North Atlantic
El Niño Resources Webinar

North Atlantic Regional Team

January 28, 2016

Call Agenda

- Regional Collaboration & NOAA In-Reach, Jason Tuell, Regional Team Lead
- El Niño in the North Atlantic, Art DeGaetano, Northeast Regional Climate Center
- NOAA El Niño Resources & Coordination, Ellen Mecray, Eastern Regional Climate Services Director
- New York/New England perspective on ENSO impacts on precipitation and flood potential, David Vallee, Northeast River Forecast Center
- Discussion

Why Regional Collaboration?

Regional Collaboration Mission

To identify, communicate, and respond to regional needs, catalyze collaboration and connect people and capabilities to advance NOAA's mission and priorities.

Line of Sight:

COMMERCE Strategic goals	NOAA Top priorities for 2014-2016	NOAA Regional Collaboration Goals
GOAL 5 OPERATIONAL EXCELLENCE Deliver better services, solutions, and outcomes that benefit the American people	ACHIEVE ORGANIZATIONAL EXCELLENCE	Address regional challenges by connecting people and resources
	Focus on people, teams and tools to advance organizational excellence	Exchange both national and regional insights that inform action
OBJ. 5.1: Strengthen organizational capabilities to drive customer-focused, outcomes-driven mission performance		Improve the understanding of and respect for NOAA's broad mission and regional capabilities

NART members

Betsy Nicholson,
NOS/OCM

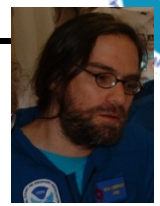
Beth Turner
NOS/NCCOS

Colleen Coogan
NMFS/GARFO

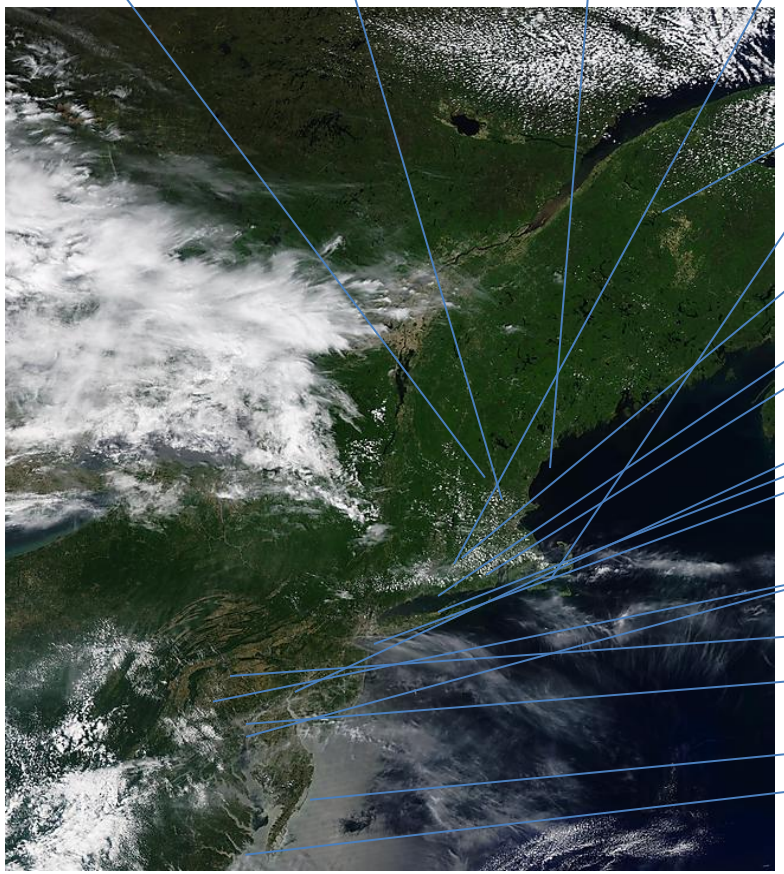
Sylvain DeGuise
OAR/CT Sea Grant

Nicole Bartlett
NART Coordinator

Rich Okulski
NWS/Caribou
WFO



Sim Aberson
OAR/AOML



Ellen Mecray
NESDIS/NCEI

Catalina
Martinez
OAR/OER

Kim Hyde
NMFS/NEFSC

Kevin Schabow
NMFS/NCBO

Beth
Phelan
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Jason Tuell
NWS/ER

George McKillop,
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Randy Schneider
NOS/OCM

Jen Dopkowski
OAR/CPO

Troy Hartley
OAR/VA Sea Grant

Simeon Hahn
NOS/OR&R

Paul Ticco,
NOS/ONMS

Joe Sienkiewicz
NWS/NCEP

El Niño in the press

tatooedSailor Mar 7, 2014

"A strong El Niño, by contrast, tends to push the southern stream even further north, and with it, milder air. Some of the most snow barren winters in the northeast have occurred during these winters."

Snow barren…northeast? YOU ROCK Niño!

Did El Nino Make This Weekend's Colossal Snowstorm Worse?

Eye On Weather: El Niño A Big Player In Winter Outlook

By: Chief Meteorologist Eric Fisher

ALEX BEAM

Beware . . . El Niño is coming!

El Niño watch issued: What could that mean for NJ?

Enjoy the warmth while you can — we could still get blizzards

SCIENCE WEATHER

Here's Why the East Coast Has Been So Warm

Justin Worland @justinworland | Dec. 14, 2015

You can forget about a white Christmas if you live on the East Coast

Gunny Mar 7, 2014

El Niño = El BS' O.

Winter Preview: El Niño contributes to a tale of two seasons

THE WEATHER

Super El Niño Means Less Snow, Warm Weather for Northeast

Friday, December 18, 2015, by Megan Barber

Webcam Image from Dec. 15 Camelback, Pennsylvania

KILLINGTON
MAD RIVER GLEN
NEW ENGLAND
STOWE
STRATTON
SUGARBUSH
SUGARLOAF
EL NIÑO
NEW ENGLAND SKIING
NORTHEAST
THE WEATHER

1 COMMENT

Like 138

US Winter Forecast: Northeast to Dodge Winter's Brutal Cold; Rain, Snow to Dent California Drought

By **Jillian MacMath**, AccuWeather.com Staff Writer

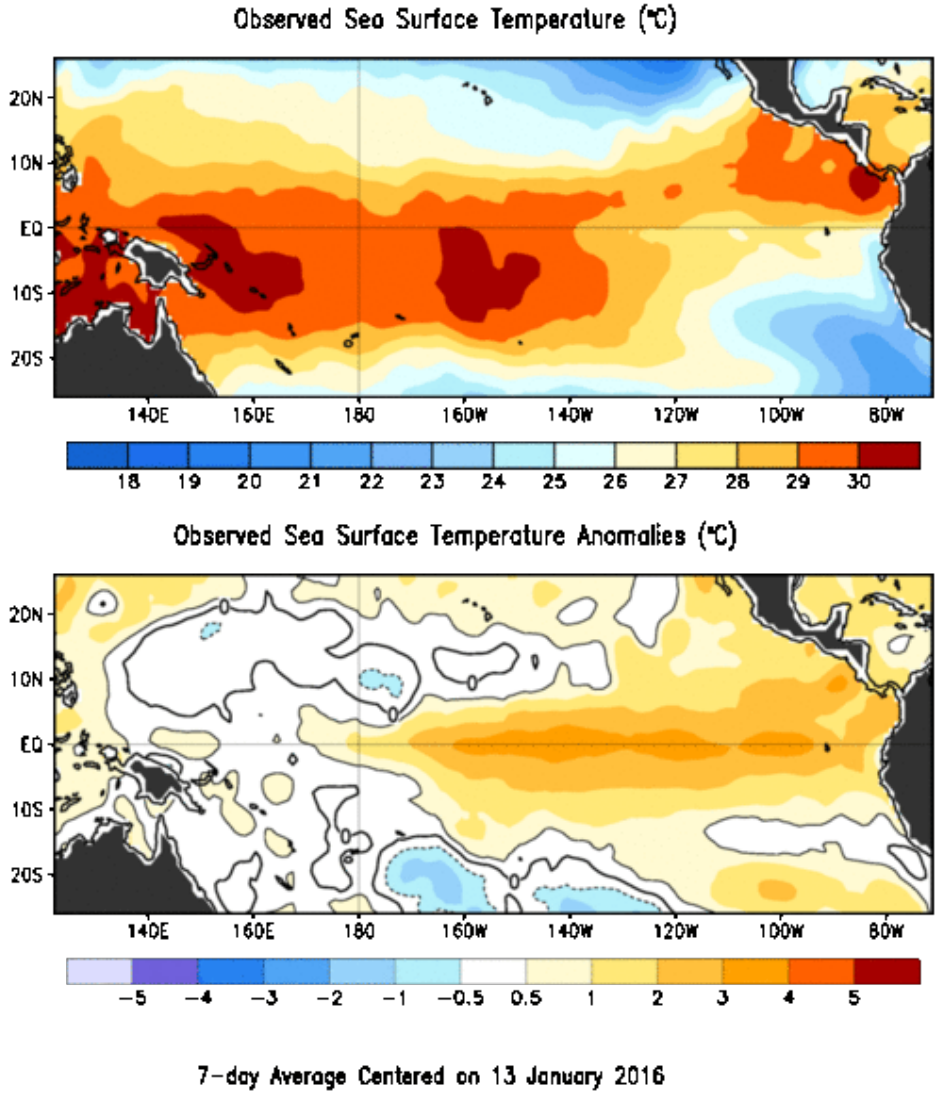
October 16, 2015; 4:04 AM ET

Share

El Niño in the North Atlantic

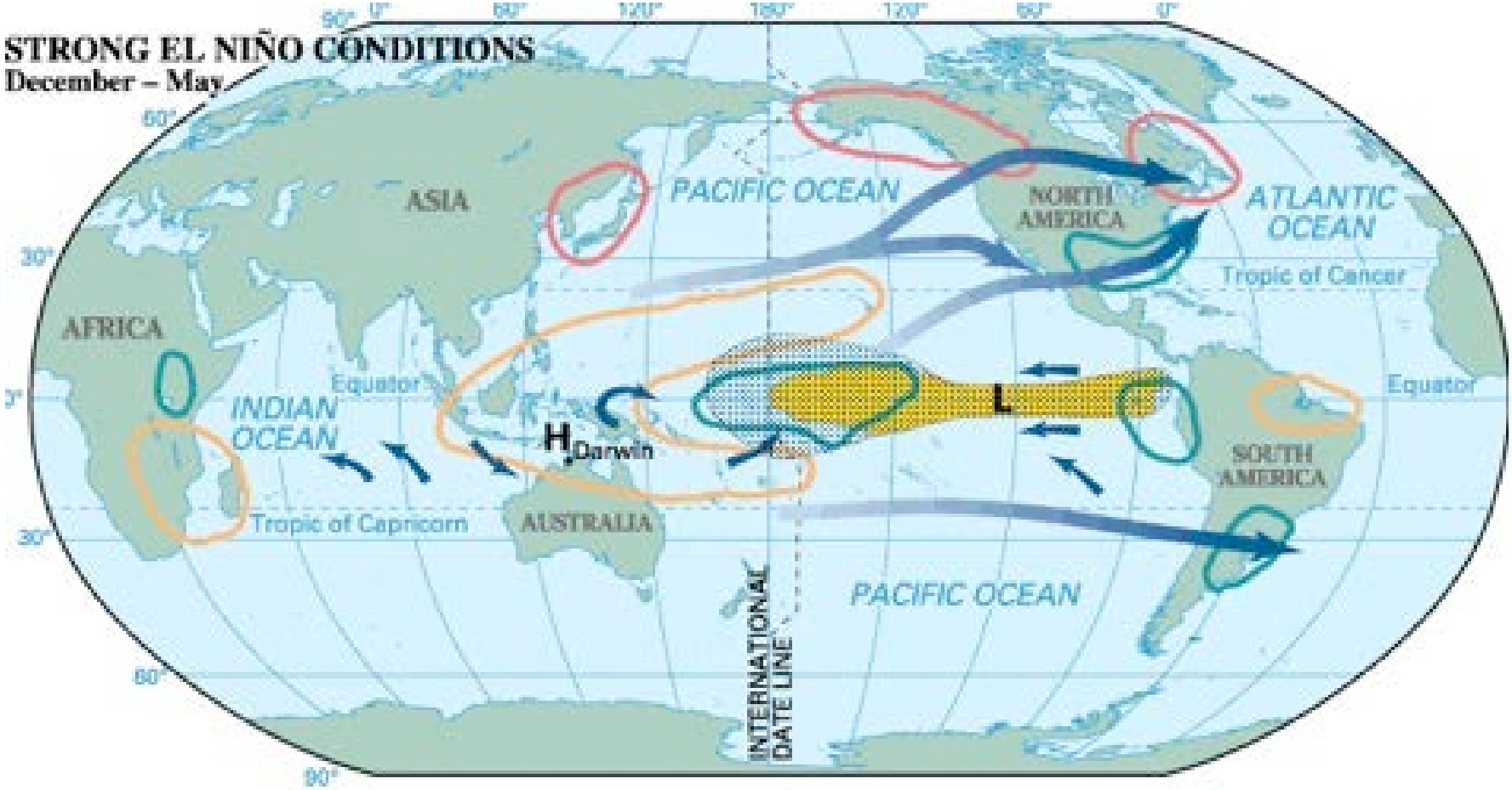
Art DeGaetano, Director
Northeast Regional Climate Center
January 28, 2016

What is El Niño… Current Status

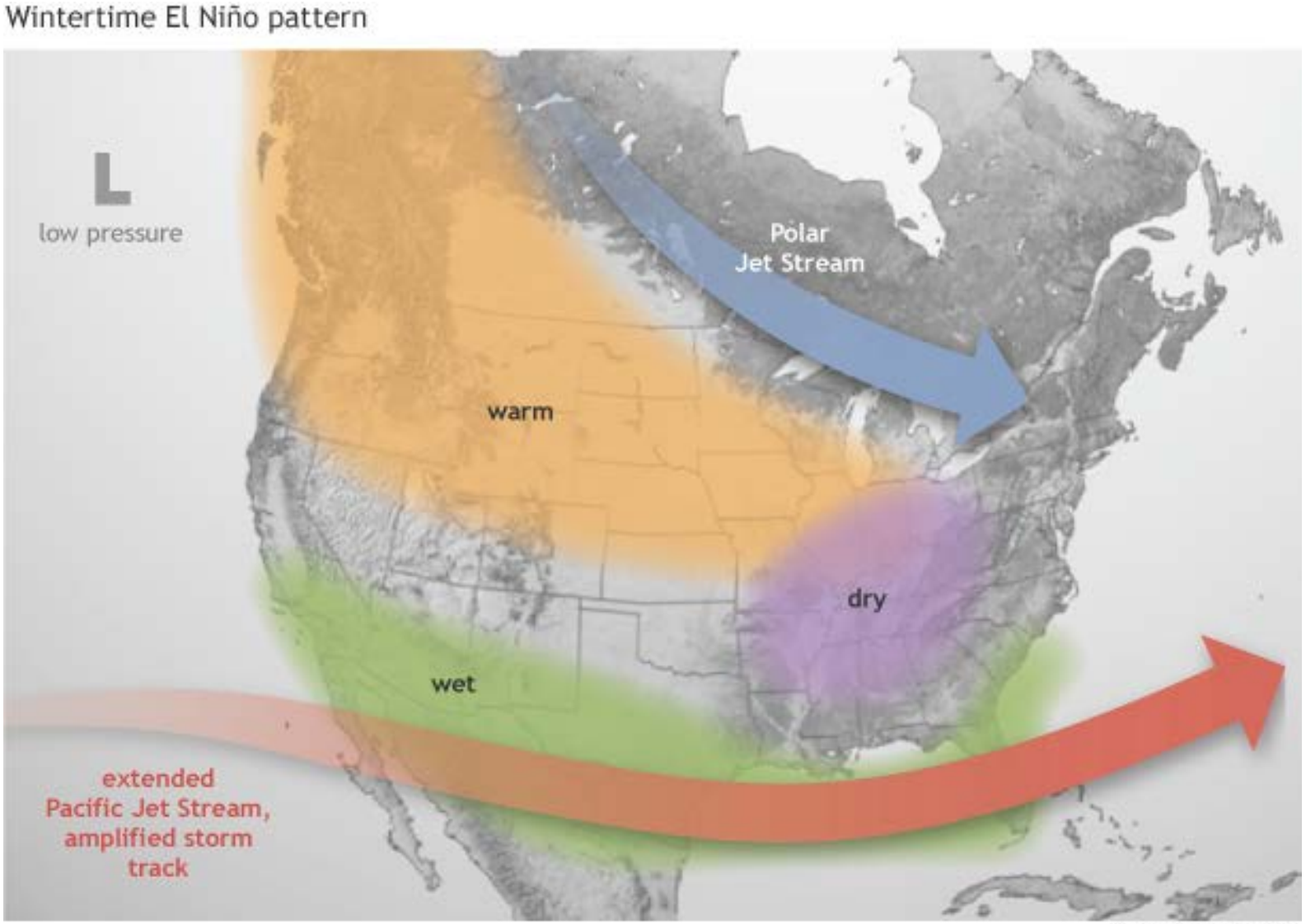


http://www.cpc.ncep.noaa.gov/products/precip/CWlink/MJO/enso.shtml

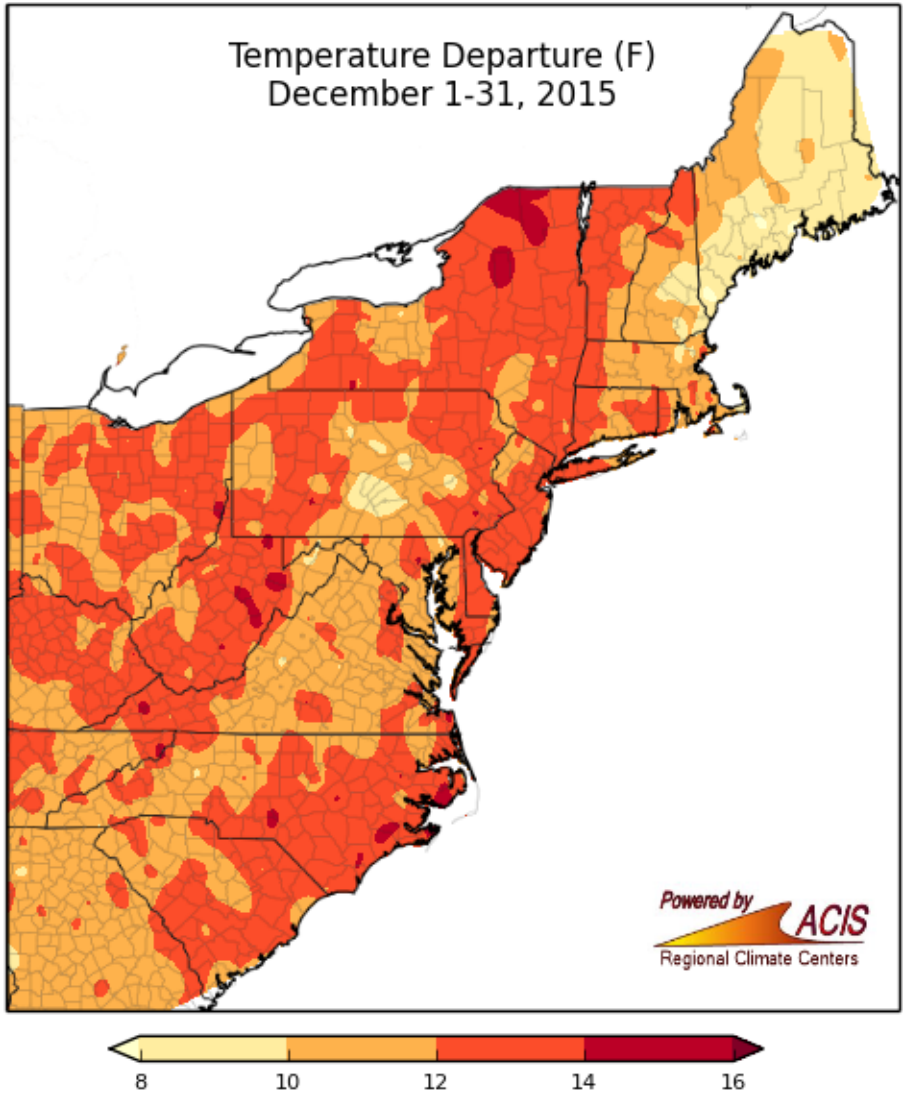
Pacific to North Atlantic

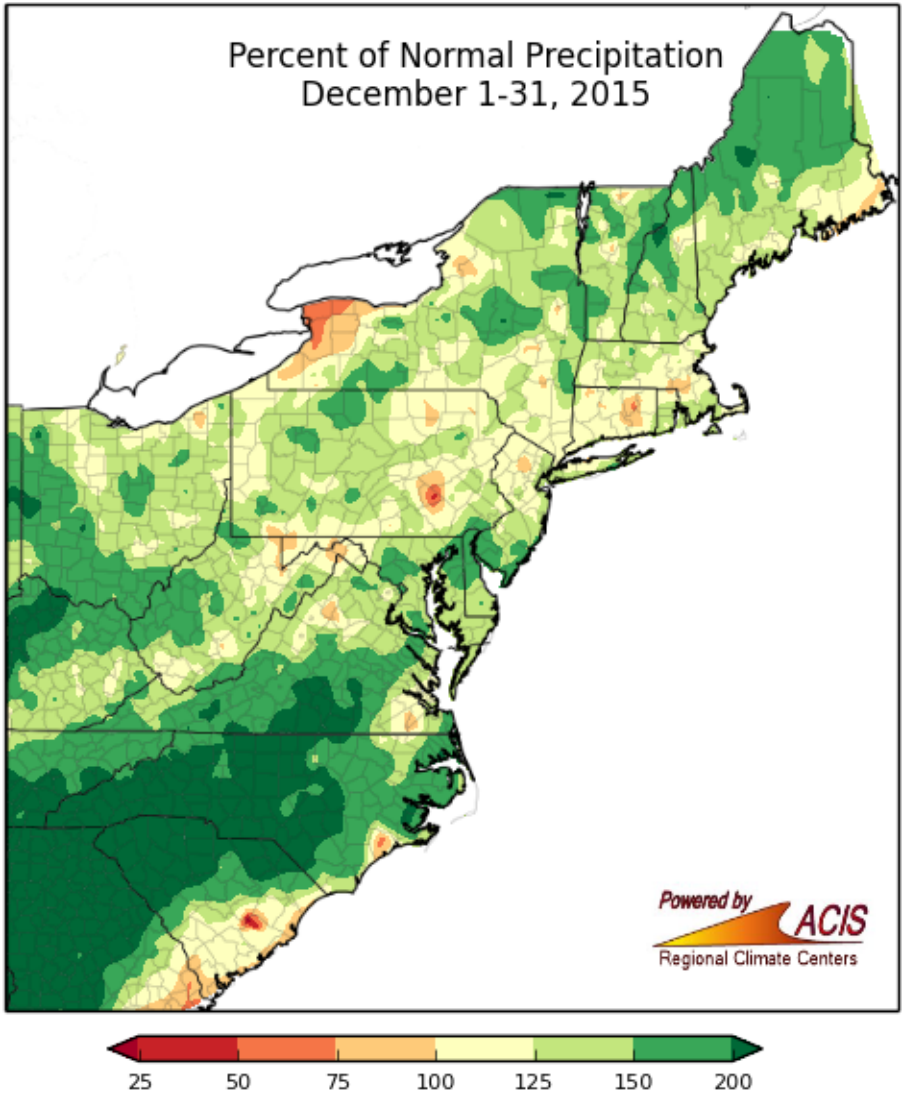


A Typical El Niño pattern



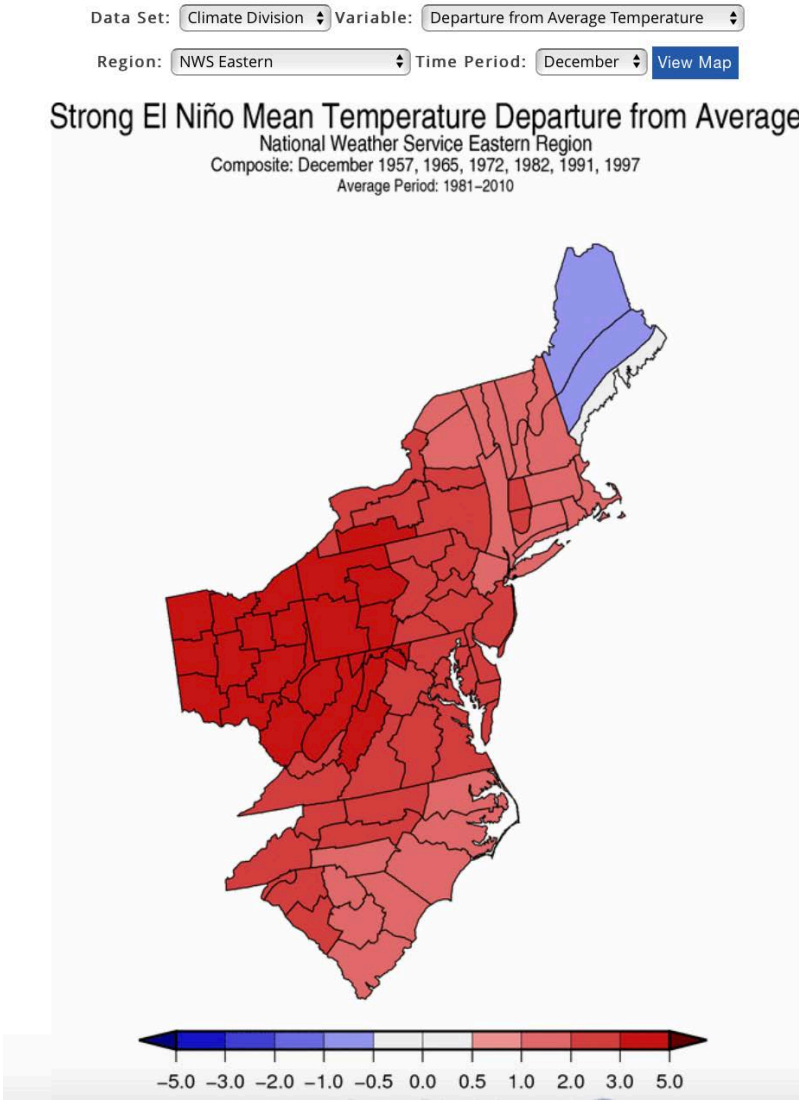
This December…El Niño?





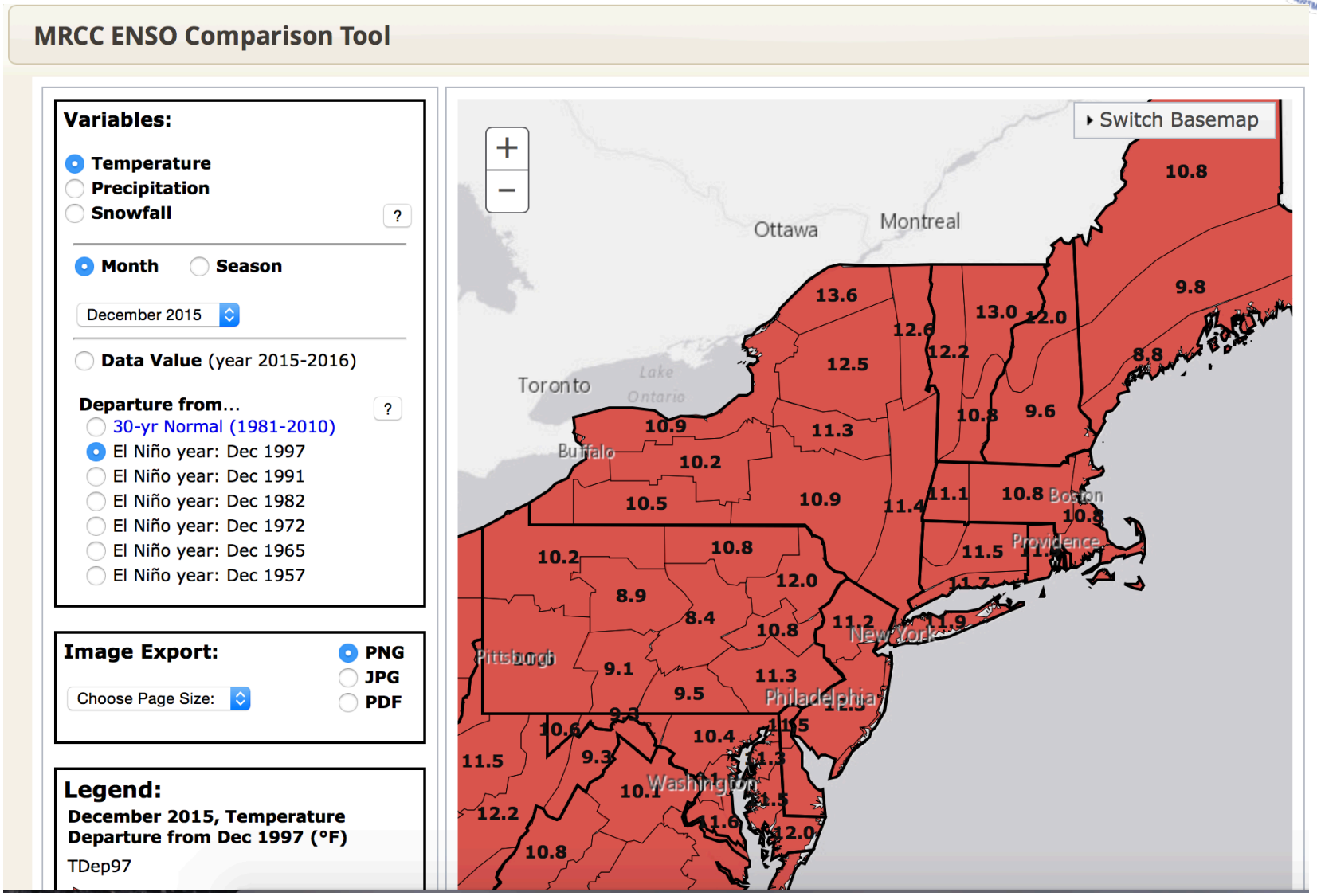
http://www.nrcc.cornell.edu/regional/monthly/monthly.html

Classic Strong El Niño Analog



https://www.ncdc.noaa.gov/monitoring-references/dyk/elnino-2015-2016

El Niño 2015… Warmer than 1997



http://mrcc.isws.illinois.edu/gismaps/elnino.htm#

El Niño Impacts

Potential Winter Impacts

Coastal Storms

Several research studies have noted an increased frequency of East Coast storms during El Niño winters. These storms, known as nor'easters, have a number of coastal impacts, ranging from beach erosion and high winds to heavy snowfall and precipitation. Storms that follow a classic nor'easter

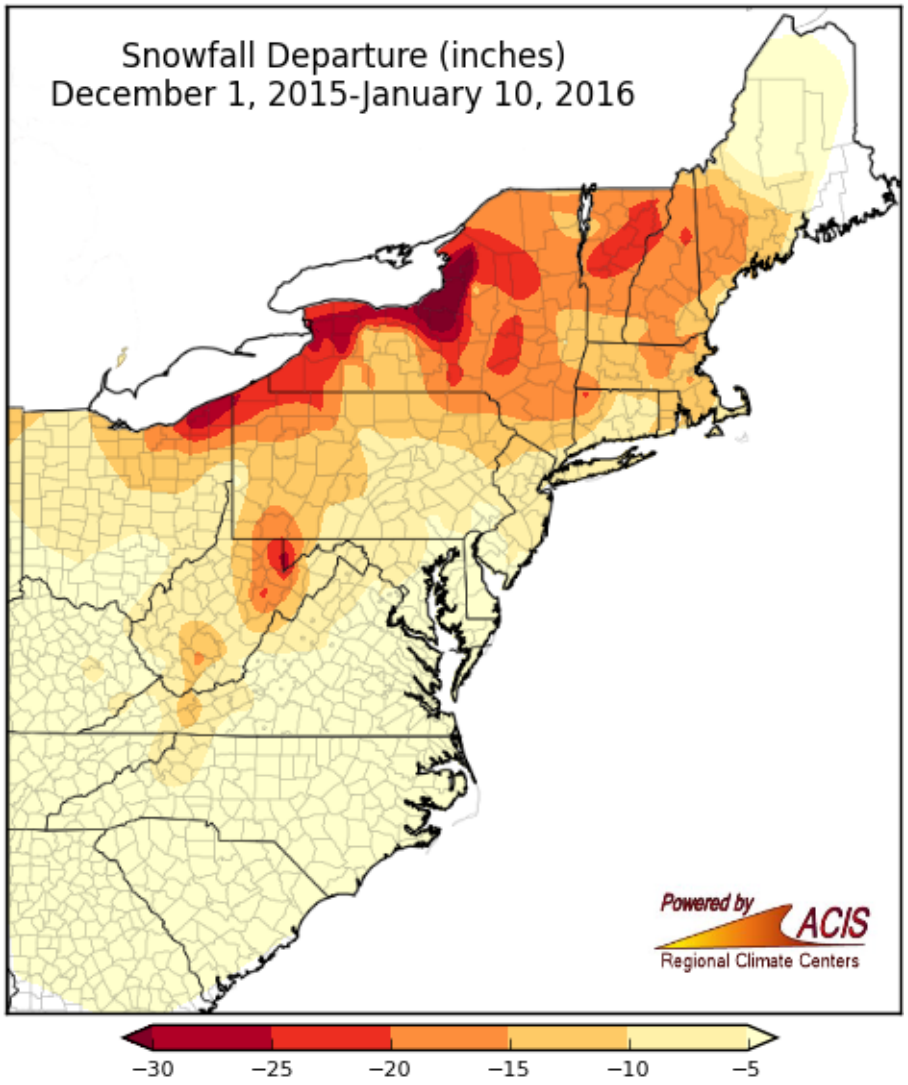
Snowfall

Snowfall along the Northeast coast is typically above average during El Niño winters. The exception to this is the lake-effect region in New York. Since 1950, six of the least snowy winters on record at Buffalo have occurred during El Niños. Typically, in regions closer to the coast, December through February snowfall is as

Energy Usage

Across a broad swath of the Southeast, El Niño winter temperatures average 1 to 2 degrees cooler than those that do not experience El Niño conditions. Therefore, heating degree day accumulations tend to be higher during El Niño winters in this region. The Residential Energy Demand Temperature Index (REDTI) provides a

El Niño and Winter Snow



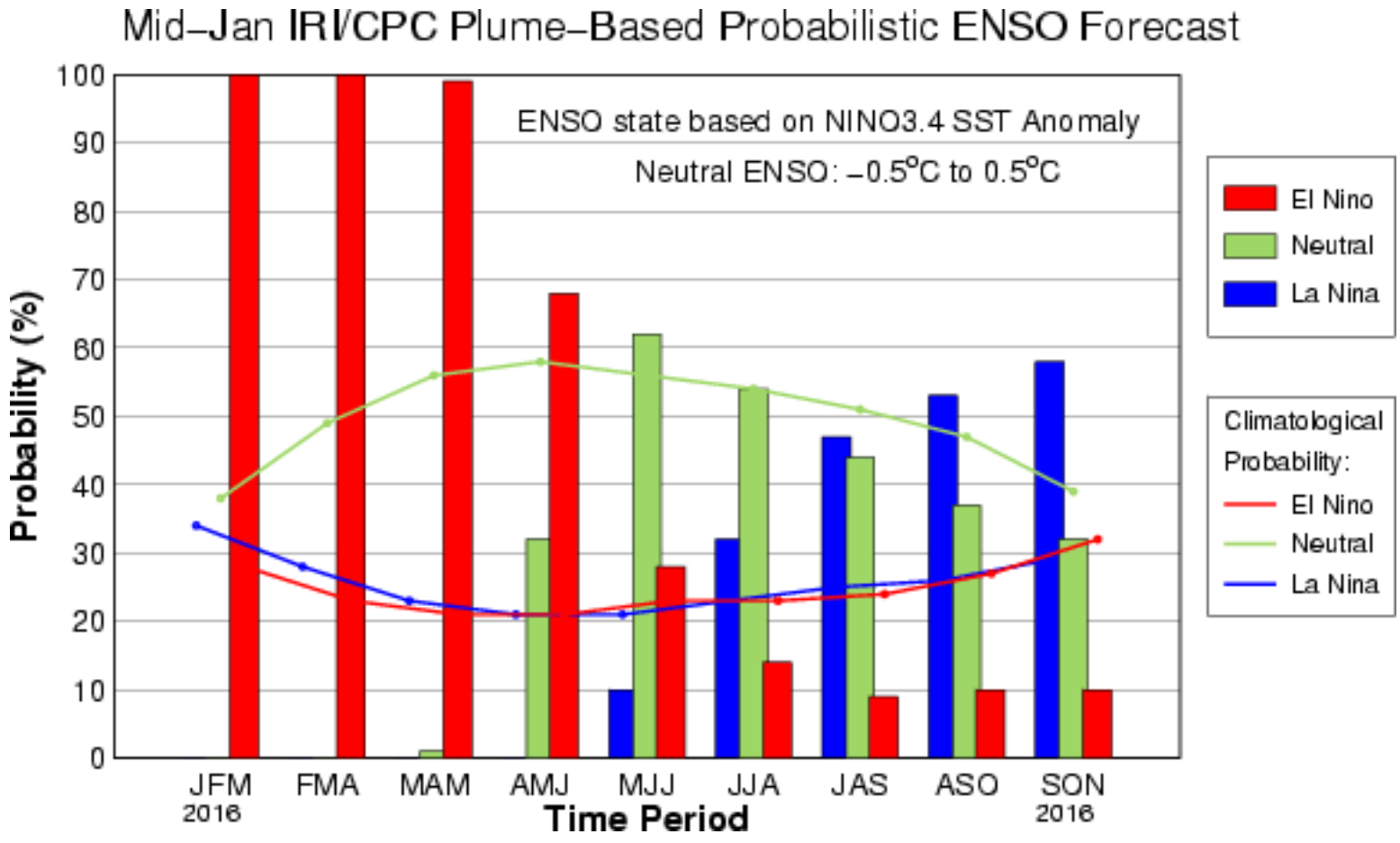
Since 1950, during El Niño

6 of the least snowy winters at Buffalo.

8 of the 10 greatest 2-day snowfalls at Washington, DC.

http://www.nrcc.cornell.edu/services/blog/2016/01/19_mid_jan/index.html

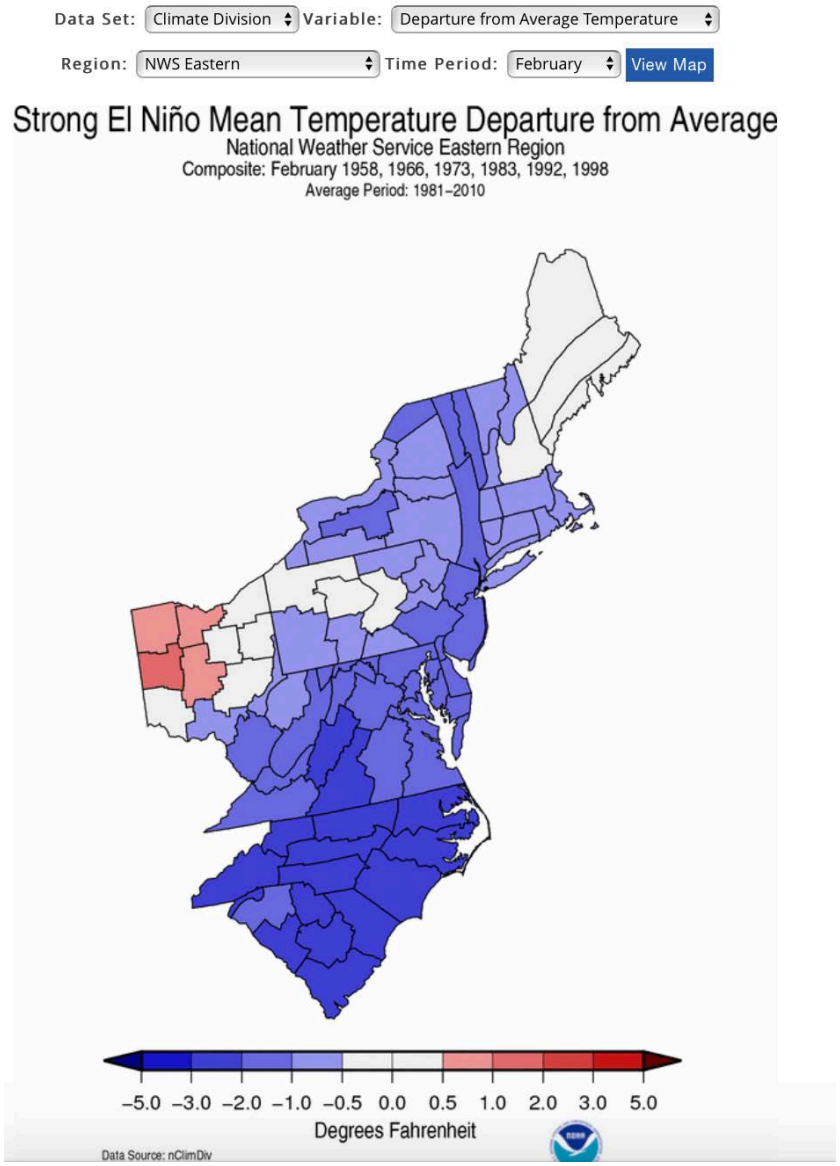
El Niño Forecast

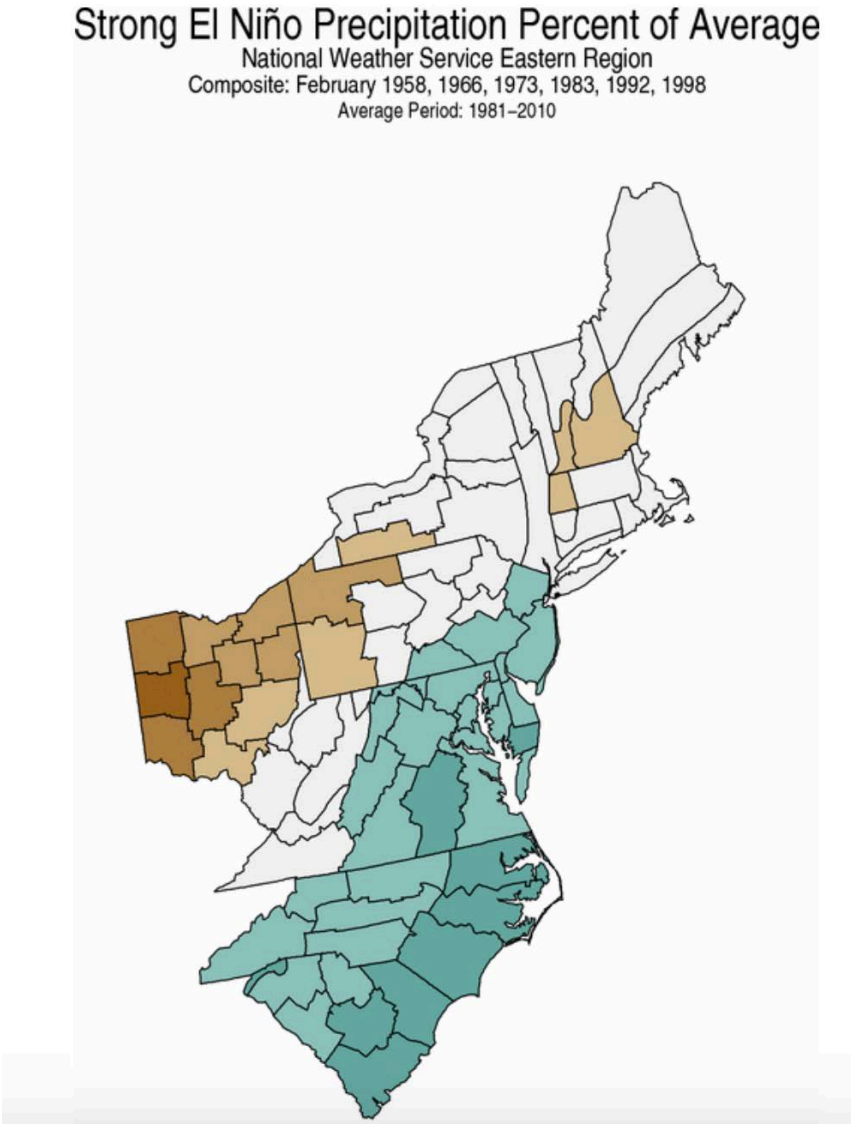


ENSO likely to continue strengthening and to last through the winter of 2015-16

http://iri.columbia.edu/our-expertise/climate/forecasts/enso/current/

El Niño … February during strong El Niño





https://www.ncdc.noaa.gov/monitoring-references/dyk/elnino-2015-2016

NOAA El Niño Resources & Coordination

Ellen Mecray
NOAA Regional Climate Services Director- Eastern Region
January 28, 2016

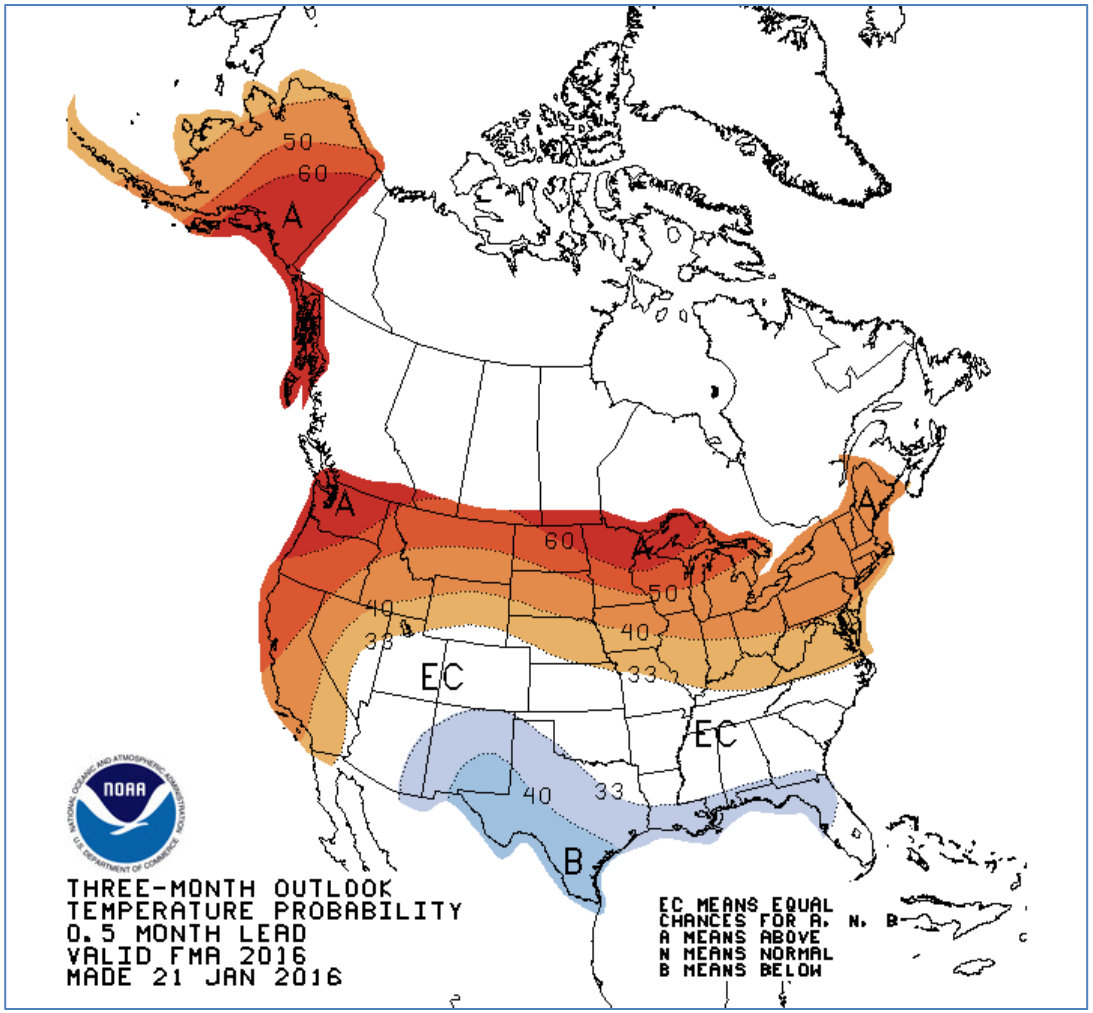
National and International Resources: Outlooks and Forecasts

(CPC) ENSO Diagnostic Discussion
http://www.cpc.ncep.noaa.gov/products/analysis_monitoring/enso_advisory/index.shtml

(CPC) El Nino – Southern Oscillation (ENSO)
http://www.cpc.ncep.noaa.gov/products/precip/CWlink/MJO/enso.shtml

(CPC) Monthly and Seasonal Temperature, Precipitation, and Drought Outlooks
http://www.cpc.ncep.noaa.gov/

IRI ENSO Forecast (International)
http://iri.columbia.edu/our-expertise/climate/forecasts/enso/current/



National Resources:
Historical Context and General Information

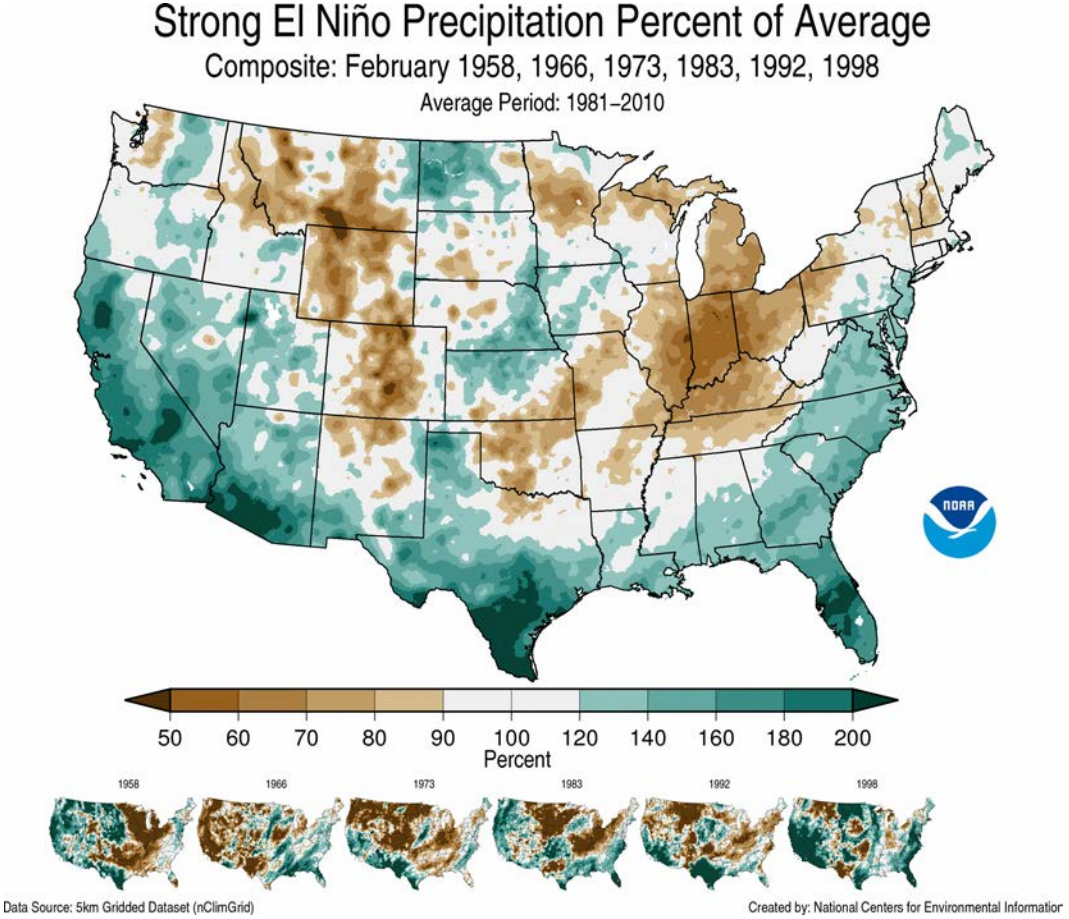
National Center for Environmental Information (NCEI) A Historical Perspective
http://www.ncdc.noaa.gov/monitoring-references/dyk/elnino-2015-2016

Pacific Marine Environmental Lab (PMEL) El Niño Theme Page
http://www.pmel.noaa.gov/tao/elnino/nino-home.html

(PMEL) El Niño Observing Systems
https://www.youtube.com/watch?v=nzBAWirHMvA&feature=youtu.be

(CPC) General Questions about ENSO
http://www.cpc.ncep.noaa.gov/products/analysis_monitoring/ensostuff/ensofaq.shtml#general

(PSD) Physical Sciences Division, risk of extremes during ENSO
http://www.esrl.noaa.gov/psd/enso/climaterisks/



Regional Resources: North Atlantic Services

NCEI – Regional El Nino Impacts & Outlook Assessments
http://www.ncdc.noaa.gov/news/regional-el-nino-impacts-outlooks-assessments

Eastern U.S. Climate Summary and Outlook Webinars
http://www.nrcc.cornell.edu/services/webinars/2015/12/index.html

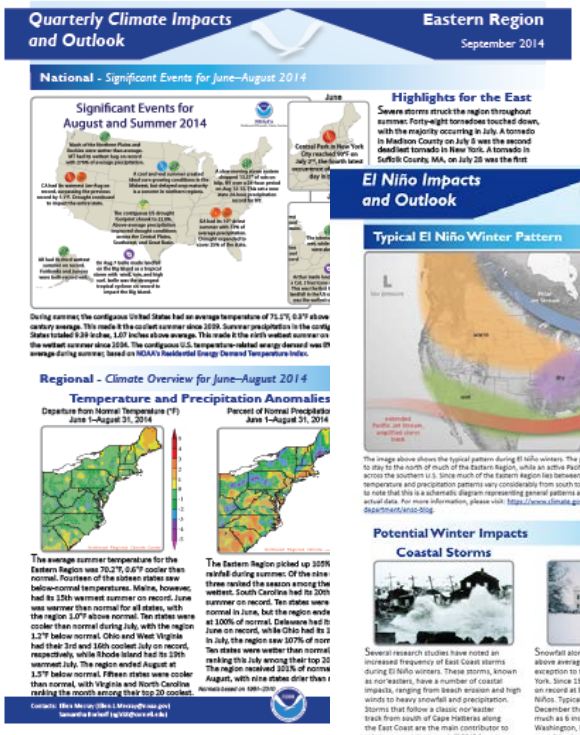
Regional Climate Centers: Northeast
http://www.nrcc.cornell.edu/

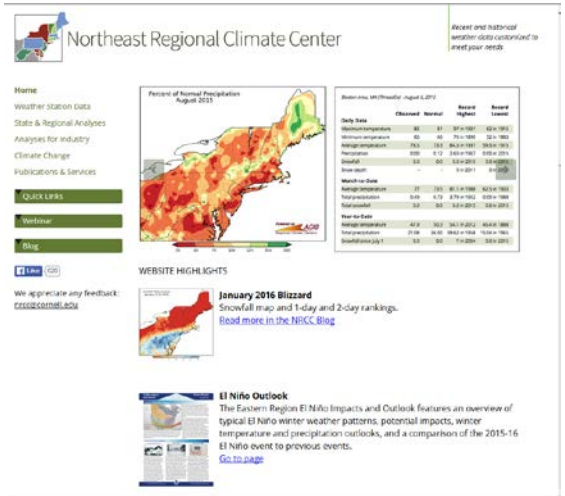
State Climatologists
http://www.stateclimate.org

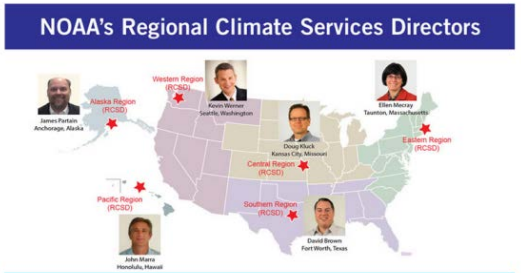
NWS Weather Forecast Offices
El Niño Webpages and Resources
e.g., Wichita
http://www.weather.gov/ict/enso

Quarterly Climate Summaries/Outlooks (2 page Summaries):
https://drought.gov/drought/resources/reports

Climate Information Dashboard:
http://www.gulfofmaine.org/dashboard/







Program Coordinator

Tamara G. Houston
NOAA's National Climatic Data Center
151 Patton Avenue
Asheville, NC 28801

New Services Resource:
Climate.gov/enso

A new, primary entry point for agency El Niño resources and information

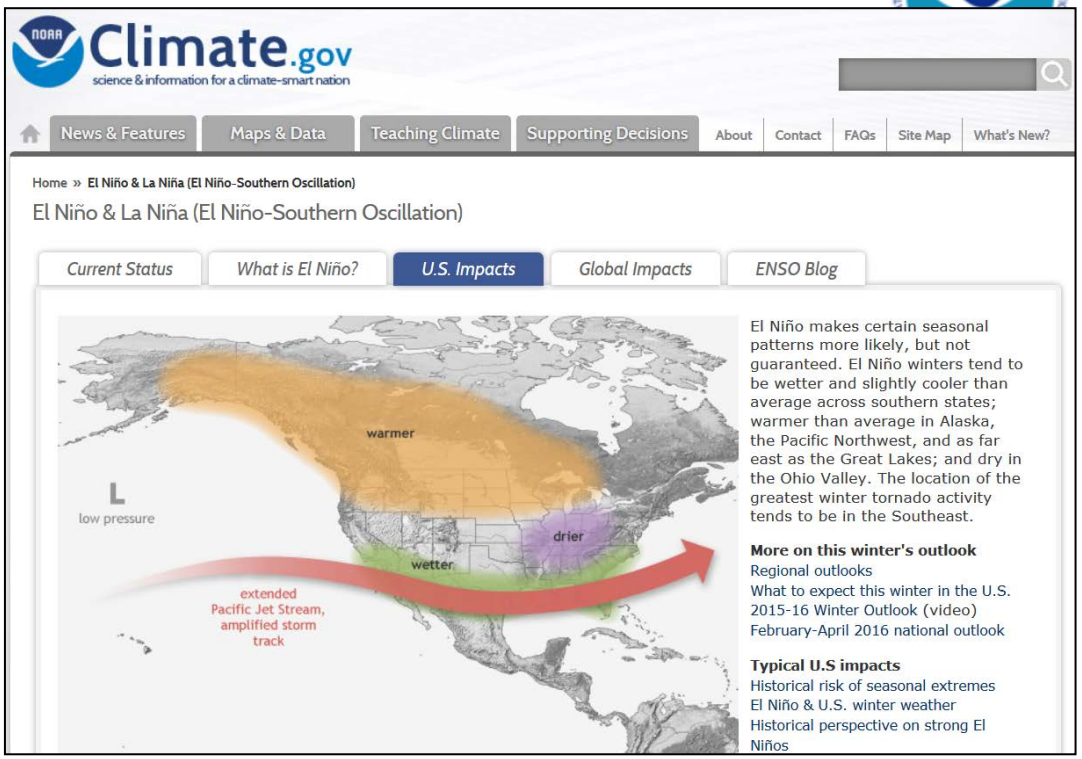
Includes both national and regional information, and links to resources throughout NOAA

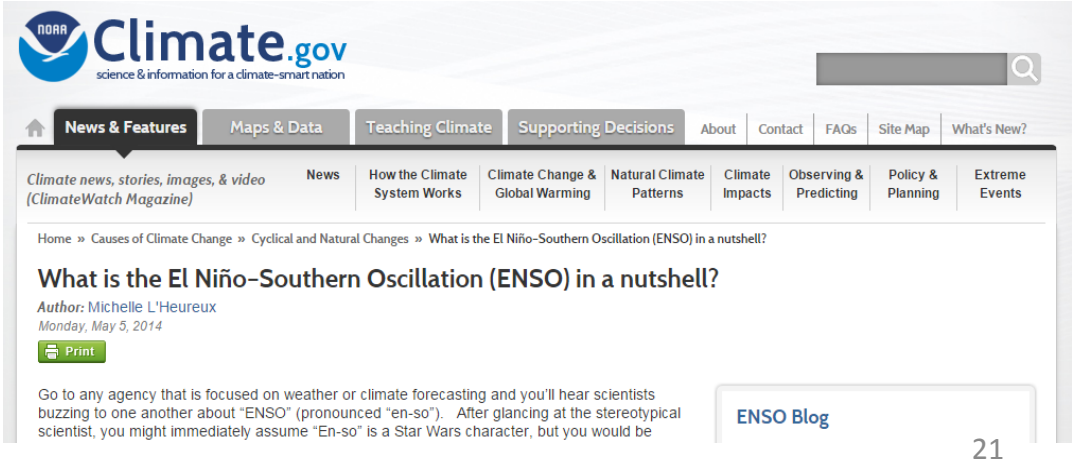
Communications materials appropriate for non-technical audiences

e.g., What is ENSO?
https://www.climate.gov/news-features/blogs/enso/what-el-ni%C3%B1o%E2%80%93southern-oscillation-enso-nutshell

e.g., Understanding El Niño
https://www.youtube.com/watch?v=_Tuou_QcgxI
and
http://oceantoday.noaa.gov/

e.g., ENSO blog
https://www.climate.gov/news-features/department/8443/all





New York/New England perspective on ENSO impacts on precipitation and flood potential

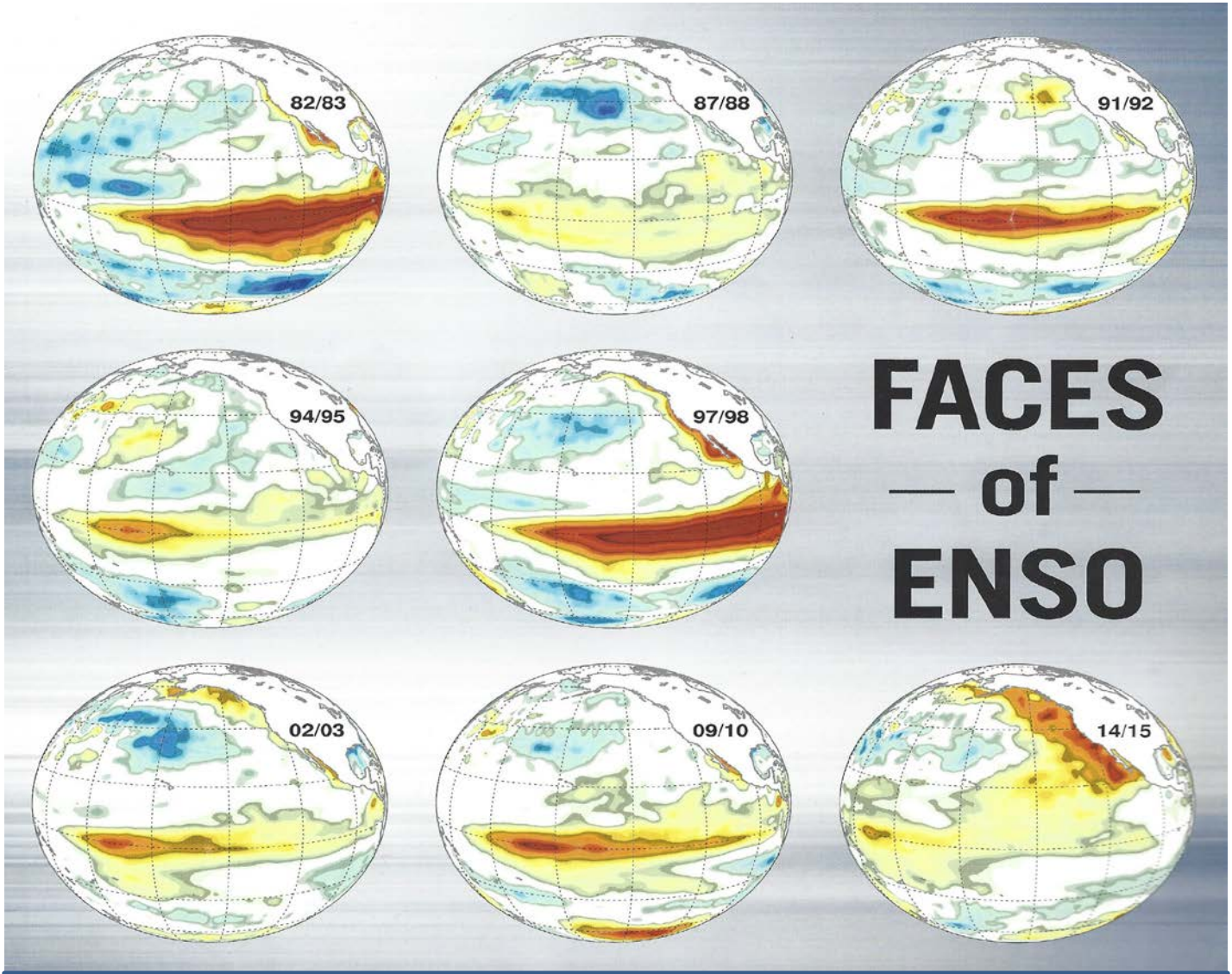
David Vallee, Hydrologist-in-Charge
NWS Northeast River Forecast Center
January 28, 2016

Northeast River Forecast Center (NERFC)

Local research initiative to better define possible sensible impacts on precipitation and flood potential (winter/spring) across the Northeast

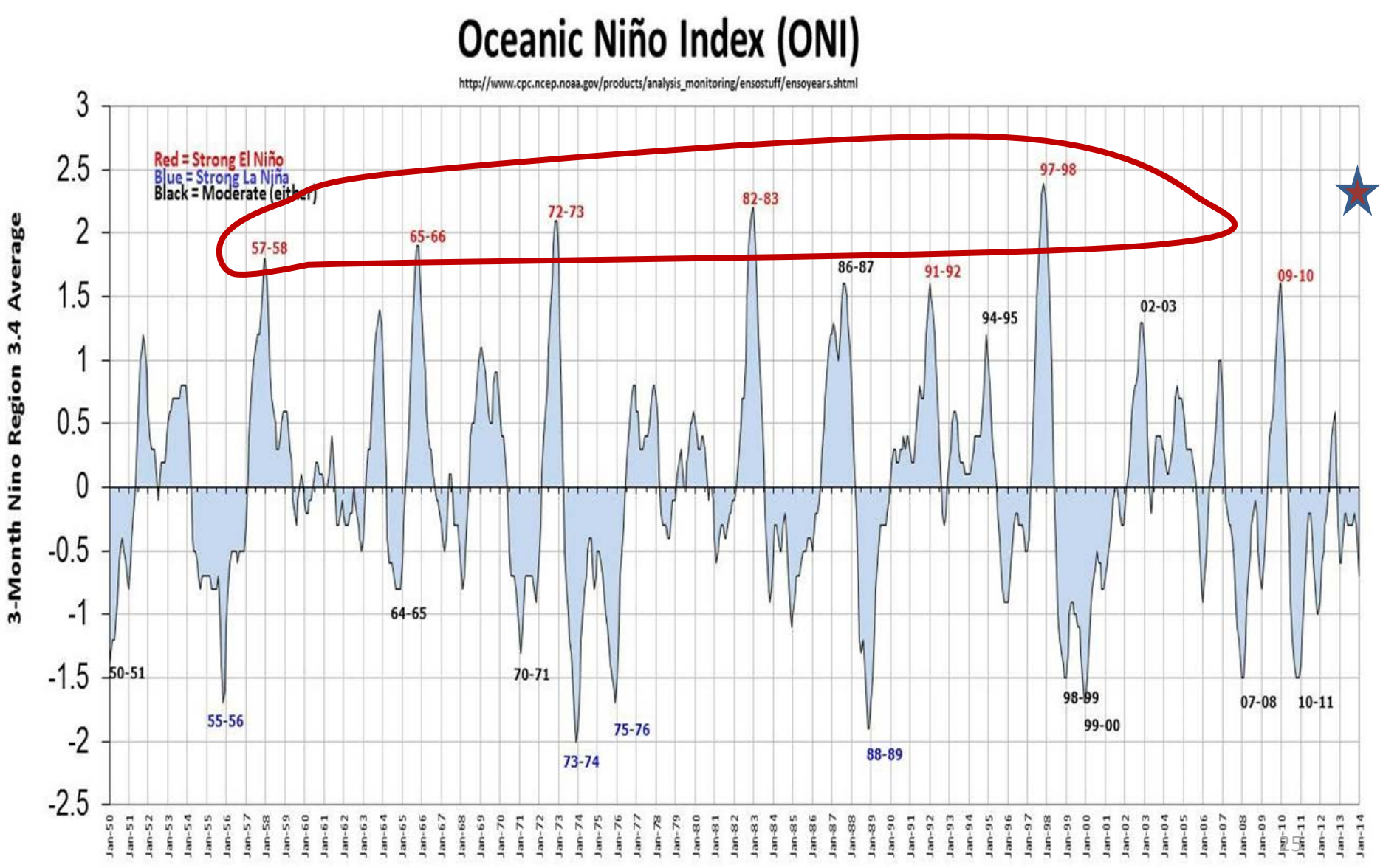
- Premise: strongest possible correlations exist with the most significant ENSO events
- Examined the top 5 warmest El Nino events
- Calculated 3 month precipitation totals and departures from normal
- Found several common themes
  - Dry late summer/fall
  - Wet late winter/spring
  - Increased spring flood potential
- *One outlier year: 1965 – but the region was in the heart of its record 3 year drought!

Lots of “Flavors” to ENSO

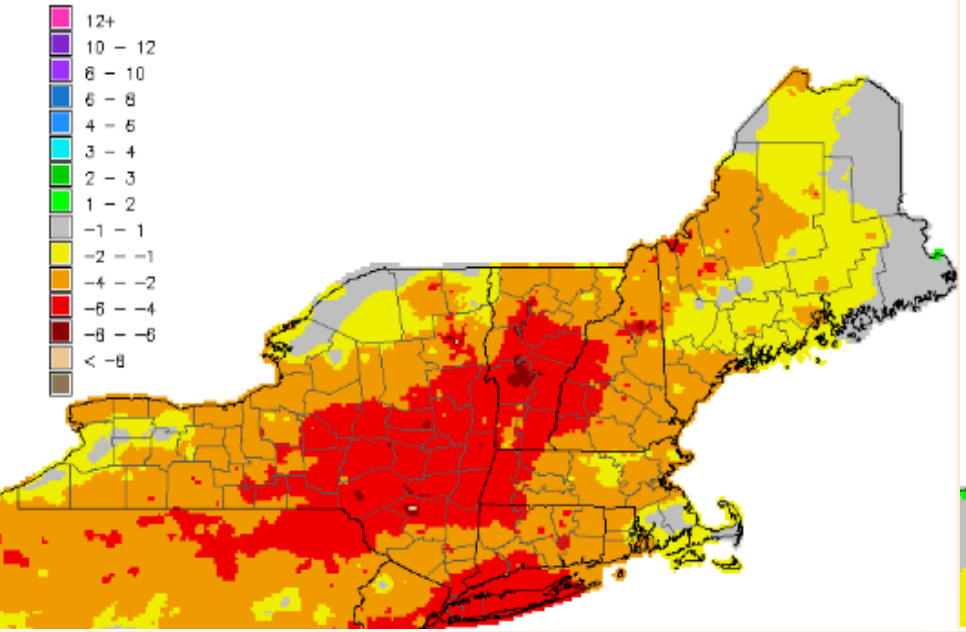


Capotondi, A., et al, 2015: Understanding ENSO Diversity. *Bull. Amer. Meteor. Soc., 96, 921-933.*

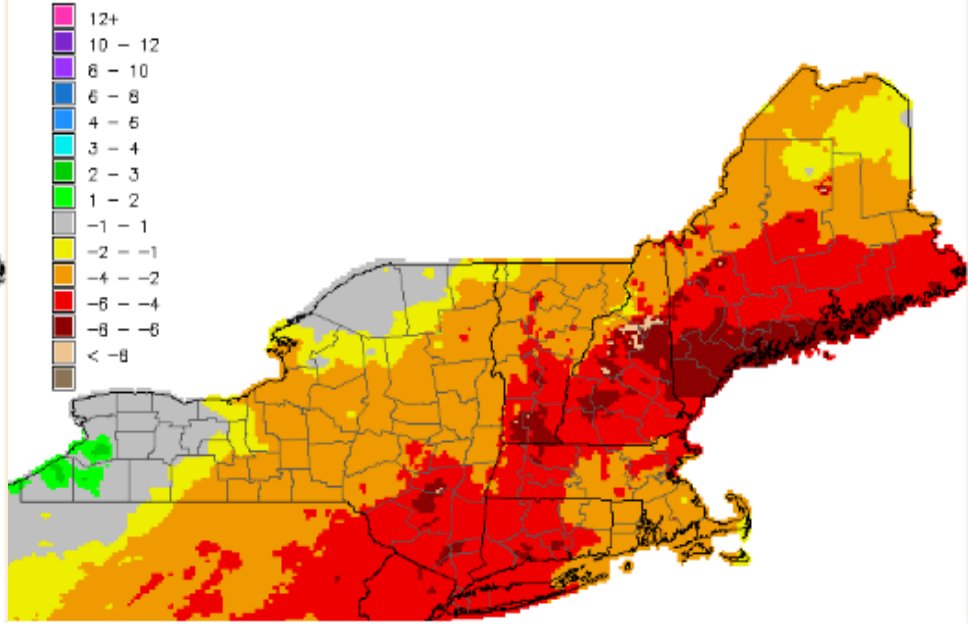
The five most intense events



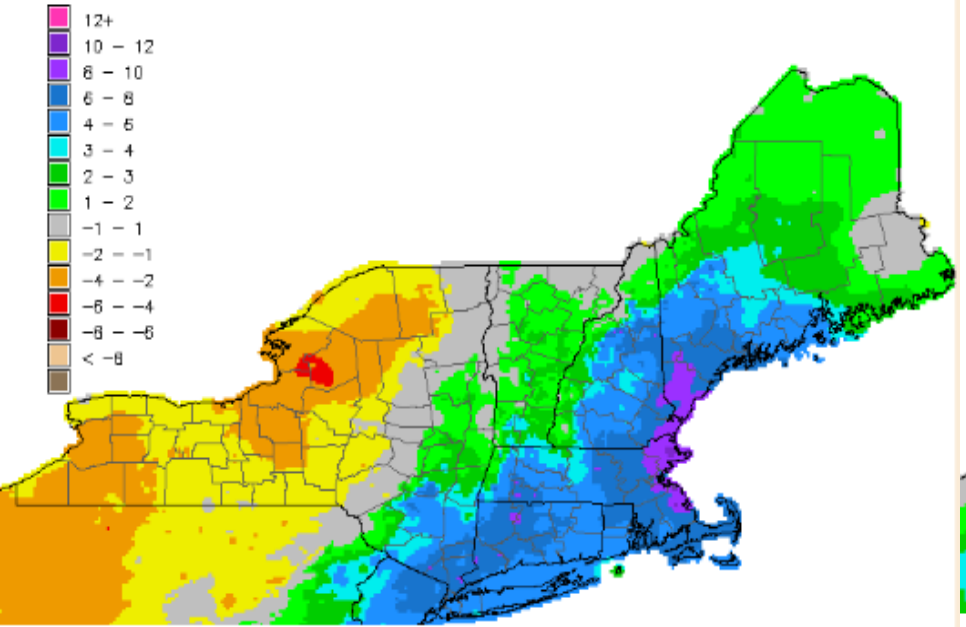
Jul-Aug-Sep 1982 Difference



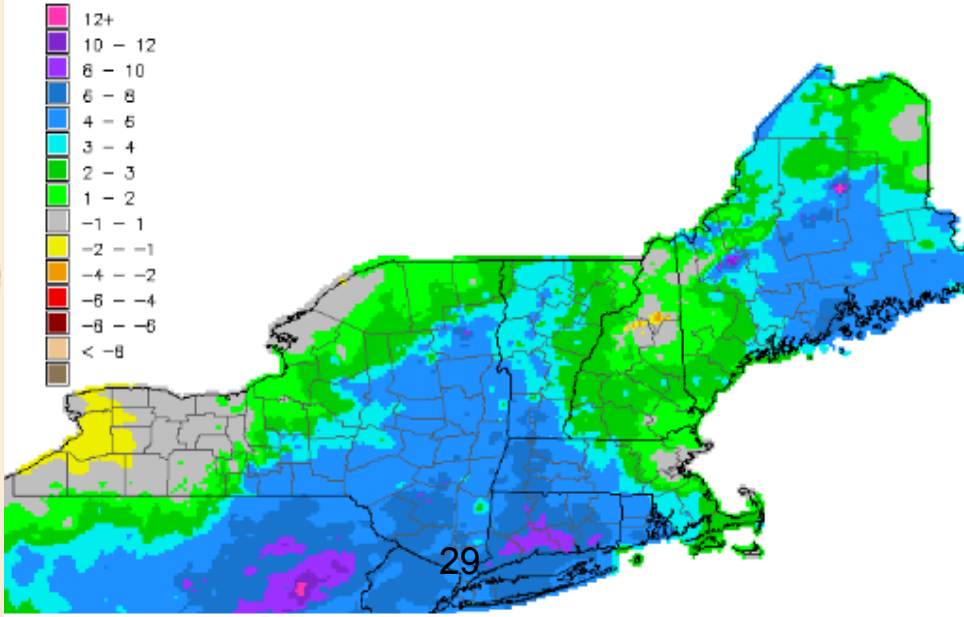
Oct-Nov-Dec 1982 Difference



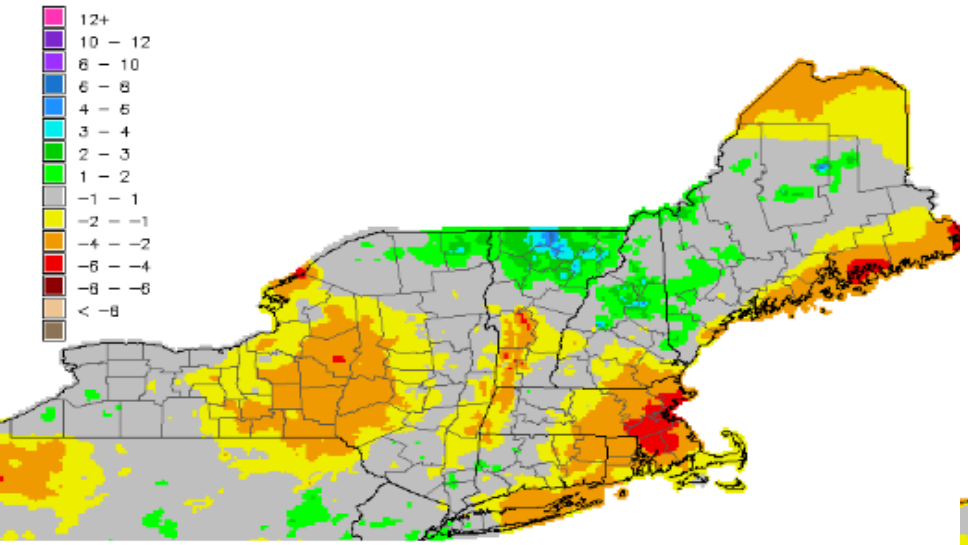
Jan-Feb-Mar 1983 Difference



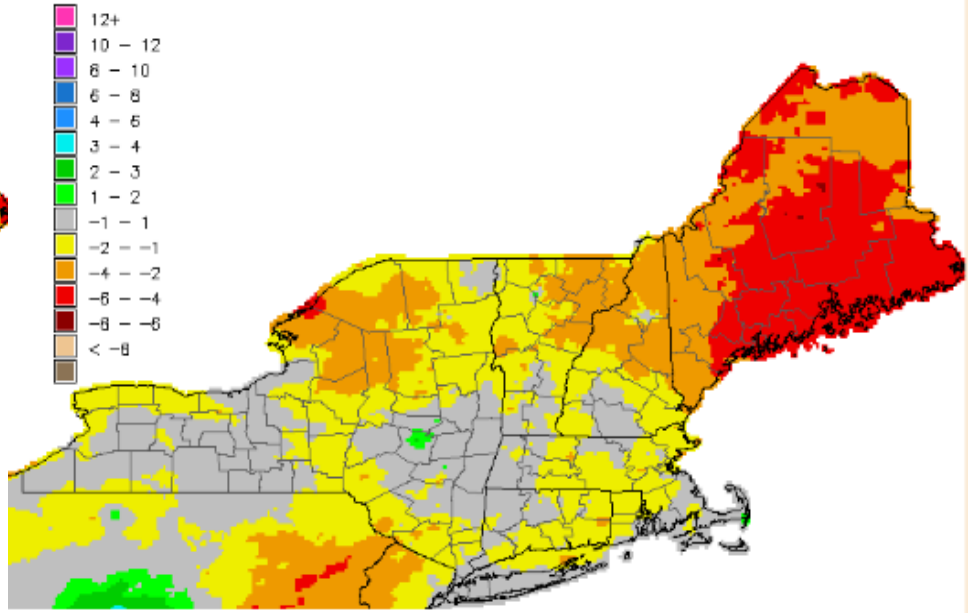
Apr-May-Jun 1983 Difference



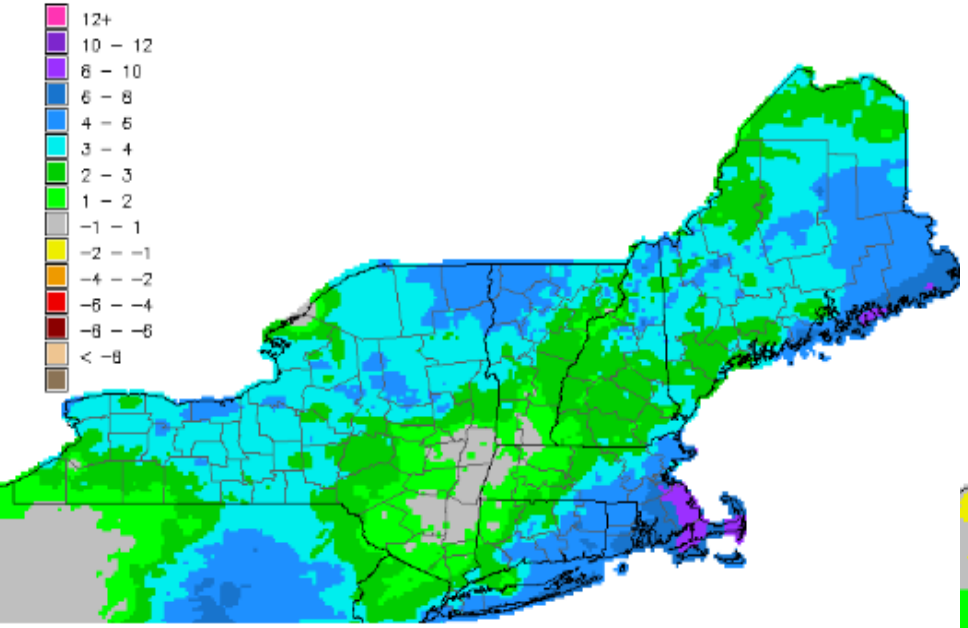
Jul-Aug-Sep 1997 Difference



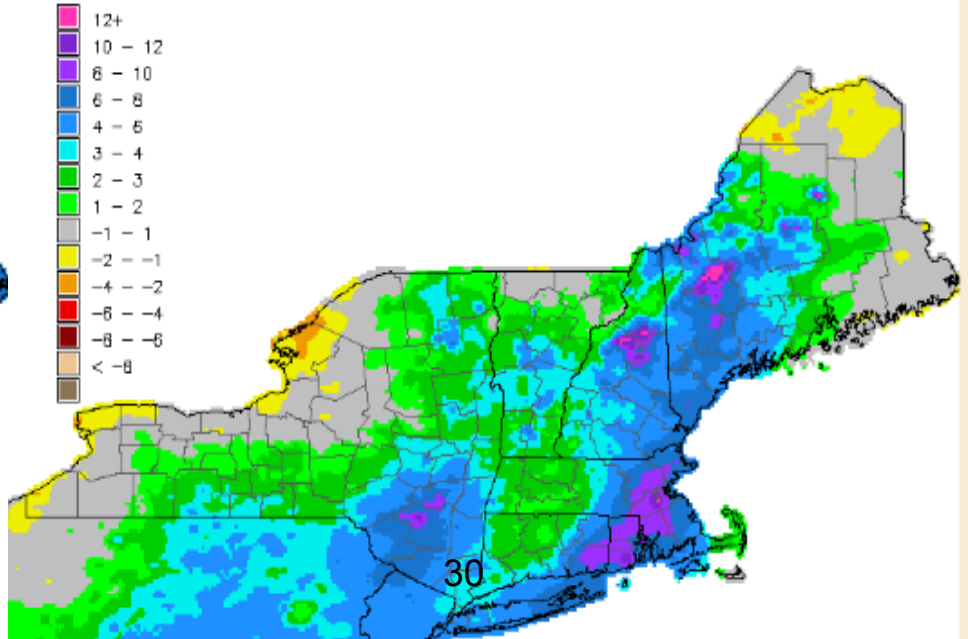
Oct-Nov-Dec 1997 Difference



Jan-Feb-Mar 1998 Difference



Apr-May-Jun 1998 Difference



Flood Potential

ENSO events with ONI >/= 1.7

Basin	Flood Potential (all categories)	Most active flood season of major ENSOs
Great Lakes	Above	72-73
Hudson-Mohawk	Above	97-98
Champlain	Much above	97-98
Connecticut	Above	97-98
Southern New England	Much above	82-83 and 97-98
Merrimack	Above – lower Neutral – upper	97-98 72-73
Maine	West – Much Above East - Above	97-98 82-83

- **Notable events in the 1.5-1.7 range include 1986-87 and 2009-10**
- **Both 86-87 and 09-10 ENSO were "Modoki Events" – ie: central Pacific-based**
- **Both late winter/early spring experienced much above normal flooding**

Open Discussion

- Do you have an understanding of El Nino, it's origin and impacts?
- Do you know where to find information on El Nino, at national and regional scales?
- What additional information would you find beneficial for the current event?
- For the next event, what tools and resources would you like to see developed?

Thank you

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Ellen.Mecray@noaa.gov