



Northeast River Forecast Center's

March 30th Spring Flood Outlook

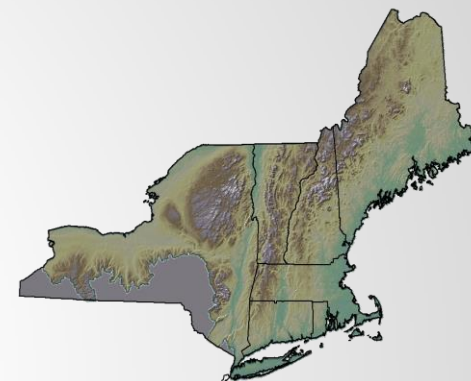


➤ Brought to you by:

➤ *Edward Capone – Service Coordination Hydrologist*

➤ Overview to Include:

- • National Spring Outlook Map
- • Precipitation Past...current....future
- • Current...Streamflow/Groundwater/Soil Moisture/Lake Levels/Snow Conditions
- • Short and Medium Range Met Forecasts / River Forecasts
- • River Ice Conditions
- • NERFC Spring Outlook Graphic



Topic Northeast Monthly Climate Update: Spring Flood Outlook

Description The webinar will feature a review of March conditions and an overview of the flood potential during spring.

Time Mar 30, 2017 9:30 AM in Eastern Time (US and Canada)



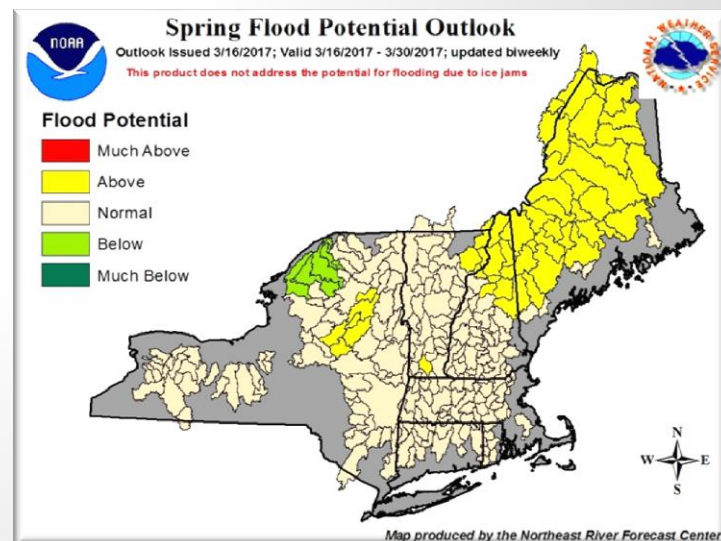
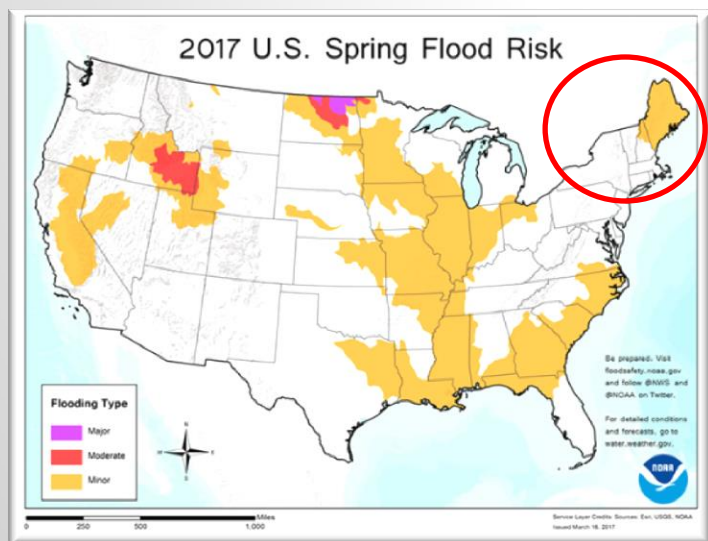
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Main Features – Active Pattern

March – cold with near normal precip

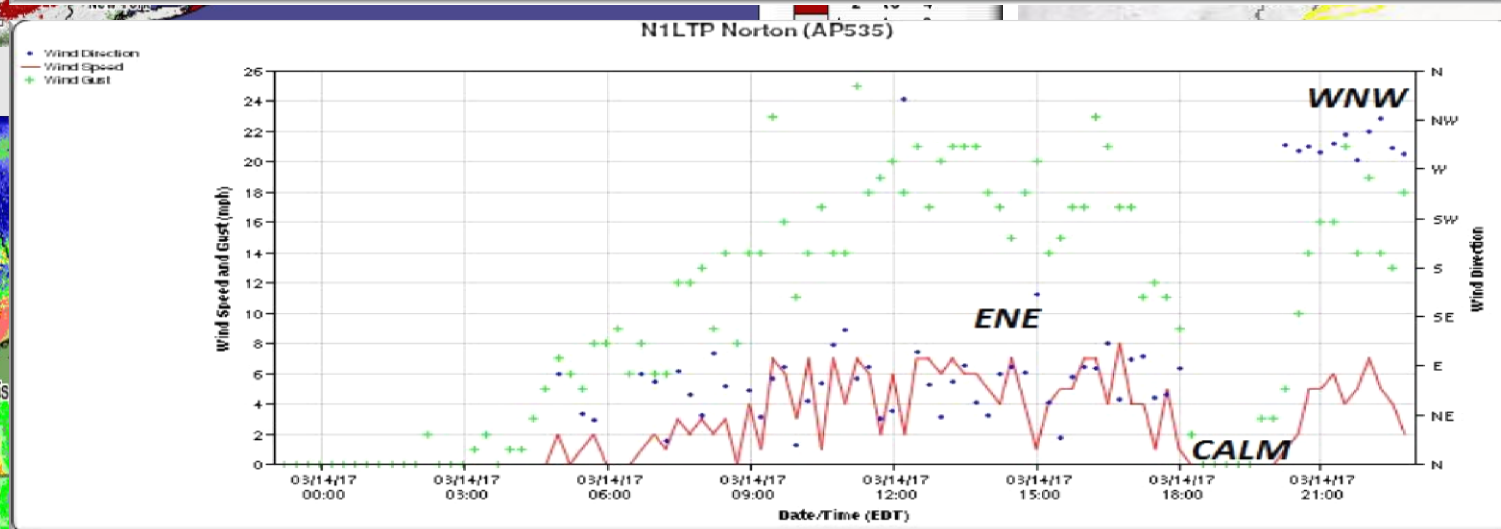
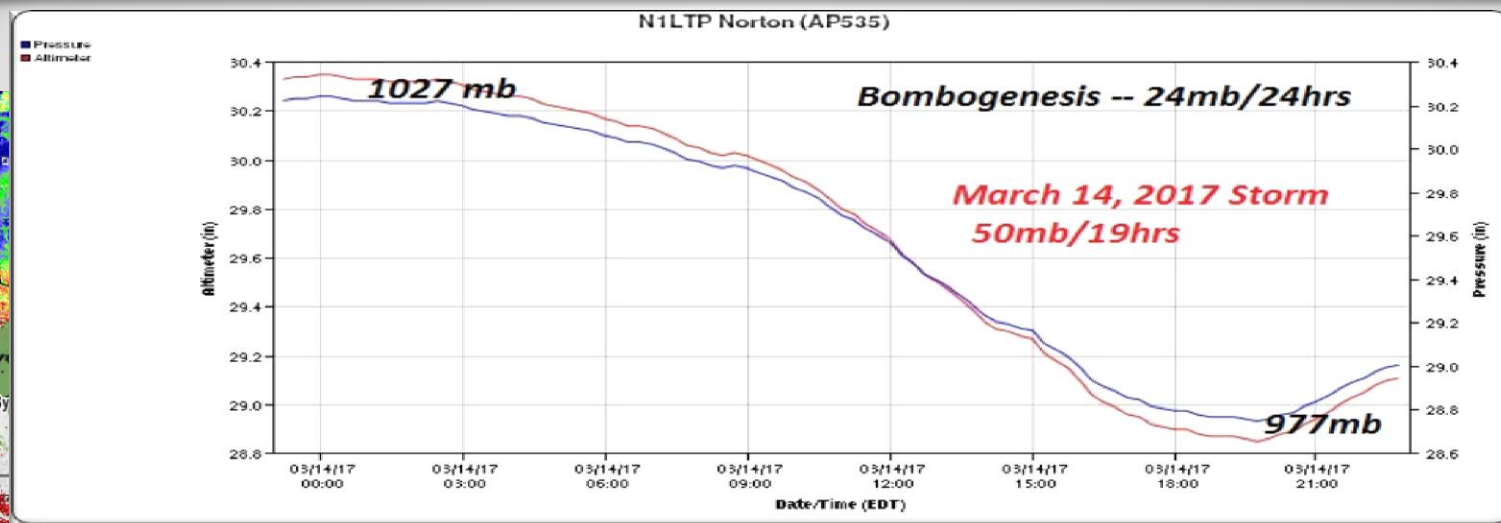
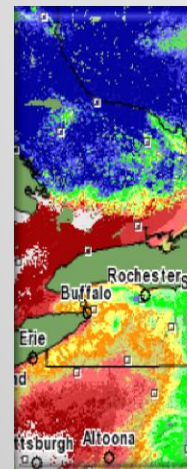
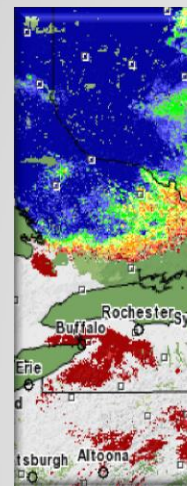
- March – Coldest winter month ... NESIS storm
- California bowling balls ... that transition off-shore
- Controlled snowmelt into next week – deep snowpack areas
- Possible significant “cold” systems ... every few days
- Transition to above normal temps -- above normal precipitation
- During the Spring Transition... watch “cut-off” season
- Later in the period...possibly a Gulf system ...no lack of precip





High Impact Event

East Coast "bombogenesis"



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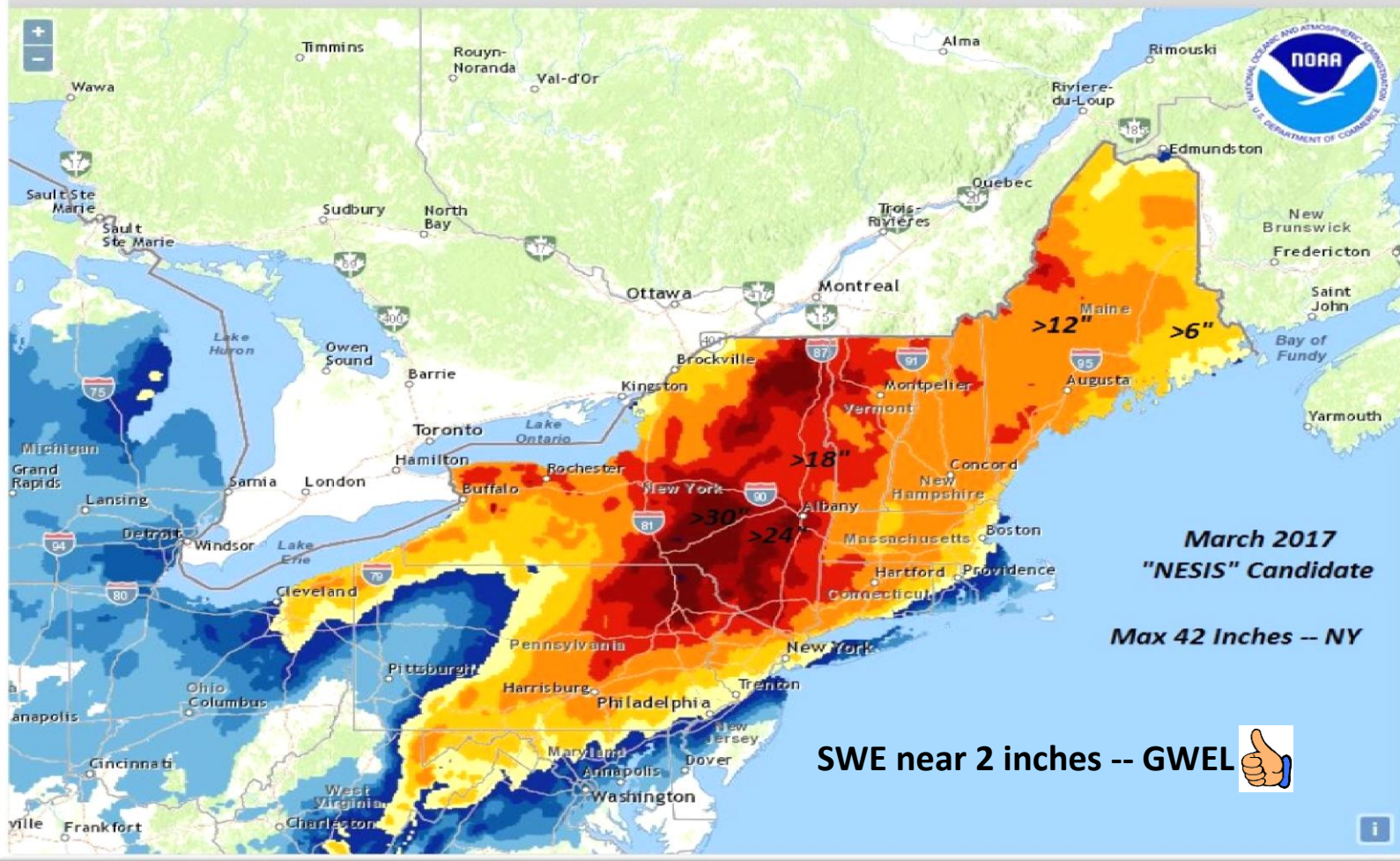


March 14th Snowstorm

NESIS Candidate



SNOWFALL ANALYSIS FROM THE LAST 48 HOURS ENDING: WEDNESDAY MARCH 15TH, 2017



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NESIS

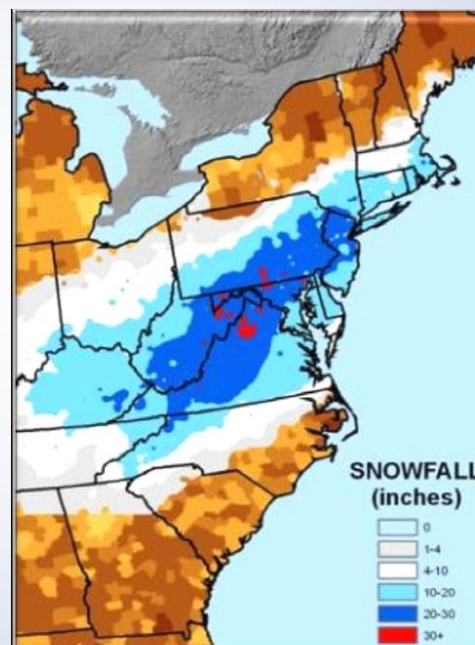


Northeast Snowfall Impact Scale

- Depth—Area---Population Impacted NOAA...Kocin/Uccellini

Category	NESIS Value	Description
1	1 — 2.499	Notable
2	2.5 — 3.99	Significant
3	4 — 5.99	Major
4	6 — 9.99	Crippling
5	10.0+	Extreme

RANK	START	END	NESIS	CATEGORY	DESCRIPTION	MAP
1	1993-03-12	1993-03-14	13.20	5	Extreme	view
2	1996-01-06	1996-01-08	11.78	5	Extreme	view
3	1960-03-02	1960-03-05	8.77	4	Crippling	view
4	2016-01-22	2016-01-24	7.66	4	Crippling	view
5	2003-02-15	2003-02-18	7.50	4	Crippling	view
6	1961-02-02	1961-02-05	7.06	4	Crippling	view
7	1964-01-11	1964-01-14	6.91	4	Crippling	view
8	2005-01-21	2005-01-24	6.80	4	Crippling	view
9	1978-01-19	1978-01-21	6.53	4	Crippling	view
10	1969-12-25	1969-12-28	6.29	4	Crippling	view
11	1983-02-10	1983-02-12	6.25	4	Crippling	view
12	1958-02-14	1958-02-17	6.25	4	Crippling	view
13	1966-01-29	1966-01-31	5.93	3	Major	view
14	1978-02-05	1978-02-07	5.78	3	Major	view



n	Area (SqMi)	Population
0	118,837	15,182,500
1	107,526	16,432,000
4	103,951	19,913,500
10	107,786	29,907,800
20	63,532	30,216,900
30	2,364	340,889

$$NESIS = \sum_{n=4}^{n=30} \left[\frac{n}{10} \left(\frac{A_n}{A_{mean}} + \frac{P_n}{P_{mean}} \right) \right]$$

NESIS = 11.78
NESIS Category 5
Extreme



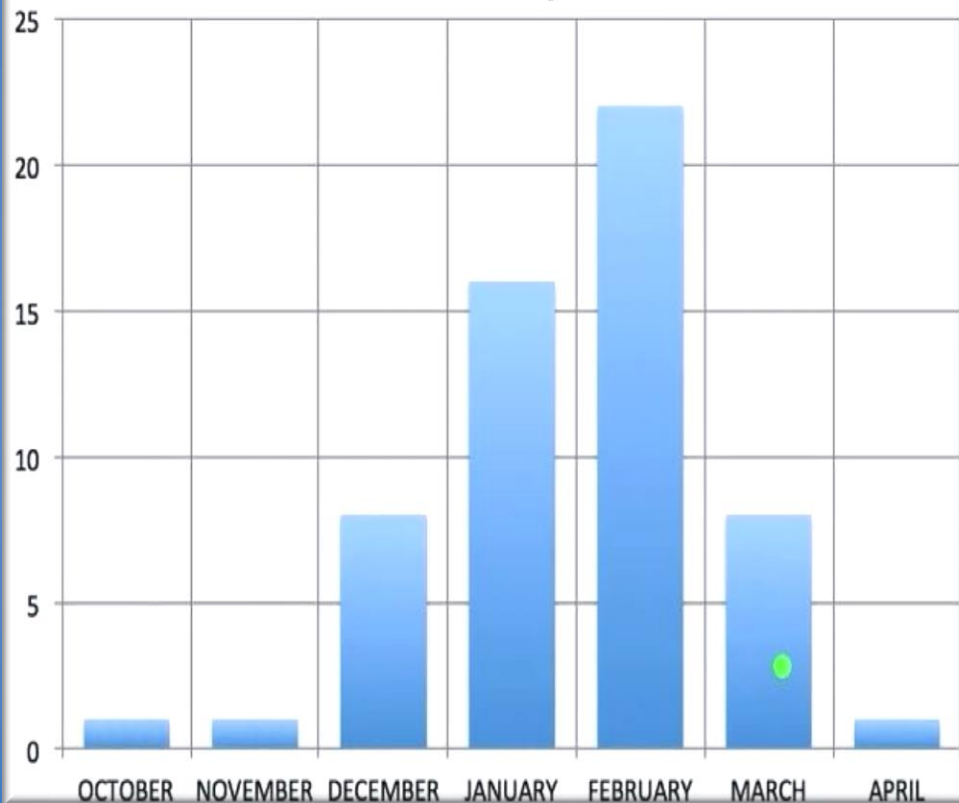


NESIS Storms – Decadal since 1950's

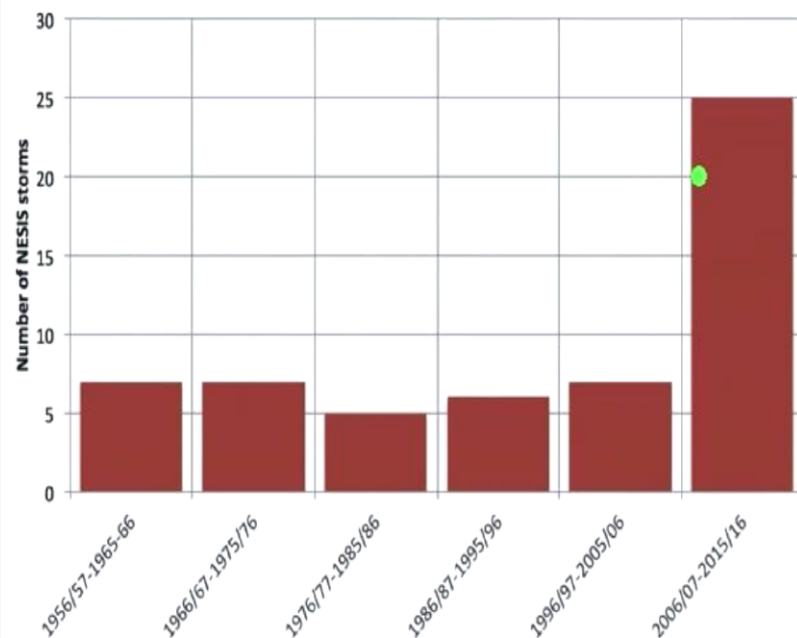
Kocin/DeLeo



NESIS Storms By Month



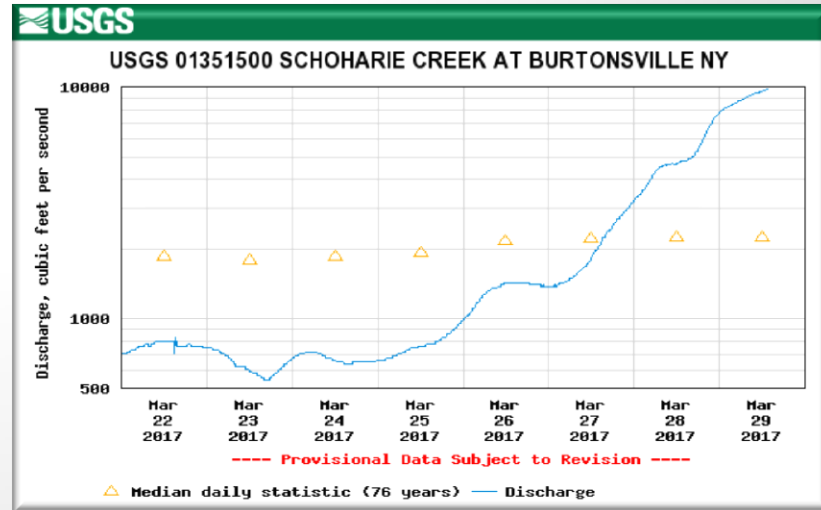
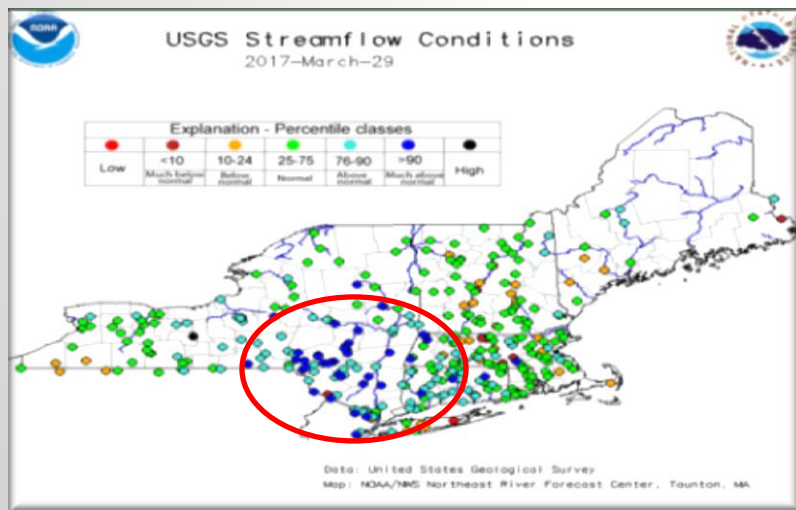
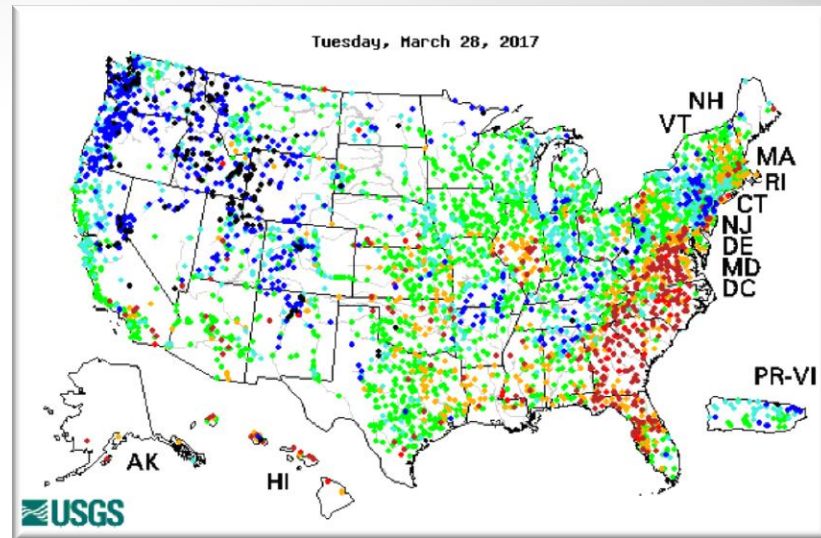
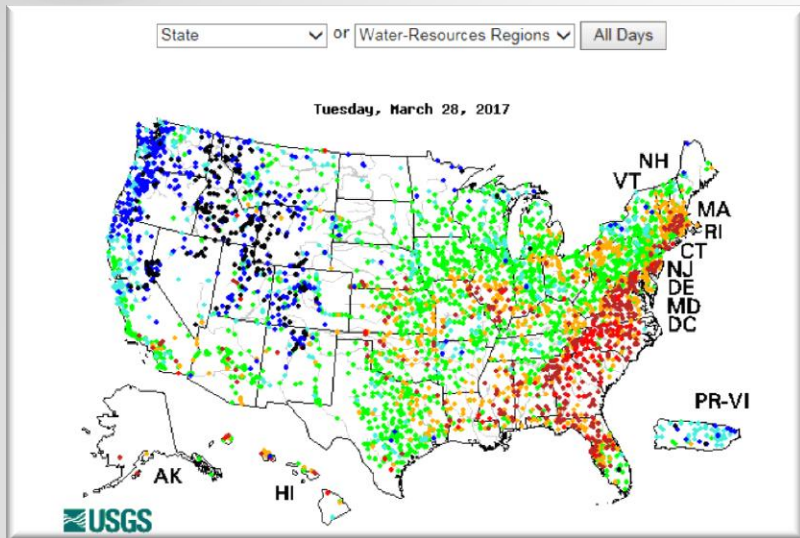
Decadal count of Major Impact Northeast Winter Storms (NESIS)





USGS Streamflow Conditions

7-day average -- Current



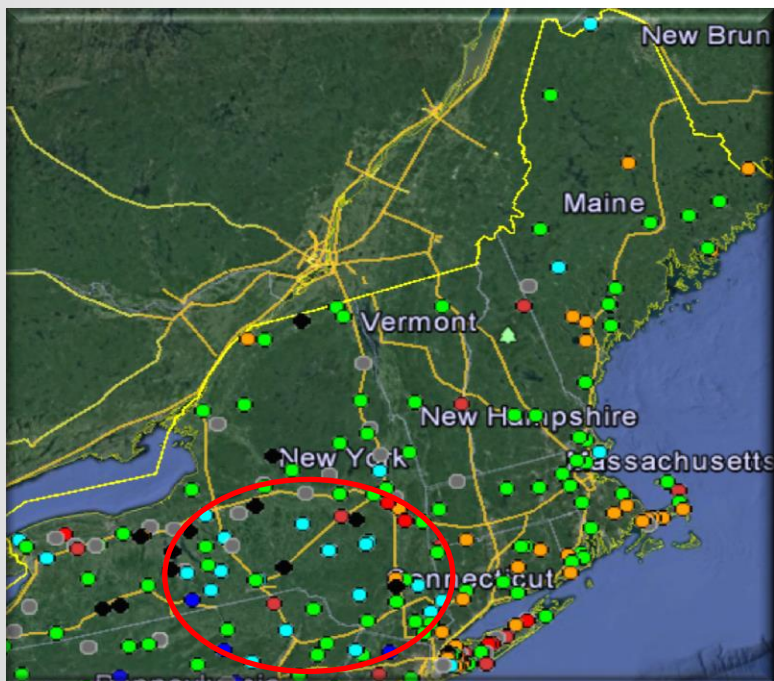


USGS Groundwater Conditions

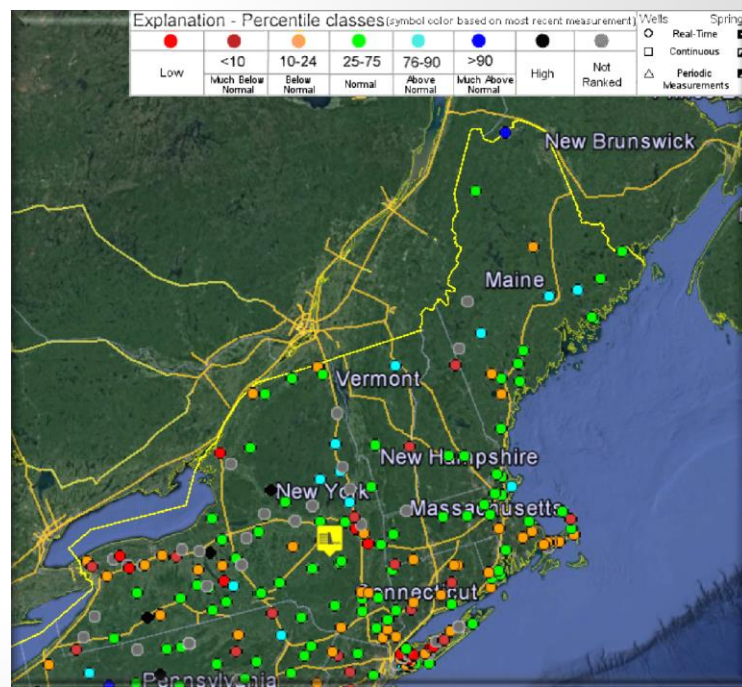
Recovering from drought??



Now



2 weeks ago

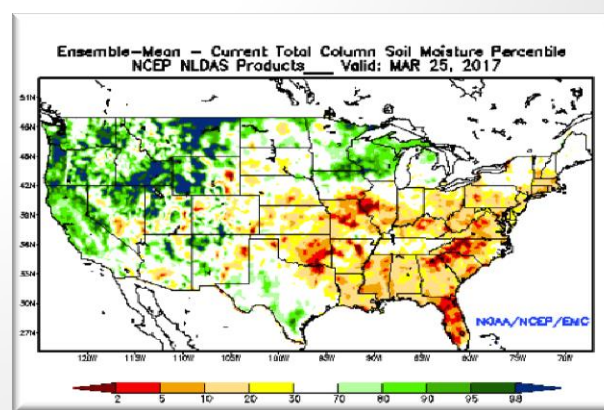
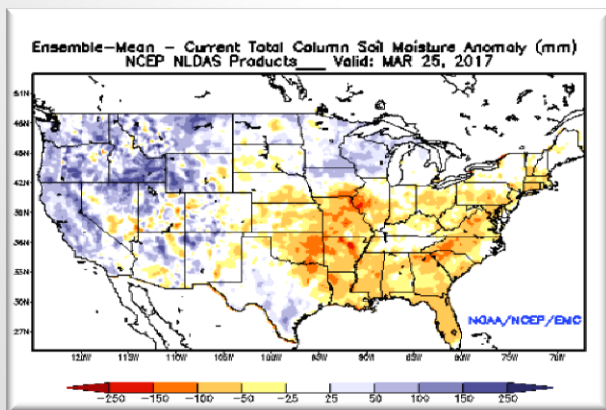
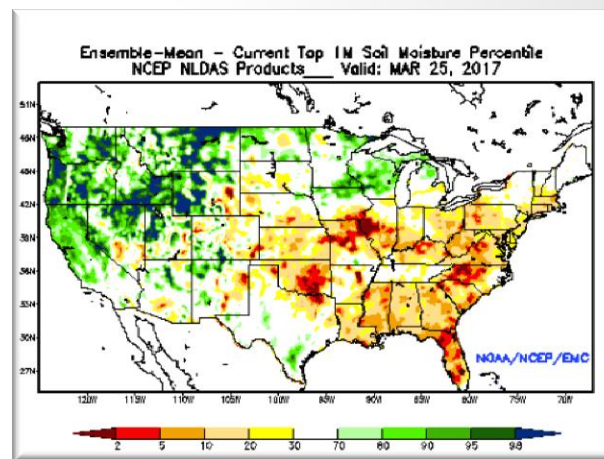
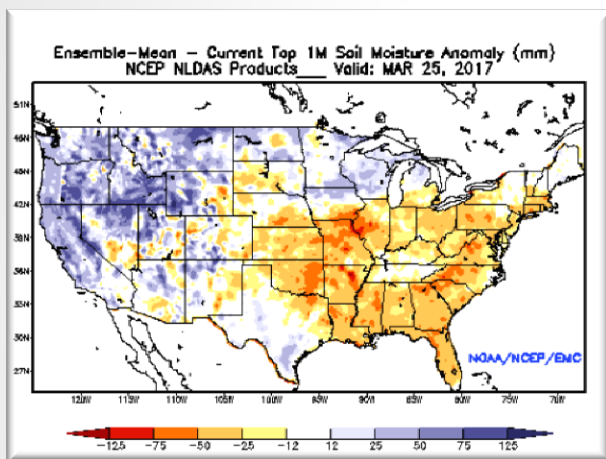


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Soil Moisture Current Conditions

Departures and Percentiles

The NLDAS experimental drought monitor is derived from near real-time soil moisture output from both the NASA MOSAIC and NCEP Noah land surface models. The anomalies and percentiles are based on a 28 year climatology (1980 - 2007). Two separate climatology files are used; one for the calculation of anomalies, and one for the calculation of percentiles. The anomaly climatology file contains 1 soil moisture value per day (daily average over 28 years) for each gridbox. The percentile climatology file contains 140 soil moisture values per day (5 for each year) for each gridbox.



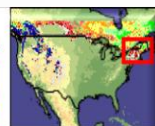
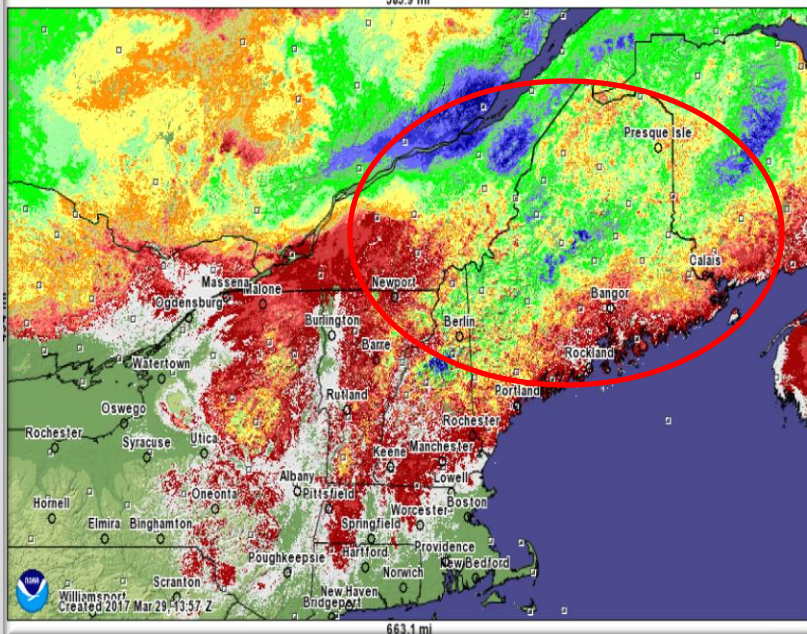
Snowpack Conditions -- SWE

NOHRSC

NOW

2 weeks ago

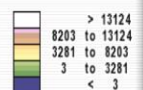
Modeled Snow Water Equivalent (Shallow-snow Legend) forecasted for 2017 March 29, 17:00 UTC



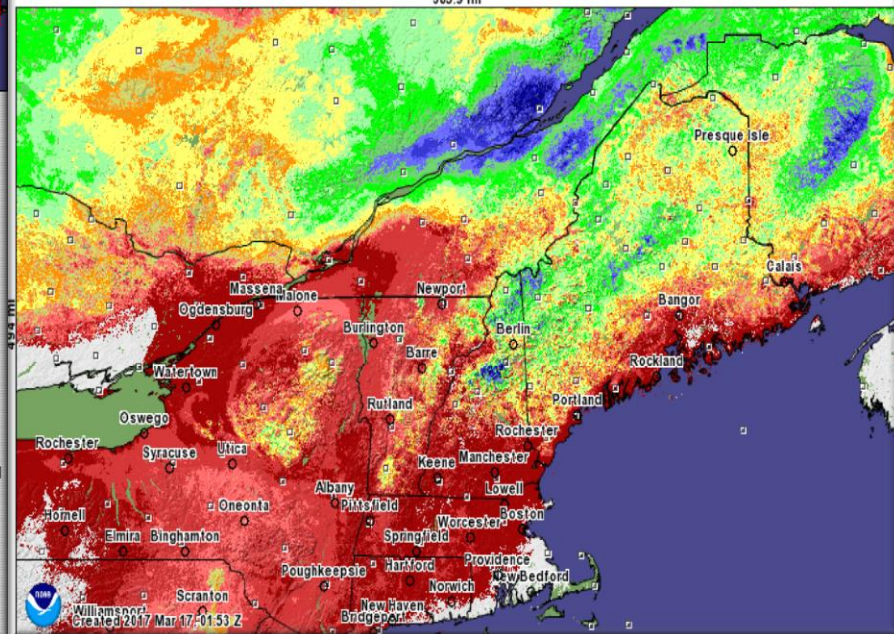
Inches of water equivalent



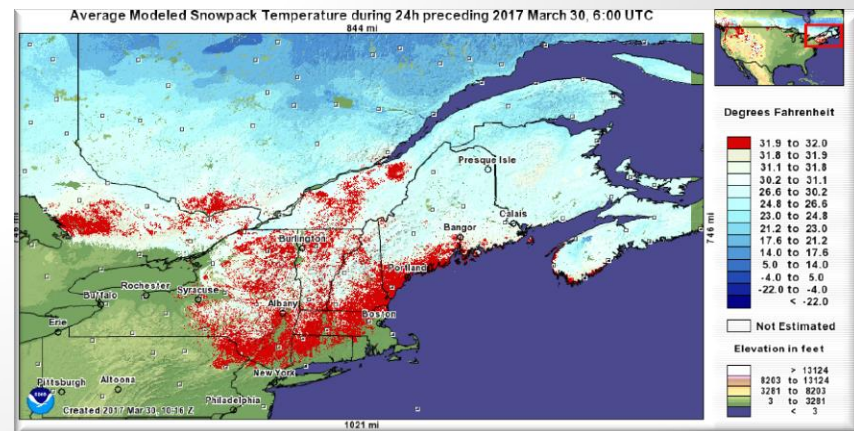
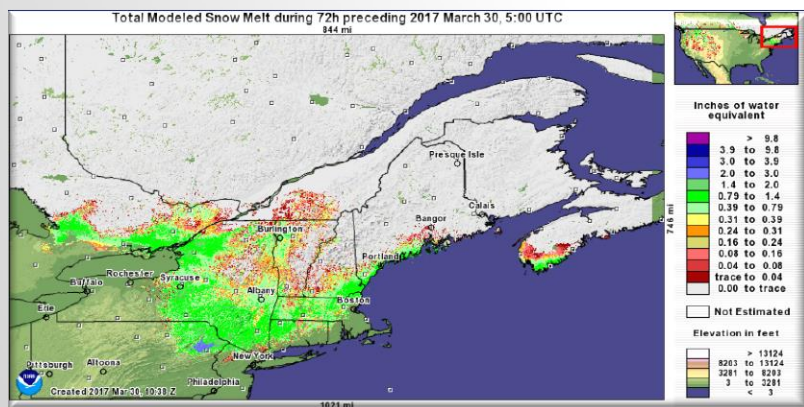
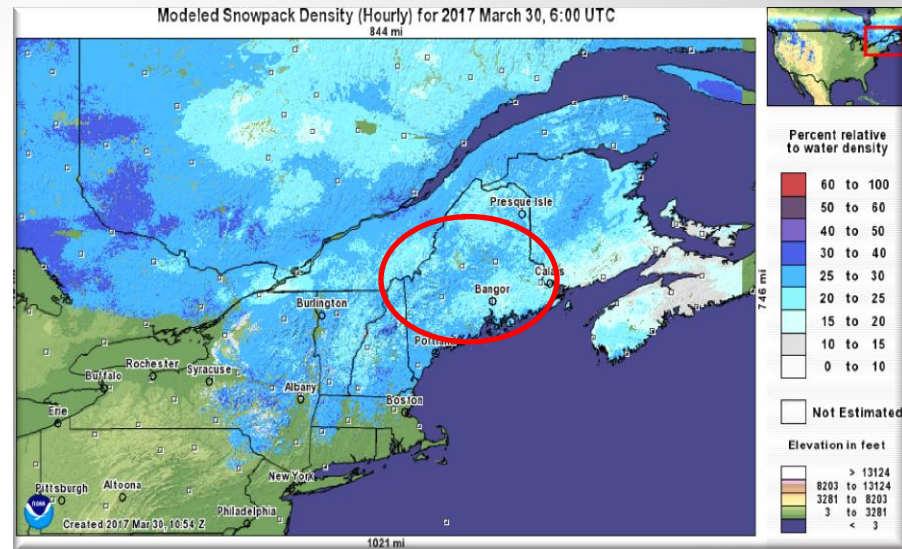
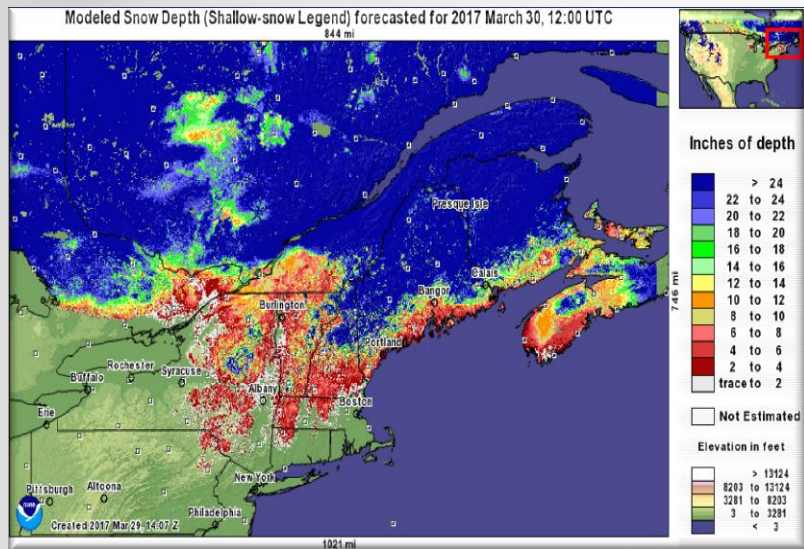
Elevation in feet



Modeled Snow Water Equivalent (Shallow-snow Legend) for 2017 March 16, 17:00 UTC



Snowpack Conditions





Water Supply/Lake Levels

Near to Above Normal



New York City's Water Supply System

March 28, 2017

Total Storage	(% of Capacity)
Current:	90.3
Normal:	92.8
Consumption	(billion gallons)
3/27/17	0.95
Average Precipitation	(inches)
	Actual Historical
January:	3.34 3.20
February:	2.58 2.46
March:	2.94 2.98

Kennebec -- >Normal
Androscoggin -- >Normal

Scituate Reservoir Elevation (feet)

285.06 (104.3 % of Capacity)

Plant Influent (mgd)

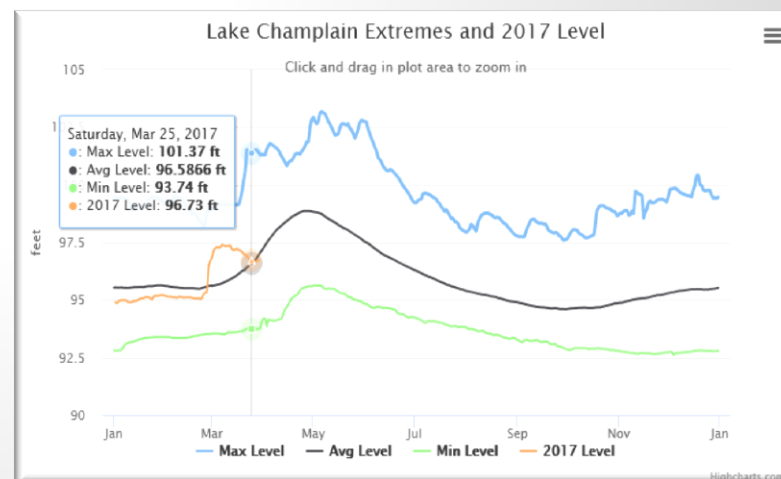
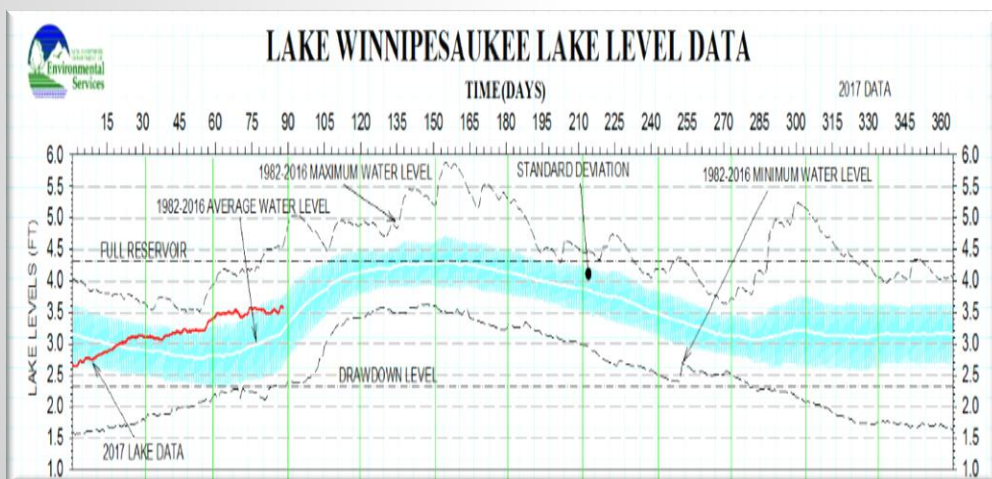
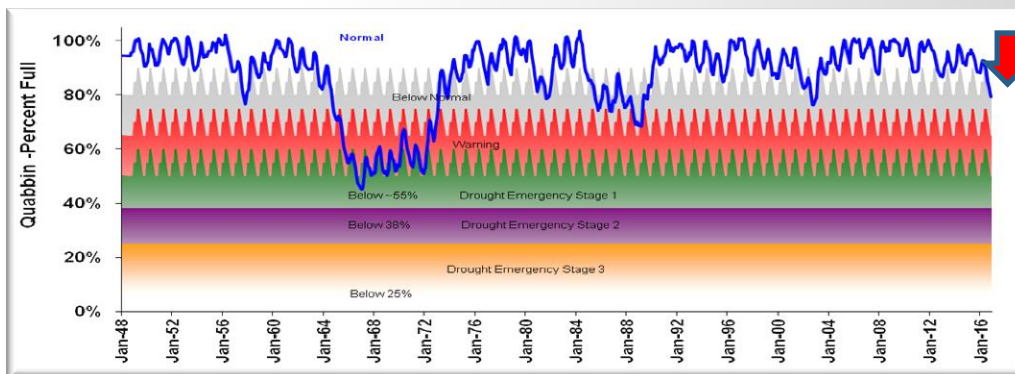
54.826534 (84.83 CFS)

Cumulative Reservoir Evap. (gal)

4,517,246

Downstream Discharge (mgd)

107.19 (165.84 CFS)

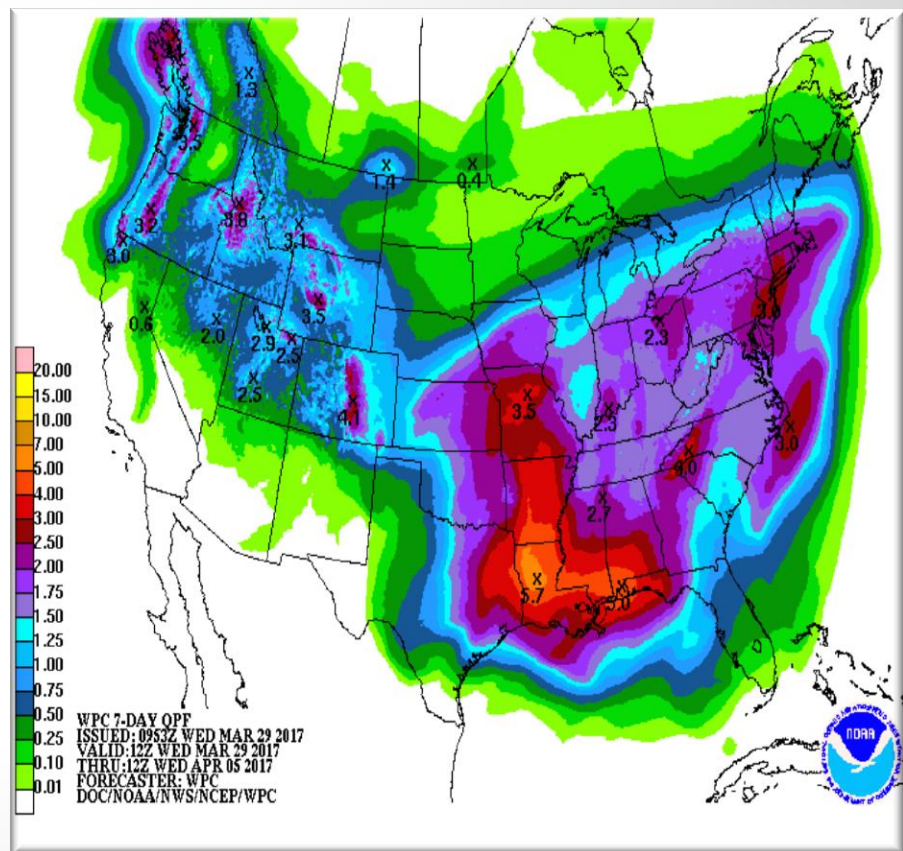
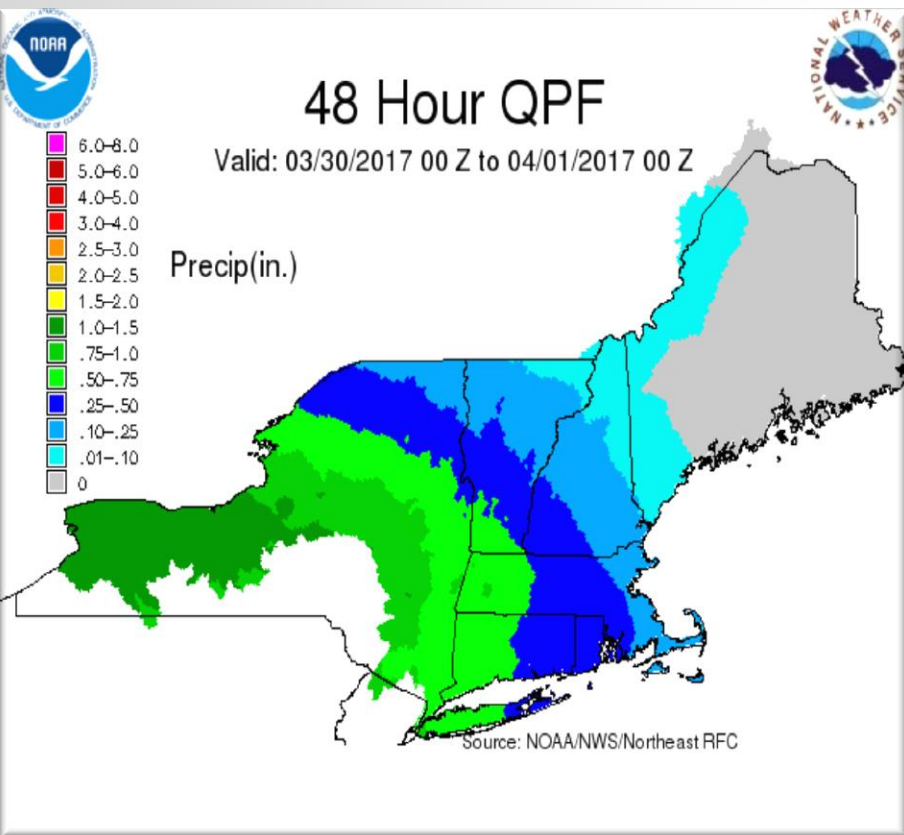


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Precipitation Forecast

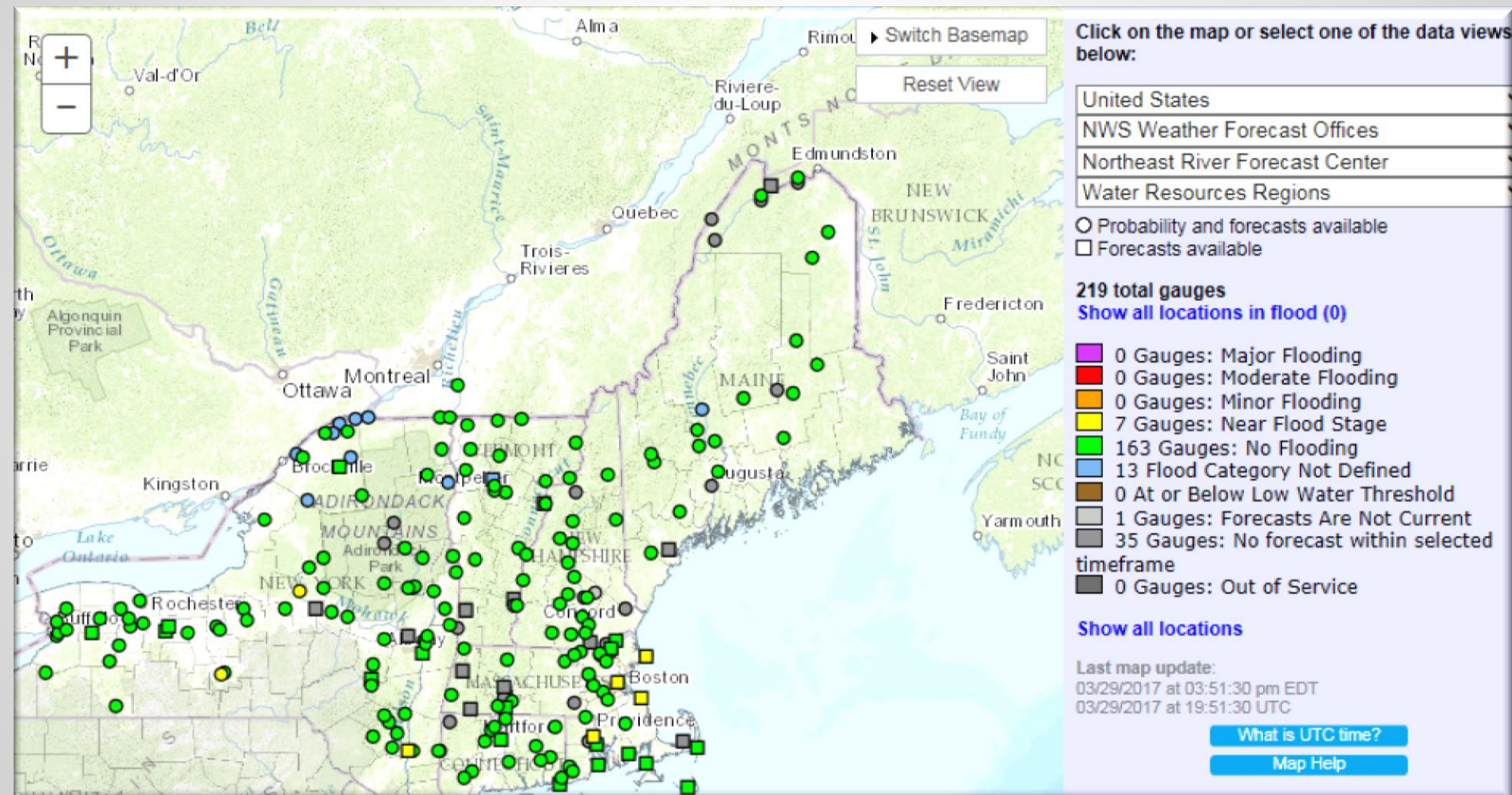
2-Day and 7-Day





NERFC 72-Hr River Forecast

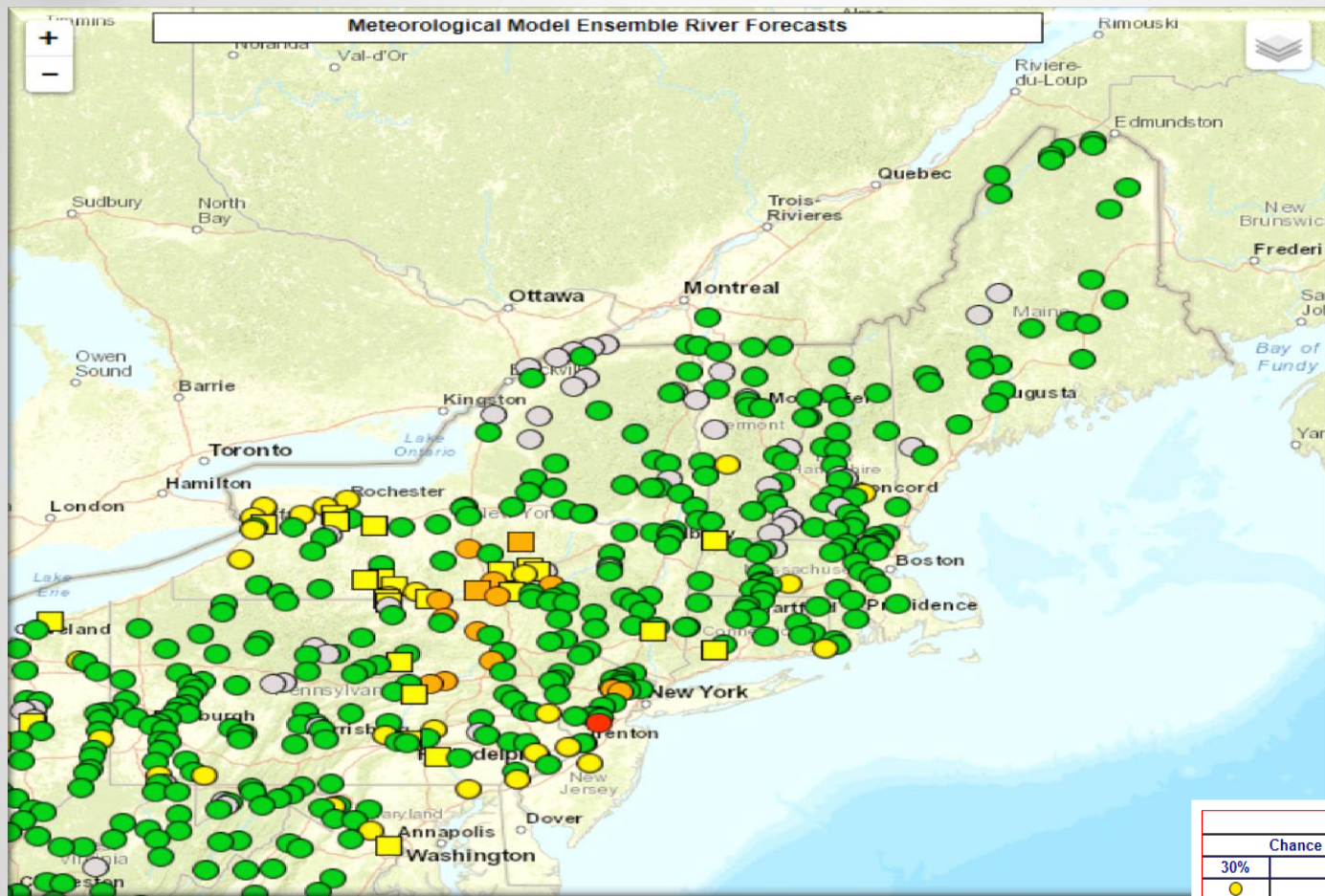
No Flooding





Short-range Ensemble River Forecasts

<http://www.weather.gov/erh/MMEFS>



Map Legend			
Chance of Exceedance			River Forecast Centers
30%	Level	70%	
	Action		Middle Atlantic River Forecast Center
	Minor Flood		Northeast River Forecast Center
	Moderate Flood		Ohio River Forecast Center
	Major Flood		Southeast River Forecast Center
= less than 30% chance of reaching Action level			
= no critical levels defined for this point			

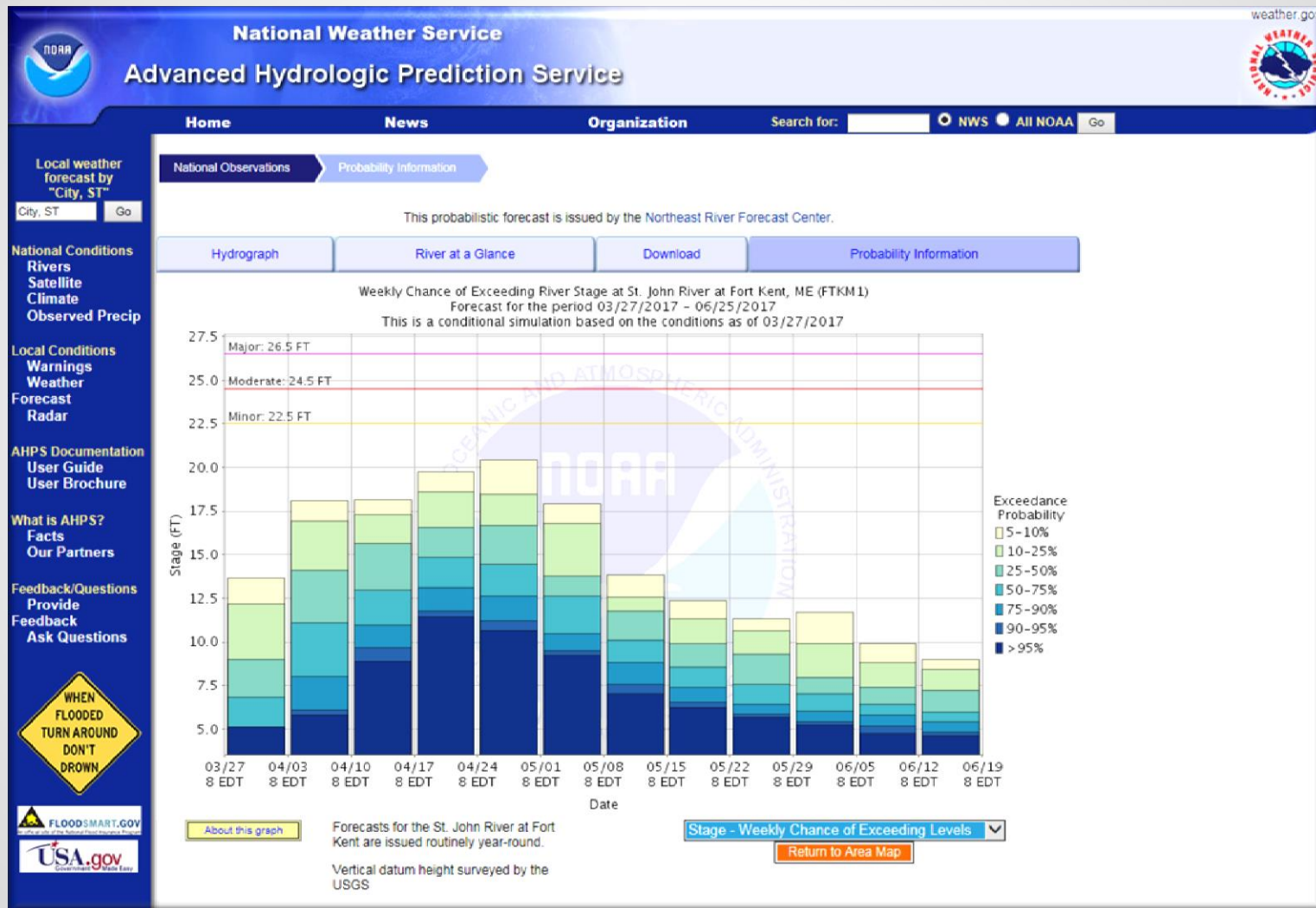


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AHPS – Advanced Hydrologic Prediction Service

Fort Kent – Exceedance Probability



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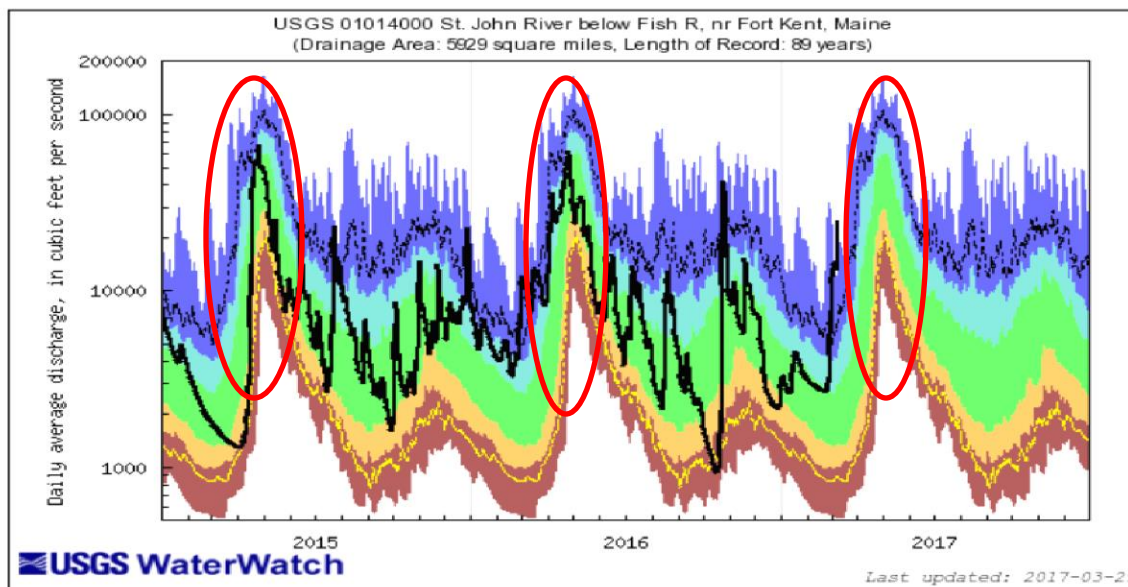


Fort Kent Maine – Saint John River 89 Year Flow Duration Graphic

USGS Streamflow Duration Hydrograph Builder

Site Number	01014000	Year:	2017	No. of years:	3	Flow:	Daily	cfs	<input type="checkbox"/>	GO
5th and 95th percentiles:	Line	Overlay	<input type="checkbox"/>	Year Type:	Calendar Year	Output:	Hydrograph			

For some streams, flow statistics may have been computed from mixed regulated and unregulated flows; this can affect depictions of flow conditions.



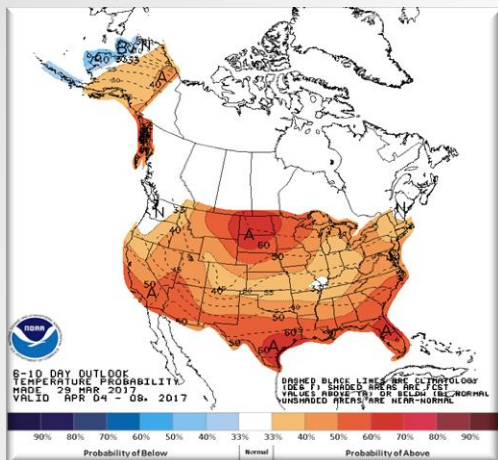
Explanation - Percentile classes						Flow
lowest-10th percentile	5	10-24	25-75	76-90	95	
Much below Normal	Below normal	Normal	Above normal	Much above normal		



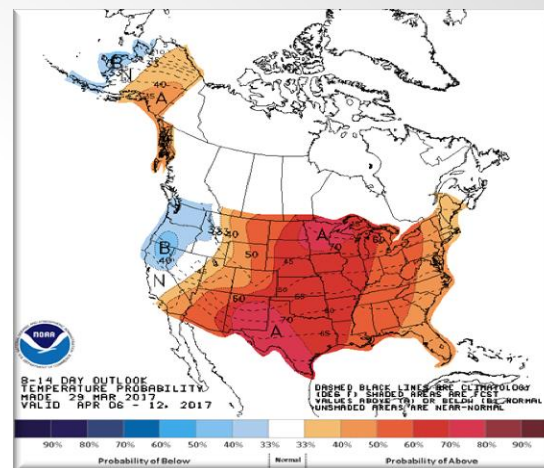


CPC Outlooks

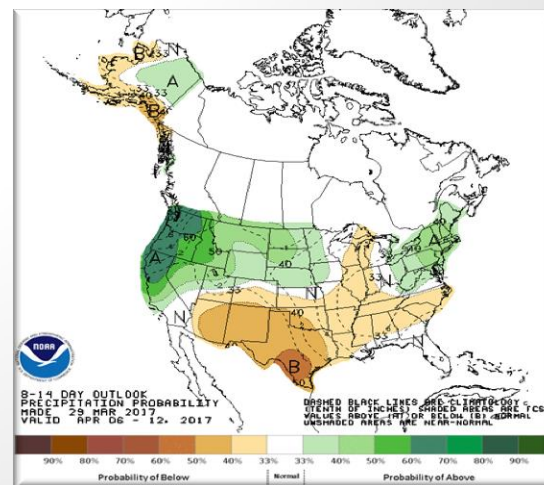
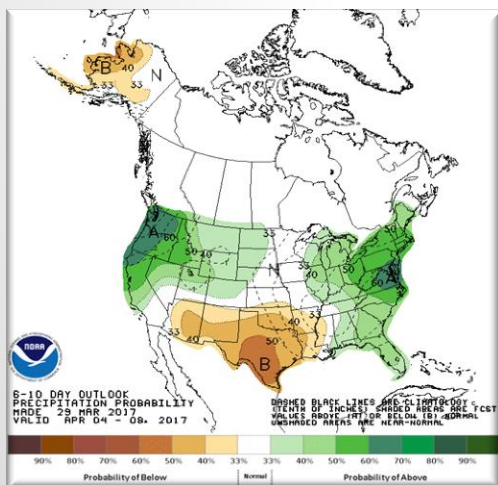
6 to 10 and 8 to 14 day outlooks



6 to 10 day outlooks



8 to 14 day outlooks

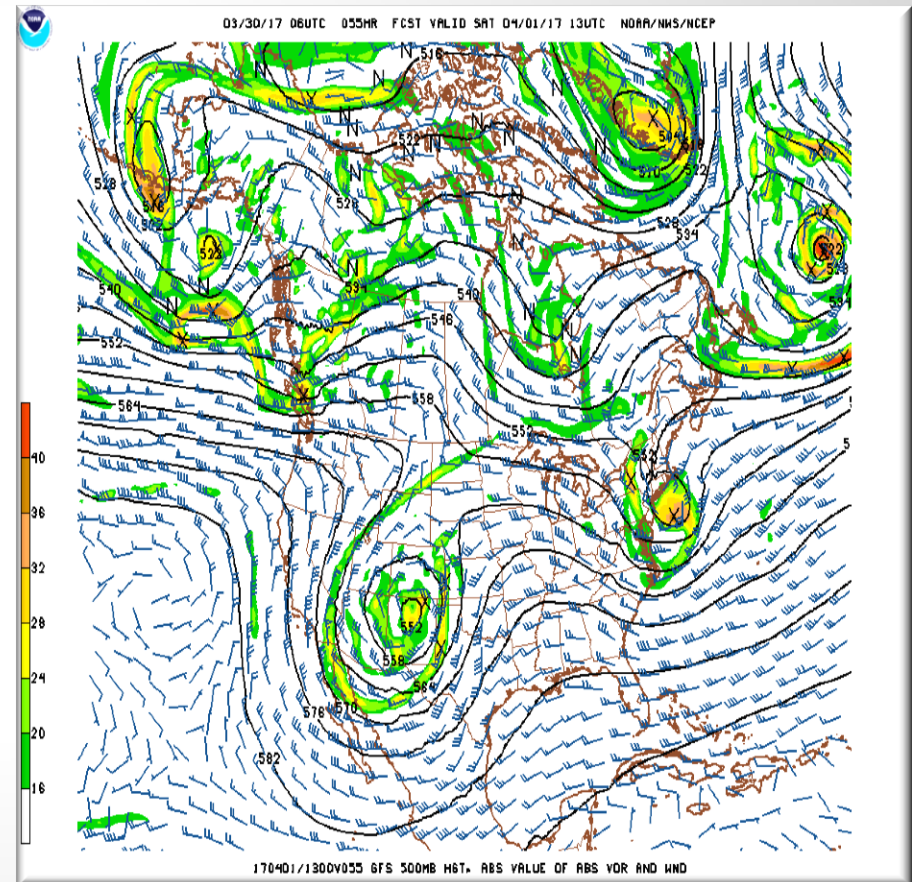
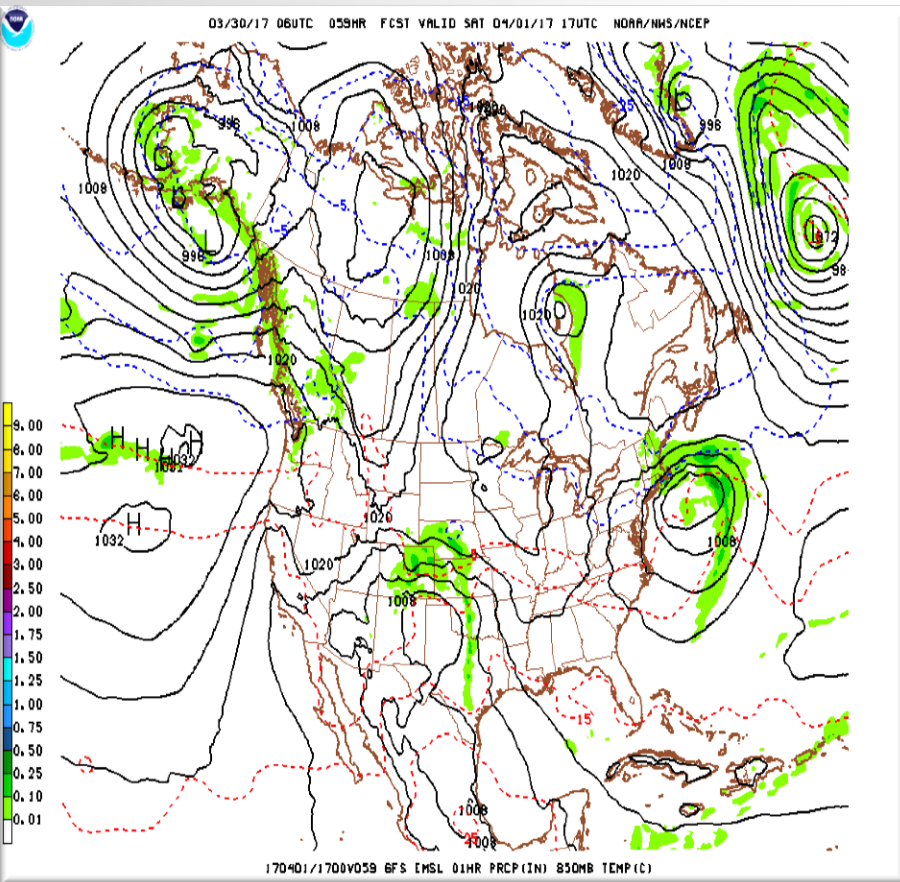


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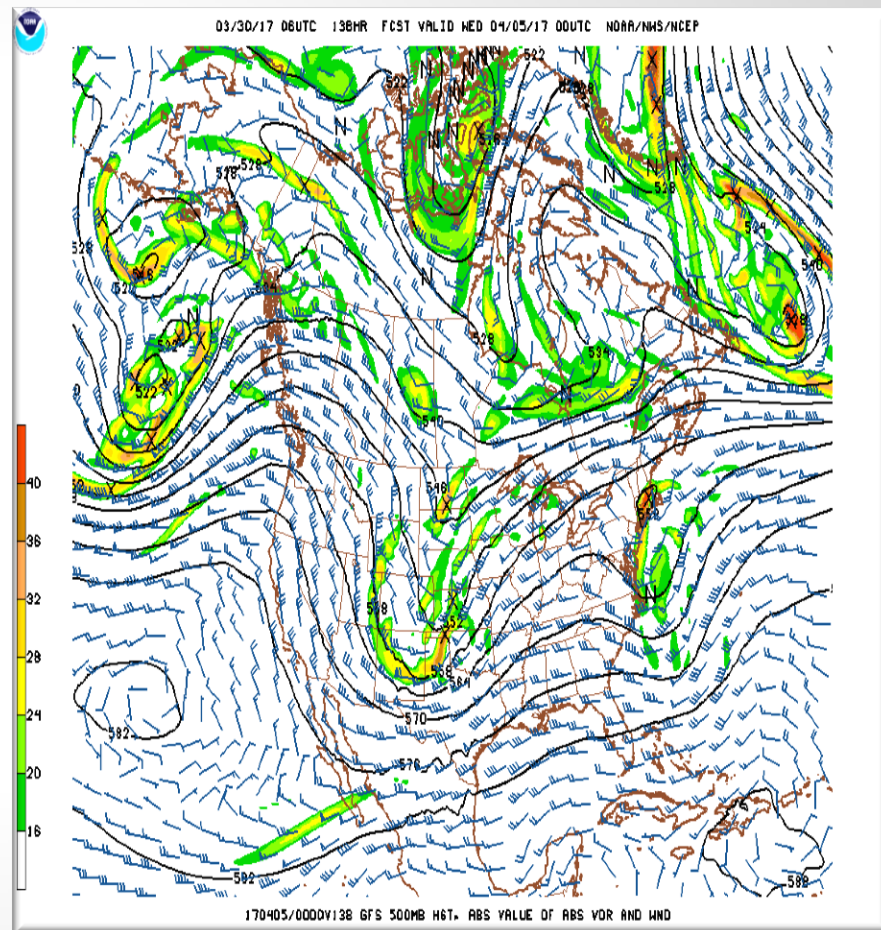
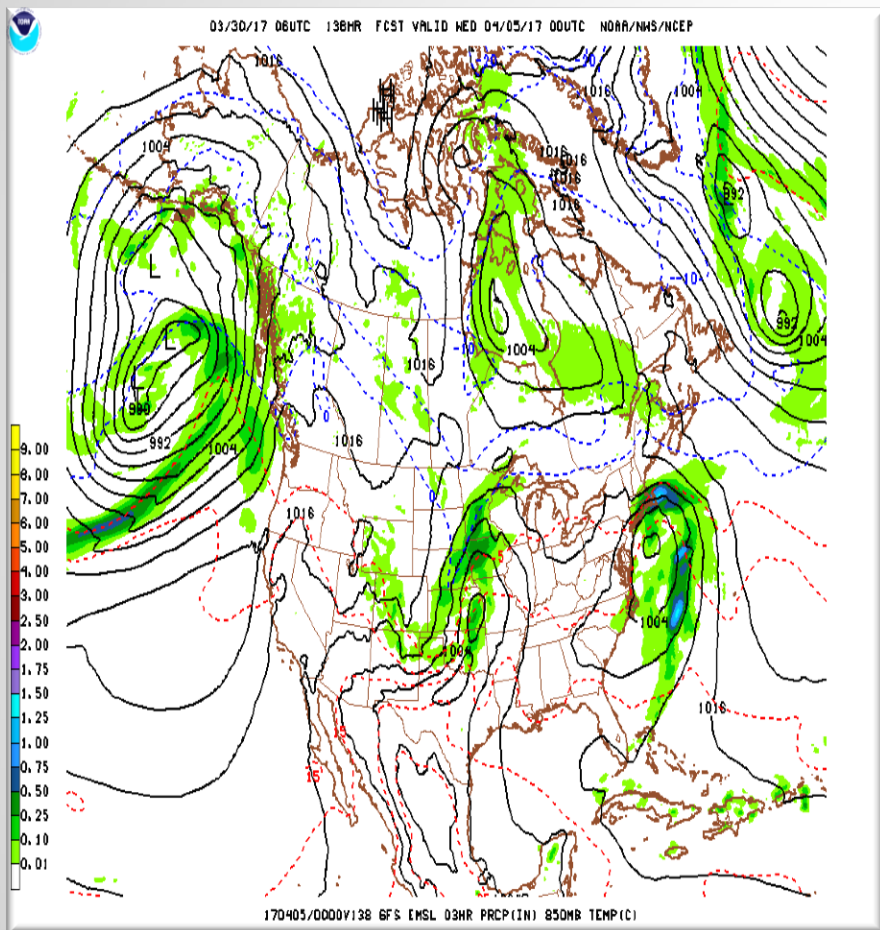
Developing System 4/1

Possible accumulating snow interior



Surface/500 mb – 4/5

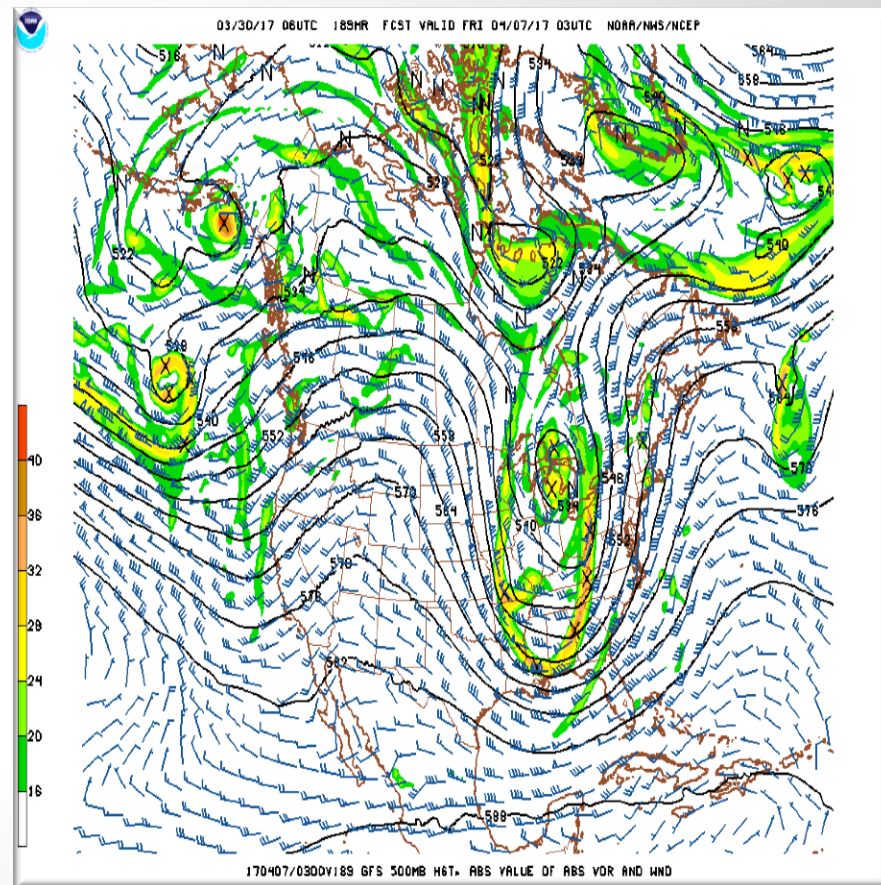
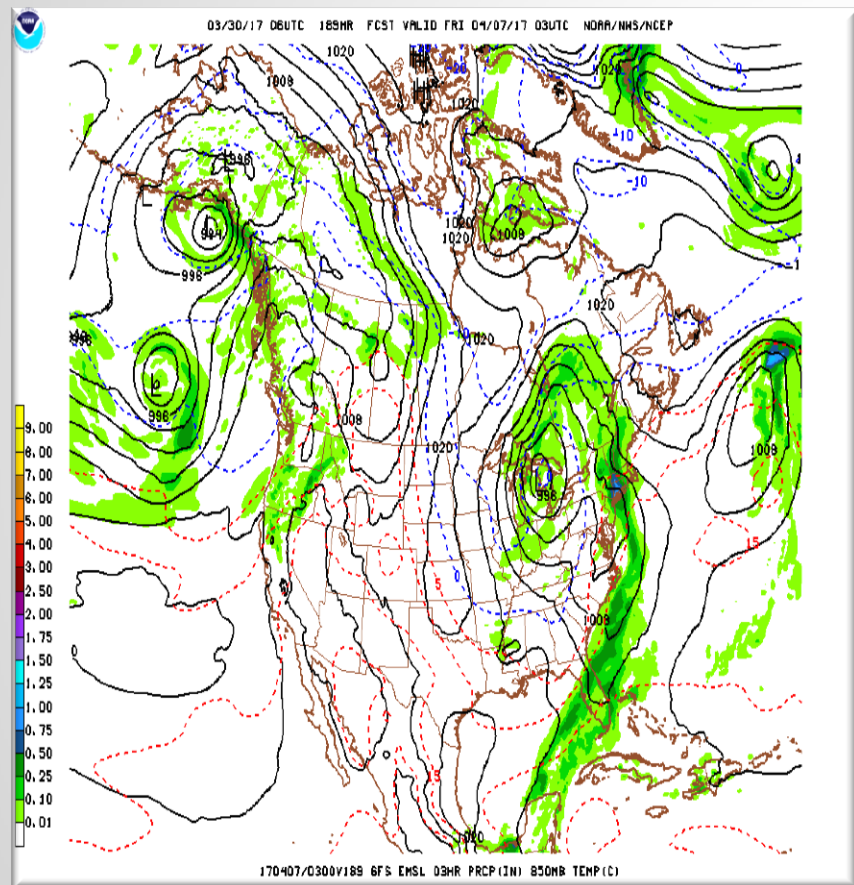
Another “Cold” storm





Surface/500mb 4/7

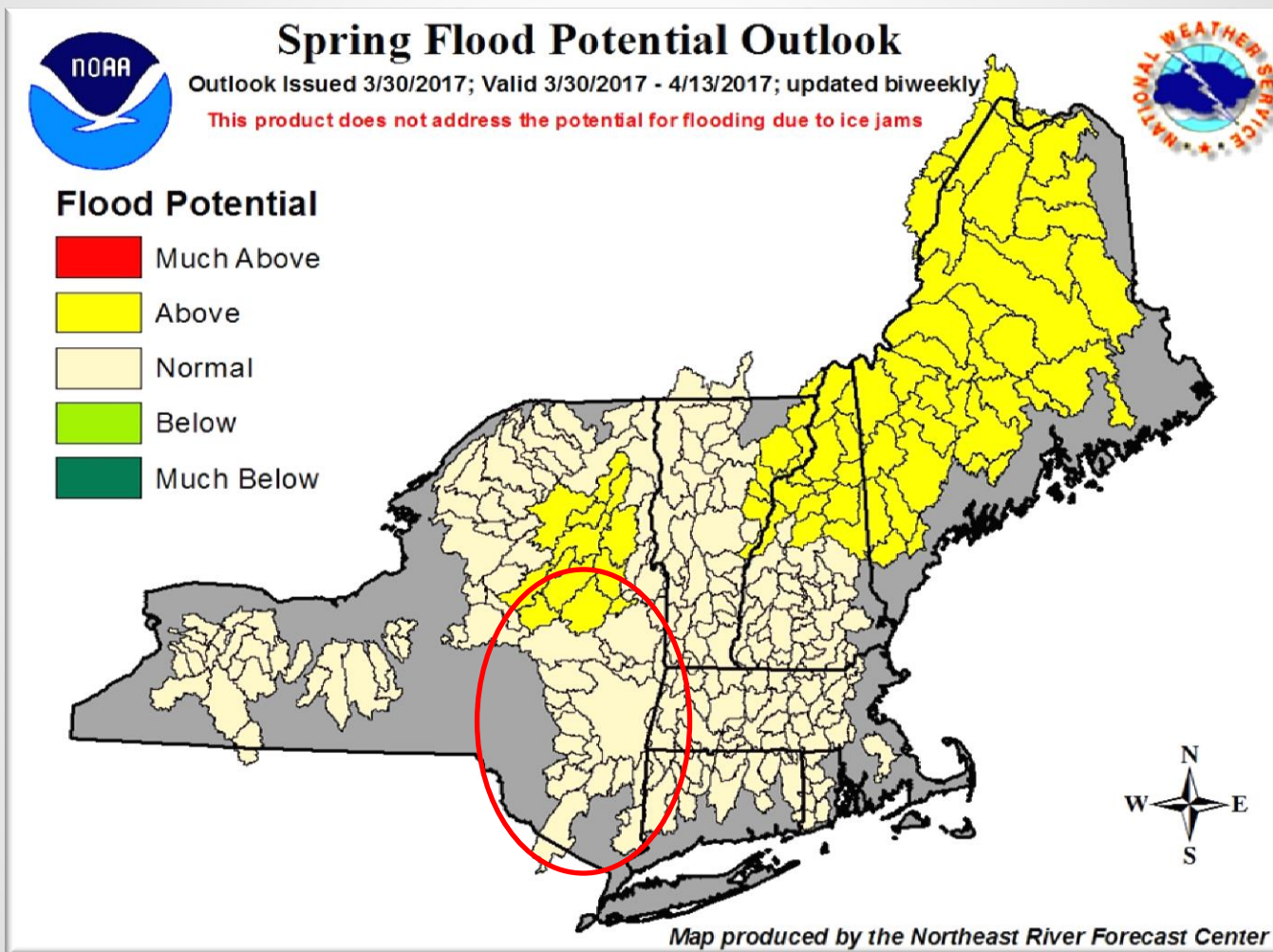
“Warmer” event possible...high uncertainty





NERFC Winter Outlook March 30th

Flood Potential -- Valid until Apr 13th

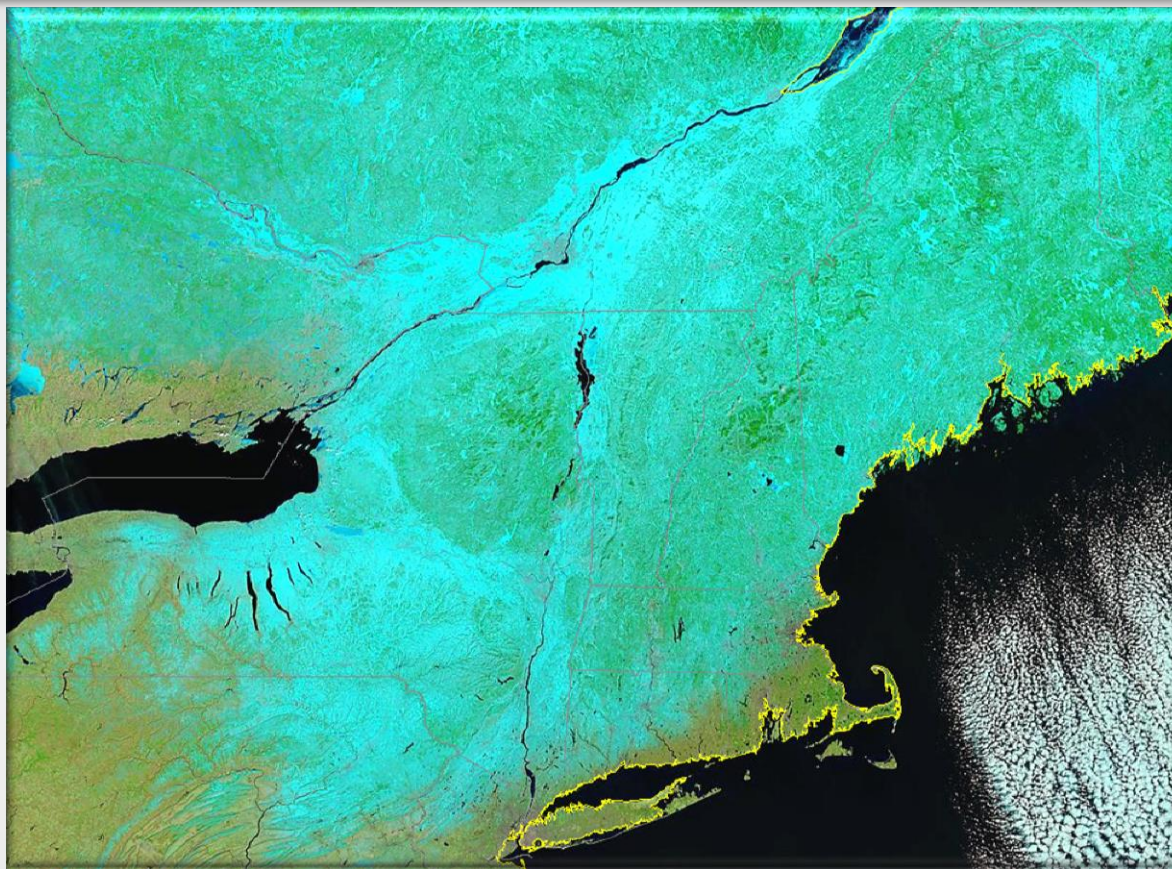


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