

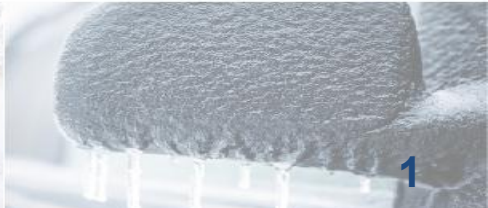
Update on Winter Weather Initiatives



Partner Webinar October 29, 2020

Stephen Baxter

Winter Weather Program Lead



Outline

- Winter Program Overview
- Operational Winter Storm Severity Index
- What's Being Tested?
 - Winter Storm Outlook
 - Winter Key Messages
 - Local Probabilistic Winter Precipitation Forecasts
- Snow Squall Warning Updates
- Updated Outreach Materials



Winter Program Overview

- The Winter Weather Services Program is one of 11 National Service Programs in the NWS. The Winter Program works with internal and external stakeholders to facilitate improvements to winter weather products and services.
- The program goals include moving toward a consistent suite of products and services that are **collaborative, probabilistic, and impact-based**.



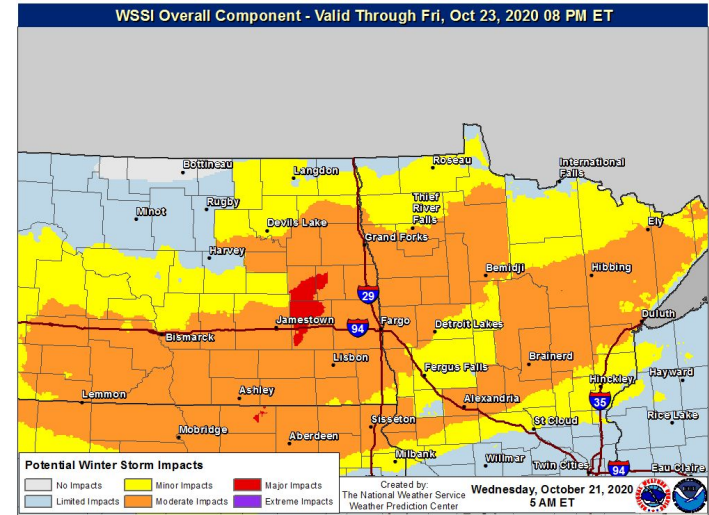
Winter Program Overview

- Permanent HQ Staff:
 - Stephen Baxter, Winter Program Lead (Stephen.Baxter@noaa.gov)
 - Michael Muccilli, Winter Program Coordinator for Evolving Service and Outreach (Michael.Muccilli@noaa.gov)
 - Sarah Perfater, Winter Program Coordinator for Research to Operations and Training (Sarah.Perfater@noaa.gov)
- Weather Prediction Center Contact:
 - Alex Lamers, Warning Coordination Meteorologist (Alex.Lamers@noaa.gov)



Operational Winter Storm Severity Index (WSSI)

- Transitioned to operational status on September 29, 2020.
- Winter Storm Severity Index:
 - Assists NWS forecasters in maintaining situational awareness regarding potential significance of weather related impacts based upon the current forecast.
 - Enhances communication to external partners, media, and general public of an event's expected severity (e.g., societal impacts) and spatial extent.
- Provides winter storm "impact" information out to 72 hours, and in 24 hour intervals
 - Includes meteorological & non-meteorological factors.
 - Six levels of impact provided in color-coded scale
 - Summary graphic is a composite of the maximum impact from any of the six components.



Output available here:

<https://www.wpc.ncep.noaa.gov/wwd/wssi/wssi.php>

- Updates every 2 hours



WSSI - Components & Scale



Snow Load

Indicates potential infrastructure impacts due to the weight of snow



Ground Blizzard

Indicates the potential travel-related impacts of strong winds interacting with pre-existing snow cover



Snow Amount

Indicates potential impacts due to the total amount of snow or snow accumulation rate



Flash Freeze

Indicates the potential of flash freezing during or after precipitation events.



Ice Accumulation

Indicates potential infrastructure impacts due to combined effects and severity of ice and wind



Blowing Snow

Indicates the potential disruption due to blowing and drifting snow

Potential Winter Storm Impacts

	<p>No Impacts Impacts not expected.</p>		<p>Moderate Impacts Often threatening to life and property, some damage unavoidable. Typically results in disruptions to daily life.</p>
	<p>Limited Impacts Rarely a direct threat to life and property. Typically results in little inconveniences.</p>		<p>Major Impacts Extensive property damage likely, life saving actions needed. Will likely result in major disruptions to daily life.</p>
	<p>Minor Impacts Rarely a direct threat to life and property. Typically results in an inconvenience to daily life.</p>		<p>Extreme Impacts Extensive and widespread severe property damage, life saving actions will be needed. Results in extreme disruptions to daily life.</p>



WSSI: Webpage

- Clickable tabs
 - Loads WSSI components upon click
 - Day Period tabs
- Zoom to WFO
 - Dropdown Box
- Print Image button
 - Creates a PDF of the map with your specifications
- Variety of basemaps
 - Switch Basemap dropdown button
- Browse static images
- Links to GIS data (SHP and KML)

WEATHER PREDICTION CENTER
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

NCEP: AWC CPC EMC NCO NHC OPC SPC SWPC WPC

HOME FORECASTS & ANALYSES ARCHIVES VERIFICATION INTERNATIONAL DEVELOPMENT ABOUT SEARCH

Winter Storm Severity Index (WSSI)

The WSSI does not depict official warnings and should always be used in context with official NWS forecasts and warnings. For more information, please refer to the following links: [Product/Service Description Document](#), [WSSI Users Guide](#), [Interactive ESRI Story Map](#), [WSSI Future Work](#)

Please provide us your feedback [here](#).

Overall Impact: Maximum impact from any of the components.

Days 1-3 Day 1 Day 2 Day 3

Select Zoom Area: [CONUS] CONUS [Print Map]

Winter Storm Severity Index - Effective From Wed, Oct 14, 2020 07 AM ET Through Fri, Oct 16, 2020 08 PM ET
Last Updated: Wednesday October 14, 2020 07:17 AM ET

SWITCH BASEMAP

Potential Winter Storm Impacts	
No Impacts	Impacts not expected.
Limited Impacts	Rarely a direct threat to life and property. Typically results in life inconveniences.
Minor Impacts	Rarely a direct threat to life and property. Typically results in an inconvenience to daily life.
Moderate Impacts	Clear threatening to life and property, some damage unavoidable. Typically results in disruptions to daily life.
Major Impacts	Extensive property damage likely, life saving actions needed. WSI likely result in major disruptions to daily life.
Extreme Impacts	Extensive and widespread severe property damage, life saving actions will be needed. Results in extreme disruptions to daily life.

Download Latest WSSI in GIS Format:
[Download Data in KML](#)
[Download Data in SHP](#)

Change image opacity: 70%

Map Overlays

NWS County Warning Areas <input type="checkbox"/>	River Forecast Center Boundaries <input type="checkbox"/>
FEMA Boundaries <input type="checkbox"/>	Counties Boundaries <input type="checkbox"/>
State Boundaries <input checked="" type="checkbox"/>	NWS Public Forecast Zones <input type="checkbox"/>
Urban Areas <input type="checkbox"/>	ARTCC/FIR <input type="checkbox"/>

Select Zoom Area: [CONUS] CONUS

Retrieve Static Images

Select WSSI Element

WSSI Overall Blowing Snow Flash Freeze Ground Blizzard

Ice Accumulation Snow Amount Snow Load

To retrieve static images please select a zoom area and WSSI element.
Please Note Static images only update at 01, 09, 13, 19 and 21 UTC

<https://www.wpc.ncep.noaa.gov/wwd/wssi/wssi.php>

WSSI - What's Next?

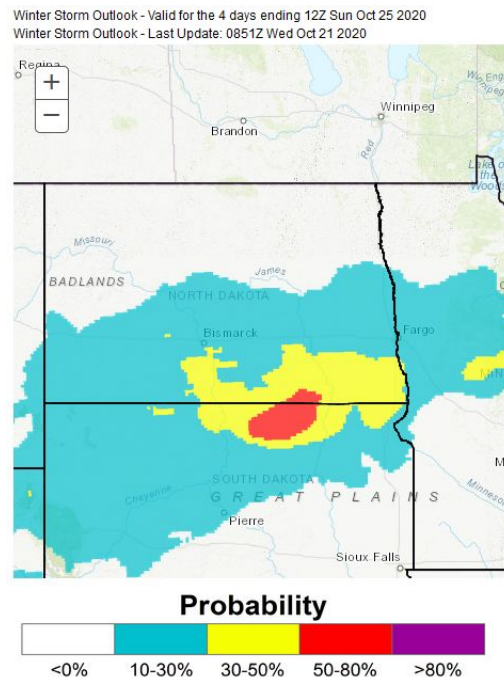
- Experimental extension of WSSI to Day 7 is in development.
- Probabilistic WSSI is also in development. This will serve as a key input into collaborative Winter Storm Watches.
- Social science improvements - how can WSSI better align with impacts and successfully communicate forecast severity?
- Public training material will soon be available to improve understanding and usability among a broad base of users.



What's Being Tested?

Winter Storm Outlook

- The WSO launched last winter, providing the probability of realizing hazardous snow/ice accumulations using WFO-specific Watch/Warning criteria as a proxy threshold.
- The WSO establishes the missing national scale “Outlook” product in the winter program, serving as a unifying outlook for both external messaging and internal collaboration for consistent and collaborative Winter Storm Watch issuance.
- 50+ percent chance of meeting warning criteria triggers enhanced coordination between WPC & affected WFOs.
- Enhancements this year include a Day-4 outlook, new 80% threshold, and maximum probability over the four-day forecast period.

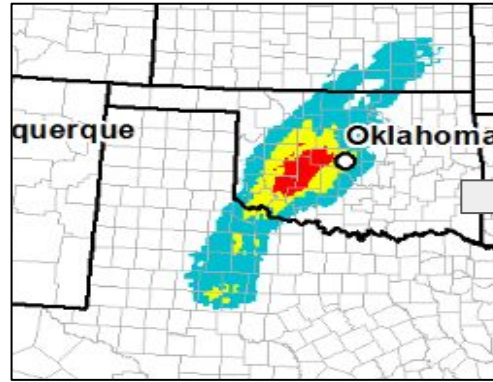


The WSO is one of a few key factors considered in the issuance of Winter Storm Watches.

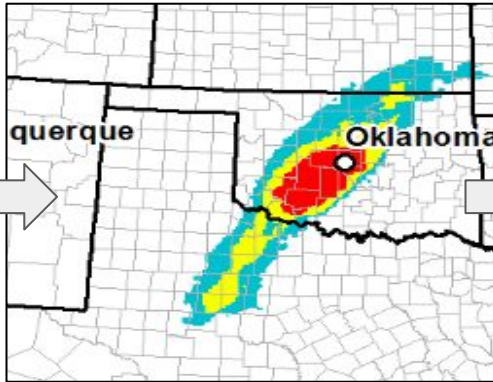
Experimental WSO

Here is an example of the WSO leading to Ice Storm Warnings on October 26.

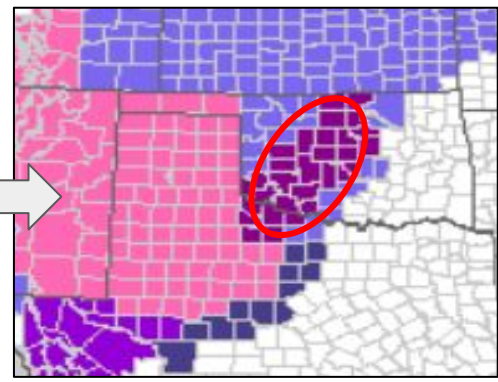
Day 2 Outlook issued 3pm Oct. 25



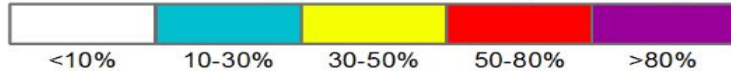
Day 1 Outlook issued 4am Oct. 26



WWA Map at 8am Oct. 26



Maximum Probability of Exceeding Warning Criteria



All times in CDT

WSO Product Survey:

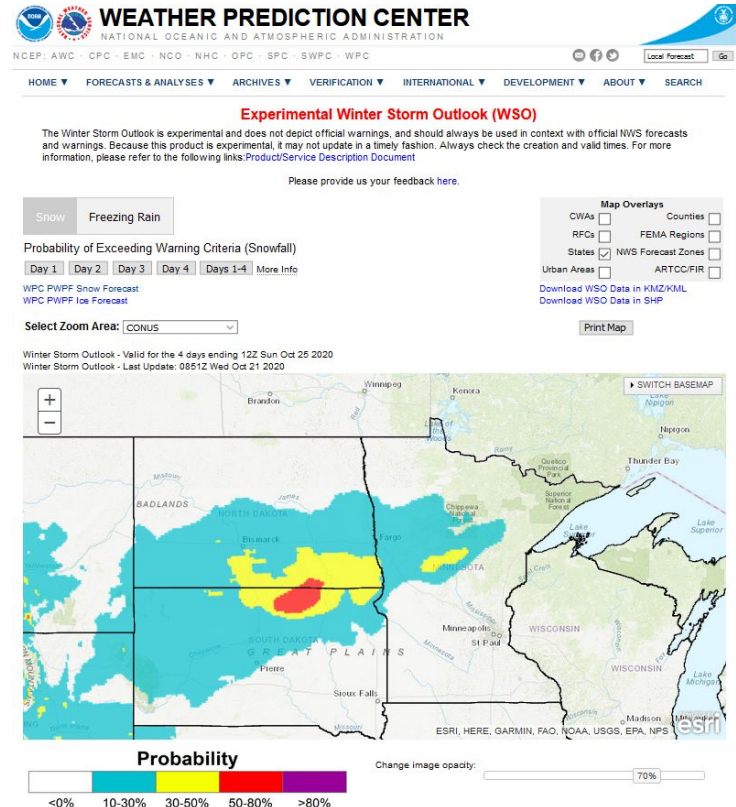
<https://www.surveymonkey.com/r/ExpWinterStormOutlook>

WSO Webpage:

<https://www.wpc.ncep.noaa.gov/wwd/wso>

Experimental WSO: Webpage

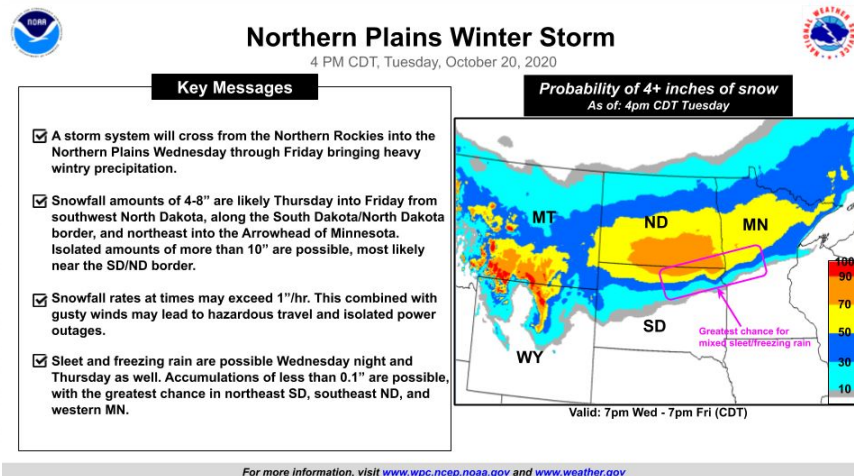
- Clickable tabs
 - Loads WSO for Snow/ICE
 - Day Period tabs
- Dynamic Display
 - Can adjust transparency
 - Multiple basemap options
 - Adjustable zoom
- Map Overlays
 - Multiple overlays can be added to the map
- Print Image button
 - Creates a PDF of the map with your specifications
- Downloadable GIS data layers



What's Being Tested?

Winter Key Messages

- Building on Success with Tropical Cyclones, WPC began coordinating Winter Key Messages last winter.
 - Galvanize partners and media around consistent, coordinated message
 - Coordinated among operational units
 - Available as slide on WPC homepage and integrated into WFO & WPC messaging
- We are in the process of gathering feedback from stakeholders to improve the product and process.



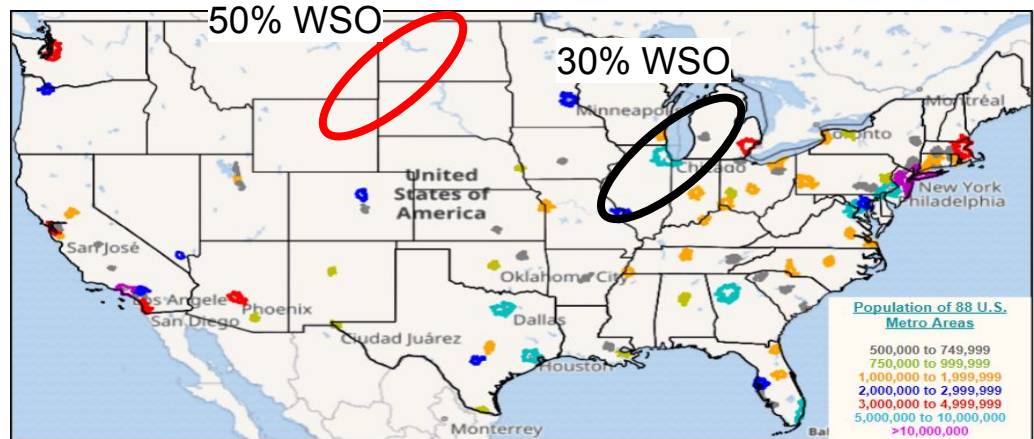
Testing Winter Key Messages

Initiated for: **High-impact** scenarios that have a significant chance of travel disruptions or posing a hazard to life and property *and/or* **Significantly anomalous** events likely to generate substantial media attention.

Common Trigger:

>500 mile long swath of >30% probability of local warning criteria being exceeded in the Winter Storm Outlook including at least one metropolitan area with at least 500,000 people

Or, a similarly extensive swath of >50% probability, not necessarily encompassing a metro area



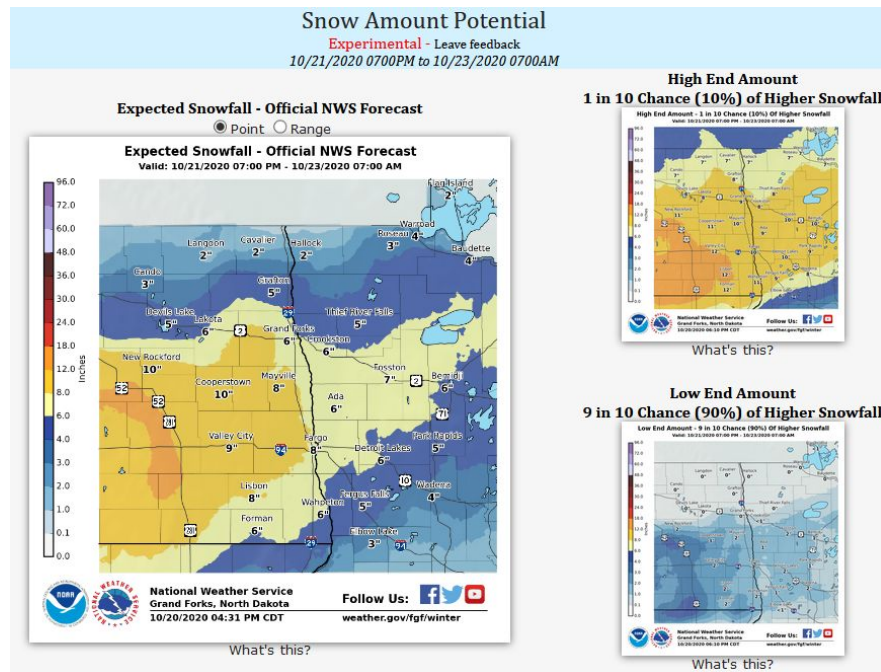
Questions so far?



What's Being Tested?

Local Probabilistic Winter Precipitation Forecast (PWPF)

- Goal: Provide customers and partners a range of snowfall amounts to better communicate forecast uncertainty during winter weather events.
- 61-member ensemble
 - Expert first guess forecast provided by WPC; WFOs add local knowledge.
- Significant model diversity contributes to a range of possible outcomes.
- Experimental 10th and 90th percentile graphics are available on [NDFD](https://www.weather.gov/btv/winter).



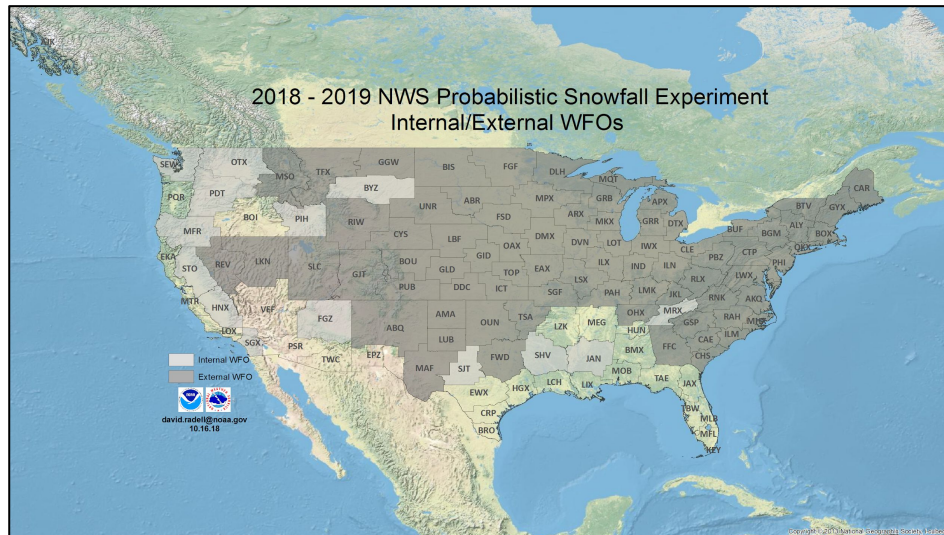
Local office Experimental PWPF page:

<https://www.weather.gov/btv/winter>

2020-2021 Winter Partners Webinar

Experimental PWPF

- No additional sites added in 2020-21.
- Plan for operational transition is in progress.
- One key issue is defining national and local roles in generating probabilistic snow and ice forecasts.
- We are planning to test a new process for generating and disseminating these products.



Provide feedback [here](#).

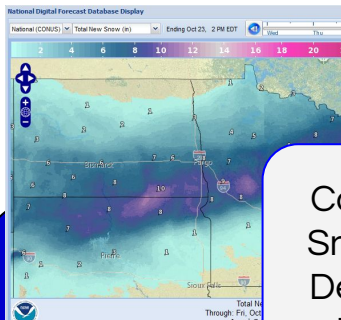


Winter Program Vision - Putting Everything Together

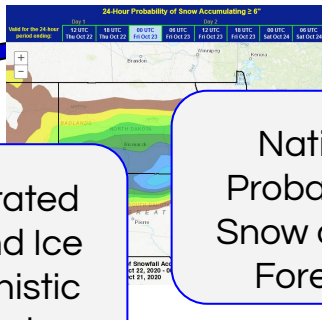
- Future versions of WSSI will inform the WSO as a starting point for collaborated, consistent Winter Storm Watches.
- A Collaborated Forecast Process leads to nationally-consistent snow and ice forecasts that inform a consistent suite of probabilistic forecasts.
- National and local strengths are leveraged to provide state-of-the-art forecast information and decision support services to end users.
- Winter forecast products are ***probabilistic, collaborative, and impact-based.***



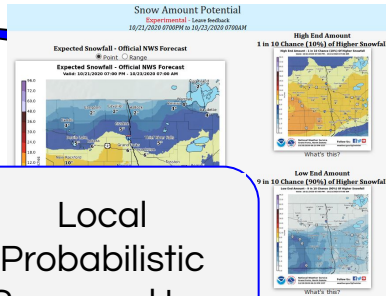
Consistent, Collaborated Forecasts



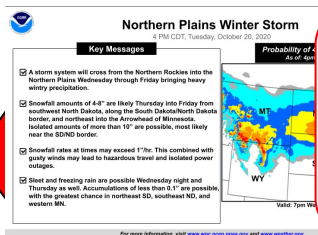
Collaborated Snow and Ice Deterministic Forecasts



National Probabilistic Snow and Ice Forecast



Local Probabilistic Snow and Ice Forecast

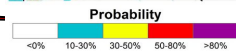
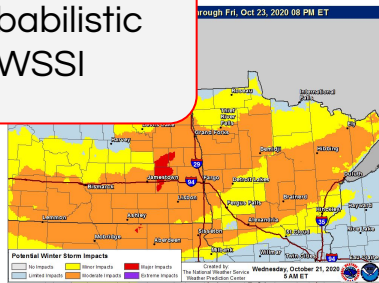


Consistent and Collaborated Watches

Winter Key Messages

Winter Storm Outlook

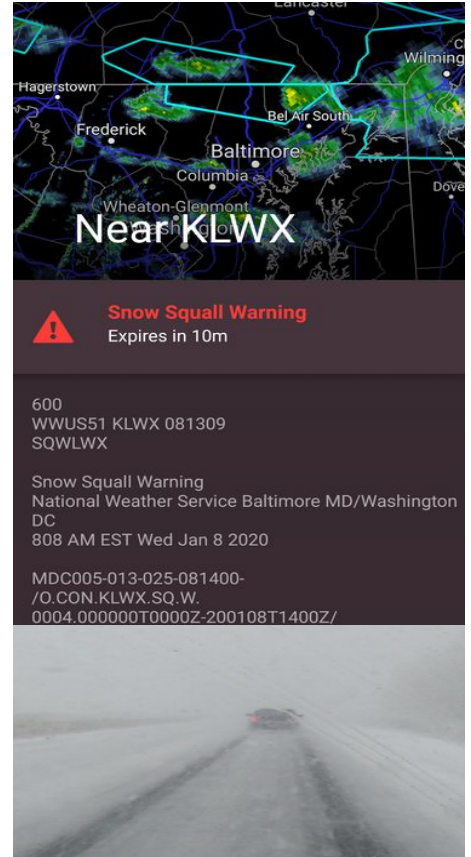
Probabilistic WSSI



Consistent, Collaborated Hazards and Messaging

Updates to Snow Squall Warnings

- Snow Squall Warnings are still a relatively new product, providing motorists and other stakeholders with critical warnings about suddenly reduced visibility due to heavy snow and gusty winds.
- There are new 360-character messages (English and Spanish) disseminated over the Wireless Emergency Alert system to provide more detailed information to those within the warned area.
- The Winter Program is working within the NWS to allow for Snow Squall Local Storm Reports (LSR) that will allow for objective verification of Snow Squall Warnings.
- Users may now report Snow Squalls in mPING under 'Reduced Visibility.'



NWS Winter Seasonal Safety Campaign

- NWS Winter Seasonal Safety Campaign launches on December 1 (first day of meteorological winter)
- Contains content on winter hazards including infographics, social media plans, presentations and videos
- Encourage partners to use and share this information
- See: https://www.weather.gov/wrn/winter_safety



QUESTIONS AND ANSWERS ABOUT SNOW SQUALLS
WWW.WEATHER.GOV/SAFETY

WHAT ARE THEY?
Quick intense bursts of snow
Accompanied by strong gusty winds
Short-lived, typically less than 3 hours
Normally occur during the day

WHAT ARE THE IMPACTS?
Rapidly reduced visibility
Treacherous travel conditions
Potential for chain-reaction accidents

WHAT'S A SNOW SQUALL WARNING?
Warning is usually 30-60 minutes in length
Issued for small areas where snow squalls are expected
Similar to a Tornado or Severe Thunderstorm Warning

HOW CAN YOU STAY SAFE?
Have a way to get forecasts and warnings
Consider an alternate route or delaying travel
Stay alert for rapidly changing road conditions
Reduce speed and use low beam headlights

WEATHER.GOV

COVID-19 Related Cold Weather Messaging

- The NWS Winter Program coordinated with the NWS Office of Communications and the Centers for Disease Control to develop cold weather messaging and graphics that are especially relevant during the pandemic:
 - *Bundling up and staying dry are two of the best things you can do to stay safe from cold temperatures this fall and winter. Wear layers to stay warm and continue to follow CDC guidelines on how to protect yourself and stop the spread of COVID-19, including wearing a mask. Learn to protect yourself from the cold at [weather.gov/safety/cold](https://www.weather.gov/safety/cold).*



Updated Outreach Materials



SNOW SQUALLS

- Intense bursts of snow and wind
- Short duration
- Whiteout visibility
- Rapidly deteriorating road conditions

National Weather Service **SNOW SQUALL WARNINGS**

- Issued when a snow squall is occurring or imminent
- Typically in effect for 30-60 minutes in a small, targeted area
- Can trigger a Wireless Emergency Alert to your phone
- When issued, slow down or delay travel

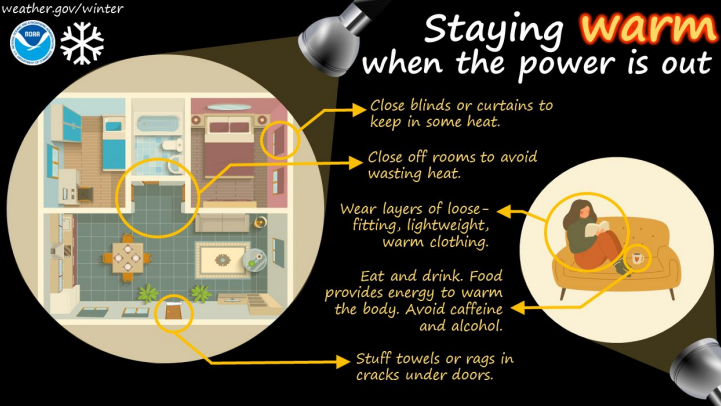
weather.gov 





WHY DO BRIDGES FREEZE FIRST?

- ◆ No ground underneath means the entire structure can be surrounded by cold air
- ◆ Freezing isn't uniform: shaded parts can be icy while sunny parts aren't
- ◆ Slow down before the bridge, as changing speed on ice is dangerous

weather.gov 



weather.gov/winter  

Staying warm when the power is out

- Close blinds or curtains to keep in some heat.
- Close off rooms to avoid wasting heat.
- Wear layers of loose-fitting, lightweight, warm clothing.
- Eat and drink. Food provides energy to warm the body. Avoid caffeine and alcohol.
- Stuff towels or rags in cracks under doors.



Update on Winter Weather Initiatives



Contributors:

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Michael Muccilli
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Links:

WPC PWWF page:

https://www.wpc.ncep.noaa.gov/pwvf/wwd_accum_probs.php

Local office Experimental PWWF page:

<https://www.weather.gov/btv/winter>

Operational WSSI:

<https://www.wpc.ncep.noaa.gov/wwd/wssi/wssi.php>

Experimental WSO Webpage:

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Experimental WSO Product Survey:

<https://www.surveymonkey.com/r/ExpWinterStormOutlook>

Questions? Stephen.Baxter@noaa.gov

