

NATIONAL WEATHER SERVICE INSTRUCTION 10-801

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Operations and Services

Aviation Weather Services, NWSPD 10-8

AIRPORT WEATHER WARNINGS

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

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SUMMARY OF REVISIONS: This directive supersedes NWSI 10-801, “*Airport Weather Warnings (AWW)*,” dated September 23, 2016. Change made to update and clarify the length of convective warnings.

Signed

11/26/2019

Andrew D. Stern

Date

Director

Analyze, Forecast, and Support Office

Airport Weather Warnings

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1 Purpose

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

2 Background

The AWW addresses weather phenomena that can adversely affect 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, blowing debris from strong winds, and other similar weather phenomena that could affect 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 and be agreed upon between local airport management and the supporting WFO while staying within NWS policy for product consistency and updating. A Letter of Agreement (LOA) (as detailed in Section 5 and Appendix A) is required between the issuing office and the users and 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 digital forecasts, and public advisories, watches, and warnings. These products may contain information about conditions, which may affect ground operations. Use of NOAA Weather Radio and other mobile platforms to receive timely public watches and warnings is encouraged.

The AWW should be issued with the appropriate lead time for the specific weather phenomenon. The issuing office and the main users of the AWW should coordinate to establish the appropriate lead time(s) for each forecast element(s). For example, a shorter lead time is required for a thunderstorm that is expected to affect the airfield. AWWs for thunderstorm impacts should not be in effect for more than two hours and will follow typical NWS policy for updating and canceling. In contrast, AWW lead time criteria for a long-anticipated event such as heavy snow or ice may be 3-6 hours since winter weather typically requires more planning by aviation partners to manage the hazard.

Updates or cancellations will be issued per locally established criteria, but within the confines of NWS policy mentioned above.

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

Forecasters should keep in mind the following:

- Use knots (KTS), not MPH, for wind speed since ground operations are based on knots.
- 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.
- Use local time instead of UTC time (many airport operations users will be unfamiliar with UTC times).

4 Issuance Criteria

Issuance criteria is established according to local airport requirements and NWS policy. Criteria will be reviewed every two years and may be updated as necessary. WFOs will notify the respective regional headquarters when reviews are completed. Some examples of criteria include, but are not limited to:

- Surface wind gusts \geq 40 knots
- Onset of freezing rain
- Cloud to ground lightning within 5 miles of the airport
- Thunderstorms with \geq ½ inch hail
- Heavy snow (to include Onset/Ending, Intensity, Liquid Water Equivalent, etc)

5 Agreements

Any 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 WFO. All forecasters will be trained on procedures and criteria for AWW issuance. The AWW product and dissemination procedures is 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 NOAAPort/Advanced Weather Interactive Processing System (AWIPS) Satellite Broadcast Network (SBN). In addition, a locally established communication system may be used. The NWS office's method of dissemination will vary depending on local communications options. Examples are:

- (Airport Operations Control Center) *via* (phone, pager, etc.).
- (Airport control tower) *via* (Systems Atlanta Information Display System [SAIDS, the legacy AWIPS-to-FAA communications line], or phone.)

If NOAAPort/AWIPS SBN is not used for dissemination, hard copies of all AWWs issued must be archived locally (as required by records retention policies) for a period of five years after the issuance date.

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 in the appropriate lead time for the event. Therefore, the communication method should not hinder either WFO or airport ground operations. Periodic tests of the AWW distribution system are encouraged.

7 Training and Other Considerations

Turnover of personnel at some airports may require an ongoing 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 an annual basis (October 1, 20xx thru Sept 30, 20xx) 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 forward a consolidated report of all AWW verification results to the Aviation and Space Weather Services Branch (AFS24) at NWSH. 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 layperson. This will ease dissemination of the product and help reduce confusion. See the following examples:

```
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
```

...AIRPORT WEATHER WARNING...

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 CDT. ***(use only those elements that are in the LOA)***

```
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
```

...AIRPORT WEATHER WARNING...

West wind gusts of 50 to 60 kts will reach the airport between 500 PM
and 510 PM CDT. ***(use only those elements that are in the LOA)***

```
WWUS81 KBOX 241415
MAC025-242000-
AIRPORT WEATHER WARNING FOR LOGAN AIRPORT NATIONAL WEATHER SERVICE
TAUNTON MA
915 AM EST FRI NOV 24 2000
```

...AIRPORT WEATHER WARNING...

Freezing rain will develop at and around the airport by 1030 AM EST
and end between 200 and 300 PM EST. ***(use only those elements that are in the LOA)***

APPENDIX A - Example of a Letter of Agreement for Aviation Weather Warnings Only

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 affect airport ground operations. This LOA supersedes a letter dated _____ regarding previous AWW 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 affect 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, halting refueling during convection, 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):

- Surface wind gusts of 40 knots or greater
- Onset of freezing rain
- Cloud to ground lightning within 5 miles

- Thunderstorms with hail of ½ inch or greater
- 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 NOAAPort. In addition, a locally established communication system, as identified below, can be used.

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

(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 2:00 pm, decreasing and shifting to northwest by 5:00 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 the appropriate NWS Regional Headquarters and then arrange a meeting to formally address any resulting changes. This LOA may be amended at any time by mutual consent of all parties.

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

_____.

Meteorologist-in-Charge
National Weather Service, (*City, State*)

(Name)(Title, e. g., 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 - Example of a Letter of Agreement for Disseminating Other NWS Products Including the AWW

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

Parties to this Letter of Agreement (LOA) are the Meteorologist-in-Charge (MIC) of the WFO 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 WFO 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 affect airport ground operations. This LOA supersedes the letter dated _____ regarding previous AWW Airport services.

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

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

Issuance and update criteria for the Airport Weather Warning product are established between signers of this LOA and will follow NWS policy for consistency and standard updates depending on the weather event, as expressed in section 3 of the NWS directive 10-801.

3. DISSEMINATION RESPONSIBILITY: The AWW will be disseminated via NOAAPort. In addition, a locally established communication system, as identified below, can be used.

The WFO at _____, will notify the Airport Communications/Control Center via phone at xxx-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 Manager 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 the appropriate NWS Regional Headquarters and then arrange a meeting to formally address the resulting changes. This LOA may be amended at any time by mutual consent of all parties.

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

_____.

Meteorologist-in-Charge
National Weather Service, (City, State)

(Name)(Title, e. g., 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 - Information Sheet for Users on the Aviation Weather Warning (AWW)

1. AWWs are local products issued for pre-defined weather conditions which are hazardous to Airport Ground Operations and may not be specified in other NWS forecasts or warnings.
2. Complement existing NWS warnings and forecasts.
3. Are issued and cancelled for specific weather criteria, negotiated by local airport management and the local NWS office, while following NWS updating policies and product consistency identified in section 3 of the NWS directive 10-801.
4. Issued for the onset of the weather event.
5. Dissemination methods are negotiable.

Examples:

AIRPORT WEATHER WARNING FOR _____ AIRPORT.
NATIONAL WEATHER SERVICE _____
900 PM EST THU JAN 13 2000

...AIRPORT WEATHER WARNING...

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

...AIRPORT WEATHER WARNING...

South winds 30 kts gusting 40 kts...beginning 200 PM decreasing and shifting northwest by 500 PM.

AIRPORT WEATHER WARNING FOR _____ AIRPORT.
NATIONAL WEATHER SERVICE _____
430 PM MDT SUN AUG 13 2000

...AIRPORT WEATHER WARNING...

Cloud to ground lightning within 5 nm...beginning 500 PM through 515 PM.

Contact: _____ for more details