



# Extreme Cold and Freeze Hazard Simplification

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**NWS Public Weather Services Program**

Kimberly McMahon and Jessica Lee



# Webinar Logistic

- This webinar is being **recorded** and will be publicly posted along with the Presentation PDF after the webinar. *By attending this webinar, you consent to the recording of your likeness including voice and/or webcam images.*
  - <https://www.weather.gov/wrn/calendar>
- 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



**Kimberly McMahon**

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NWS, NOAA**



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**Public Program Coordinator  
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



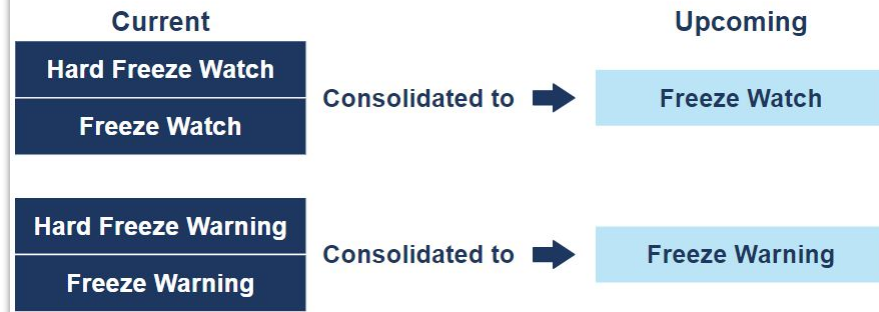
# Hazard Simplification Overview

*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



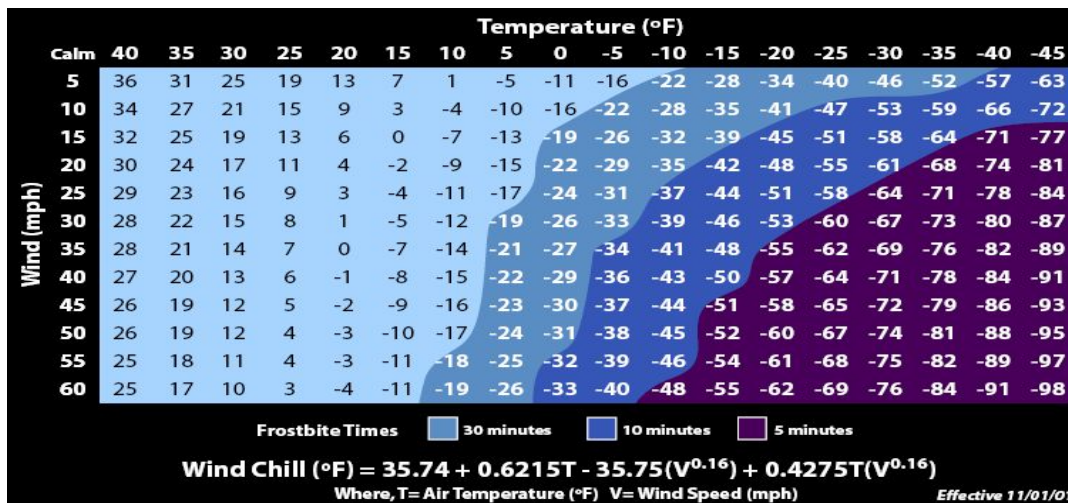
Cold weather headlines will no longer be “lumped in” with other winter hazards (ie, having a Winter Weather Advisory cover snow and cold impacts)

# 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.





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- **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
- 
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- 



# Extreme Cold Products



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

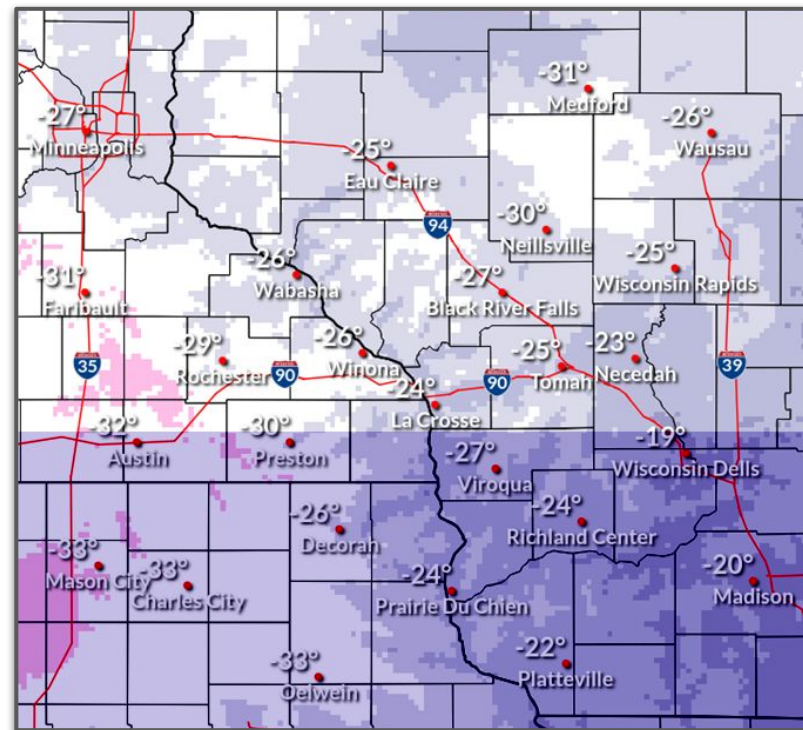
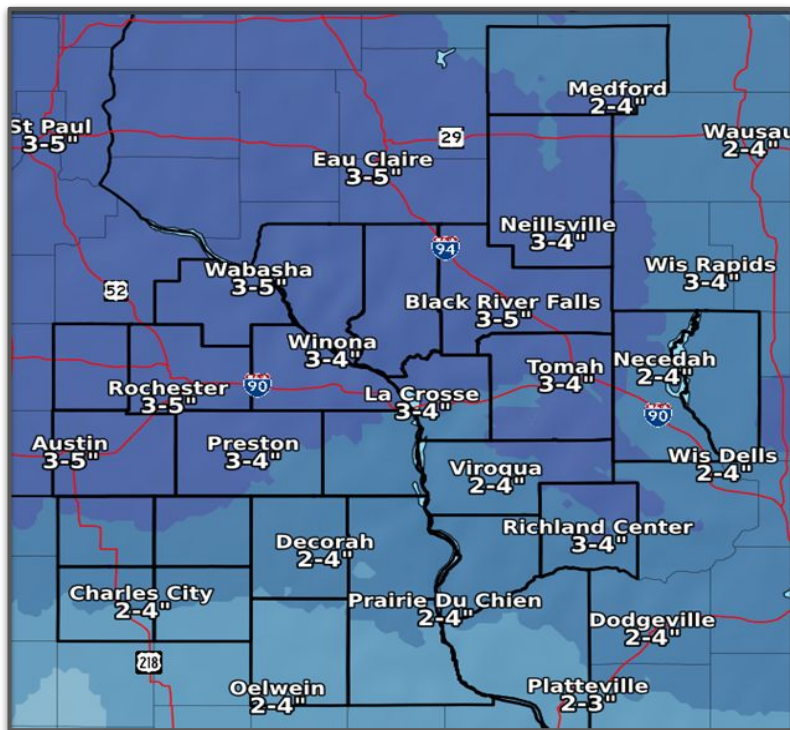
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- **Extreme Cold Warning:** Dangerously cold air temperatures or wind chill values are *expected or occurring*.
  - **Extreme Cold Watch:** Dangerously cold air temperatures or wind chill values are *possible*.
  - **Cold Weather Advisory:** Seasonably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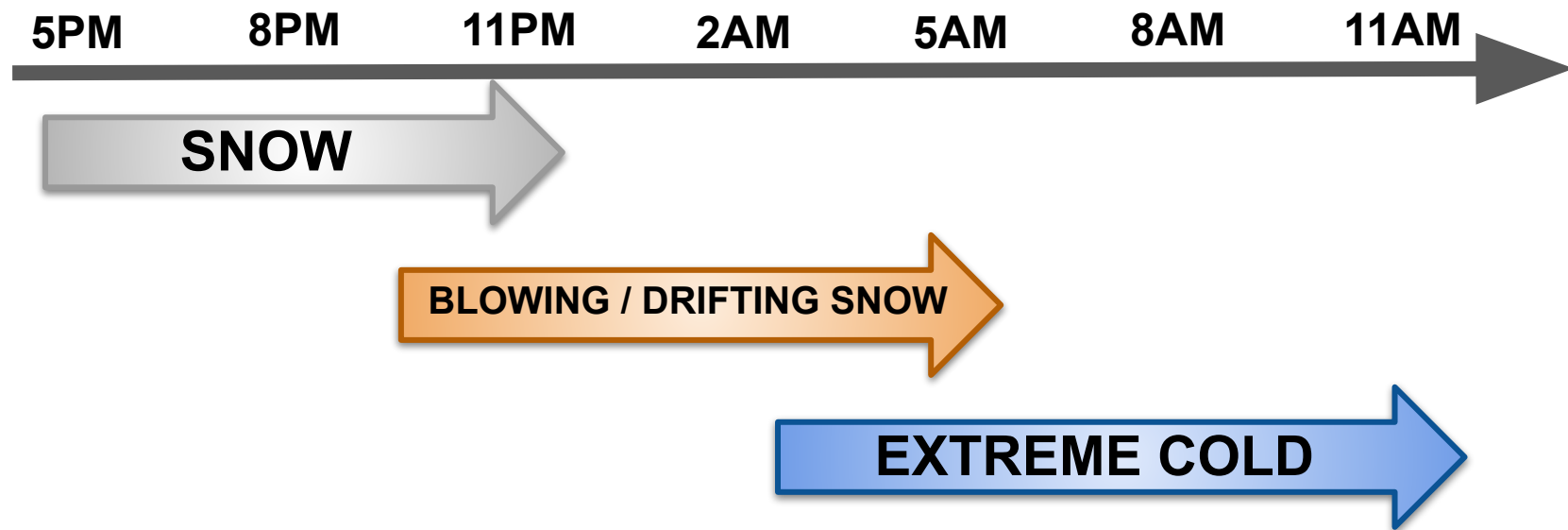
# Scenarios



# Scenario #1



# Scenario #1

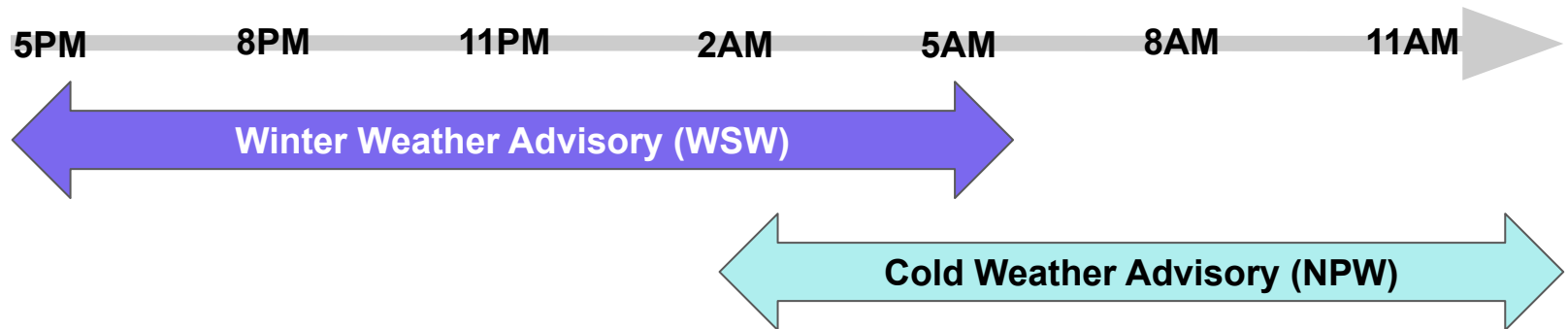


# Scenario #1

## WHICH PRODUCTS WILL BE ISSUED:

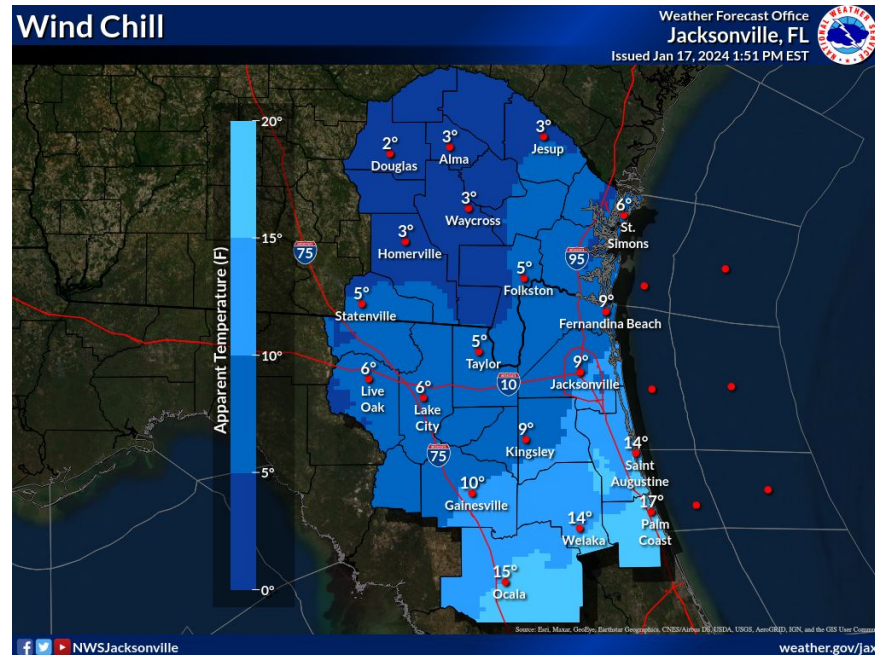
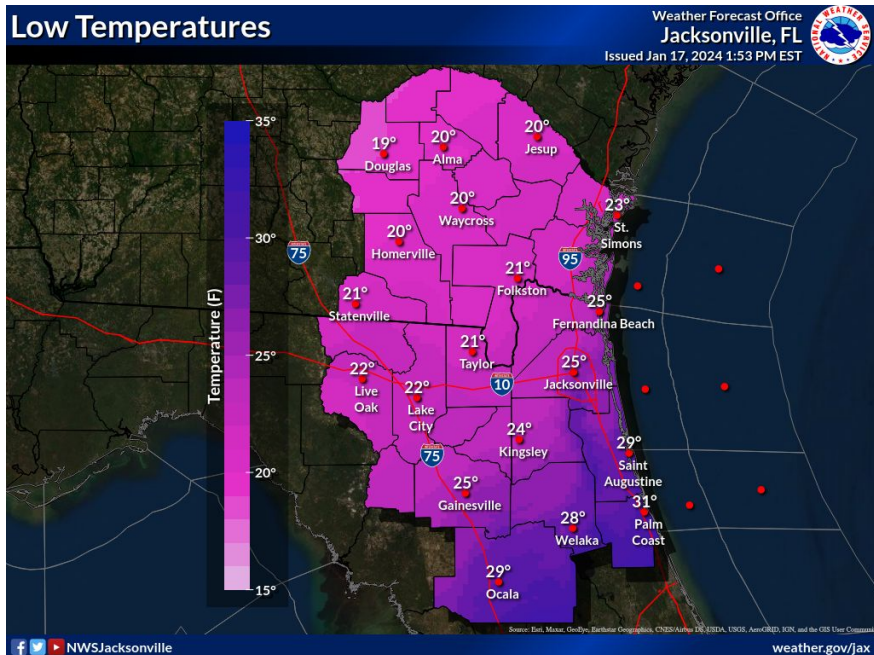
A **Winter Weather Advisory (WSW)** will be issued for the *snow amounts and wind impacts* (blowing & drifting) based on local criteria from 5PM through 6AM.

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
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)

Consolidated to

Extreme Cold Watch	NPW	EC.A	Cadetblue
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Consolidated to

Extreme Cold Warning	NPW	EC.W	Blue
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Transitioned to

Cold Weather Advisory	NPW	CW.Y	Paleturquoise
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# 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
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Freeze Warning	FZ.W	Darkslateblue
Hard Freeze Warning	HZ.W	Darkviolet

Consolidated to

Freeze Warning	FZ.W	Darkslateblue
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Frost Advisory	FR.Y	Cornflowerblue
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No Change

Frost Advisory	FR.Y	Cornflowerblue
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# Questions?



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# Questions

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Type in your question and hit enter.

