



Extreme Cold and Freeze Hazard Simplification

NWS Public Weather Services Program
Kimberly McMahon and Jessica Lee



Webinar Logistic

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- All lines will remain muted throughout the presentation.
- Please use the **Question Box** to ask questions, which will be answered at the end during the Q&A.

Today's Speakers



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NWS, NOAA**



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NWS, NOAA**

Hazard Simplification Background

<https://www.weather.gov/hazardsimplification/>

Hazard Simplification (HazSimp): the simplification of current NWS Watch/Warning/Advisory products.

HazSimp is being done through two main paths:

1. Repair
2. Revamp



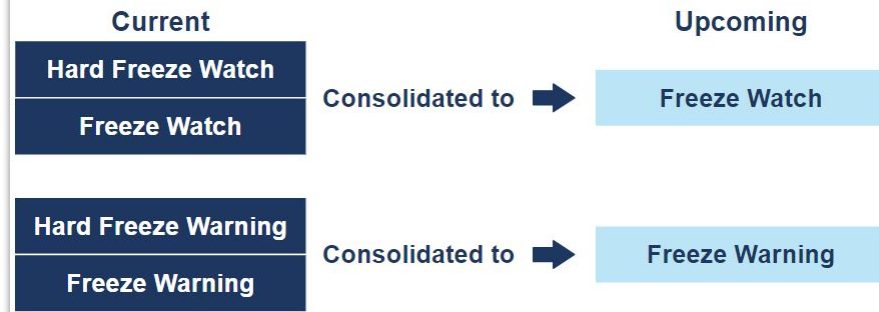
Hazard Simplification Overview

On or about October 1, 2024, the NWS is simplifying its suite of cold weather products to improve messaging of these hazards and provide better decision support services

Extreme Cold Consolidation and Renaming



Freeze Consolidation



Motivation for Change

- Emphasize **cold is dangerous**, with or without wind!
- **Simplify messaging** by using a single product type
- Develop **new, consistent guidance** that is based on climatology *and* adjusted for impacts



Motivation for Change

Cold Weather Headlines



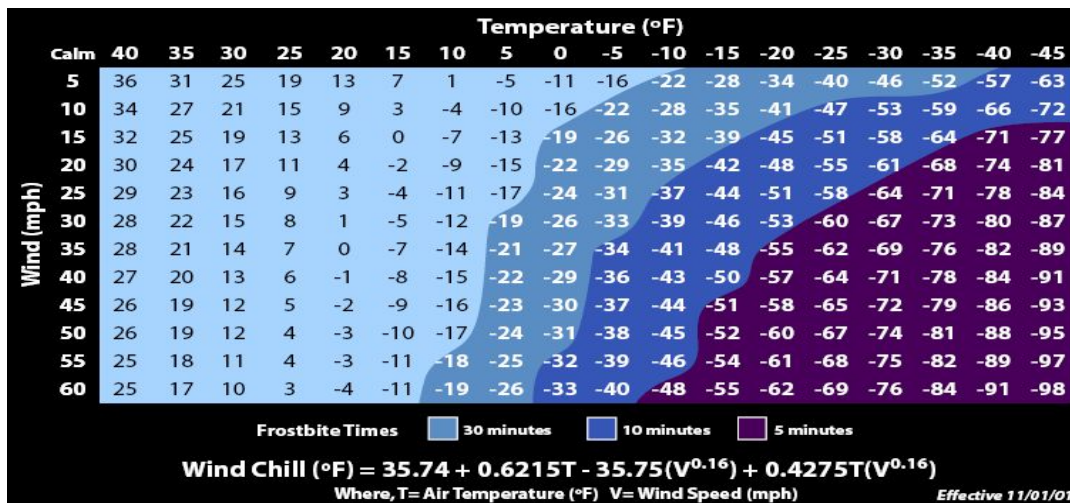
Cold weather headlines will no longer be “lumped in” with other winter hazards (ie, having a Winter Weather Advisory cover snow and cold impacts)

Wait...Wind Chill Is Going Away???

NO. Wind chill is not going away.

Extreme Cold Watch/Warning and Cold Weather Advisory will be based off of the APPARENT TEMPERATURE* – whether that represents the air temperature or the wind chill, cold is cold.

*Apparent Temperature can be the air temperature when the wind is calm or the wind chill temperature when wind is present



Flexible Messaging

Extreme Cold Watch/Warning, Cold Weather Advisory

- Product based on *either* temperature or wind chill

Freeze Watch/Warning

- Ability to include “hard freeze” wording within product

URGENT - WEATHER MESSAGE
National Weather Service
330 AM EST Mon Jan 15 2024

/O.NEW.EC.W.0002.240116T0500Z-240116T1700Z/
/O.NEW.FZ.W.0002.240116T0600Z-240116T1700Z/
330 AM EST Mon Jan 15 2024

...EXTREME COLD WARNING IN EFFECT FROM MIDNIGHT TONIGHT TO NOON EST TUESDAY...

...FREEZE WARNING IN EFFECT FROM MIDNIGHT TONIGHT TO NOON EST TUESDAY...

* WHAT...For the Freeze Warning, **hard freeze with** temperatures as low as 21. For the Extreme Cold Warning, **dangerously cold wind chills** as low as 5 above zero.

* WHEN...From midnight tonight to noon EST Tuesday.

* IMPACTS...The dangerously cold wind chills could result in hypothermia or frostbite if precautions are not taken. Frost and freeze conditions will kill crops, other sensitive vegetation and possibly damage unprotected outdoor plumbing.

PRECAUTIONARY/PREPAREDNESS ACTIONS...

Avoid outside activities if possible. When outside, make sure you wear appropriate clothing, a hat, and gloves.

Take steps now to protect tender plants from the cold. To prevent freezing and possible bursting of outdoor water pipes they should

be wrapped, drained, or allowed to drip slowly. Those that have ground pipes to protect them from freezing.



End State of Product Changes


| Product Name | VTEC | WWA Color |
|-----------------------|------|---------------|
| Extreme Cold Watch | EC.A | Cadetblue |
| Extreme Cold Warning | EC.W | Blue |
| Cold Weather Advisory | CW.Y | Paleturquoise |
| Freeze Watch | FZ.A | Darkslateblue |
| Freeze Warning | FZ.W | Cyan |



Frost/Freeze Products



The scope of NWS Frost/Freeze services is focused on vegetation and agriculture.





- 
- **Frost Advisory:** Minimum temperature forecast to be 33°F to 36°F during the locally defined growing season, on nights with good radiational cooling.
 - **Freeze Watch/Warning:** Minimum temperature is forecast to be 32°F or less during the locally defined growing season.
 - “Hard Freeze” wording may be used in the “WHAT” bullet of Freeze Warnings for minimum shelter temperature forecast to be 28°F or less



Extreme Cold Products



The scope of NWS Extreme Cold services continues to be the safety of people (life).

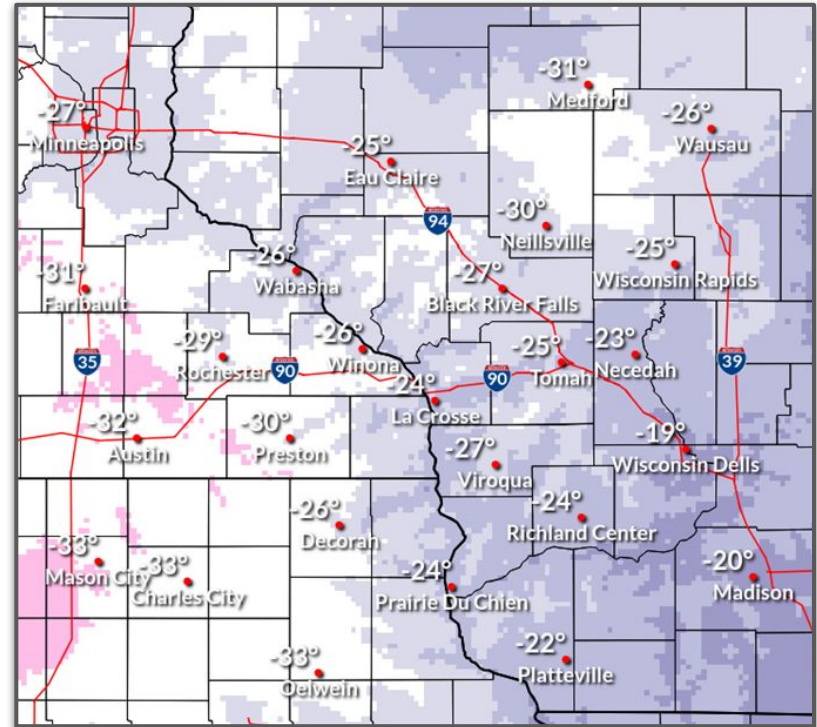
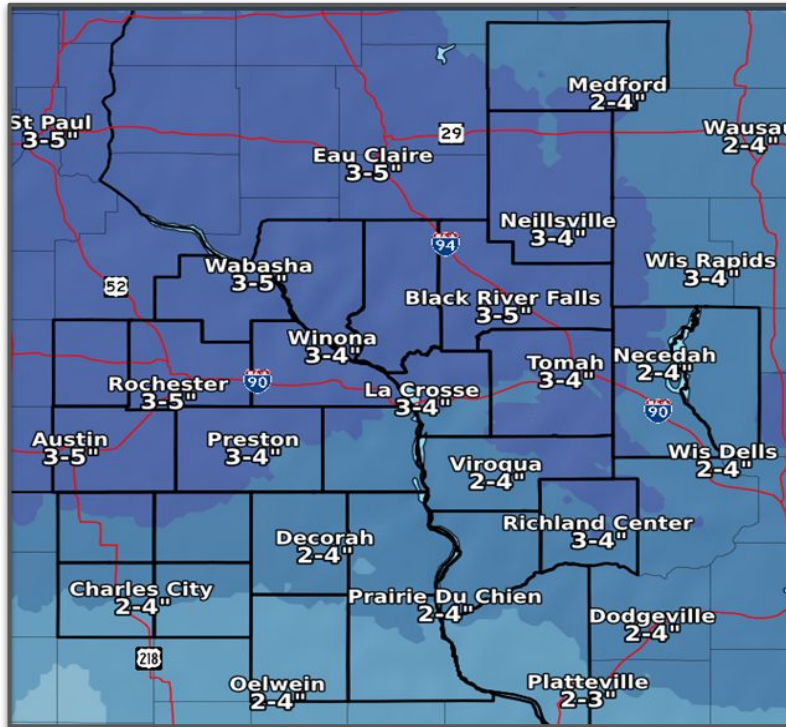
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- **Extreme Cold Warning:** Dangerously cold air temperatures or wind chill values are *expected or occurring*.
 - **Extreme Cold Watch:** Dangerously cold air temperatures or wind chill values are *possible*.
 - **Cold Weather Advisory:** Seasonably cold air temperatures or wind chill values are *expected or occurring*.
- 
- 
- 



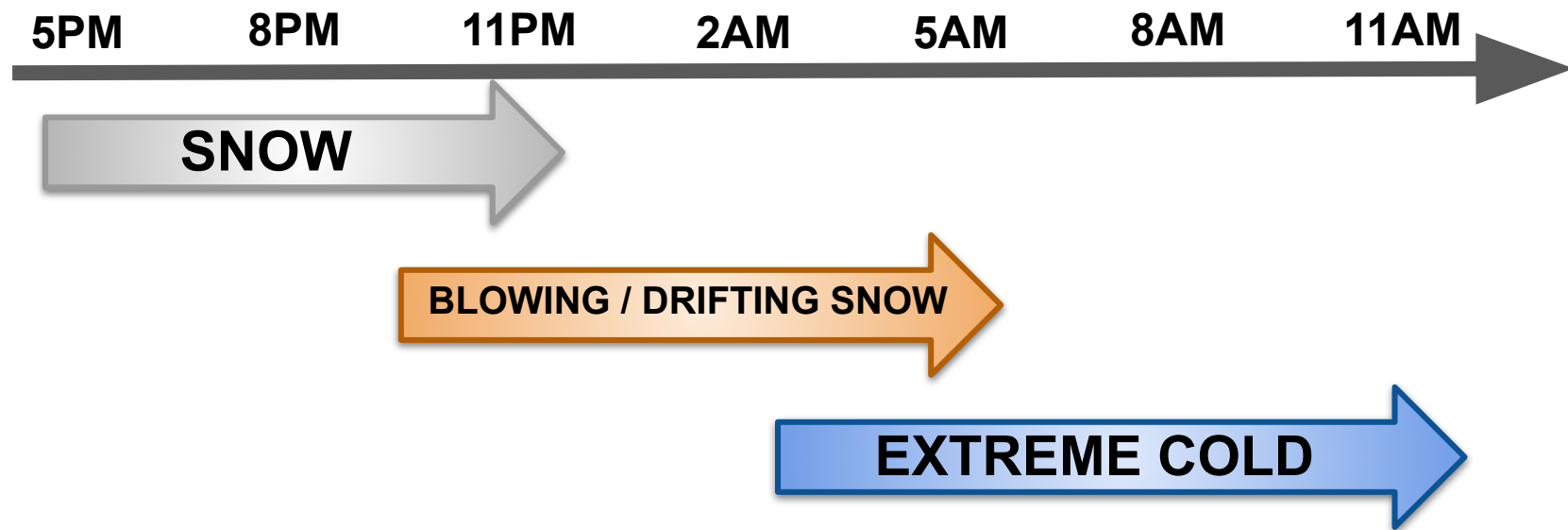
Scenarios



Scenario #1



Scenario #1

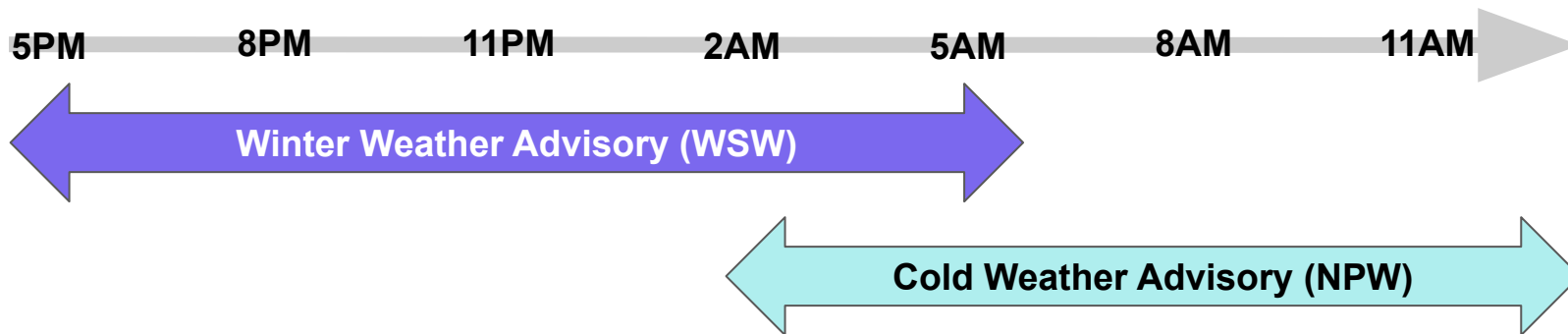


Scenario #1

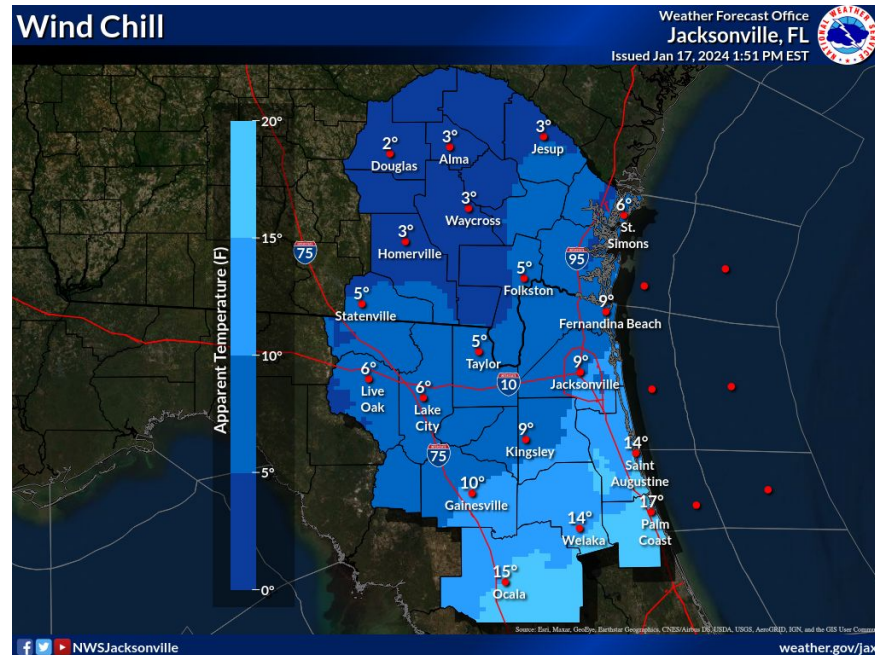
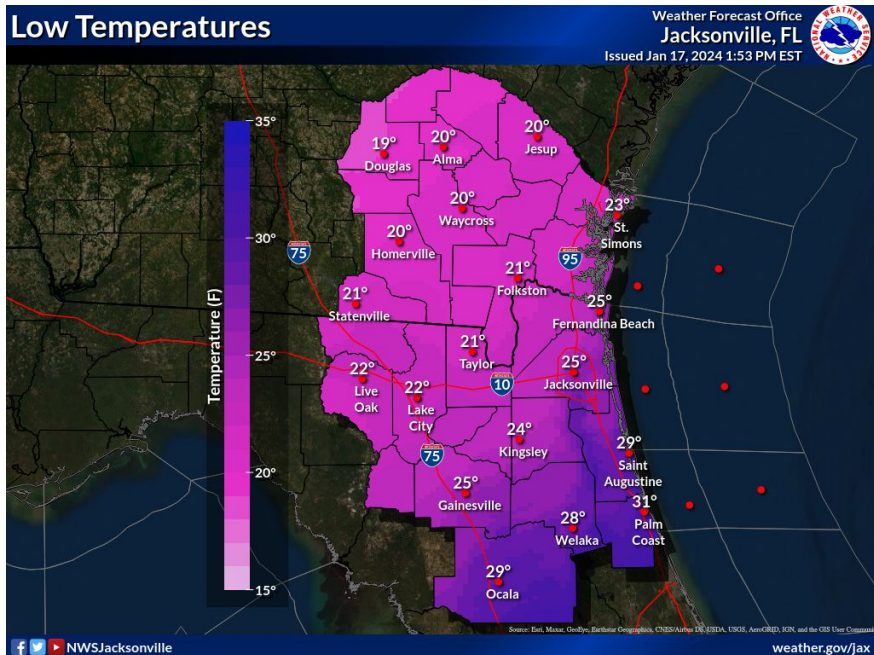
WHICH PRODUCTS WILL BE ISSUED:

A **Winter Weather Advisory (WSW)** will be issued for the *snow amounts and wind impacts* (blowing & drifting) based on local criteria from 5PM through 6AM.

A **Cold Weather Advisory (NPW)** will be issued for the *cold impacts* based on local criteria from 2AM through 12PM.



Scenario #2



Scenario #2

UNDER THE OLD PRODUCTS:

URGENT - WEATHER MESSAGE

National Weather Service
340 AM EST Mon Jan 15 2024

/O.NEW.HZ.W.0002.240116T0600Z-240116T1700Z/
340 AM EST Mon Jan 15 2024

...**HARD FREEZE WARNING** IN EFFECT FROM MIDNIGHT TONIGHT TO NOON EST TUESDAY...

- * WHAT...Sub-freezing temperatures as low as 21 expected.
- * WHEN...From midnight tonight to noon EST Tuesday.
- * IMPACTS...Frost and freeze conditions will kill crops, other sensitive vegetation and possibly damage unprotected outdoor plumbing.

PRECAUTIONARY/PREPAREDNESS ACTIONS...

Take steps now to protect tender plants from the cold. To prevent freezing and possible bursting of outdoor water pipes they should be wrapped, drained, or allowed to drip slowly. Those that have in-ground sprinkler systems should drain them and cover above-ground pipes to protect them from freezing.

A Hard Freeze Warning (NPW) would have been issued for vegetation, pipes, etc.

URGENT - WINTER WEATHER MESSAGE

National Weather Service
330 AM EST Mon Jan 15 2024

/O.NEW.WC.W.0002.240116T0500Z-240116T1700Z/
/O.CON.WM.Y.0001.000000T0000Z-240115T1800Z/
330 AM EST Mon Jan 15 2024

...**WINTER WEATHER ADVISORY** REMAINS IN EFFECT UNTIL 1 PM EST...
...**WIND CHILL WARNING** IN EFFECT FROM MIDNIGHT TONIGHT TO NOON EST TUESDAY...

- * WHAT...For the Winter Weather Advisory, freezing rain. Ice accumulations of a light glaze. For the Wind Chill Warning, dangerously cold wind chills expected. Wind chills as low as 5 above zero.
- * WHEN...For the Winter Weather Advisory, until 1 PM EST today. For the Wind Chill Warning, from midnight tonight to noon EST Tuesday.
- * IMPACTS...Very slippery sidewalks, roads and bridges are possible. The hazardous conditions could impact the morning or evening commute. The dangerously cold wind chills could result in hypothermia or frostbite if precautions are not taken.

PRECAUTIONARY/PREPAREDNESS ACTIONS...

Avoid outside activities if possible. When outside, make sure you wear appropriate clothing, a hat, and gloves.

Slow down and use caution while traveling. Prepare for possible power outages.

A Wind Chill Warning (WSW) would have been issued for the dangerous wind chills

Scenario #2

WITH THE CONSOLIDATED PRODUCTS:

One NPW will be issued

- An Extreme Cold Warning
 - What: Dangerously cold wind chills
 - CTAs: People, pets, infrastructure
- A Freeze Warning
 - What: Hard Freeze
 - CTAs: Buildings, crops, vegetation

URGENT - WEATHER MESSAGE
National Weather Service
330 AM EST Mon Jan 15 2024

/O.NEW.EC.W.0002.240116T0500Z-240116T1700Z/
/O.NEW.FZ.W.0002.240116T0600Z-240116T1700Z/
330 AM EST Mon Jan 15 2024

...EXTREME COLD WARNING IN EFFECT FROM MIDNIGHT TONIGHT TO NOON EST TUESDAY...

...FREEZE WARNING IN EFFECT FROM MIDNIGHT TONIGHT TO NOON EST TUESDAY...

* WHAT...For the Freeze Warning, hard freeze with temperatures as low as 21. For the Extreme Cold Warning, dangerously cold wind chills as low as 5 above zero.

* WHEN...From midnight tonight to noon EST Tuesday.

* IMPACTS...The dangerously cold wind chills could result in hypothermia or frostbite if precautions are not taken. Frost and freeze conditions will kill crops, other sensitive vegetation and possibly damage unprotected outdoor plumbing.

PRECAUTIONARY/PREPAREDNESS ACTIONS...

Avoid outside activities if possible. When outside, make sure you wear appropriate clothing, a hat, and gloves.

Take steps now to protect tender plants from the cold. To prevent freezing and possible bursting of outdoor water pipes they should be wrapped, drained, or allowed to drip slowly. Those that have in-ground sprinkler systems should drain them and cover above-ground pipes to protect them from freezing.

Cold Safety Messaging

EXTREME COLD WATCH

An Extreme Cold Watch is issued when dangerously cold air, with or without wind, is **possible**.

Check the forecast, and be prepared in case a Warning is issued.

Be Prepared

EXTREME COLD WARNING

An Extreme Cold Warning is issued when dangerously cold air, with or without wind, is **expected**.

Conditions could lead to frostbite or hypothermia. Limit time outside, dress in layers, and cover up exposed skin.

Take Action!

weather.gov

Cold Impacts: Vulnerable Populations

- NEWBORNS**
- ELDERLY**
- CHRONIC ILLNESS**
- OUTDOOR WORKERS**
- UNHOUSED**

Everyone is at risk from the dangers of extreme cold, but these groups are more vulnerable than most. Age and certain conditions make the body less able to regulate temperature.

- Dress in loose layers and cover all exposed skin
- Consume hot foods and warm drinks, but avoid caffeine and alcohol
- Limit or avoid time outdoors
- Check on family, friends and neighbors

weather.gov

Cold Weather Safety

<https://www.weather.gov/safety/cold>

Cold Weather Safety

[Weather.gov](#) > [Safety](#) > Cold Weather Safety

Extreme Cold Safety

Watches and Warnings

Prepare for Extreme Cold

During Extreme Cold

After Extreme Cold

Warning Signs of Hypothermia



Confusion



Shivering



Difficulty Speaking



Sleepiness



Stiff Muscles

Extremely cold air comes every winter into at least part of the country and affects millions of people across the United States. The arctic air can be dangerous. Combined with brisk winds, dangerously cold wind chill values can result. People exposed to extreme cold are susceptible to [frostbite](#) and can succumb to hypothermia in a matter of minutes. Areas most prone to frostbite are uncovered skin and the extremities, such as hands and feet. [Hypothermia](#) occurs when the body loses heat faster than it can produce it.

Safety

National Program



Cold Resources

Wind Chill

Polar Vortex

Cold Water Safety

Forecasts and Observations

Winter Weather Safety

Education, Outreach, FAQs

Links and Partners



Hazard Simplification Extreme Cold and Wind Chill Consolidation

Pre-October 1, 2024
(Current Products)

| | | | |
|------------------|------------------------------|------|-----------|
| Wind Chill Watch | Winter Weather Message (WSW) | WC.A | Cadetblue |
|------------------|------------------------------|------|-----------|

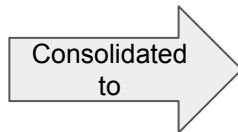
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|--------------------|---------------------------------|------|------|
| Extreme Cold Watch | Non-Precipitation Weather (NPW) | EC.A | Blue |
|--------------------|---------------------------------|------|------|

| | | | |
|--------------------|------------------------------|------|----------------|
| Wind Chill Warning | Winter Weather Message (WSW) | WC.W | Lightsteelblue |
|--------------------|------------------------------|------|----------------|

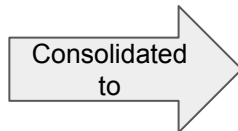
| | | | |
|----------------------|---------------------------------|------|------|
| Extreme Cold Warning | Non-Precipitation Weather (NPW) | EC.W | Blue |
|----------------------|---------------------------------|------|------|

| | | | |
|---------------------|------------------------------|------|---------------|
| Wind Chill Advisory | Winter Weather Message (WSW) | WC.Y | Paleturquoise |
|---------------------|------------------------------|------|---------------|

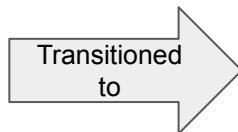
Post-October 1, 2024
(End State)



| | | | |
|--------------------|-----|------|-----------|
| Extreme Cold Watch | NPW | EC.A | Cadetblue |
|--------------------|-----|------|-----------|



| | | | |
|----------------------|-----|------|------|
| Extreme Cold Warning | NPW | EC.W | Blue |
|----------------------|-----|------|------|



| | | | |
|-----------------------|-----|------|---------------|
| Cold Weather Advisory | NPW | CW.Y | Paleturquoise |
|-----------------------|-----|------|---------------|



Hazard Simplification Freeze and Hard Freeze Consolidation

All products contained in Non-Precipitation Weather (NPW)

Pre-October 1, 2024
(Current Products)

| | | |
|-------------------|------|-----------|
| Freeze Watch | FZ.A | Cyan |
| Hard Freeze Watch | HZ.A | Royalblue |

Consolidated to

| | | |
|--------------|------|------|
| Freeze Watch | FZ.A | Cyan |
|--------------|------|------|

| | | |
|---------------------|------|---------------|
| Freeze Warning | FZ.W | Darkslateblue |
| Hard Freeze Warning | HZ.W | Darkviolet |

Consolidated to

| | | |
|----------------|------|---------------|
| Freeze Warning | FZ.W | Darkslateblue |
|----------------|------|---------------|

| | | |
|----------------|------|----------------|
| Frost Advisory | FR.Y | Cornflowerblue |
|----------------|------|----------------|

No Change

| | | |
|----------------|------|----------------|
| Frost Advisory | FR.Y | Cornflowerblue |
|----------------|------|----------------|





Questions?



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Questions

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