

# Management Of Winter Services For Extreme Events

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## 0. CONTENT

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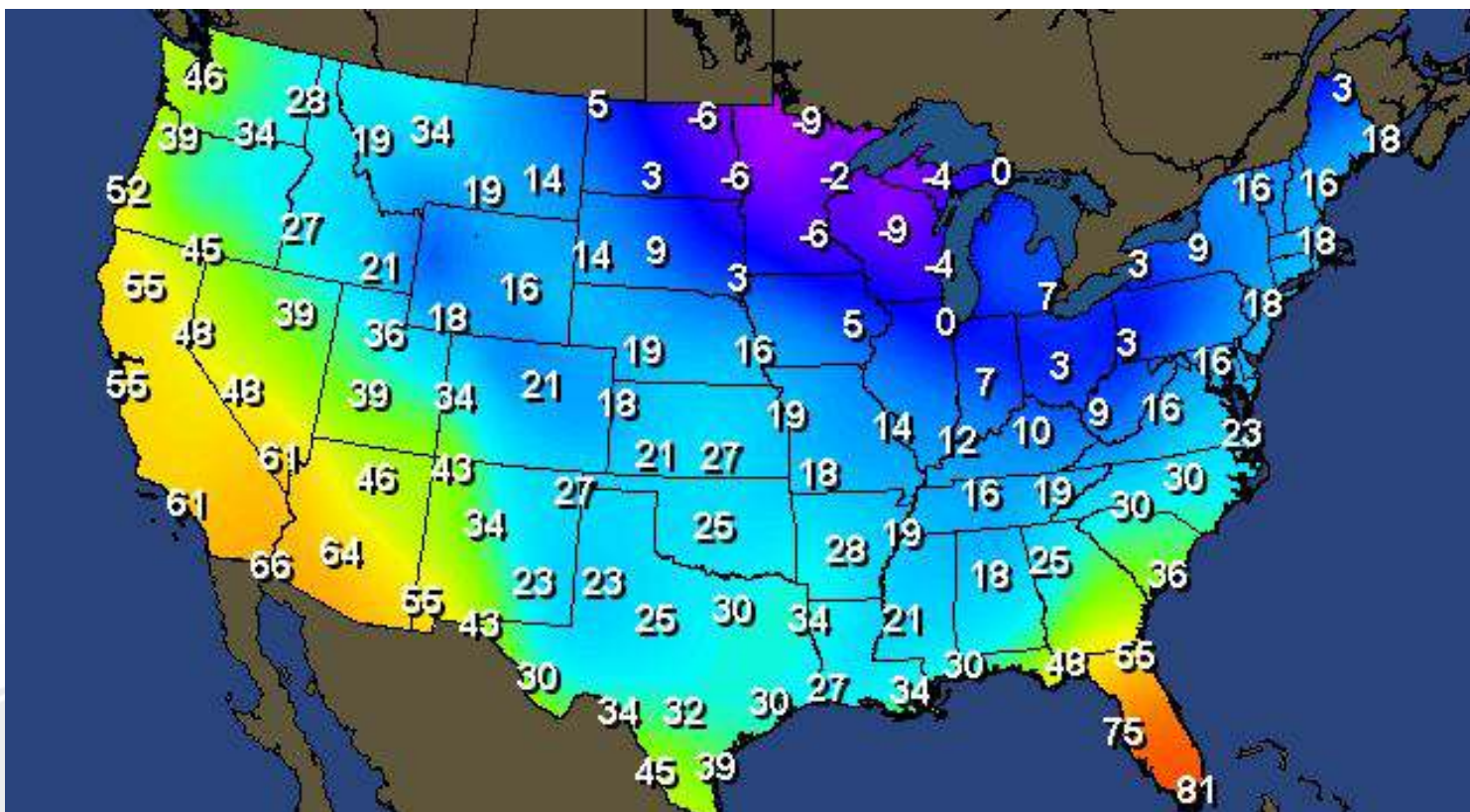
1. Rhode Island at a glance
2. Weather in the United States
3. The effects of extreme weather
4. The Blizzard of '78
5. Comparisons with Nemo
6. What did we learn?
7. Preparing for Nemo
8. Weathering Nemo
9. Communicating Nemo
10. Aftermath of Nemo
11. Positive outcomes
12. Closing thoughts

# 1. RHODE ISLAND AT A GLANCE

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## 2. WEATHER IN THE UNITED STATES



There is no single climate that defines the United States; temperatures and weather patterns vary greatly from region to region.



### 3. THE EFFECTS OF EXTREME WEATHER

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States handle a diverse collection of weather events. In Alaska, a glacier-sized avalanche recently blocked a 50-mile section of highway, cutting off access to a town of 4,000 people.

### 3. THE EFFECTS OF EXTREME WEATHER

## Preliminary Significant U.S. Weather and Climate Events for 2012

### SNOW PACK

3rd smallest winter snow cover extent. Below-average snowpack was observed for much of the West.

### WARM

Warmest year on record for the nation. 19 states record warm. The 4th warmest winter, warmest spring, and second warmest summer contributed to 2012 having an average temperature 3.2F above average and 1.0F above the previous record warm year of 1998.

### WILDFIRES

Over 9.2 million acres burned nationwide during 2012. CO experienced its most costly fire on record in June. The Whitewater-Baldy fire was the largest on record for NM.

### COLD

Coldest January on record in AK. The monthly average temperature in Bettles was -35.6F. Snowiest winter in Anchorage with 134.5 inches.

### FLOOD

Storms caused record flooding in and around Duluth, MN on June 20th with over 8 inches of rainfall observed in 24 hours. Rivers in the area reached their highest levels on record.

### TORNADOES

An early season tornado outbreak on March 2-3 in IN, OH, WV, and KY resulted in 42 fatalities. This was the deadliest tornado outbreak of 2012.

### DROUGHT

The 2012 drought peaked in July with over 60% (PDSI) of the nation experiencing drought conditions, comparable to the drought episodes of the 1950s. Corn and soybean crops failed across a large portion of the Great Plains and Midwest. Water levels along the Mississippi approached record lows and slowed commercial shipping.

### HURRICANE ISAAC

Made landfall near the mouth of the Mississippi River in late August with winds of 80 mph. Significant storm surge and flooding rains along the Gulf Coast. 9 fatalities.

### POST-TROPICAL CYCLONE SANDY

Made landfall near Atlantic City, NJ with sustained winds of 80 mph in late October. Record storm surge along NJ and NY coasts along with heavy rain and snow. Over 8 million people lost power, 131 fatalities.

### STORMS

A straight-line wind storm called a derecho caused significant damage from IN to MD. Over 250,000 customers lost power, including the densely populated Washington, D.C. area.

### WET

Florida had its wettest summer on record, partially due to Hurricane Isaac and Tropical Storm Debby. Seasonal precipitation was 140 percent of average.

### STORMS

On March 9th a storm system brought severe weather to HI. A rare tornado hit Oahu. Largest hailstone on record for the state in Oahu.



NOAA's  
National Climatic Data Center



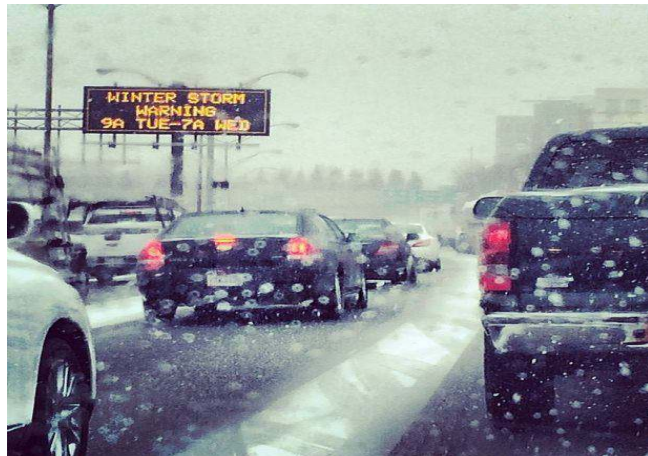
### 3. THE EFFECTS OF EXTREME WEATHER

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### 3. THE EFFECTS OF EXTREME WEATHER





### 3. THE EFFECTS OF EXTREME WEATHER



## 4. THE BLIZZARD OF 1978

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- Historic storm that brought more than 2 feet of snow to the Northeast Region of the United States
- \$520 million in damage (\$1.8 billion today)
- Road, air and railroad traffic shut down for a week



## 4. THE BLIZZARD OF 1978

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- Lack of Regional coordination meant that highways (Route I-95) in Massachusetts were opened while the same highway in Rhode Island remained closed





## 5. COMPARISONS WITH NEMO

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In February 2013, Winter Storm Nemo struck the Northeast United States nearly 35 years to the day of the Blizzard of '78.

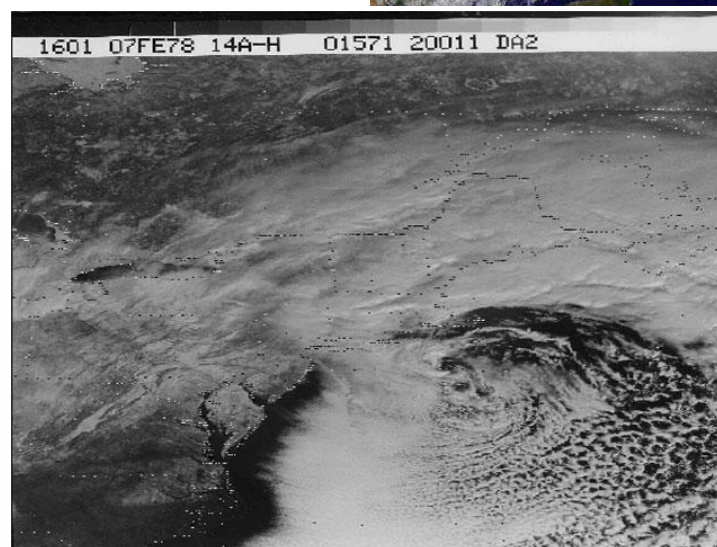
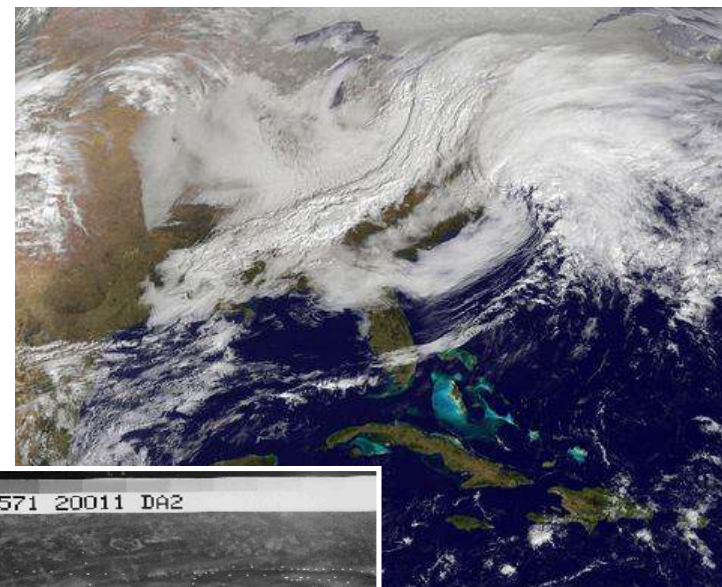
	<u>1978</u>	<u>2013</u>
Highest snowfall	40 inches	40 inches
Duration	32 hours	28 hours
Recorded wind gusts	93 mph	83 mph
Deaths	100	18

## 6. WHAT DID WE LEARN?

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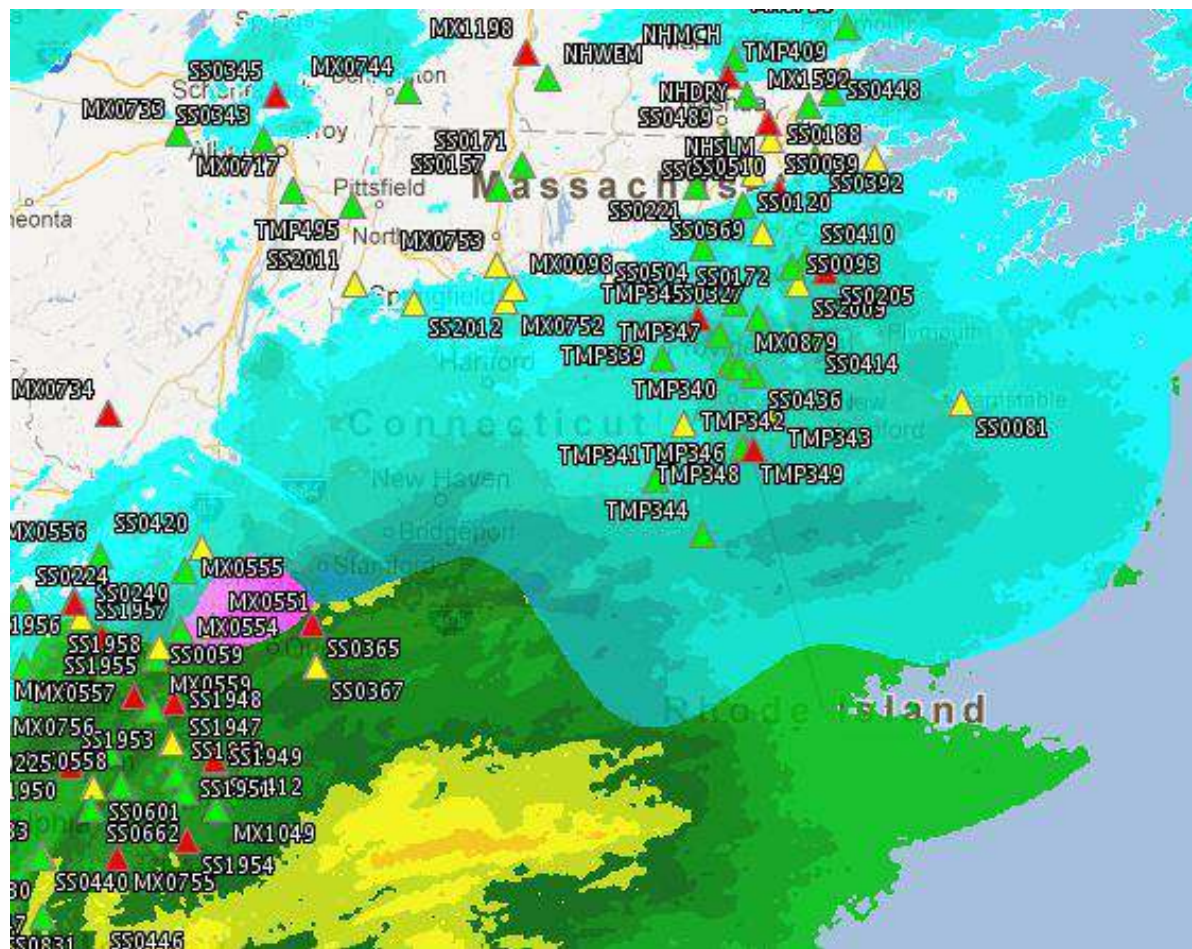
When winter storm Nemo struck, we were better prepared to handle a large-scale winter event

- Enhanced forecasting
- Advanced equipment
- Increased communication



## 7. PREPARING FOR NEMO

- Pre-storm planning with emergency management partners
- Monitoring forecasts for best time to begin pre-treating roads
- Relaying information to the public to limit traffic during height of the storm





## 8. WEATHERING NEMO

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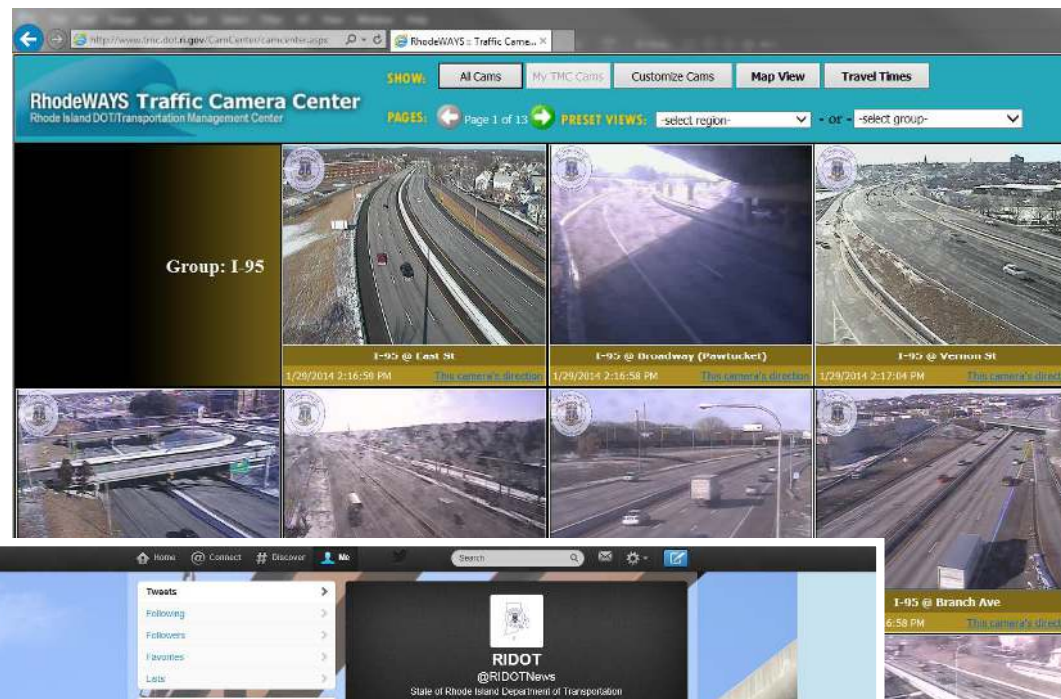
- Managed storm response through an emergency operations center
- Coordinated temporary closure of the interstate with our neighboring states, Massachusetts and Connecticut



## 9. COMMUNICATING NEMO

Throughout the storm, RIDOT continued to offer real-time information and updates

- Live cameras
- Social media
- Congestion maps
- Travel times
- Media advisories
- 511 phone line



## 10. AFTERMATH OF NEMO

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Travel bans remained in place through the following afternoon for heavy equipment to come in and clear the snow.



## 10. AFTERMATH OF NEMO

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Worked closely with utility and tree-removal companies to restore power and reopen roadways

## 11. POSITIVE OUTCOMES

Rhode Island's quick response to the storm generated compliments from the press



**Tom Winter** @Tom\_Winter

21h

In addition, the exit ramps have large piles, **RIDOT** and **MASSDOT** doing great work to clear, but be extra cautious, visibility and space tough

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11:20 AM - 10 Feb 13 · [Details](#)



**Marcia Green** @BreezerMarcia 22h

RIDOT the winner on Route 120 - pavement on R.I. side, snow-packed on Mass. end.

[Details](#)



**Scott MacKay** @ScottMacRI

20h

RI DOT deserves credit for fine job in road clearing. 195 bare as July. 114 and 136 in East Bay good too.

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## 12. CLOSING THOUGHTS

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In the face of changing climate, we all must be prepared for extreme weather events like the blizzards of 1978 and 2013. The one thing we can be sure of? Spring will come.





