

Department of Commerce • National Oceanic & Atmospheric Administration • National Weather Service

**NATIONAL WEATHER SERVICE INSTRUCTION 10-801
May 25, 2009**

**Operations and Services
Aviation Weather Services, NWSPD 10-8
AIRPORT WEATHER WARNINGS**

NOTICE: This publication is available at: <http://www.nws.noaa.gov/directives/>.

OPR: W/OS23 (B. McNulty)

Certified by: W/OS23 (C. Abelman)

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SUMMARY OF REVISIONS: Supersedes NWSI 10-801, Airport Weather Warnings (AWW), dated February 19, 2007. Changes include minor grammatical correction and:

1. Paragraph 5: A copy AWW agreements need only be sent to the respective region headquarters.
2. Paragraph 8: Verification reports rewritten for clarity. Regions consolidate AWW verification reports (if any) and forward to Aviation Services Branch at NWSH, OCWWS.
3. Appendix C: Added the words “Example of” to the title.

//Signed// May 11, 2009
David Caldwell Date
Director, Office of Climate, Water, and Weather Services

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1. Purpose. This instruction details NWS procedures for AWW products issued by Weather Forecast Offices (WFO).

2. Background. The AWW addresses weather phenomena which can adversely impact airport ground operations. Information contained in this product is useful to airport managers, fixed-based operators, airline ground personnel and others responsible for the safety of ground operations. Ground decisions supported by the AWW information may include: fueling delays during thunderstorms, de-icing frequency, and other similar ground operations. AWWs are not intended for use by in-flight operations.

3. Procedures. The AWW is issued based on weather criteria specific to each airport, and may include the issuance of any NWS warning product which affects the airport ground operations area (usually defined as a five statute mile radius from the center of the airport complex). NOTE: AWW criteria should reflect local users' requirements, be agreed upon between local airport management and the supporting WFO, and may modify the above definition of the airport ground operations area. The required Letter of Agreement (LOA) (as detailed in Section 5 and Appendix A) between the issuing office and the users establishes the weather elements, dissemination mechanisms, and points of contact.

The AWW complements and will be consistent with existing NWS warnings and forecasts to the maximum extent possible. Airport officials are encouraged to refer to other NWS warning and forecast products, such as Terminal Aerodrome Forecasts (TAFs), short term and zone forecasts, and public watches and warnings. These products could contain information about conditions which may impact ground operations. Use of NOAA Weather Radio to receive timely public

watches and warnings should be encouraged.

The AWW should normally be issued with as much lead time as possible. The issuing office and the main user(s) of the AWW should coordinate to establish the lead time(s) for each forecast element(s). An example of an element that requires a short lead time is a thunderstorm that is expected to affect the airfield. In contrast, an AWW lead time criteria for a long-anticipated event such as heavy snow or ice may be 4-5 hours. Updates or cancellations will be issued per locally established criteria.

The AWW is written in a plain language, free text format. It should include the triggering phenomenon, location, start time (end time as needed), and may include additional remarks.

Forecasters should keep in mind the following:

- a. Use KTS, not MPH, for wind speed because ground operations are based on knots.
- b. Ground based users prefer location of the event with respect to the airport. Try to avoid using location of events based solely on towns and cities.
- c. Use local time instead of UTC time (most users will be unfamiliar with UTC times).

4. Issuance Criteria. Issuance criteria are established according to local airport requirements and will be reviewed, and updated as necessary at least every two years. WFOs will notify the respective regional headquarters when reviews are completed. Some examples of criteria are:

- a. Surface wind gusts ≥ 40 knots
- b. Onset of freezing rain
- c. Cloud to ground lightning within 5 miles of the airport
- d. Thunderstorms with $\geq 1/2$ inch hail
- e. Onset of heavy snow

5. Agreements. The NWS WFO may enter into an agreement to issue AWWs for any airport in their area of responsibility, provided airport personnel have a need for AWWs, and the need is compatible with the present level of meteorological science and resources available at the issuing office. All forecasters will be trained on procedures and criteria for AWW issuance. The AWW product and dissemination procedures will also be part of the service backup procedure with the service backup WFOs.

A copy of all LOAs for any aviation-related watch/warning service, including AWWs, will be forwarded to the respective regional headquarters.

6. Dissemination. The AWW will be disseminated via the NOAA port Advanced Weather Interactive Processing System (AWIPS) Satellite Broadcast Network (SBN). In addition, or if

no access to the NOAA data stream is available, a locally established communication system can be used. The NWS office's method of dissemination will vary depending on local communications options. Examples are listed below. If the NOAA port AWIPS SBN is not used for dissemination, hard copies of all AWWs issued must be archived locally for a period of five years after the issuance date.

- a. (Airport Operations Control Center) *via* (phone, pager, etc.).
- b. (Airport control tower) *via* (SAIDS, or phone.)

Once the NWS notifies the primary or backup point of contact at the airport, it is the responsibility of the notified individual to use and/or forward the information provided in the AWW to ensure the safety of ground based aircraft and personnel in airport operations areas.

To reduce communication problems, the parties to the LOA should determine the best way to relay information. The focus should be on ensuring the user receives the product as far in advance as possible. Therefore, the communication method should not hinder either WFO or airport ground operations. Periodic tests of the AWW distribution system are strongly recommended.

7. Training and Other Considerations. Turnover of personnel at some airports may require an on-going commitment to train new airport employees in the use and application of the AWW. Appendix C is an AWW information sheet to help train all local users. The WFO should work with the airport managers and/or other users to assess AWW effectiveness.

8. Verification. Verification and quality control of the AWW program are required by NWS. On a quarterly basis, issuing offices will forward verification results to their regional headquarters. Verification results should include, but are not limited to Probability of Detection, False Alarm Rate, Lead Time, and the number of warnings issued by category. Each of these results will be broken down by criteria category. The regions will in-turn forward a consolidated report of all the AWW verification results to the Aviation Services Branch at NWSH, OCWWS. No report is necessary if no AWWs are issued.

9. Product Appearance and Content. The AWW product should be short, concise, and written for the laymen. This will ease dissemination of the product and help reduce confusion. See the following examples:

WWUS84 KOUN 242145
OKC109-242245-
AIRPORT WEATHER WARNING FOR WILL ROGERS WORLD AIRPORT
NATIONAL WEATHER SERVICE NORMAN OK
445 PM CDT SUN SEP 24 2000

EXPECT THUNDERSTORMS WITH HALF INCH OR LARGER HAIL...CLOUD TO
GROUND LIGHTNING...AND SOUTHWEST WIND TO 50 KTS OVER THE AIRPORT
FROM 505 PM TO 520 PM. (*use only those elements that are in the LOA*)

b. WWUS84 KOUN 242145

OKC109-242220-

AIRPORT WEATHER WARNING FOR WILL ROGERS WORLD AIRPORT

NATIONAL WEATHER SERVICE NORMAN OK

445 PM CDT SUN SEP 24 2000

WEST WIND GUSTS OF 50 TO 60 KTS WILL REACH THE AIRPORT BETWEEN 500 PM AND 510 PM. *(use only those elements that are in the LOA)*

c. WWUS81 KBOX 241415

MAC025-241515-

AIRPORT WEATHER WARNING FOR LOGAN AIRPORT

NATIONAL WEATHER SERVICE TAUNTON MA

915 AM EST FRI NOV 24 2000

FREEZING RAIN WILL DEVELOP AT AND AROUND THE AIRPORT BY 1030 AM AND END BETWEEN 200 TO 300 PM. *(use only those elements that are in the LOA)*

Appendix A
Example of a Letter of Agreement (Only involves AWW)

Letter of Agreement Regarding Airport Weather Warning Service between National Weather Service Forecast Office, (*office name*), (*State*) and (*name of airport authority*) Airport Federal Aviation Administration

Parties to this Letter of Agreement (LOA) are the Meteorologist In Charge (MIC) of the National Weather Service (NWS) Forecast Office at _____, the Airport Management Official at _____ Airport.

Airport Weather Warnings (AWW) are prepared and issued by selected NWS Forecast Offices, per agreement between airport operations personnel, and the NWS.

1. **PURPOSE:** This LOA defines the AWW service to be provided by the NWS WFO at (*location of WFO*). It describes weather criteria necessary for the issuance of an AWW, identifies local dissemination responsibilities, and establishes procedures to provide warning for weather conditions that may adversely impact airport ground operations. This LOA supersedes a letter dated _____, regarding Local Airport Advisory (LAA) service.

2. **AIRPORT WEATHER WARNING:** The AWW is issued by the NWS WFO at (*location of WFO*) to advise airport officials that locally established hazardous weather criteria, which may adversely impact airport ground operations, have been met.

AWWs are not intended for use during in-flight operations. The AWW provides information useful to airport personnel, fixed-based operators, airline ground personnel and others responsible for the safety of ground operations. Ground operations may include tie-downs during high wind events, temporary holds for departing aircraft, de-icing aircraft, and preparing snowplows.

AWWs complement existing NWS warnings and forecasts. Airport officials are encouraged to refer to other NWS warning and forecast products, such as TAFs, Short Term Forecasts, Center Weather Advisories, public watches and warnings, and NOAA All-Hazards Radio, which also contain information important to ground based aviation users, especially those products issued for severe storms or high winds.

3. **AWW ISSUANCE CRITERIA:** Issuance criteria are established between signers of this LOA and should be reviewed, and updated if necessary, every two years.

For the (*name of airport*) Airport, the following criteria have been established for the issuance of the AWW (for example):

- a. Surface wind gusts of 40 knots or greater
- b. Onset of freezing rain

- c. Cloud to ground lightning within 5 miles
- d. Thunderstorms with hail of ½ inch or greater
- e. Onset of heavy snow

4. ISSUANCE RESPONSIBILITY: The NWS Forecast Office, (*location of WFO*), is responsible for issuing the AWW.

5. DISSEMINATION RESPONSIBILITY: The AWW will be disseminated via the NOAA port (AWIPS SBN). In addition, or if no access to the NOAA port (AWIPS SBN) is available, a locally established communication system, as identified below, will be used.

The NWS office will disseminate the AWW to (example):

- a. (*Airport control tower*) via (*SAIDS, or phone 555-1212.*)

It is the responsibility of the individual receiving the AWW to forward information to other users, who should use the information for the safety of ground based aircraft and ground operations personnel.

6. EXAMPLE OF AWW: AWW issued at 1:30 pm: Airport weather warning for _____ airport. South winds 30 knots gusting 40 knots, beginning 200 pm, decreasing and shifting to northwest by 500 pm.

7. TERMS OF AGREEMENT: All parties to this LOA should provide the NWS MIC with any changes to their requirements. The NWS MIC should discuss any requests for change with NWS Regional Headquarters and then arrange a meeting to address changes formally. This LOA may be amended at any time by mutual consent of the parties.

A review and update is mandatory after two (2) years have elapsed from the following date: (_____).

1. _____

Meteorologist In Charge
National Weather Service, (*City, State*)

2. _____

(*Name*)
(*Title, eg: Director of Airports*)
(*Name of airport*)

"The NWS undertakes the activities under this Agreement, pursuant to and in accordance with 15 U.S.C. Section 313 et seq"

Appendix B
Sample LOA: Disseminating other NWS products including the AWW

Letter of Agreement Regarding Weather Services between National Weather Service Forecast Office, (*office name*), (*State*) and (*name of airport authority*)

Parties to this Letter of Agreement (LOA) are the Meteorologist In Charge (MIC) of the National Weather Service (NWS) Forecast Office at _____, the Airport Management Official at _____ Airport., and the (*air traffic control tower*) Manager, Federal Aviation Administration (FAA).

1. **PURPOSE:** This LOA lists and defines the NWS warning and advisory service to be provided by the NWS Forecast Office at _____. It describes weather criteria necessary for the issuance of weather warnings, identifies local dissemination responsibilities, and establishes procedures to provide warnings for weather conditions that may adversely impact airport ground operations. This LOA supersedes a letter dated _____, regarding Local Airport Advisory (LAA) service.

2. **WEATHER WARNINGS PRODUCTS AND CRITERIA:** The following products should be issued by the NWS WFO at _____, when the associated weather is expected to affect the _____ Airport (for example):

- a. Tornado Warning
- b. Severe Thunderstorm Warning
 - (1) Hail 3/4 inch diameter or greater
 - (2) Wind gusts 50 knots or greater
- c. Heavy Snow Warning
 - (1) 6 inches or more within 12 hours
 - (2) 9 inches or more within 24 hours
- d. Winter Storm Warning
 - (1) Heavy snow combined with wind or wind chills
- e. Blizzard Warnings
 - (1) Winds 35 mph or more with blowing snow and visibilities less than 1/4 mile (for 3 hours)
- f. Flash Flood Warning
- g. High Wind Warning
 - (1) Sustained 40 mph or higher (for 1 hour), or gusts 58 mph (no time limit)
- h. Airport Weather Warning
 - (1) Lightning within 5 nautical miles
 - (2) Sustained winds of 20 knots or greater or winds gusts over 30 knots

Issuance criteria for the Airport Weather Warning product are established between signers of this LOA and should be reviewed and updated when necessary.

3. DISSEMINATION RESPONSIBILITY: The AWW will be disseminated via the NOAA port (AWIPS SBN). In addition, or if no access to the NOAA port (AWIPS SBN) is available, a locally established communication system, as identified below, will be used.

NWS Forecast Office at _____, will notify the Airport Communications/Control Center via phone at xxx-xxxx when any of these warnings are issued. When possible, the NWS will advise the Airport Communications/Control Center of the length of time that the weather phenomena can be expected in the area.

The Airport Communications/Control Center personnel will then notify the Airport Duty Manger and make any other required Airport Notifications.

4. TERMS OF AGREEMENT: All parties to this LOA should provide the NWS MIC with any changes to their requirements. The NWS MIC should discuss any requests for change with NWS Regional Headquarters and then arrange a meeting to address changes formally. This LOA may be amended at any time by mutual consent of the parties.

A review and update is mandatory after two (2) years have elapsed from the following date: (_____).

1. _____
Meteorologist In Charge
National Weather Service, (*City, State*)

2. _____
(*Name*)
(*Title, eg: Director of Airports*)
(*Name of airport*)

"The NWS undertakes the activities under this Agreement, pursuant to and in accordance with 15 U.S.C. Section 313 et seq"

Appendix C
Example of AWW Information Sheet for AWW Users

Airport Weather Warnings (AWW)

From your National Weather Service

AWWs:

1. Are local products issued for pre-defined weather conditions which are hazardous to Airport Ground Operations which may not be specified in other NWS forecasts or warnings.
2. Complement existing NWS warnings and forecasts.
3. Are issued for specific weather criteria, negotiated by local airport management and the NWS office.
4. Issued for the onset of the weather event.
5. Issued with lead times up to one (1) hour.
6. Dissemination methods are negotiable.

Examples:

AIRPORT WEATHER WARNING FOR _____AIRPORT.
NATIONAL WEATHER SERVICE _____
900 PM EST THU JAN 13 2000
FREEZING RAIN...BEGINNING 1000 PM...CHANGING TO SNOW BY MIDNIGHT.

AIRPORT WEATHER WARNING FOR _____AIRPORT.
NATIONAL WEATHER SERVICE _____
130 PM MDT SUN AUG 13 2000
SOUTH WINDS 30 KTS GUSTING 40 KTS...BEGINNING 200 PM...DECREASING AND
SHIFTING TO THE NORTHWEST BY 500 PM

AIRPORT WEATHER WARNING FOR _____AIRPORT.
NATIONAL WEATHER SERVICE _____
430 PM MDT SUN AUG 13 2000
CLOUD TO GROUND LIGHTNING WITHIN 5NM...BEGINNING 500 PM THROUGH
515 PM.

Contact: _____

For more details