

15 DECEMBER 2002



Operations

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

COMPLIANCE WITH THIS PUBLICATION IS MANDATORY

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This Instruction implements AFD 15-1, *Atmosphere and Space Environmental Support*. It outlines weather support and received by the Niagara Falls Air Reserve Station Weather Observing Station to the 914th Airlift Wing (914th AW), 107th Air Refueling Wing (107th ARW), Niagara Falls Air Traffic Control Tower (ATCT), and miscellaneous agencies.

1. General Information

1.1. General Responsibilities. Niagara Falls ARS Weather (914th OG/OSW) during duty hours takes and disseminates weather observations; disseminates forecasted weather warnings; issues and disseminates observed weather warnings for lightning; issues and disseminates observed weather advisories; provides miscellaneous weather services requested by the 914th AW, 107th ARW, Niagara Falls ATCT, and miscellaneous agencies.

1.2. Key Terms:

1.2.1. Weather Station (WS). The official weather-observing site for the USAF at Niagara Falls ARS, New York.

1.2.2. Continuous Weather Watch (CWW). Observers will monitor weather conditions continuously and perform no other significant duties that interfere with this primary responsibility.

1.2.3. Weather Warning (WW). A special notice provided to the supported agency when established weather conditions of such intensity, so as to pose a hazard to life or property, for which the supported agency must take protective action(s), is occurring or is imminent.

1.2.4. Weather Advisory (WA). A special notice provided to the supported agency when an established weather condition that could affect operations is occurring.

1.2.5. Aviation Routine Weather Reports (METAR). METAR is a routine scheduled observation as well as the primary observation code used by the United States to satisfy requirements for reporting surface meteorological data.

1.2.6. Aviation Selected Special Weather Report (SPECI). SPECI is an unscheduled observation taken when any of the SPECI specified criteria has been observed.

1.2.7. Aviation Selected Local Weather Report (LOCAL). LOCAL is an observation (not meeting SPECI criteria) taken when any of the LOCAL criteria has been observed.

1.2.8. Automated Surface Observation System (ASOS). An observation system, which provides a fully automated weather observation.

1.2.9. Airport Weather Information System (AWIS). An information dissemination system utilized by the weather station to transmit weather information locally.

1.2.10. Alternate Observing Site (AOS)

1.2.11. Air Force Weather Agency (AFWA)

1.2.12. Joint Air Force and Army Weather Information Network (JAAWIN). AFWA's Internet based weather information retrieval and dissemination system.

1.3. Duty Priorities.

1.3.1. Complete Emergency War Order tasking.

1.3.2. Respond to aircraft/ ground emergencies

1.3.3. Transmit surface observation longline.

1.3.4. Transmit surface observation locally.

1.3.5. Transmit WW and WA locally.

1.3.6. Provide other services.

1.4. Weather Dissemination System.

1.4.1. ASOS. ASOS is the primary method of logline weather observation dissemination for Niagara Falls WS. The ASOS will automatically transmit the observation to the Automated Weather Network, for worldwide data access; will display the information on all associated terminals. See [Attachment 1](#) for an example of the ASOS observation.

Number	Location
OID 1	Weather Station
OID 2	Tower
OID 3	914 th AW/OPS*
OID 4	914 th AW/ CP*
OID 5	107 th ARW/ CP*

*Awaiting installation.

1.4.2. AWIS. AWIS is the primary method of local weather data dissemination for the Niagara Falls Weather Station. See [Attachment 2](#) for example AWIS copies.

AWIS Terminals

Terminal Number	Location
Terminal 1	
Terminal 2	Buffalo Flight Service
Terminal 3	
Terminal 4	Buffalo Terminal Radar Approach Control Facility (TRACON)
Terminal 5	Buffalo Air Traffic Control Tower
Terminal 6	Buffalo National Weather Service Forecast Office.
Terminal 7	Niagara Falls Air Traffic Control Tower
Terminal 8	Niagara Falls Weather Station
Terminal 9	
Terminal 10	914 th AW/ OPS
Terminal 11	914 th AW/ CP
Terminal 12	107 th ARW/ CP no longer in service
Terminal 13	Niagara Falls Transportation Authority Field Office

1.4.3. Telephone system. The phones are the primary method of relaying all WW and WA and are the back-up dissemination system for observations.

Primary customers are

Agency	Number
914 AW/ CP	236- 2150/ 2148
914 AW/ OPS	236- 2175/ 2174
914 AW/ SF	236- 2278
107 ARW/ ODC	236- 2468/ 2378
Niagara Falls Tower	297- 1310/ Tower Hot Line

1.5. Equipment Restoral Priorities. Weather equipment at the weather station is owned by several agencies (The National Weather Service, Federal Aviation Administration, and The Air Force) and are all involved in equipment restoral. When equipment is inoperative or suspected to be non-representative, it will be logged out and appropriate owning agency contacted for repair.

1.6. Release of weather information to Non-DoD agencies/ individuals. Weather personnel will refer all requests for weather information from Non-DoD personnel to the Niagara Falls ARS Public Affairs Office for coordination and approval.

1.7. AOS. The AOS, which is located at the 107th ARW Operations, building 912, room 161 will be used in the event of a WS evacuation.

1.7.1. Reasons for WS evacuation may include, but not limited to.

1.7.1.1. Fire.

1.7.1.2. High winds.

1.7.1.3. Obstruction to the WS.

1.7.1.4. Unsafe conditions.

1.7.2. When evacuation is imminent.

1.7.2.1. A local message will be sent over the AWIS stating intention to evacuate as time and conditions permit.

1.7.2.2. Transportation to the AOS will be provided by. The 107th ARW/ ODC or the 914th AW Security Forces, if needed.

1.7.2.3. When AOS is in use, precise meteorological sensors will not be available.

1.7.2.4. All data will be highly representative with the following limitations; wind speed and direction, cloud layer heights, and pressure will be estimated.

1.7.2.5. All Locally disseminated products will be sent over the telephone system.

2. Observing Service

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

2.2. Continuous Weather Watch (CWW). The Niagara Falls WS performs a CWW. Observations at Niagara Falls ARS are taken and disseminated by the ASOS with augmentation by the weather observer during duty hours. A METAR will be taken and disseminated once an hour. When changes to the current weather are detected, the observer will evaluate the need to take a SPECI or LOCAL observation. The process of taking a weather observation will include a physical check of observable weather conditions, correcting if necessary, and augmenting the observation with amplifying elements/ remarks. The data will be encoded in the METAR code for local and longline dissemination. Hourly observations are disseminated between H+53 and H+59.

2.3. SPECI Criteria. SPECI observation will be taken whenever the following criteria occur.

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

Criteria	Reference
3,000 ft	AFMAN 15-111
1,500 ft	AFMAN 15-111
1,000 ft	AFMAN 15-111
700 ft	AFMAN 15-111

Criteria	Reference
600 ft	FLIP
500 ft	AFMAN 15-111
400 ft	FLIP
200 ft	AFMAN 15-111

2.3.2. 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.

2.3.3. 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 ½ miles	FLIP
1 mile	AFMAN 15-111
¾ mile	FLIP
½ mile	AFMAN 15-111

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

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

2.3.6. Precipitation.

2.3.6.1. Hail begins or ends

2.3.6.2. Freezing precipitation begins, ends, or changes intensity.

2.3.6.3. Ice pellets begin, end, or changes intensity.

2.3.6.4. 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).

2.3.7. 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.

2.3.8. Runway Condition. Upon receipt, the observer will transmit runway condition reading as a SPECI or appended to a METAR or SPECI being taken at the time of notification.

2.3.9. Tower Visibility. Upon receipt of a reportable tower visibility value, when either tower or the weather station's visibility is less than 4 miles and they differ by a reportable SPECI criteria value, transmit a SPECI with the tower visibility as a remark.

2.3.10. 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. “TOR-NADO SW MOV NE”).

2.3.11. 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.

2.3.12. Miscellaneous.

2.3.12.1. 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.

2.3.12.2. Volcanic Ash. When first observed.

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

2.4. LOCAL Observation Criteria. The following are the local observation criteria at Niagara Falls ARS that will be taken and disseminated locally when the following conditions occur.

2.4.1. Aircraft Mishap. Immediately following the notification or sighting of an aircraft mishap at or near the station unless there has been an intervening METAR or SPECI.

2.4.1.1. These observations consist of elements normally included in a locally disseminated METAR.

2.4.1.2. LOCAL observations are not required for in-flight emergencies; i.e., those declared to reflect any unsafe conditions, which could adversely affect the safety of the aircraft. However, such in-flight emergencies should alert weather personnel to intensify the weather watch to ensure maximum support to the aircraft in distress. If the in-flight emergency results in an accident, the aircraft mishap LOCAL is then required. **Note:** In case of doubt, the observation should be taken.

2.4.2. Miscellaneous. Any other meteorological condition that, in the opinion of the observer, is significant to local operations.

3. Weather Warnings (WW)

3.1. General. 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 area covered by the WW will not be greater than a 5 nautical mile radius from the center of the runway complex. The weather station 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.

3.2. WW Criteria.

Criteria	Lead Time	Issuing Agency
Tornadoes	30 min	AFWA
Severe thunderstorms (hail $\geq \frac{3}{4}$ " and/ or winds ≥ 50 kts)	120 min	AFWA
Moderate thunderstorms (hail $\geq \frac{1}{2}$ " and/ or winds 35 – 49kts)	120 min	AFWA
General thunderstorms (hail $< \frac{1}{2}$ " and/ or winds < 35 kts)	120 min	AFWA
Surface winds 35kts-49kts, not associated with a thunderstorm	120 min	AFWA
Surface winds ≥ 50 kts, not associated with a thunderstorm	120 min	AFWA
Freezing Precipitation	120 min	AFWA
Rain ≥ 2 inches in 12 hours	120 min	AFWA
Snow ≥ 2 inches in 12 hours	120 min	AFWA
Observed Lightning within 5 nm	Observed	Weather Station

3.3. Issue of WW.

3.3.1. Forecasted WW. All forecasted WW are issued by AFWA and relayed by the 15th Operational Weather Squadron (OWS), Scott AFB to Niagara Falls ARS. The local agencies receiving the forecasted WW from the OWS are:

3.3.1.1. The Niagara Falls WS from 0700L-2259L.

3.3.1.2. 914th AW Security Forces from 2300L-0659L.

3.3.2. Observed WW. The only Observed WW issued is for Observed Lightning within 5 nm. The Observed WW is issued and disseminated by Niagara Falls WS.

3.4. Local Dissemination of WW During Weather Station Duty Hours.

3.4.1. During ARS duty hours. The weather station will disseminate WW information via telephone to:

3.4.1.1. 914th GSI/ OSA #236-2175/ 2174.

3.4.1.2. 914th AW/ CP #236-2150/ 2148.

3.4.1.3. 107th ARW/ CP #236-2468/ 2378.

3.4.1.4. Niagara Falls ATCT for lightning within 5nm.

3.4.2. During ARS non-duty hours. If the weather station is unable to contact the 914th AW/ CP or GSI/ OSA, the observer will contact:

3.4.2.1. 914th AW/ SF 236- 2278.

3.4.2.2. Fire Department 236- 2087.

3.4.3. In addition the duty observer will then contact the selected 914th AW/ CP standby person for the following WW criteria.

3.4.3.1. Tornadoes

3.4.3.2. Severe thunderstorm (hail $\geq \frac{3}{4}$ " and/ or winds ≥ 50 kts).

3.4.3.3. Moderate thunderstorm (hail $\geq \frac{1}{2}$ " and/ or winds 35 – 49kts).

3.4.3.4. Surface winds ≥ 50 kts not associated with thunderstorms.

3.4.3.5. Heavy snow 2 inches or more in 12 hours.

3.5. Local Dissemination of WW during weather station Non-duty hours.

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

3.6. WW issued during non-duty hours still in effect after 0730L will be re-disseminated by the weather station to all agencies.

3.7. Upon occurrence of severe weather at Niagara Falls ARS the duty observer will:

3.7.1. Notify the 914th AW/ CP Standby person.

3.7.2. Fill out an OPREP 3 – BEELINE REPORT “Severe Weather Occurrence Worksheet” IAW AFMAN 10-206. The Beeline report will be forward to the 914th AW/ CP with-in one hour of occurrence, weather permitting.

3.7.3. Severe weather is defined as:

3.7.3.1. Tornado

3.7.3.2. Hail $\geq \frac{3}{4}$ inch

3.7.3.3. Winds ≥ 50 kts (to include gusts)

4. Weather Advisories (WA)

4.1. General. A special notice provided to the supported agency when an established weather condition that could affect operations is occurring. The area covered by the WA will not be greater than 5 nautical mile radius from the center of the runway complex and will include the element of concern. The weather station issues and disseminates all WA. The weather station issues only Observed WA (OWA)

4.2. WA Criteria and Dissemination. The weather station, when on duty, issues and disseminated, via the telephone, a WA the following weather conditions are observed. The criteria and agencies contacted are:

Criteria	Contact Agencies
Low Level Wind Shear (LLWS)	914 AW/ CP 236- 2150/ 2149
Equivalent wind chill temperature of -25 degrees (F)	914 th AW/ CP 236- 2150/ 2149 914 th GSI/ OSA 236- 2175/ 2174 107 th ARW/ ODC 236- 2468/ 2378
Crosswind \geq 10kts	107 th ARW/ ODC 236- 2468/ 2378
Crosswind \geq 25kts	107 th ARW/ ODC 236- 2468/ 2378

5. Reciprocal Support Agreements.

5.1. General. This section defines support from various base weather agencies, required by the Niagara Falls WS in order to provide optimal customer support.

5.2. 914th AW Command Post will:

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

5.2.2. Notify the weather station of current runway surface condition/ runway reading when accomplished by the 914th GSI/ OSA.

5.2.3. Provide schedule of standby personnel, for Non-duty hour's notification of set WW listed in this instruction paragraph **3.7.1**.

5.3. 914th AW Base operations will:

5.3.1. Notify proper base agencies, upon receipt from the weather station, of a WW or WA listed in this instruction paragraph **3.2**. and **4.2**.

5.3.2. Provide the 914th AW/ CP with runway surface condition/ runway reading when required by IAW 914AW13-201.

5.4. 107th ARW/ ODC will:

5.4.1. Provide the weather station with runway surface condition/ runway reading when required by IAW 914AW13-201 whenever they have flying operations and GSI/ OSA is not manned.

5.4.2. Provide access to alternate observer site (AOS) located in room 161, bldg 912.

5.4.2.1. Room will have access to Telephone lines.

5.4.2.2. Provide transportation to AOS if needed.

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

5.4.4. Notify the weather station of any changes to the flying schedule.

5.5. 914th AW/ SF will:

5.5.1. Relay WW to base agencies between 2300L – 0659L, IAW 914AWI15-101, that are issued by the 15th OWS, Scott AFB IL.

5.5.2. Call the weather station by 0715L when WW was issued between 2300L and 0659L, whether the WW is currently in effect or not.

5.5.3. Provide back-up transportation to the AOS if the 107th ARW/ ODC cannot be reached.

5.6. 914th AW/ BNCC Base Communication Center will:

5.6.1. Provide a LAN line for:

5.6.1.1. E- mail accounts

5.6.1.2. Access to AFWA's and 15th OWS web sites

5.6.2. Provide maintenance services on desk top computer(s).

5.6.3. Provide any additional support needed.

WALLACE W. FARRIS, JR., COL, USAFR
Commander

Attachment 1

ASOS OBSERVATION:

METAR KIAG 151753Z 23020G27KT 10SM SCT040 BKN150 BKN250 18/05 A2978 RMK AO2
SLP072 8/278 9/322 T01780048 55003

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

Attachment 2**LOCAL AWIS OBSERVATION:**

METAR KIAG 151753Z

SPECI KIAG 201620Z

24020G27KT 10SM

20003KT 7SM -RA

SCT040 BKN150 BKN250

BKN014 OVC021

18/05 A2978

04/03 A2985

RMK SLP072 8/278 9/322 55003

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