

**BY ORDER OF THE COMMANDER
914TH AIRLIFT WING**

**NIAGARA FALLS AIR RESERVE STATION
INSTRUCTION 15-102**



6 OCTOBER 2014

Weather

**WEATHER SUPPORT FOR NIAGARA
FALLS AIR RESERVE STATION**

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These instruction implements of Air Force Policy Directive (AFPD) 15-1, *Atmosphere and Space Environmental Support*. It extends the guidance of Air Force Instruction (AFI) 15-114, *Weather Support Evaluation*; Federal Aviation Administration (FAA) Order 7900.5B, *Surface Weather Observing*; Air Force Manual (AFMAN) 15-111, *Surface Weather Observations*; AFI 15-128, *Aerospace Weather Operations – Roles and Responsibilities*; AFMAN 15-129, *Aerospace Weather Operations – Processes and Procedures*; Air Force Occupational and Safety Health Standard (AFOSH STD) 91-66, *General industrial Operations*; and AFOSH STD 91-100, *Aircraft Flight Line – Ground Operations and Activities*. It establishes responsibilities and weather support procedures. It identifies specific weather services, including observations, weather warnings, advisories, and dissemination of information performed by the Contract Weather Flight (WF). It also provides for general reciprocal support. It applies to units assigned to the 914th Airlift Wing (AW), 107th Airlift Wing and subordinate units, and other organizations assigned or attached to, or supported by the Niagara Falls Air Reserve Station (ARS), the Niagara Falls Federal Contract Tower (FCT), the National Weather Service of Buffalo (NWS BUF) and other miscellaneous agencies. Refer recommended changes and questions about this publication to the Office of Primary Responsibility (OPR) using the AF Form 847, *Recommendation for Change of Publication*, to the 914 OSF/CC. Ensure that all records created as a result of processes prescribed in this publication are maintained in accordance with Air Force Manual (AFMAN) 33-363, *Management of Records*, and disposed of in accordance with the Air Force Records Disposition Schedule (RDS) located at <https://afrims.amc.af.mil/>.

SUMMARY OF CHANGES

This publication has been reviewed with minor revisions and should be reviewed in its entirety. Significant additions are Pilot Reports (PIREPs) to Duty Priorities, Runway Visual Range (RVR) and Pilot Reports (PIREPs) to Surface Weather Observation, and Notification to the 15 OWS and ATC of all Observed Weather Warning (OWW). Adjustments to Base Communication Center support. Removal of paragraphs for Lightning Detection System and 107 OSA support.

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1. GENERAL INFORMATION.

1.1. **General Responsibilities** for Weather Flight/ Airfield Services Element (WF/ ASE), Niagara Falls ARS.

1.1.1. Niagara Falls ARS Weather Flight (WF) takes and disseminates surface weather observations; disseminates forecasted weather warnings (WW) and weather watches (WWATCH); issues and disseminates observed weather warnings (OWW); issues and disseminates observed weather advisories (OWA); provides miscellaneous weather services requested by the 914 AW, 107 AW, Niagara Falls ATC, 15th Operational Weather Squadron (OWS), NWS BUF, and miscellaneous agencies.

1.2. Operational Support Requirements.

1.2.1. Establish and coordinate all weather support requirements and procedures with the Weather Flight Supervisor.

1.2.1.1. Notify the Weather Flight Supervisor of any changes in the weather support requirements.

1.2.2. Unit Commanders will:

1.2.2.1. Review this instruction at least annually for any changes in support requirements and have their supported agency coordinate these changes with the Weather Flight Supervisor.

2. WEATHER STATION OPERATIONS.

2.1. **General.** The Weather Flight (WF) at Niagara Falls ARS is tasked as an Airfield Services Element (ASE) organization. Airfield services expand the traditional observing function at the airfield by infusing elements of the meteorological watch and resource protection roles. The airfield services element will function as the “eyes forward” for the servicing OWS and in many cases will serve as the primary point of contact for resource protection for an installation. Air Force flight operations rely heavily on the airfield support element for operational decision. WF/ASEs are responsible for taking and disseminating observations IAW AFI 15-128.

2.1.1. The WF/ASE at Niagara Falls ARS is an Augmented Automated Surface Observing System (ASOS) location. A certified weather observer augments the ASOS during station operating hours.

2.2. **Location.** The WF/ASE is located on the Niagara Frontier Transportation Authority (NFTA) side of the airport (the Niagara Falls International Airport Terminal), a single story tower on the west end of the building.

2.3. **Operating Hours.** Seven days a week, including holidays, from 0700L to 2300L. Duty hours can be extended with approval of the 914 OG/CC or his designated representative.

2.4. Duty Priorities.

2.4.1. Complete Emergency War Order tasking.

2.4.2. Respond to aircraft/ground emergencies

2.4.3. Record and disseminate surface weather observation longline.

2.4.4. Disseminate WW, WWATCH, and OWA locally.

2.4.5. Disseminate Urgent PIREPs/ PIREPs.

2.4.6. METWATCH.

2.4.7. Eyes forward.

2.4.8. Provide other services.

2.5. Release of Weather Information. Operational security and communication security will be considered prior to any release of weather information.

2.5.1. Specific restrictions do not exist on the dissemination of weather information to other military agencies. Information exchange between the WF/ASE and the NWS of Buffalo office is encouraged in the interest of public safety and resource protection. Routine working agreements will be maintained in writing from either agency.

2.5.2. Support to other Non-DOD agencies/individuals.

2.5.2.1. Weather information may be passed to Non-DOD agencies/individuals, which have a current Letter of Agreement (LOA) on file with the 914 AW Public Affairs Office.

2.5.2.2. The WF/ASE will refer all other weather information requests from Non-DOD agencies/individuals to the 914 AW Public Affairs Office. This restriction does not include indirect routine weather information, which is passed on automated weather circuits, or information passed through the NWS in the interest of public safety.

2.6. Observing Limitations. The following physical limitations may impact the representation of the observations.

2.6.1. The official observation point is located at the end of the staircase leading up to the WF/ASE Office. The ATC Tower restricts the observers view to the east and southeast, any phenomena in this area, unless passed along to the observer by the ATC personnel may be missed.

2.6.2. From the official observation point there are few adequate ground visibility reference markers from the southeast through the southwest. Unless ATC visibility values are relayed to the WF/ASE, accurate prevailing visibilities in these sectors are limited.

2.6.3. Nearby lighting from the southeast to the southwest contaminates and complicates observation of nighttime sky conditions and approaching weather phenomena.

2.6.4. Rapidly changing weather conditions may be missed, due to the delay in the ASOS transmitting time.

2.7. Alternate Observing Location (AOL).

2.7.1. In the event evacuation of the primary observation location becomes necessary the duty observer will relocate to the Airfield Management Office building 700. The requirements for evacuating the WF/ASE are listed, but are not limited to:

2.7.1.1. Fire.

2.7.1.2. High winds.

2.7.1.3. Obstruction to the WF/ASE Office.

2.7.1.4. Terrorist or Bomb Threat.

2.7.1.5. Natural Gas Leak.

2.7.1.6. Complete Communication and/or Power Outage.

2.7.2. The observation elements may still be obtained from the ASOS sensors and values will not be estimated. If the observer is unable to contact the ASOS sensor all elements will be estimated.

2.7.3. In the event that the building 700 becomes unusable, the alternate observing site may be established at any other suitable location.

2.7.3.1. Minimum desired requirements for the alternate site are availability of power, a class A telephone, easy access to the outside, and a view of the runway.

2.7.4. AOL observing Limitations.

2.7.4.1. The buildings on base restrict the observers view to the northwest through the north. Any inclement weather approaching the base from this area may not be identified until it is already affecting the base.

2.8. Severe Weather Procedures. The following outlines the responsibilities of the WF/ASE when there is a severe weather threat for Niagara Falls ARS.

2.8.1. The duty observer will contact the Weather Flight Supervisor whenever the potential for severe weather is forecasted for or occurring at the Niagara Falls ARS or the immediate area.

2.8.2. The Weather Flight Supervisor will assist in determining, if additional observing support is required and if observing support is needed after normal duty hours, IAW AFMAN 15-129.

2.8.3. The WF/ASE will work closely with on-base personnel to ensure weather information is disseminated and safety is stressed.

2.8.4. The WF/ASE will assist the 15 OWS in the METWATCH process; they will act as “eyes forward” for the 15 OWS by providing them with information necessary to issue, justify, and verify any issued WW.

2.8.5. The WF/ASE will also provide the 15 OWS with severe weather reports not normally available through standard observation. These include reports from indigenous sources, local law enforcement, local news media, and unit personnel.

2.8.6. A severe weather threat exists when a WA or WW is issued for the criteria listed in [Attachment 2](#).

2.9. Aircraft Mishap Procedures (ACFT MSHP).

2.9.1. Upon notification of an ACFT MSHP the Weather Flight will:

2.9.1.1. Record and disseminate a SPECI surface weather observation.

2.9.1.2. Notify the 15 OWS that there has been an aircraft mishap at Niagara Falls ARS.

2.9.1.3. The 15 OWS will perform an immediate data save on their systems.

2.9.1.4. The WF/ASE will perform a data save on the ASOS.

2.9.1.5. Assist all base agencies in the investigation of the aircraft mishap.

2.10. In-Flight Emergency (IFE).

2.10.1. Upon notification of an IFE the WF/ASE will:

2.10.1.1. Record and disseminate a SPECI surface weather observation.

2.10.1.2. Intensify weather watch to ensure maximum support to the aircraft in distress.

3. WEATHER OBSERVING SERVICES.

3.1. **Official Observation Location.** The official point of observation is at the top of the landing on the northwest side of the WF/ASE Office.

3.2. **Continuous Weather Watch (CWW).** The WF/ASE performs a CWW for the Niagara Falls ARS in accordance with FAA Order 7900.5B, *Surface Weather Observing*, and IAW AFMAN 15-111, *Surface Weather Observations*.

3.3. **Local Cooperative Weather Watch (LCWW).** A LCWW has been established in which the ATC personnel will provide additional weather information to the observer when significant weather phenomena are detected. Significant phenomena includes, but are not limited to, tornadoes, funnel clouds, precipitation, lightning, reduced visibility, sector visibility, tower visibility, and pilot reports of Low Level Wind Shear (LLWS) and cloud heights.

3.4. **Surface Weather Observations.** A certified weather observer augments the ASOS. The observer takes, records, and disseminates an official observation from the official observation location before every hour in accordance with FAA Order 7900.5B and AFMAN 15-111. The following elements are observed by the WF/ASE Observer and disseminated longline for use by various agencies.

3.4.1. Time. All time entries on surface weather observations will be in Coordinated Universal Time (UTC) commonly called "ZULU".

3.4.2. Wind Direction and Speed. The ASOS reads wind speed and direction every minute and displays a two minute average of the readings. Wind direction is reported to the nearest ten degrees and speed to the nearest whole knot. Wind direction is transmitted true for longline dissemination and magnetic for local dissemination.

3.4.3. Prevailing Visibility. This is defined as the greatest visibility equaled or exceeded in at least half of the horizontal circle not necessarily continuous. Prevailing visibility is a visual determination made by the observer. Obstruction to vision will be determined by the observer and reported when the prevailing visibility is six statute miles or less, except in the case of precipitation, which is reported when it occurs. All visibilities are reported in statute miles.

3.4.4. Runway Visual Range. Runway Visual Range is an instrumentally derived value that represents the horizontal distance that a pilot can see down the runway.

3.4.5. Weather and Obstruction to Vision. This consists of both weather and non-weather phenomena, which are observed and/or restrict visibility.

3.4.6. Sky Conditions. This consists of sky coverage (Clear (SKC) = 0/8, FEW = 1/8-2/8 of the sky covered, Scattered (SCT) = 3/8-4/8 of the sky covered, Broken (BKN) = 5/8-

7/8 of the sky covered, Overcast (OVC) = 8/8 of the sky covered) and the height above ground level (AGL) in hundreds of feet. The lowest layer at which 5/8 of the sky or more is covered is the ceiling. Heights of ceilings less than 12,000 feet may be measured using a laser beam ceilometer. When measurements cannot be obtained, ceiling heights are determined visually or from aircraft flying in the local area.

3.4.7. Temperature and Dew Point. Instantaneous reading of the temperature and dew point are reported in degrees Celsius.

3.4.8. Altimeter Setting (ALSTG). Altimeter setting values are determined by averaging the three ASOS barometric pressure sensor readings. Altimeter Setting is reported to the nearest hundredth of an inch of mercury.

3.4.9. Sea-Level Pressure (SLP). This is the atmospheric pressure at mean sea level empirically determined from the average of the three ASOS sensor readings. Sea-Level Pressure is reported in millibars.

3.4.10. Remarks. All supplemental criteria specified in AFMAN 15-111, Table 3.1 will be disseminated on all observations to present a more precise picture of existing weather conditions.

3.5. Types of Weather Observations.

3.5.1. Aviation Routine Weather Report (METAR). METAR observations are taken between 47- 53 minutes past the hour. The specific contents of a METAR observation are listed in paragraph 3.4.

3.5.2. Aviation Select Special Weather Report (SPECI). Special Observations are taken to report significant changes in weather elements at units, which are required to transmit surface observations on longline circuits. SPECI observation criteria for Niagara Falls ARS are listed in [Attachment 3](#).

4. METWATCH, WEATHER ADVISORIES, WATCHES, AND WARNINGS.

4.1. **General.** Certain weather conditions endanger property or life, pose a safety hazard, or adversely affect a supported agency's operations. The WF/ASE, 15 OWS, and NWS BUF will monitor for these conditions and notify the duty observer when these conditions are observed or forecasted. The WF/ASE will relay this information to the appropriate agencies.

4.2. METWATCH.

4.2.1. General. The process of monitoring changing weather conditions and informing supported agencies that established weather conditions could affect their operations or pose a threat to property or life.

4.2.2. The Weather Flight, IAW AFMAN 15-129V2 will act as an "eyes forward" function to the 15th OWS and provide the 15 OWS with significant information concerning local area weather conditions.

4.3. **Observed Weather Advisory (OWA).** A special notice provided to the supported agency when an established weather condition that could affect operations is occurring. The WF/ASE issues and disseminates all OWA. The OWA criteria for Niagara Falls ARS are listed in [Attachment 4](#).

4.4. **Weather Watch (WWATCH)/ National Weather Service Weather Watch (NWS WWATCH).** A weather watch is an informational message to supported agencies that conditions are favorable for the formation of threatening weather. WWATCH's are generally issued prior to weather warnings and are intended to provide advance notice of potentially significant weather. WA's will be issued for *Niagara Falls ARS by the 15 OWS, Scott AFB (WWATCH) and for* Niagara County by the NWS BUF (NWS WWATCH); *all WWATCH's listed in attachments 5 and 6 will be* relayed to support agencies by the WF/ASE. WWATCH's will be cancelled when the potential no longer exists or when upgraded to a weather warning. WWATCH/NWS WWATCH criteria for Niagara Falls ARS are listed in [Attachment 5 and Attachment 6](#).

4.5. **Observed Weather Warning (OWW).** An observed weather warning will be issued by the WF/ASE during normal operating hours, for lightning within 5 NM of the airfield complex.

4.5.1. The WF/ ASE will notify the 15 OWS and the local ATC when issuing all OWW for lightning within 5NM of the airfield complex.

4.6. **Weather Warning (WW).** A weather warning is a special notice provided to supported customers that alerts them to weather conditions of such intensity as to pose a hazard to life or property. The WF/ASE will include the element of concern, forecast time of occurrence for Forecasted WW, or observed time of occurrence of Observed WW, and duration for Forecasted WW. Weather Warning criteria for Niagara Falls ARS are listed in [Attachment 6](#).

4.7. **All OWA, NWS WWATCH, OWW, and WW/ WWATCH will have a number assigned to them.** The numbering system will be the month the product is issued in (September – 09, December – 12, etc.) plus the number of products for that month (if it is the 10th OWA issued for the month of June, the product number would be OWA# 06-10, if it is the 2nd WW issued in November, the product number would be WW# 11-02, etc.).

4.7.1. All WW/WWATCH issued by 15 OWS, Scott AFB will run in sequential order.

5. DISSEMINATION OF WEATHER PRODUCTS:

5.1. **General.** The WF/ASE will assist supported agencies in maintaining an efficient, effective means of disseminating weather information. Procedures developed must ensure that weather observers do not spend more time communicating than monitoring weather conditions.

5.2. Surface weather observation.

5.2.1. Longline. Surface weather observations are disseminated longline by the ASOS to the Automated Weather Network (AWN), for worldwide data access. Information will be displayed on the associated terminals located in the WF/ASE and the ATC tower.

5.2.1.1. METAR surface weather observations are disseminated at 53 minutes past the hour.

5.2.1.2. SPECI surface weather observations are disseminated when SPECI criteria conditions are met.

5.3. Observed Weather Advisories (OWA).

5.3.1. The WF/ASE disseminates all OWA via the telephone when any OWA criteria are observed during normal operating hours.

5.3.2. Agencies notified of established criteria are listed in [Attachment 4](#).

5.4. **Weather Watch (WWATCH).**

5.4.1. *The WF/ASE receives WWATCH from two agencies (15 OWS, Scott AFB and NWS BUF) for Niagara Falls ARS and Niagara County.*

5.4.2. Procedures for WWATCH dissemination are listed in paragraph [5.7.5](#).

5.5. **Weather Warnings (WW).**

5.5.1. All WW are forecasted and issued by the 15 OWS, Scott AFB, for the Niagara Falls ARS. The local agencies receiving the forecasted WW from the OWS are:

5.5.1.1. The Niagara Falls WF/ASE from 0700L-2259L.

5.5.1.2. 914 AW Security Forces from 2300L-0659L.

5.5.2. Procedures for WW dissemination are listed in paragraph [5.7.1-5.7.4](#).

5.6. **Observed WW.**

5.6.1. The only Observed Weather Warning (OWW) issued by the WF/ASE is for lightning within 5 NM of the airfield complex.

5.6.2. A lightning detection system when operational will be used to determine lightning strike distance.

5.6.3. OWW will be disseminated following procedures listed in paragraph [5.7.5](#).

5.6.4. OWW will also be disseminated to the 15 OWS and ATC.

5.7. **Local Dissemination of WW, OWW, WWATCH and NWS WWATCH.**

5.7.1. Local Dissemination of WW during ARS duty hours.

5.7.1.1. The WF/ASE will disseminate WW via telephone to Air Field Management.

5.7.1.1.1. The Air Field Management will disseminate the WW over the base secondary crash net.

5.7.2. When the Air Field Management is closed and/or cannot be reached, the WF/ASE will disseminate the WW information via telephone to:

5.7.2.1. Base Command Post.

5.7.3. **Local Dissemination of WW** during ARS non-duty hours.

5.7.3.1. If the WF/ASE is unable to contact the Base Command Post or Air Field Management, the observer will contact:

5.7.3.1.1. 914 AW/SF.

5.7.3.1.2. Fire Department.

5.7.4. **Local Dissemination of WW during WF/ASE Non-duty hours.**

5.7.4.1. The 914 AW/SF will disseminate all WW from 2300L – 0659L.

5.7.4.2. WW issued during non-duty hours still in effect after 0730L will be re-disseminated by the WF/ASE.

5.7.5. The WF/ASE will disseminate WWATCH and NWS WWATCH information via telephone to Air Field Management and Base Command Post.

5.7.5.1. During inclement weather the WF/ASE Duty Observer, may ask Air Field Management for assistance in notifying the Base Command Post.

5.7.6. Pilot Reports (PIREP) .

5.7.6.1. **The WF/ASE will disseminate all PIREP received from the ATC, that meet the minimum requirements.**

5.7.6.2. **The minimum requirements are Time, Location and Flight Level of aircraft that the meteorological element(s) were observed, type of aircraft reporting the meteorological element(s), and description and extent of meteorological element(s).**

6. BACKUP DISSEMINATION PROCEDURES FOR WEATHER PRODUCTS.

6.1. **General.** In the event of dissemination equipment outage(s) the following procedures will be followed.

6.2. Surface Weather Observations.

6.2.1. Longline dissemination.

6.2.1.1. METAR, SPECI will be disseminated via telephone to the FAA (Lockheed Martin).

6.2.1.2. In the event that the FAA (Lockheed Martin) is unavailable, surface weather observation will be disseminated via the AFWA web site and/ or via telephone to other air force weather units.

6.3. Weather advisories, watches, and warnings.

6.3.1. Follow procedures in paragraph **5.7** using a FM radio to contact agencies.

6.3.1.1. Agencies that cannot be contacted via FM radio will receive weather data from contacted agencies.

7. ADDITIONAL WEATHER SUPPORT.

7.1. **General.** The WF/ASE will provide additional weather reports for specific weather occurrences and to specific government agencies.

7.2. Hurricane Condition (HURCON) reports.

7.2.1. The WF/ASE will provide the necessary support required for the Base Command Post to declare a Hurricane Condition (HURCON) for making mission execution decisions such as evacuation and resource protection IAW AFMAN 15-129V2.

7.2.2. HURCON dissemination. The WF/ASE, when on duty, disseminates a HURCON report to the 914 AW/CP via the fax, when the established criteria are forecasted by the National Hurricane Center and/or the 15 OWS. The HURCON criteria for Niagara Falls ARS are listed in **Attachment 8**.

7.3. OPREP 3 – Beeline Report.

7.3.1. The WF/ASE will provide the Base Command Post and USAF AFRC HQ A3VA with an OPREP3 – Beeline Report IAW the following criteria listed in [Attachment 9](#).

7.3.2. When criteria listed in [Attachment 9](#) have occurred at Niagara Falls ARS.

7.3.2.1. During the Base Command Post normal duty hours, the WF/ASE will complete the OPREP3 – Beeline report and fax the report to the Base Command Post within 1 hour, weather permitting.

7.3.2.2. During the Base Command Post non-duty hours, the WF/ASE will notify the standby personnel and complete and fax an OPREP3 – Beeline report to the Base Command Post within 1 hour, weather permitting.

7.4. **Chemical Downwind Message (CDM) and Effective Downwind Fallout Message (EDM).** The WF/ASE will provide the 914 AW MSG/CEX with surface weather observation data, climatological data, and when requested assist the MSG/CEX with acquiring CDM and EDM from 15 OWS.

8. WEATHER EQUIPMENT LOCATION AND LIMITATIONS.

8.1. **General.** The Weather Equipment at the WF/ASE Office is owned by the Federal Aviation Administration (FAA) and the Air Force (AF).

8.2. Automated Surface Observing System (ASOS).

8.2.1. The ASOS is owned by the FAA and augmented by an AF certified weather observer contractor during normal hours of operations and is a stand-alone system during non-operational hours. The ASOS sensors are located on the eastern half of runway 28R, off to the south-side. The pressure sensors and main frame are located in the FCT tower. The ASOS continuously monitors and displays current weather conditions. It can accurately measure wind speed and direction, temperature, dew point, altimeter, barometric pressure, cloud heights, present weather conditions (e.g., rain, snow, etc), liquid precipitation amounts at a single point at and above the sensors.

8.2.1.1. Temperature and dew point are measured in Fahrenheit and Celsius.

8.2.1.2. Wind Speed and Direction. Wind speed is measured to the nearest whole knots. Wind direction is from which the wind is blowing, reported in true direction to the nearest 10 degree longline and magnetic direction to the nearest 10 degrees locally.

8.2.1.3. Barometric pressure and altimeter settings are measured in millibars and inches respectively.

8.2.1.4. Visibility is measured in increments of 1/16th of a statute mile (SM), up to 10 SM.

8.2.1.5. Cloud base is reported in feet above ground level (AGL).

8.2.1.6. Liquid precipitation is measured to the nearest 1/100th of an inch.

8.2.2. ASOS Limitations. The ASOS has many limitations, it cannot report weather conditions occurring away from the systems sensors, but occurring at other locations on

the airfield (e.g., tornadoes, lightning, visibility and sky condition throughout the entire celestial dome, hail, freezing drizzle, blowing snow, etc).

8.2.2.1. Sky Condition Limitations. Due to the use of the ASOS system sky conditions reports may not be completely representative of the actual sky condition.

8.2.2.2. Only one FEW layer may be reported.

8.2.2.3. Only three layers of clouds can be reported below 12,000 feet.

8.2.2.4. Due to the transmission time of the ASOS system, rapidly changing sky condition reports may be delayed.

8.3. METWATCH Computer System.

8.3.1. The METWATCH computer system is used by the duty observer to monitor changing weather conditions, approaching inclement weather conditions, and Weather Warnings/ Watches/ Advisories issued for the Niagara Falls ARS.

8.3.2. The system is located in the observing section of the Weather Flight.

8.4. Equipment Restoral.

8.4.1. When equipment is inoperative or suspected to be non-representative, it will be logged out with the appropriate agencies. The outages will be tracked until the equipment is returned to service by the duty observer.

9. RECIPROCAL SUPPORT.

9.1. **General.** This section defines support from various base weather agencies, required by the WF/ASE in order to provide optimal customer support.

9.2. Base Command Post will:

9.2.1. Notify the weather station of all alerts and exercises.

9.2.2. Provide cell phone number for the standby personnel, for Non-duty hour's notification of set WW criteria listed in [Attachment 2](#).

9.2.3. Provide the weather station with the flying schedule.

9.3. SSI/Airfield Management (SSI/OSA) will:

9.3.1. Notify proper base agencies, upon receipt from the WF/ASE, of a WW/WWATCH, OWW, NWS WWATCH, and selected OWA listed in paragraph [5.3](#) - [5.6](#)

9.3.2. Notify the WF/ASE of changes to the active runway, aircraft/ground emergencies and in-flight emergencies.

9.3.3. Notify the WF/ASE of NOTAM and FLIP changes to approach MINS (CIG/VIS).

9.3.4. Provide the WF/ASE with current FAA order 7340.1 - Contractions manual and FAA order 7350.8- Location Identifiers.

9.4. 914 AW/SF will:

9.4.1. Relay WW to base agencies between 2300L – 0659L that are issued by the 15 OWS, Scott AFB IL.

9.4.2. Call the WF/ASE by 0715L when WW was issued between 2300L and 0659L, whether the WW is currently in effect or not.

9.4.3. Notify the WF/ASE when a WW is received from the 15 OWS during WF/ASE normal hours of operation. Inform the 15 OWS that the WF/ASE is opened and manned.

9.5. 914 CS/SCBN Base Communication Center will:

9.5.1. Provide excess to the WW Web:

9.5.1.1. E- mail accounts

9.5.1.2. Access to AFWA's, 15 OWS, and other miscellaneous weather web sites to conduct METWATCH requirements.

9.5.1.3. Provide computer and software for AOL.

9.5.2. Provide maintenance services on computer(s).

9.5.3. Provide any additional tech support needed.

STEVEN B. PARKER, Col, USAFR
Commander

Attachment 1

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

Air Force Instruction 15-114, *Weather Support Evaluation* – 07 DEC 2001

Air Force Instruction 15-128, *Aerospace Weather Operations – Roles and Responsibilities* – 07 FEB 2011

Air Force Manual 15-111, *Surface Weather Observations* – 27 FEB 2013

Air Force Manual 15-129, Volume 1, *Air and Space Weather Operations – Characterization* – 6 DEC 2011

Air Force Manual 15-129, Volume 2, *Air and Space Weather Operations – Exploitation* – 7 DEC 2011

Air Force Policy Directive 15-1, *Atmosphere and Space Environmental Support* – 19 FEB 2010

Federal Aviation Administration Order 7900.5C, *Surface Weather Observing* – 12 DEC 2012

Federal Aviation Administration Order 7340.1 - Contractions manual – *current edition*

Federal Aviation Administration Order 7350.6 - Location Identifiers – *current edition*

AFOOSH STD 91-66, *General industrial Operations* – *current edition*

AFOOSH STD 91-100 USAF, *Aircraft Flight Line – Ground Operations and Activities* – *current edition*

Adopted Form:

AF Form 847, *Recommendation for Change of Publication*

Abbreviations and Acronyms

ACFT MSHP—Air Craft Mishap

AF—Air Force

AFB—Air Force Base

AFI—Air Force Instruction

AFMAN—Air Force Manual

AFWA—Air Force Weather Agency

AGL—Above Ground Level

ALSTG—Altimeter Setting

AOL—Alternate Observing Location

ARS—Air Reserve Station

ASE—Air Field Services Element

ASOS—Automated Surface Observing System

ATC—Air Traffic Control Tower
AW—Air Wing
AWN—Automated Weather Network
BKN—Broken
BUF—Buffalo
CDM—Chemical Downwind Message
CIG—Ceiling
CWW—Continuous Weather Watch
DOD—Department of Defense
EDM—Effective Downwind Message
FAA—Federal Aviation Administration
FLIP's— Flight Information Publication
FEW—Few
HURCON—Hurricane Condition
IAW—In Accordance With
IFE—In-Flight Emergency
LCWW—Local Cooperative Weather Watch
METAR—Aviation Routine Weather Report
METWATCH—Meteorological Watch
NFARS—Niagara Falls Air Reserve Station
NFTA—Niagara Frontier Transportation Authority
NM—Nautical Mile
NOTAM—Notice to Airmen
NWS—National Weather Service
OPR—Office of Primary Responsibility
OSA—Operations Support Air Field
OSW—Operations Support Weather
OPREP—Operation Report
OVC—Overcast
OWA—Observed Weather Advisory
OWS—Operational Weather Squadron
OWW—Observed Weather Warning

RVR—Runway Visual Range

SCT—Scattered

SF—Security Forces

SKC—Clear

SLP—Sea Level Pressure

SM—Statute Mile

SPECI—Aviation Select Special Weather Report

USGS—United States Geological Survey

UTC—Universal Time Conversion

VIS—Visibility

WF—Weather Flight

WW—Weather Warning

WWATCH—Weather Watch

Attachment 2

SEVERE WEATHER CRITERIA

A2.1. Criteria for initiating Severe Weather Procedures.

A2.1.1. Tornadoes.

A2.1.2. **Severe Thunderstorms (Hail $\geq \frac{3}{4}$ " and/ or Winds ≥ 50 knots)**

A2.1.3. **Damaging Winds (> 50 knots).**

A2.1.4. Blizzard Conditions.

A2.1.5. Heavy snow 2 inches or more in 12 hours.

Attachment 3

AVIATION SELECT SPECIAL WEATHER REPORT (SPECI) CRITERIA

A3.1. Ceiling. When the ceiling is observed to form below, decrease to less than or if below increase to equal or exceed.

A3.2. Sky Condition. A layer or obscuring phenomena aloft is observed below 800 feet and no layer was reported below this level in a preceding observation.

Criteria Reference

3,000 ft AFMAN 15-111

2,400 ft Local Flying Requirements

2,000 ft AFMAN 15-111

1,500 ft AFMAN 15-111

1,000 ft AFMAN 15-111

700 ft AFMAN 15-111

500 ft AFMAN 15-111

300 ft AFMAN 15-111

All published airfield takeoff minima and airfield landing minima (including circling), as listed in DoD FLIPs and appropriate USAF, Army, HQ, or MAJCOM flying instructions and publications.

A3.3. Visibility. The prevailing visibility is observed to decrease to less than or if below, increase to equal or exceed.

Criteria Reference

3 miles AFMAN 15-111

2 miles AFMAN 15-111

1 mile AFMAN 15-111

½ mile AFMAN 15-111

¼ mile AFMAN 15-111

All published airfield takeoff minima and airfield landing minima (including circling), as listed in DoD FLIPs and appropriate USAF, Army, HQ, or MAJCOM flying instructions and publications.

A3.4. Runway Visual Range (RVR) Prevailing visibility first observed \leq 1SM, again when prevailing visibility goes above 1SM or RVR for active runway decreases to less than or, if below, increase to equal or exceed:

6,000 feet - AFMAN 15-111

5,000 feet - AFMAN 15-111

2,400 feet - AFMAN 15-111

2,000 feet - AFMAN 15-111

All published airfield takeoff minima and airfield landing minima (including circling), as listed in DoD FLIPs and appropriate USAF, Army, HQ, or MAJCOM flying instructions and publications.

A3.5. Tornado, Funnel Cloud. When observed, disappears from sight, or ends.

A3.6. Thunderstorms. When a thunderstorm begins or ends (15 minutes since thunder is last heard).

A3.7. Precipitation.

A3.7.1. Hail begins or ends.

A3.7.2. Freezing precipitation begins, ends, or changes intensity.

A3.7.3. Ice pellets begin, end, or changes intensity.

A3.7.4. Any other type of precipitation begins or ends. Note that, except for freezing precipitation, hail, or ice pellets, a SPECI is not required for changes in type (e.g. drizzle changing to snow grains) or the beginning or ending of one type while another is in progress (e.g. snow changing to snow and rain).

A3.8. Wind. The wind direction changes by 45 degrees or more in less than 15 minutes with sustained winds of 10 knots or more throughout the wind shift.

A3.9. Aircraft Mishap (ACFT MSHP). Upon notification of an ACFT MSHP.

A3.10. In-flight Emergency (IFE). Upon notification of an IFE.

A3.11. Single Element SPECI. Single element SPECIs will be taken only when a delay in reporting all elements of the SPECI would cause an immediate threat to life or property (e.g. "TORNADO SW MOV NE").

A3.12. SPECI upon the resumption of Observing Duties. The observer will take, disseminate, and record a SPECI within 15 minutes after returning to duty following a break in hourly coverage if a METAR was not filed as scheduled during that 15-minute period.

A3.13. Miscellaneous.

A3.13.1. Real-World Nuclear Accident. When notified of a real-world nuclear accident, the observer will take and disseminate (locally and longline) as a SPECI. The observer will append the remark "AEROB" as the last remark on the longline disseminated observation.

A3.13.2. Volcanic Ash. When first observed.

A3.13.3. Any other meteorological condition, which, in the opinion of the observer, is critical to the safety of operations.

Attachment 4**OBSERVED WEATHER ADVISORIES CRITERIA****Criteria Contact Agencies**

Low Level Wind Shear (LLWS) Base Command Post

Equivalent wind chill temperature of -5 degrees (F) Base Command Post,
SSI/OSA.

Circling Minimums SSI/ OSA

Landing Minimums SSI/ OSA

(Circling and Landing Minimums posted in current FLIP's and NOTAM's)

Attachment 5

NWS BUF WEATHER WATCH CRITERIA

Criteria Issuing Agency

Winter Storm Watch NWS BUF

Lake Effect Snow Watch NWS BUF

Winter Storm Advisory NWS BUF

Lake Effect Snow Advisory NWS BUF

Winter Storm Outlook NWS BUF

Wind Chill Watch NWS BUF

Flood Watch NWS BUF

Red Flag NWS BUF

Hazardous Weather Outlook NWS BUF

Attachment 6

15 OWS, WEATHER WATCH/ WARNING CRITERIA**Criteria Lead Time Issuing Agency**

Tornadoes, as potential warrants, **15 min** 15 OWS

Severe Thunderstorms (Hail $\geq \frac{3}{4}$ " and/ or Winds ≥ 50 knots), as potential warrants, 60 min 15OWS

Moderate Thunderstorms Hail $\geq \frac{1}{4}$ " $< \frac{3}{4}$ " and/ or Winds ≥ 35 knots < 50 knots), as potential warrants, 60 min 15OWS

Damaging Surface winds > 50 kts, *as potential warrants*, 60 min 15 OWS

Strong Surface winds 35kts-49kts, **60** min 15 OWS

Freezing Precipitation, *as potential warrants*, 60 min 15 OWS

Blizzard Conditions, as potential warrants, 60 min 15 OWS

Sandstorm, as potential warrants, 60 min 15 OWS

Rain/ *Snow* > 2 inches in 12 hours, *as potential warrants*, 60 min 15 OWS

The Potential for Lightning within 5 Nautical Miles, 30 min 15 OWS

Observed Lightning within 5 nm Observed WF/ ASE

Attachment 7

ASOS OBSERVATION

METAR KIAG 151753Z 23020G27KT 10SM SCT040 BKN150 BKN250 18/05 A2978 RMK
AO2 SLP072 T01780048 55003

SPECI KIAG 201620Z 19003KT 7SM -RA BKN014 OVC021 04/03 A2985 RMK A02 P0003

Attachment 8**HURRICANE CONDITION (HURCON) CRITERIA****LEVELS CRITERIA**

HURCON WATCH Tropical Storm/ Hurricane within 1500nm of the base or forecasted to be within the next 120 hours (5 days).

HURCON ONE Destructive winds of 50 knots or greater within 750nm of the base and/or within the next 120 hours (5 days).

HURCON TWO Destructive winds of 50 knots or greater within 750nm of the base and/or within the next 96 hours (4 days).

HURCON THREE Destructive winds of 50 knots or greater within 500nm of the base and/or within the next 72 hours (3 days).

HURCON FOUR Destructive winds of 50 knots or greater within 500nm of the base and/or within the next 48 hours (2 days).

HURCON FIVE Destructive winds of 50 knots or greater within 250nm of the base and/or within the next 24 hours (1 day).

HURCON SIX Destructive winds of 50 knots or greater within 250nm of the base and/or within the next 12 hours.

Attachment 9

OPREP 3 – BEELINE REPORT

A9.1. Criteria for OPREP 3 – Beeline Report.

A9.2. Tornado.

A9.3. Hail > ¾ inch.

A9.4. Winds > 50kts (to include gusts).

A9.5. Snow Storm.

A9.6. Lightning strike.

Attachment 10**WEATHER WARNING/ WATCH, OBSERVED WEATHER WARNING, NATIONAL
WEATHER SERVICE WEATHER WATCHES/ ADVISORIES AND OBSERVED
WEATHER ADVISORY DISSEMINATION DIAGRAM.**

15OWS WW/ WWATCH NWS WWATCH NWS Buffalo

WF/ASE (SSI/ OSW)

OOW/ WWATCH

OOWW

WW/ WWATCH

OOW

WA/OWA

NWS WWATCH

OOW

SSI/ OSA

Base Command Post / CP 107 AW/ OSA

Secondary Crash Net

ATC Tower