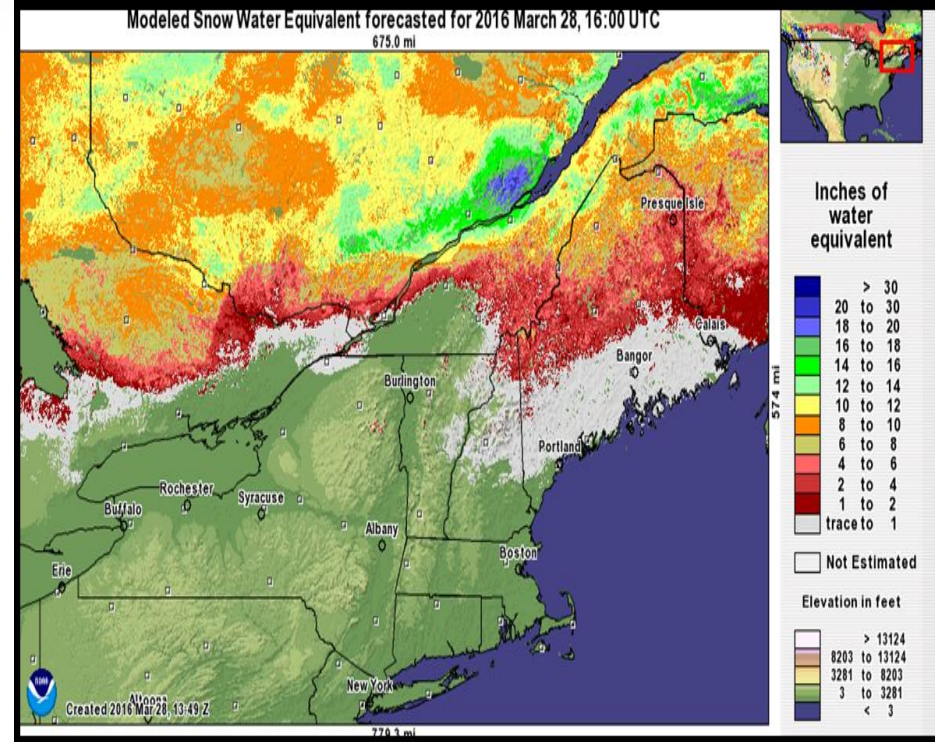
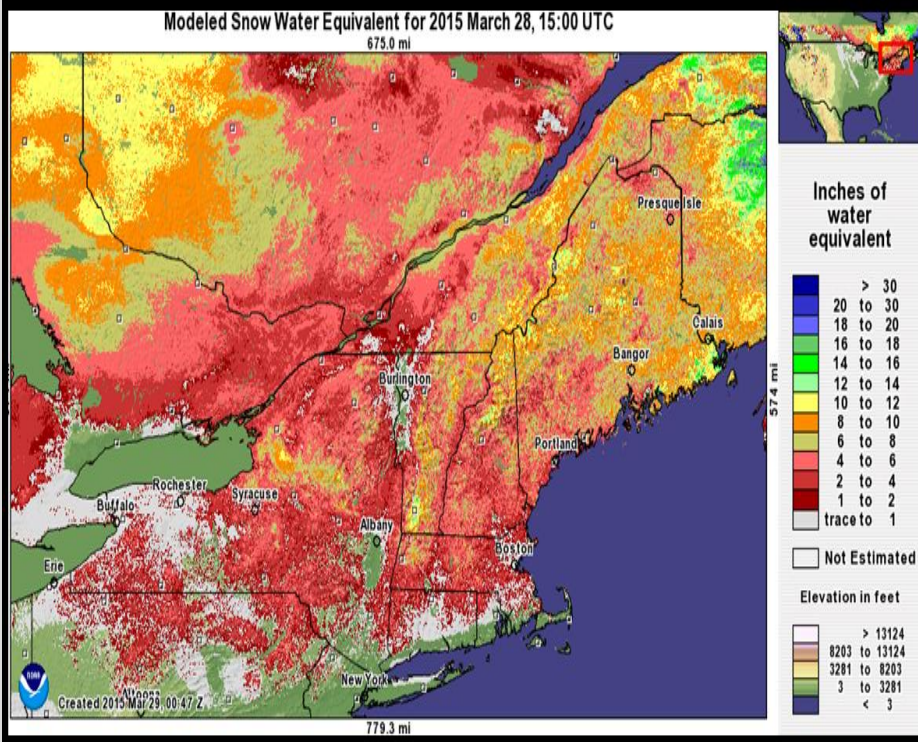




Northeast River Forecast Center's Spring Flood Outlook



A Tale of Two Distinctly Different Winters!



David R. Vallee
Hydrologist-in-Charge
NOAA/NWS/Northeast River Forecast Center



Building a Weather-Ready Nation



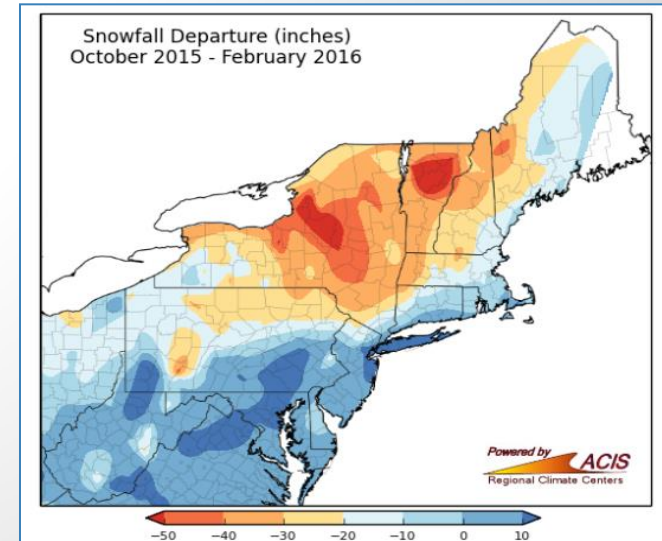
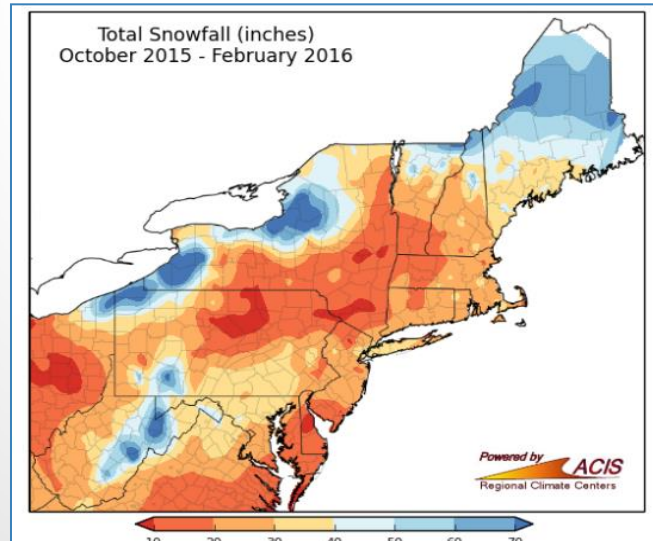
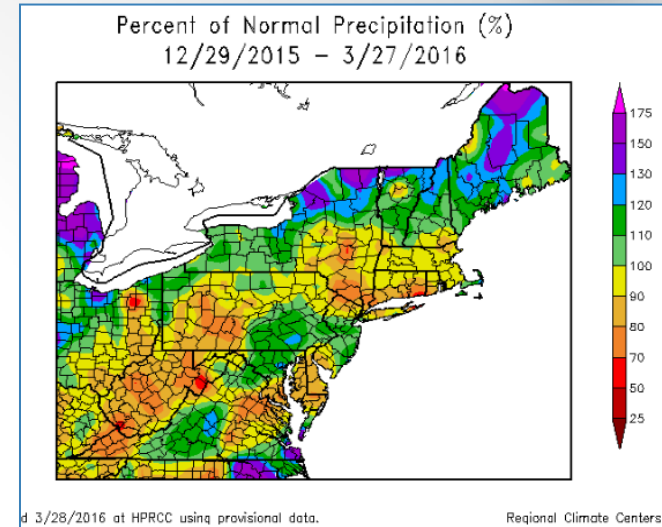
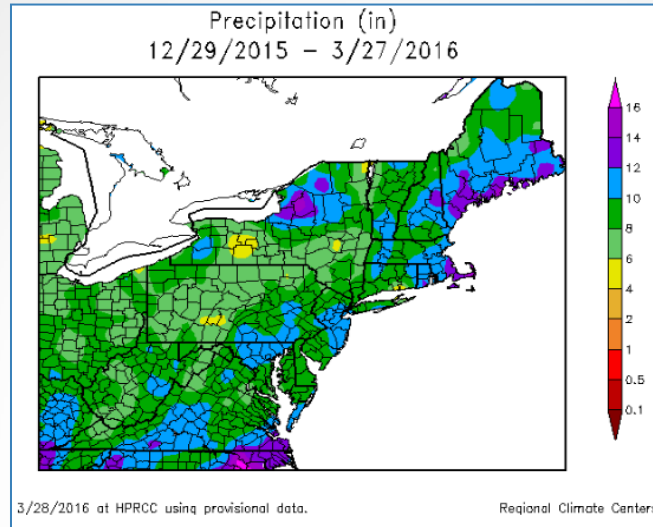
Winter Highlights



90-day Precipitation
Wetter North

Winter Precipitation
Much Wetter than Fall

Season Snowfall
*Mainly just below to
Much below normal*



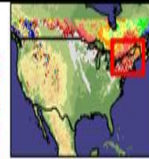
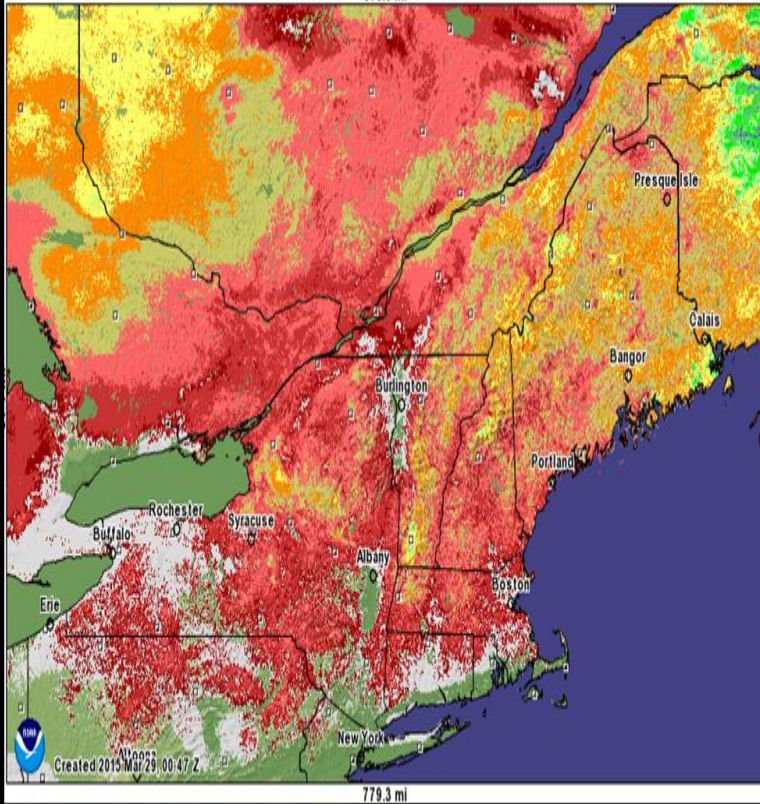


2015 vs. 2016 Snow Water

Snow limited to far northern NH & interior ME



Modeled Snow Water Equivalent for 2015 March 28, 15:00 UTC
675.0 mi

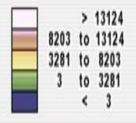


Inches of water equivalent

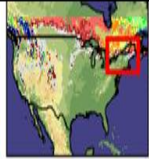
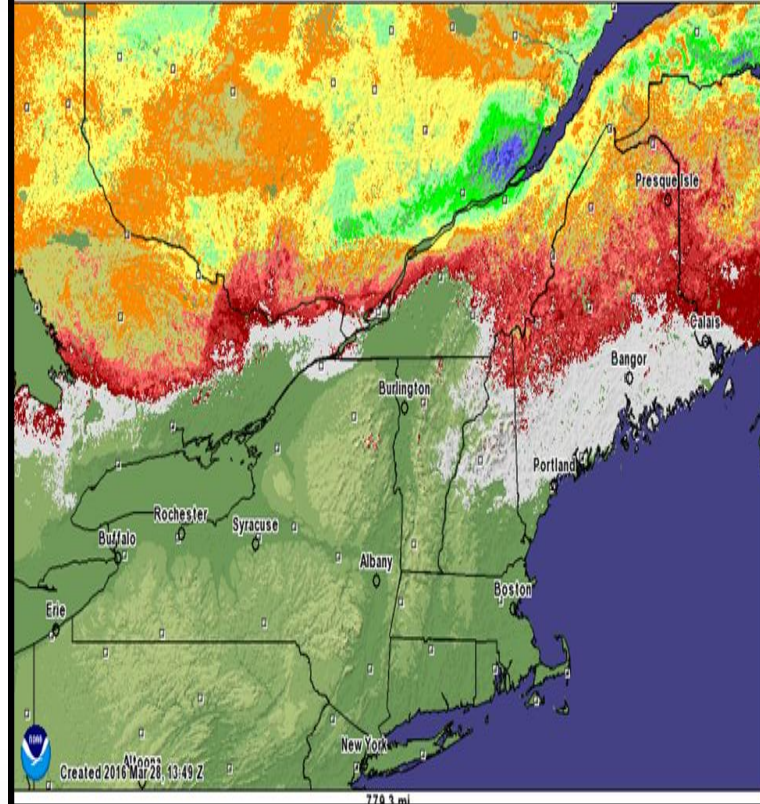


Not Estimated

Elevation in feet



Modeled Snow Water Equivalent forecasted for 2016 March 28, 16:00 UTC
675.0 mi

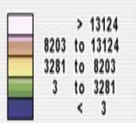


Inches of water equivalent



Not Estimated

Elevation in feet





One Widespread Flood Event

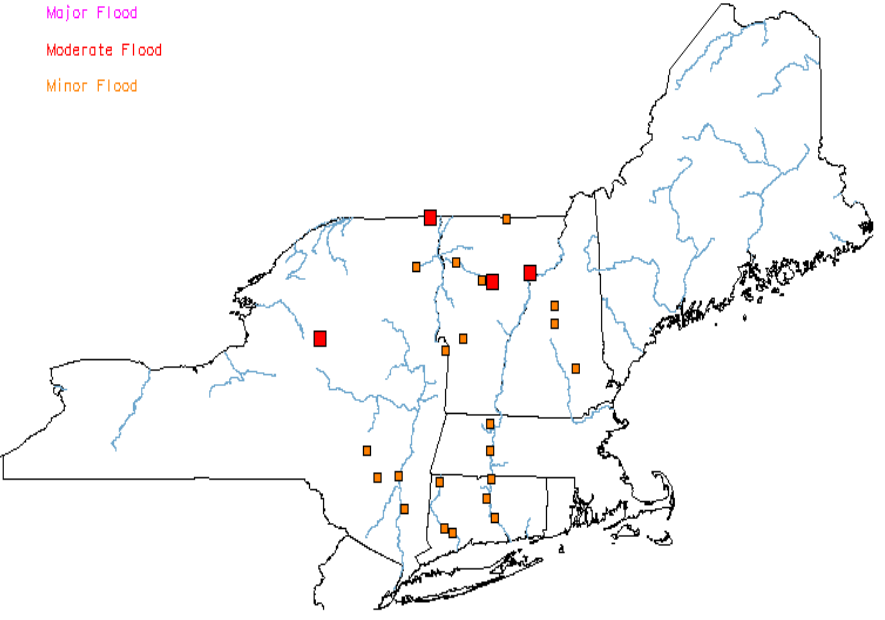
Feb 22-27 2016



Northeast Flooding

2016-02-22 to 2016-02-27

- Major Flood
- Moderate Flood
- Minor Flood

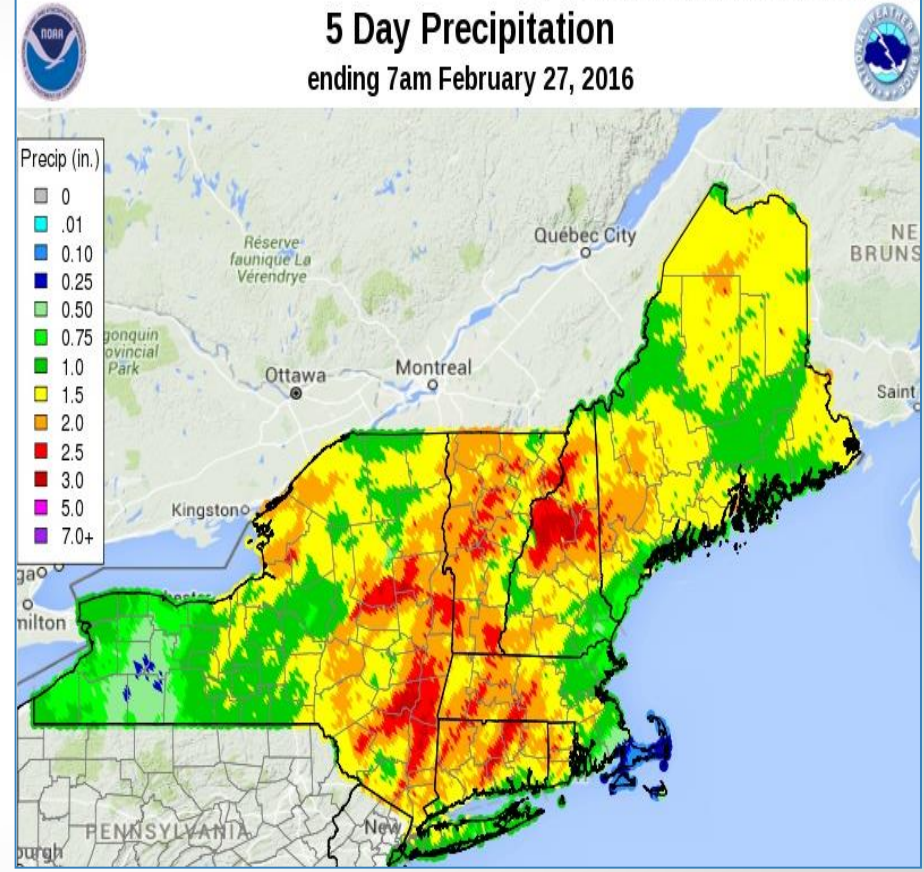


22 locations exceeded flood stage
 *4 locations experienced ice jams

Source: NOAA / NWS / Northeast River Forecast Center

5 Day Precipitation

ending 7am February 27, 2016



Widespread 2-3.5 inch rainfall
 Included a line of severe thunderstorms!



Building a Weather-Ready Nation



USGS Streamflow Conditions

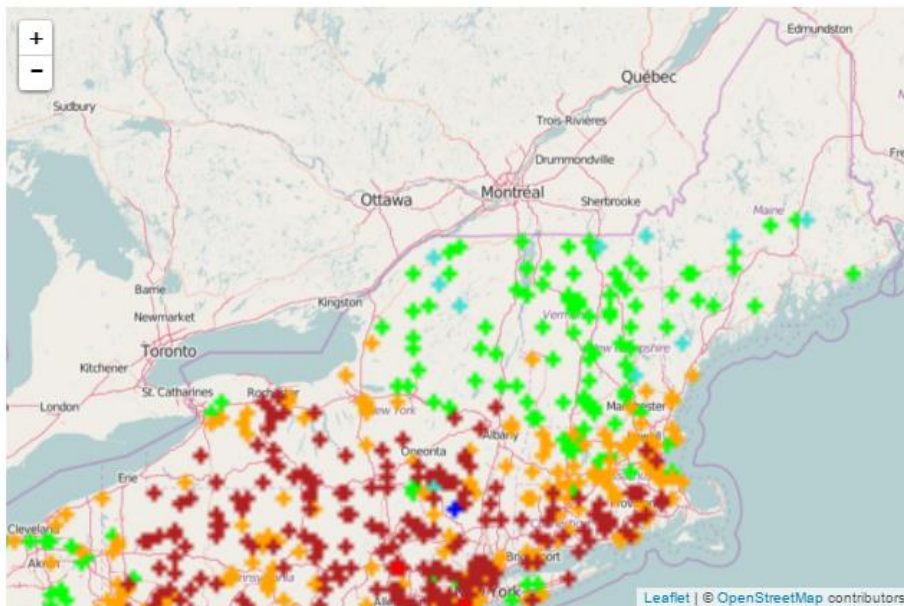
March 28th, 2016



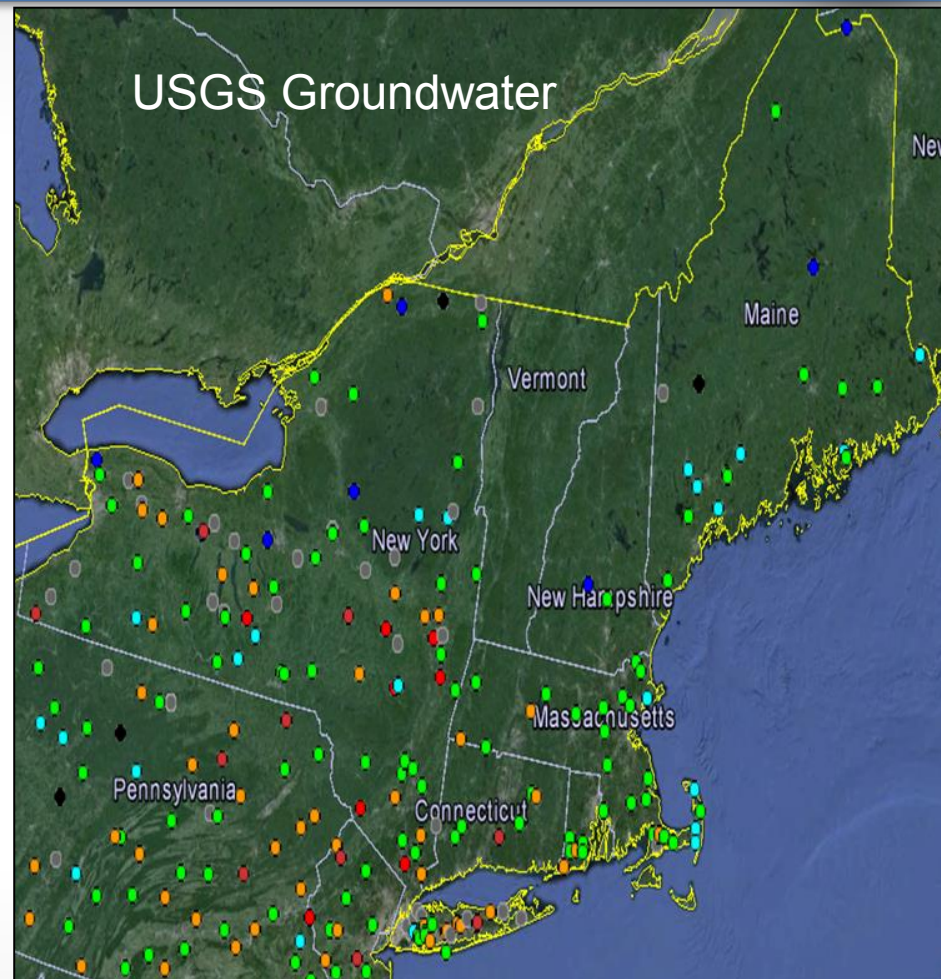
WaterWatch Streamflow Map

Choose a region and then click "GO" to view a regional map
(Warning: It may take several minutes to process)

| Map type | United States | Water Res. Region | GO |
|------------|---------------|-------------------|----|
| 7-day Flow | | | |



| Explanation - Percentile classes | | | | | | |
|----------------------------------|-------------------|--------------|--------|--------------|-------------------|------|
| Low | <10 | 10-24 | 25-75 | 76-90 | >90 | High |
| | Much below normal | Below normal | Normal | Above normal | Much above normal | |

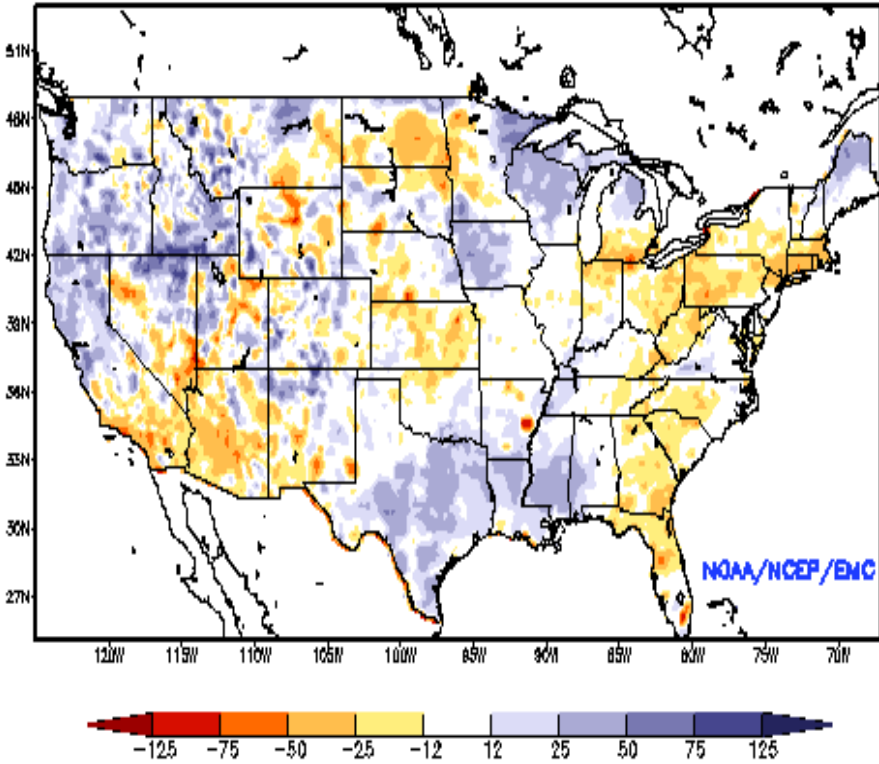




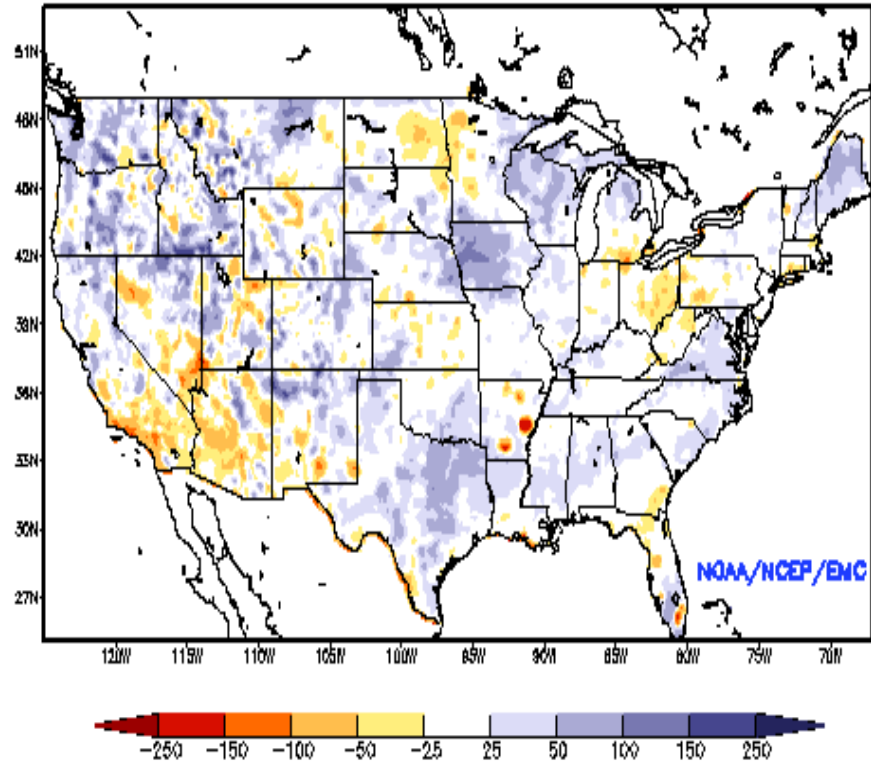
Soil Moisture Current Conditions/Outlooks



Ensemble-Mean - Past Week Top 1M Soil Moisture Anomaly (mm)
NCEP NLDAS Products Valid: MAR 23, 2016



Ensemble-Mean - Past Month Total Column Soil Moisture Anomaly (mm)
NCEP NLDAS Products Valid: MAR 23, 2016





Water Supply/Lake Levels



New York City's Water Supply System

March 25, 2016

| | | |
|------------------------------|-------------------|------------|
| Total Storage | (% of Capacity) | |
| Current: | 93.3 | |
| Normal: | 93.0 | |
| Consumption | (billion gallons) | |
| 03/24/16 | 0.91 | |
| Average Precipitation | (inches) | |
| | Actual | Historical |
| January: | 1.75 | 3.11 |
| February: | 4.49 | 2.59 |
| March: | 0.70 | 2.73 |

| | | |
|-------------------------------------|------------|----------------------|
| Scituate Reservoir Elevation (feet) | 281.46 | (93.6 % of Capacity) |
| Plant Influent (mgd) | 52,093,575 | (80.6 CFS) |
| Cumulative Reservoir Evap. (gal) | -41,986 | |
| Downstream Discharge (mgd) | 9.98 | (15.43 CFS) |

March 1, 2016

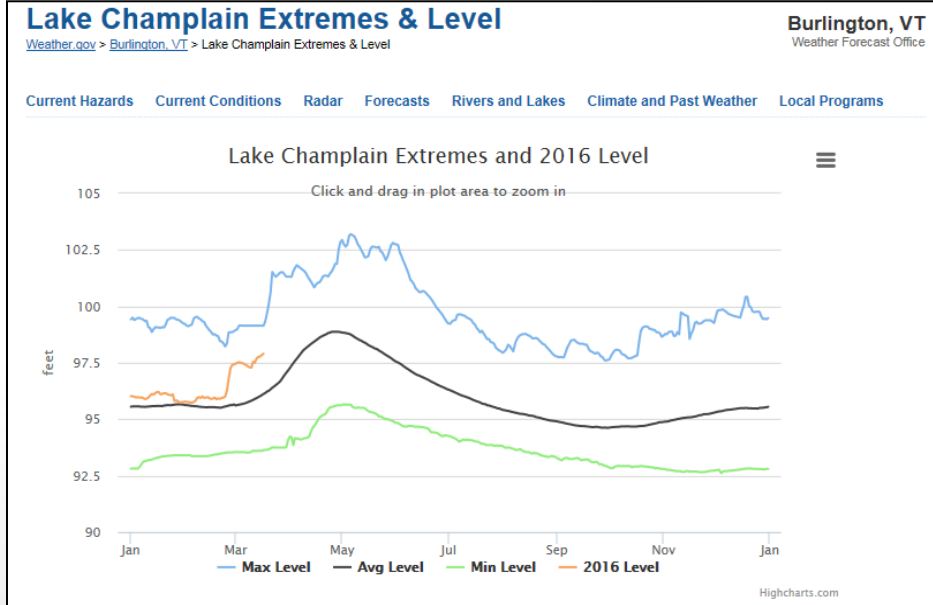
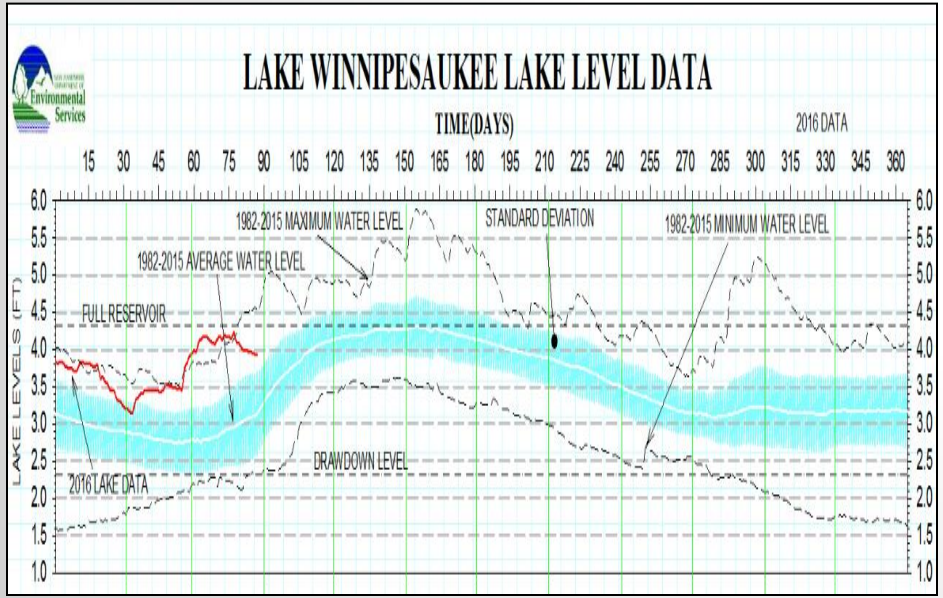
RESERVOIR LEVELS: The Quabbin Reservoir, the largest water supply source for 47 communities in the Metro Boston area, is currently at **89.9%** of its 412 billion-gallon maximum capacity. The 65 billion-gallon Wachusett Reservoir is **91.9%** full.

Detailed Data and Archives

CONDITIONS STATUS: According to the MWRA's Drought Management Plan, the water system is currently listed in a **Normal Operations Status** (see table below).

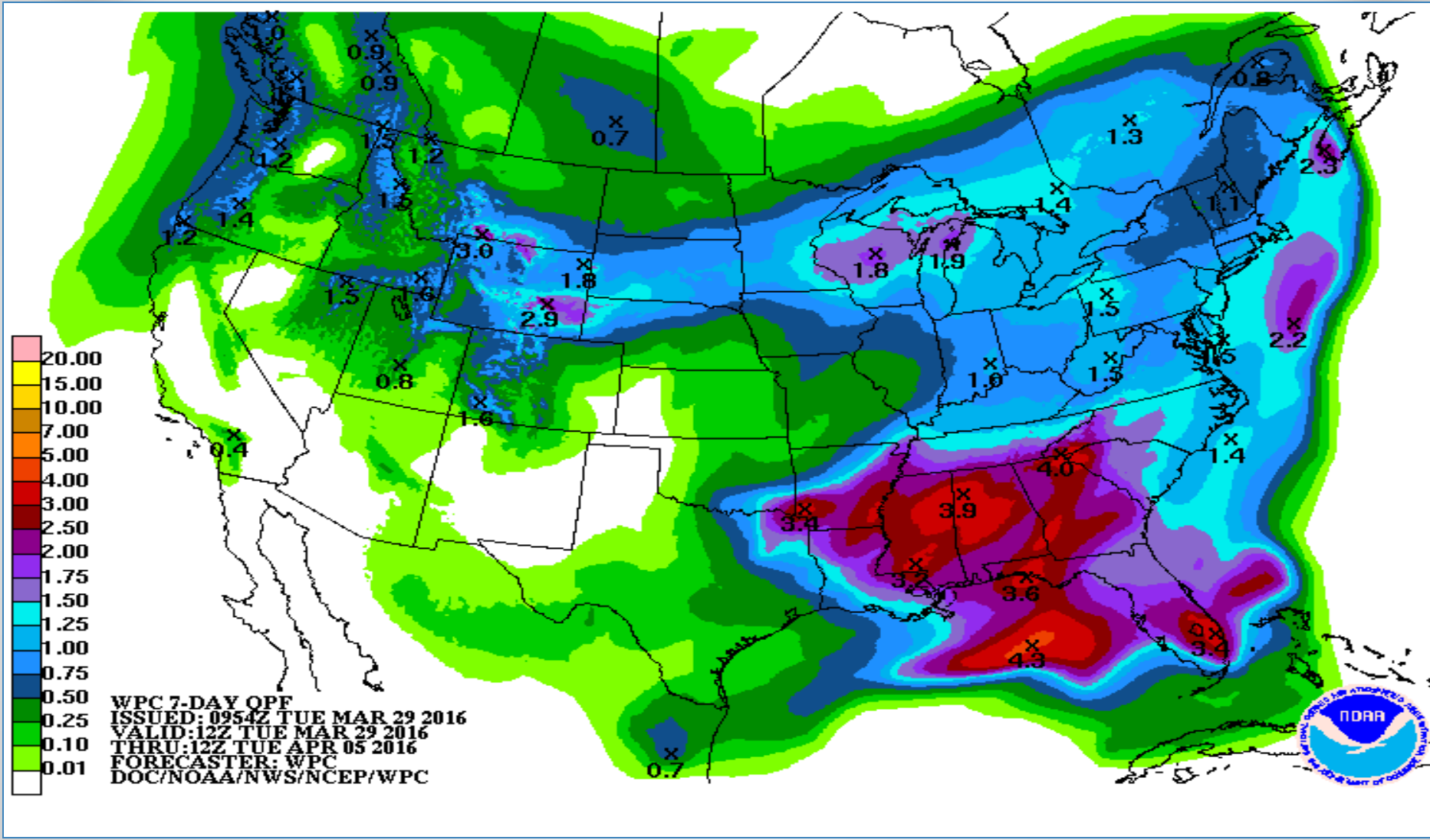
Current Conditions Status = Normal Operations

| Quabbin Level | Normal Operations | Below Normal | Drought Warning | Drought Emergency 1 | Drought Emergency 2 | Drought Emergency 3 |
|---------------|-------------------|--------------|-----------------|---------------------|---------------------|---------------------|
| | 100%- 80% | 80%-65% | 65%-50% | 50% -30% | 38% -25% | 25% -0% |





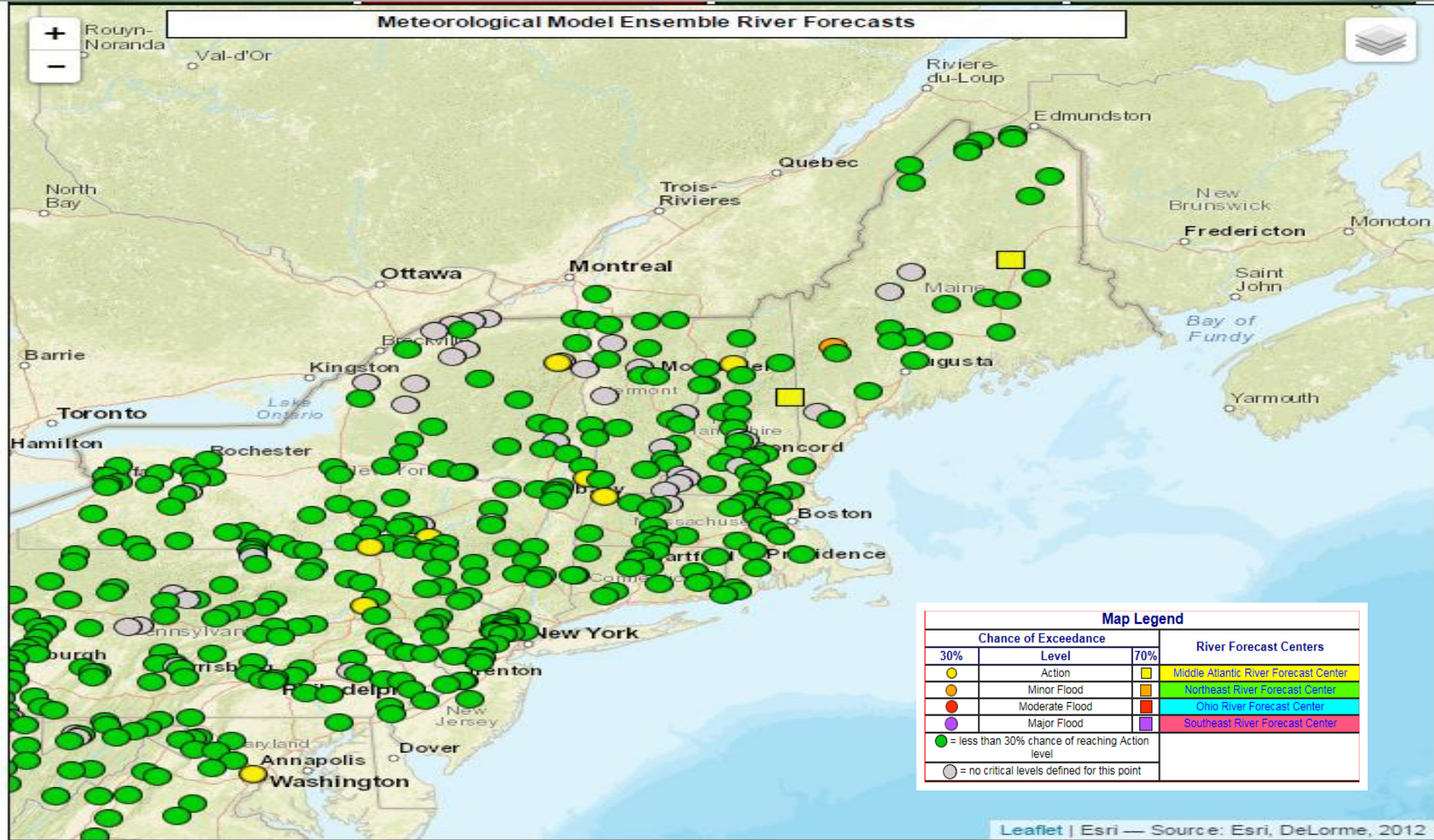
Precipitation For The Next 7 Days



Building a Weather-Ready Nation



Short-range Ensemble River Forecasts



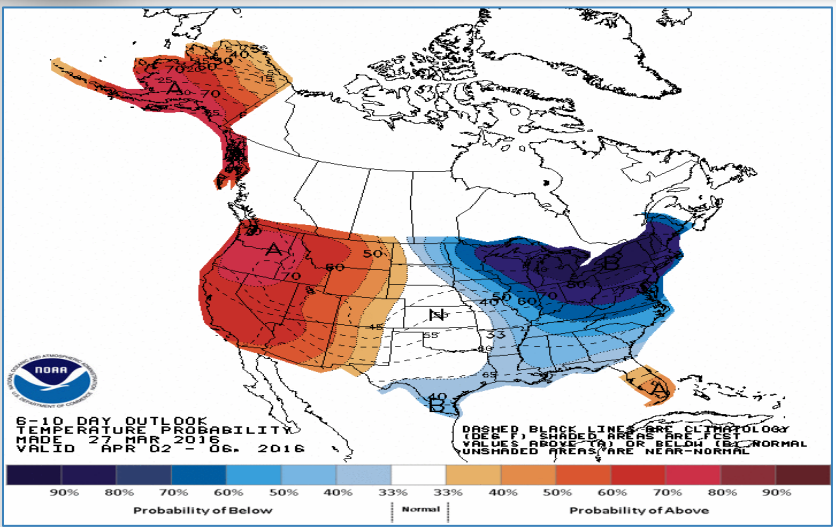
Leaflet | Esri — Source: Esri, DeLorme, 2012



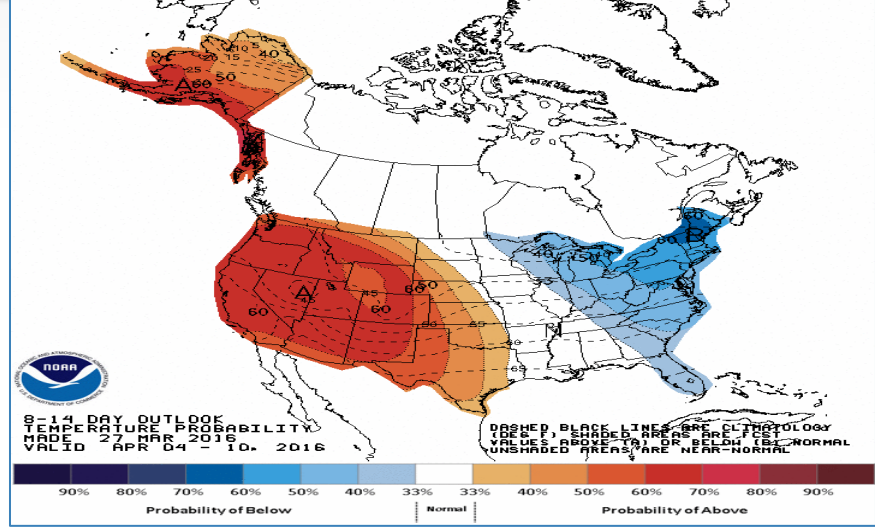
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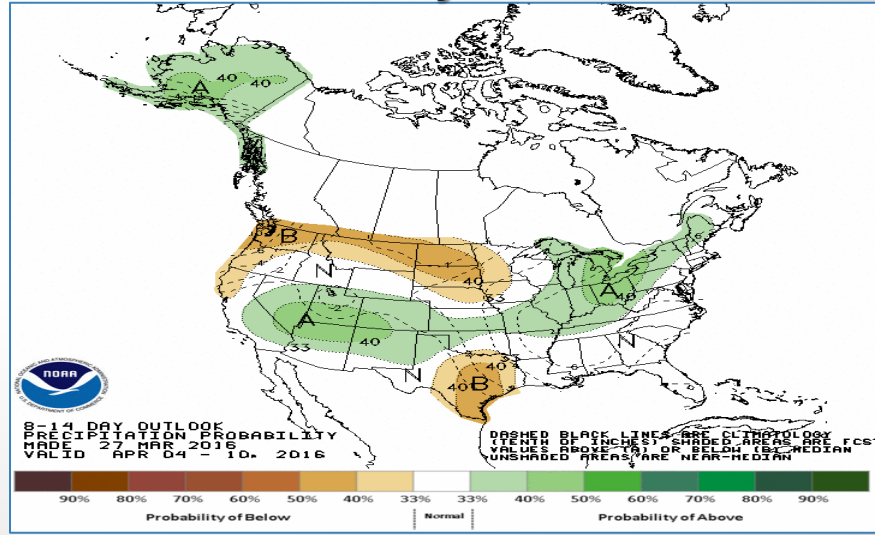
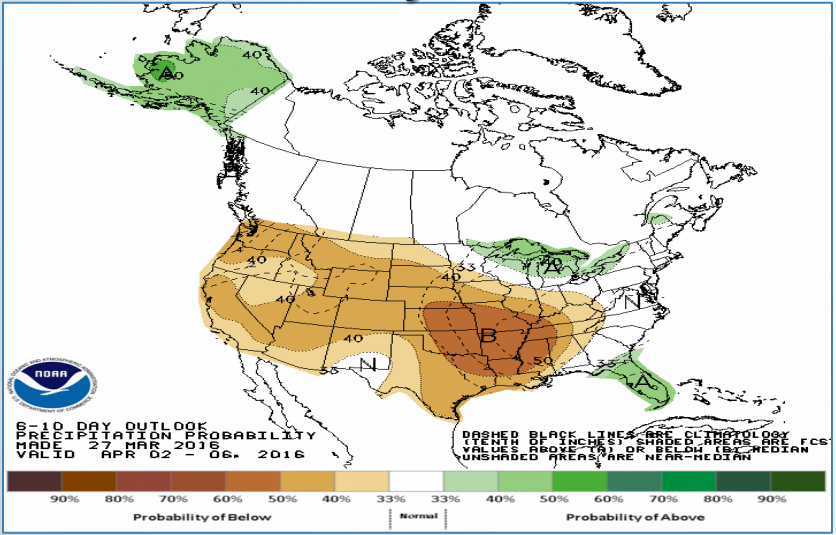
CPC Outlooks



6 to 10 day outlooks

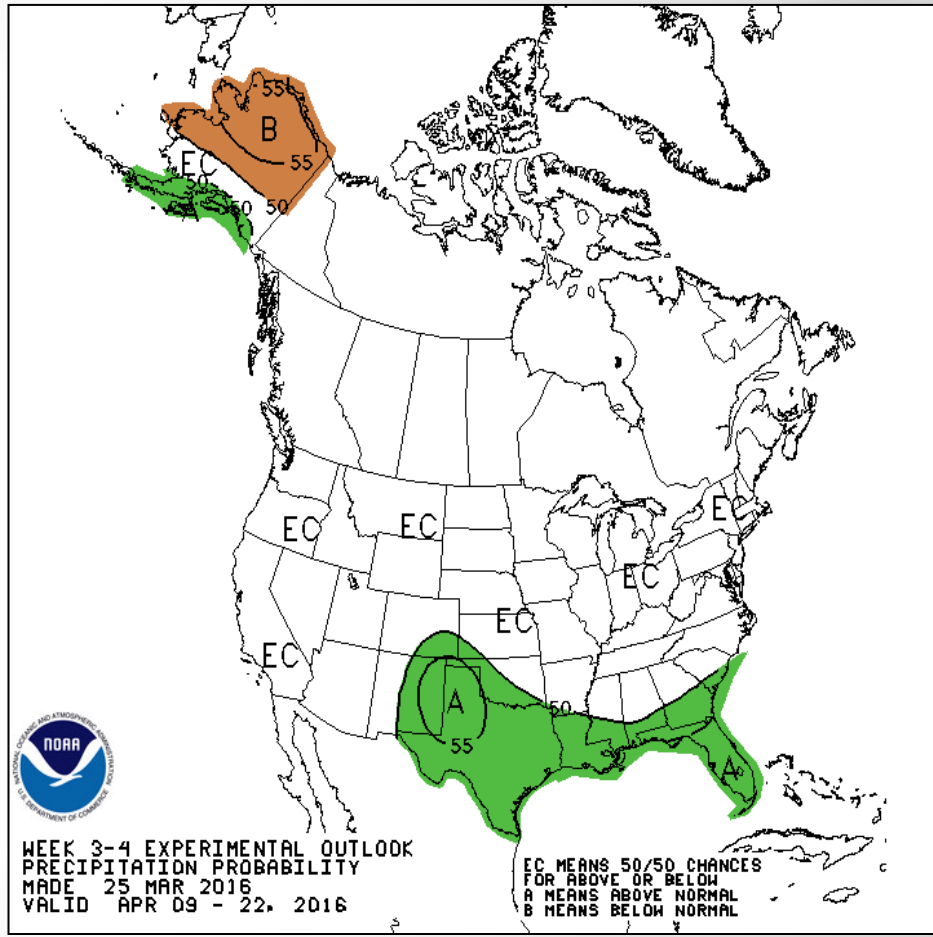
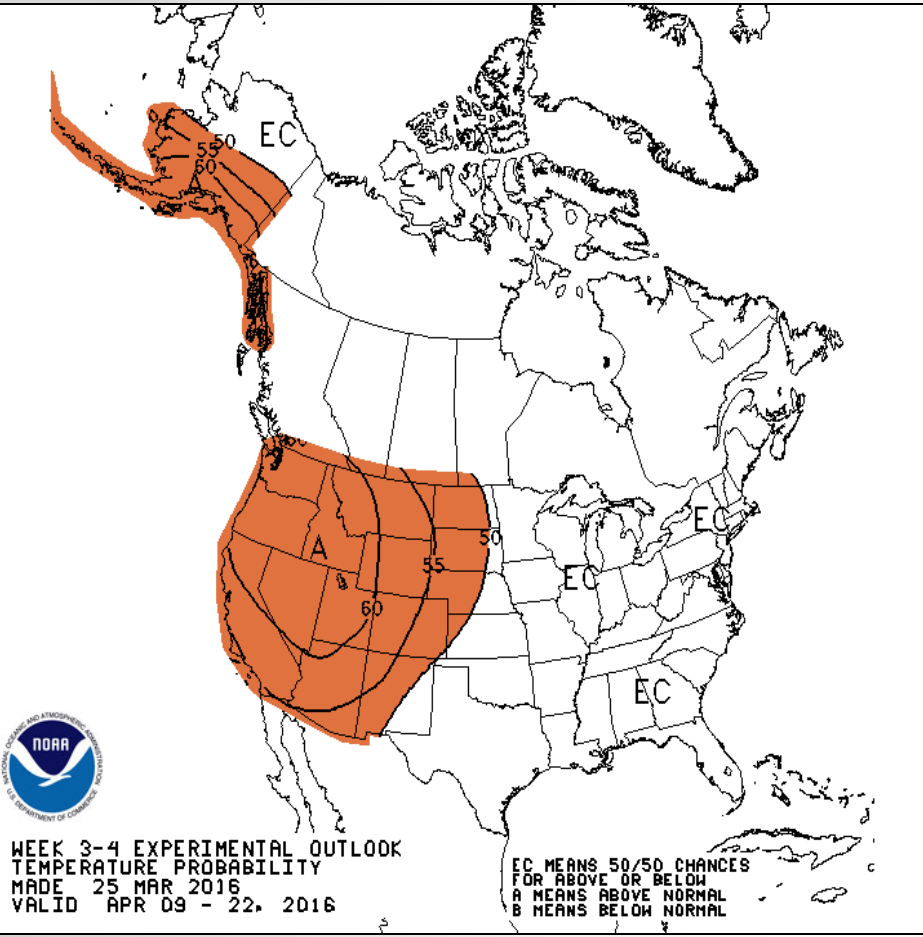


8 to 14 day outlooks





CPC Week 3-4 Outlooks





Flood Potential Outlook





Spring Flood Potential Outlook

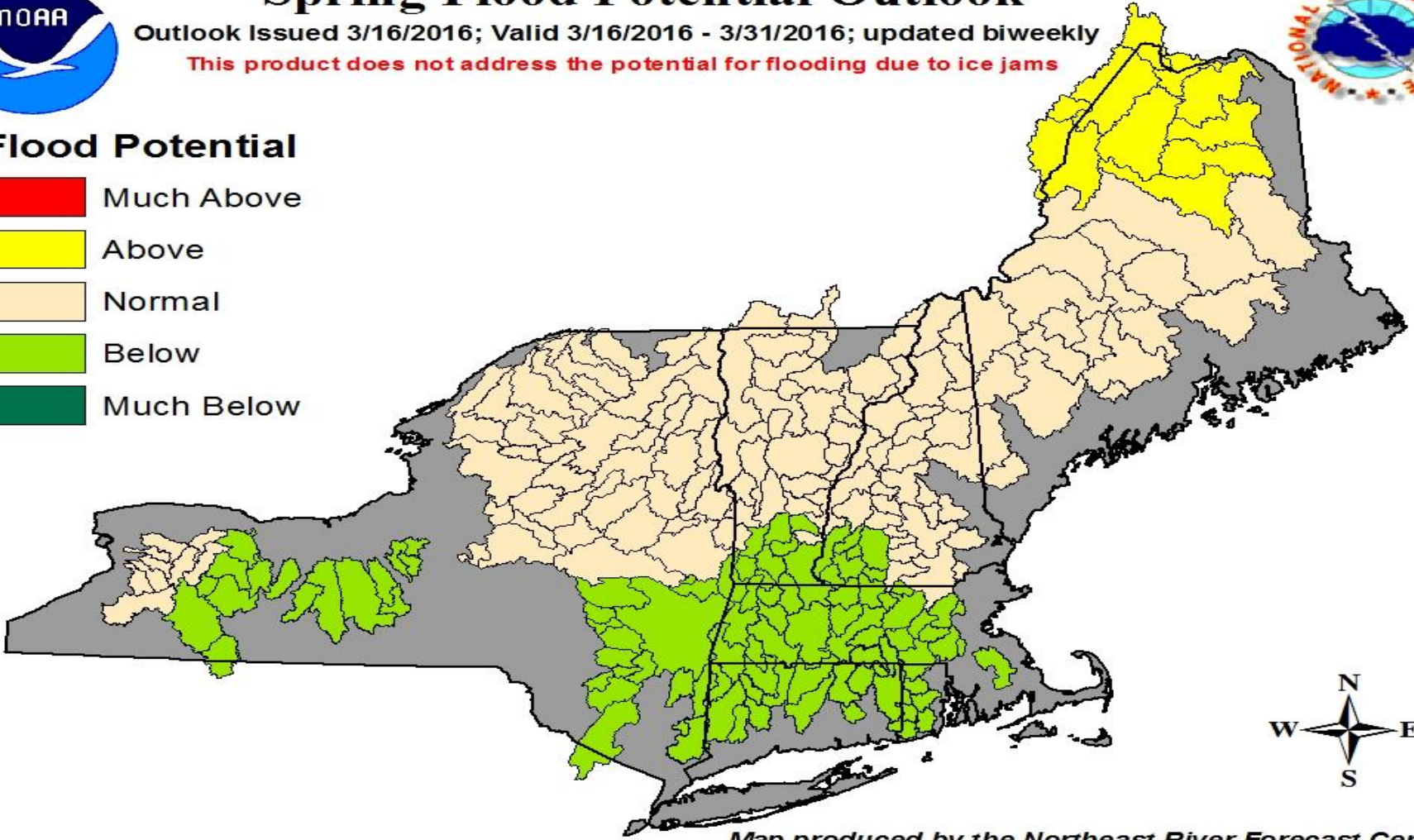
Outlook Issued 3/16/2016; Valid 3/16/2016 - 3/31/2016; updated biweekly

This product does not address the potential for flooding due to ice jams



Flood Potential

-  Much Above
-  Above
-  Normal
-  Below
-  Much Below



Map produced by the Northeast River Forecast Center



Building a Weather-Ready Nation



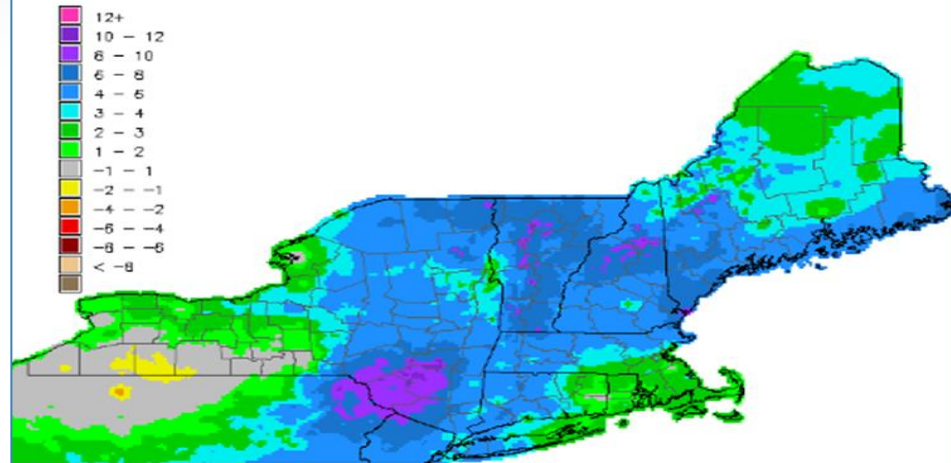
Concerning the Weakening of ENSO

Spring can be very wet in parts of the Northeast

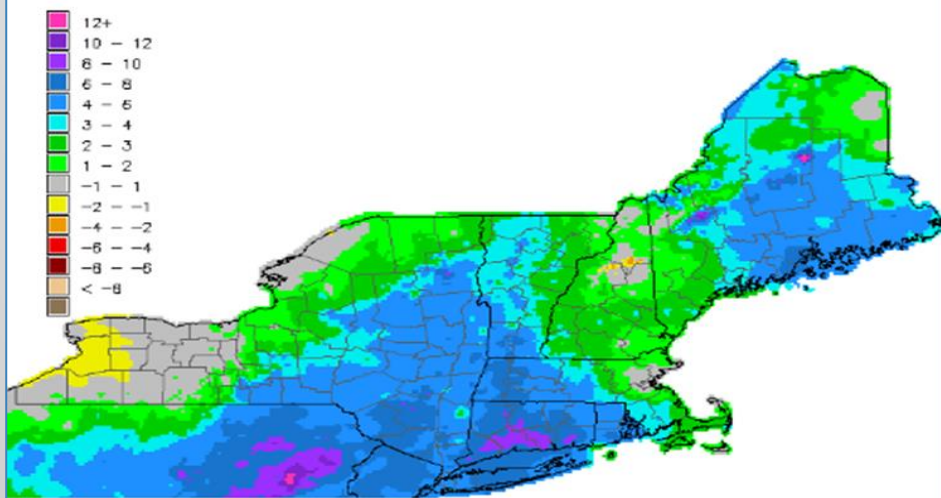


- Three most intense ENSO Events did produce a period of every wet weather
- Increased river flood potential
- 3-month rainfall departures of 5-10 inches above normal
- Small sample size – and certainly not the only forcing mechanism

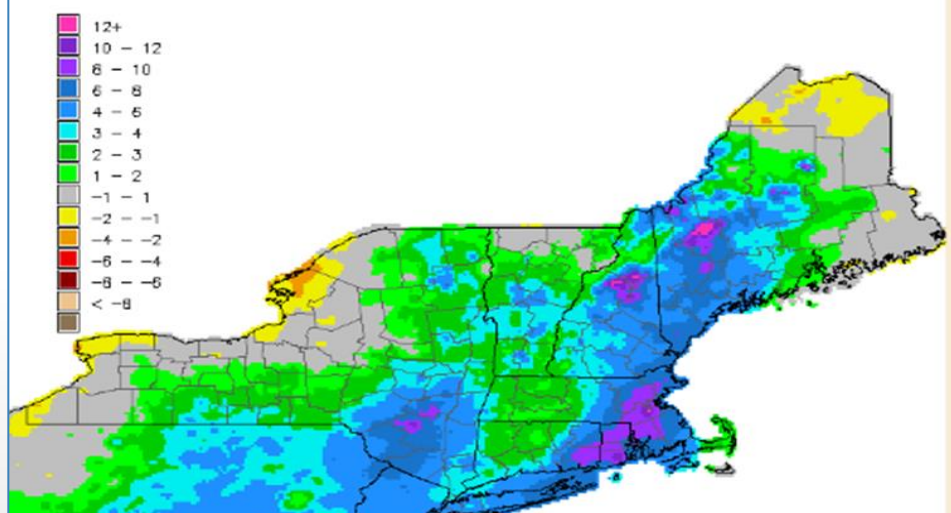
Apr-May-Jun 1973 Difference



Apr-May-Jun 1983 Difference



Apr-May-Jun 1998 Difference

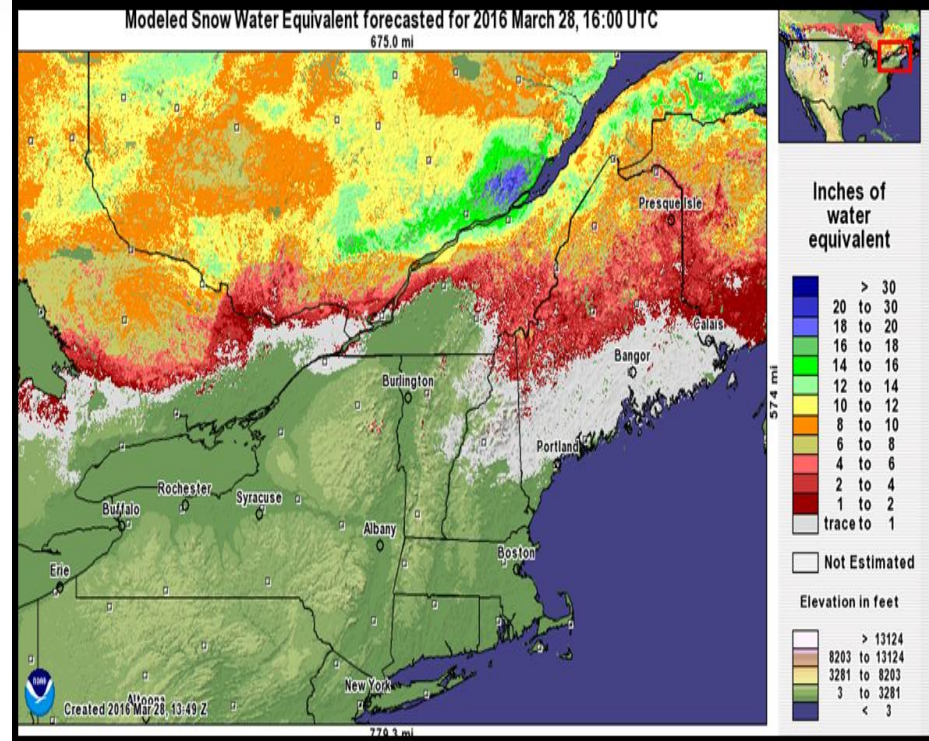
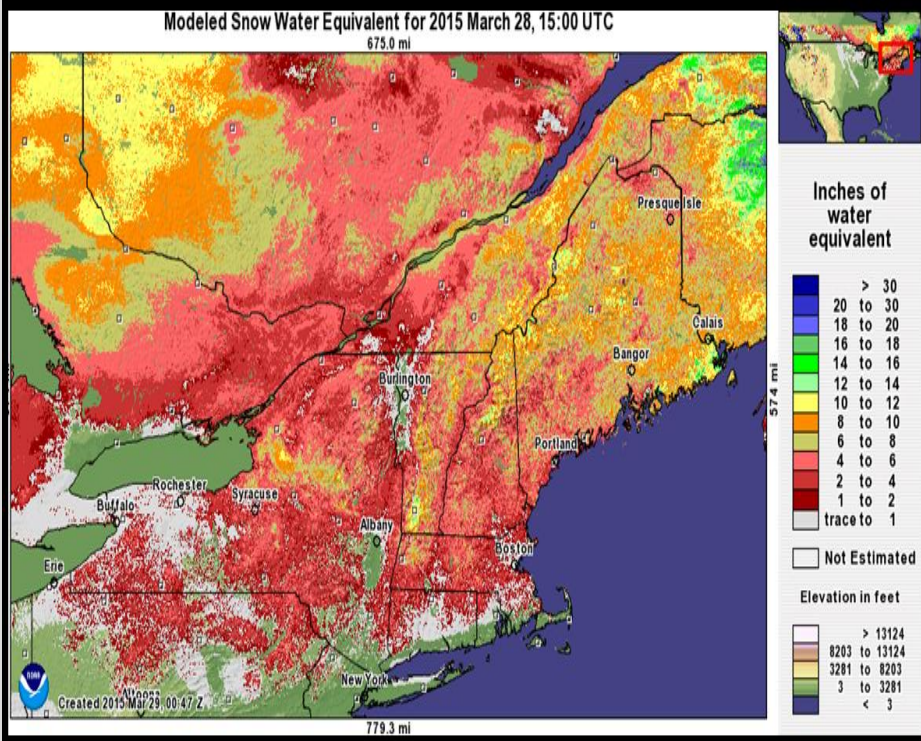




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