Outline

• What is “Normal”

• What we have seen in the past

• This winter’s outlook

• NWS tools to help you
What is a “Normal” Winter

1991-2020
(changes from 1981-2010)

30 Years

1980s 1990s 2000s 2010s 2020s
# What is a “Normal” Winter

**1991-2020**

*(changes from 1981-2010)*

<table>
<thead>
<tr>
<th></th>
<th>Nov</th>
<th>Dec</th>
<th>Jan</th>
<th>Feb</th>
<th>Mar</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Temperature</strong> (High/Low)</td>
<td>57°/37°</td>
<td>48°/30°</td>
<td>43°/25°</td>
<td>46°/27°</td>
<td>55°/34°</td>
</tr>
<tr>
<td></td>
<td>+1 / 0</td>
<td>+3 / +2</td>
<td>+2 / +1</td>
<td>+1 / 0</td>
<td>+1 / 0</td>
</tr>
<tr>
<td><strong>Snowfall</strong></td>
<td>0.1”</td>
<td>2.5”</td>
<td>6.4”</td>
<td>7.5”</td>
<td>2.8”</td>
</tr>
<tr>
<td>19.3” total (-0.8)</td>
<td>-0.3</td>
<td>-0.5</td>
<td>-0.4</td>
<td>-0.5</td>
<td>+0.9</td>
</tr>
</tbody>
</table>
Past 3 Winters (BWI)

Temperature

Last winter, closer to normal (but ended early); After one of our warmest on record (‘19-’20)

Departure from Normal

Degrees

Dec Jan Feb Mar

BWI ‘18-’19  BWI ‘19-’20  BWI ‘20-’21
Baltimore Annual Winter Snowfall

Average 19.3"
Erratic Seasonal Snow Becoming More Erratic

<table>
<thead>
<tr>
<th>Period</th>
<th>Snowfall Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1900 – 1950</td>
<td>16%</td>
</tr>
<tr>
<td>1950 – 2000</td>
<td>18%</td>
</tr>
<tr>
<td>2000 – 2020</td>
<td>38%</td>
</tr>
</tbody>
</table>

However, the “big snowfall” winters also persist.

Average: 19.3”

1900 – 1950: 16% of winters had <10”
1950 – 2000: 18% of winters had <10”
2000 – 2020: 38% of winters had <10”

Erratic Seasonal Snow Becoming More Erratic
Milder than normal is more likely

Seasonal Forecast - Temperature (Dec – Feb)
Seasonal Forecast - Precipitation
(Dec – Feb)

Winter 2021: U.S. Precipitation Outlook

Wetter than normal is more likely

No strong signal

Drier than normal is more likely
El Niño/La Niña Cycle
  - La Niña
    - More storm tracks to our west, can result in more freezing rain.

Mid-Atlantic Outlook:
  - Temperature
    - Lesser chance of long-lasting cold
    - Fewer arctic outbreaks
  - Precipitation
    - No strong signal on more/less precipitation at this time
Everything we will discuss is on our NWS Winter Page

www.weather.gov/washington/winter
NWS “Headlines”

• **Winter Storm Watch**
  — Possibility of 5+” snow
  — ~1-3 days in advance

• **Winter Storm Warning**

• **Winter Weather Advisory**
  — Expectation
  — ~12-24 hours in advance
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
As Event Nears, “Range of Possibilities” Shrinks & Level of Forecast Detail Increases

Range of Possibilities

3-7 Days
Threat Level

1-3 Days
Possible Amounts

0-1 Day

Small Weather, BIG Impact

As Event Nears, “Range of Possibilities” Shrinks & Level of Forecast Detail Increases
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

<table>
<thead>
<tr>
<th>Confidence</th>
<th>Potential Impact</th>
</tr>
</thead>
<tbody>
<tr>
<td>High</td>
<td>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.</td>
</tr>
<tr>
<td>Moderate</td>
<td>Moderate winter storm threat. Potential impacts include significant travel delays and closures. Plan ahead to minimize impact on you and your family.</td>
</tr>
<tr>
<td>Enhanced</td>
<td>Enhanced winter storm threat. Primary threat is disruption to travel.</td>
</tr>
<tr>
<td>Slight</td>
<td>Slight winter storm threat. If threat materializes, may cause travel disruptions.</td>
</tr>
<tr>
<td>None</td>
<td>No significant winter storm threat is currently expected. However, light wintry precipitation may still be possible.</td>
</tr>
</tbody>
</table>
Current Snowfall Expectation

What our forecasters expect now.

Based on the latest, constantly-evolving models

Range of Possibilities

Snow Accumulation

0-3 Days in Advance

High-End Potential

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

Low-End Potential
Recipe for Traffic Disaster

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

Together, these often create gridlock.

*Potential Winter Commuting Hazard Statement (~24hrs in advance)*

if we see a chance of these coming together
0-1 Days in Advance
Snow Squall Warning

When they occur over highway, often cause multi-vehicle crashes
NWS Baltimore-Washington @NWS_BaltWash

Most of this week will be quiet, but it won’t end that way.

Here’s a look at the sunset from Darlington, VA this evening featuring our local WSI-680 KMWF. Not as cool overnight with lows in the 30s, except for the met areas / along the bay where 40s are likely. Midlevel conditions continue on Monday with highs in the 50s under sunny skies.

After the time change to Eastern Standard Time, sunsets will be around 5 PM today, before gradually moving toward 4:45 PM by the next month. Temperatures will continue to cool with normal lows remaining threatened by the Winter Nor’easter. #WSSBaltWash
Summary

• The NWS – SHA/DOT partnerships have helped develop new ways to communicate snow forecasts:
  – Days 3-7 Winter Storm Threat level
  – Days 0-3 “Range of Possible” Snow Accumulations
  – Days 0-1 Potential Winter Commuting Hazard Statement & Snow Squall Warning

• Previously existing communication
  – Watch / Warning / Advisory

• NWS winter outlook 2021-22
  – Fewer arctic outbreaks, but we will get them.
  – Higher likelihood of freezing rain & mixed precipitation

www.weather.gov/washington/winter
Winter Weather Preparedness

Jessica Nusbaum
State Individual Assistance Officer and
Community Preparedness Coordinator
All Hazards Approach to Preparedness

- Family Plan
- Emergency Supply Kit
- Listen for Alerts
- Keep Vehicle Fueled
- Charge Phone
Primary Concerns During Winter Storms

- Potential Loss of Power, Heat, and Telephone Service

- Shortage of Supplies
  - Food
  - Water
  - Medications
  - First Aid Supplies
  - Pet/Child Supplies
  - Heating Fuel
If the Power Goes Out

- Food - if power is off for less than 4 hours, food in your refrigerator and freezer will be safe to consume. \( \frac{1}{2} \) full freezer - 24 hours. Completely full freezer - 48 hours. Do not open doors.

- Water - purification systems may not be working. Use only bottled, boiled, or treated water.

- Monitor body temperatures in extreme cold

- Have access to flashlights with extra batteries
Winter Supply Kit: Food

- At least a three-day supply of non-perishable foods that do not require refrigeration, cooking, a lot of water, or lengthy preparation. This can include ready-to-eat canned meats, fruits and vegetables, canned juices, peanut butter, jelly, trail mix, protein bars.

- Don’t forget foods for family members with special needs such as infants or those on special diets/with allergies.
Winter Supply Kit: Water

- Store water in plastic containers such as soft drink bottles or buy one-gallon containers of water
- Store one gallon of water per-person per-day for a three-day period
Winter Supply Kit: Tools and Supplies

- Paper cups, plates, and plastic utensils
- Battery operated radio and extra batteries (or solar/hand crank)
- Flashlight and extra batteries (or solar/hand crank)
- Non-electric can opener and utility knife
- Cash
- Blankets
- Hand/foot warmers
- Extra shovel/ice melt
- First Aid kit
- Phone charger/power bank
Winter Driving Tips

- Make sure tires are properly inflated and have good tread
- Ensure wiper blades are functioning properly; fill wiper fluid
- Keep your fuel tank filled to at least half at all times; full is better
- Don’t use cruise control on slick surfaces
- Don’t heat your vehicle in an enclosed area
- Accelerate, decelerate, and drive slowly, and increase following distance
- Only go out if necessary in bad weather
- Remove all ice and snow from your vehicle - even the top!
- Respect snowplows and give them space on the road
Winter Supply Kit: Vehicle

- Food/Water
- First Aid supplies
- Flares/bright colored cloth
- Jumper Cables
- Blanket
- Sand/cat litter
- Ice scraper
- Extra hats, gloves, scarves, socks, etc.
- Phone charger
- Disposable hand/foot warmers
Winter Supply Kit: Work

- Food/Water
- Comfortable, safe shoes
- Change of clothing
- Extra winter weather gear
Winter Pet Safety

- Provide them with a warm place to sleep, away from drafty areas
- Clean their paws/stomachs after being outside to remove any salt or chemicals
- Towel dry them as soon as they come inside
- Pay attention to dry, flaky skin or cracked paw pads
- Don’t leave them alone in a cold vehicle or outside without warm shelter
- Keep an extra supply of pet products on hand
- Consider using non-toxic antifreeze and clean up spills
MD Ready

- MDEM’s new installable web app
- Replaces our former app Maryland Prepares
- Option to save to computer or phone

https://mdready.maryland.gov/
Questions?

www.mdem.maryland.gov
www.fema.gov
www.ready.gov/are-you-ready-guide
The mission of the Maryland Department of Emergency Management is to proactively reduce disaster risks and reliably manage consequences through collaborative work with Maryland's communities and partners.

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