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***NATIONAL WEATHER SERVICE EASTERN REGION SUPPLEMENT 06-2006***

***APPLICABLE TO NWSI 10-515***

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***Operations and Services***

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***WFO Non-Precipitation Weather Products Specification NWSI 10-515***

***EASTERN REGION NON-PRECIPITATION WEATHER (NPW) PRODUCTS***

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

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***SUMMARY OF REVISIONS:*** This supplement is an update of ER Supplement 06-2006 (Eastern Region Non-Precipitation Weather Products). Changes include:

- 1) Probability thresholds are used to decide when to trigger Hazardous Weather Outlooks (HWOs), Watches, Warnings and Advisories (WWAs), as shown in Appendix A.
- 2) High-end convective gusts are defined as gusts > 64 knots.
- 3) Issuance of warnings and advisories for conditions below warning or advisory criteria is explicitly allowed, should the forecaster judge public safety to be at risk.
- 4) Inland hurricane/tropical storm wind watch and warning assignments are updated from the previous supplement.
- 5) Handling of anomalous freeze/frost season start and end dates are now done via the PNS rather than the SPS.
- 6) Maps of normal (median) growing season start and end dates are shown in Appendix B.
- 7) Event-driven Air Quality products now use the AQA rather than NPW identifier.

< Signed >

June 29, 2011

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Mickey J. Brown  
Acting Director, NWS Eastern Region

Date

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1. **Purpose.** This supplement adds detail to baseline national guidance on how to issue outlooks, watches, warnings and advisories for non-precipitation type weather (NPW) phenomena (wind, temperature and visibility) in Eastern Region (ER).

ER Weather Forecast Offices (WFOs) will issue NPW products when conditions are expected to meet established criteria posing a threat within their County Warning Area (CWA). *NPW products may also be issued for conditions falling short of established criteria, when in the forecaster’s judgment, lives or property will be at risk.* Weather not meeting hazardous criteria but posing a lesser threat should be addressed in other products such as the Short Term Forecast (AWIPS header NOW) or Special Weather Statement (AWIPS header SPS). See [10-517, Multipurpose Weather Products Specification](#) and [ERS 02-2007, Hazardous Weather Outlook, Special Weather Statement and Short Term Forecast](#) for additional details.

2. **Product Types, Trigger Probabilities and Typical Time Horizons.** Non-precipitation hazards are handled using two different product types – the Hazardous Weather Outlook (HWO) and the NPW. The following trigger probabilities and time horizons apply:

- a. **Outlooks.** Outlooks are issued using the HWO product for any hazards affecting all or part of the CWA, when the probability of the hazard meeting or exceeding warning criteria is 30-49%; this typically occurs 72 to 168 hours prior to criteria being met.
- b. **Watches.** Non-Precipitation watches are issued using the NPW product for hazards expected to affect all or part of the CWA, when there is a 50-79% chance of meeting or exceeding warning criteria; this typically occurs 24 to 72 hours prior to criteria being met.
- c. **Warnings.** Non-Precipitation warnings are issued using the NPW product for hazards expected to affect all or part of the CWA, when there is an 80% or greater chance of meeting or exceeding warning criteria; this typically occurs 12 to 24 hours prior to criteria being met.
- d. **Advisories.** Advisories for non-precipitation events are issued using the NPW product for those events expected to cause significant inconvenience, and if caution is not exercised, may lead to life-threatening situations over all or part of the forecast area. WFOs should issue advisories when there is an 80% or greater chance of

meeting/exceeding local advisory criteria; this typically occurs 12 to 24 hours prior to criteria being met.

3. **Relationship to other Products.**

1. **Winter Weather Message (WSW).** When precipitation and non-precipitation weather hazards are expected to occur simultaneously within a storm, combined phenomena can be handled using a single product. To decide which product to choose (WSW or NPW), use the following hierarchal rules:
  - a. Choose the product type with the highest alert level (warning trumps advisory), and
  - b. If all the alert levels are the same, choose the WSW over the NPW.
2. **Severe Thunderstorm Warning (SVR).** There will be times, particularly in the spring and autumn, when convective cells are embedded in moderately intense synoptic scale wind regimes. While these convective cells may not develop into thunderstorms, their downdrafts are strong enough to push the gradient wind field into advisory or warning categories. In such cases, sound forecaster judgment ultimately determines which type of product is used (NPW, SVR or SPS).

The following general guidelines (using a time-filter rather than a spatial one) are offered to assist forecasters in handling wind situations only (i.e., no large hail expected).

If the convective wind event is expected to equal or exceed **warning** values for one hour or more, then a NPW (High Wind Warning) is recommended. If less than one hour, a SVR (Severe Thunderstorm Warning) is recommended. (Note: lightning and thunder are NOT criteria for SVR issuances!)

If the convective wind event is expected to fall within the **advisory** category for one hour or more, then a NPW (Wind Advisory) is recommended. If less than one hour, a SPS (no headline required) is recommended.

When short-lived, extreme convective gusts > 64 knots are expected within an area already covered by a NPW, the forecaster should issue a SVR in addition to the NPW to highlight and emphasize the specific high-end threat.

3. **Air Quality Alerts.** ER WFOs that have event-driven air quality alerts in cooperation with state and local air quality officials will issue these products under the AWIPS header AQA. See [Directive 10-519](#) for details.
4. **Procedures.** ER offices are required to issue outlooks, watches, warnings and advisories when the probability of meeting an event's criteria reaches established thresholds. However, warnings and advisories may be issued for conditions falling

short of established criteria, when in the forecaster's judgment, lives or property will be at risk. Forecasters should make every reasonable effort to collaborate with adjacent offices to reach consensus on event type, timing and magnitude.

- a. **Wind.** When using objective wind thresholds to trigger advisories or warnings, the upper limit of the sustained wind speed range will be used to determine whether an advisory or warning is issued, rather than the average speed of the forecast interval.

Local policy should be used to determine whether High Wind Watches, Warnings or Wind Advisories are needed for climatologically windy locations. For example, Mt. Washington routinely experiences winds within the advisory category and frequently within the warning category. Some coastal channels, valleys and mountain passes have similar conditions. Locally established criteria *above* regional values are acceptable in those geographic areas.

The following ER WFOs will issue "regular" (non-tropical) NPWs for high wind watches/warnings when winds from hurricane/tropical storms move into their area of responsibility: BGM, BTV, BUF, CAE, CLE, CTP, GSP, ILN, PBZ, RAH, RLX and RNK. (When any of these offices are in backup mode for a coastal WFO, the guidance provided in the next paragraph applies for the coastal WFO's counties.)

Coastal WFOs will issue hurricane/tropical storm watches and warnings for their inland counties via HLSs, for winds of tropical cyclone origin. (Note: Due to their relatively small size, all of Connecticut and Massachusetts are included in hurricane/tropical storm watches and warnings – coastal counties NHC-issued with inland counties WFO-issued. Thus, WFO ALY will issue regular (non-tropical) NPWs for all of its counties EXCEPT Berkshire, MA and Litchfield, CT, which will be handled via the HLS to issue hurricane/tropical storm watches for winds.)

- b. **Heat.** ER heat index criteria are based on national guidelines associated with recommendations from the 1995 Chicago Heat Service Assessment. Excessive heat products will be issued when criteria are expected to be met for two hours or more. Heat related criteria can be found on the [Eastern Region Heat Thresholds Map](#).
- c. **Freeze and Frost.** Temperatures at or below the freezing point of water can seriously affect outdoor operations (e.g., gardening or construction). The probability of freezing temperatures occurring varies by location and time of year; this variation causes uncertainty as to when a WFO's freeze/ frost program should begin and end. Use of GIS-enhanced maps from the National Climatic Data Center are now available in Appendix B to establish coordinated start and stop dates for this program.

The Eastern Region freeze/frost program normally starts on the first day and ends on the last day (median dates) of the growing season, as depicted on maps in Appendix B.

During certain well-defined weather regimes (e.g., La Nina, El Nino / Southern Oscillation), vegetation may begin growing several weeks ahead of schedule in the spring while the first freeze in the autumn may occur very late in the year, or not at all. Under these circumstances, WFOs have the discretion to begin the growing season early, or terminate it two weeks after the normal first freeze date in the autumn.

Changes to start dates will be coordinated with MSD and surrounding WFOs at least one day in advance, to assure program consistency.

The program will remain active in each individual zone until a minimum shelter temperature of 32°F or less, covering half or more of the zone for 3 or more hours, occurs in the autumn. WFOs will issue a PNS to announce the end of the growing season for each zone or group of zones when this has occurred.

Freeze/frost terminology and definitions are shown in the table below:

Minimum Shelter Temperature (°F)			
	< 28°F	28°F - 32°F	32°F - 36°F
TERMINOLOGY	Hard Freeze	Freeze	Frost (Calm or Light Wind)
PRODUCTS	FREEZE WATCH/WARNING		FROST ADVISORY

- d. **Dense Fog, Smoke, Ashfall, Blowing Dust.** NPWs will be issued by ER offices in accordance with criteria outlined in [NWSI 10-515, WFO Non-Precipitation Products Specification](#).

NPW products are issued using the UGC (Z) format. Updates and cancellations of NPW watches/warnings/advisories shall be accomplished using the NPW product. The UGC cutoff time of the cancellation message shall be one hour.

5. **Product Format.** NPWs are segmented products. Format requirements can be found at: [NWSI 10-515, WFO Non-Precipitation Products Specification](#). Some additional notes are provided below:

a. **Elevation.** ER WFOs may include elevation in the headline as necessary. If used, elevation information will be included at the end of the headline. (e.g.,

“...HIGH WIND WARNING IN EFFECT UNTIL 6 AM TUESDAY ABOVE 1000 FEET...”)

b. **Expiration Statements.** Though not specifically addressed in NWSI 10-515, ER WFOs are encouraged to issue a final statement when a warning or advisory has reached its normal expiration time and has not been previously canceled. A short statement should be issued near the expiration time with the headline “THE WARNING/ADVISORY HAS EXPIRED”, or “THE WARNING/ ADVISORY WILL EXPIRE AT...” This provides customers with final notification that the event is indeed over.

• **Bullet Content.** Each bullet of the warning will be concise and restricted to addressing the specifics of the weather expected. Where appropriate, include mention of specific geographic locations where the public would be especially vulnerable. A definition of watch/warning must be included as shown in 10-515 sections 5.3.4.2.c.4 and 6.3.4.2.c.4 if the event has not yet begun. Attribution statements (THE NATIONAL WEATHER SERVICE IN [WFO LOCATION] HAS ISSUED A...) are required for the first issuance of a particular watch/ warning/advisory; see [NWSI 10-515, WFO Non-Precipitation Products Specification](#), Sections 5.3.4.2.c.1 and 6.3.4.2.c.1.

c. **Call-to-Action Statements.** Concise call-to-action statements should be included in each segment if the statement(s) relay extremely urgent messages, such as potentially life-saving actions. Other less urgent call-to-action statements may be included in one of three ways: separated from other content within a segment by using the && separator; included as part of the overview; or grouped together after the \$\$ ending the final segment of the product. WFOs should be aware that call-to-action statements not included in the segments will not be received by customers who program their systems to receive only their local segments.

## APPENDIX A

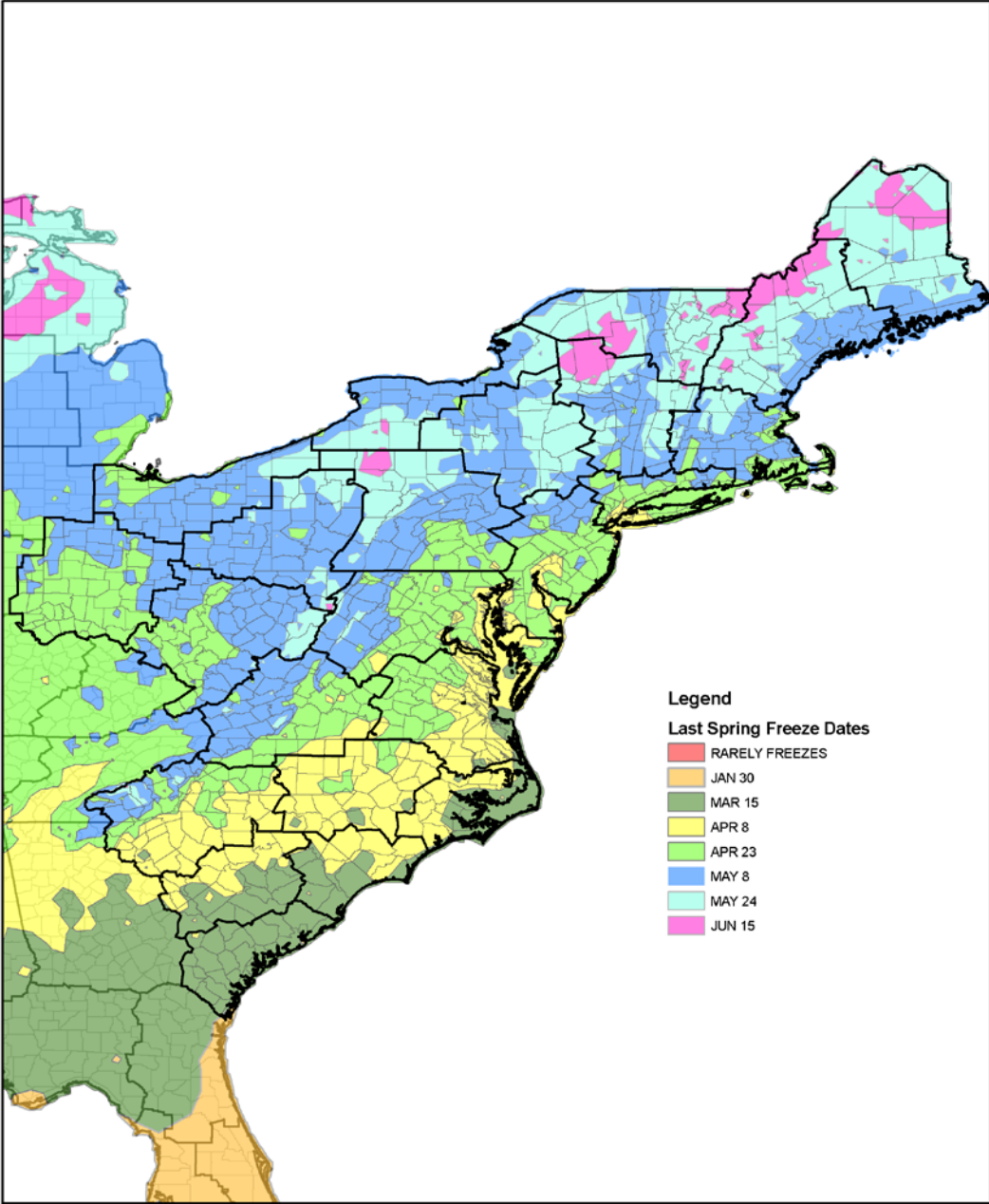
## Non-Precipitation Event Criteria, Probability Thresholds and Timing

Product Type	PIL	Watch / Warning / Advisory Criteria	Probability Threshold	Typical Time Horizon
<b>High Wind Outlook</b>	HWO	≥ 35 knots (40 mph) sustained for ≥ 1 hr or any duration gust ≥ 50 knots (58 mph)	30-49%	72-168 Hrs
<b>Excessive Heat Outlook</b>	HWO	See heat link below	30-49%	72-168 Hrs
<b>Freeze Outlook</b>	HWO	See box at the bottom of page 5	30-49%	72-168 Hrs
<b>Frost Outlook</b>	N/A	Not Issued	N/A	N/A
<b>Dense Fog/Smoke/Dust/ Volcanic Ash Outlook</b>	N/A	Not Issued	N/A	N/A
<b>High Wind Watch</b>	NPW	≥ 35 knots (40 mph) sustained for ≥ 1 hr or any duration gust ≥ 50 knots (58 mph)	50-79%	24-72 Hrs
<b>Excessive Heat Watch</b>	NPW	See heat link below	50-79%	24-72 Hrs
<b>Freeze Watch</b>	NPW	See box at the bottom of page 5	50-79%	24-72 Hrs
<b>Frost Watch</b>	N/A	Not Issued	N/A	N/A
<b>Dense Fog/Smoke/Dust/ Volcanic Ash Watch</b>	N/A	Not Issued	N/A	N/A
<b>High Wind Warning</b>	NPW	≥ 35 knots (40 mph) sustained for ≥ 1 hr or any duration gust ≥ 50 knots (58 mph)	≥ 80%	12-24 Hrs
<b>Excessive Heat Warning</b>	NPW	See heat link below	≥ 80%	12-24 Hrs
<b>Freeze Warning</b>	NPW	See box at the bottom of page 5	≥ 80%	12-24 Hrs
<b>Frost Warning</b>	N/A	Not Issued	N/A	N/A
<b>Dense Fog/Smoke/Dust/ Volcanic Ash Warning</b>	N/A	Not Issued	N/A	N/A
<b>Wind Advisory (land)</b>	NPW	27-34 knots (31-39 mph) sustained for ≥ 1 hr or any duration G40-49 knots (46-57 mph)	≥ 80%	12-24 Hrs
<b>Lake Wind Advisory (local office discretion)</b>	NPW	21-29 knots (24-33 mph) sustained for ≥ 1 hr or any duration G18-25 knots (21-28 mph)	≥ 80%	12-24 Hrs
<b>Heat Advisory</b>	NPW	See heat link below	≥ 80%	12-24 Hrs
<b>Freeze Advisory</b>	N/A	Not Issued	N/A	N/A
<b>Frost Advisory</b>	NPW	See box at the bottom of page 5	≥ 80%	12-24 Hrs
<b>Dense Fog/Smoke/Dust/ Volcanic Ash Advisory</b>	NPW	Widespread visibility ≤ ¼ mile	≥ 80%	12-24 Hrs

Heat Threshold Maps: <http://www.werh.noaa.gov/MSD/Resources/Heat/resource.htm>

**APPENDIX B**

**MEDIAN DATE OF LAST SPRING FREEZE EASTERN U.S.  
BASED ON 1971 - 2000 CLIMATOLOGY**





**APPENDIX B – CONTINUED**

**MEDIAN FALL FREEZE DATES EASTERN U.S.  
BASED ON 1971 - 2000 CLIMATOLOGY**

