

# **NORTHEASTERN STORM BUSTER**



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## **MAJOR WINTER STORM IMPACTS THE ALBANY AREA**

*Raymond G. O'Keefe*

*Warning Coordination Meteorologist, NWS Albany, NY*

A major winter storm struck the WFO Albany forecast area December 11-12, 2008. Liquid precipitation totals ranged from 3 to 4 inches across southern and eastern portions of the NWSFO Albany County Warning Area (CWA), to around two inches in the Capital District, to about one inch across northern areas of the CWA. Widespread 0.5 to 1.0 inch ice accretion totals were recorded across: the Capital District, Schoharie Valley, mid-Hudson Valley and Catskills of New York; southern Vermont; Berkshire County, Massachusetts, and; Litchfield County, Connecticut. Across the western Mohawk Valley, southern Adirondacks and Lake George-Saratoga Region of New York, and the southern Green Mountains of Vermont, snowfall totals from 5 to 10 inches were recorded. Totals elsewhere were insignificant.

The ice storm resulted in widespread power outages. An estimated 350,000 utility customers lost power in the Albany Forecast Area. This storm is the most significant winter event to strike the WFO Albany forecast area since at least an early season snowstorm on October 4, 1987. That storm zapped 243,000 customers of Niagara Mohawk Power Corp. The 2008 ice storm is the most significant ice storm to hit the Capital District since the 1964 ice storm that caused ice accretions of up to 1.5 inches. Many residents were without power for up to two weeks, and schools had to be shut down for one week.

Widespread areal flooding occurred across the southern half and eastern portion of the WFO Albany Hydrologic Service Area. In addition, river flooding

was observed on the Hoosic River, Esopus Creek, Housatonic River, Batten Kill, Still River and Wappingers Creek.

Two people died in Glenville, NY from carbon monoxide poisoning related to the storm.

## ***NORTHEAST FIRE WEATHER SUMMIT IN ALBANY NEW YORK***

*Hugh Johnson*

*Fire Weather Program Leader, NWS Albany, NY*

*Evan L. Heller*

*Assistant Fire Weather Program Leader, NWS Albany, NY*

A total of 20 individuals associated with the fire weather operations of many of the National Weather Service (NWS) offices in the Northeast participated in a Fire Weather Summit held here at the Center for Emerging Sciences and Technology Management (CESTM) on Monday, November 17, 2008. Due to restricted travel budgets, about half were forced to participate via telephone conference.

This summit attempted to try and bring these individuals together to discuss various operational issues of importance. NWS offices have been implementing Fire Weather procedures a little differently from one another. The issues arising as a result include: thresholds for issuing a Red Flag Warning; allowing a Fire Weather Watch to continue into the first period, and; determining whether or not an area is fully “greened up” in the spring. The seemingly minor differences in interpretation of policy have produced frustration amongst forecasters.

The participants, of whom included NWS Fire Weather focal points, state and local fire-related agencies, and conservationists, were given the opportunity to speak up about their concerns regarding Fire Weather protocol, and to discuss how they invoke their fire weather policies. In presenting a “sliding thresholds” methodology for Red Flag Warnings he instituted for his NWS Gray office, Fire Weather Program Leader Kirk Apffel argued that these thresholds worked better than the one fixed standard accepted by the other offices, and that these offices ought to consider using them in order to get everyone on the “same page” with a better methodology. The case for this change seemed to make sense. If conditions are exceptionally

dry, then stronger winds are not required to be able to fan the flames in a dangerous manner that is characteristic of a “Red Flag” condition. The reverse would also be true.

However, after much discussion, and a survey of the primary Fire Weather users in Albany’s Warning area, it was unanimously decided that we should keep the current Red Flag standard of one clear set of thresholds, which includes five days of no significant rain, relative humidity below 30 percent for at least two consecutive hours, and wind gusts over 25 mph for two or more hours. These conditions are met during “pre-greenup”, which is the period during which the vast majority of Red Flag situations occur.

As far as the question of extending a Fire Weather Watch (Yellow Flag) to within 12 hours of the anticipated beginning of the event, most of our users preferred we not do this. In our region, Fire Weather-related operational decisions are made by early morning, as the decision of whether to issue the Red Flag Warning impacts user issues of personnel availability and overtime, issues which are best dealt with early in the day. Since one of the missions of the National Weather Service is to issue as accurate and concise a forecast as possible, it is considered best to make a yes or no decision on the Red Flag by early morning of the day of the event.

The authors of this article have developed a geographical map “systemology” of tracking how many days have elapsed since the last day of 0.25 inch or greater (deemed significant) rainfall, for each of our 34 zones. This is a .jpg file that utilizes different colors to delineate whether one, two, three, four or five+ days have elapsed since the last significant rain has fallen. We also use an aqua shade to indicate whether an inch or more of snow depth covers more than half of a zone. If this is case, there will likely be no “fire weather issues” for that particular zone, and it is essentially treated as a significant rain day, from which the dry day count begins. During our upcoming Fire Weather Season, we plan to make this map available to our users on the internet. If a discrepancy is observed between how dry the fuels are versus how dry a zone is, users may contact us and communicate their concerns.

Hopefully, the Fire Weather Season will go a little more smoothly for everyone next season.

## ONLINE EDUCATIONAL RESOURCES

*Brian Montgomery*  
*Senior Meteorologist, NWS Albany, NY*

When it comes to weather education, the National Weather Service has a wealth of online resources. Below is an exhaustive list of links across the Internet.

National Weather Service educational resources

<http://www.weather.gov/om/edures.shtml>

DESCRIPTION: A list of classroom materials and student activities, an NWS Glossary, career information, and some NWS Partner's (AMS, TWC) educational web sites. All grades, K-12.

NOAA/NASA Sky Watchers Chart

<http://www.weather.gov/os/brochures/cloudchart.pdf>

DESCRIPTION: A new NWS education/outreach publication intended for the general public, teachers and students. Two-sided publication with links to NOAA and NASA educational web sites.

National Weather Service JetStream Web Site

<http://www.srh.noaa.gov/srh/jetstream/>

DESCRIPTION: On-line Meteorology 101 and a description on how the NWS works. Content is intended for high school teachers, students and the general public.

NOAA-National Weather Service-Tsunami Teacher Education Kit

[http://www.oesd.noaa.gov/terk\\_intro.htm](http://www.oesd.noaa.gov/terk_intro.htm)

DESCRIPTION: Materials for teachers and students to learn how Tsunamis form, and how to minimize risk during a Tsunami event. All grades, K-12.

National Weather Service-COMET Education/Training

<http://www.meted.ucar.edu>

DESCRIPTION: Meteorology Education and Training by the COMET program for all levels K-12, the general public and scientists.

NOAA Weather Radio-All Hazards-Education/Schools

<http://public-alert-radio.nws.noaa.gov>

DESCRIPTION: NOAA Public Alert Radios are being distributed to public schools in all communities across the nation to help safeguard our children. This program is sponsored by the Departments of Homeland Security, Commerce and Education.

NOAA Weather Radio-All Hazards-Introduction

<http://www.weather.gov/nwr/>

DESCRIPTION: NOAA Weather Radio All-Hazards (NWR) is a nationwide network of radio stations broadcasting continuous weather information directly from the nearest National Weather Service office. NWR broadcasts official Weather Service warnings, watches, forecasts and other hazard information, 24 hours a day, 7 days a week.

NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION (NOAA)

Office of Education

<http://www.oesd.noaa.gov/>

DESCRIPTION: In conjunction with the NOAA Education Council, coordinates educational activities throughout NOAA, and oversees the implementation of NOAA's Education Plan and Policy. Information on funding, scholarships and student opportunities.

NOAA Education Web Sites

<http://www.education.noaa.gov/>

DESCRIPTION: NOAA's many educational activities are distributed across the agency. This site has been designed to help students, teachers, librarians and the general public access the many educational activities, publications and booklets that have been produced.

Student Opportunities

[http://www.oesd.noaa.gov/noaa\\_student\\_opps.html](http://www.oesd.noaa.gov/noaa_student_opps.html)

DESCRIPTION: This website is designed to provide information about educational opportunities available throughout NOAA. Information on scholarships, internships and fellowships, including a brief description of each program; application deadlines; award amounts; dates of opportunity; contact name, telephone number and e-mail address.

NOAA Climate Program Office-Education

<http://www.climate.noaa.gov/education/>

DESCRIPTION: NOAA climate material for students and teachers. Information on NOAA opportunities, Post-Docs and Field Research.

American Meteorological Society (AMS)

<http://www.ametsoc.org/>

National Weather Association (NWA)

<http://www.nwas.org/>

Federal Emergency Management Agency (FEMA)  
Resources For Parents and Teachers

[http://www.fema.gov/kids/tch\\_links.htm](http://www.fema.gov/kids/tch_links.htm)

DESCRIPTION: FEMA Disaster web sites for parents and teachers. This is a partial list of web sites that have disaster-related materials. A more complete list can be found at the FEMA web site.

Activities for Kids

<http://www.fema.gov/kids/>

DESCRIPTION: This site teaches students how to be prepared for disasters, and to prevent disaster damage. Students can also: learn what causes disasters; play games; read stories, and; become a Disaster Action Kid.

American Red Cross

<http://www.redcross.org/disaster/masters>

DESCRIPTION: The *Masters of Disaster*® series is an educational tool that will teach youth the importance of preparedness while reducing fear of the unexpected. The goal is to empower youth with the confidence and knowledge to prepare for disasters, and to help create a culture of preparedness.

Environmental Protection Agency Sunwise Program for Teachers and Students (UV-Index)

<http://www.epa.gov/sunwise>

DESCRIPTION: The SunWise program is an environmental and health education program that aims to teach the public, through the use of classroom-, school-, and community-based components, how to protect themselves from overexposure to the sun.

The Weather Channel

<http://www.weatherclassroom.com/>

DESCRIPTION: This site includes weather education, weather games, Let's Play, Cool Clips, and the WeatherREADY modules.

Heldref Publications' Weatherwise

<http://www.weatherwise.org>

DESCRIPTION: This magazine contains articles authored by both NWS and NOAA scientists on topics of weather, climate, hydrology and oceanography.

## FALL 2008: NOT TOO SHABBY

*Evan L. Heller*

*Climatologist, NWS Albany*

With only one record of any kind during the entire three-month period from September to November, the Fall of 2008 was neither wild nor all that extreme in Albany, New York. Referring to the stats in Table 1, temperature-wise, September was the most off the mark at 3.7° above normal, while October was most off for precipitation, by +1.86". For the season as a whole, Albany ended up being only 0.9° above normal. Precipitation, totaling 11.74", was 1.89" above normal. Indeed our only record was a daily precipitation record. This occurred on the 25<sup>th</sup> of October, when 2.06" fell (Table 3b). This was our greatest daily rainfall of the season, breaking the 1967 record by a mere 0.34". There were only two other days with an inch or more of precipitation (Table 2). Snowfall was well below normal. Albany received only 0.5" of snow (Table 1), all but a trace of it falling not until the very last day of the season (November 30<sup>th</sup>). This was 4.8" below the fall normal.

The thunderstorm season wound down in a big way from the summer peak, with only two days of thunder at Albany, September 9<sup>th</sup> and October 1<sup>st</sup> (Tables 4a-c). Dense fog was perhaps the most significant weather of the season, it having occurred on 12 different days. November was the windiest of the three months, but the windiest day was October 28<sup>th</sup>, when a gust of 43 mph was measured at Albany International Airport. None of the three monthly wind peaks were associated with thunderstorms, but at least two occurred with the passage of cold fronts. September and October were pretty sunny months, but even in November, the partly cloudy days outnumbered the cloudy ones.

### STATS

	SEPTEMBER	OCTOBER	NOVEMBER	SEASON
Avg. High/Dep. Fm. Nrm.	74.1°/+2.8°	58.3°/-1.4°	46.7°/-0.8°	59.7°/+0.2°
Avg. Low/Dep. Fm. Nrm.	54.5°/+4.6°	38.0°/-0.8°	32.3°/+1.5°	41.6°/+1.8°
Mean/ Dep. From Norm.	64.3°/+3.7°	48.1°/-1.2°	39.5°/+0.3°	50.6°/+0.9°
High Daily Mean/date	79.5°/5 <sup>th</sup>	62.5°/1 <sup>st</sup>	62.0°/15 <sup>th</sup>	
Low Daily Mean/date	52.5°/19 <sup>th</sup>	34.5°/30 <sup>th</sup>	21.5°/22 <sup>nd</sup>	
Highest reading/date	89°/4 <sup>th</sup> & 5 <sup>th</sup>	73°/9 <sup>th</sup>	68°/15 <sup>th</sup>	
Lowest reading/date	40°/19 <sup>th</sup>	23°/24 <sup>th</sup>	16°/23 <sup>rd</sup>	
Lowest Max reading/date	60°/26 <sup>th</sup>	40°/29 <sup>th</sup>	26°/22 <sup>nd</sup>	
Highest Min reading/date	70°/5 <sup>th</sup> & 14 <sup>th</sup>	55°/1 <sup>st</sup>	56°/15 <sup>th</sup>	
Ttl. precip./Dep Fm. Nrm.	4.22"/+0.91"	5.09"/+1.86"	2.43"/-0.88"	11.74"/+1.89"
Ttl. snowfall/Dp. Fm.Nrm.	-/	T/-0.2"	0.5"/-4.6"	0.5"/-4.8"
Maximum Precip/date	1.25"/6 <sup>th</sup>	2.06"/25 <sup>th</sup>	0.98"/25 <sup>th</sup>	
Maximum Snowfall/date	-/	T/28 <sup>th</sup> & 29 <sup>th</sup>	0.5"/30 <sup>th</sup>	

Table 1

NORMALS	SEPTEMBER	OCTOBER	NOVEMBER	SEASON
High	71.3°	59.7°	47.5°	79.8°
Low	49.9°	38.8°	30.8°	57.8°
Mean	60.6°	49.3°	39.2°	68.8°
Precip	3.31"	3.23"	3.31"	10.92"
Snow	0	0.2"	5.1"	0
PRECIP	D	A	Y	S
Days T+	10	14	19	43
Days 0.01+	10	12	11	34
Days 0.10+	6	7	6	19
Days 0.25+	5	4	3	12
Days 0.50+	4	2	1	7
Days 1.00"+	1	2	0	3
1.00+ value/date	1.25"/6 <sup>th</sup>	2.06"/25 <sup>th</sup>	-	
1.00+ value/date	-	1.47"/28 <sup>th</sup>	-	
3.5" snow values/date	-	-	-	
6.5" snow values/date	-	-	-	

Table 2

RECORDS

ELEMENT	SEPTEMBER			
	1 <sup>st</sup>		2 <sup>nd</sup>	
High/Date Prev Rec./Yr.	/	/	/	/
Low/Date Prev Rec./Yr.	/	/	/	/
Lo Max/Date Prev Rec./Yr.	/	/	/	/
Hi Min/Date Prev Rec./Yr.	/	/	/	/
Hi Mean/Date Prev Rec./Yr.	/	/	/	/
Lo Mean/Date Prev Rec./Yr.	/	/	/	/
Precipitation/Date Prev Rec./Yr.	/	/	/	/
Snowfall/Date Prev Rec./Yr.	/	/	/	/
Top 10 Warmest?				
Top 10 Coolest?				
Top 10 Warm Mean Max?				
Top 10 Cool Mean Max?				
Top 10 Cool Mean Min?				
Top 10 Warm Mean Min?				
Top 10 Precipitation?				
Top 10 Snowfall?				
100 All-Time Hottest?				
100 All Time Coldest?				
100 All-Time Wettest?				
100 All-Time Driest?				

Table 3a

ELEMENT	OCTOBER			
	1 <sup>st</sup>		2 <sup>nd</sup>	
High/Date Prev Rec./Yr.	/	/	/	/
Low/Date Prev Rec./Yr.	/	/	/	/
Lo Max/Date Prev Rec./Yr.	/	/	/	/
Hi Min/Date Prev Rec./Yr.	/	/	/	/
Hi Mean/Date Prev Rec./Yr.	/	/	/	/
Lo Mean/Date Prev Rec./Yr.	/	/	/	/
Precipitation/Date Prev Rec./Yr.	2.06"/25 <sup>th</sup>	1.72"/1967	/	/
Snowfall/Date Prev Rec./Yr.	/	/	/	/
Top 10 Warmest?				
Top 10 Coolest?				
Top 10 Warm Mean Max?				
Top 10 Cool Mean Max?				
Top 10 Cool Mean Min?				
Top 10 Warm Mean Min?				
Top 10 Precipitation?				
Top 10 Snowfall?				
100 All-Time Hottest?				
100 All Time Coldest?				
100 All-Time Wettest?				
100 All-Time Driest?				

Table 3b

ELEMENT	NOVEMBER			
	1 <sup>st</sup>		2 <sup>nd</sup>	
High/Date Prev Rec./Yr.	/	/	/	/
Low/Date Prev Rec./Yr.	/	/	/	/
Lo Max/Date Prev Rec./Yr.	/	/	/	/
Hi Min/Date Prev Rec./Yr.	/	/	/	/
Hi Mean/Date Prev Rec./Yr.	/	/	/	/
Lo Mean/Date Prev Rec./Yr.	/	/	/	/
Precipitation/Date Prev Rec./Yr.	/	/	/	/
Snowfall/Date Prev Rec./Yr.	/	/	/	/
Top 10 Warmest?				
Top 10 Coolest?				
Top 10 Warm Mean Max?				
Top 10 Cool Mean Max?				
Top 10 Cool Mean Min?				
Top 10 Warm Mean Min?				
Top 10 Precipitation?				
Top 10 Snowfall?				
100 All-Time Hottest?				
100 All Time Coldest?				
100 All-Time Wettest?				
100 All-Time Driest?				

Table 3c

ELEMENT	SEASON
Top 10 Warmest?	
Top 10 Coolest?	
Top 10 Precipitation?	

Table 3d

MISCELLANEOUS  
SEPTEMBER

Avg. wind speed/Dep. Fm Norm.	5.1mph/-1.7 mph
Peak wind/direction/date	38/WNW/15 <sup>th</sup>
Windiest day avg. value/date	13.3 mph/15 <sup>th</sup>
Calmmest day avg. value/date	1.4 mph/25 <sup>th</sup> & 27 <sup>th</sup>
# clear days	17
# partly cloudy days	8
# cloudy days	5
Dense fog dates (2)	13 <sup>th</sup> , 25 <sup>th</sup> & 28 <sup>th</sup>
Thunder dates (3)	9 <sup>th</sup>
Sleet dates (4)	-
Hail dates (5)	-
Freezing rain dates (6)	-

Table 4a

OCTOBER

Avg. wind speed/Dep. Fm Norm.	5.7 mph/-1.8 mph
Peak wind/direction/date	43/WNW/28 <sup>th</sup>
Windiest day avg. value/date	14.6 mph/28 <sup>th</sup>
Calmmest day avg. value/date	0.3 mph/12 <sup>th</sup>
# clear days	16
# partly cloudy days	13
# cloudy days	2
Dense fog dates (2)	5 <sup>th</sup> , 7 <sup>th</sup> , 8 <sup>th</sup> , 12 <sup>th</sup> , 20 <sup>th</sup> & 24 <sup>th</sup>
Thunder dates (3)	1 <sup>st</sup>
Sleet dates (4)	-
Hail dates (5)	-
Freezing rain dates (6)	-

Table 4b

NOVEMBER

Avg. wind speed/Dep. Fm Norm.	6.4 mph/-2.3 mph
Peak wind/direction/date	39/W/16 <sup>th</sup> & 39/SSE/25 <sup>th</sup>
Windiest day avg. value/date	14.0 mph/16 <sup>th</sup>
Calmmest day avg. value/date	0.7 mph/12 <sup>th</sup>
# clear days	4
# partly cloudy days	16
# cloudy days	10
Dense fog dates (2)	4 <sup>th</sup> , 12 <sup>th</sup> & 18 <sup>th</sup>
Thunder dates (3)	-
Sleet dates (4)	30 <sup>th</sup>
Hail dates (5)	-
Freezing rain dates (6)	-

Table 4c

## **WCM Words**

*Raymond G. O'Keefe*

*NWS Albany Warning Coordination Meteorologist*

The ice storm that struck much of our forecast area in mid December ranks as one of the most widespread significant winter weather events in the Albany forecast area over the last 50 years. I invite your comments on how the storm impacted you. Send them to me at [raymond.okeefe@noaa.gov](mailto:raymond.okeefe@noaa.gov). I'll pick some of the comments for publication in the StormBuster Spring edition.

Enjoy the holiday season. And – be prepared for whatever winter has in store for us.



### ***From the Editor's Desk***

Winter came in like a lion. The season's first measurable snowfall at Albany occurred on November 30<sup>th</sup>, and in the three weeks since, we've already had the biggest ice storm in perhaps decades, and nearly a foot of snow with another storm, which was winding down as I type this. Our lead article, contributed by our Warning Coordination Meteorologist, Ray O'Keefe, highlights the highly impactful ice event, which hit on December 11<sup>th</sup>. This season's issue also offers up three other articles for your reading enjoyment as you cozy up by the fire. One, ironically, is about fire weather. The third article is an extensive listing of educational weather resources, while the closer is a recap of the fall climate season. A thank you goes out to all of our contributors.

Here's wishing you and yours a fine holiday season. Try and stay warm...before you know it, it'll be time for the spring issue of Northeastern StormBuster.