

National Weather Service

2018-19 Winter Outlook &

Tools to Help You



Chris Strong
National Weather Service



Outline

- **Recent winters**
- **This winter's outlook**
- **Tools to help you**
 - **3-7 day *threat level***
 - **0-3 day *range of possibilities* for accumulation**
 - **Hour-by-hour forecast for your neighborhood**
 - **Social media**

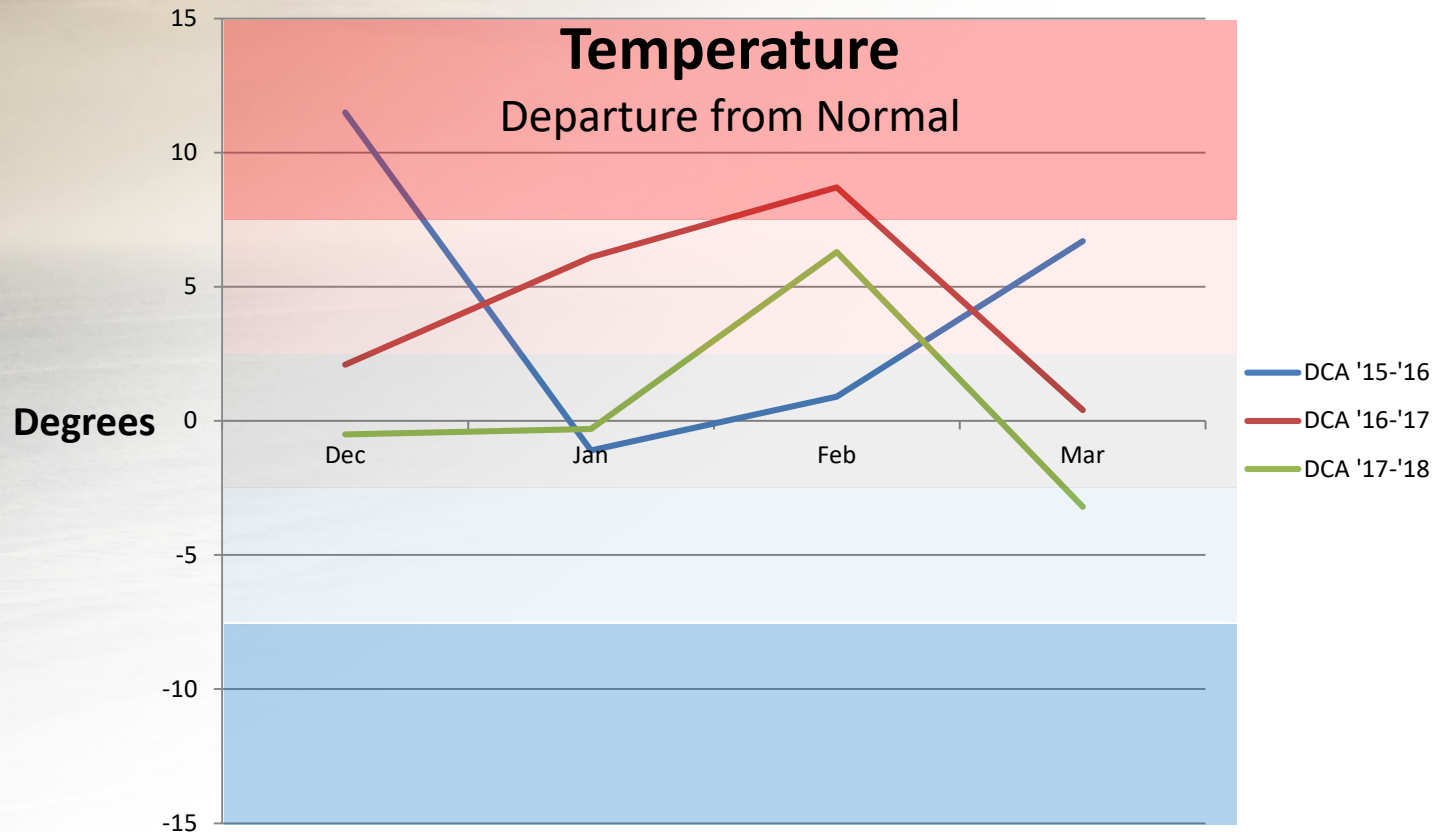
Recent Winters



Recent Winters

Past 3 Winters at Reagan National (DCA)

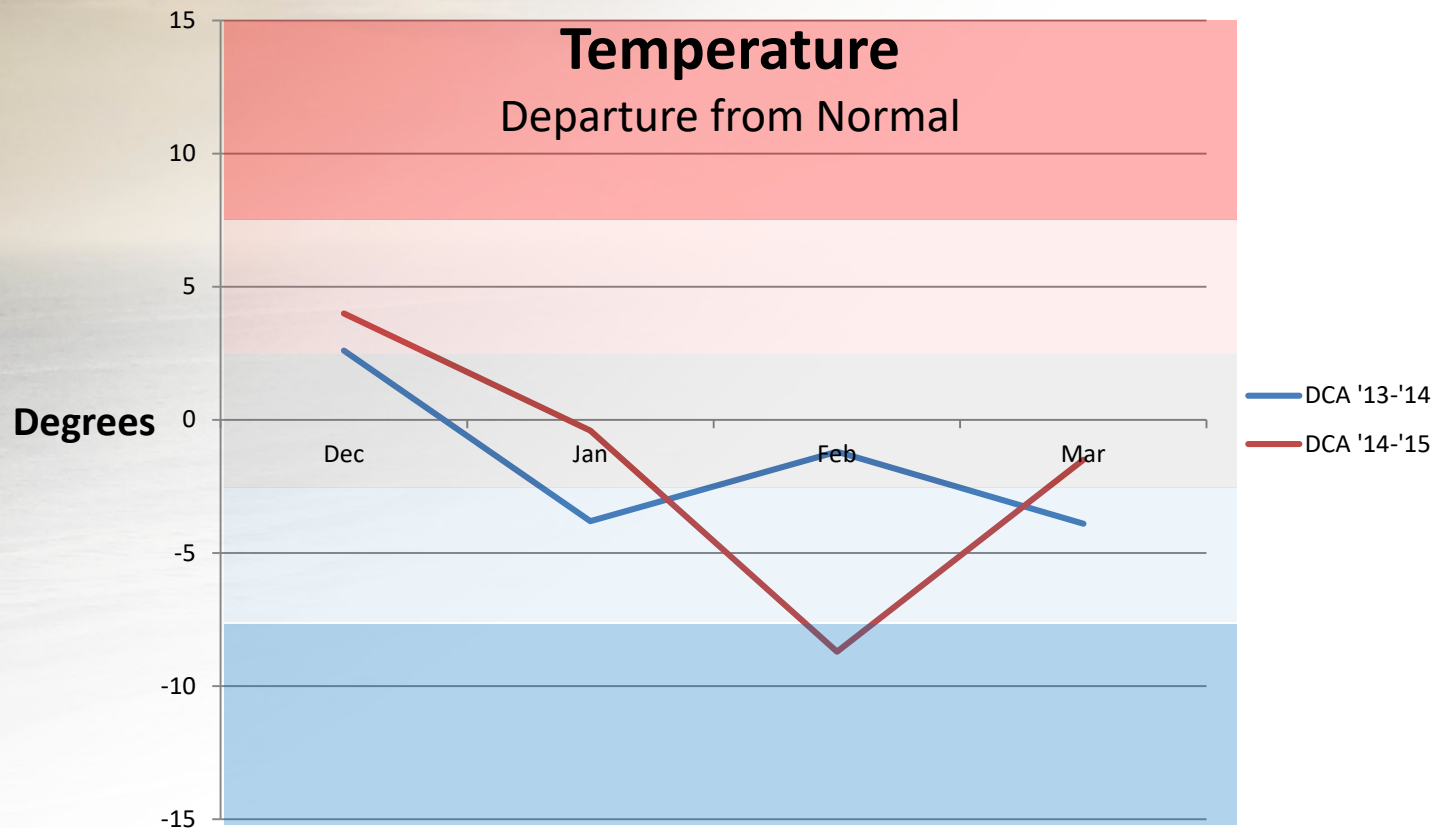
- **Mild**
- **Less than 12" of snow each...**
"except" Blizzard of Jan 2016



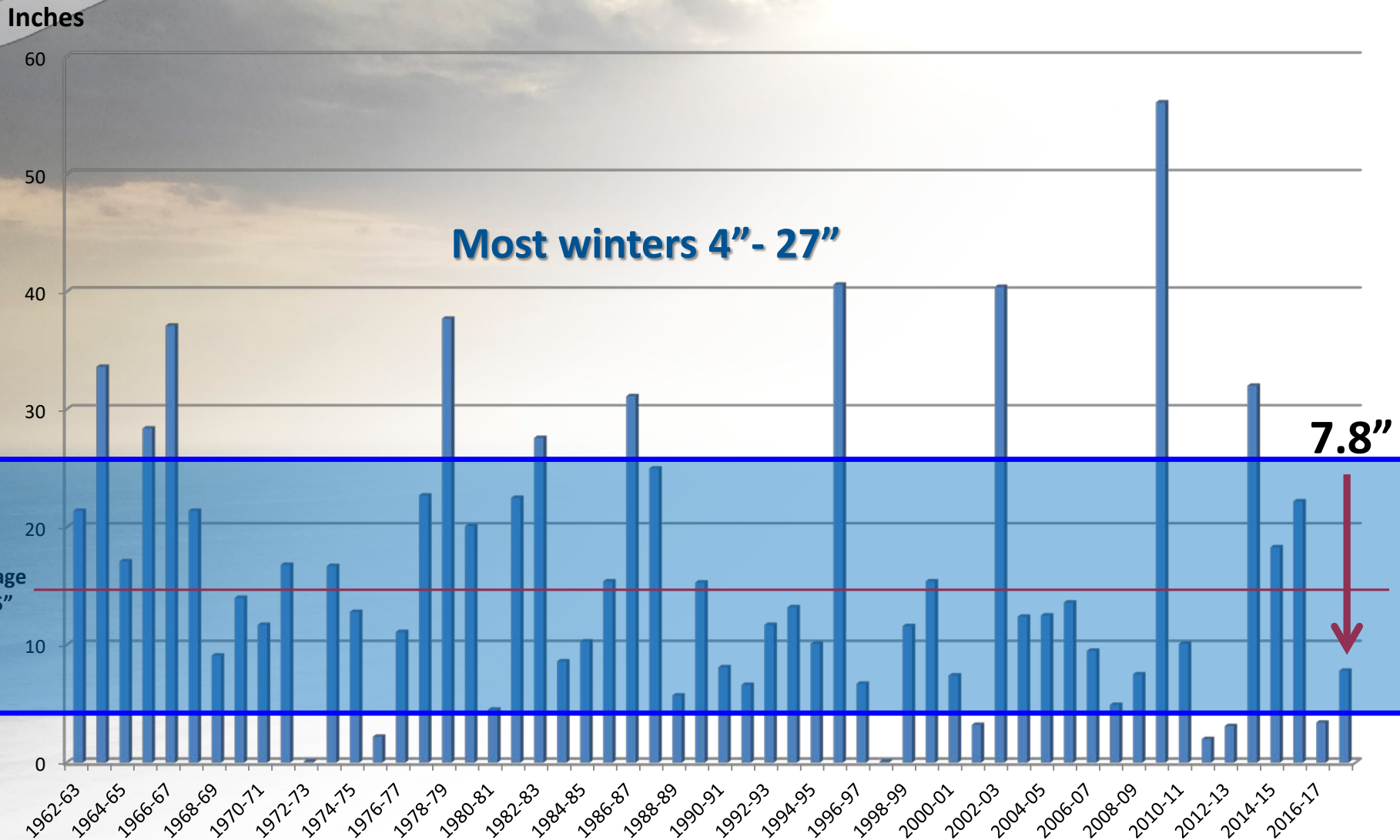
Recent Winters

4 & 5 Winters Ago (DCA)

- Cold...1.5' - 3' of snow each
- Many “activations”



DCA Annual Winter Snowfall



What is a “Normal” Winter

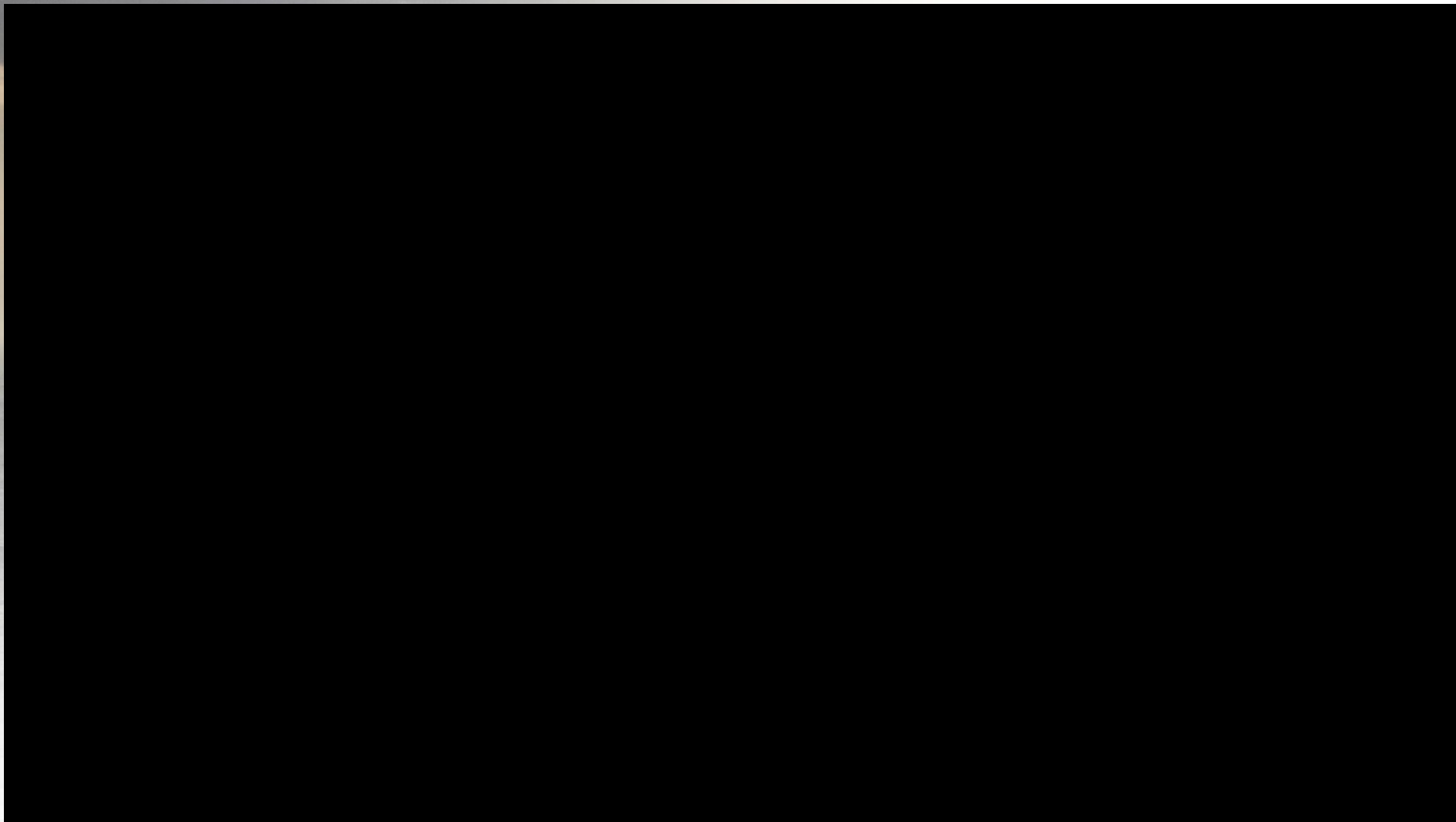
1981-2010

DCA	Nov	Dec	Jan	Feb	Mar
Temperature (High/Low)	58°/41°	47°/33°	43°/29°	47°/31°	56°/38°
Snowfall 14.5” total	0.5”	2.3”	5.6”	4.8”	1.3”



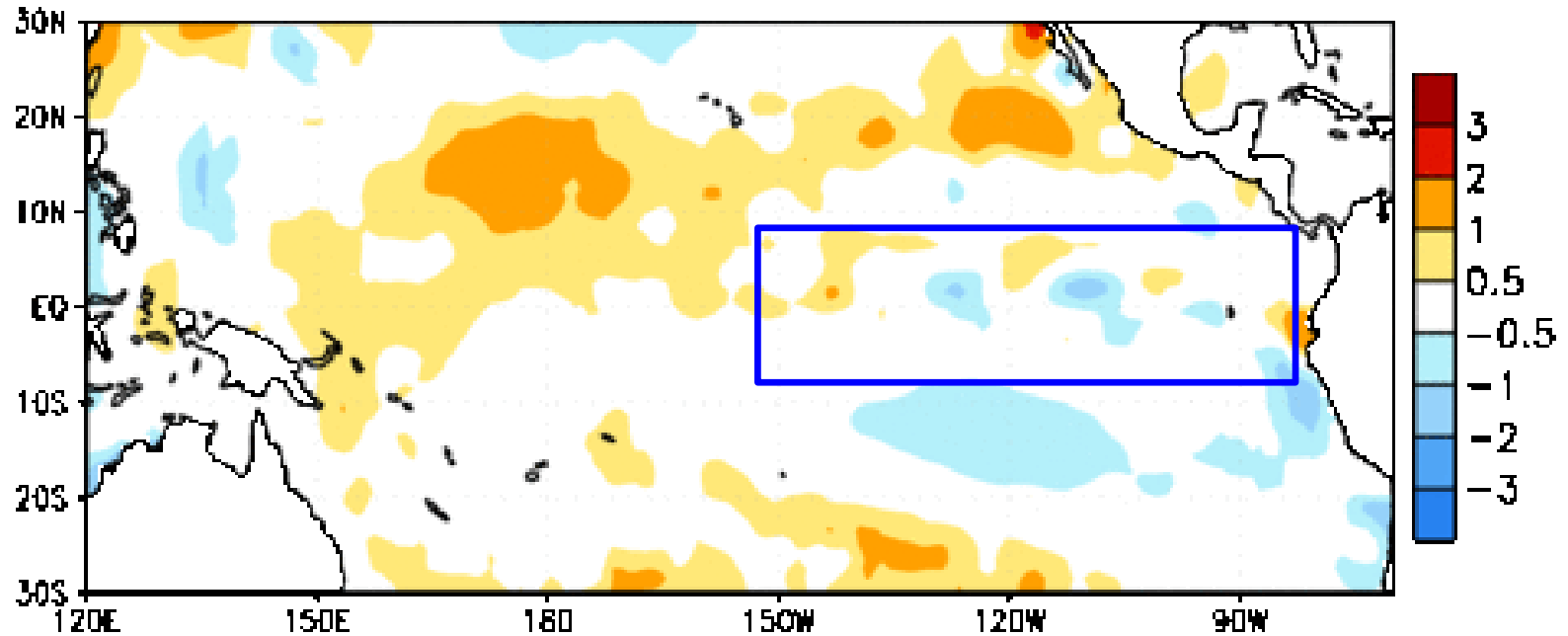
El Niño / La Niña Cycle

[Sea Surface Temperature \(Anomaly\)](#)



El Niño / La Niña Cycle

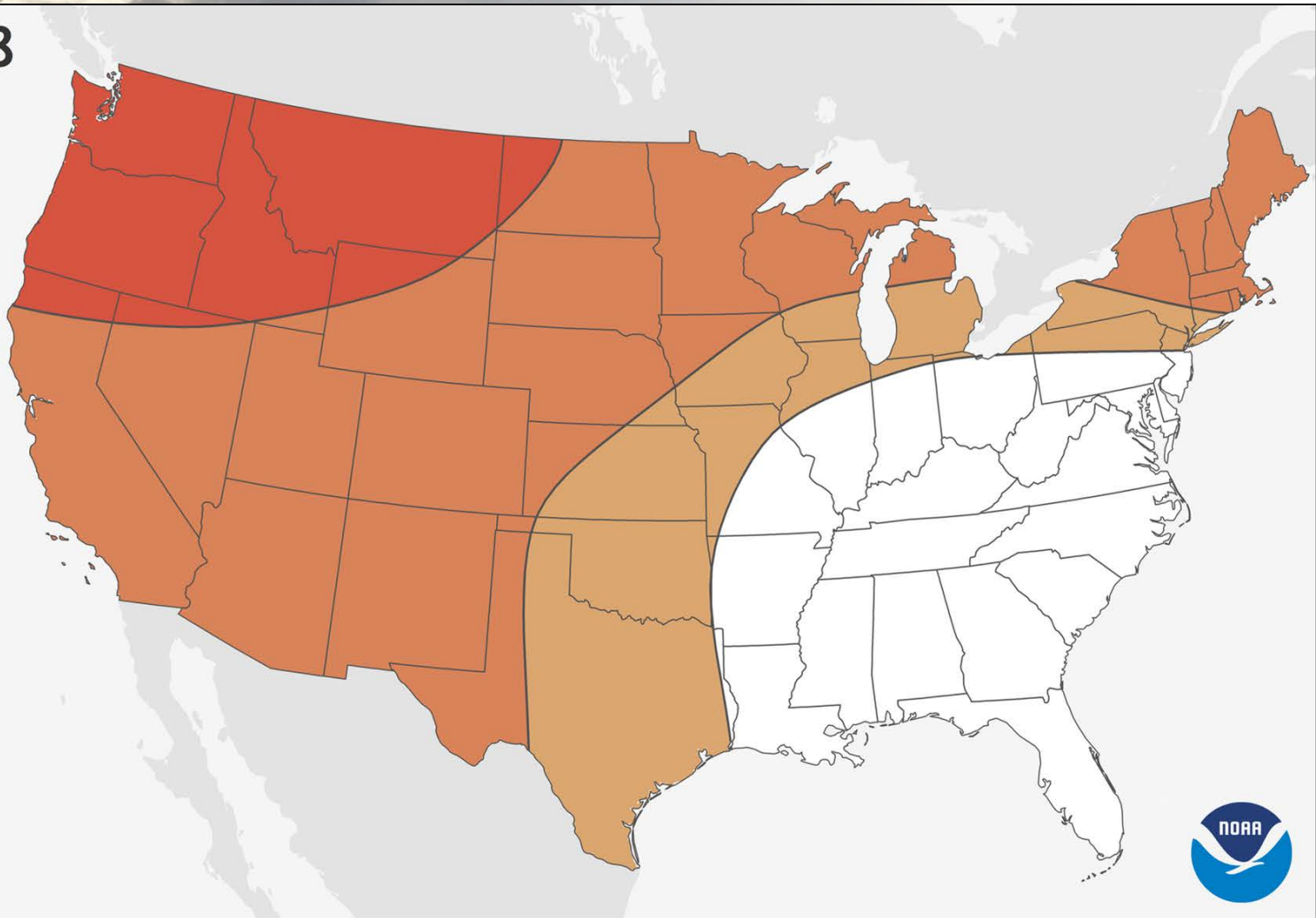
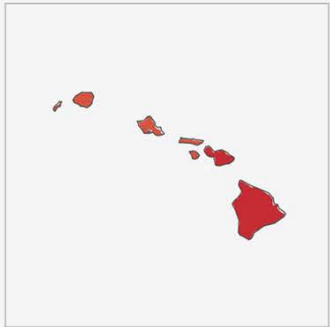
Week centered on 08 AUG 2018
SST Anomalies (°C)



Weak El Niño forecast this winter

Winter 2018

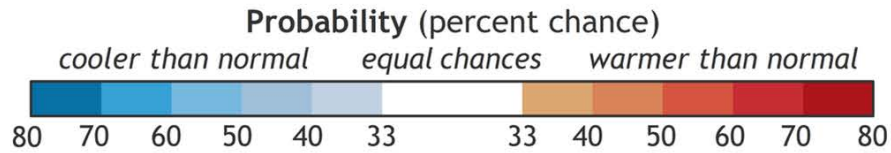
U.S. Temperature Outlook



AK and HI not to scale



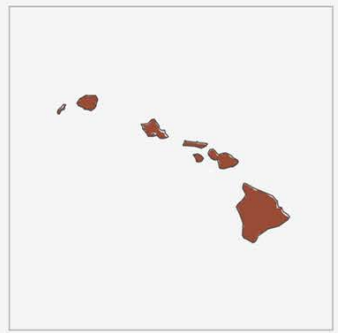
Temperature Outlook
for Dec 2018 - Feb 2019
Issued 18 October 2018



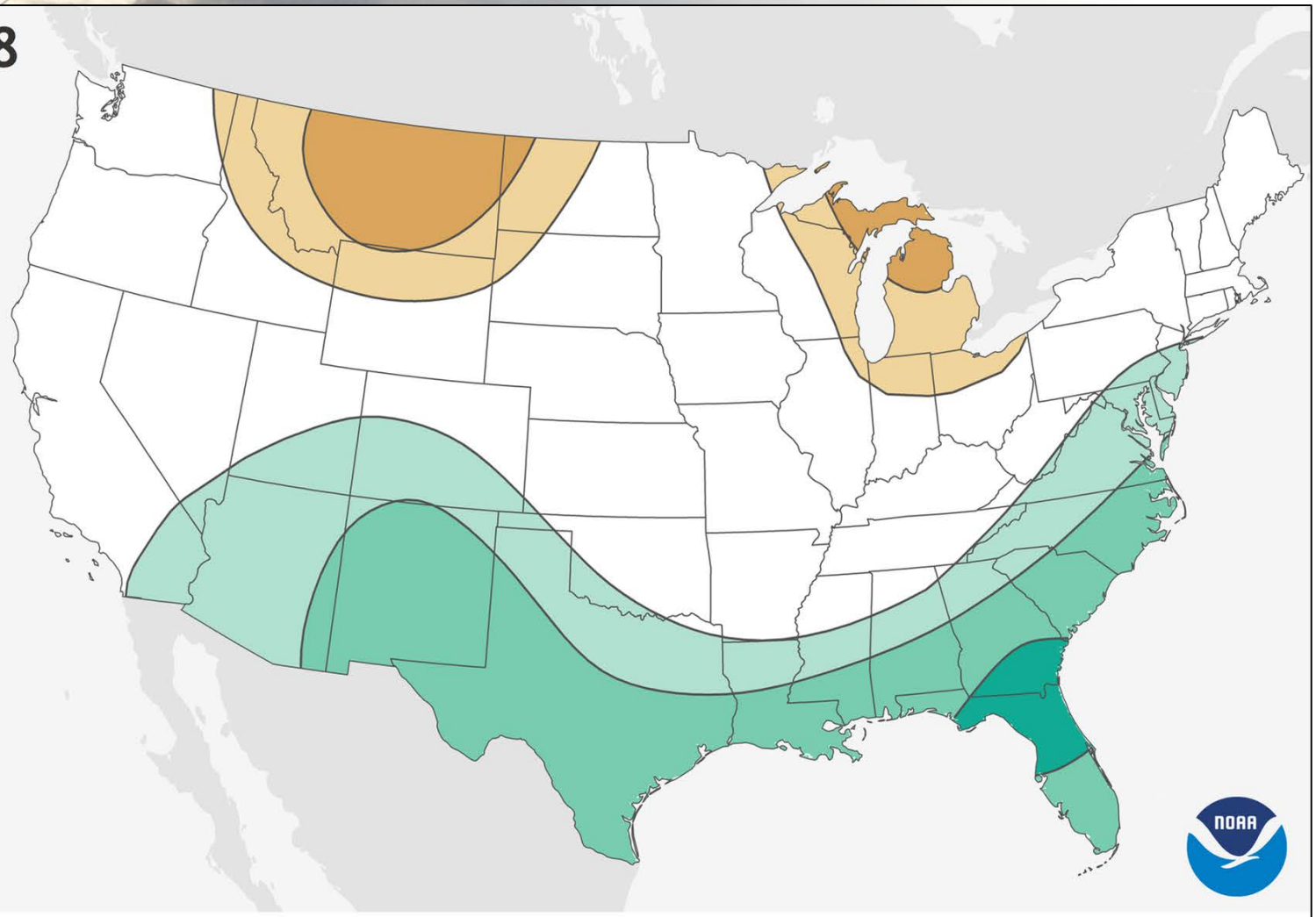
NWS Climate Prediction Center
Map by NOAA Climate.gov

Winter 2018

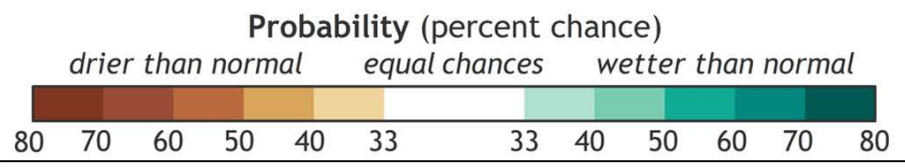
U.S. Precipitation Outlook



AK and HI not to scale



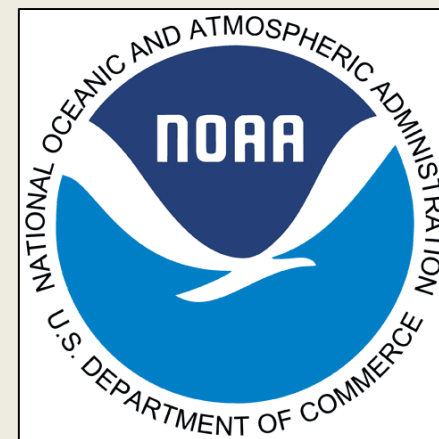
Precipitation Outlook
for Dec 2018 – Feb 2019
Issued 18 October 2018



NWS Climate Prediction Center
Map by NOAA Climate.gov

Winter Outlook 2018-19

- **El Niño/La Niña Cycle**
 - Forecast for weak El Niño
- **Mid-Atlantic Outlook:**
 - **Temperature**
 - Lesser chance of long-lasting cold
 - Fewer arctic outbreaks
 - **Precipitation**
 - Slight tilt towards more precipitation
 - Elevated chance for coastal storms





Communicating the
“Range of Possibilities”
to Improve Winter Decisions

A New Way of Forecasting Snow Through 7 Days



**Everything we will discuss is on our
NWS Winter Page**

www.weather.gov/washington/winter

Why Uncertainty?

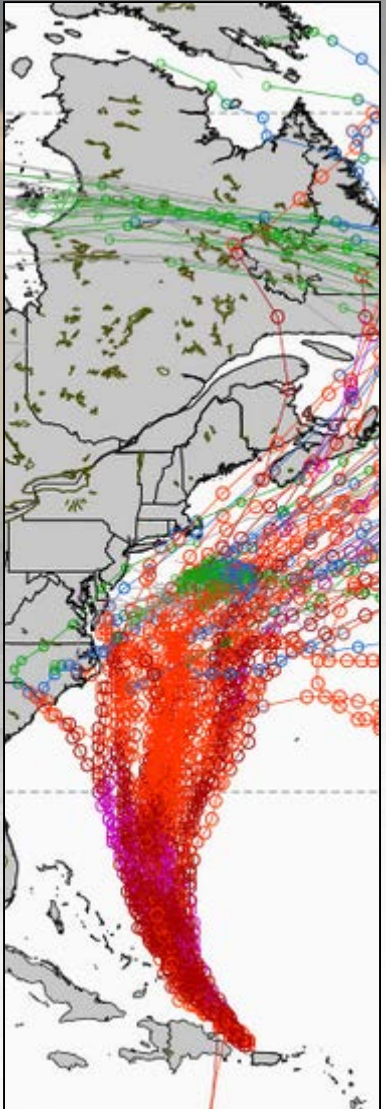
- **For winter precipitation threats...**
 - Dozens of international models
(not simply U.S. vs. European)
 - Looking further into the future, they become increasingly hazy on...
 - where -and-
 - how strong
 - ...next weather system will be

Let's look at one storm for example...

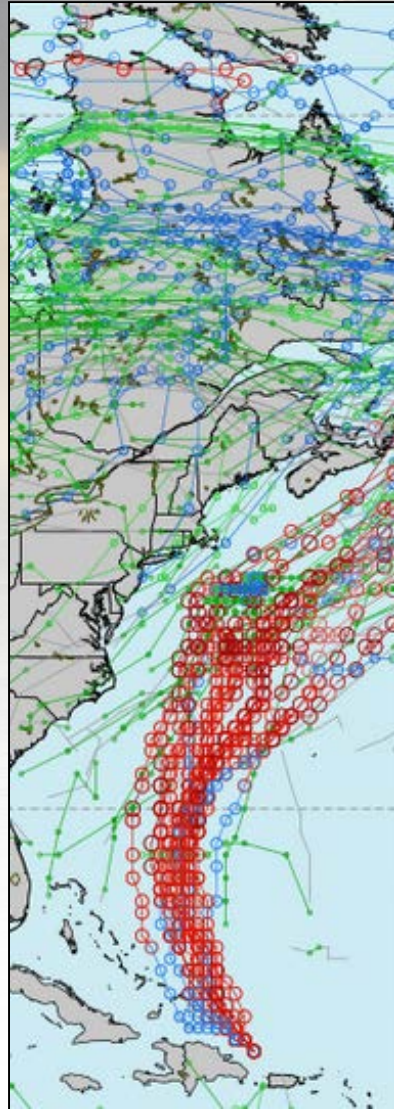
Why Uncertainty?

Dozens of Model Forecasts

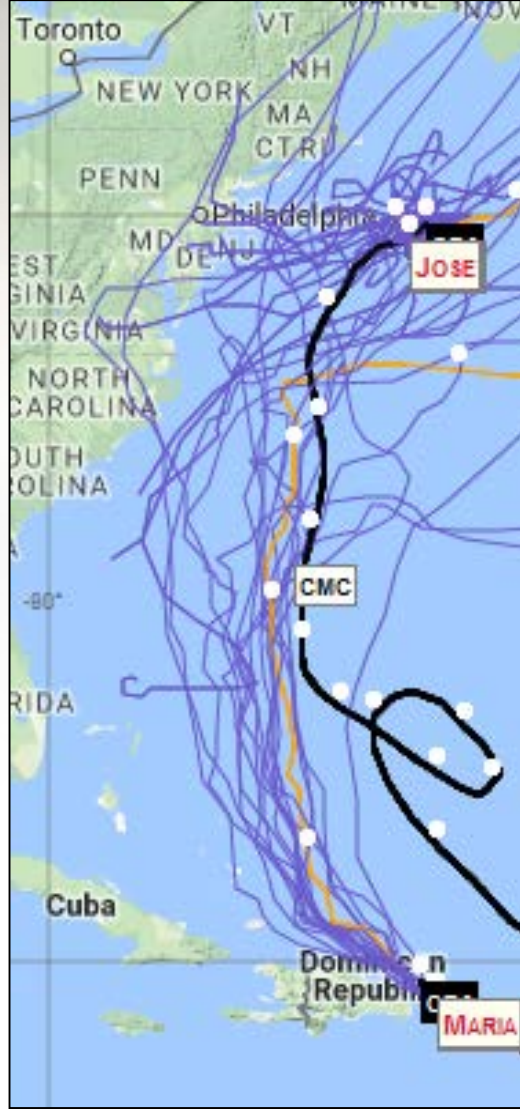
European



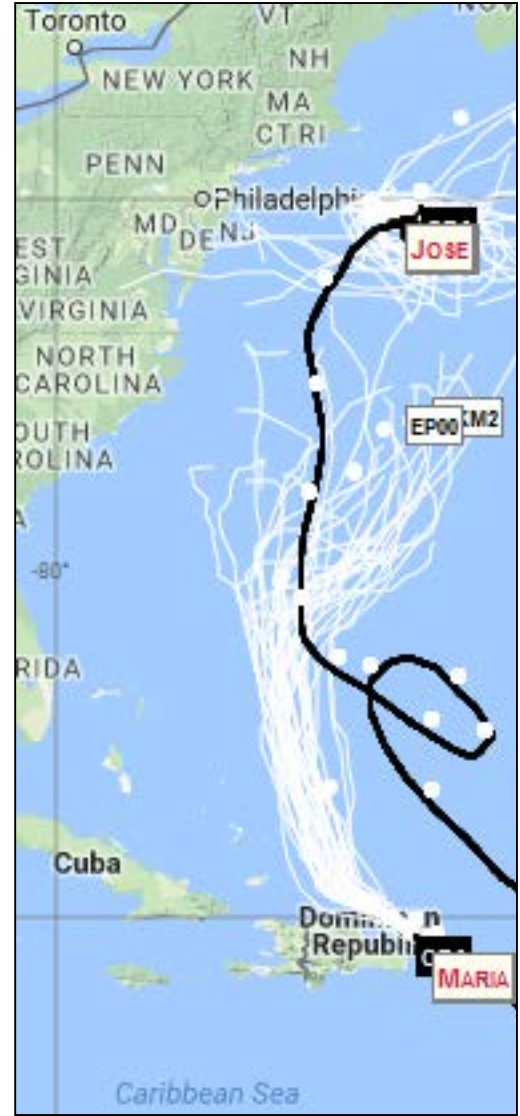
American



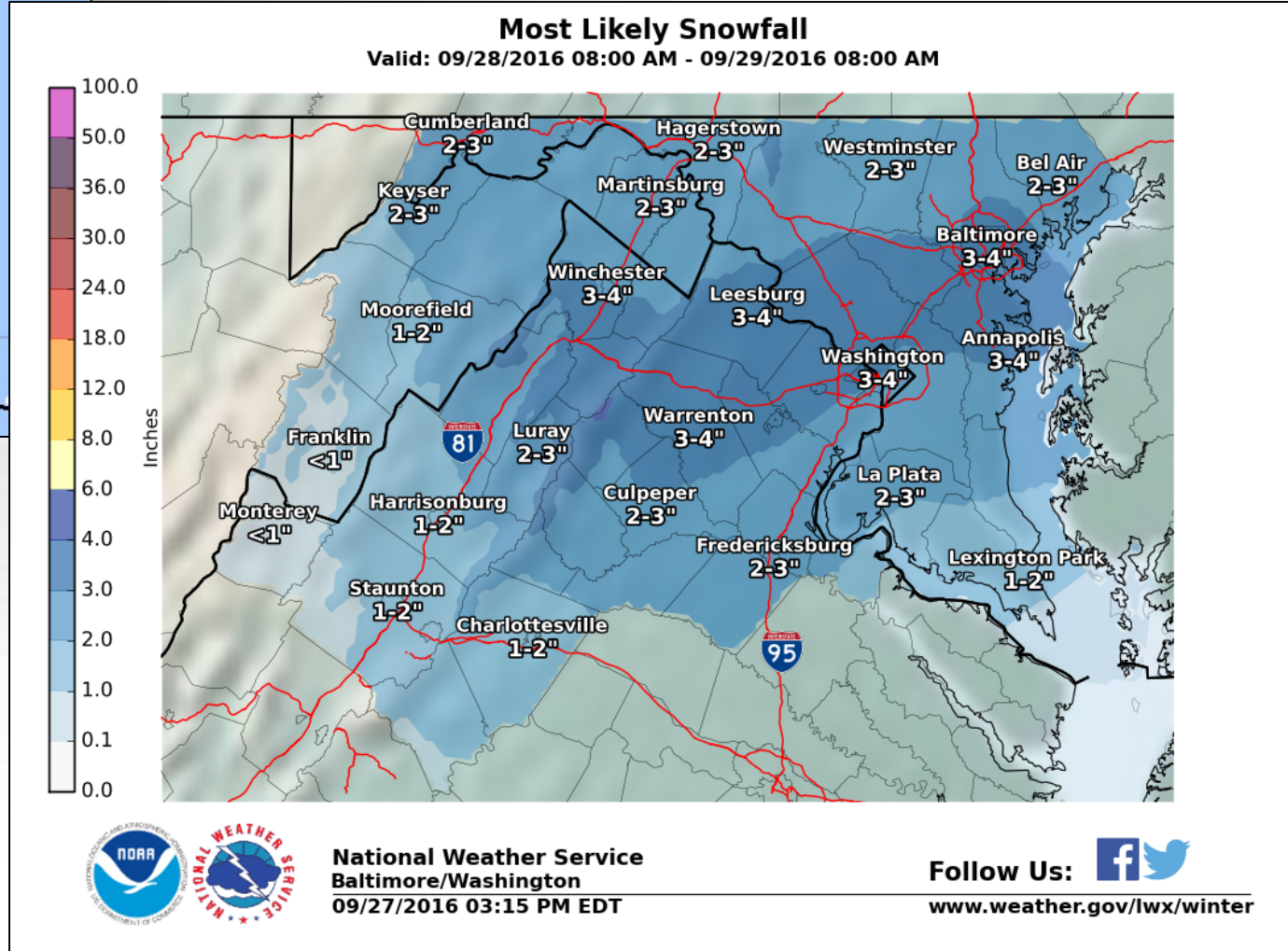
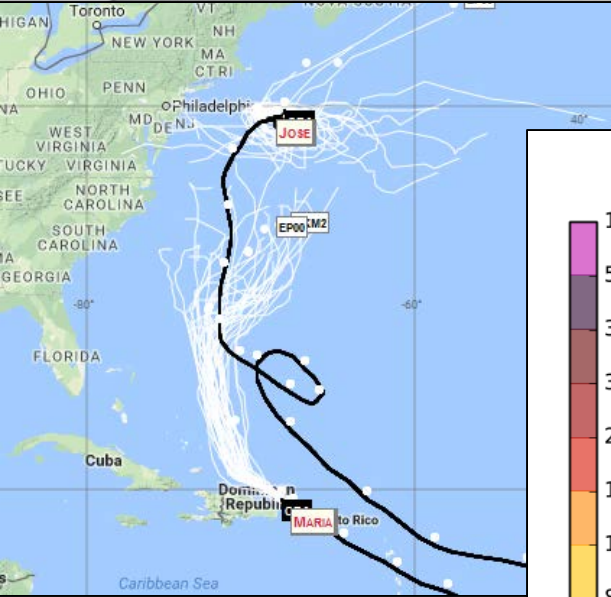
Canadian



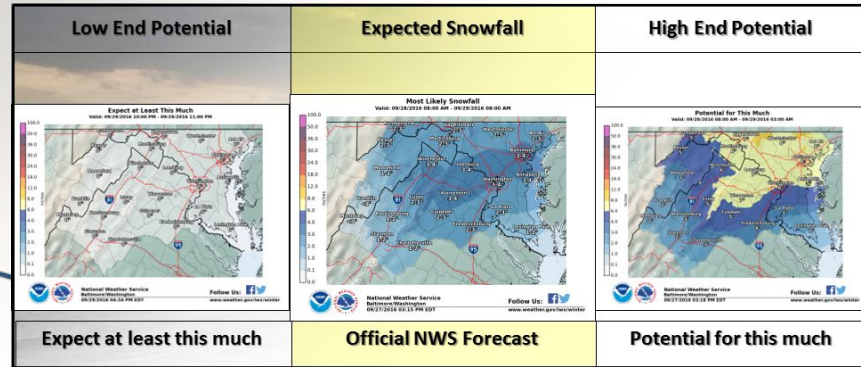
United Kingdom



Why pick one?



“Range of Possibilities” Shrinks & Level of Detail in Forecast Increases as event nears



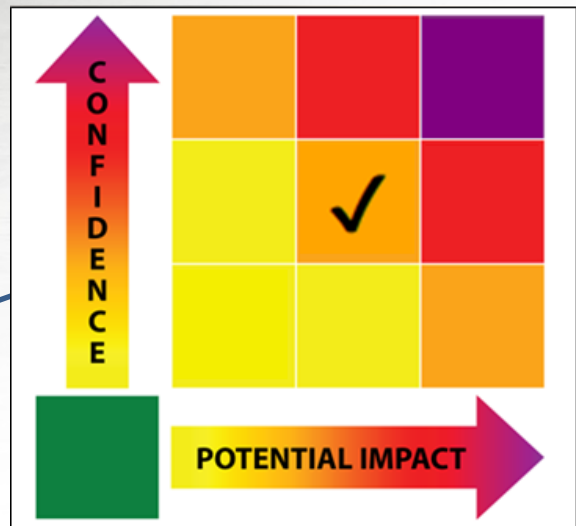
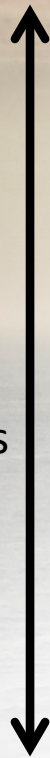
Threat Level

Possible Amounts



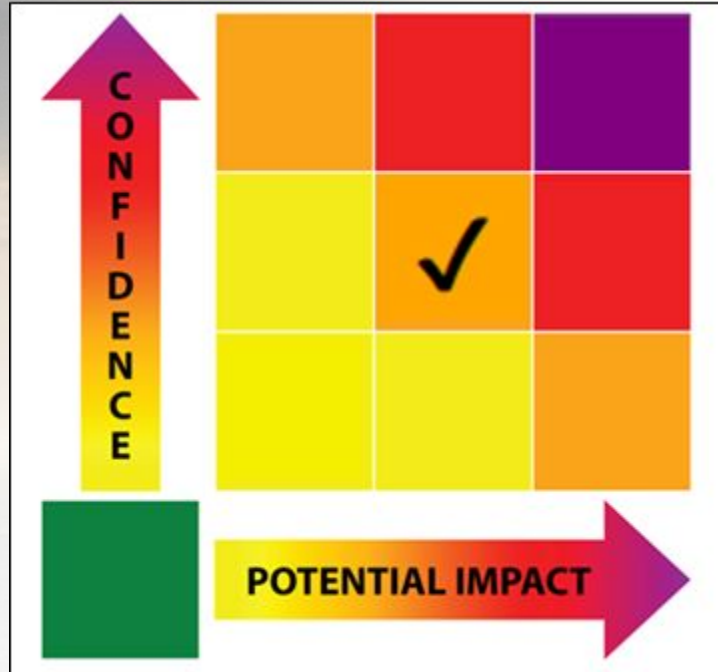
Small Weather,
BIG Impact

Range
of
Possibilities



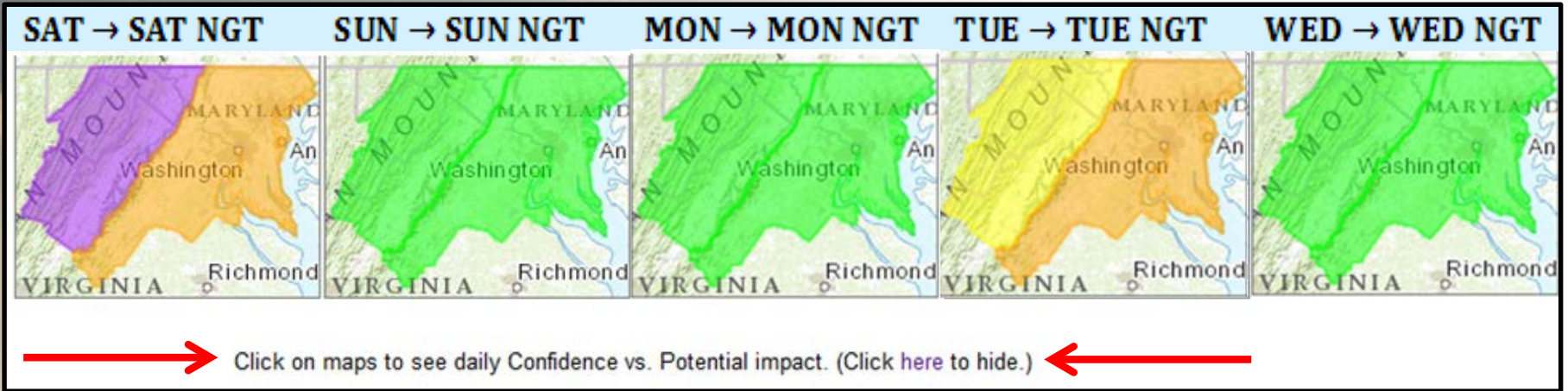
3-7 Days in Advance

Winter Storm Threat



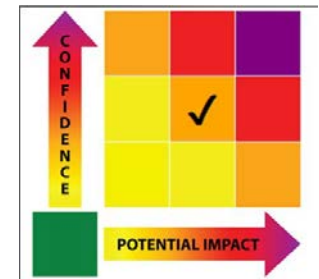
- Before accumulation #'s are reliable
- Not just “chance of snow”, but **how big a threat?**

3-7 Days in Advance Winter Storm Threat



T
H
R
E
A
T

High	High threat of high impact winter storm. Potential impacts include significant travel delays, closures, and threats to life and property. Plan ahead to minimize impact on you and your family.
Moderate	Moderate winter storm threat. Potential impacts include significant travel delays and closures. Plan ahead to minimize impact on you and your family.
Enhanced	Enhanced winter storm threat. Primary threat is disruption to travel.
Slight	Slight winter storm threat. May cause travel disruptions, particularly if threat increases.
None	No significant winter storm threat is currently expected. However, light wintry precipitation may still be possible.



3-7 Days in Advance Winter Storm Threat



- **A real-world example:
Mid-Atlantic Blizzard of Jan 2016**
 - 7 days of threat
 - Threat increased
 - “**High**” threat 4 days before first flakes

High	High threat of high impact winter storm. Potential impacts include significant travel delays, closures, and threats to life and property. Plan ahead to minimize impact on you and your family.
Moderate	Moderate winter storm threat. Potential impacts include significant travel delays and closures. Plan ahead to minimize impact on you and your family.
Enhanced	Enhanced winter storm threat. Primary threat is disruption to travel.
Slight	Slight winter storm threat. If threat materializes, may cause travel disruptions.
None	No significant winter storm threat is currently expected. However, light wintry precipitation may still be possible.

0-3 Days in Advance

Range of Possibilities – Snow Accumulation



- Provide the “Goal Posts” of what *could* happen
 - Limits surprises
- Better decisions, based on fuller set of information
- Leads to less impact on the economy & society

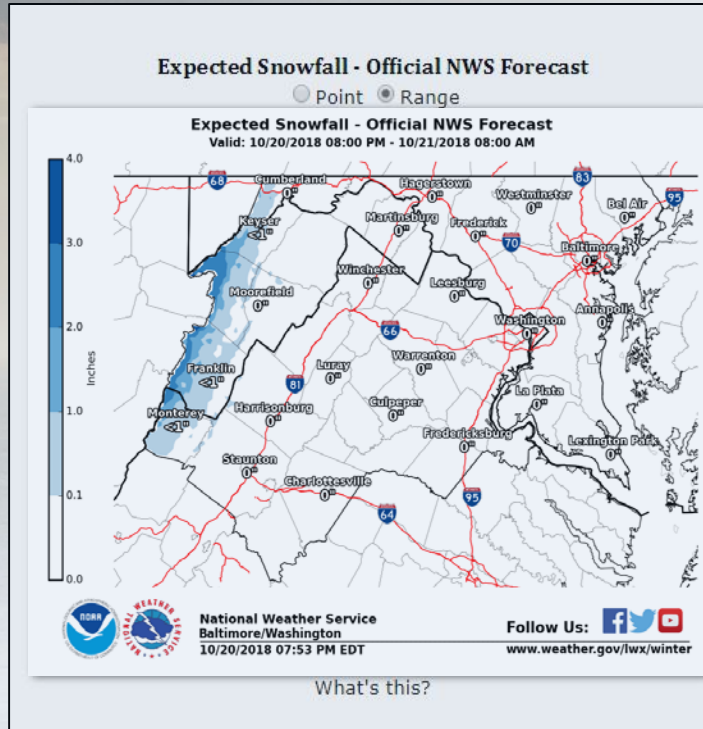
0-3 Days in Advance

Range of Possibilities – Snow Accumulation

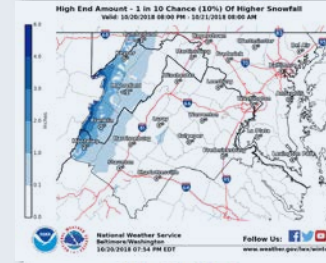
Current Snowfall Expectation

What our forecasters expect now.

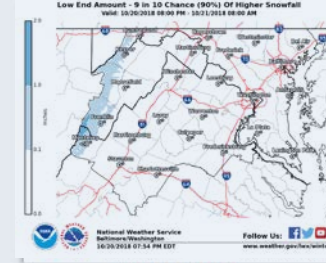
Based on the latest, constantly-evolving models



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



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



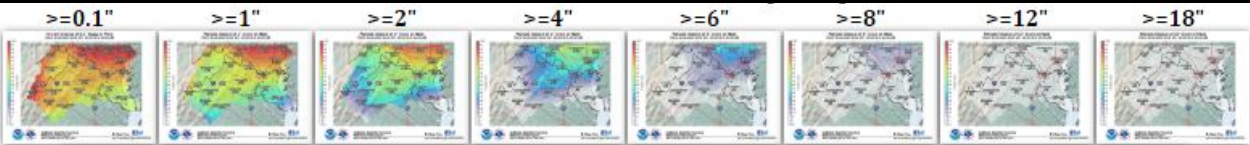
High-End Potential

How much/little could it be, given what some models still show

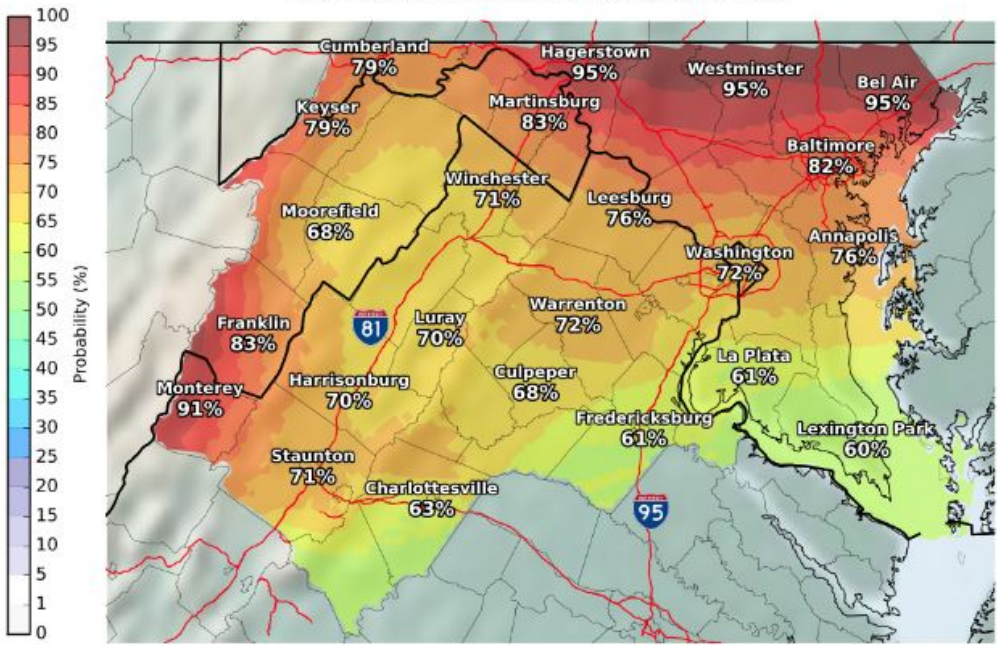
Low-End Potential

0-3 Days in Advance

Range of Possibilities – Snow Accumulation



Percent Chance of 0.1" Snow or More
Valid: 09/28/2016 08:00 AM - 09/29/2016 03:00 AM



Chance snow will be greater than...

For contracts / decisions that activate at x" of snow



National Weather Service
Baltimore/Washington
09/27/2016 03:19 PM EDT

Follow Us:  
www.weather.gov/lwx/winter

0-3 Days in Advance

Range of Possibilities – Snow Accumulation

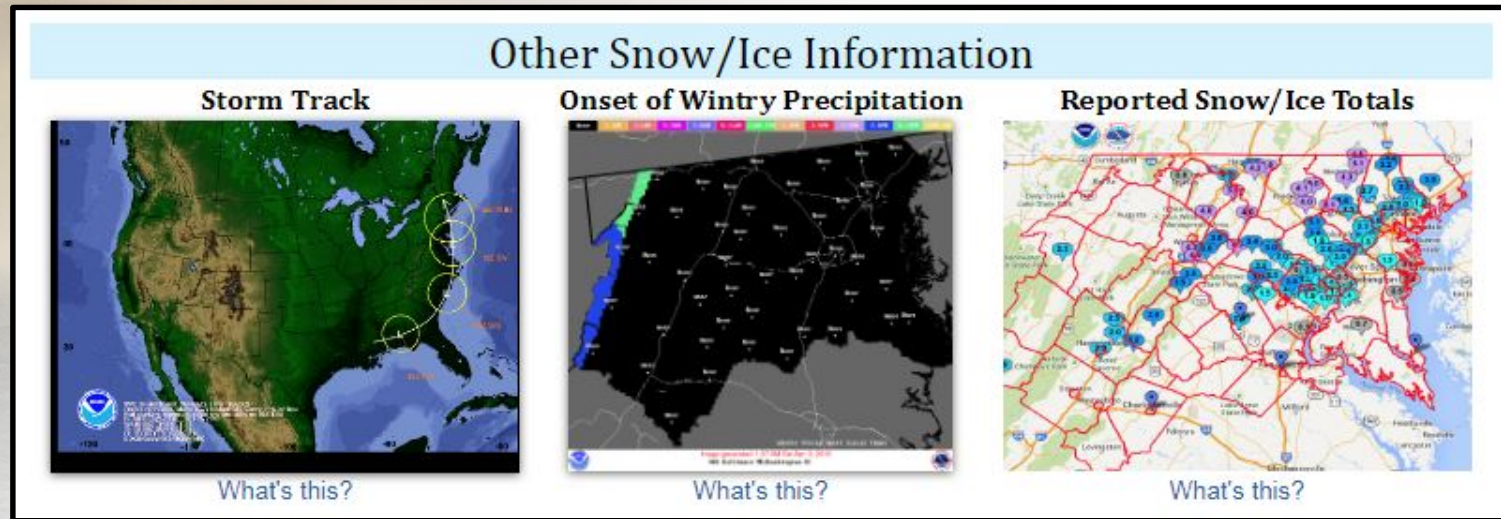
Table of snow information for your area

Chance of Snow Accumulation											
Experimental - Leave feedback 02/21/2015 0700PM to 02/22/2015 0700PM What's this?											
County: <input type="text"/>											
Location	Min	Likely	Max	>=0.1"	>=1"	>=2"	>=4"	>=6"	>=8"	>=12"	>=18"
Charlottesville, VA	0	2	4	79%	61%	44%	13%	1%	0%	0%	0%
Staunton, VA	0	4	8	89%	81%	72%	49%	25%	8%	0%	0%
Winchester, VA	<1	4	7	94%	85%	78%	55%	26%	5%	0%	0%
Harrisonburg, VA	<1	4	7	93%	84%	76%	51%	22%	4%	0%	0%
Fredericksburg, VA	0	1	2	72%	43%	16%	0%	0%	0%	0%	0%
Martinsburg, WV	2	6	9	96%	93%	87%	71%	47%	21%	0%	0%
Bayard, WV	<1	7	12	93%	87%	83%	73%	58%	43%	12%	0%
Frederick, MD	<1	4	7	94%	85%	76%	50%	19%	3%	0%	0%
National Mall, DC	0	2	3	87%	63%	39%	3%	0%	0%	0%	0%
Leonardtown, MD	0	0	1	44%	4%	0%	0%	0%	0%	0%	0%
Inner Harbor, MD	0	2	4	88%	70%	49%	9%	0%	0%	0%	0%
Hagerstown, MD	2	6	9	98%	96%	91%	75%	47%	19%	0%	0%

0-3 Days in Advance

Range of Possibilities – Snow Accumulation

Other information...



Where is storm coming from?

When will it start?

How much has fallen?

0-1 Days in Advance

Potential Winter Commuting Hazard

Recipe for Traffic Disaster

- 1" or less of snow
- During urban rush hour
- Sub-freezing road temperatures



Together, these often create gridlock.

But typically...

Road crew's plan & response time > "Confident forecast" lead-time

0-1 Days in Advance

Potential Winter Commuting Hazard

w/ D.O.T. Notification Calls ~24hrs in Advance

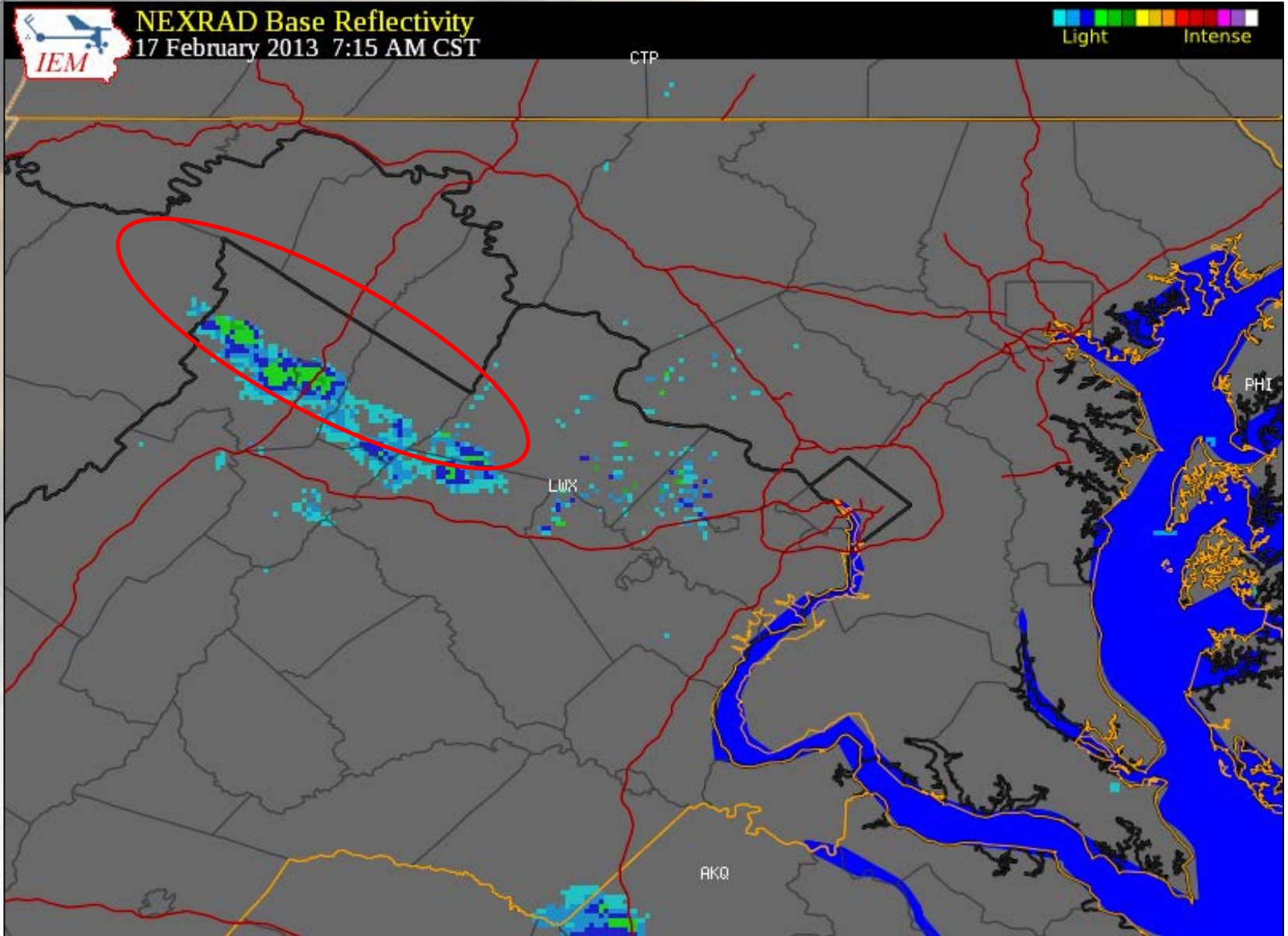
...POTENTIAL WINTER COMMUTING HAZARD STATEMENT FOR THE WASHINGTON METRO AREA TUESDAY MORNING.....

There is a POSSIBILITY for icy commuting conditions Tuesday morning. A period of snow is POSSIBLE (30 percent) across the Washington metro area during rush hour, with up to an inch of snow accumulation possible on sub-freezing roads.

If this threat does materialize during Tuesday morning rush-hour, untreated roads would turn icy. This could lead to hazardous commuting conditions, with extensive delays.

The most important action at this point is to stay informed. Know what you would do if this threat materializes, and plan accordingly. Stay tuned for updates and possible winter weather advisories.

0-1 Days in Advance Snow Squall Warning



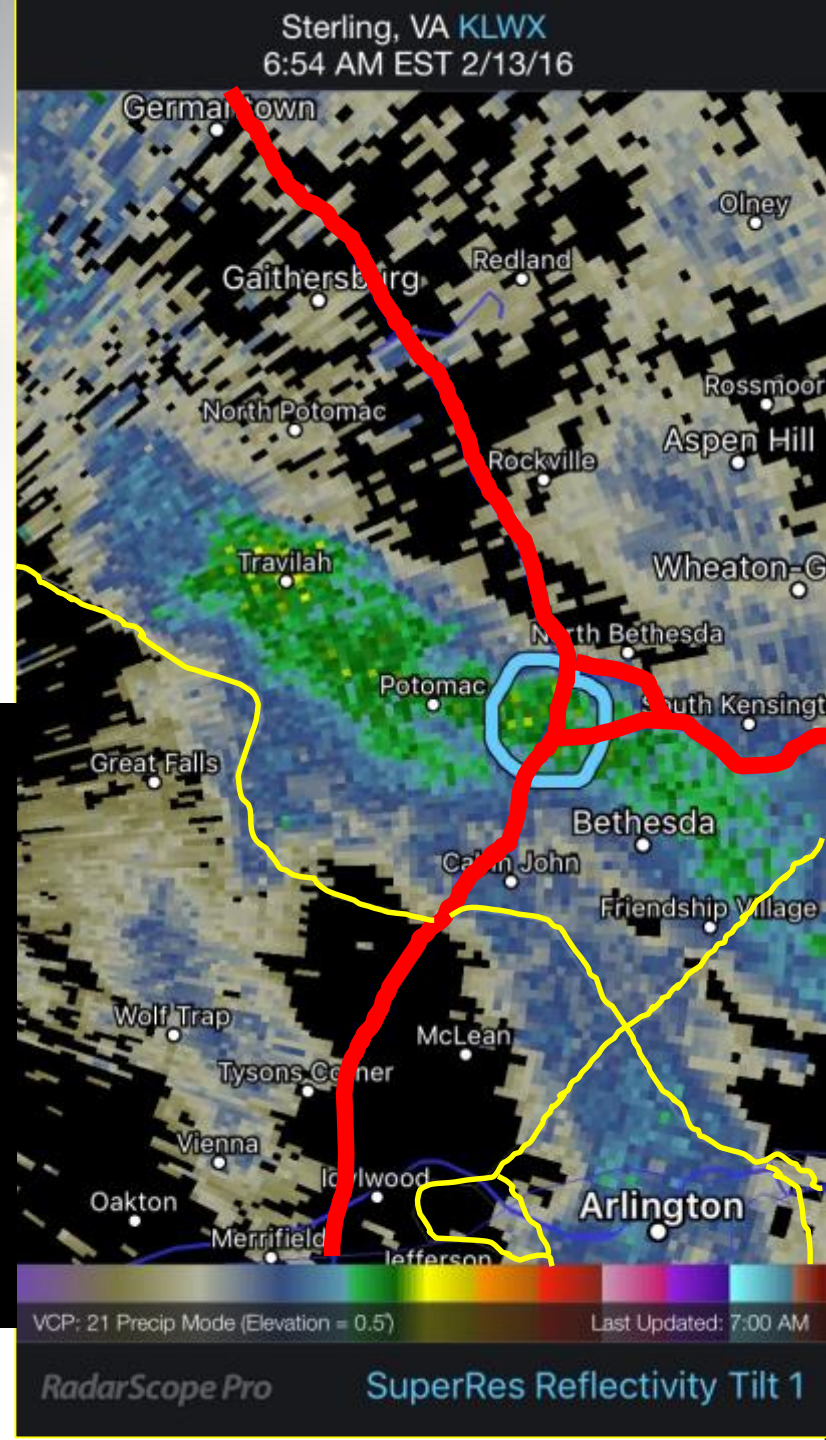
0-1 Days in Advance Snow Squall Warning

Frequently cause multi-vehicle crashes



0-1 Days in Advance Snow Squall Warning

Saturday Morning
Feb 13, 2016



0-1 Hour in Advance Snow Squall Warning



- Issued when we see it forming
- Typically last 30-60 minutes
- Sub-freezing road temperatures
- High-speed highways/interstates

weather.gov/washington

NATIONAL WEATHER SERVICE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

HOME FORECAST PAST WEATHER SAFETY INFORMATION EDUCATION NEWS SEARCH ABOUT

Local forecast by "City, St" or ZIP code
Enter location
[Location Help](#)

News Headlines

- [Click for our winter page. Tracks snow/ice threats through the next 7 days](#)
- [SKYWARN Spotter Classes: Become a spotter for us. New fall classes have been added. Click here for more info.](#)

NWS Forecast Office Baltimore/Washington
Baltimore/Washington
Weather Forecast Office

[Weather.gov](#) > Baltimore/Washington

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

Click a location below for detailed forecast.

Customize Your Weather.gov

City, ST

Enter Your City, ST or ZIP Code

Remember Me

[Privacy Policy](#)

[Watches, Warnings & Advisories](#)

[Small Craft Advisory](#)

[Hazardous Weather Outlook](#)

Last Map Update: Thu, Oct. 25, 2018 at 2:32:27 pm EDT

Type-in or Click Your Location

Current conditions at **Washington/Reagan National Airport, DC (KDCA)**

Lat: 38.86°N Lon: 77.03°W Elev: 13ft.



Overcast
53°F
12°C

Humidity 45%
Wind Speed W 8 G 17 mph
Barometer 30.16 in (1021.4 mb)
Dewpoint 32°F (0°C)
Visibility 10.00 mi
Wind Chill 50°F (10°C)
Last update 25 Oct 1:52 pm EDT

More Information:
[Local Forecast Office](#)
[More Local Wx](#)
[3 Day History](#)
[Mobile Weather](#)
[Hourly Weather Forecast](#)

Extended Forecast for **Washington DC**

This Afternoon	Tonight	Friday	Friday Night	Saturday	Saturday Night	Sunday	Sunday Night	Monday
Mostly Cloudy	Mostly Cloudy	Cloudy then Rain	Rain	Rain Likely	Cloudy	Mostly Cloudy	Chance Showers	Chance Showers
High: 55 °F	Low: 42 °F	High: 52 °F	Low: 48 °F	High: 56 °F	Low: 46 °F	High: 59 °F	Low: 46 °F	High: 58 °F

Detailed Forecast

This Afternoon	Mostly cloudy, with a high near 55. Northwest wind around 7 mph.
Tonight	Mostly cloudy, with a low around 42. Light and variable wind.
Friday	Rain after 2pm. High near 52. East wind around 6 mph. Chance of precipitation is 80%. New precipitation amounts between a tenth and quarter of an inch possible.
Friday Night	Rain. Low around 48. Northeast wind 11 to 13 mph, with gusts as high as 21 mph. Chance of precipitation is 90%. New precipitation amounts between a half and three quarters of an inch possible.
Saturday	Rain likely before 2pm. Cloudy, with a high near 56. North wind around 10 mph. Chance of precipitation is 60%.
Saturday Night	Cloudy, with a low around 46.
Sunday	Mostly cloudy, with a high near 59.
Sunday Night	A chance of showers. Mostly cloudy, with a low around 46. Chance of precipitation is 50%.
Monday	A chance of showers. Partly sunny, with a high near 58. Chance of precipitation is 40%.
Monday Night	Mostly cloudy, with a low around 41.
Tuesday	Mostly sunny, with a high near 56.
Tuesday Night	Partly cloudy, with a low around 41.
Wednesday	Mostly sunny, with a high near 59.

Additional Forecasts and Information

Topographic
Click Map For Forecast



Point Forecast: Washington DC
38.89°N 77.02°W (Elev. 20 ft)

Last Update: 1:31 pm EDT Oct 25, 2018

This Afternoon	Mostly cloudy, with a high near 55. Northwest wind around 7 mph.
Tonight	Mostly cloudy, with a low around 42. Light and variable wind.
Friday	Rain after 2pm. High near 52. East wind around 6 mph. Chance of precipitation is 80%. New precipitation amounts between a tenth and quarter of an inch possible.
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Tuesday Night	Partly cloudy, with a low around 41.
Wednesday	Mostly sunny, with a high near 59.

Additional Forecasts and Information

[ZONE AREA FORECAST FOR DISTRICT OF COLUMBIA, DC](#)

[Forecast Discussion](#)
[Printable Forecast](#)
[Text Only Forecast](#)

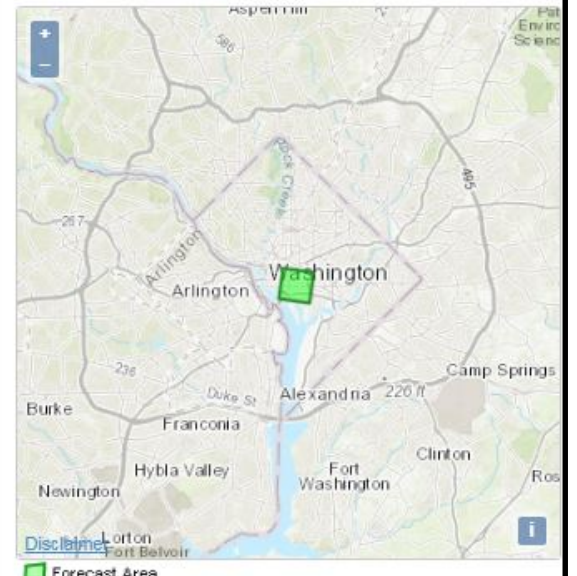
[Hourly Weather Forecast](#)
[Tabular Forecast](#)

[Air Quality Forecasts](#)
[International System of Units](#)
[About Point Forecasts](#)

[Hazardous Weather Briefing Page](#)

[Past Weather Information](#)
[Interactive Forecast Map](#)

[Home](#)



Forecast Area

Point Forecast: Washington DC
 38.89°N 77.02°W (Elev. 20 ft)

Last Update: 1:31 pm EDT Oct 25, 2018

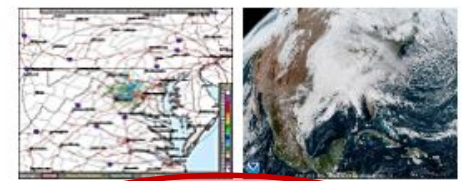
Forecast Valid: 2pm EDT Oct 25, 2018-6pm EDT Oct 31, 2018

[Forecast Discussion](#)

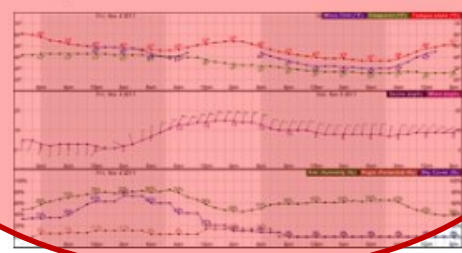
[KML](#) [XML](#)

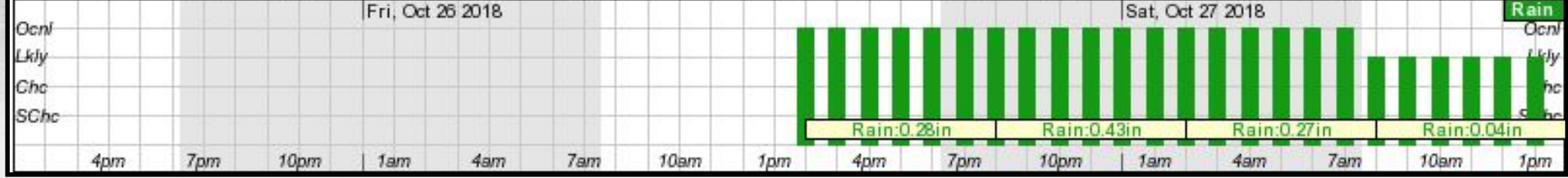
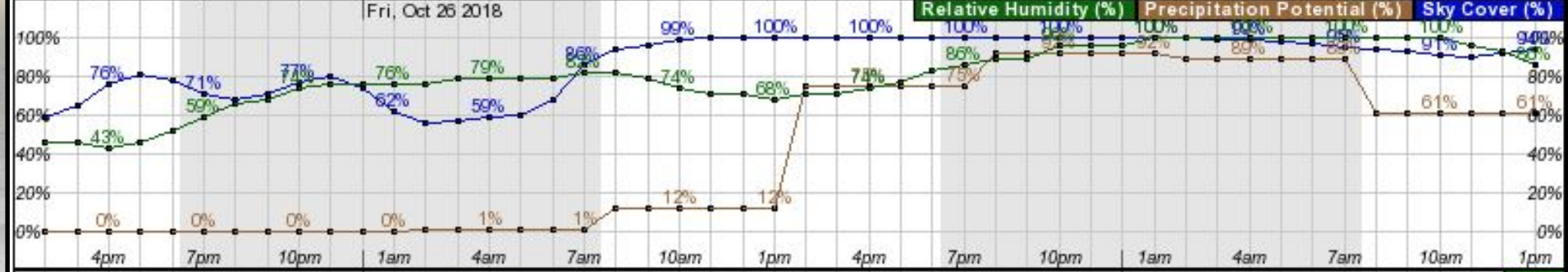
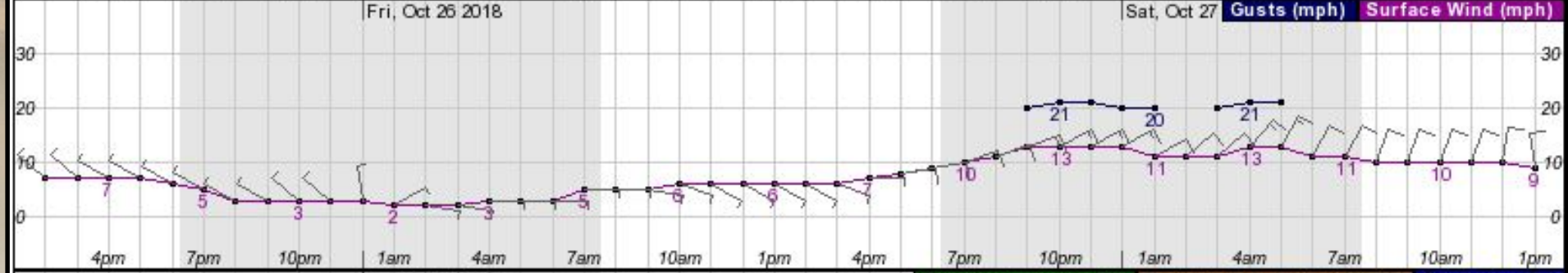
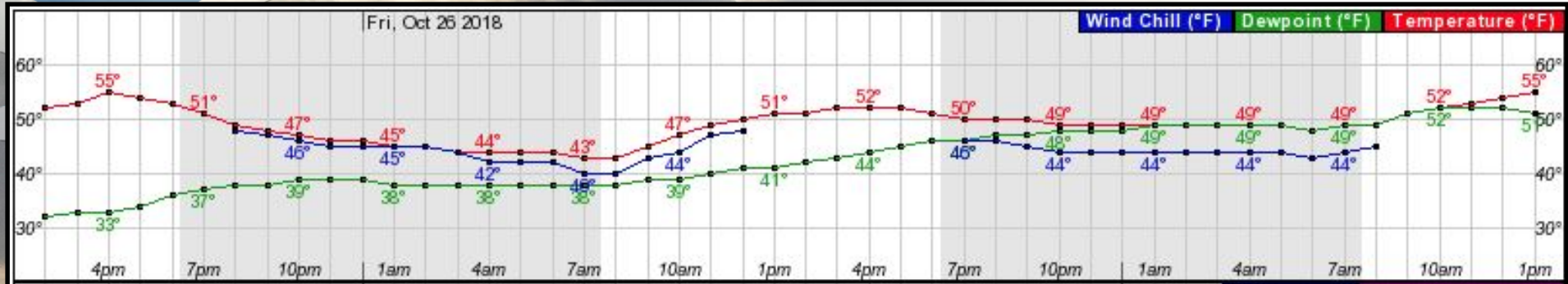
Additional Resources

Radar & Satellite Image



Hourly Weather Forecast







**Again,
everything we have discussed is on our**

NWS Winter Page

www.weather.gov/washington/winter

Where you can go to get info.

But what about info pushed to you?

iNWS Text Alerts

- NWS Watch/Warning/Advisories immediately
- Highly recommended
- Customize it for you

To Register

Google **iNWS**

The screenshot displays the iNWS mobile application interface. At the top, the status bar shows AT&T 4G, 9:48 AM, and a battery icon. Below the status bar, the title "InteractiveNWS - Alert Information" is centered. A search bar contains the URL "inws.wrh.noaa.gov/weat" and a "Google" button. Navigation links for "Home", "My Alerts", "FAQ", and "About" are visible. The main content area features the heading "Interactive NWS Alert Information" and a "New Event for Fairfax County Severe Thunderstorm Warning" valid from Aug 5 5:31 PM to 6:15 PM EDT. A radar map shows the alert area in Fairfax County, Virginia, with a "User Alert Area" highlighted. Below the map, the text "Radar Time: Aug 5 2012 5:30 PM EDT" is displayed. The bottom of the screen shows a navigation bar with back, forward, home, and search icons, along with a notification icon showing the number 5.

Social Media

The screenshot shows the Facebook interface for the US National Weather Service Baltimore/Washington page. The page header includes the Facebook logo, a search bar, and the user's name 'Chris Strong' with a 'Home' button. The page title is 'US National Weather Service Baltimore/Washington' with a 'Like' button and a 'Create a Page' button. The page is categorized as a 'Government Organization' in 'Sterling, Virginia'. The main content area features a post from the 'US National Weather Service' with a photo gallery of winter scenes. The post text reads: 'With the recent October snow across the area, many people have been interested in finding out information about previous October snows. With this link, you can find climate information such as past snowfalls. This data consists of not only official climate sites but also volunteer cooperative observers.' Below the text is a link to 'National Weather Service Sterling' with the URL 'www.nws.noaa.gov'. The post has 86 likes, 22 comments, and 2 shares. The right sidebar shows 'You and US National Weather Service Baltimore/Washington' with 5 friends who liked the post. Below that are 'Recommendations from Friends' and 'People You May Know' sections.



NWSBaltWash

Existing Communication

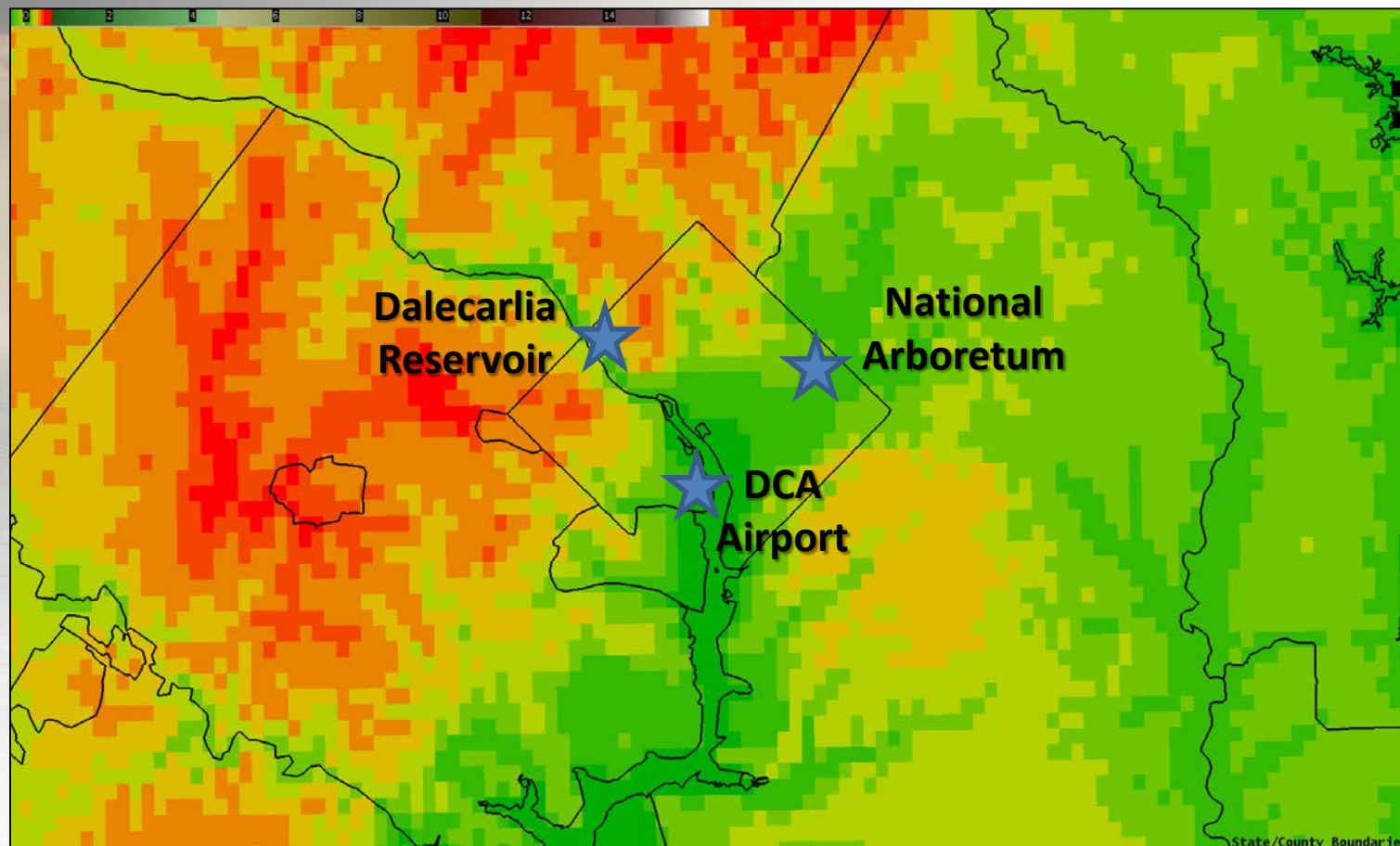
- **MWCOG's MATOC Group**
 - Monthly meetings
- **Pre-winter visits to DOTs**
- **Phone calls to DPW/DOTs when threats arise**
- **Event-based conference calls with DOTs & EMs**
- **3 A.M. regional COG conference call**



Daily Snow Observations

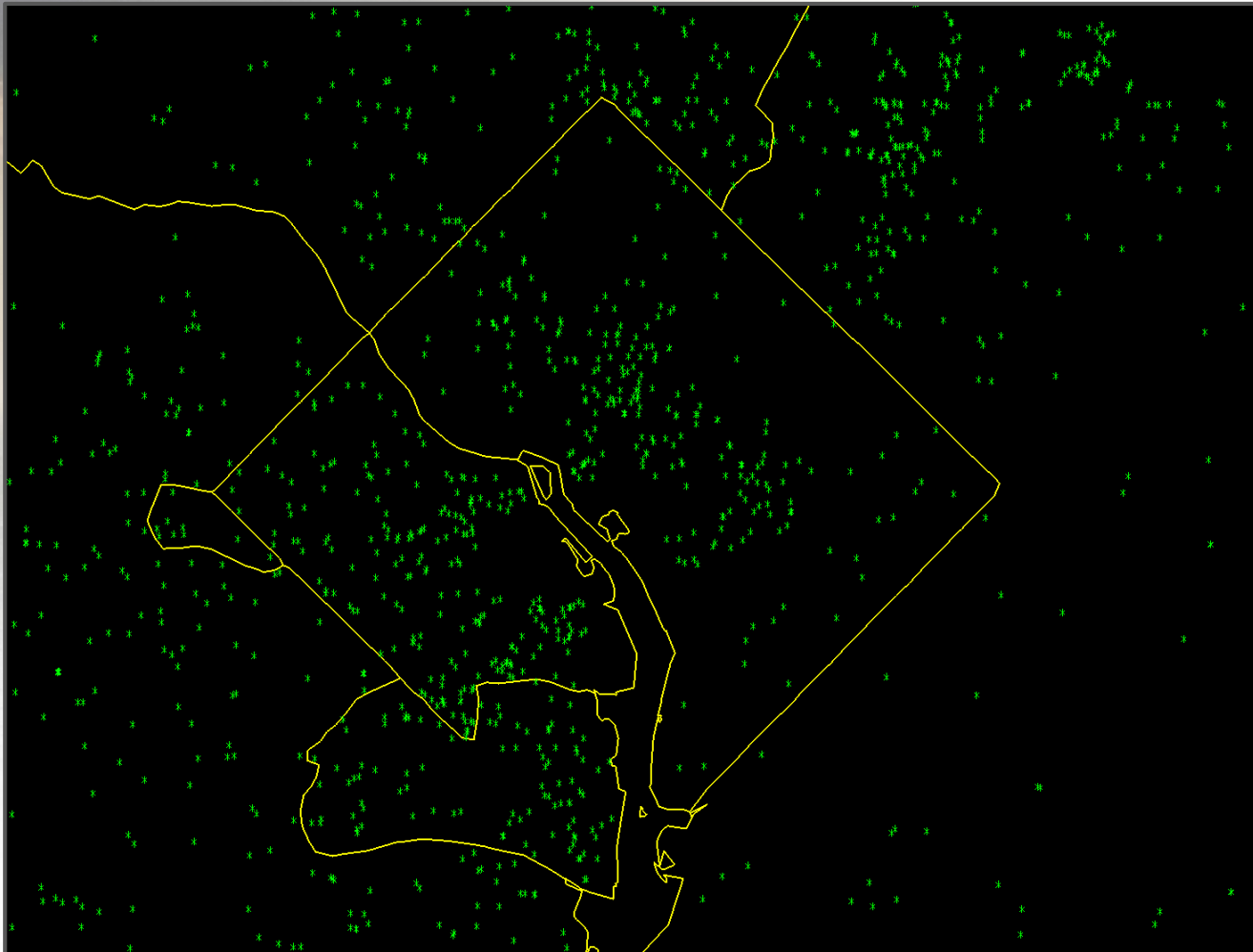
D.C. Metro Elevation

D.C. 0' – 410'



Volunteer Snow Observations

NWS “Spotters”



Summary

- **The NWS – NCR DOTs partnership has helped develop new ways to communicate snow forecasts:**
 - Days 3-7 Winter Storm Threat
 - Days 0-3 Range of Possible Accumulations
 - Days 0-1 Potential Winter Commuting Hazard
 - Days 0-1 Snow Squall Warning
- **Previously existing communication**
 - Watch / Warning / Advisory
 - Regular & event-driven meetings & conference calls
- **NWS winter outlook 2018-19**
 - Fewer arctic outbreaks
 - More likely to see more than average precipitation & coastal storms

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NWS Baltimore/Washington