

New York State Winter Preparedness Week October 26th to November 1st, 2008

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NOAA's National Weather Service

Binghamton NY



Review of 2007-2008 Winter Season

- Overall winter temperatures were above normal, with January being very mild.
 - Snowfall below normal;
 - *Third lowest January snowfall on record at Binghamton*
 - *Lowest January snowfall at Syracuse*
-

Binghamton Avg Winter Temp (DJF) 2007-2008

26.4° F (1.9° F above normal)

24.5° F = normal (1971-2000)

Binghamton Snowfall 2007-2008

70.7 inches (13.5 in. below normal)

84.2 inches = normal

Syracuse Avg Winter Temp (DJF) 2007-2008

27.9° F (2.1° F above normal)

25.8° F = normal (1971-2000)

Syracuse Snowfall 2007-2008

109.1 inches (8.4 in. below normal)

117.5 inches = normal

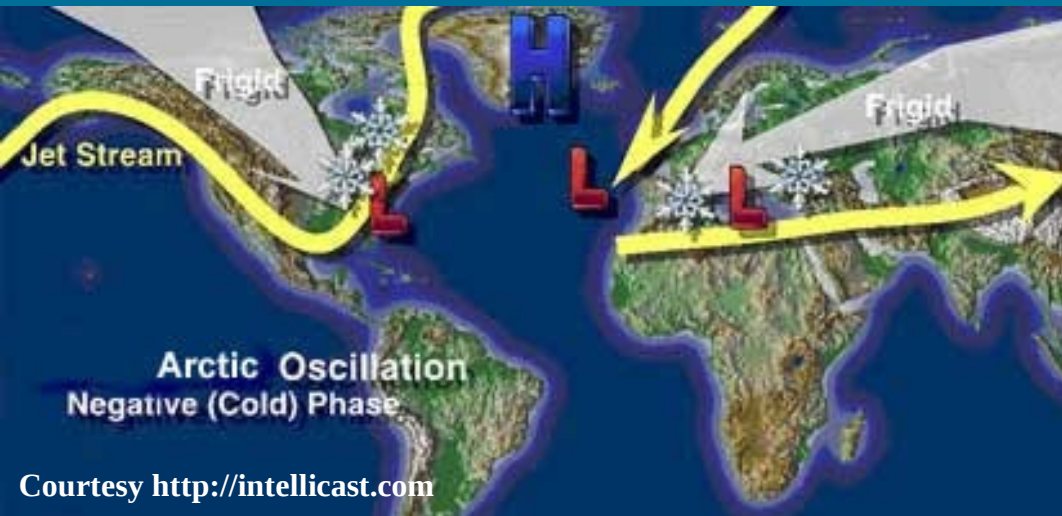
Why do we need to be prepared for the upcoming winter?

- New York State is known for its cold, snowy and icy winters, especially in upstate NY. However, every part of the state is vulnerable to big snow and ice storms and bitter cold.
 - Winter weather can be dangerous if you are not prepared.
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Annual Fatalities

- Approximately 70 percent of fatalities due to winter storms come from automobile accidents.
- Approximately 25 percent of fatalities occur when people get caught out in a storm.

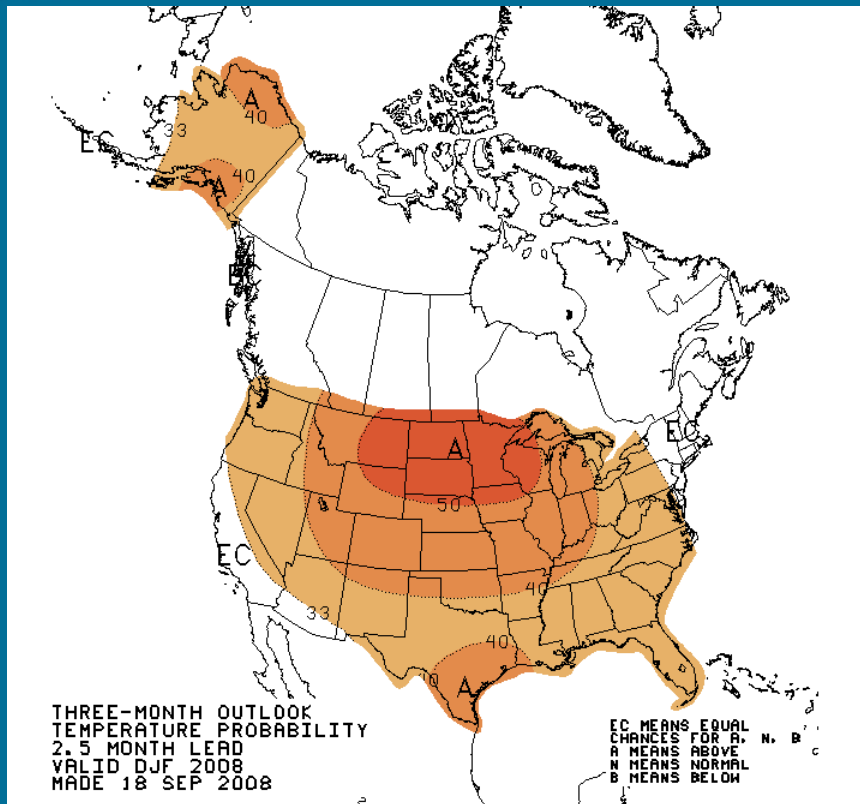
North Atlantic Oscillation (NAO)



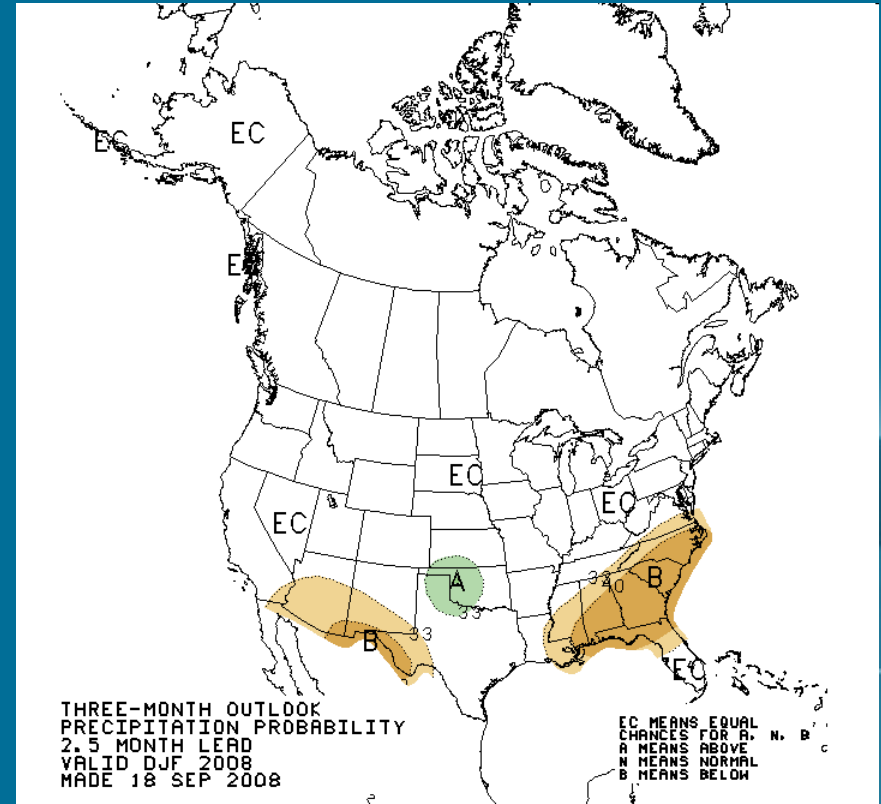
NAO is the dominant mode in winter variability in the northeast U.S.

- NAO in positive or warm mode favors milder winters and more Pacific air for the northeast U.S. and fewer or no nor'easters.
- NAO in negative or cold phase favors more nor'easter's and colder air coming south from Canada

Temperature and Precipitation Outlook

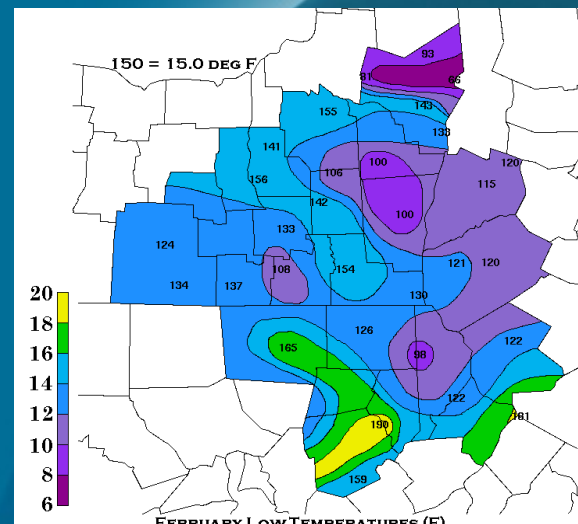
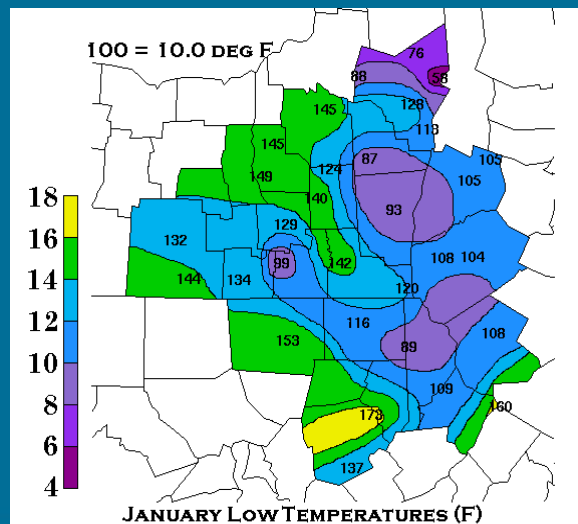
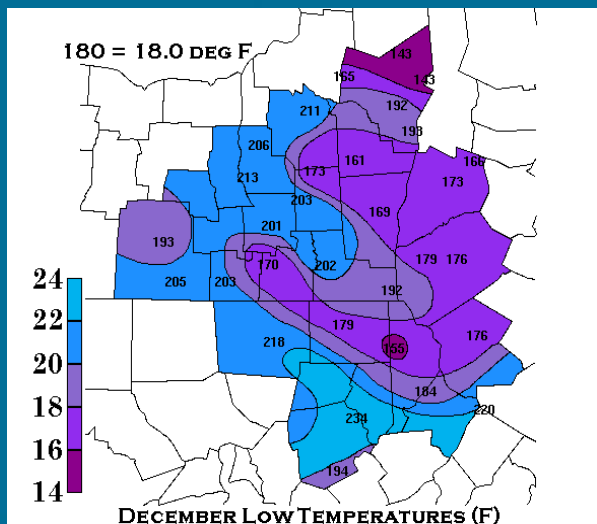
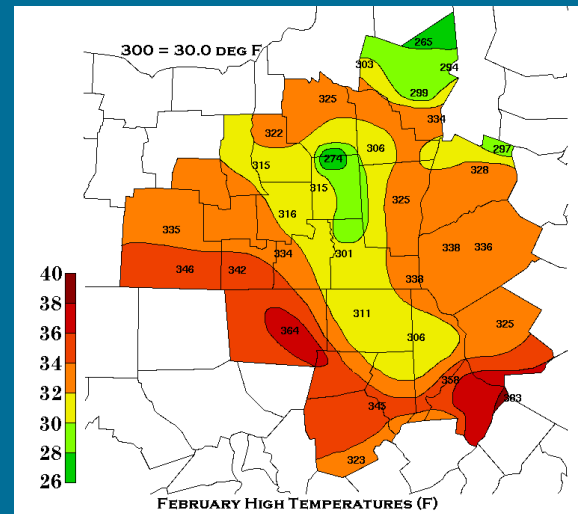
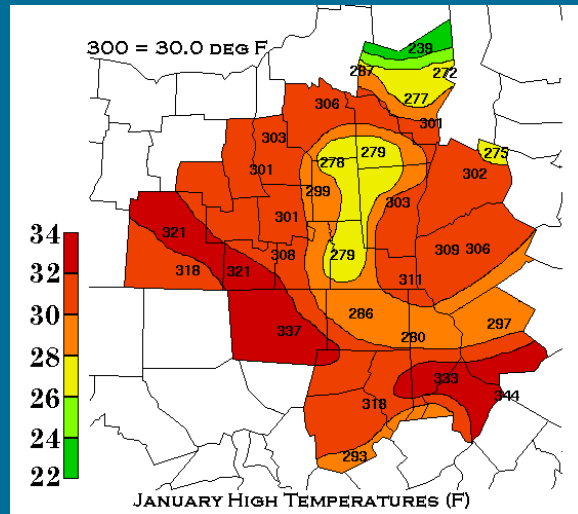
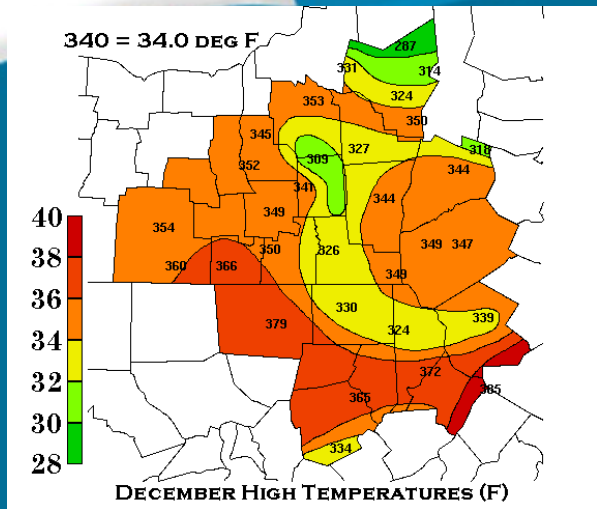


TEMPERATURES

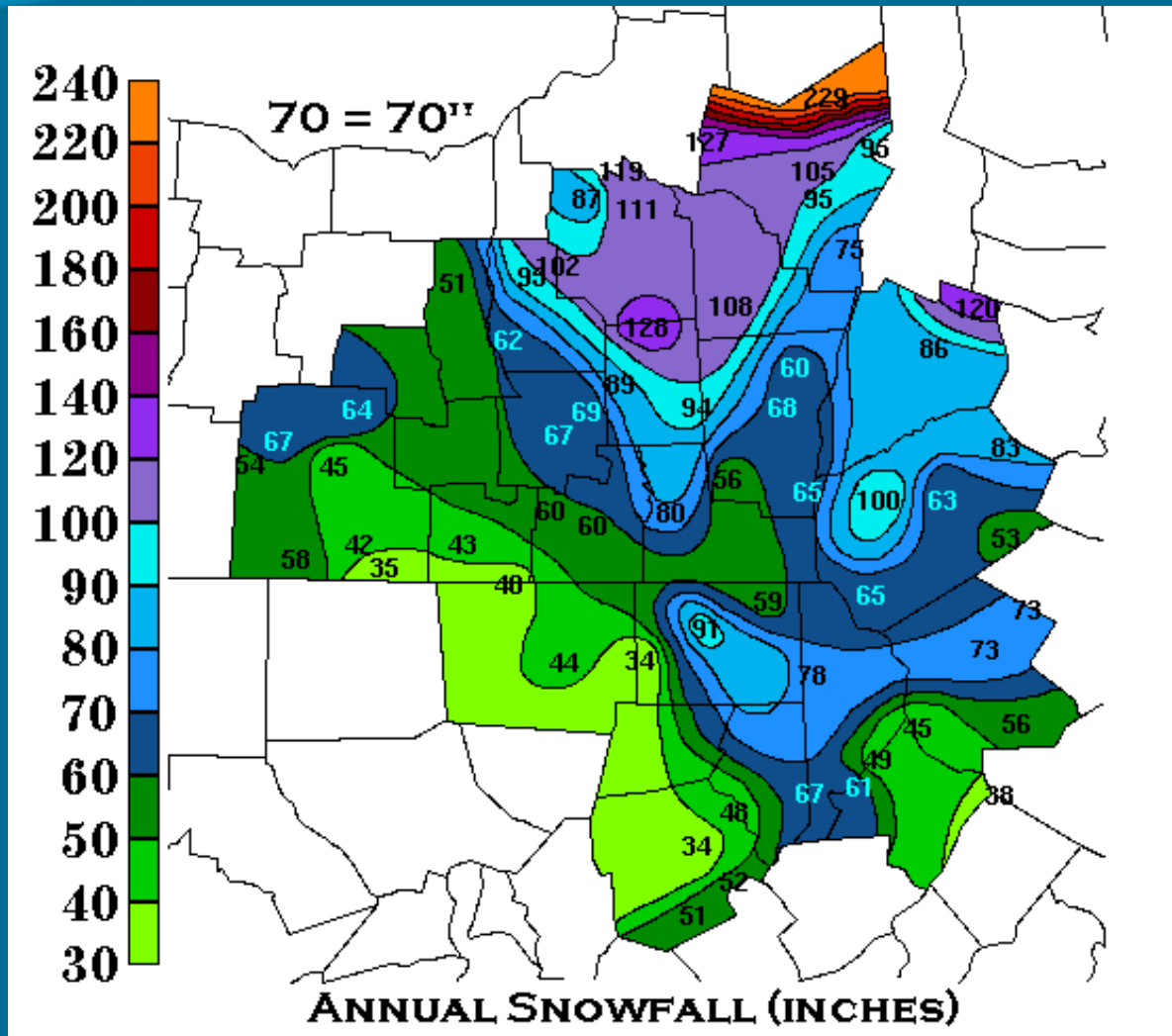


PRECIPITATION

Normal High and Low Temperatures for Winter Months

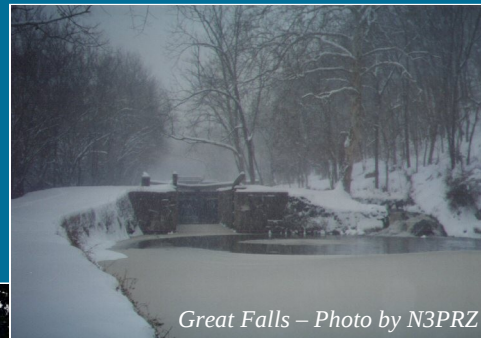


Normal Seasonal Snowfall



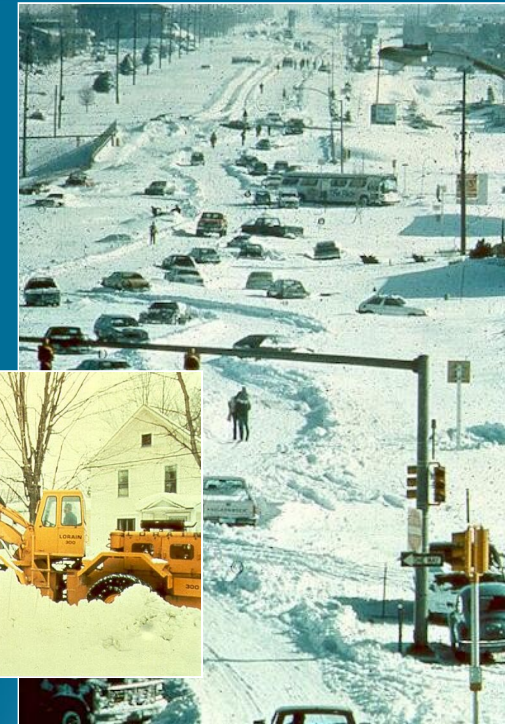
Winter Hazards

- Heavy Snow
- Ice
- Cold Outbreaks
- Wind
- Flooding



Heavy Snow Impacts

- Disrupts Transportation
- Traffic Accidents
 - *Driving too fast for conditions*
 - *Suddenly driving into it*
 - 125 cars on I-95 in January 2001 when vehicles hit blinding snow at 45 mph
 - Hitting a snow drift at speed
 - Hitting a snow patch at speed
- Closes Schools and Businesses
- Cost of Plowing and Snow Removal
- Weight of heavy snow can cause roof collapse
- Break tree limbs and utility lines

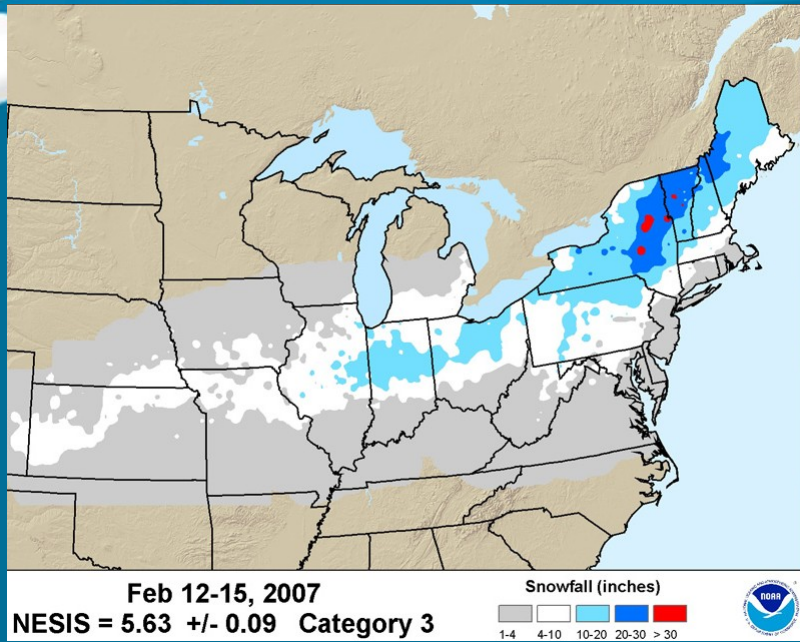


Blizzards

- The March 12-14 1993 Blizzard affected over 100 million people.
- Up to three feet of snow from Alabama to New York impacted 26 states.
- Crippled economic activities of one-third of the U.S., economic losses exceeding \$2 billion, property losses at \$4 billion.
- All East Coast airports closed, 25% of nation's flights cancelled.
- Millions without power.
- 250 fatalities.

NOAA Satellite Image

Valentine's Day Snowstorm – 2007

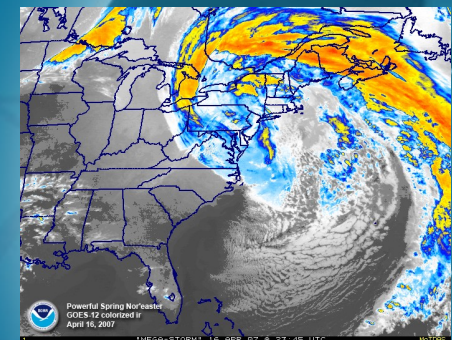
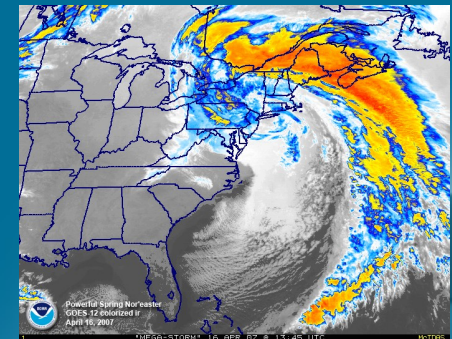
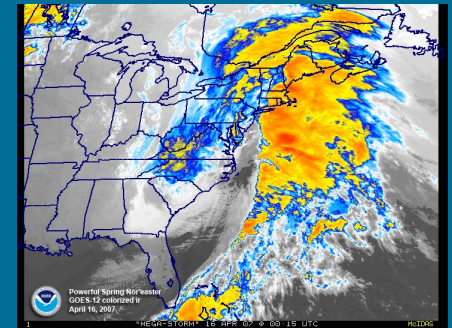
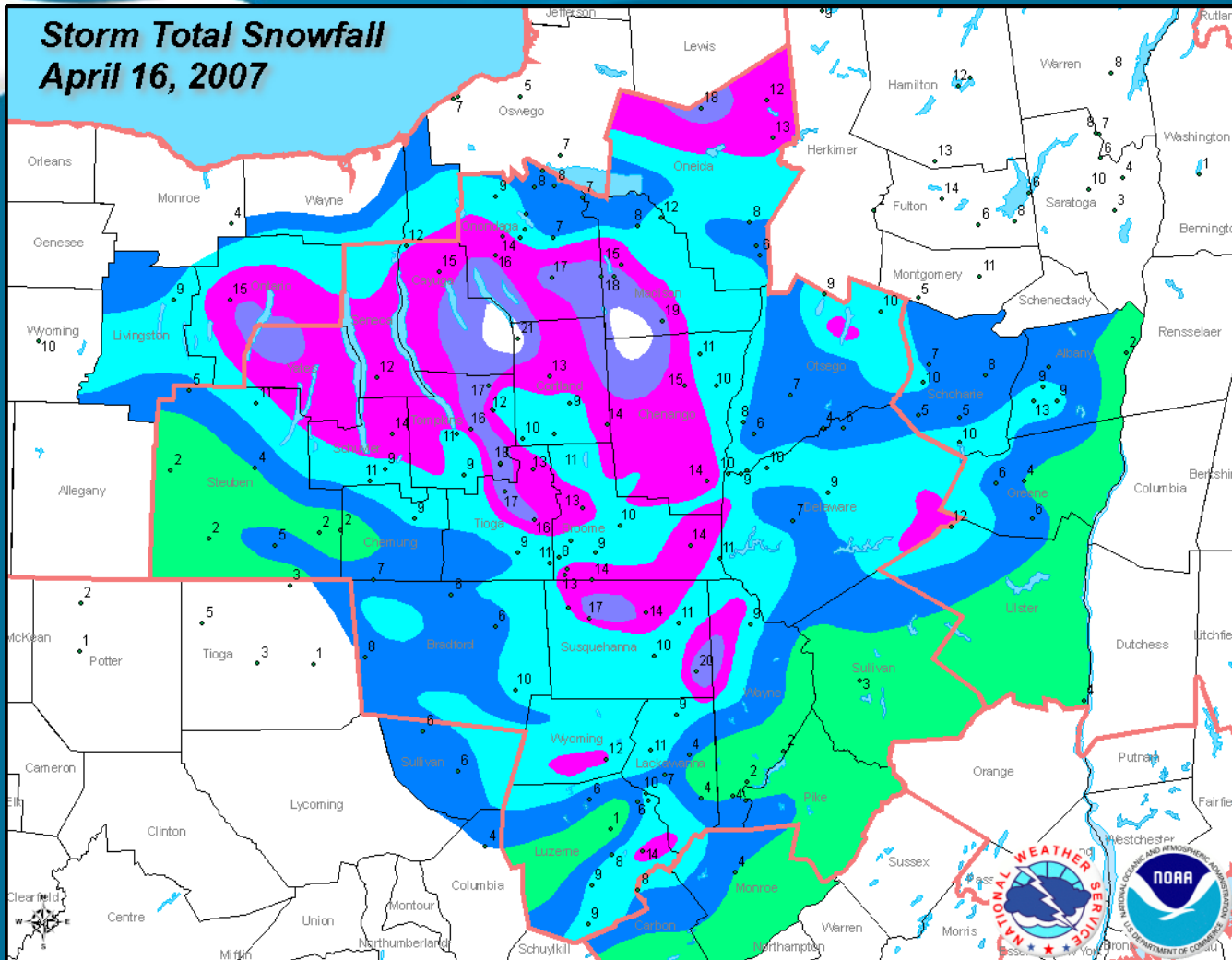


- Over 30 in. of snow across the Catskills
- Highest = 39 inches in Roseboom (Otsego County)
- Most locations around the central NY averaged between 15-30 inches
- Snow began Tuesday evening (2/13) and continued through the early morning hours on the 15th

- Most intense portion of the storm occurred during the early morning on the 14th, with heavy snow and near blizzard conditions.
- Roof collapses occurred

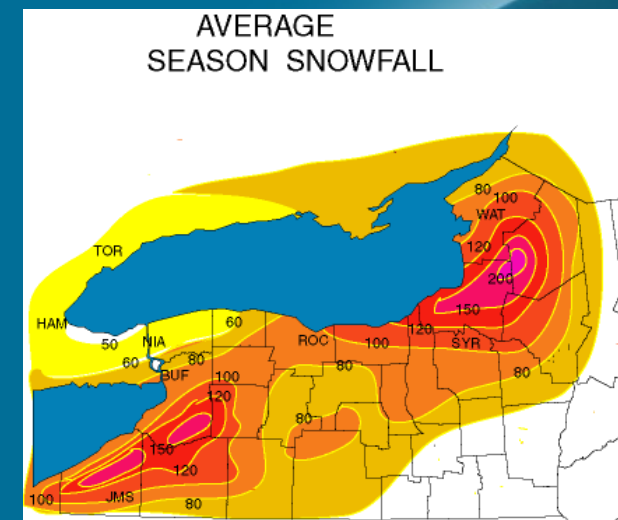
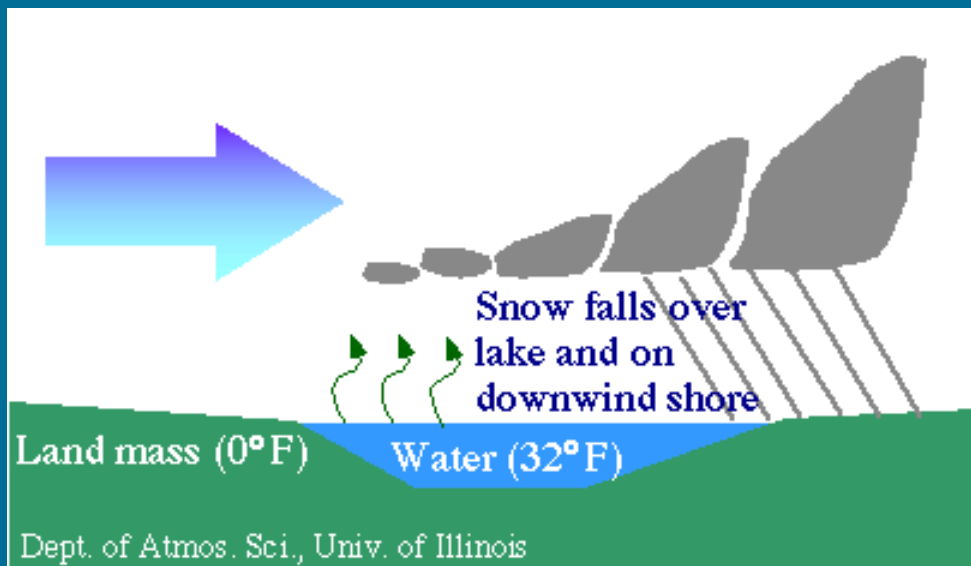


April 16-17, 2007 Nor'easter



Lake Effect Snow: Common in Upstate New York

- Warm water heats air above
- Warm air is unstable and rises
- Snow bands form
- Mountains add additional lift



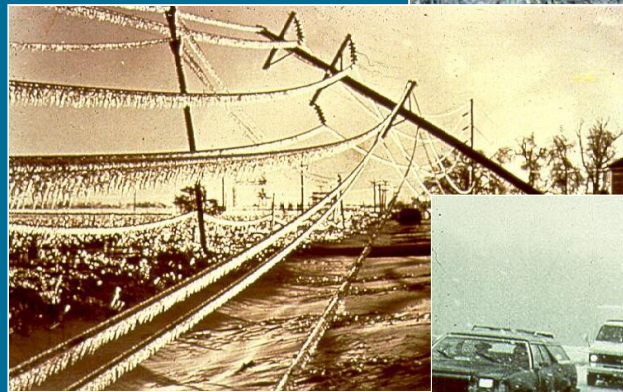
Record Lake Effect Snows February 3-12, 2007

- Incredibly Mild December 2006 and Early January 2007
- Cold arctic air returns for late January and February 2007
 - *PARISH 121 INCHES*
 - *MEXICO 106 INCHES*
 - *NORTH OSCEOLA 106 INCHES*



Ice Storms in New York

- Heavy weight of ice brings down trees
- Power and Communication lines come down
- Traffic accidents
- Pedestrian falls



Ice Storms: Definitions

- **Freezing rain:** rain that freezes on contact with all exposed surfaces. Objects become encased in ice, can damage trees and power lines.
- **Sleet:** Frozen raindrops that bounce on impact with the ground. Does NOT glaze over or encase objects with ice.

Winter Weather Safety- At Home

- Flashlight and extra batteries.
- Battery-powered NOAA Weather Radio and portable radio to receive emergency information.
- Extra food and water – at least a 3 day supply.
- Extra medicine and baby items.
- First-aid supplies.
- Heating fuel.
- Emergency heating source, such as a fireplace, wood stove, space heater, etc.
- Fire extinguisher and smoke detector.

Winter Storm Survival Kit- Automobiles

- Blankets/sleeping bags;
- Flashlight with extra batteries;
- First-aid kit;
- Knife;
- High-calorie, non-perishable food;
- Extra clothing to keep dry;
- A large empty can and plastic cover with tissues and paper towels for sanitary purposes;
- A smaller can and water-proof matches to melt snow for drinking water;
- Sack of sand (or cat litter);
- Shovel;
- Windshield scraper and brush;
- Tool kit;
- Tow rope;
- Booster cables;
- Water container;
- Compass and road maps.

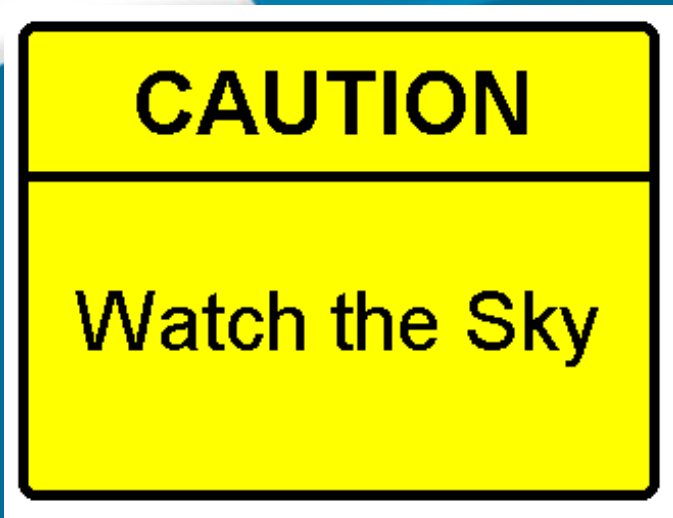
Automobile Safety in Winter Storms

- Plan your travel and check the latest weather reports to avoid the storm!
- Fully check and winterize your vehicle before the winter season begins.
- Keep your gas tank near full to avoid ice in the tank and fuel lines.
- Try not to travel alone.
- Let someone know your timetable and primary and alternate routes.

Snowstorm Definitions

- **Heavy Snow:** more than 6 inches/12 hours.
- **Blizzard:** the most severe winter storm. Wind or wind gusts exceeding 35 mph for 3 hours or more combined with blowing and/or falling snow. Visibilities near zero. Widespread whiteout conditions.
- Blizzards are a serious life-threatening weather hazard!!!!
- **Snow Squall:** intense periods of snow with near blizzard or blizzard conditions at times.
- **Snow Shower:** intermittent accumulating snow
- **Snow Flurries:** very light snow with little or no accumulation.

WATCH vs. WARNING



Watch

Conditions are favorable for winter weather in or near the watch area. Watches are issued for heavy snow, ice storms, blizzards, lake effect snow and wind chill.



Warning

The winter weather event is imminent or occurring in the warned area. Warnings are issued for heavy snow, ice storms, blizzards, lake effect snow and wind chill.

Advisories vs. Warnings

- **Advisories** are issued for significant winter weather events that could be life-threatening if proper precautions are not taken.
- **Warnings** are issued when the event can be life-threatening even with precautions.

Winter Watches

- **Winter Storm Watch:** Potential (50% chance or more) for a winter storm. A winter storm watch is used to cover all of the potential hazards from snow to ice to wind and extreme cold.
 - Potential exists for 7 inches of snow or more in 12 hours
 - Potential exists for ½ inch or more of ice
 - NWS will issue a Winter Storm Watch 24 to 72 hours in advance of the event.
- **Blizzard Watch:** Potential exists for blizzard conditions 24 to 72 hours in advance.
- **Lake Effect Snow Watch:** more than 6 inches of lake effect snow possible in the next 24 to 72 hours.
- **Wind Chill Watch:** Potential exists for winds chills of -25°F or greater, with winds of ≥ 5 mph, lasting longer than one hour



Winter Warnings

- **Lake Effect Snow Warning**
 - *7 inches or more of lake effect snow in 12 hours*
 - *Localized accumulations; not all areas will see heavy lake effect snow.*
- **Ice Storm Warning**
 - *1/2 inch or more of ice.*
- **Winter Storm Warning**
 - *7 inches of snow or more in 12 hours or 9 inches of snow or more in 24 hours.*
 - *Dangerous combination of snow, ice, low wind chill, and/or blowing/drifted snow.*
- **Blizzard Warning**
 - *Blizzard conditions expected: Wind or wind gusts exceeding 35 mph for 3 hours or more combined with blowing and/or falling snow. Visibilities near zero. Widespread whiteout conditions.*
- **Wind Chill Warning**
 - *Wind Chills of -25F or less*



Winter Advisories

- **Freezing Rain Advisory**
 - *Any accumulation of ice*
- **Lake Effect Snow Advisory**
 - *4 to 6 inches of lake effect snow/12 hours*
- **Winter Weather Advisory:**
 - *Hazardous combination of snow, ice, low wind chill, and/or blowing/drifting snow.*
- **Wind Chill Advisory:**
 - *Wind chills -15°F to -24°F*



Wind Chill



NWS Windchill Chart



		Temperature (°F)																	
		40	35	30	25	20	15	10	5	0	-5	-10	-15	-20	-25	-30	-35	-40	-45
Wind (mph)	Cal	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
	25	29	23	16	9	3	-4	-11	-17	-24	-31	-37	-44	-51	-58	-64	-71	-78	-84
	30	28	22	15	8	1	-5	-12	-19	-26	-33	-39	-46	-53	-60	-67	-73	-80	-87
	35	28	21	14	7	0	-7	-14	-21	-27	-34	-41	-48	-55	-62	-69	-76	-82	-89
	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	

Frostbite Times



30 minutes



10 minutes



5 minutes

$$\text{Wind Chill (°F)} = 35.74 + 0.6215T - 35.75(V^{0.16}) + 0.4275T(V^{0.16})$$

Where, T= Air Temperature (°F) V= Wind Speed (mph)

Effective 11/01/01

NOAA Weather Radio

All Hazards:

<http://weather.gov/nwr>



**The Best Way to Receive Weather
Information from the National
Weather Service**

Source of Weather Information

National Weather Service Forecast Office
Binghamton, NY

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Click to view the **Hazardous Weather Outlook** Central NY and Northeast PA

Click on the map below for the latest forecast.

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Last map update: Wed, Oct 24, 2007 at 1:55:08 pm EDT

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...Critical Fire Weather Area Continues Over Parts Of Southern California...
Critical fire weather persists across the mountains and interior valleys of southern California as Santa Ana winds continue today, albeit weaker than in previous days. Details...

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Warnings By State [] Click Below To Zoom In [] Tabs At A Glance []

Created: 10/24/07 at 18:01 UTC

American Samoa - Guam - Puerto Rico/Virgin Islands

- Special Marine Warning
- High Wind Warning
- Flood Warning
- Gale Warning
- Red Flag Warning
- Flood Advisory
- High Surf Advisory
- Small Craft Advisory
- Hazardous Seas Warning
- Lake Wind Advisory
- Wind Advisory
- Winter Storm Watch
- Coastal Flood Statement
- Special Weather Statement
- Marine Weather Statement
- Hazardous Weather Outlook
- Short Term Forecast

24 hr Loop | 12 hr Loop | High Res | Map FAQ | Map Comments | What is UTC?

Warnings	Forecasts	Climate	Information Center	Administrative
Current State/County	Local Graphical Aviation	Past Weather Predictions	Tsunamis Publications	Headquarters For NWS
RSS/XML	Marine	Heating/Cooling Days	Weather Instruments	Employees
UV Alerts	River/Stream	Monthly Temps	Damage/Fatality/Injury Statistics	Mission Statement
Observations	Hurricanes	Recordis	Long Range Forecasts	Strategic Plan
Radar	Severe Weather	Astronomical Data	Education/Outreach	Headline Archive
Satellite	Fire Weather	NOAA Education	Admin maps/charts	International
Snow Cover	Sun/Moon	General Public	Digital Forecast Info	Legislative Affairs
Marine	Forecast Models	Statistical Models	GIS Products	National Centers
River/Stream	Numerical Models	Statistical Models	XML Products	Local Offices
Surface Weather	Statistical Models	Statistical Models	Weather Safety	Products and Services
Observed Precip	Current Forecast	Students	Weather Radio	Contact Us
		Play Time for Kids		

Internet Sites

- <http://weather.gov/bgm>
 - NWS BGM grid point forecasts
- <http://weather.gov>
 - Main NWS internet Site
 - Click on section of NY to get directed to NWS Binghamton/Buffalo/Albany/Burlington (VT) or New York City.

NWS Binghamton Contact

- David Nicosia, Warning Coordination Meteorologist
- 607-770-9531 x 223 (business hours)
- david.nicosia@noaa.gov

