



# **The National Weather Service & the Winter Ahead**

**Tony Edwards**

**Warning Coordination Meteorologist**

**NOAA/National Weather Service**

**Charleston, WV**



# **The National Weather Service**

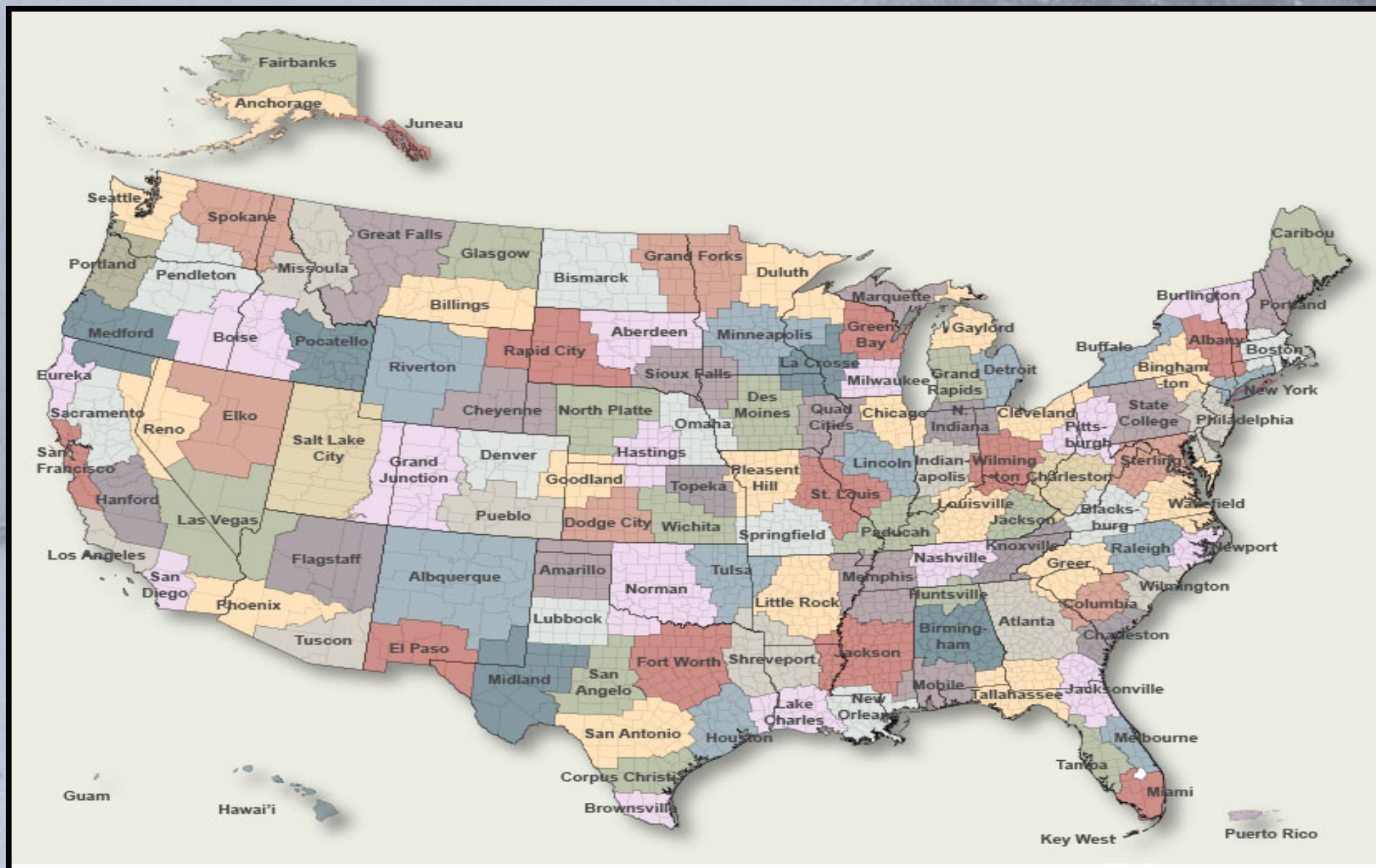


## **Our Vision**

**A Weather-Ready Nation: Society is Prepared for and Responds to Weather-Dependent Events**

## **Our Mission**

**The National Weather Service provides weather, hydrologic, and climate forecasts and warnings for the United States, its territories, adjacent waters and ocean areas, for the protection of life and property and the enhancement of the national economy.**





# The National Weather Service

## Who We Are





# The National Weather Service





# **NWS Partnership with WV DOH**

## **Pathfinder Program in West Virginia**

**Goal of strengthening the working relationship between WV DOH and the NWS/Weather & Climate Enterprise so that travelers can make well informed, safe and efficient travel decisions.**

- Increased coordination between TMC and NWS weekly and then leading up to, during and after winter storms.**
- Coordinating messaging for DMS Message Boards across the state.**
- Better sharing of information such as snowfall accumulations and road conditions.**



# Forecasting Winter Storms

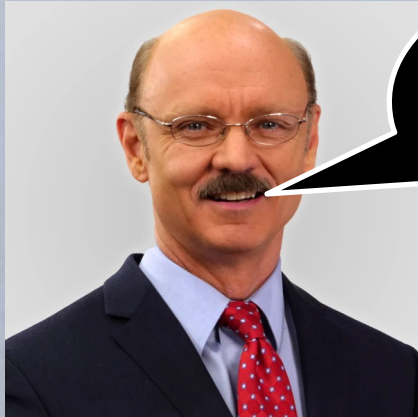


FRUSTRATION

I haz it



# Forecasting Winter Storms



Despite what some are saying, West Virginia is in for a major storm. I expect 1 to 2 feet by morning.



Don't worry folks. Despite the hype, I expect only light accumulations through the night.



Wow! What can I say, the setup is looking like snow...and lots of it! parts of West Virginia will see over a foot of snow tonight.

We are getting ready to head out the door, on our way to Charleston, WV. We will be doing live broadcasts through the night from the epicenter of what looks like a major blizzard.



Partly cloudy tonight. Lows in the low 30s.

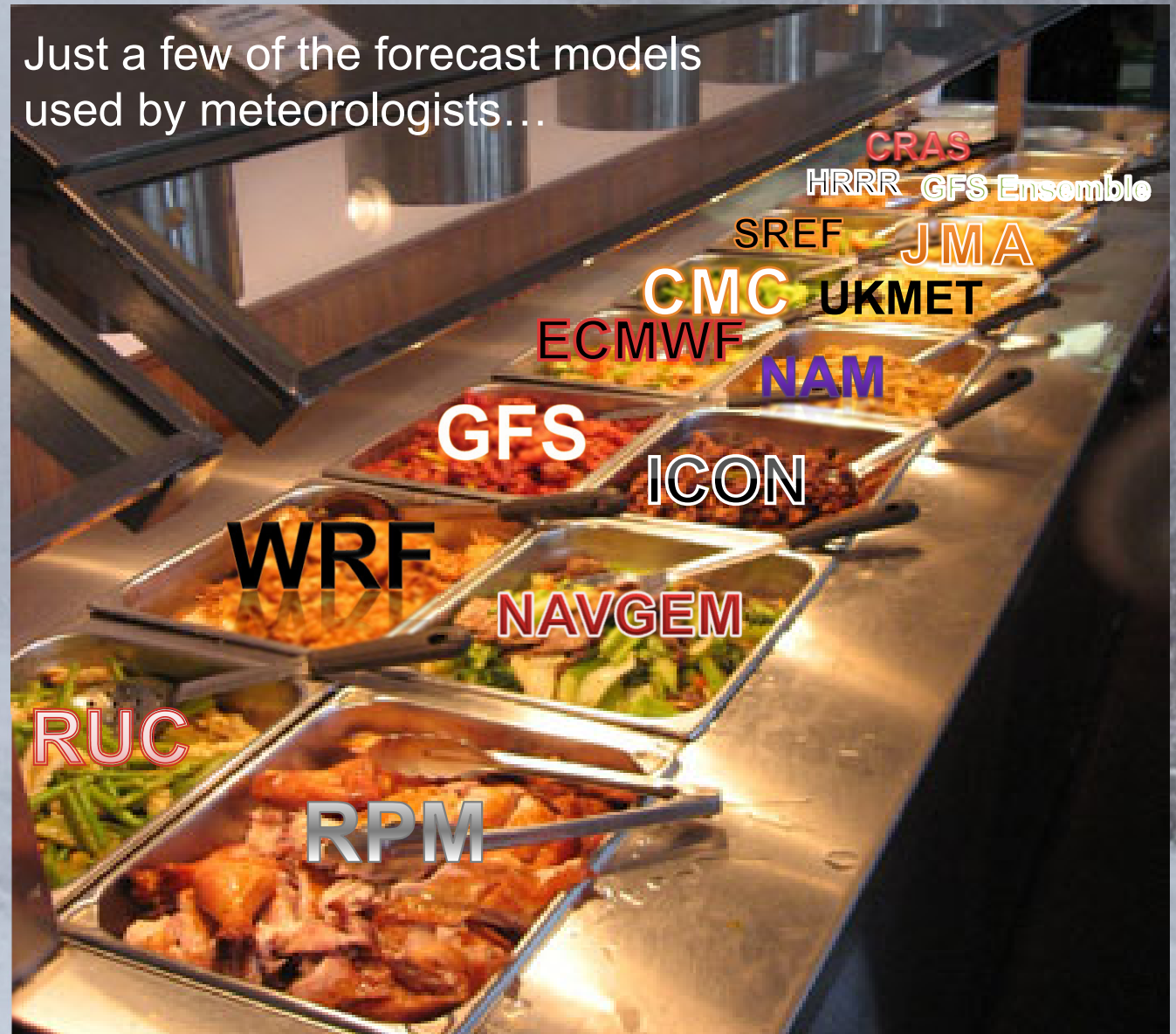




# Forecasting Winter Storms

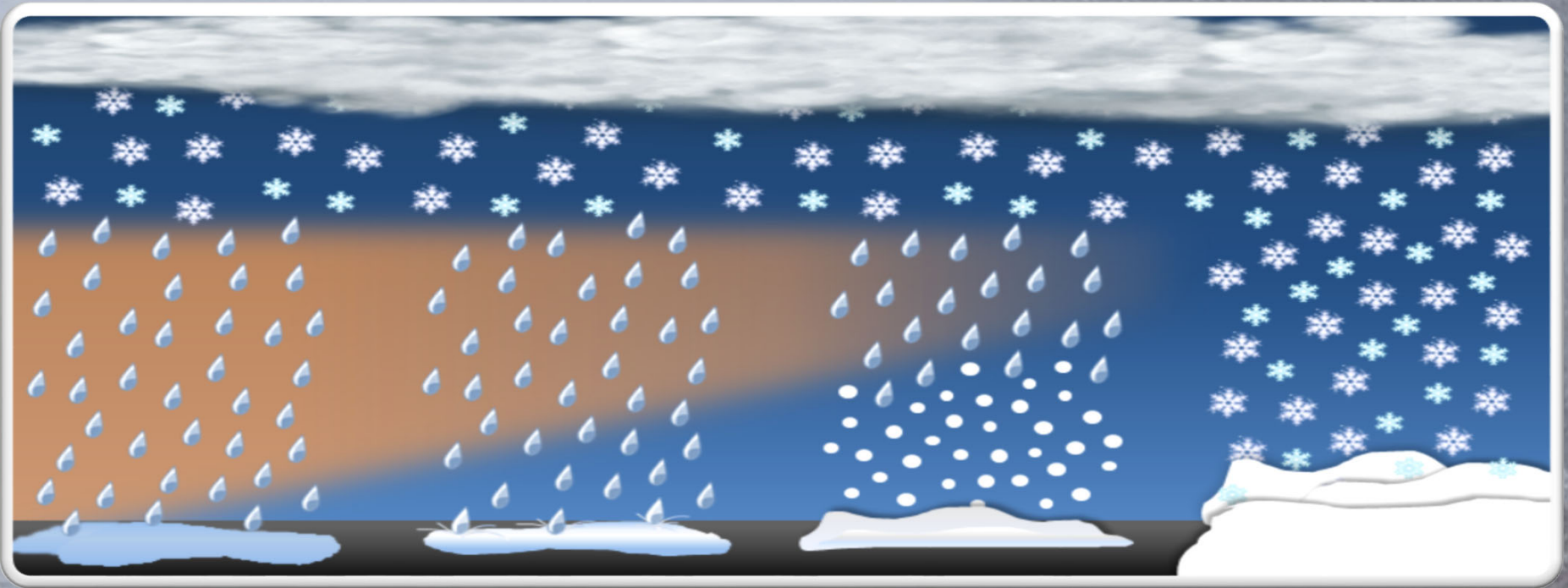
- Each model has its own biases.
- Each model performs differently from storm to storm depending on how well atmosphere is sampled.
- New model runs come in every 12 hours to as often as every hour.
- Models often show big winter storms out in the future only to lose it in time. Don't trust just one model run!

Just a few of the forecast models used by meteorologists...





# Forecasting Winter Storms



**Snow falls out of clouds into cold air aloft and...**

...melts to rain in a deep layer of warm air that extends down to the surface.

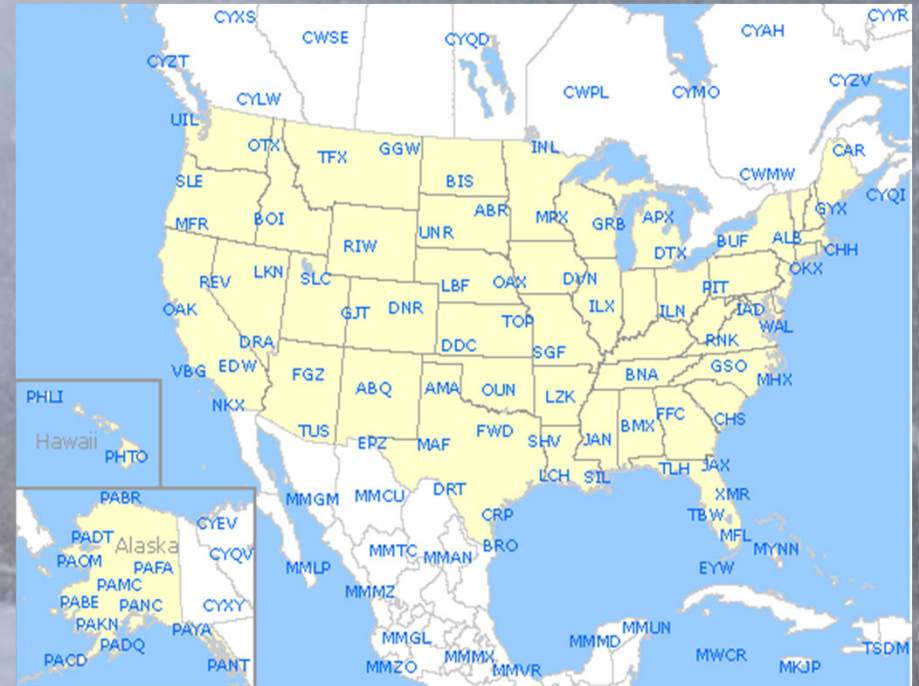
...melts to rain in a warm layer aloft, then freezes into glaze ice upon contact with cold surfaces.

...melts in a warm layer aloft, then refreezes into ice pellets in a layer of cold air above the surface.

...remains snow in the absence of any warm layer of air aloft.



## Upper Air Balloon Launch Locations



**1 or 2 degrees 5,000 feet above the ground may mean the difference between a foot of snow, or 1" of cold rain (and a bunch of unhappy school kids/teachers).**



# Weather Situational Awareness

[www.weather.gov/charlestonwv](http://www.weather.gov/charlestonwv)

Top Weather News & Briefings for Upcoming Significant Weather Events

Advisory/Watches/Warnings Map & Point-&-Click Weather Forecast

[mobile.weather.gov](http://mobile.weather.gov)



[@NWSCharlestonWV](https://twitter.com/NWSCharlestonWV)

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HOME FORECAST PAST WEATHER SAFETY INFORMATION EDUCATION NEWS SEARCH ABOUT

Local forecast by "City, ST or ZIP code"  
Enter location ...  
Go  
Location Help

**News Headlines**

- Looking for Drought Information? Start Here.
- Winter Weather Criteria Changes for West Virginia Mountains effect October 15, 2019
- Latest Hazardous Weather Outlook and Synopsis

**MY FORECAST**  
Charleston, Yeager Airport WV

**NWS Forecast Office Charleston, WV**  
[Weather.gov](http://www.weather.gov/charlestonwv) Charleston, WV

Charleston, WV  
Weather Forecast Office

Current Hazards Current Conditions Radar Forecasts Rivers and Lakes Climate and Past Weather Local Programs

Click a location below for detailed forecast.

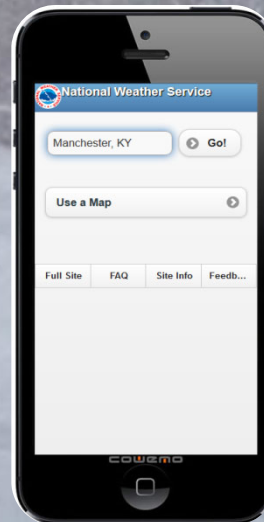
Watches, Warnings & Advisories  
Flood Warning  
Wind Advisory  
Special Weather Statement  
Outlook

Weather Briefing Local Radar Satellite

Text Product Selector (Selected product opens in new window)  
Latest Text Products Issued by RLX

Radar Current Weather Rivers & Lakes Satellite Forecast Maps Hour by Hour Forecast

Winter Weather Weather Hazard Briefing Hazardous Weather Outlook Forecaster's Discussion Text Bulletins Climate Plots





# Weather Situational Awareness

[www.weather.gov/charlestonwv](http://www.weather.gov/charlestonwv)

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[Weather.gov](#) > Charleston, WV

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FLUS41 KRLX 101007

HWORLX

Hazardous Weather Outlook

National Weather Service Charleston WV

507 AM EST Sat Mar 10 2018

Northwest Raleigh-Northwest Fayette-Southeast Fayette-  
Northwest Nicholas-Southeast Nicholas-Northwest Webster-  
Southeast Webster-Northwest Pocahontas-Southeast Pocahontas-  
Northwest Randolph-Southeast Randolph-  
507 AM EST Sat Mar 10 2018

This Hazardous Weather Outlook is for the central and northern mountains of West Virginia.

.DAY ONE...Today and Tonight.

Hazardous weather is not expected at this time.

.DAYS TWO THROUGH SEVEN...Sunday through Friday.

Snow may affect the area Sunday night into Monday. Winter weather headlines may be needed, depending upon the track of the system.

.SPOTTER INFORMATION STATEMENT...

Spotter activation is not expected at this time.



# Weather Situational Awareness

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**NWS Forecast Office Charleston, WV**  
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## Probabilistic Snow/Ice

[Weather.gov > Charleston, WV > Probabilistic Snow/Ice](#)

Current Hazards Current Conditions Radar Forecasts Rivers and Lakes Climate and Past Weather Local Programs

Charleston, WV  
Weather Forecast Office

RLX Probabilistic Snowfall Forecasts West Virginia Probabilistic Snowfall Forecasts Hourly Snowfall Ice Accumulation Forecasts  
Other Snow/Ice Information Long-Range Forecast

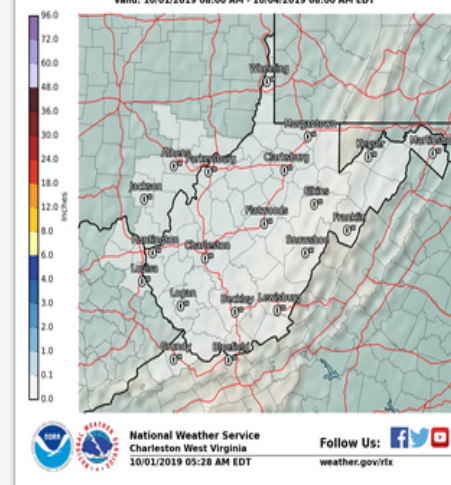
## Snow Amount Potential

Experimental - Leave feedback

### Expected Snowfall - Official NWS Forecast

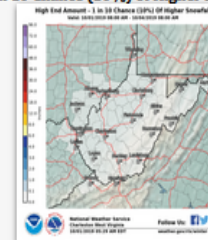
Point Range

Expected Snowfall - Official NWS Forecast  
Valid: 10/01/2019 08:00 AM - 10/04/2019 08:00 AM EDT



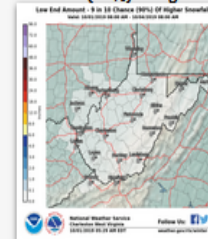
What's this?

### High End Amount 1 in 10 Chance (10%) of Higher Snowfall



What's this?

### Low End Amount 9 in 10 Chance (90%) of Higher Snowfall



What's this?

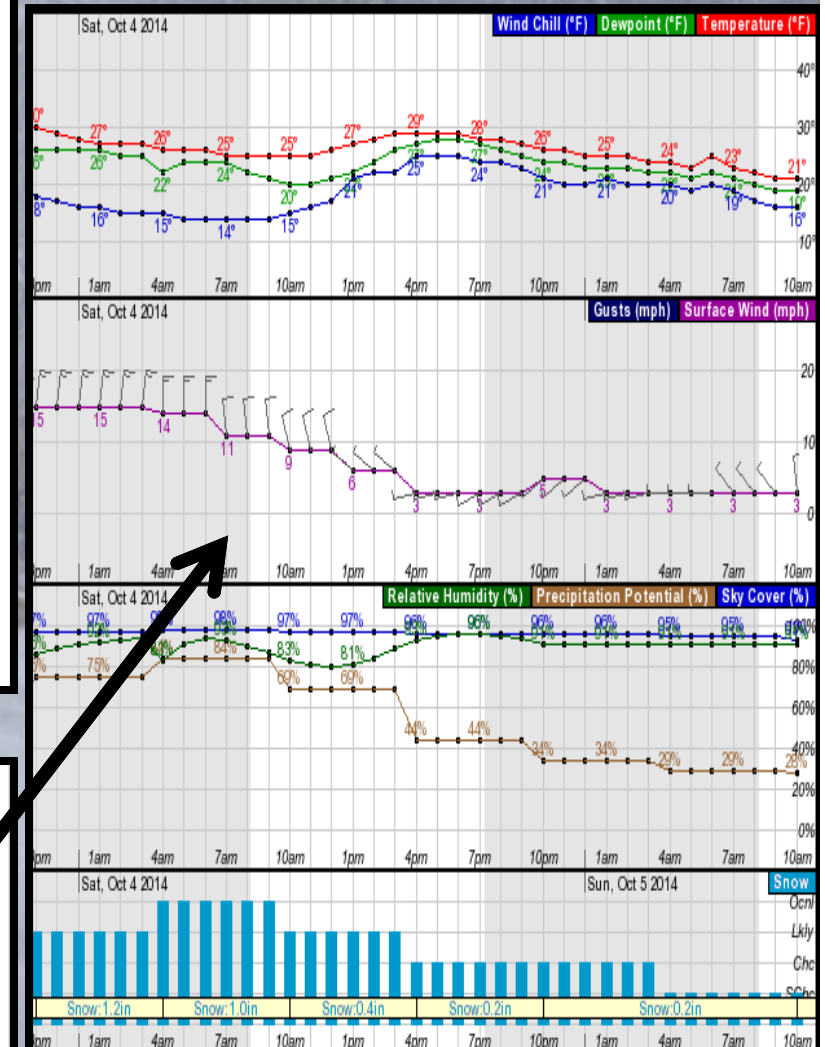
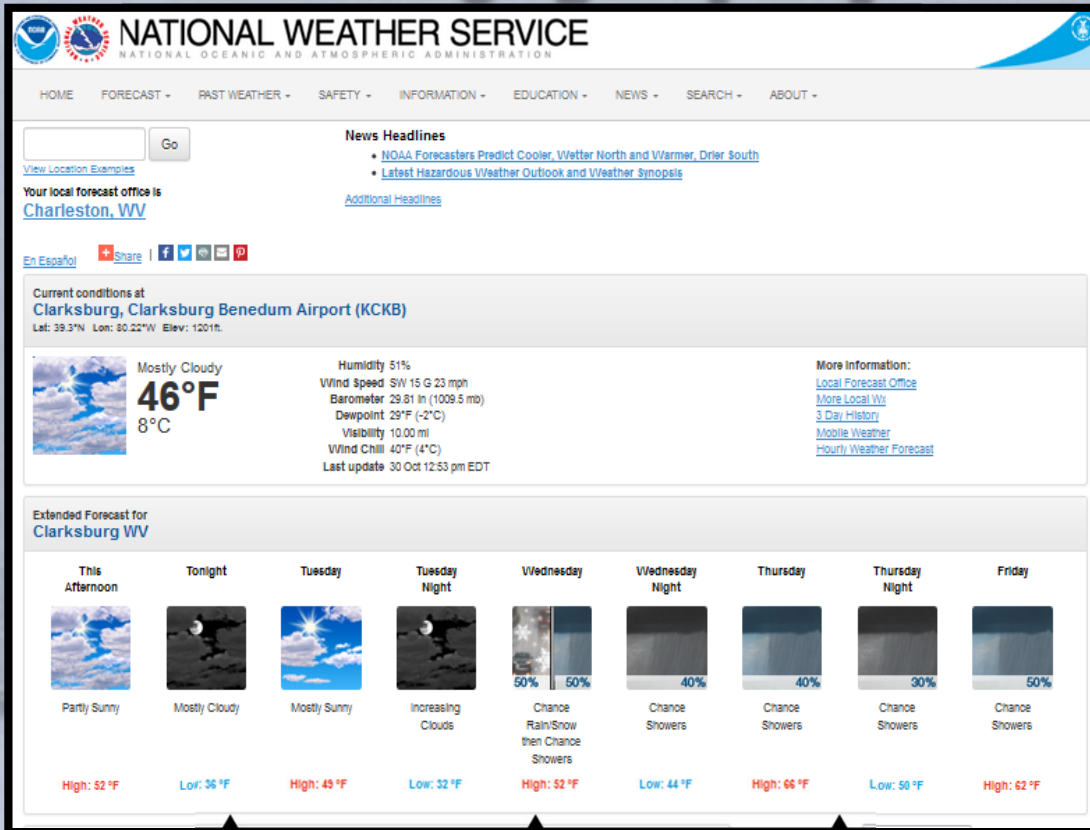
The purpose of these experimental probabilistic snowfall products is to provide customers and partners a range of snowfall possibilities, in complement to existing NWS deterministic snowfall graphics, to better communicate forecast uncertainties during winter weather events. For more information visit this project's Product/Service Description Document, and please provide us your feedback here.



# Weather Situational Awareness

[www.weather.gov/{your zip code}](http://www.weather.gov/{your zip code})

## Location Specific Hourly Weather Graph





# **Weather Situational Awareness**

## **Additional Services Available to NWS Core Partners**

- **Hazardous Weather Email Updates/Conference Call Notifications**
  - **Contact your local NWS office to get added to the list**
- **The iNWS Text Alert service – Receive NWS weather alerts via text message and/or email**
- **Better sharing of information such as snowfall accumulations and road conditions.**



# Weather Situational Awareness

## **WINTER STORM WATCH**

Significant winter  
weather is possible



Snow/ice amounts may  
meet warning criteria  
within the next few days.

**Monitor the latest forecast  
and be prepared!**

## **WINTER STORM WARNING**

Severe winter weather  
is occurring/imminent



Significant snow/ice  
amounts will pose a threat  
to life and property.

**Take necessary precautions  
and avoid travel!**

## **WINTER WEATHER ADVISORY**

Expect some travel  
difficulties



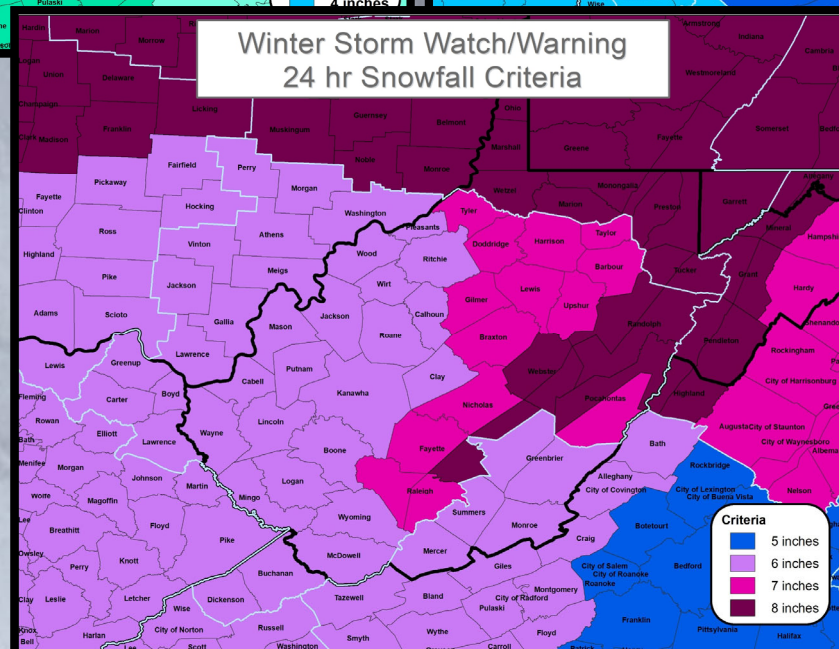
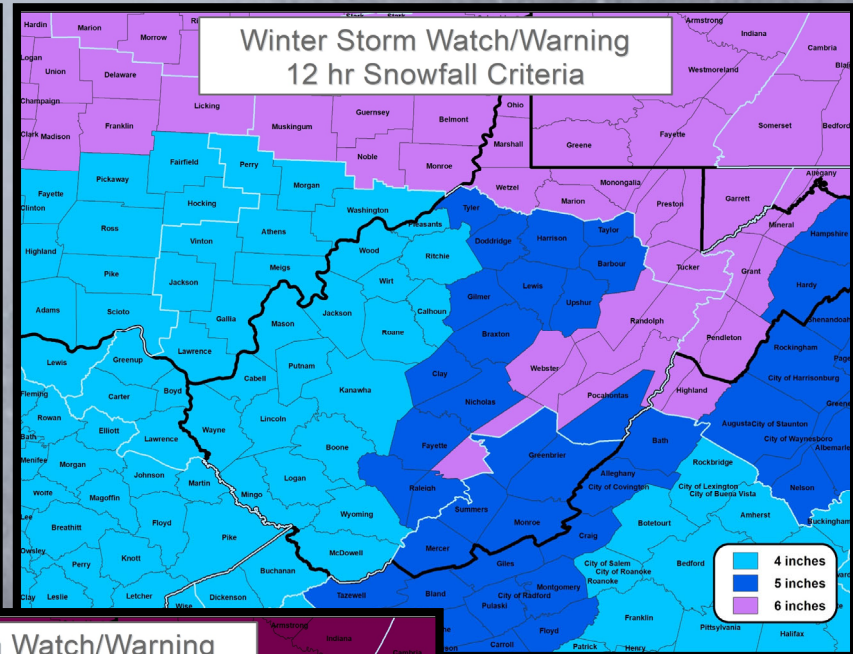
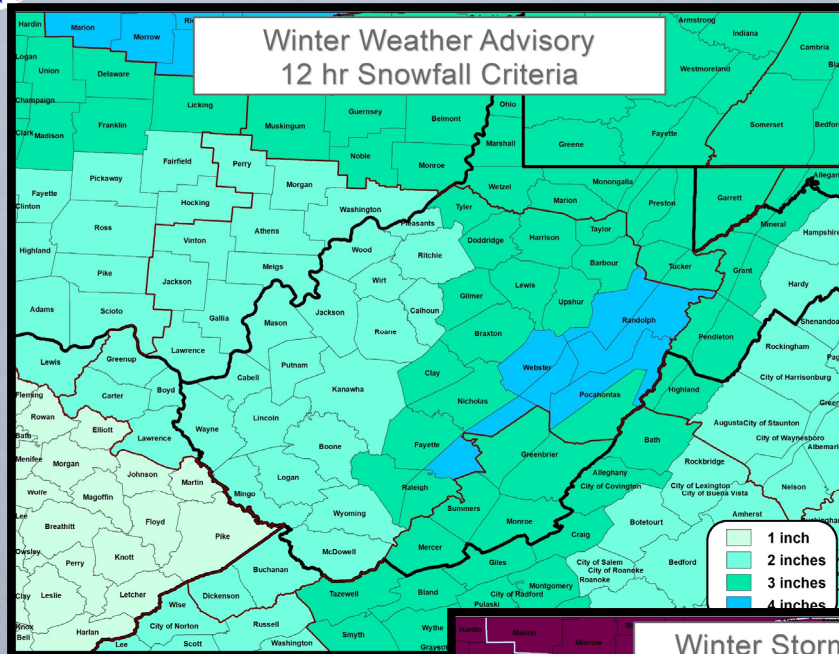
Snow/ice amounts will not  
meet warning criteria but  
will cause travel problems.

**Exercise caution, especially  
if you must travel!**

**Media broadcasts our watches, warnings and advisories,  
but does not have to agree with our forecast.**



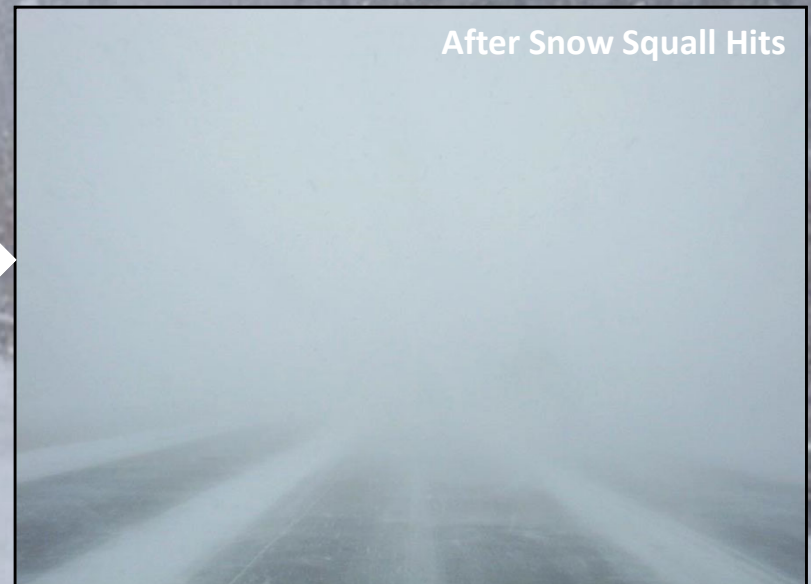
# Weather Situational Awareness





# Weather Situational Awareness

**Snow Squalls:** Brief, intense snow showers accompanied by strong, gusty winds. Accumulation may be significant in a short period of time and visibility can be reduced to near zero.





# Weather Situational Awareness

## Why the impacts?

Temperatures rapidly fall below freezing during the snow showers.

While the snow initially melts on contact with the pavement, it then quickly refreezes as the temperatures plummet, creating a layer of black ice.

Drivers are often unprepared for the quick changes in driving conditions.

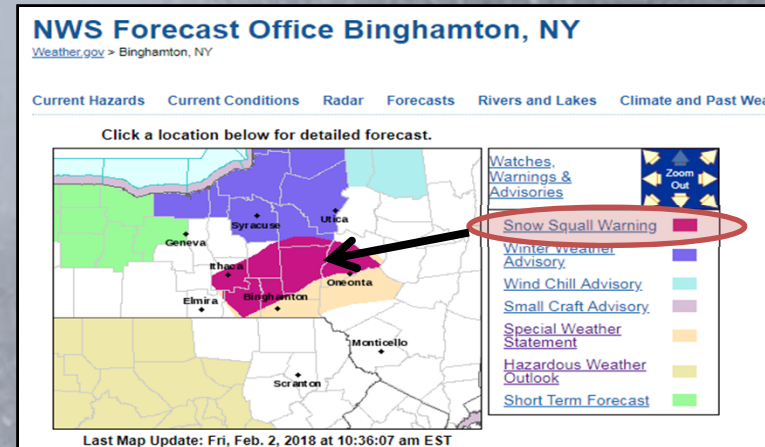




# Weather Situational Awareness

## Snow Squall Potential Awareness

- When forecasters are confident of snow squall warning occurrence, it will be mentioned in the Hazardous Weather Outlook.
- We will also use social media to highlight the potential for Snow Squalls.
- **Snow Squall Warning** will be issued to warn of well organized snow squalls appearing on radar.
  - Polygon format similar to Severe Thunderstorm Warnings.
  - In effect for 30-60 minutes with a 30 minute lead time goal.
  - Will include information on exits/mile markers affected on Interstates and major highways



### BULLETIN – EAS ACTIVATION REQUESTED

Snow Squall Warning  
National Weather Service Binghamton NY  
339 PM EST Sat Feb 13 2016

NYC007-023-107-109-132115-  
/O.NEW.KBGM.SQ.W.0001.160813T2039Z-160813T2115Z/  
Cortland NY-Broome NY- Tompkins NY- Tioga NY-  
339 PM EST Sat Feb 13 2016

The National Weather Service in Binghamton has issued a

\* Snow Squall Warning For...  
Southern Cortland County in Central New York...  
Northwestern Broome County in Central New York...  
Southeastern Tompkins County in Central New York...  
Northern Tioga County in Central New York...

\* Until 415 PM EST

\* At 338 PM EST, a dangerous snow squall was located over South Danby or 12 miles south of Ithaca, moving northeast at 50 mph.

HAZARD...White-out conditions in heavy snow and blowing snow.

SOURCE...Radar indicated and webcams.

IMPACT...Dangerous life-threatening travel.

\* The dangerous snow squall will be near...

Caroline and Slaterville Springs around 350 PM EST.  
Berkshire, Richford and Harford around 355 PM EST.  
Whitney Point and Lisle around 405 PM EST.  
Marathon around 410 PM EST.  
Willett and East Freetown around 415 PM EST.

### PRECAUTIONARY/PREPAREDNESS ACTIONS...

Conditions will deteriorate rapidly with near zero visibilities in snow and blowing snow. Travel will become impossible. You should wait until the squall passes before traveling or find a safe place to wait out the squall away from any road or highway indoors if traveling.

&&

LAT...LON 4260 7600 4242 7586 4235 7585 4214 7645

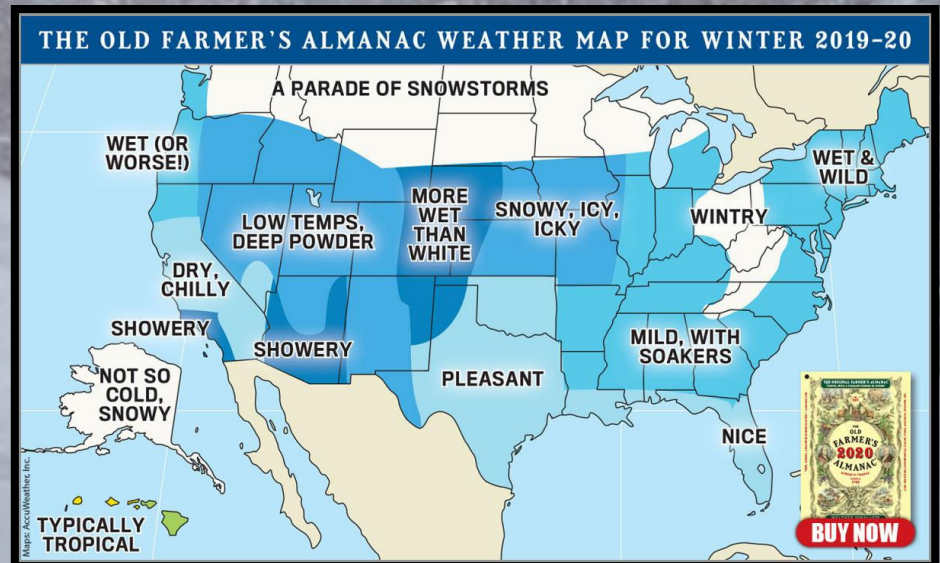
4225 7654 4228 7654 4228 7656 4230 7658

TIME...MOT...LOC 2038Z 240DEG 42KT 4227 7643

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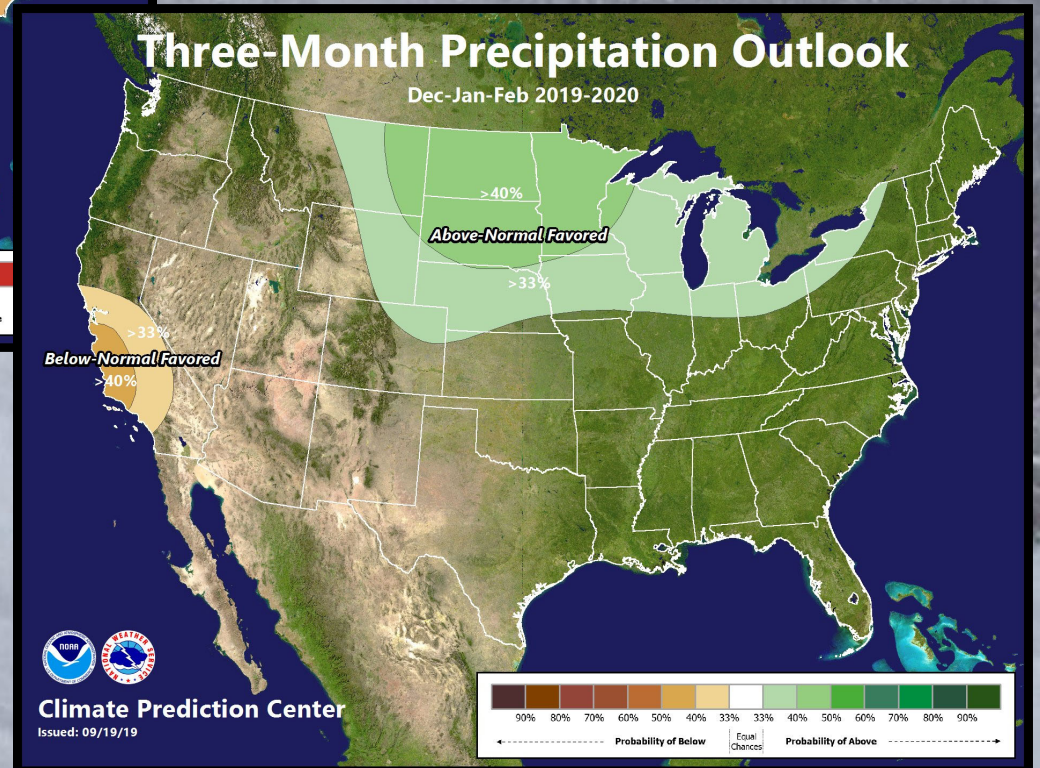
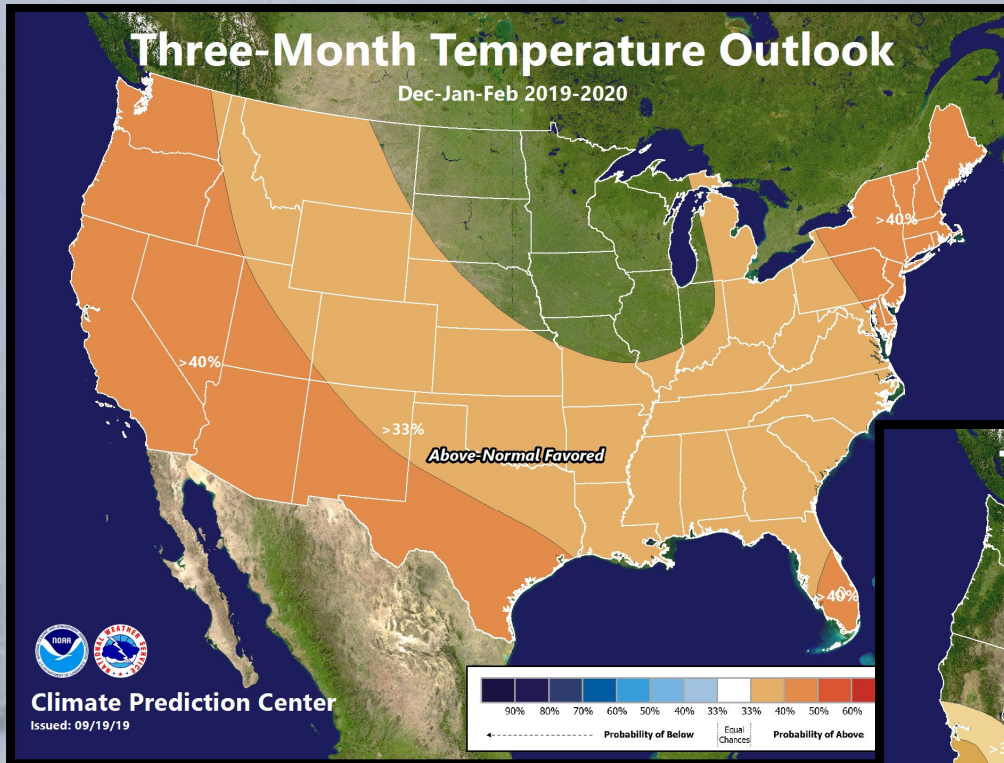
# Winter 2019/20 Outlook





# Winter 2019/20 Outlook

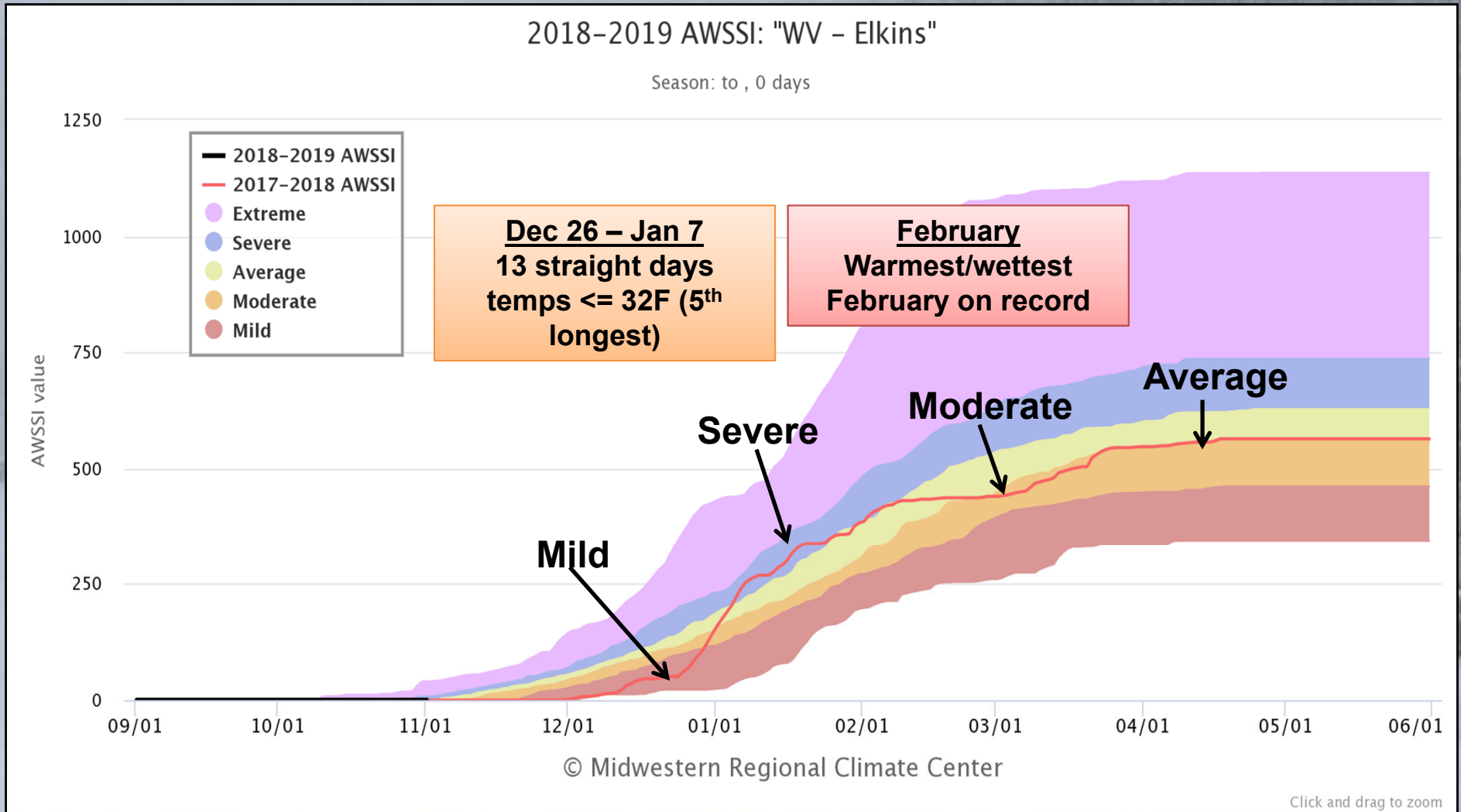
The odds favor a warmer than normal winter with no clear signal for precipitation.





# Winter 2019/20 Outlook

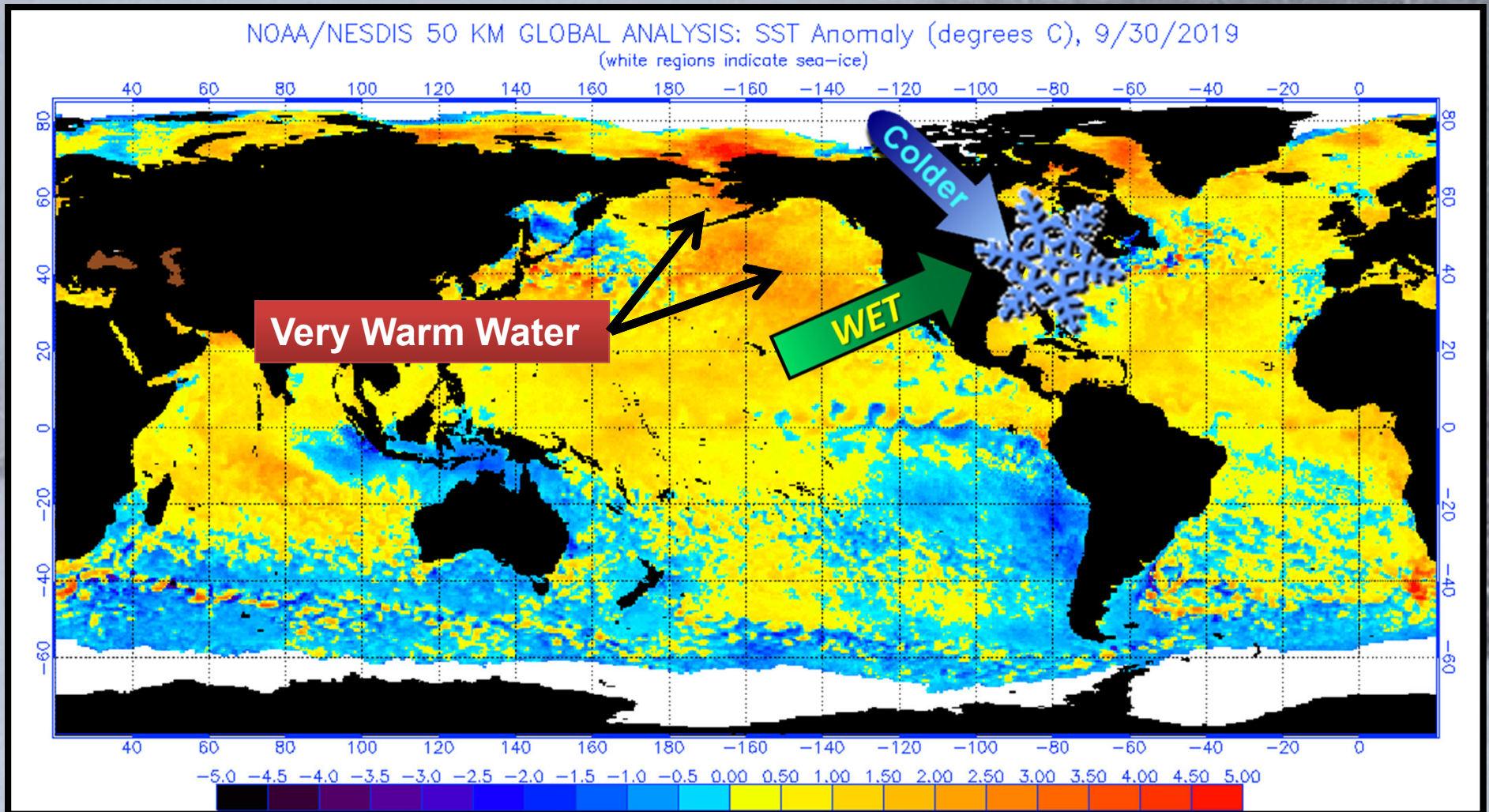
Even though a harsh winter is not in the forecast – an average winter is usually made up of extremes





# Winter 2019/20 Outlook

## The Winter Wild Card





# The National Weather Service

