

Winter Weather Updates and Winter Outlook

NWS Albany

New York Winter Weather And Winter Outlook 2024-2025

Presented by:

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NWS Albany





Overview

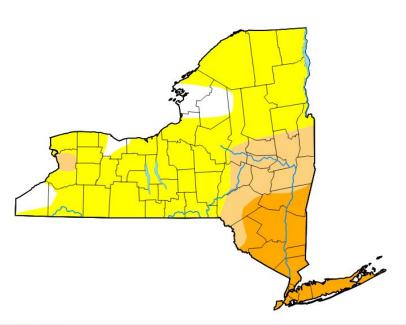
- Changes to Cold/Wind Chill Criteria
- Impacts of Snow and Ice
- Winter Storm Warning/Winter Weather Advisory Criteria
- Wind Watch, Warning and Advisory Criteria
- NOAA/NWS Winter Outlook (2024 2025)
- La Niña Winter Tendencies
- Last Winter
- NWS Winter Weather Links



Latest Drought Monitor

New York

Home / New York



Map released: Thurs. December 12, 2024

Data valid: December 10, 2024 at 7 a.m. EST

Intensity

None

D0 (Abnormally Dry)

D1 (Moderate Drought)

D2 (Severe Drought)

D3 (Extreme Drought)

D4 (Exceptional Drought)

No Data

Authors

United States and Puerto Rico Author(s):

Curtis Riganti, National Drought Mitigation Center

Pacific Islands and Virgin Islands Author(s):

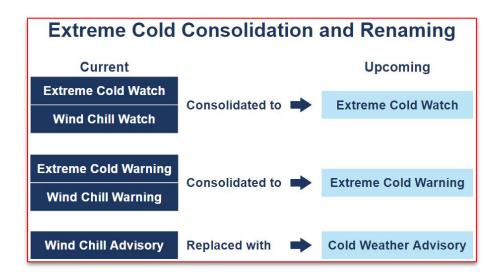
Lindsay Johnson, National Drought Mitigation Center





Updates - Cold Weather Products

On October 1, 2024, the NWS simplified its suite of cold weather products to improve messaging of these hazards and provide better decision support services



The record low for New York State is **-52** °F, set at Stillwater Reservoir on February 9, 1934 and at Old Forge on February 18, 1979. Watertown record low is -43F set on Jan 16, 1994. Massena record low is -44F set on Jan 15, 1957.





Cold is Cold - With or Without Wind

Extreme Cold Watch/Warning and Cold Weather Advisory will be based off of the APPARENT TEMPERATURE* – whether that represents the air temperature or the wind chill, cold is cold.

*Apparent Temperature can be the air temperature when the wind is calm or the wind chill temperature when wind is present.

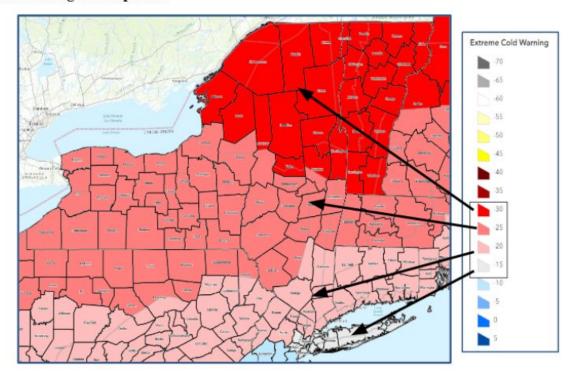
									Tem	pera	ture	(°F)							
	Calm	40	35	30	25	20	15	10	5	0	-5	-10	-15	-20	-25	-30	-35	-40	-45
	5	36	31	25	19	13	7	1	-5	-11	-16	-22	-28	-34	-40	-46	-52	-57	-63
	10	34	27	21	15	9	3	-4	-10	-16	-22	-28	-35	-41	-47	-53	-59	-66	-72
	15	32	25	19	13	6	0	-7	-13	-19	-26	-32	-39	-45	-51	-58	-64	-71	-77
	20	30	24	17	11	4	-2	-9	-15	-22	-29	-35	-42	-48	-55	-61	-68	-74	-81
J	25	29	23	16	9	3	-4	-11	-17	-24	-31	-37	-44	-51	-58	-64	-71	-78	-84
Wind (mph)	30	28	22	15	8	1	-5	-12	-19	-26	-33	-39	-46	-53	-60	-67	-73	-80	-87
5	35	28	21	14	7	0	-7	-14	-21	-27	-34	-41	-48	-55	-62	-69	-76	-82	-89
<u>*</u>	40	27	20	13	6	-1	-8	-15	-22	-29	-36	-43	-50	-57	-64	-71	-78	-84	-91
	45	26	19	12	5	-2	-9	-16	-23	-30	-37	-44	-51	-58	-65	-72	-79	-86	-93
	50	26	19	12	4	-3	-10	-17	-24	-31	-38	-45	-52	-60	-67	-74	-81	-88	-95
	55	25	18	11	4	-3	-11	-18	-25	-32	-39	-46	-54	-61	-68	-75	-82	-89	-97
	60	25	17	10	3	-4	-11	-19	-26	-33	-40	-48	-55	-62	-69	-76	-84	-91	-98
					Frostb	ite Tir	nes	30	minu	tes	10	minut	es	5 m	inutes				
			W	ind (chill (75(V Wind S			2751	Γ(V ^{0.1}		ctive 1	1/01/01





Extreme Cold Watch/Warning Criteria

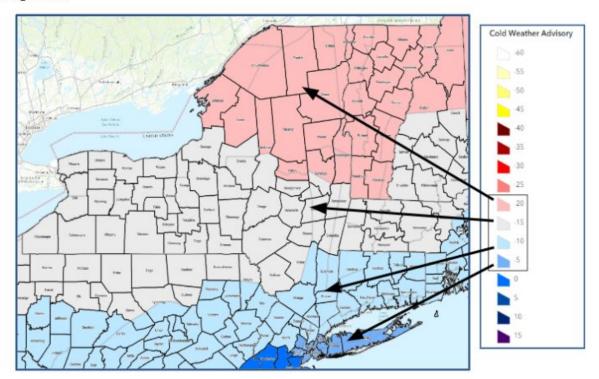
EXTREME COLD WARNING: Issued when **life-threatening** cold temperatures and/or wind chill readings are **expected**





Cold Weather Advisory Criteria

COLD WEATHER ADVISORY: dangerously cold temperatures and/or wind chill readings are expected







Winter Hazards - Snow



A limb from a pine tree catches fire as it falls on a power line on Fallkill Road in Hyde Park. Town police said there were trees and limbs down throughout the area, with numerous power outages. Barbara Gallo-Farrell/Poughkeepsie Journal

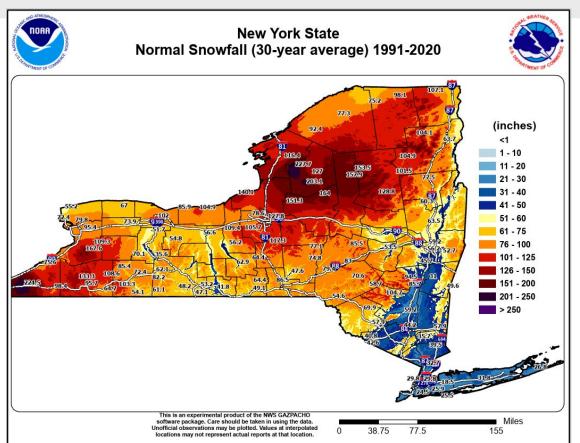
Heavy Wet Snow/Wind, March 2, 2018

Impacts of Snow:

- Transportation issues: Slippery driving and walking conditions, airport closures, rail
 lines shut down. #1 cause of weather related fatalities is traffic accidents on snow or
 ice.
- High Snowfall Rates: Rapid accumulation and near zero visibility (2"/hr = ½ mile visibility or less).
- Snow squalls: Biggest cause of pileups in interstate highways (NWS now issues snow squall warnings – only significant SQW WEA'd).
- Blowing Snow: Drifting snow blown back onto previously cleared and treated roads causing slippery driving conditions.
- Early/Late Snows (Oct/Nov/May): 3" of snow with leaves on trees = downed trees and widespread power outages.
- Wind Driven Wet Snow: 6" of heavy, wet snow with strong winds can lead to downed trees and power outages (March 2018, April 2022).
- Prolonged accumulation periods (1-2 months) can lead to weight buildup on roofs and roof collapses. Run out of room to plow snow. Salt stockpiles run low.



Snowfall Normal (1991 - 2020)

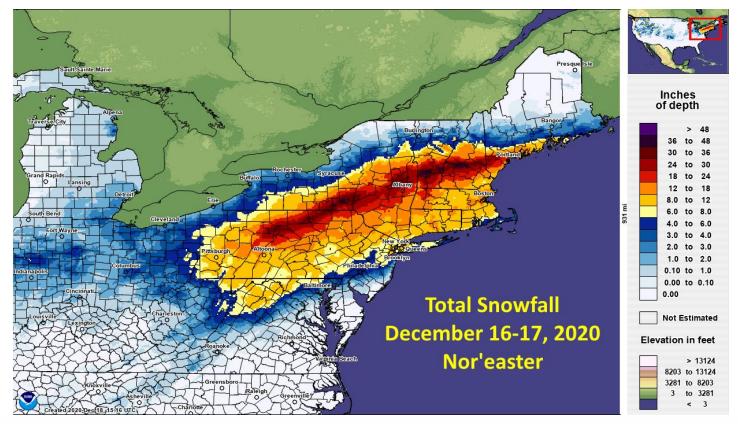






Winter Hazards - Snow - Dec 16-17, 2020 Nor'easter

Significant snowfall can be widespread across New York State.



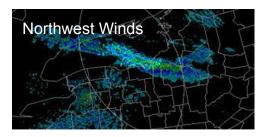




Winter Hazards - Lake Effect Snow Snow

Lake Effect Snow:

- Often narrow bands of snow off Lake Erie or Lake Ontario. Wind direction is important.
- Can have extreme snowfall rates (1" to 6" per hour)
- Most of the rest of New York State can be partly sunny and dry while lake effect areas are getting feet of snow.
- Problem on interstate highways where motorists can drive from dry road into white out.
- Leads to high annual snowfall averages in Buffalo, Rochester, Syracuse, Watertown and nearby areas.



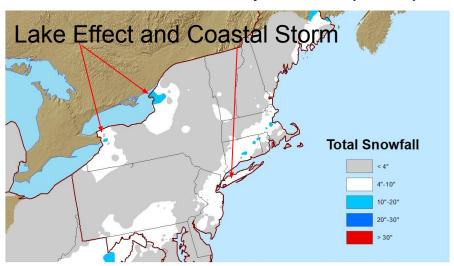






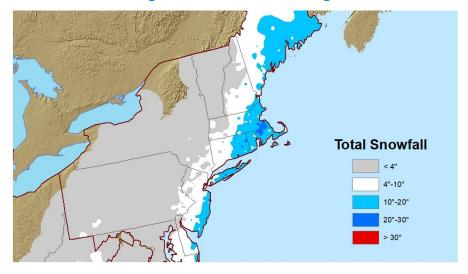
Winter Hazards - Snow Along Coast - Jan 2022

Northeast Snowfall Impact Scale (NESIS): https://www.ncei.noaa.gov/access/monitoring/rsi/nesis



January 4 - January 7, 2022 NESIS = 1.6 Category 1





January 28 - 30, 2022 NESIS = 1.73 Category 1







2014/15 - Jan 24 - Mar 5

2009/10 - Feb 10 - 26

2004/05 - Jan 22 - Mar 1

1993/94 - Feb 8 - Mar 3

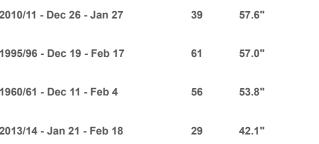
National Oceanic and Atmospheric Administration

U.S. Department of Commerce

National Weather Service

Albany, NY

Winte	er H	azards -	Snowy NYC Winters Since 1960
14 × 35			
Winter Dates	Days	Snowfall	
2010/11 - Dec 26 - Jan 27	39	57.6"	
1995/96 - Dec 19 - Feb 17	61	57.0"	



1995/96 - Dec 19 - Feb 17	61	57.0"
1960/61 - Dec 11 - Feb 4	56	53.8"
2013/14 - Jan 21 - Feb 18	29	42.1"
1966/67 - Feb 6 - Mar 22	45	41.0"
1977/78 - Jan 13 - Feb 14	33	40.2"

41

17

39

24

39.4"

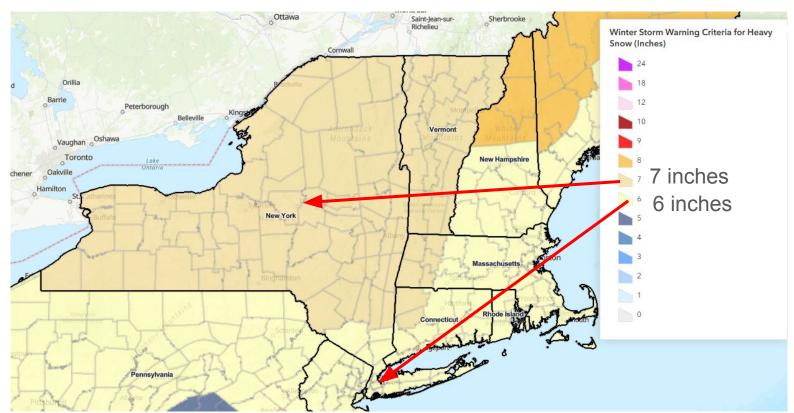
35.9"

32.7"

29.8"



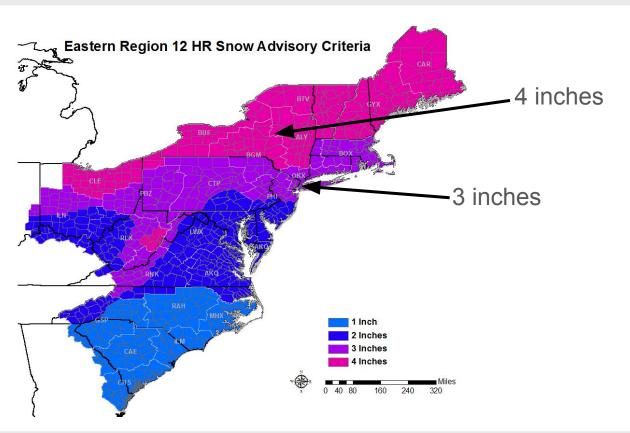
Winter Storm Watch/Warning Criteria - Snow







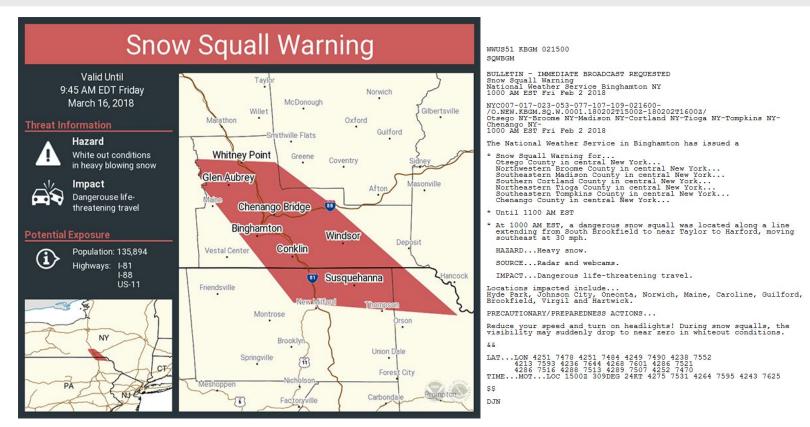
Winter Weather Advisory Criteria - Snow







Winter Hazards – Snow Squalls







Winter Hazards – Snow Squall Warnings



IMPACT-BASED Snow Squall Warnings

From now on, Snow Squall Warnings will trigger Wireless Emergency Alerts (WEAs) only in the most significant instances.

If you receive a Snow Squall Warning via Wireless Emergency Alert, delay travel or exit the highway at the next opportunity.

SNOW SQUALL WARNING IMPACT TAG	Explanation	Wireless Emergency Alert?
General (No Tag)	To be used during the overnight hours OR for snow squall conditions in which the threat to safe travel will be reduced if drivers reduce speed and increase stopping distance	No
Significant	Used only when snow squalls pose a substantial threat to safe travel.	Yes





Winter Hazards - What Is a Blizzard?



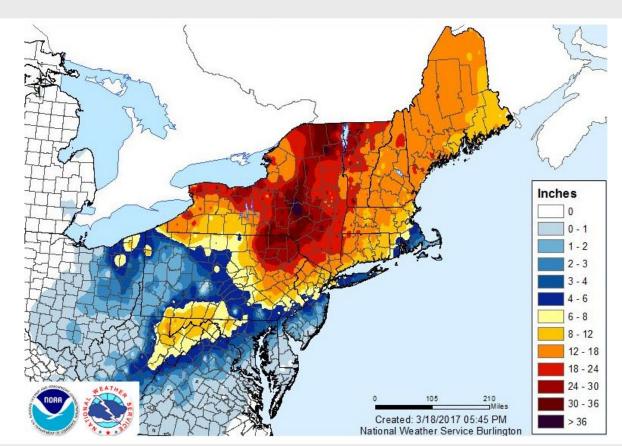




Winter Hazards - March 14, 2017 Blizzard

Strong winds resulted in significant blowing and drifting of snow.

Maximum measured wind gust in the Albany forecast area was 70mph.

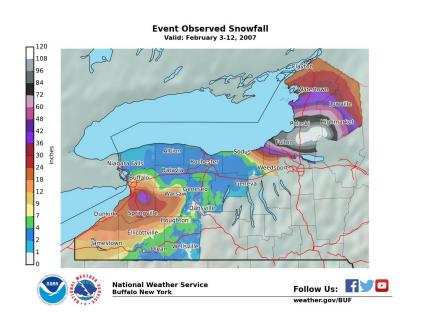


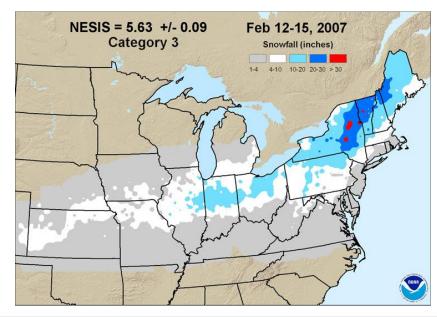




Winter Hazards - Back to Back Storms

Multi-Day to week-long Lake Effect Event followed by a blizzard, or back to back storms in a week. Jan 1966, Dec 1969 and Feb 2007 are examples. (https://www.ncei.noaa.gov/access/monitoring/rsi/nesis)









Winter Hazards - Freezing Rain (Glaze)



Impacts of Ice:

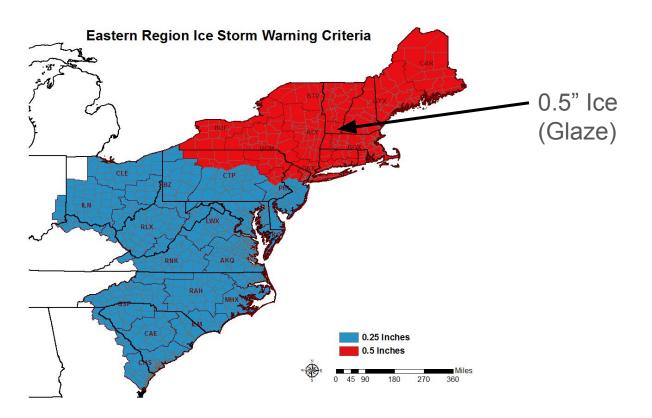
- A trace of ice will cause slippery driving and walking conditions.
- One quarter inch of ice glaze accumulation on trees will start to bring down small branches.
- One half inch of ice glaze accumulation on trees and wires will cause numerous power outages (outages last a day or two - March 2024).
- One Inch or more of ice glaze accumulation on trees and wires causes widespread power outages (outages may last a week – Feb 2022, Dec 2008).
- Any wind with the ice will make matters worse.



Ice Storm Along Thruway, Ulster County, Feb 2022

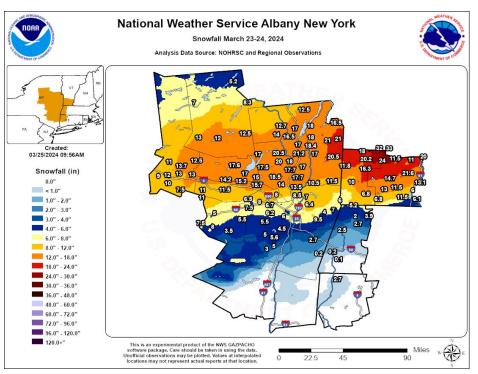


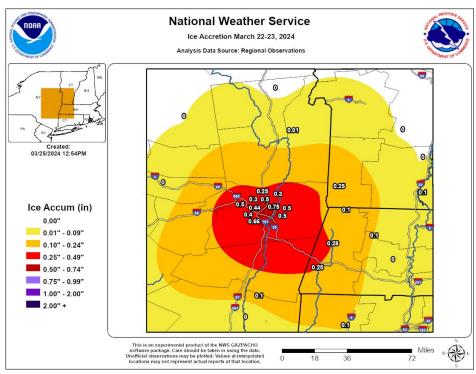
Winter Storm Watch/Warning Criteria - Ice





Winter Hazards - Snow And Ice (Mar 23-24, 2024)



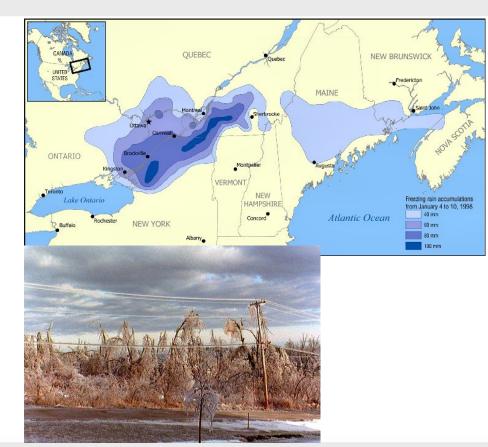






January 1998 Ice Storm

- Affected northern NY.
- January 5-9, 1998.
- 1 to 4" of ice accumulation.
- Significant flooding occurred along the upper Hudson River.
- 16 fatalities





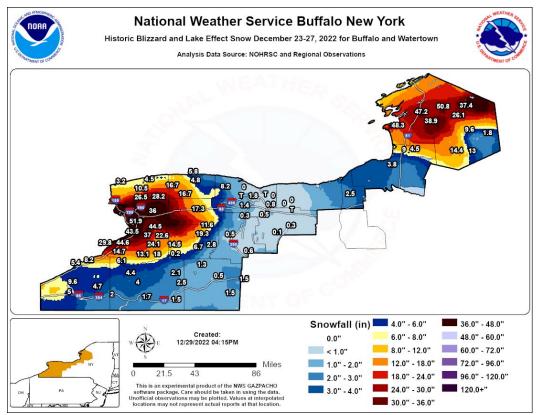
March 1991 Ice Storm

- Affected western and northern NY
- The ice storm hit on Sunday, March 3, 1991.
- More than 200,000 homes and businesses lost power in western New York.
- It took 14 days to get the lights back on for most Rochester area customers.

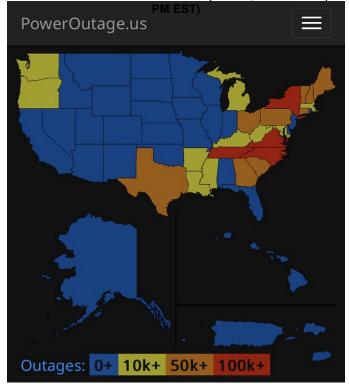




Winter Hazards - Strong Winds



Snapshot of power outages from the Dec 2022 storm that caused the Buffalo Blizzard (Dec 23, 2022 - 12:19)





Winter Hazards - Strong Winds - NWS Criteria

HIGH WIND WATCH:

At least 50% chance for Sustained Winds 40+ mph (at least 1 hour) or Wind Gusts 58+ mph.

HIGH WIND WARNING:

- Expectation (at least 80% chance) for Sustained Winds 40+ mph or Wind Gusts 58+ mph
- Damage to structures and trees with potentially widespread power outages and blocked roads.

WIND ADVISORY:

- Expectation (at least 80% chance) for Sustained Winds 31-39 mph or Wind Gusts 46-57 mph
- Downed branches/power lines; scattered power outages and blocked roads.





Winter Hazards – Ice Jams And Ice Jam Flooding

Ice jams and Ice Jam Flooding:

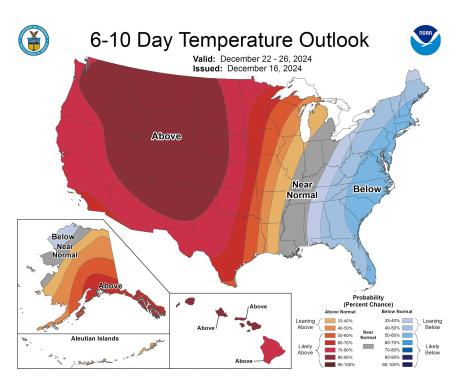
- Prolonged cold periods cause thick buildup of ice on rivers and streams.
- Once thick ice builds, any thaw with melting snow and/or rain that causes rivers to rise, can cause ice jams.
- Rising water lifts and breaks up ice where it moves down stream and can jam up at favored locations like bridges, sharp bends in the river, narrows, culverts, etc.
- Jams act like dams and cause temporary lakes which can cause rapid flooding.
- If a jam lets loose, a flash flood (similar to a dam break) can happen downstream.

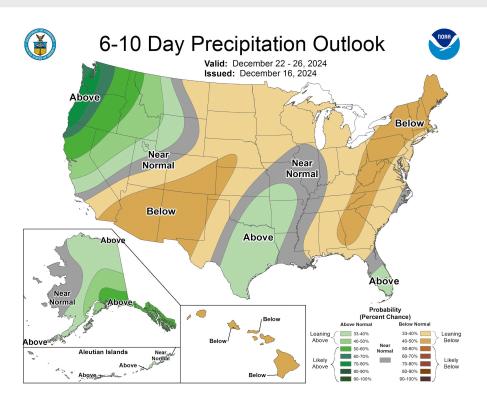






6-10 Day Outlook

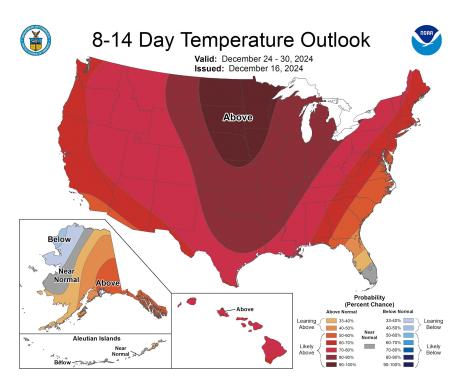


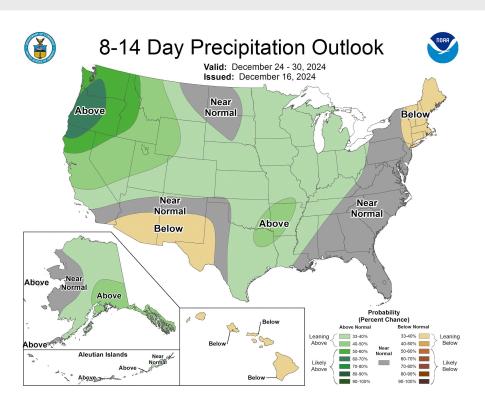






8-14 Day Outlook









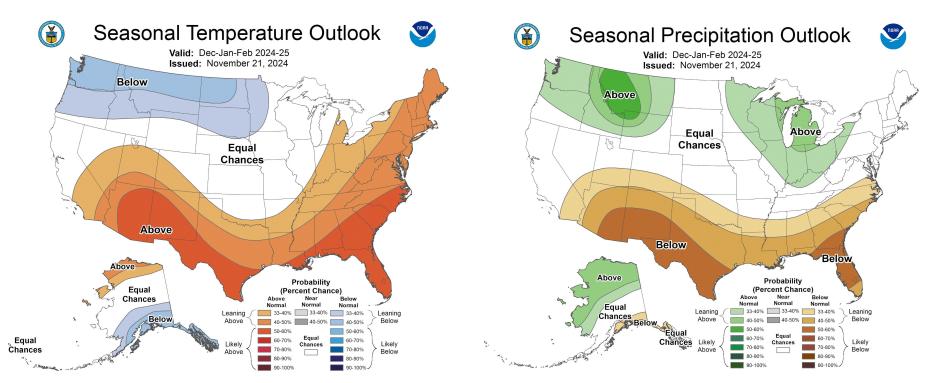
2024-2025 Winter Outlook

- NOAA's seasonal outlooks provide the likelihood that temperatures and total precipitation amounts will be above, near, or below-average, and how drought conditions are anticipated to change in the months ahead.
- The NOAA winter outlook does not project seasonal snowfall accumulations.
- The NOAA winter outlook only covers December through February.
- Winter in New York often begins in November and ends in April, therefore additional NOAA monthly and seasonal forecasts are needed to cover the whole of winter.
- NOAA's Climate Prediction Center updates the monthly and three-month outlooks each month. The next update will be available November 16.





Winter Outlook (Dec 2024 - Feb 2025)

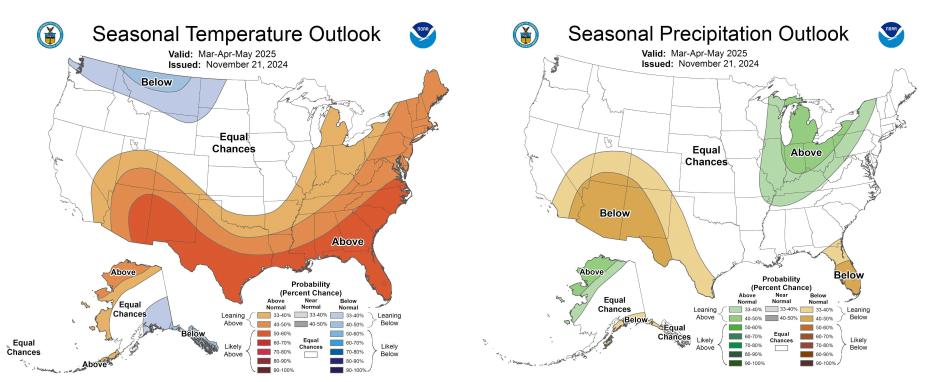


Outlooks issued 3rd Thursday of each month





Winter Outlook (Dec 2024 - Feb 2025)

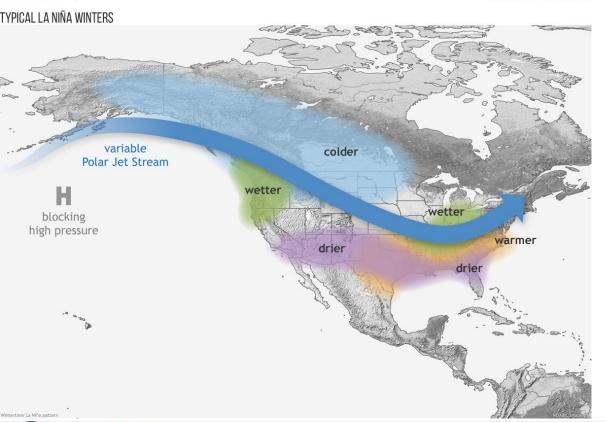


Outlooks issued 3rd Thursday of each month



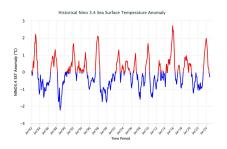


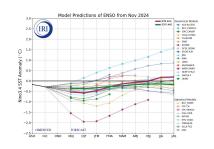
Winter Outlook - Weak La Niña Likely (Pacific Cool Phase)



Idealized La Niña Winter Pattern:

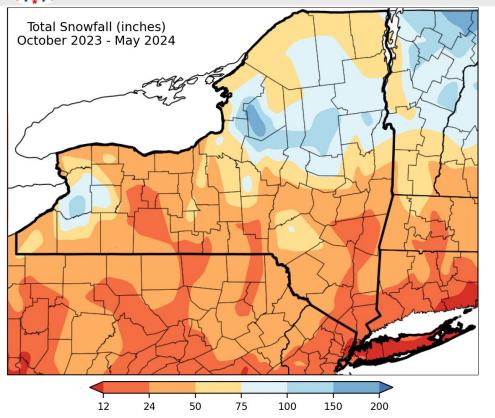
- Warmer and wetter conditions for the Northeast
- U.S. Gulf Coast and Southeast: Drier and warmer than normal

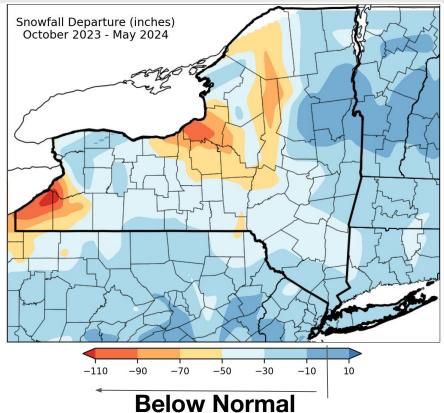






Snowfall Last Winter (2023 - 2024) vs Departure From Normal









Accumulated Winter Season Severity Index

Accumulated Winter Season Severity Index (AWSSI):

Produced by the Midwestern Regional Climate Center (MRCC)

The severity of a winter is related to the intensity and persistence of cold weather, the amount of snow, and the amount and persistence of snow on the ground.

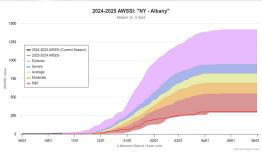
The Accumulated Winter Season Severity Index (AWSSI) was developed to objectively quantify and describe the relative severity of the winter season (1950-Present).

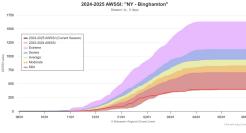
https://mrcc.purdue.edu/research/awssi

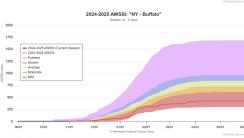


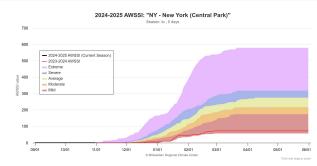


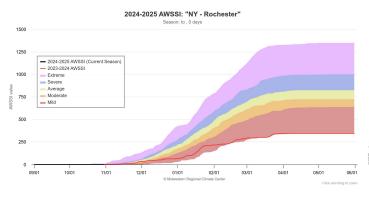
Winter Severity 2023-2024 - A Very Mild Winter

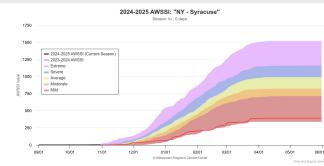


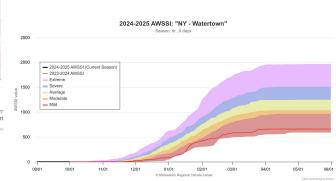












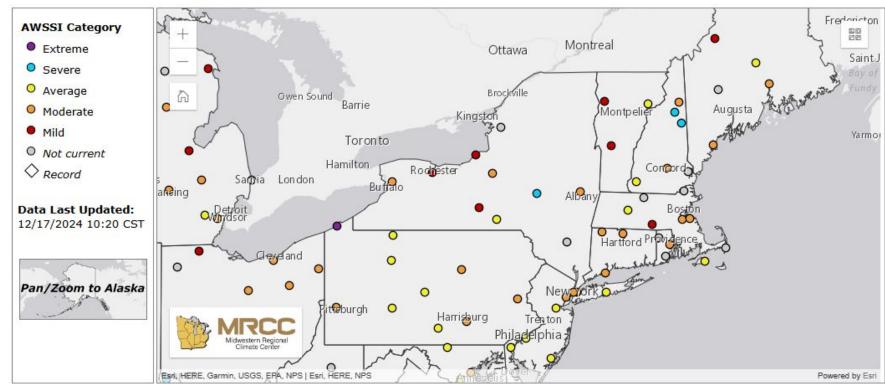


National Weather Service Albany, NY



Winter Severity 2024-2025 - Mixed Signals So Far

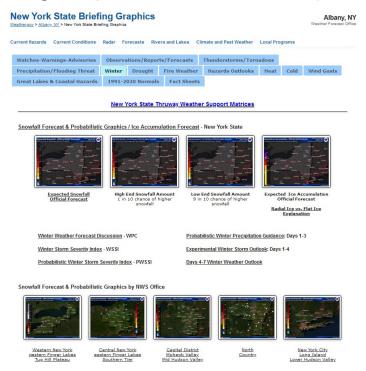
Current Season





New York State Snow And Ice Information

NWS New York State Briefing Graphics "Winter" Tab: https://www.weather.gov/aly/nys



New York State Day 1, Day 2 & Day 3 Snow Extremes by County --- If NCEI page down use this link



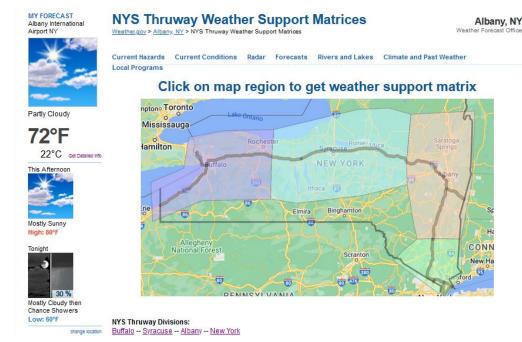


NWS New York Snow And Ice Information

https://www.weather.gov/aly/nysDSSMatrix



NWS New York State Briefing Graphics "Winter" Tab: https://www.weather.gov/aly/NYSThruway





NWS New York Snow And Ice Information

https://www.weather.gov/aly/nysDSSMatrix

Impact Matrix for Weather Support (42.7377,-78.8215) National Weather Service Albany, New York

	Thu Dec 12 10 am	Thu Dec 12 1 pm	Thu Dec 12 4 pm	Thu Dec 12 7 pm	Thu Dec 12 10 pm	Fri Dec 13 1 am	Fri Dec 13 4 am	Fri Dec 13 7 am	Fri Dec 13 10 am	Fri Dec 13 1 pm	Fri Dec 13 4 pm	Fri Dec 13 7 pm	Fri Dec 13 10 pm	Sat Dec 14 1 am	Sat Dec 14 4 am	Sat Dec 14 7 am	Sat Dec 14 10 am	Sat Dec 14 1 pm	Sat Dec 14 4 pm	Sat Dec 14 7 pm	Sat Dec 14 10 pm	Sun Dec 15 1 am	Sun Dec 15 4 am	Sun Dec 15 7 am	Sun Dec 15 10 am
Temperature	20°F	21°F	23°F	21°F	20°F	18°F	16°F	16°F	17°F	21°F	23°F	17°F	14°F	12°F	10°F	9°F	15°F	27°F	32°F	28°F	27°F	28°F	30°F	31°F	32°F
Wind Chill	3°F	4°F	7°F	8°F	6°F	3°F	3°F	4°F	5°F	11°F	15°F	9°F	7°F	5°F	2°F	3°F	7°F	20°F	26°F	21°F	19°F	20°F	21°F	22°F	24°F
Chance of Precipitation	97%	89%	78%	99%	100%	100%	49%	12%	12%	12%	12%	12%	5%	5%	5%	5%	1%	0%	0%	0%	0%	2%	2%	51%	51%
3 hour Snowfall	4 in	5 in	1 in	4 in	4 in	2 in	Trace	0 in	0 in	Trace	Trace	0 in	0 in	0 in	0 in	0 in	0 in	0 in	0 in	0 in	0 in	0 in	0 in	0 in	0 in
3 hour Freezing Rain	0 in	0 in	0 in	0 in	N/A	N/A	N/A	N/A	N/A																
Wind Direction	wsw	wsw	wsw	wsw	W	W	W	W	W	wsw	sw	s	SSE	SE	SE	ESE	SE	SE	ESE	SE	SE	SSE	SSE	SSE	SSE
Wind Speed	25 mph	28 mph	23 mph	21 mph	17 mph	15 mph	14 mph	10 mph	9 mph	9 mph	8 mph	6 mph	5 mph	4 mph	4 mph	4 mph	6 mph	7 mph	7 mph	8 mph	8 mph	9 mph	9 mph	10 mph	10 mph
Wind Gust	39 mph	43 mph	41 mph	35 mph	28 mph	24 mph	22 mph	18 mph	16 mph	16 mph	15 mph	10 mph	7 mph	7 mph	7 mph	8 mph	12 mph	13 mph	12 mph	14 mph	17 mph	18 mph	19 mph	20 mph	21 mph
Sky Cover	96%	89%	95%	100%	99%	94%	50%	47%	53%	59%	50%	44%	41%	32%	17%	15%	29%	48%	59%	66%	79%	90%	92%	97%	99%

Impact Level	None	Low	Medium	High	Extreme
Temperature	>=35°F	35 to 32°F	32 to 23°F	23 to 5°F	<5°F
Wind Chill	>=0°F	0 to -15°F	-15 to -25°F	-25 to -35°F	<-35°F
Chance of Precipitation	<=15%	15 to 30%	30 to 50%	50 to 70%	>70%
3 hour Snowfall	<=0.1 in	0.1 to 1 in	1 to 3 in	3 to 5 in	>5 in
3 hour Freezing Rain	<=0 in	0 to 0.01 in	0.01 to 0.1 in	0.1 to 0.25 in	>0.25 in
Wind Direction	All Values				
Wind Speed	<=15 mph	15 to 25 mph	25 to 35 mph	35 to 45 mph	>45 mph
Wind Gust	<=15 mph	15 to 25 mph	25 to 35 mph	35 to 45 mph	>45 mph
Sky Cover	<=30%	30 to 50%	50 to 70%	>70%	

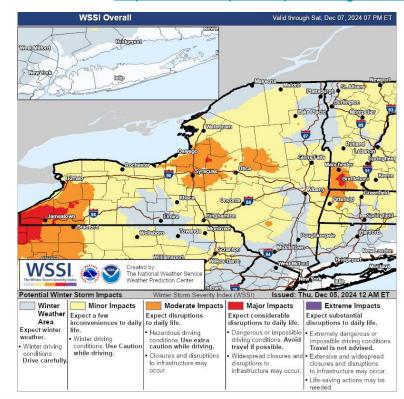




Days 1-3 Winter Storm Severity Index

NWS Weather Prediction Center: https://www.wpc.ncep.noaa.gov/wwd/wssi/wssi.php

Based on NWS
Deterministic
forecast - "expected
amount"

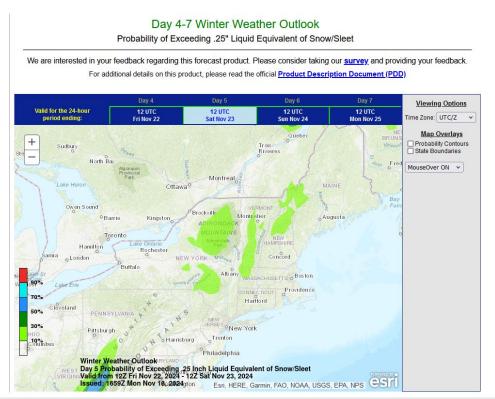




Days 4-7 Probabilistic Snow And Ice Information

NWS Weather Prediction Center: https://www.wpc.ncep.noaa.gov/wwd/pwpf d47/pwpf medr.php?day=5

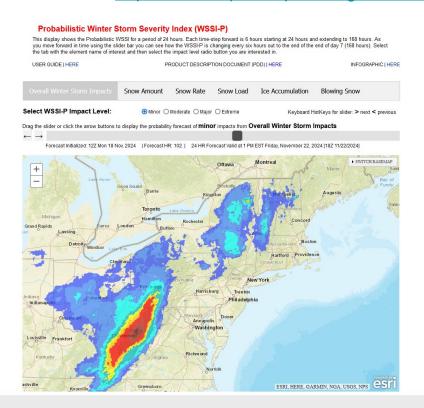
"Probability of a plowable snow"





Days 4-7 Probabilistic Snow And Ice Information

NWS Weather Prediction Center: https://www.wpc.ncep.noaa.gov/wwd/wssi/prob wssi.php



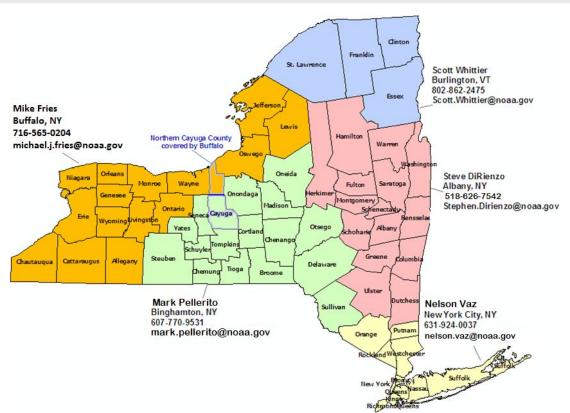


Review

- Changes to Cold/Wind Chill Criteria
- Impacts of Snow and Ice
- Winter Storm Warning/Winter Weather Advisory Criteria
- Wind Watch, Warning and Advisory Criteria
- NOAA/NWS Winter Outlook (2024 2025)
- La Niña Winter Tendencies
- Last Winter
- NWS Winter Weather Links











The End

Questions?

Are you receiving NWS weather briefings?

Contact:

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(518) 626-7542



https://inws.ncep.noaa.gov/