

# THE WEDGE FRONT

NATIONAL WEATHER SERVICE GREENVILLE-SPARTANBURG SC



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Winter 2020-2021

## Decision Support Services in the Era of COVID

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One thing that's certain about the weather is that it always changes. Regardless of where people are or what's happening in the news, there are decisions made every day that depend on the weather. At the National Weather Service, in addition to the various products we issue for the general public and media, we specifically are tasked to provide community leaders with detailed information on high-impact weather, so they can make critical decisions more effectively. Our office maintains a Decision Support Services (DSS) program to help accomplish this task. COVID-19 has created new challenges for the DSS program, but also new needs for service.

In March 2020, as the pandemic was taking hold across the United States, COVID-19 testing facilities sprang up across the country. Many of those facilities were operating outdoors or in temporary structures. A number of NWS offices, including GSP, received numerous requests for Decision Support from local and state agencies as they sought to protect these structures, their workers, and patrons from inclement weather. Testing ramped up as spring thunderstorm season arrived, and GSP meteorologists monitored conditions near the sites, calling officials to provide early warning of lightning, heavy rain, and strong winds.

Upended plans forced us to rethink our approach to some of the methods by which we perform DSS. As an example, our office had been tapped to provide support for the 2020 Republican National Convention in the summer of 2018, when Charlotte was selected for its site. The office response was in the final stages of planning when a decision was made in June 2020 to scale back the Convention. This reduced much of the need for on-site staff, so instead of deploying meteorologists to Charlotte, most of the briefings were instead developed at our office in Greer, and provided via e-mail.

Along those lines, our office has prepared for the possibility that forecasters working remotely from home will provide DSS. We began to host some of our in-house forecast maps on our office website, so they were accessible by forecasters at home. We also developed a template for our popular slideshow-format briefings that is based "in the cloud" and links to these images.

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Together, these changes allow our briefings to be produced quickly and effectively from anywhere a forecaster has access to the Internet, while maintaining the same format that our partners are familiar with.

The NWS has recently expanded the use of an existing platform called IRIS, for tracking ongoing weather events as well as DSS activities. For example, participants in a search-and-rescue operation might be endangered if wind chill falls below 0°F. IRIS can be configured to alert a forecaster for the location of the rescue, and when wind chill at the nearest observation station falls below zero, the software can notify the forecaster. The forecaster can then use IRIS to obtain contact information for the rescue captain. IRIS allows NWS forecasters to be efficient at performing these kinds of DSS even when working outside the office.

Most everybody, it seems, has now attended some sort of “virtual meeting” using a video-conferencing app. The NWS is no exception. Decision Support traditionally involves face-to-face meetings and in-person deployments, but the pandemic has made these risky. We have obtained more webcams for the office PCs, in order to allow staff to video-conference more easily. This has allowed us to offer partners “virtual DSS” in addition to the briefing packages and traditional phone calls. A forecaster and partner can spin up a video chat room in seconds, allowing screen sharing and a more visual aspect to a briefing. This also allows us to maintain face-to-face relationships, which can be important in building trust.

Jake Wimberley, Meteorologist



### freezing drizzle

*The fine layer of ice that forms during freezing drizzle may be hard to notice on the road, but it is one of winter's most dangerous types of weather.*

### safety tips

- Slow down
- Don't use cruise control
- Leave plenty of distance between you and other vehicles

## “Sneaky” Winter Hazards

The winter season brings many weather events that can “sneak” up on you. These are weather hazards that cause big impacts and make travel difficult without making big news.

weather.gov



## Welcome to the New Members of Team GSP

**We are excited to share four new hires at your local National Weather Service Forecast Office! Let the introductions begin!**

### **Craig Carpenter is our new Electronics Technician:**

I am retired military where I served 21 years maintaining Air Traffic Control systems. I have been with the National Weather Service for 6 years. I have two grown daughters. I enjoy the outdoors. I enjoy playing golf, disc golf, and spending time on the water.



### **Ashley Pratt is our new Weather Forecaster:**

- Graduated from the University of Oklahoma with Bachelor of Science degree in Meteorology while working at the Oklahoma Mesonet.
- Worked in TV for two years in eastern North Carolina.
- Worked in the private weather sector for just over a year.
- Passionate about keeping people safe during impactful weather.
- Enjoys educating the public about the weather.
- Very excited to be joining the NWS in GSP.

### **Mike Rehnberg is our new Weather Forecaster:**

Mike is a recent graduate from North Carolina State University. While completing his undergraduate degree, he spent two years working as an undergraduate assistant at the North Carolina Climate Office, where he worked on several projects, including an analysis of winter weather mortality integrated into the Southeast Regional Climate Center's risk assessment tool, and on the Climate Thresholds Tool, a web-based program hosted on the NC Climate Office's website. Prior to his arrival at NWS GSP, Mike was working on a Master's degree at University of Illinois Urbana-Champaign. Mike is excited to begin a career with the National Weather Service, and begin applying his skills and knowledge to operational forecasting and decision support.



In his spare time, Mike enjoys amateur astronomy. He is also an avid backpacker and nature photographer. In particular, he enjoys backcountry camping in wilderness areas, or as he refers to it, "the art of almost dying in style."



*Continued from Page 3*

## Clay Chaney is our new Weather Forecaster:

My name is Clay Chaney and I'm from Shelby, NC (45 minutes west of Charlotte). I got my Bachelor's degree in Meteorology from North Carolina State University (Go Pack!). Once I graduated in May of 2019, I started out as an Operational Meteorologist at the AccuWeather Headquarters in State College, PA (July 2019 - March 2020). Now I'm here at the National Weather Service at GSP (March 2020 - present) and closer to family and friends (couldn't be happier). Weather is my favorite conversation topic, so I always encourage people to ask me about it if they have any questions about it!



Growing up, I've always been intrigued by the weather, which started out when I lived with my Grandparents for the first seven years of my life. They liked to watch the news and the weather segments always seemed to catch my attention. Once I found out about the Weather Channel, my love for weather really took off ever since. My favorite type of weather to forecast and observe would be severe and winter weather.

Outside of meteorology, I like to be outdoors, go hiking, hang out with friends and family, and a big sports fan. I played football, basketball, and ran track while in grade school and won the state championship in football my senior year of high school. My favorite teams are the Dallas Cowboys & Carolina Panthers (NFL), NC State (in any college sport), Charlotte Hornets & LeBron James (NBA/Favorite Athlete), and the Atlanta Braves (MLB). I now have a dog named Dallas and he's a mutt, but he's very sweet and I bonded with him since the day I got him!

**flash freeze**

*Wet roads can freeze quickly at night or when there is a rapid drop in temperature behind a cold front.*

**safety tips**

- Slow down
- Don't use cruise control
- Leave plenty of distance between you and other vehicles

**“Sneaky” Winter Hazards**

The winter season brings many weather events that can “sneak” up on you. These are weather hazards that cause big impacts and make travel difficult without making big news.

weather.gov 

## Be Prepared for Winter Weather

Exposure to extreme cold, fires and poisoning due to the improper use of heaters, and vehicle accidents are just a few reasons as to why dozens of fatalities are reported each year due to winter weather, an overlooked significant threat. Now you may be thinking that the winter season across the Coastal Carolinas is nothing compared to, for example, the New England region. Well, we have our share of winter weather across the Carolinas, thus you should always be prepared.

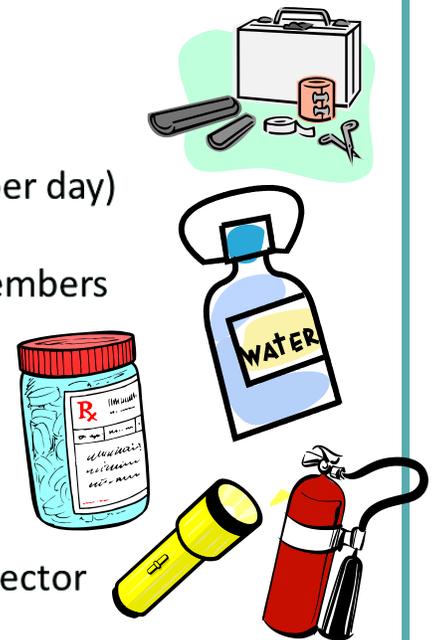
In preparation for a winter weather event, keep in mind that the primary concern will be the loss of heat, power outages, and shortage of supplies if storm or proceeding conditions persist for more than one day.

Before winter weather strikes, be sure to take necessary precautions such as maintaining, cleaning, and annually inspecting chimneys and other heating equipment, and making sure your vehicle is prepared by having a full gas tank and inspecting the antifreeze levels, brakes, battery, and more!

*For additional information, visit [www.ready.gov](http://www.ready.gov)*

### Safety Kit Checklist: Home & Work

- Flashlight and extra batteries
- Battery-powered NOAA Weather Radio
- Extra food and water (1 gallon of water per person, per day)
- Prescription medicines
- Special items for infant, elderly or disabled family members
- Cash
- Emergency phone numbers
- Important documents
- Blankets and extra clothing
- First aid supplies
- Fire extinguisher/smoke alarm/carbon monoxide detector
- Emergency heat source (fireplace, space heater, etc)



### Safety Tips: Outdoor Animals & Pets

- \* Move animals to sheltered locations
- \* Have extra feed on hand or near feeding areas
- \* Have water available (animals may die from dehydration)



## Our New "Virtual" Reality

Despite the pandemic, our office (like all the other NWS offices across the country) has done whatever we can to continue our outreach program to the best of our ability. All outreach efforts have, of course, changed to virtual, and while it's certainly not the same, it's better than nothing. Demonstrating things like a "cloud in a bottle" for a school group is much more fun when we're in-person, but we do the best we can! Some of the outreach we've conducted includes (but is not limited to):

- SKYWARN spotter training
- School "visits" and presentations
- Virtual office tours for schools and individuals
- Scout Weather Merit Badge presentations/tours
- Partner webinars/presentations



The images here are screenshots of some of these presentations, as well as a screenshot of Warning Coordination Meteorologist Trisha Palmer giving interviews and virtual talks. We are always thrilled to read the thank-you notes that children send us, because children are so honest and we are just tickled pink to read what they say. A handful of the dozens of thank-you notes that we received this fall is pictured here as well.



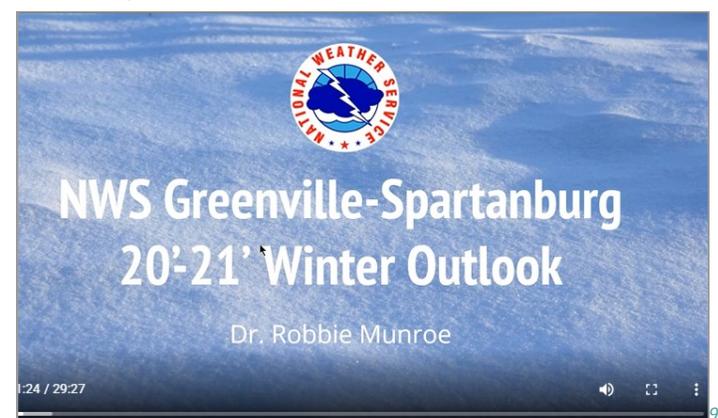
We are hopeful that the situation will improve as we move into 2021 and we will be able to get back out and do in-person talks and allow visitors into the office again. We enjoy staffing booths at festivals and events, just getting out and meeting members of the community, but that will remain on hold for some time.

But in the meantime, if any of our readers are interested in a virtual presentation of any sort, please let us know! We can tailor a presentation to your needs; for example, we can adjust the level of complexity in our school presentations to range the gamut from kinder-

gartners to college students. We can do targeted presentations for social groups and service clubs (some of those from the past have been Lions Club, Kiwanis Club, Rotary Club, etc.). And of course, for anyone interested in meteorology, we are happy to have in-depth discussions about careers in meteorology. For example, we had the mother of one young aspiring meteorologist, whose specific dream was to someday work at the National Hurricane Center (NHC), contact us this fall asking if we could do something for her son's 13<sup>th</sup> birthday. We set up a Google Meet with meteorologists from our office as well a couple of Hurricane Specialists from the NHC; that was one excited young man to get a personalized virtual tour of the NHC!

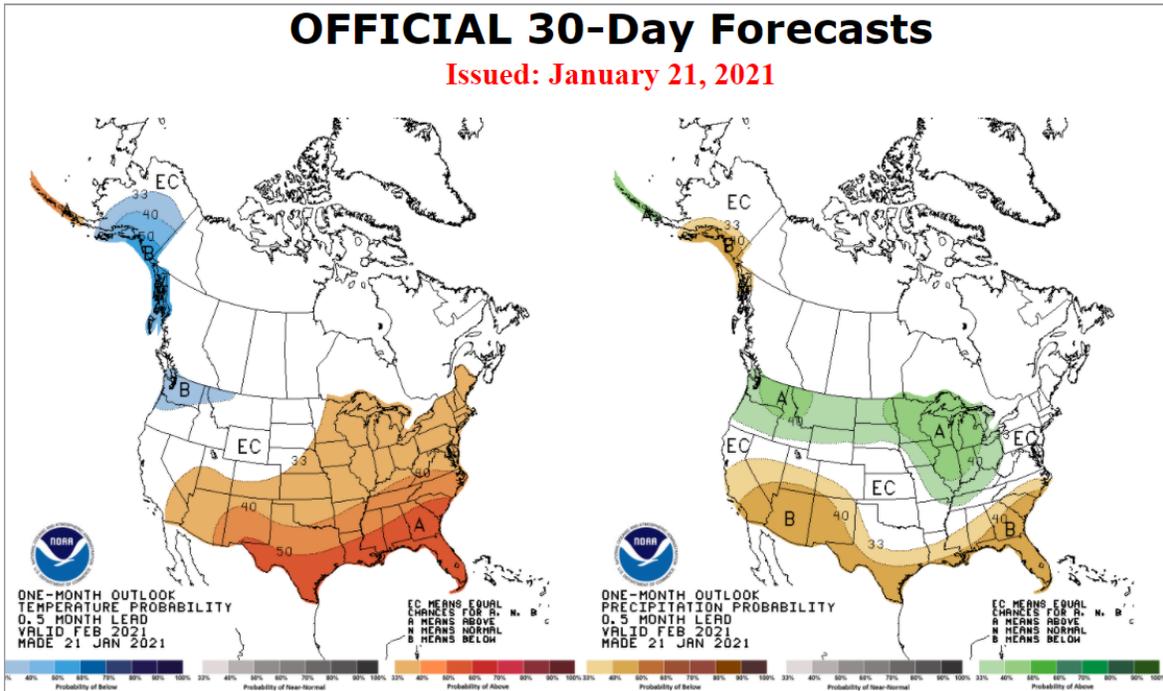
If you are interested in having a meteorologist speak to your group, please feel free to contact Warning Coordination Meteorologist Trisha Palmer, [trisha.palmer@noaa.gov](mailto:trisha.palmer@noaa.gov).

*Trisha Palmer, Warning Coordination Meteorologist*

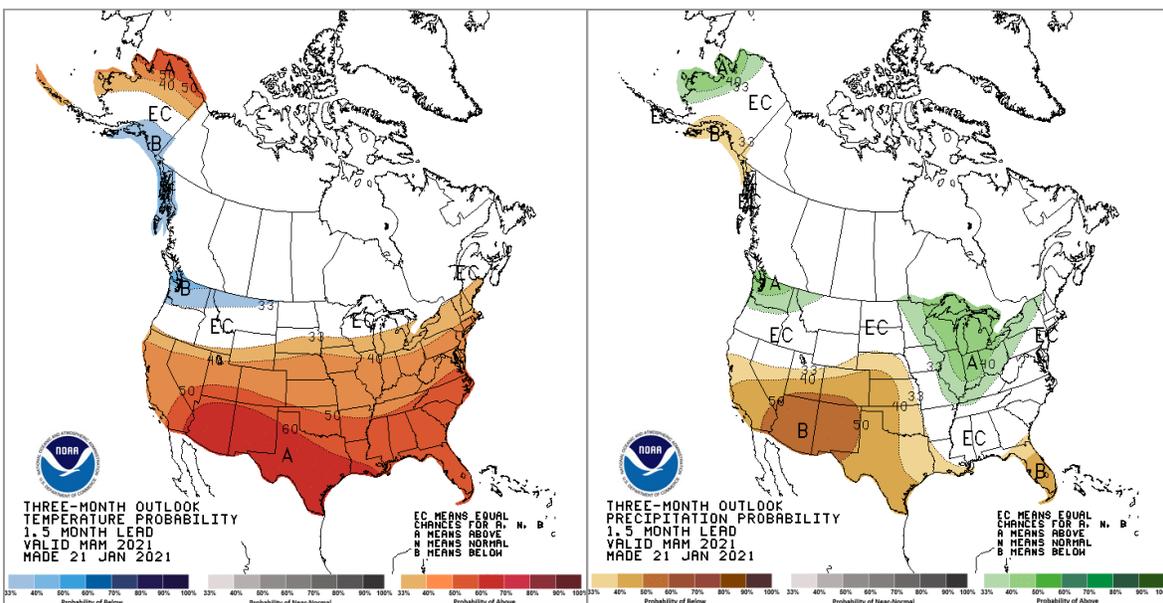


### Winter to Spring 2021 Outlook

According to the Climate Prediction Center, near to above normal temperatures and near to below normal precipitation are expected in **February** (top image) with general troughing expected to prevail near the West Coast, occasionally shifting east of the Rockies to our part of the world. This prediction is based largely on the continuing La Nina conditions across the Central Equatorial Pacific Ocean this winter and possibly into the spring (55% percent chance or roughly a coin flip). The recent breakdown of the Polar Vortex may support an arctic intrusion in early February.



The **spring** (March, April, May - bottom image) promises to be a transition period, not only between seasons, but also from La Nina to Neutral conditions across the Central Equatorial Pacific Ocean. Above normal temperatures are more favored for this period with near normal precipitation.



## Did You Know?

Carbon monoxide can accumulate from:

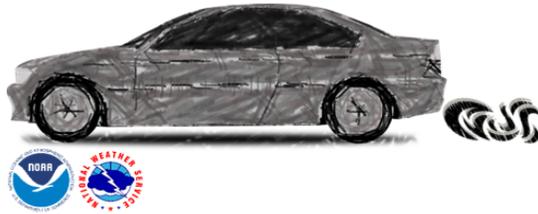
- Furnaces
- Water heaters
- Boilers
- Wood stoves
- Fireplaces
- Charcoal grills
- Gas cooking stoves
- Clothes dryers
- Gas or kerosene space heaters
- Automobile exhaust

# Carbon Monoxide: The Invisible Killer

Carbon monoxide (CO) is a deadly odorless, colorless, and poisonous gas that is the cause of fatalities each year, especially during the winter weather season. It is a result of the incomplete burning of various fuels (ie coal, wood, kerosene, propane) from equipment such as generators and cars.

## Ways to Prevent CO Poisoning

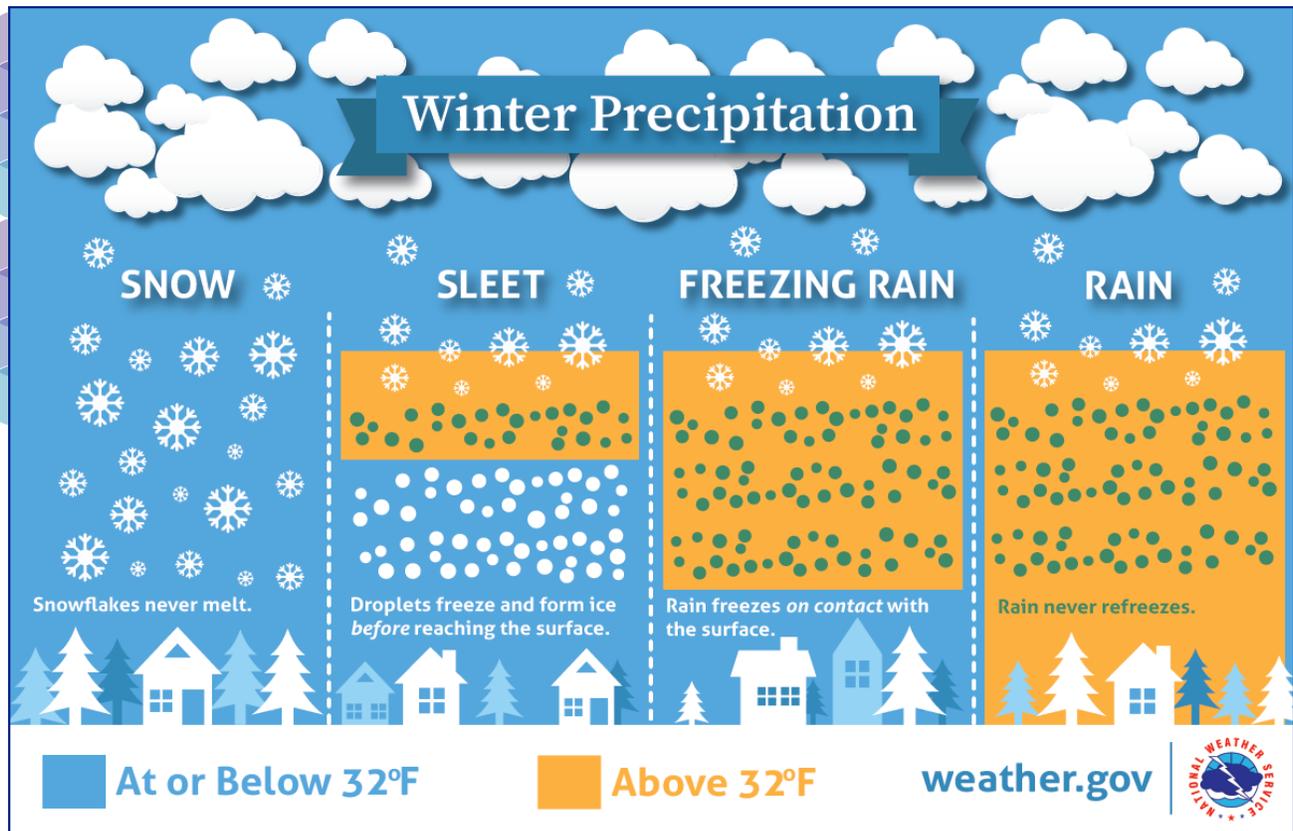
- Never operate equipment in enclosed spaces (garage or locations in a home)
- Never leave car running in an attached garage (even with garage door open)
- Never burn charcoal inside home, vehicle, garage
- Never use gas appliances to heat your home (ovens, clothes dryers, etc.)
- Never operate equipment where people are sleeping
- Install carbon monoxide alarms in central locations on every level of your home
- If carbon monoxide alarm sounds, move quickly to fresh air



### SYMPTOMS OF CO POISONING

- Dizziness
- Nausea
- Fatigue
- Headache
- Shortness of breath
- Vomiting\*
- Mental confusion\*
- Loss of consciousness\*

\*High level of CO Poisoning



Will there be rain, ice or snow? This graphic explains how having different layers of warm and cold air between the clouds and the ground determines the type of precipitation that hits the ground. To learn more, visit <http://www.nssl.noaa.gov/education/svrwx101/winter/types/>

### NWS “Hazard Simplification”

Do you think that we issue too many products? If so, you’re not alone! The NWS is undertaking a major project called “Hazard Simplification” to try to reduce and simplify our products. But before we get into this project, let’s discuss the basics of our products. We issue four main types of products for hazardous weather: Watches, Warnings, Advisories, and Outlooks. We also occasionally issue Statements. So what do all these mean?

Our Hazardous Weather Outlook can be found here: <https://www.weather.gov/gsp/ehwo>. Once our forecasters identify a threat for hazardous weather in the near future, they might then issue a Watch (e.g., Flash Flood Watch, Winter Storm Watch, etc.). As we get closer to the event, we might issue a Warning (Flash Flood Warning, Winter Storm Warning) or Advisory (Flood Advisory, Winter Weather Advisory) depending on the severity of the weather. If we just want to provide extra information to decision-makers or the public, we might issue a “Special Weather Statement”, such as for a strong-but-not-severe thunderstorm, or for some light snow showers that we do not expect to cause any impacts.

| <b>Outlook</b>                        | <b>Watch</b>                          | <b>Warning</b>                                   | <b>Advisory</b>                                  |
|---------------------------------------|---------------------------------------|--|--|
| Risk of weather hazard in next 7 days | Risk of weather hazard in near future | Weather hazard is occurring, imminent, or likely | Weather hazard is occurring, imminent, or likely |
| Could pose a threat to life/property  | Could pose a threat to life/property  | Poses a threat to life/property                  | Could cause significant inconveniences           |
| <b>Prepare a Plan of Action</b>       | <b>Have a Plan of Action</b>          | <b>Take Protective Action</b>                    | <b>Use Caution</b>                               |

But as many of you know, we have multiple products for multiple threats. It can get extremely confusing. In fact, we have 122 different products that we can issue (see the “Periodic Table” of NWS Products)! Of course, some products are limited to coasts (coastal flooding, marine warnings), and some are highly unlikely in our area (avalanche products), but the issue remains that we have a lot of products!



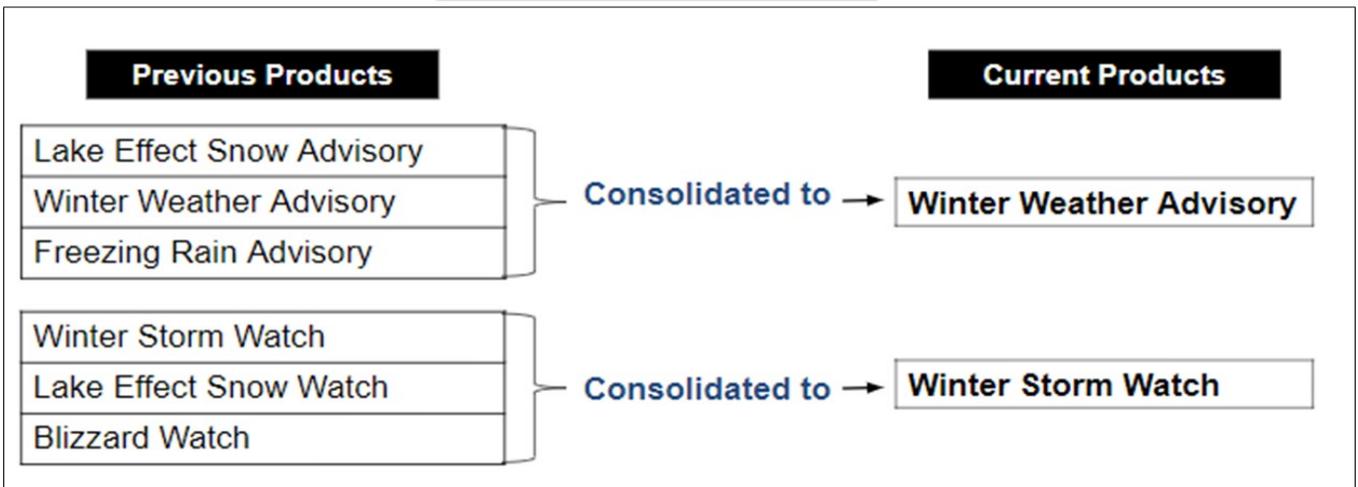
Continued from Page 9

### NWS Watch, Warning, Advisory Periodic Table

Background color according to <https://www.weather.gov/mdl/awips>  
Text color to chosen to be most readable  
Questions/Comments? [andrew.amsorge@noaa.gov](mailto:andrew.amsorge@noaa.gov)

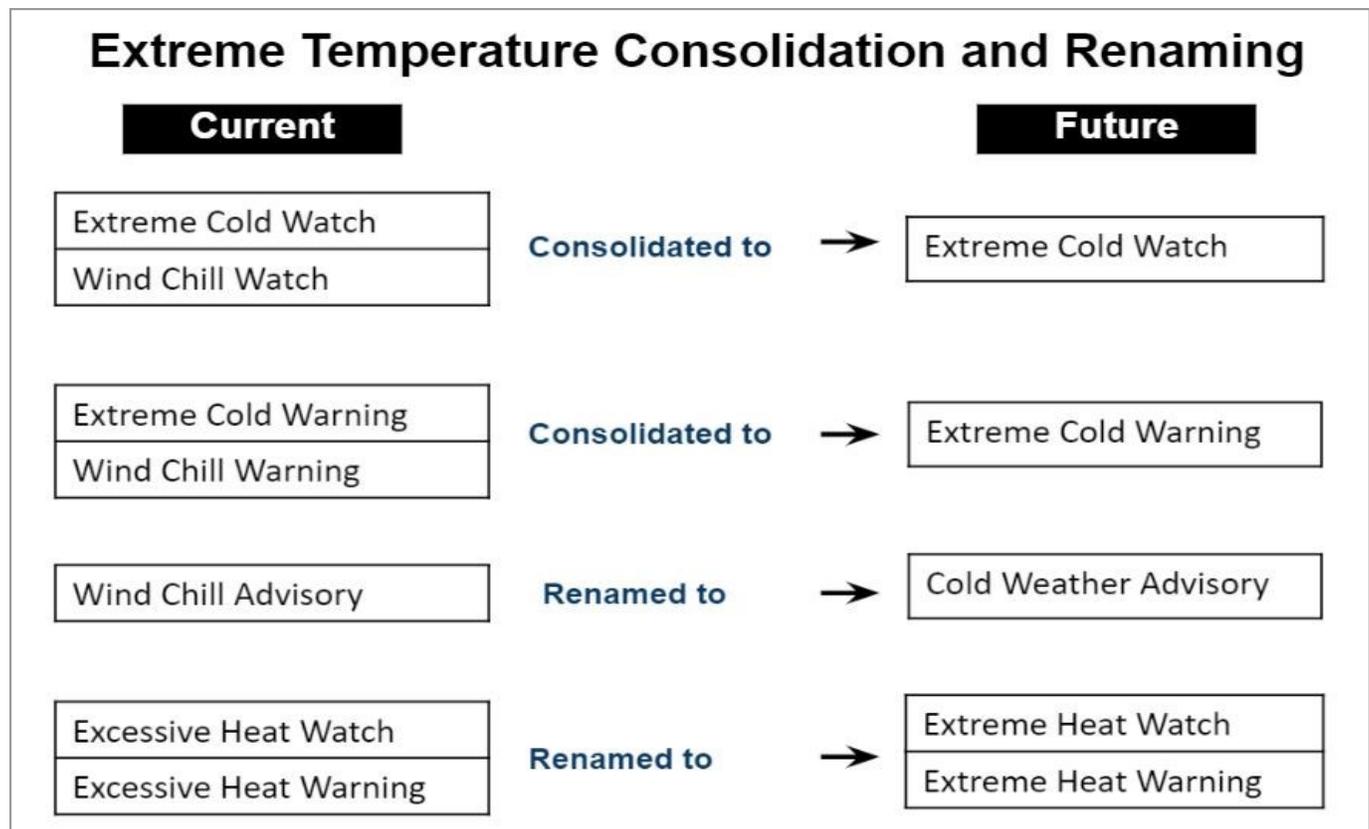
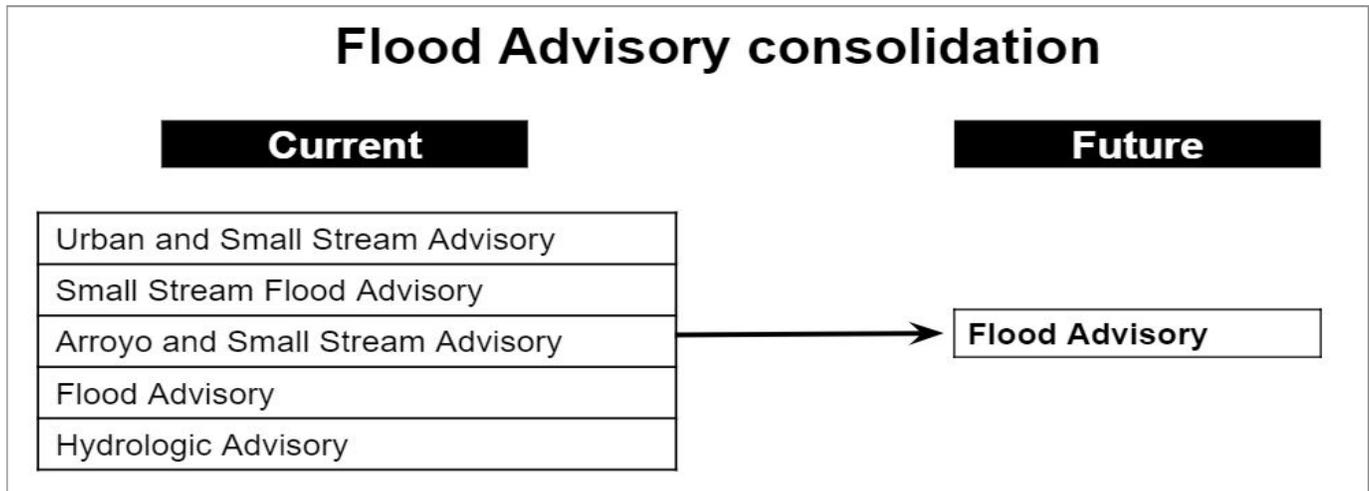
Now, let's discuss this Hazard Simplification process. As part of this, the NWS has undertaken two main projects: The first is "Repair", or making adjustments to the current system. We have reduced the number of products and reformatted the wording, to make them simpler. The simplified wording is bulleted, with clear "what", "where", and "when" statements rather than having the information buried within paragraphs. One such consolidation has been with Winter Storm products:

## Consolidation



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Additional changes to products will be forthcoming soon, specifically to Flood products and Extreme Temperature products:





# HAZARD SIMPLIFICATION Should Advisories Go Away?

## What's the problem?



Social science research has determined that the current NWS Watch/Warning/Advisory system is confusing to many core partners and the public.



**Advisory** is the least understood alerting term, and is often conflated with **Watch**.

There are too many NWS products being used to convey similar weather information (e.g. Winter Weather Advisory vs. Special Weather Statement vs. Short Term Forecast).

## What are we proposing?

A simple, two-tier system where the NWS only “raises the flag” for the BIG events.

**Prepare**  
for a possible  
significant event



**Take Action**  
for an imminent  
or occurring  
significant event

All information below this Watch/Warning level, previously disseminated via Advisories, Special Weather Statements, and Short Term Forecasts, is just part of the

### **Sea of Hazard Information**

Now streamlined and issued as a plain language statement

Continued from Page 12

## What would this look like?

changes highlighted in yellow

### Current: Winter Weather Advisory Product

```
WSWLWX
URGENT - WINTER WEATHER MESSAGE
National Weather Service Baltimore MD/Washington DC
207 PM EST Wed Jan 3 2018

MDZ011-013-014-016-507-508-VAZ057-040500-
/O.EXA.KLWX.WW.Y.0001.180104T0300Z-180104T1600Z/
Southern Baltimore-Prince Georges-Anne Arundel-Charles-
Northwest Harford-Southeast Harford-King George-
207 PM EST Wed Jan 3 2018

... WINTER WEATHER ADVISORY IN EFFECT FROM 10 PM THIS
EVENING TO 11 AM EST THURSDAY...

* WHAT...Total snow accumulations of 2 to 4 inches are
expected.

* WHERE...Portions of central, northern and southern
Maryland and central Virginia.

* WHEN...From 10 PM this evening to 11 AM EST Thursday.

* IMPACTS...Snow will quickly stick on roads and
sidewalks, making the Thursday morning commute
dangerous. Visibility will be reduced to under 1 mile
at times in snow. Bitterly cold conditions will follow
for late Thursday through the weekend causing snow to
remain on untreated surfaces.
```

### Proposed: Plain Language Statement

```
WSWLWX
Winter Weather Statement
National Weather Service Baltimore MD/Washington DC
207 PM EST Wed Jan 3 2018

MDZ011-013-014-016-507-508-VAZ057-040500-
/O.EXA.KLWX.WW.S.0001.180104T0300Z-180104T1600Z/
Southern Baltimore-Prince Georges-Anne Arundel-Charles-
Northwest Harford-Southeast Harford-King George-
207 PM EST Wed Jan 3 2018

... 2 to 4 inches of snow this evening into tomorrow
morning...

* WHAT...Total snow accumulations of 2 to 4 inches are
expected.

* WHERE...Portions of central, northern and southern
Maryland and central Virginia.

* WHEN...From 10 PM this evening to 11 AM EST Thursday.

* IMPACTS...Snow will quickly stick on roads and
sidewalks, making the Thursday morning commute
dangerous. Visibility will be reduced to under 1 mile at
times in snow. Bitterly cold conditions will follow for
late Thursday through the weekend causing snow to remain
on untreated surfaces.
```

## What are the benefits?

- Expanded use of concise bullets and plain language in NWS messaging.
- Two-tier Watch/Warning system better matches the PREPARE or ACT operational structure used by emergency managers for significant events.
- Simplified messaging by using a single product (statements) to deliver information for less significant events.
- Ability to offer clearer Watch/Warning/Advisory maps.
- New statements would utilize Common Alerting Protocol (CAP) and Valid Time Event Code (VTEC) for better tracking and machine readability.

### Your feedback is critical!

NWS partners should watch for partner webinars coming this spring, and reach out to your local NWS office with questions or to learn more.

The public and other stakeholders should watch for a public survey coming to weather.gov to collect comments on this proposal.

National Weather Service

[weather.gov/hazsimp](https://www.weather.gov/hazsimp)

More information on these proposals can be found at [www.weather.gov/hazsimp](https://www.weather.gov/hazsimp). Meanwhile, you are welcome to provide feedback on this and any other product concerns to our Warning Coordination Meteorologist Trisha Palmer ([trisha.palmer@noaa.gov](mailto:trisha.palmer@noaa.gov)).

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Where we share adverse weather information & historical weather events, and you share storm reports and ask any weather questions you might have!



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# Warning Signs of Hypothermia



Confusion



Shivering



Difficulty Speaking



Sleepiness



Stiff Muscles

weather.gov/cold



## NO WIND

98.6°F

Average temperature of the human body

Under calm conditions, the body radiates heat, creating a layer of warmth between our skin and the cold surroundings.



### The Science of Wind Chill

## WINDY

95°F

Hypothermia begins when our body temperature drops two to four degrees

But when it's windy, the moving air breaks up this insulating layer. It speeds up heat loss by whisking away the warmth from our skin.

Heat is moved away from our bodies.



weather.gov/winter