR for the instruction. It specifies the goal to employ automated standard Air Force and AFW systems to collect, analyze, and report the status of technical performance and functional resources. It specifies HQ USAF/XOW staff element and Headquarters Air Force Weather Agency (HQ AFWA) roles and responsibilities for evaluating the resource and technical readiness of AFW units worldwide and assigns responsibilities for developing a phased plan to automate the evaluation process. It further specifies that HQ USAF/XOW and HQ AFWA shall use Air Force resource readiness thresholds outlined in Air Force-level guidance and directives.

(AFSPC) This publication is completely revised and incorporates HQ AFSPC specific requirements for metrics reporting criteria and procedures, adds specific detailed requirements for metrics reporting by re-engineered and non re-engineered units, and includes specific reporting criteria in **Attachment 3 (Added)**, along with numerous minor administrative changes. A bar (|) indicates a revision from the previous edition.

1. Weather Support Effectiveness Overview: Evaluating the health of the Air Force Weather (AFW) support system requires an understanding of the impact and effectiveness of weather information provided at each level of military operations. In general, weather support is provided at the tactical level by combat weather teams, at the operational level by operational weather squadrons, and the strategic level by the Air Force Weather Agency. At each level, weather support must be assessed in the following categories: (1) forecast impact on mission execution through Operational Verification (OPVER); (2) forecast accuracy by Aerodrome Forecast Verification (TAFVER); and (3) resource protection effectiveness through Warning/Advisory Verification (WARNVER). Each of these metrics is impacted, underpinned, and enabled by AFW's readiness and training status. Therefore, in addition to performance metrics, AFW will monitor and assess readiness and training metrics by tracking resources (personnel and equipment) required to create and deliver products and services both in-garrison and deployed. At the unit level, metrics should drive improvements in products and services through more focused training, techniques, and procedures. At the headquarters level, metrics should focus efforts to develop and enhance policy and to field systems that enable continuous improvements at the unit level. The ultimate goal of focused AFW metrics is to improve the effectiveness of weather service to warfighters and other customers.

1.1. Combat Weather Teams (CWTs). OPVER of the Mission Execution Forecast (MEF) is the single most important mission-oriented, operational effectiveness assessment requirement for CWTs. CWTs assess OPVER using AFW and customer-derived thresholds and performance measurements consistent with AFW core competencies defined in AFMAN 15-135, *Combat Weather Team Operations*. CWTs develop OPVER criteria through close coordination with operators. CWTs then collect verification data by debriefing customers and/or analyzing observed versus forecast conditions to determine forecast impact on tactical-level mission effectiveness. Although CWTs are not directly responsible for their location's TAF, warnings, or advisories, they are integral to TAFVER/WARNVER programs. CWTs are the "eyes forward", responsible for relaying critical real-time information back to the Operational Weather Squadron (OWS) both before and after a forecast, warning, or advisory is issued. As the "eyes forward," the CWT works with their OWS to assess technical perfor-

mance using TAFVER/WARNVER performance metrics. To improve technical performance, CWTs may adjust local procedures, request technical assistance from their OWS or parent Major Command (MAJCOM), or request new products and services from their OWS. CWTs will assess and report readiness based on the availability and operational status of their authorized and assigned resources (personnel, supplies, equipment, and training). Standard Air Force systems and required reports will be used to identify resource requirements, shortfalls, outages, and personnel training status to their parent MAJCOM.

1.1. (AFSPC) All re-engineered AFSPC combat weather teams (CWTs) and non re-engineered weather squadrons will develop customer-derived, mission execution forecast or operational effectiveness assessments (MEFVER or OPVER). Non re-engineered weather squadrons will also report TAFVER and WARNVER data using the procedures in **para 5.2.** (as supplemented).

1.2. **Operational Weather Squadrons (OWSs).** OWSs share the CWT's operational effectiveness and technical performance focus, but at the operational or theater level. When an OWS provides direct mission support at the operational/theater level, steps must be taken to assess operational effectiveness. OWSs will track OPVER using AFW and customer-derived thresholds and performance measurements consistent with AFW core competencies defined in AFMAN 15-129, *Aerospace Weather Operations--Processes and Procedures*. The OWS may employ direct debriefing methods or collect data that verify specific mission critical parameters for computing accurate OPVER metrics. OWSs may also compute OPVER using data collected by CWTs. Based on OPVER analysis, OWSs may modify or create new products and services, request technical assistance from their MAJCOM or Headquarters Air Force Weather Agency (HQ AFWA), and request new or modified strategic products from HQ AFWA. OWSs will assess technical performance using TAFVER/WARNVER programs utilizing data generated and archived in-house. TAFVER/WARNVER metrics are derived by comparing forecasts, warnings, and advisories issued by the OWS to conditions observed by the CWTs. The CWT's "eyes forward" is integral to the end-to-end TAFVER/WARNVER process. At the front end, the CWT must provide critical information prior to the OWS issuing forecasts, warnings, or advisories. On the back end, the OWS relies on data generated by the CWT to compute TAFVER/WARNVER metrics. Through continuous interaction and teamwork, forecast accuracy improves and resources remain protected. OWSs will assess and report readiness based on the availability and operational status of their authorized and assigned resources (personnel, supplies, equipment, and training). Standard Air Force systems and required reports will be used to identify resource requirements, shortfalls, outages, and personnel training status to their parent MAJCOM. Due to the specialized training mission, the OWS will compute and report specific training metrics. MAJCOMs and HQ USAF/XOW will use this data to accurately track the progress of 3-level initial skills course graduates with the goal of improving training techniques and procedures in AFW.

1.3. **Headquarters Air Force Weather Agency (HQ AFWA).** HQ AFWA supports tactical, operational, and strategic level operations and is therefore required to assess operational effectiveness and technical performance. HQ AFWA may employ direct debriefing or observation methods to collect data that verify specific mission critical parameters for computing accurate OPVER metrics when supporting tactical or operational level missions. For strategic level support to OWS operations, HQ AFWA will evaluate technical performance by collecting data measuring the accuracy of the products issued. For other products and services, HQ AFWA will employ verification metrics to assess and report technical health. Assessments will be used to modify or create new techniques, procedures, products, and services. HQ AFWA will assess and report readiness based on the availability and operational status of their authorized and assigned resources (personnel, supplies, equipment, and train-

ing). Standard Air Force systems and required reports will be used to identify resource requirements, shortfalls, outages, and personnel training status to HQ USAF/XOW.

1.4. Major Commands (MAJCOMs). In general, MAJCOMs evaluate weather support to missions conducted and weapon systems employed by all AF wings and Army echelons within their supported commands. Specifically, MAJCOMs monitor, analyze, and evaluate operational effectiveness and technical performance of all weather support within their commands using CWT and OWS generated OPVER, TAFVER, and WARNVER metrics. MAJCOMs must also monitor the readiness, resource, and training status of all weather units and units with weather support assets within their MAJCOM. Readiness and resource status is monitored through standard Air Force systems and reports but relies on accurate reporting by each OWS and CWT in the command. Using operational effectiveness and technical performance metrics, MAJCOMs create or modify MAJCOM-level techniques, policies, and procedures, or may request technical assistance and guidance from HQ AFWA or the HQ USAF/XOW. Through monitoring status of resources and training metrics, MAJCOMs configure new or modify existing weather capabilities, identify new mission needs to the HQ USAF/XOW and HQ AFWA, and may advocate for resources where shortfalls are evident.

1.5. HQ USAF/XOW. In order to meet the organize, train, and equip role, HQ USAF/XOW, with assistance from HQ AFWA, evaluates weather support AF/ARMY-wide. This includes evaluating support to Joint missions and weapon systems. HQ USAF/XOW and HQ AFWA use MAJCOM reported OPVER, TAFVER, and WARNVER metrics to formulate AFW-wide standards. Standards are then used to evaluate the operational effectiveness and technical health of the entire AFW support system. HQ AFWA also conducts individual unit evaluations and assessments through the AFW standardization and evaluation program. Evaluations and assessments will account for levels of support provided, and the types of weapons systems and missions supported. In addition, HQ USAF/XOW and HQ AFWA will use standard Air Force reporting systems to monitor and assess AFW-wide readiness (personnel, equipment, resources, and training) based on thresholds outlined in Air Force-level directives, policy, and guidance. Using the results of all evaluations and assessments, HQ USAF/XOW and HQ AFWA may modify the AFW strategic plan or program for resources to meet new requirements, create or modify training systems, techniques, policy or procedures, or direct MAJCOMs to create or modify capabilities. The HQ USAF/XOW will specifically use OPVER to explain AFW capabilities and quantify the connection between operationally focused weather support and mission success to DoD and National senior leaders.

2. Automating Readiness and Technical Performance Metrics. The Air Force Weather Concept of Operations for Automated Metrics calls for a system that automates *all* metrics, from data collection, aggregation, to data quality control. The end-state will be an automated web-based system with the capability to provide ad hoc analyses and reports (assessments) for all levels of AFW support. Funding and technology shortfalls and the lack of operational effectiveness databases require a phased approach in order to achieve this vision.

2.1. Phase 1: Automated Calculation, Manual Reporting of TAFVER. OWSs and non-reengineered units send TAFVER metrics information to their parent MAJCOMs. The MAJCOMs send TAFVER metrics information to HQ AFWA.

2.2. Phase 2: Fully Automated TAFVER. Web-based, ad hoc analyses and reports are provided to all AFW units ending the requirement for manual TAFVER reporting.

2.3. **Phase 3: Automated WARNVER.** In the near term, contractors are working on automating the existing WARNVER process. In the long term, HQ USAF/XOW will investigate utilizing the National Weather Service's (NWS) extensive *Storm Data* database to better evaluate the effectiveness of CONUS and OCONUS warning and advisory support. Phase 3 includes: (1) web-based, ad hoc analyses and reports; (2) space weather warnings; and (3) the end of manual WARNVER reporting.

2.4. **Phase 4: Automated OPVER.** Beyond gaining access to mission effectiveness databases, considerable work remains for AFW leaders and warfighters to operationally define "effective weather support." Phase 4 includes: (1) web-based, ad hoc analyses and reports; (2) space weather OPVER; and (3) the end of manual OPVER reporting.

2.5. **Phase 5: Resource Metrics.** Integrates functional resource metrics into the total automated metrics capability. This phase links to standard Air Force systems and reports (see Section 3, Roles and Responsibilities, for further discussion on standard Air Force systems and reports).

2.6. **Phase 6: Automation of Graphical and Alpha-Numerical Products.** The AFW support system generates a myriad of text and graphic, observational, climatological, and forecast products and services, including those for operations in space. In this phase, HQ AFWA and OWSs will use automated statistical methods to evaluate the technical performance of these products and services at the global and operational levels, respectively.

3. Roles and Responsibilities. Until automated metric capabilities are fielded:

3.1. CWTs will:

3.1.1. Collect all data necessary to compute OPVER metrics. Pre-reengineered base weather stations that maintain forecast, advisory, and warning responsibility must continue to collect all data necessary to compute TAFVER and WARNVER metrics.

3.1.1. (AFSPC) The re-engineered CWTs will continue to collect, compute and report their MEFVER/OPVER metrics to HQ AFSPC/XOSW. The non re-engineered weather squadrons will continue to collect, compute and report their MEFVER/OPVER, TAFVER and WARNVER metrics to HQ AFSPC/XOSW. The contract weather station at Thule GL will also continue to collect, compute and report its WARNVER metrics to HQ AFSPC/XOSW.

3.1.2. Process OPVER metrics using available forms and approved spreadsheet programs. Pre-reengineered base weather stations that maintain forecast, advisory, and warning responsibility must continue to process TAFVER and WARNVER metrics using available forms and approved spreadsheet programs.

3.1.3. Report OPVER metrics monthly or as directed by parent MAJCOM. Pre-reengineered base weather stations that maintain forecast, advisory, and warning responsibility must continue to report TAFVER and WARNVER metrics monthly or as directed by parent MAJCOM.

3.1.4. Use Air Force Status of Resources and Training system (SORTS) and/or the AEF UTC Reporting Tool (ART) to report weather resource readiness and identify shortfalls and equipment status to parent MAJCOM. Report monthly or as required by parent MAJCOM.

3.1.5. Collect and report training metrics to parent MAJCOM IAW AFMAN 15-129, *Aerospace Weather Operations--Processes and Procedures*.

3.2. OWSs will:

- 3.2.1. Compile and provide OWS generated OPVER, TAFVER, and WARNVER metrics to CWTs located in the Area of Responsibility (AOR), the OWS parent MAJCOM, and MAJCOMs of all CWTs within the OWS AOR. Provide reports on a monthly basis or as directed by the MAJCOM. Verification data compiled for regional graphics products will be crossfed to other MAJCOMs.
- 3.2.2. Use SORTS and/or the ART to report weather resource readiness and identify shortfalls and equipment status to parent MAJCOM. Report monthly or as required by parent MAJCOM.
- 3.2.3. Collect and report training metrics to parent MAJCOM IAW AFMAN 15-129, *Aerospace Weather Operations--Processes and Procedures*.

3.3. MAJCOMs will:

- 3.3.1. Collate and analyze OPVER, TAFVER, and WARNVER metrics for all CWTs and OWSs within their command.
- 3.3.1. (AFSPC) HQ AFSPC/XOSW will collate and analyze MEFVER/OPVER, TAFVER and WARNVER metrics from all applicable AFSPC weather units.
- 3.3.2. Report TAFVER, WARNVER, and OPVER information for their CWTs and OWSs to HQ AFWA/DN on a monthly basis.
- 3.3.3. Use SORTS and/or the ART to monitor resource readiness. MAJCOMs must be aware of unit shortfalls, equipment status, and training levels of all weather assets within their MAJCOM.

3.4. HQ AFWA/XO will:

- 3.4.1. Determine requirements and then develop a method for automating readiness and technical performance metrics.
- 3.4.2. Identify metrics for evaluating AFW equipment and systems comprising the AFW Weapon System.
- 3.4.3. Use Air Force Status of Resources and Training system (SORTS) and/or the AEF UTC Reporting Tool (ART) to report resource readiness.

3.5. HQ AFWA/XP will:

- 3.5.1. Acquire and field automated metric capabilities.
- 3.5.2. Use Air Force standard systems and reports to evaluate AFW-wide resource readiness.
- 3.5.3. Provide HQ USAF/XOWP annual assessments of resource readiness (Systems Executive Management Assessment) and monthly status summaries of systems, to include fixed and deployable equipment.
- 3.5.4. Use established Air Force metrics, as applicable (e.g., mean time between failure, etc.), as well as HQ AFWA/XO developed metrics, to assess the AFW Weapon System.

3.6. HQ AFWA/DN will:

- 3.6.1. Analyze and evaluate AFW-wide OPVER, TAFVER, and WARNVER metrics and provide quarterly assessments to HQ USAF/XOWP and MAJCOMs (see Section 6, Operational Effectiveness). (Note: automated metrics capabilities will not end this requirement).

3.6.2. Develop and maintain an Air Force Weather publication(s), based on a survey of historical technical performance measurement documents (e.g., Air Weather Service Technical Note-81 [AWS/TN-81, *Forecasting Skill*], and old AF Weather Wing publications), containing pertinent information on AFW-wide TAFVER and WARNVER metrics.

3.6.3. Lead MAJCOM efforts to develop standardized data collection methods and OPVER metrics.

3.7. HQ USAF/XOWP will:

3.7.1. Monitor and analyze readiness indicators utilizing standard Air Force reporting systems as well as AFW-wide OPVER, TAFVER, and WARNVER metrics provided by HQ AFWA/DN and XP.

3.7.2. Use SORTS and/or ART to monitor resource readiness.

3.7.3. Provide comprehensive AFW metric updates to HQ USAF/XOW on a monthly basis or as required.

4. Operational Effectiveness Procedures.

4.1. **Concepts.** Operational effectiveness is the ultimate goal of Air Force weather support. OPVER describes a capability to measure that effectiveness. OPVER should objectively quantify AFW support in operational/mission specific terms. Measuring operational effectiveness requires:

4.1.1. A mutual understanding by warfighters and weather support providers of the effects of the atmosphere and space environment on military systems and on warfighter strategy, tactics, and operations.

4.1.2. Identification of weather and space environmental criteria which are operationally significant to strategy, tactics, and operations.

4.1.3. How well weather support processes and products support warfighter systems, strategy, tactics, and operations.

4.2. **OPVER Process.** Data collection and analysis will vary by the missions and weapons systems supported. Guidelines to collect and analyze data must be formulated through a cooperative effort.

4.2.1. Users of weather information and weather support providers together will, with MAJCOM coordination, operationally define what weather information parameters are important to the users' operations (e.g., low level, drop zone, air-refueling, precision bombing, satellite tracking, gridded weather data, etc.), and define specific thresholds for those weather parameters (e.g., clouds, visibility, precipitation, winds, temperature, turbulence, icing, thunderstorms, energetic proton levels, etc.).

4.2.2. Users of weather information and weather support providers together will, with MAJCOM coordination, operationally define weather support effectiveness measures (metrics) and mechanisms to crossfeed these metrics to weather support providers in a timely manner--preferably automated (reference AFMAN 15-135, Chapter 6). The following list suggests types of OPVER information CWTs may collect (Note: Security classifications may limit collection and reporting of some OPVER data):

4.2.2.1. Total number of scheduled missions

- 4.2.2.2. Total number of missions cancelled due to correct forecasts
- 4.2.2.3. Total number of missions cancelled despite correct forecasts
- 4.2.2.4. Total number of missions re-targeted, rearmed (different weapons), or rescheduled due to correct forecasts
- 4.2.2.5. Total number of missions re-targeted, rearmed (different weapons), or rescheduled despite correct forecasts
- 4.2.2.6. Total number of missions non-effective or partially effective due to actual weather conditions
- 4.2.2.7. Total number of missions non-effective or partially effective due to incorrect forecasts
- 4.2.2.8. For missions that were non-effective or partially effective due to actual weather conditions or incorrect forecasts, identify the specific parts of the missions that were affected

4.2.3. Weather support providers will use MEF reviews, studies and seminars (AFMAN 15-135, Chapter 6) to continuously improve operational effectiveness.

4.3. MAJCOMs, FOA, and DRUs will:

- 4.3.1. Determine a metric (or metrics) which indicates the effectiveness of weather support within their command (i.e., metrics should capture what is most important to or has the most impact on operations within the command).
- 4.3.2. Develop procedures to measure the metric (or metrics).
- 4.3.3. CWTs supporting other MAJCOM missions (example, AMC CWT supporting ACC A-10's at Pope or ACC CWT supporting AMC C-130's at Dyess) will report OPVER metrics to the other MAJCOM IAW the other MAJCOM's supplement.

5. Technical Performance Evaluation Procedures.

5.1. **Concepts.** Information on the past, present, and future states of the atmosphere and space environment, when effectively applied, enhance a commander's ability to envision the battle-space, determine when and where to apply specific weapon systems, and exploit combat opportunities. In this document, the term "weather" refers to conditions in the atmosphere and in the near-Earth space environment. "Weather support" refers to atmospheric and space environmental information provided by the AFW support force. AFW must have a solid foundation of sound technical health to underpin effective mission support. Therefore, high levels of technical performance are required to enable effective mission support and ultimately enhance our ability to positively impact the success of military operations.

5.2. **Statistical Evaluation Methods.** Until the advent of automated technical performance metrics, units will employ statistical techniques (control charts, spreadsheet tables, etc.) to evaluate their technical skills and products against mission-critical weather parameters and HQ AFWA/MAJCOM directed weather criteria. Evaluations will include, as applicable, TAFVER and WARNVER.

5.2. (AFSPC) The 30th and 45th Weather Squadrons will compare their automated TAFVER metric against the Air Force average (monthly value and trend) to help assess the effectiveness of each unit's long-term forecast improvement efforts. They should also compare their performance against other

weather forecasting organizations in the same climatological region to support short-term trend analysis and identification of benchmark opportunities.

5.2.1. 1500/3 Manual TAFVER. Work centers issuing TAFs (and not possessing automated TAFVER) will score forecasts of above/below 1500 feet ceiling and/or 3 statute mile (4800 meter) visibility (AFI 11-202, Volume 3, *General Flight Rules*, requirement) and verify against persistence. Work centers will measure forecasting skill at the 4, 8, 12, and 24-hour points. Units having HQ USAF/XOW approval to implement 36- or 48-hour TAFs will measure forecasting skill at the 36- and 48-hour points in addition to the criteria specified above. Use the skill score as defined by (F-P)/(N-P), where “F” is the total number of correct TAF forecasts, “P” is the total number of correct persistence forecasts, and “N” is the total number of forecasts. When an OWS permanently assumes TAF support for a work center, the CWT is then relieved of the manual TAFVER reporting requirement. In those cases, OWSs will compute TAFVER manually until automated systems are fielded.

5.2.2. Manual WARNVER. Work centers issuing forecast weather warnings or advisories for tornadoes, hail, or winds, etc., will use the AF Form 3810, *Weather Warning and Weather Advisory Data*, to compile WARNVER statistics (see [Attachment 2](#) and [Attachment 3 \(Added\)](#) for instructions for the AF Form 3810). When an OWS permanently assumes warning and advisory support for a work center, the CWT is then relieved of the manual WARNVER reporting requirement. In those cases, OWSs will compute WARNVER manually until automated systems are fielded. HQ AFWA will also compute WARNVER for operations in space.

6. Operational Effectiveness and Technical Performance Reporting.

6.1. **Weather Support Evaluation Report (RCS: HAF-XOW (M) 9202).** This report has been designated emergency status code C3. Continue reporting during emergency conditions, delayed precedence. Report may be delayed to allow the submission of higher precedence reports or data.

6.1.1. Tactical/Operational Level. OWSs and CWTs (as applicable) will send the: (1) preceding month's AF Form 3810 (see [Attachment 2](#) and [Attachment 3 \(Added\)](#)) to their parent MAJCOM, FOA, or DRU, by the 15th of each month; and (2) operational effectiveness information, as directed by their parent MAJCOM, FOA, or DRU.

6.1.1. (AFSPC) AFSPC weather units will use the approved electronic version of MEFVER/OPVER, WARNVER and/or TAFVER forms. Each unit will E-mail the applicable monthly electronic data to the HQ AFSPC/XOSW metrics monitor or the organizational address '<mailto:afspc.xosw@peterson.af.mil>'. If a unit is having E-mail problems, it may send the data to HQ AFSPC/XOSW by FAX.

6.1.2. Strategic Level. MAJCOMs, FOA, and DRUs will send a representative operational effectiveness metric for their command and AF Forms 3810 to HQ AFWA, Directorate of Air & Space Science (HQ AFWA/DN); 106 Peacekeeper Dr., Ste 2N3; Offutt AFB NE 68113-4039 by the 15th of the following month (i.e., one month after receiving unit inputs as listed in paragraph 8.1.1).

6.1.3. HQ AFWA/DN will analyze the technical performance of the weather support system on a monthly basis and consolidate operational effectiveness information received from the MAJCOMs, FOAs, and DRUs into the Air Force operational effectiveness metric. Provide the results to HQ USAF/XOWP, MAJCOMs, FOAs, and DRUs within 60 days after the end of the seasonal

quarter. Seasons are defined as follows: winter: December through February; spring: March through May; summer: June through August; fall: September through November.

6.1.3.1. HQ AFWA/DN will assist the MAJCOMs with the AF Form 3810, TAFVER (manual or automated), or other technical issues.

7. Functional Resource Readiness Reporting.

7.1. **Service Role.** In accordance with (IAW) Joint Publication O-2, *Unified Action Armed Forces (UNAAF)*, and AFPD 15-1, *Atmospheric and Space Environmental Support*, Services organize, train, and equip forces to meet mission requirements. HQ USAF/XOW, MAJCOMs, OWSs, and Operational Support Squadrons must work together to organize, train, and equip weather forces to ensure the warfighter receives timely, high quality weather support. In order to gauge the effectiveness of this support and provide assistance when required, these organizations need a common baseline of “readiness” data, including pertinent information regarding resources including personnel strength and equipment status, as well as level of training.

7.2. **Data Collection and Analysis.** Functional resource evaluation requires utilizing a common information baseline to ensure reporting requirements and criteria are standardized. The common Air Force systems and reports that provide this baseline are:

7.2.1. Status of Resources and Training Systems (SORTS); AFI 10-201, *Status of Resources and Training System*.

7.2.2. Commander’s Situation Report (SITREP); AFI 10-206, *Operational Reporting*.

7.2.3. Air Force Personnel Center’s (AFPC) Retrieval Applications Web Site (RAWS).

7.2.4. AFPC’s Interactive Demographics Analysis System (IDEAS).

7.2.5. Personnel Tempo (PERSTEMPO) databases; AFI 10-215, *Personnel Support for Contingency Operations*.

7.2.6. The Air Force Wartime Utilization and Tasking Summary (AFWUS).

7.2.7. The Aerospace Expeditionary Force (AEF) Center’s AEF Reporting Tool (ART).

7.2.8. Air Force Equipment Management System (AFEMS); AFI 21-103, *Equipment Inventory, Status, and Utilization Reporting*.

7.2.9. Core Automated Maintenance System (CAMS); AFI 21-101, *Maintenance Management of Aircraft*.

7.3. **Data Entry.** The quality of standard Air Force systems and reports is dependent on each unit’s ability to input data in an accurate and timely manner.

7.4. **Resource Readiness Metrics.** AFW will use Service-level metrics to the maximum extent possible. For example, AFI 10-201, *Status of Resources and Training Systems* (SORTS) specifies readiness ratings based on personnel, equipment, resources, and training. Shortfalls that cause unit readiness ratings to go below C-2 (i.e., C-3 through C-5) are key metrics. AFPC monitors temporary duty assignments (TDY) to determine the number of people exceeding 120 days TDY in a 12-month period as well as those exceeding 179 days. Additionally, AFPC databases identify units manned below the worldwide average for a particular Air Force Specialty Code (AFSC). The advent of the Expeditionary Aerospace Force (EAF) brings new and evolving metrics; for example, deploying oper-

ationally more than once in a 15-month Aerospace Expeditionary Force (AEF) cycle is a tracked metric. Operational Requirements Documents (ORDs) will identify key performance parameters (i.e., key metrics) for all future acquisitions.

7.5. **Training Readiness Metrics.** Training has a direct impact on AFW readiness and our ability to provide mission support. Units will collect and report training metrics IAW AFMAN 15-129 and AFMAN 15-135.

8. Form Prescribed. AF Form 3810, **Weather Warning and Weather Advisory Data.**

CHARLES F. WALD, Lt General, USAF
Deputy Chief of Staff/Air & Space Operations

Attachment 1**GLOSSARY OF REFERENCES AND SUPPORTING INFORMATION*****References***

Joint Publication O-2, *Unified Action Armed Forces (UNAAF)*
AFI 10-201, *Status of Resources and Training Systems*
AFI 10-206, *Operational Reporting*
AFI 10-215, *Personnel Support for Contingency Operations*
AFI 11-202, Volume 3, *General Flight Rules*
AFPD 15-1, *Atmospheric and Space Environmental Support*
AFMAN 15-129, *Aerospace Weather Operations - Processes and Procedures*
AFMAN 15-135, *Combat Weather Team Operations*
AFI 21-101, *Maintenance Management of Aircraft*
AFI 21-103, *Equipment Inventory, Status, and Utilization Reporting*
AFMAN 37-139, *Records Disposition Schedule*
Air Weather Service Technical Note-81, *Forecasting Skill*
Air Force Weather Concept of Operations for Automated Metrics Capability

Abbreviations and Acronyms

AEF—Aerospace Expeditionary Force
AFCCC—Air Force Combat Climatology Center
AFCWC—Air Force Combat Weather Center
AFEMS—Air Force Equipment Management System
AFPC—Air Force Personnel Center
AFSC—Air Force Specialty Code
AFW—Air Force Weather
AFWA—Air Force Weather Agency
AFWUS—Air Force Wartime Utilization and Tasking Summary
AOR—Area of Responsibility
AR—Air Refueling
ART—AEF Reporting Tool
CAMS—Core Automated Maintenance System
CWT—Combat Weather Team

DLT—Desired Lead Time
DOW—Director of Weather
DRU—Direct Reporting Unit
DZ—Drop Zone
EAF—Expeditionary Aerospace Force
EOTDA—Electro-Optical Tactical Decision Aid
FAARP—Forward Area Arming Refueling Point
FOA—Field Operating Agency
IDEAS—AFPC’s Interactive Demographics Analysis System
MAJCOM—Major Command, United States Air Force
MACOM—Major Command, United States Army
OPR—Office of Primary Responsibility
OPVER—Operational Verification
ORD—Operational Requirement Document
OWS—Operational Weather Squadron
PERSTEMPO—AFPC’s Personnel TDY tracking system
RAWS—AFPC’s Retrieval Applications Web Site
SITREP—Situation Report
SORTS—Status of Resources and Training Systems
TDY—Temporary Duty
T/O—Takeoff
TAF—Aerodrome Forecast
TAFVER—TAF Verification
WARNVER—Warning/Advisory Verification
XOW—Director of Weather (Headquarters, United States Air Force)

Attachment 2**INSTRUCTIONS FOR COMPLETING AF FORM 3810 OR COMPUTER GENERATED FORM**

(AF Form 3810 can be found at

<http://afpubs.hq.af.mil/search.asp?keyword=af3810&Go.x=18&Go.y=5>)

A2.1. General Instructions. Units may submit AF Form 3810 or a computer generated form provided the computer product looks like a photocopy image of the existing form and the software name and vendor or producer are placed at the bottom of the face page. For example, the form identification could be "AF FORM 3810, MAR 92 (EF-V1) (Perform Pro)."

A2.1. (AFSPC) Where applicable, AFSPC units will submit their weather warning/watch/advisory (WW/WA) criteria on the WARNVER computer generated spreadsheet provided by HQ AFSPC/XOSW.

A2.2. Instructions for Completing AF Form 3810 or Computer Generated Form. Report technical performance data for locally required weather warnings and weather advisories for tornadoes, hail, and/or winds when verification data is available. Report the data when operating hours allow the opportunity to achieve the desired lead-time.

A2.2.1. Unit/MAJCOM, FOA, or DRU: Self-explanatory.

A2.2.2. Location: Self-explanatory.

A2.2.3. Period: Month and Year of data.

A2.2.4. Column A, Criteria: List required forecast warning or advisory criteria for tornadoes, hail, and/or winds, etc. (see AFMAN 15-129, *Aerospace Weather Operations - Processes and Procedures*). Differentiate each wind criteria into two line entries, one marked "convective" and the other marked "non-convective." For example: You are required to issue a local warning for winds greater than or equal to 40 knots. If during a month you issue two warnings, one due to a strong winter front and the other due to a thunderstorm, then enter the verification information of the first warning on the line marked "non-convective winds greater than or equal to 40 knots" and the second warning on the line marked "convective winds greater than or equal to 40 knots." Even though your customer may not need to differentiate between the cause of the wind occurrence, the Air Force needs the information to evaluate the effect new systems, techniques, or training programs have on Air Force weather support abilities.

A2.2.5. Column B, Desired Lead-Time (DLT): List in minutes (e.g., 060, 120, etc.) the notification lead time required by the customer.

A2.2.6. Column C, Required: The number required is the sum of the following:

A2.2.6.1. Number issued for which the event occurred.

A2.2.6.2. Number of occurrences when a warning or advisory was not issued but was required.

A2.2.7. Column D, Issued: Enter the number of warnings or advisories issued for each criterion. If the warning or advisory text contained more than one criterion (such as convective wind greater than or equal to 50 knots and hail), count each separately.

A2.2.8. Column E, Met DLT: Enter the number of required warnings or advisories that meet the DLT.

A2.2.9. Column F, lead time greater than 0: Enter the number of warnings or advisories with actual lead times that are greater than zero.

A2.2.10. Column G, False Alarm: Enter the number of warnings or advisories issued but were not required.

A2.3. (Added-AFSPC) Remarks: Additionally, where applicable, AFSPC units will enter the weather warning/watch/advisory (WW/WA) criteria and the actual amount of positive and/or negative lead-time in the remarks or actual lead-time sections of the WARNVER form. These data will help assess the trend in actual lead-time being provided to AFSPC weather operations customers.

A2.4. (Added-AFSPC) HQ AFSPC/XOSW will compile monthly verification rates for desired lead time (DLT), capability (CAP), reliability (REL), and false alarm rate (FAR) categories at AFSPC weather squadrons for selected WW/WA criteria. DLT is defined as the number of WW/WAs with the proper DLT divided by the total number of required (REQ) WW/WAs. CAP is defined as the number of WW/WAs with positive lead-time (PLT) divided by the total number of REQ WW/WAs. REL is defined as the number of WW/WAs with PLT divided by the total number of issued (ISS) WW/WAs. FAR is defined as the number of WW/WAs that do not verify divided by the total number of ISS WW/WAs.

A2.5. (Added-AFSPC) HQ AFSPC/XOSW will establish overall AFSPC standards/goals for DLT, CAP, REL, and FAR categories and compare those standards/goals against monthly verification rates at AFSPC weather squadrons. This feedback will be supplied to AFSPC weather squadrons each month and will allow decision-makers to assess any trends in support being provided to AFSPC weather operations customers. Standards/Goals may fluctuate from season to season and will be provided separately.

