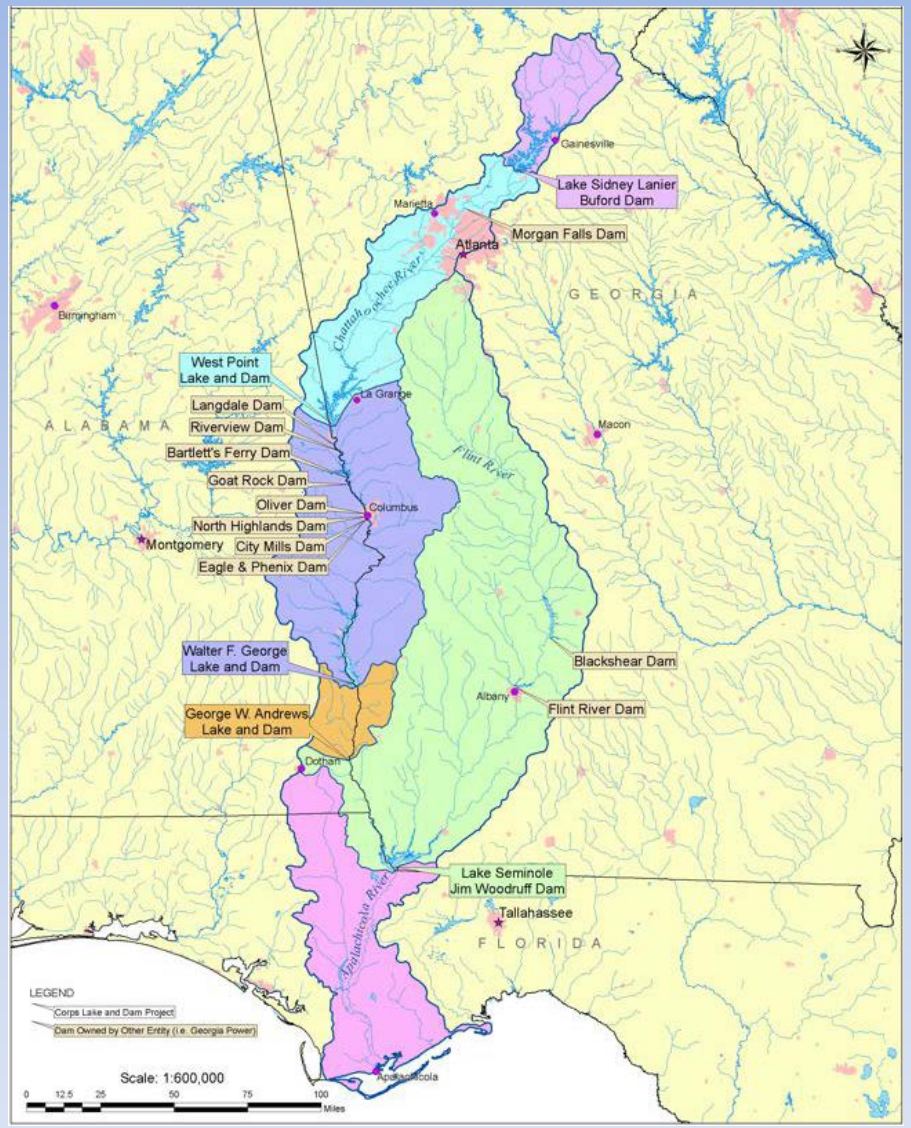
National Integrated Drought Information System

Drought Early Warning for the Apalachicola-Chattahoochee-Flint River Basin

13 January 2015



Outline

Welcome – Eric Reutebuch, AU Water Resources Center

Current drought status, seasonal forecasts and outlooks – David Zierden, Florida Climate Center, FSU

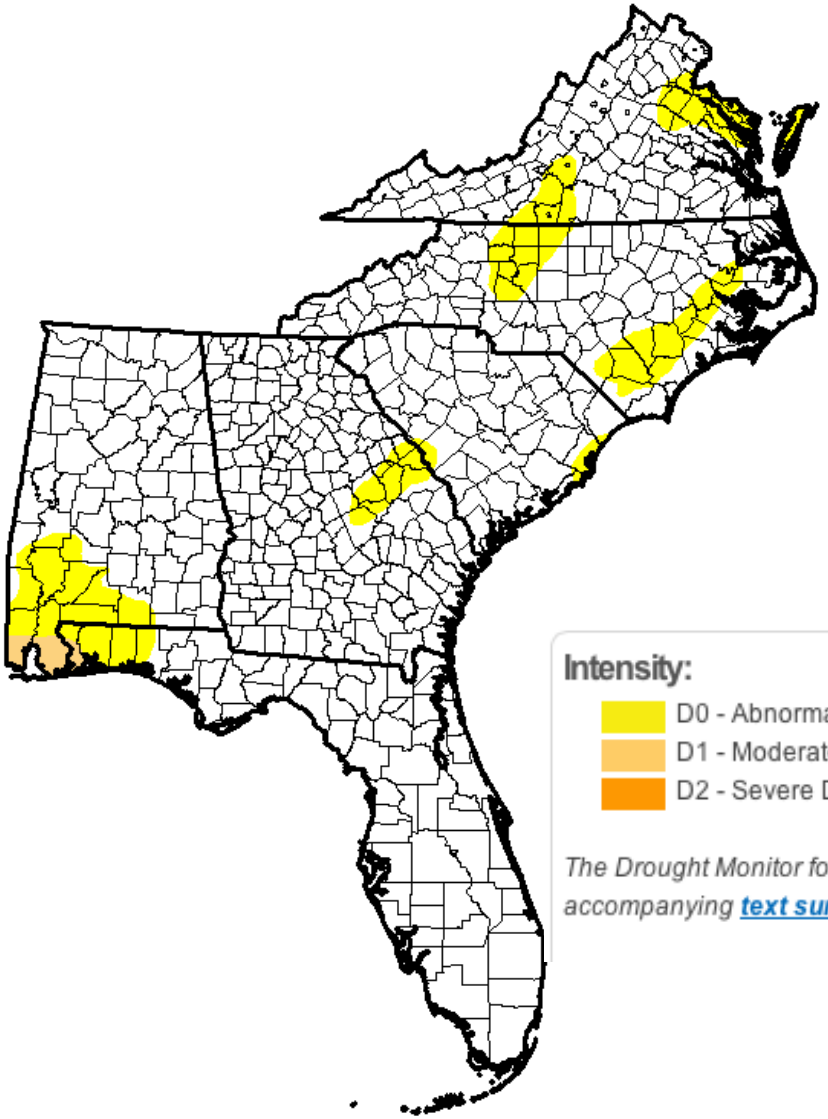
Streamflows and groundwater – Tony Gotvald, USGS

Streamflow forecasts – Jeff Dobur, SERFC

ACF reservoir conditions – Bailey Crane, United States Army Corps of Engineers

Summary and Discussion

Current drought status



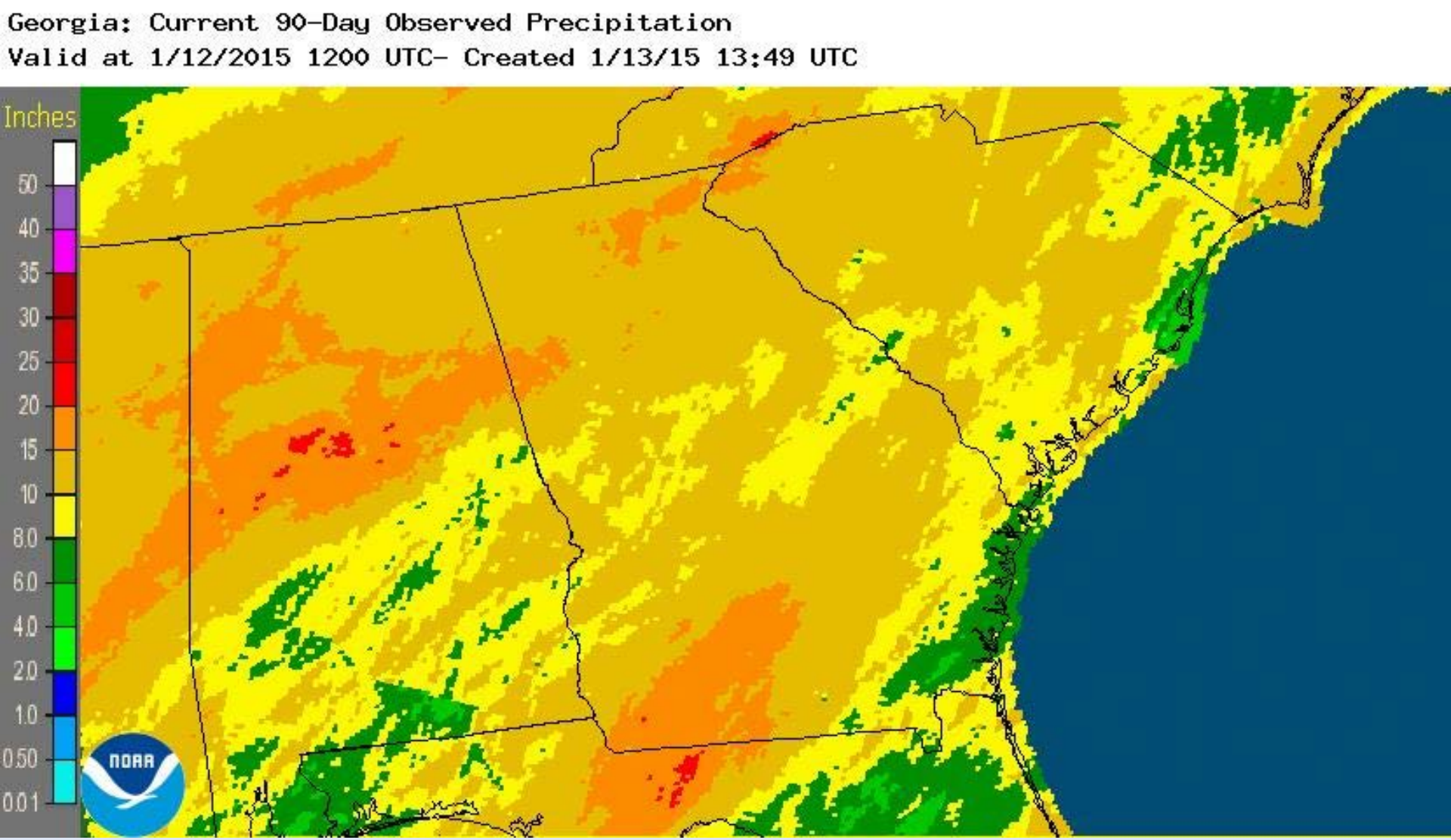
Intensity:

- D0 - Abnormally Dry
- D1 - Moderate Drought
- D2 - Severe Drought
- D3 - Extreme Drought
- D4 - Exceptional Drought

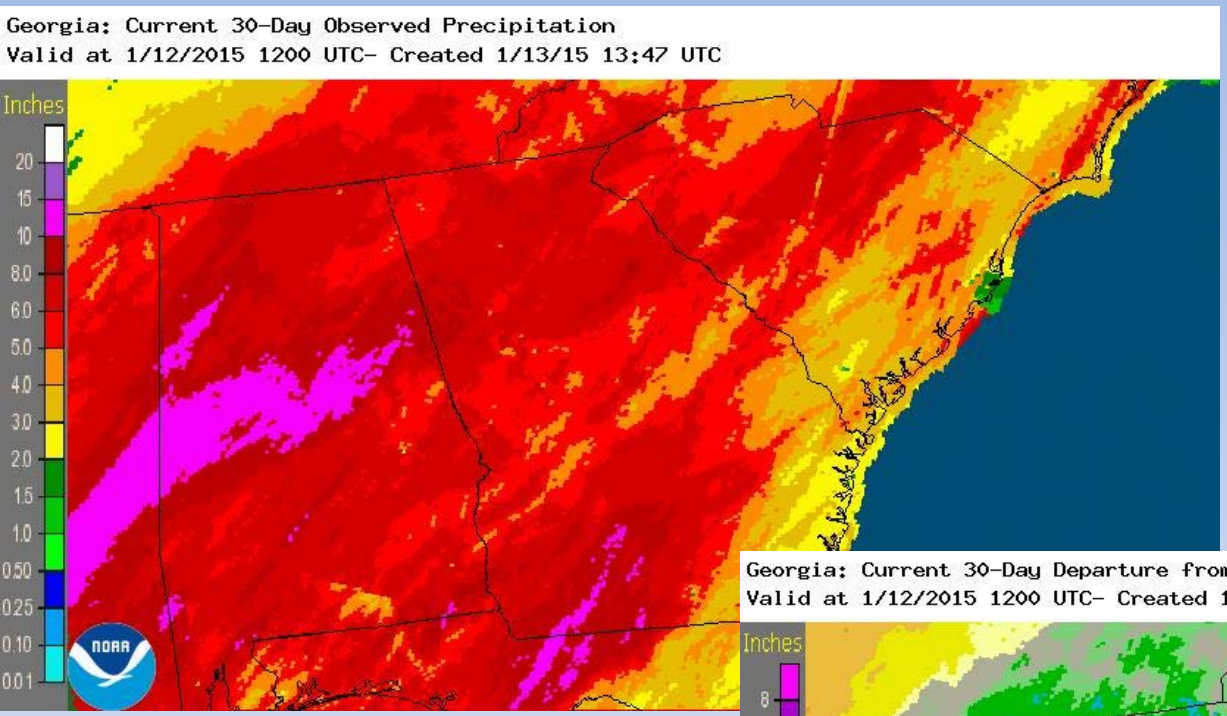
The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. See accompanying ***text summary*** *for forecast statements.*

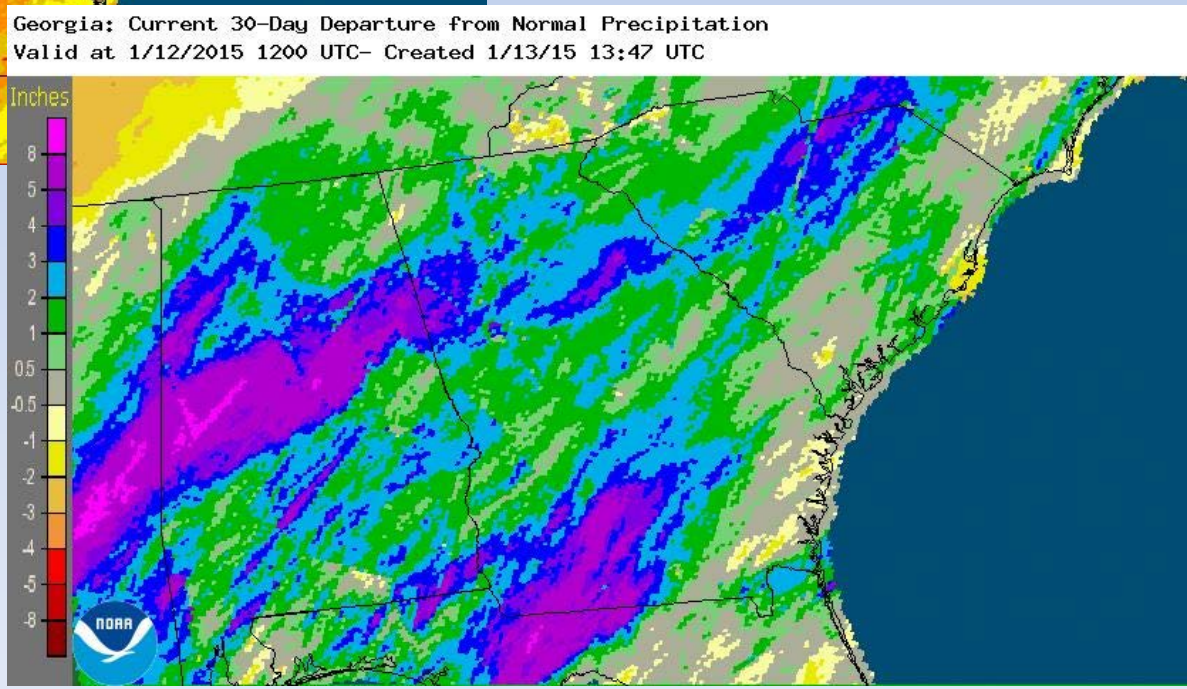
David Zierden

90-day Rainfall Totals



30-Day Rainfall



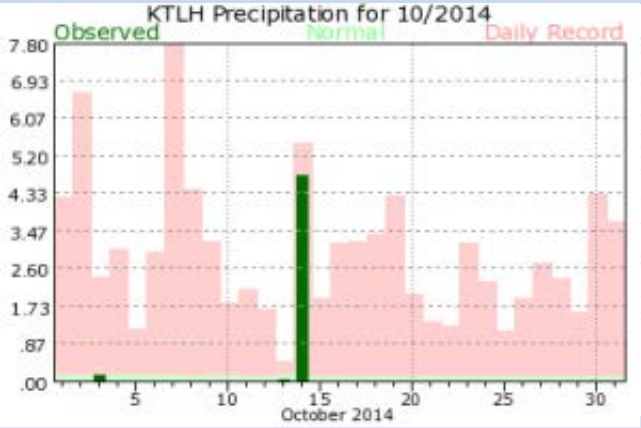


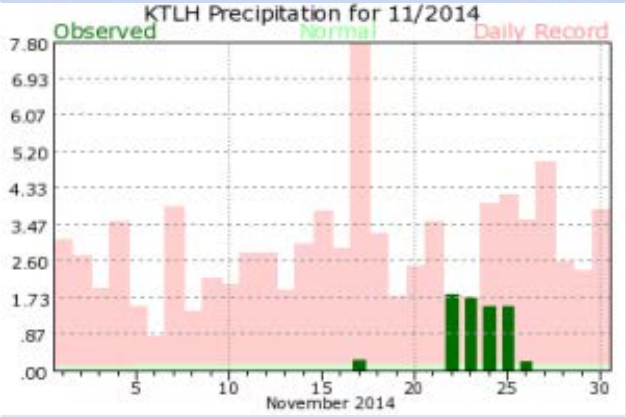
Heavy Downpours

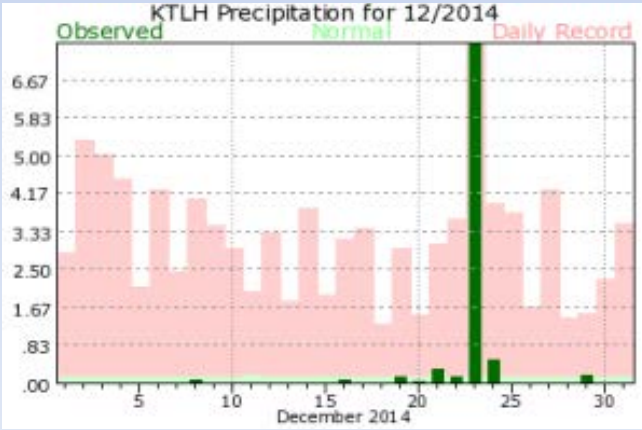
<u>Tallahassee Oct. – Dec. Rainfall</u>

Measured: 20.57”, normal: 10.63”

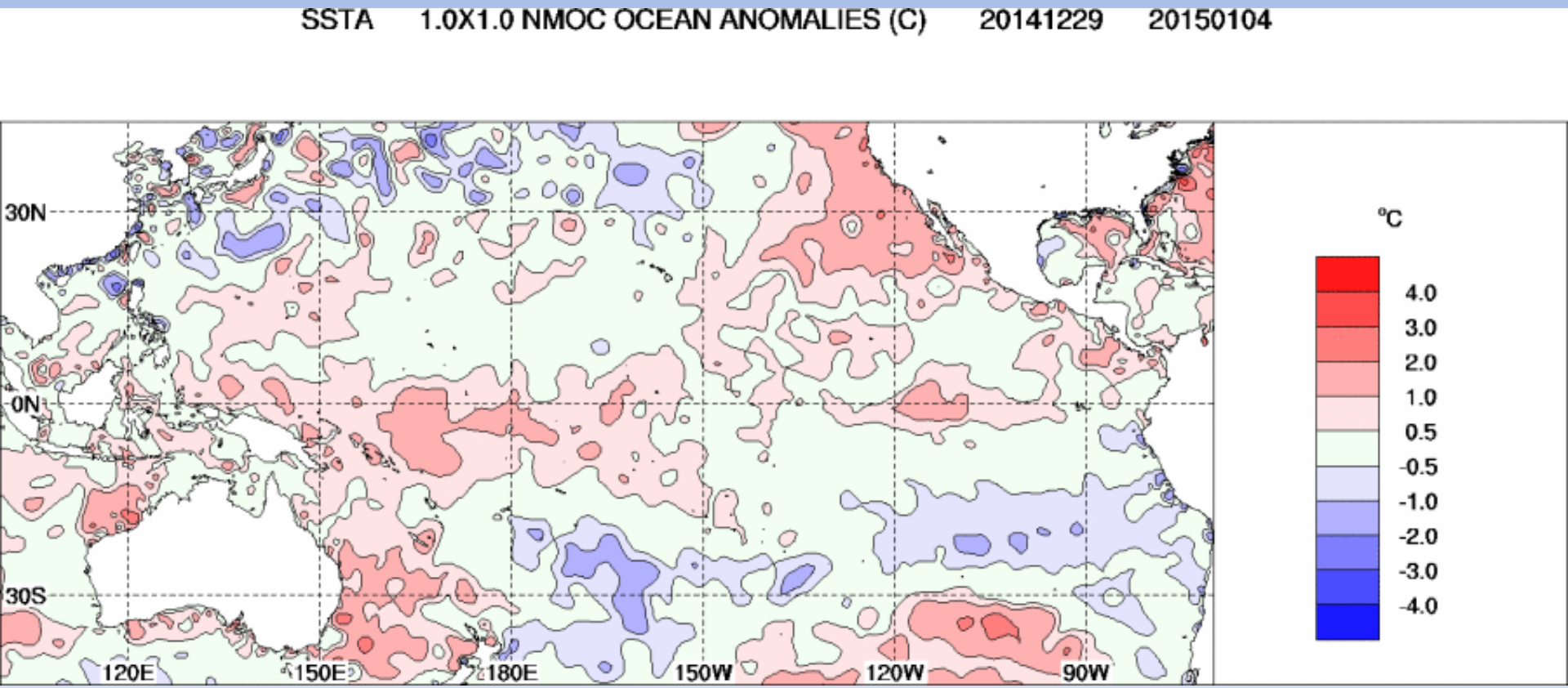
19.19” in just three events
4.72” Oct. 14
6.52” Nov. 22-25
7.95” Dec. 22-23



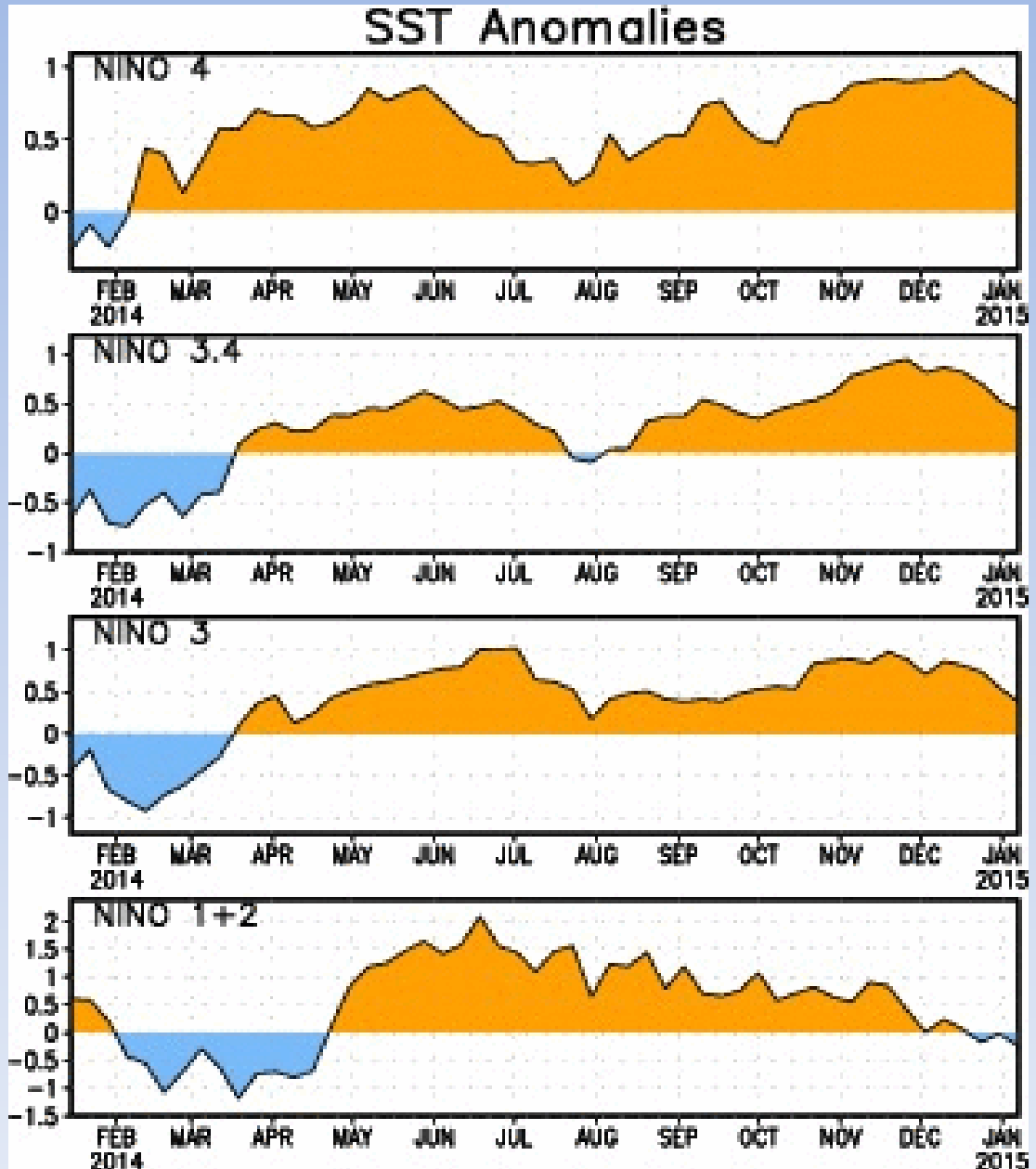




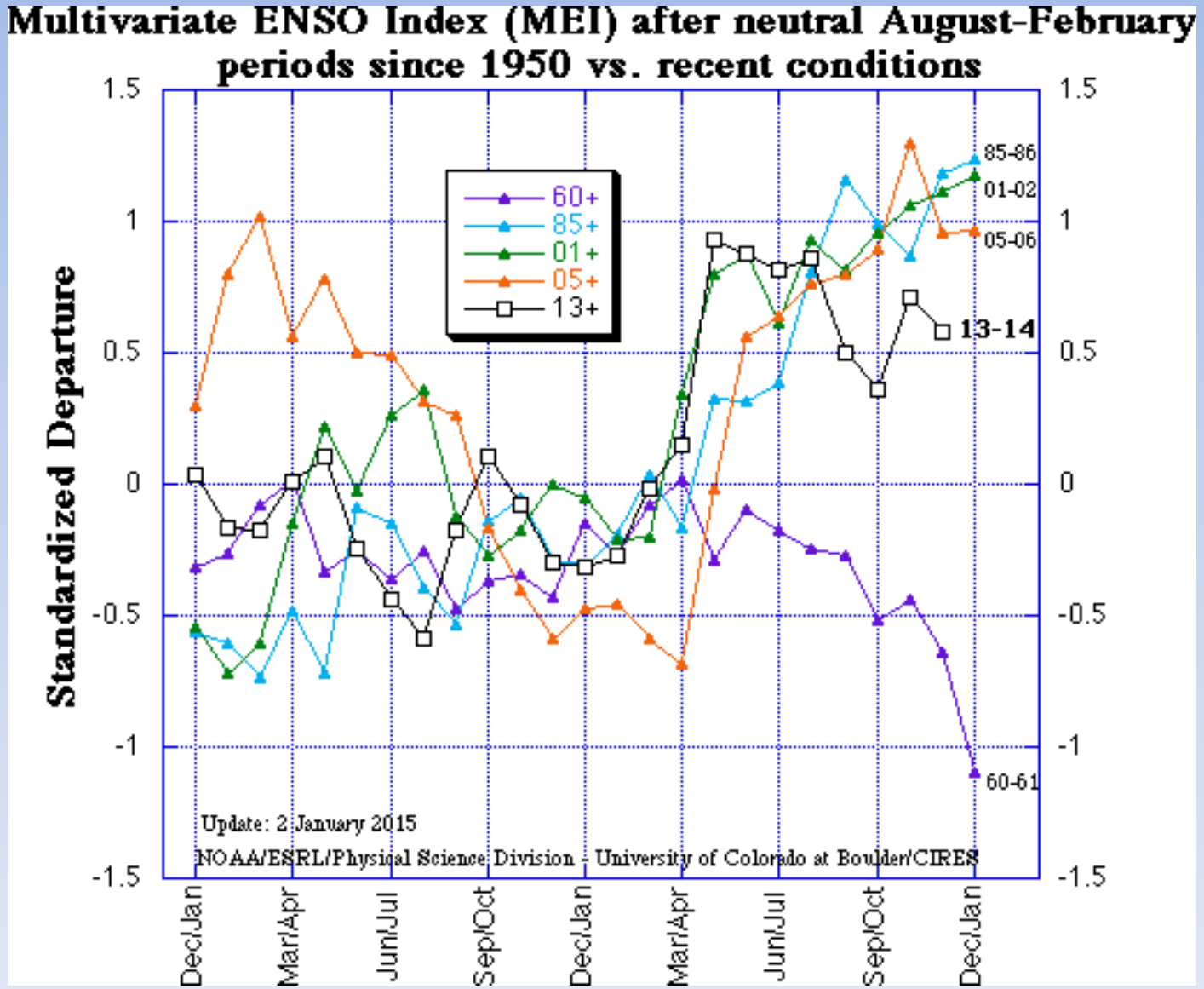
7-day average Pacific Ocean SST Anomalies



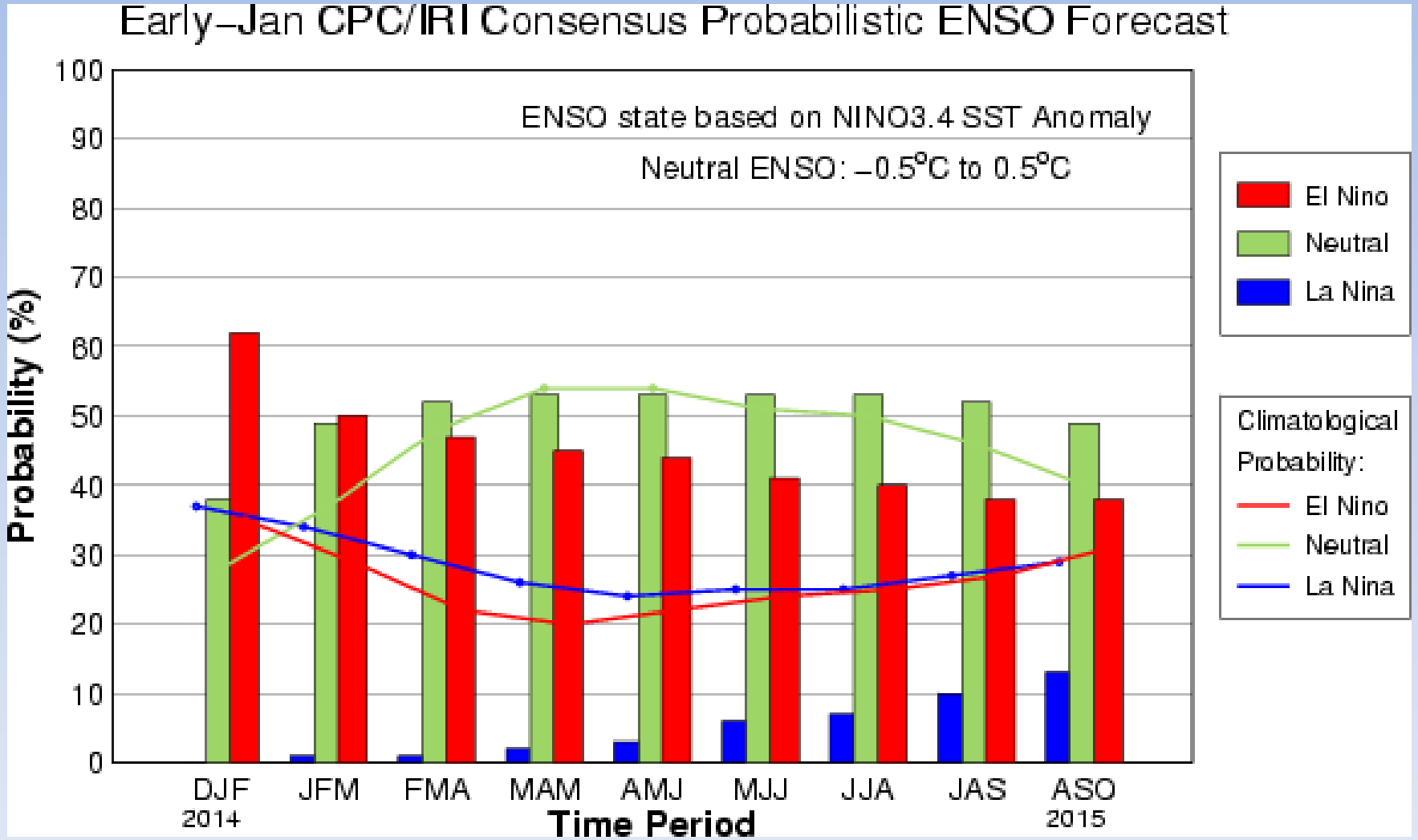
Nino Indices



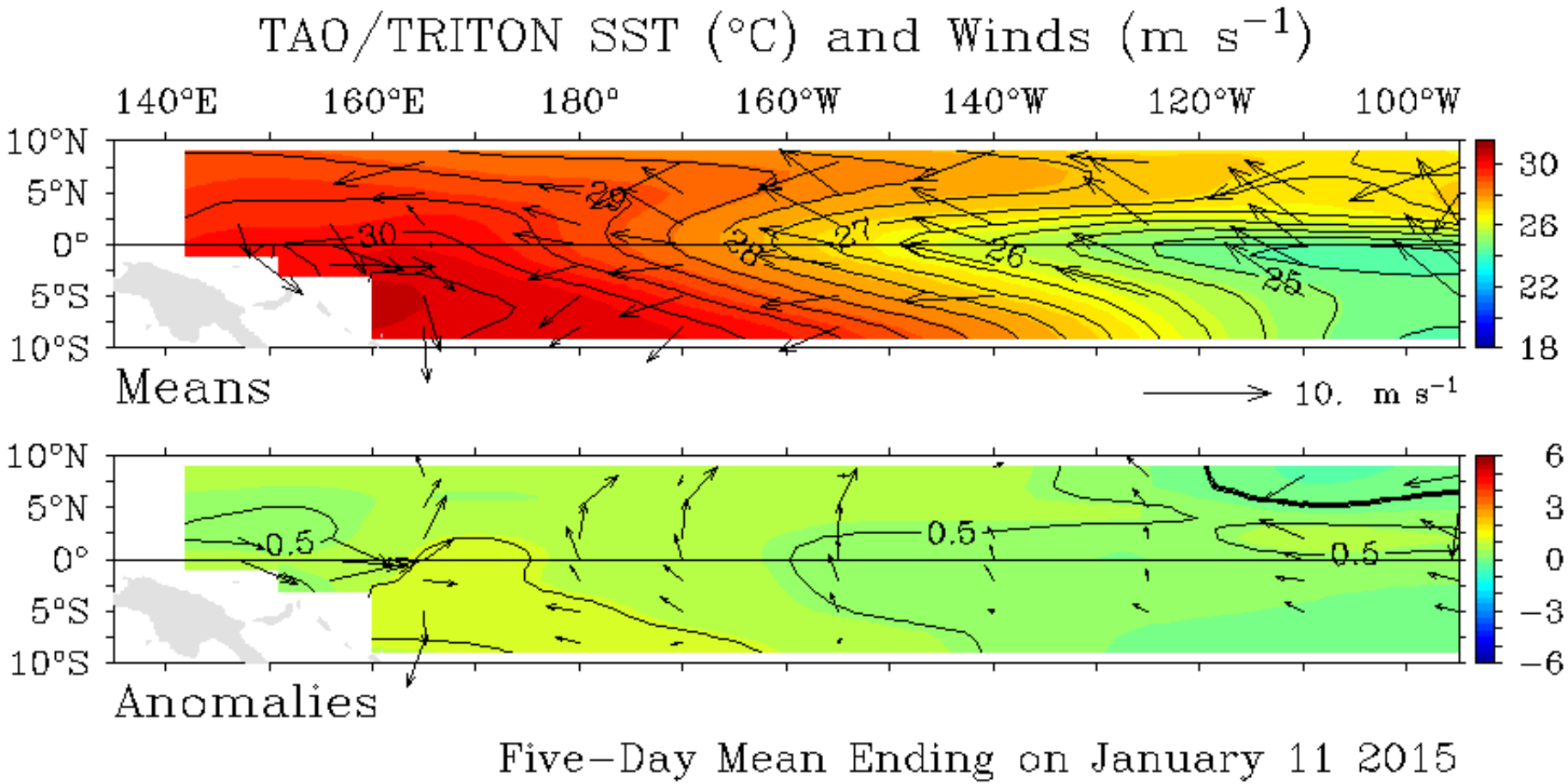
Multivariate ENSO Index



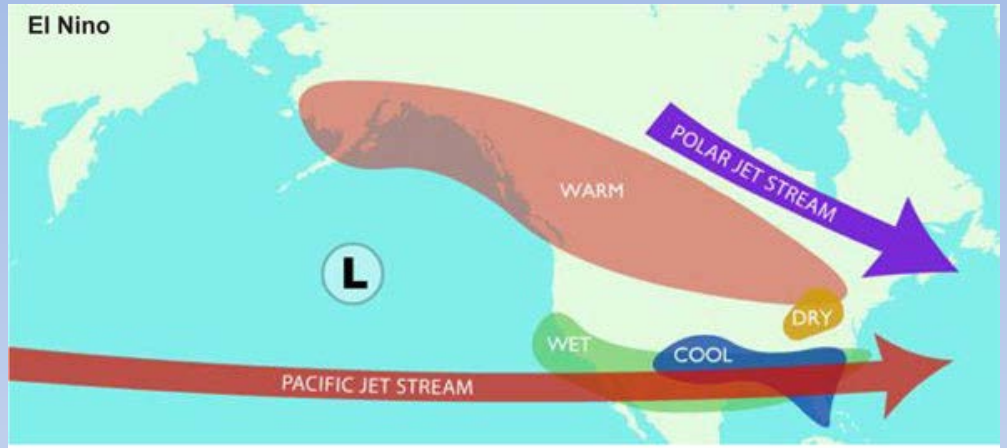
ENSO Forecast

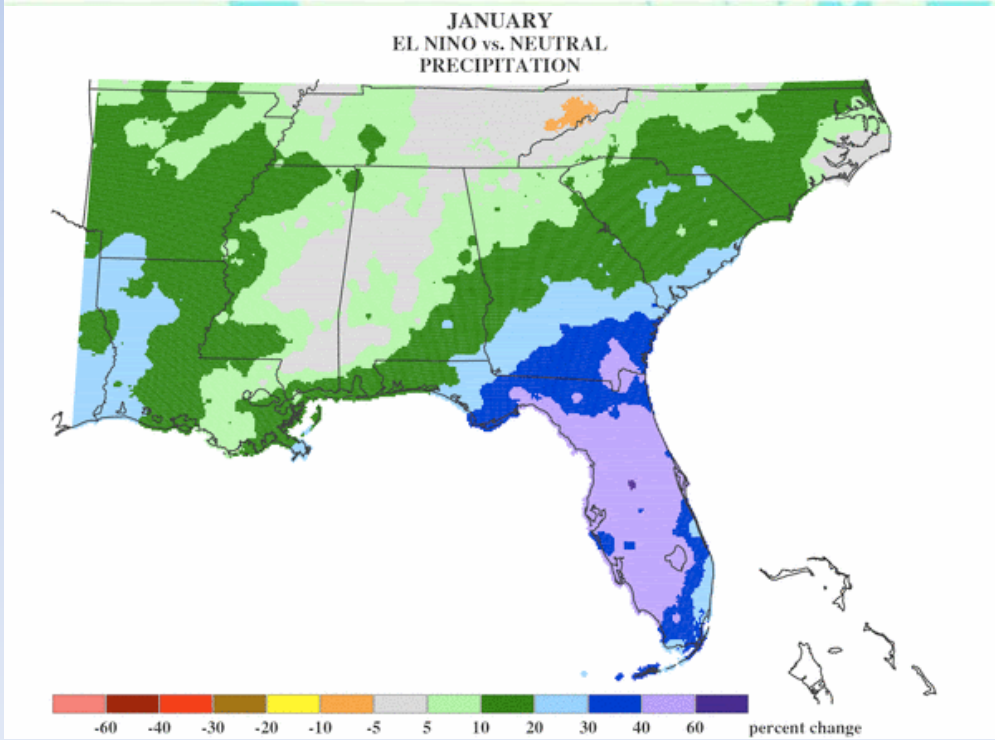


Winds over the Pacific

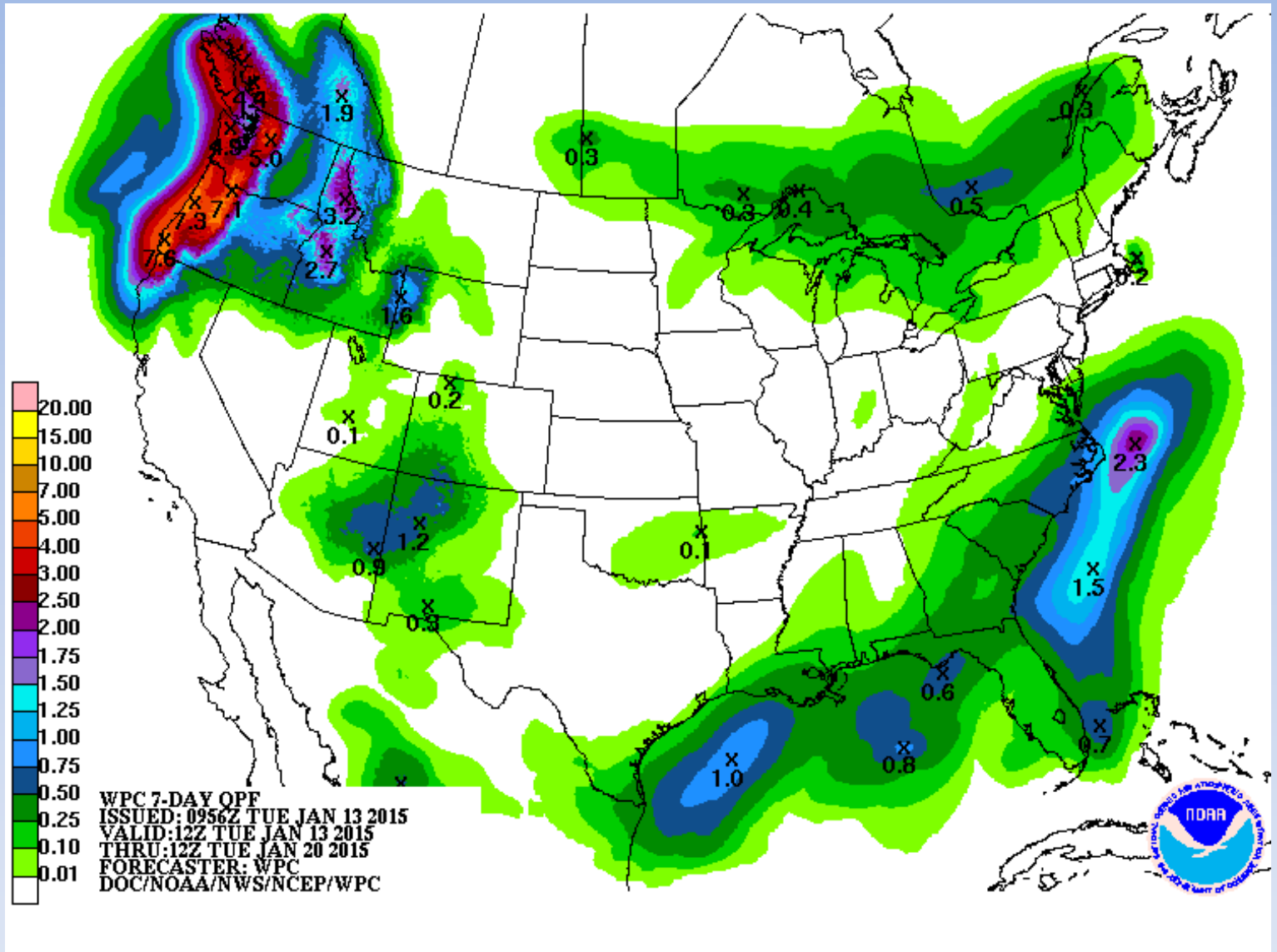


El Niño Fall/Winter Patterns



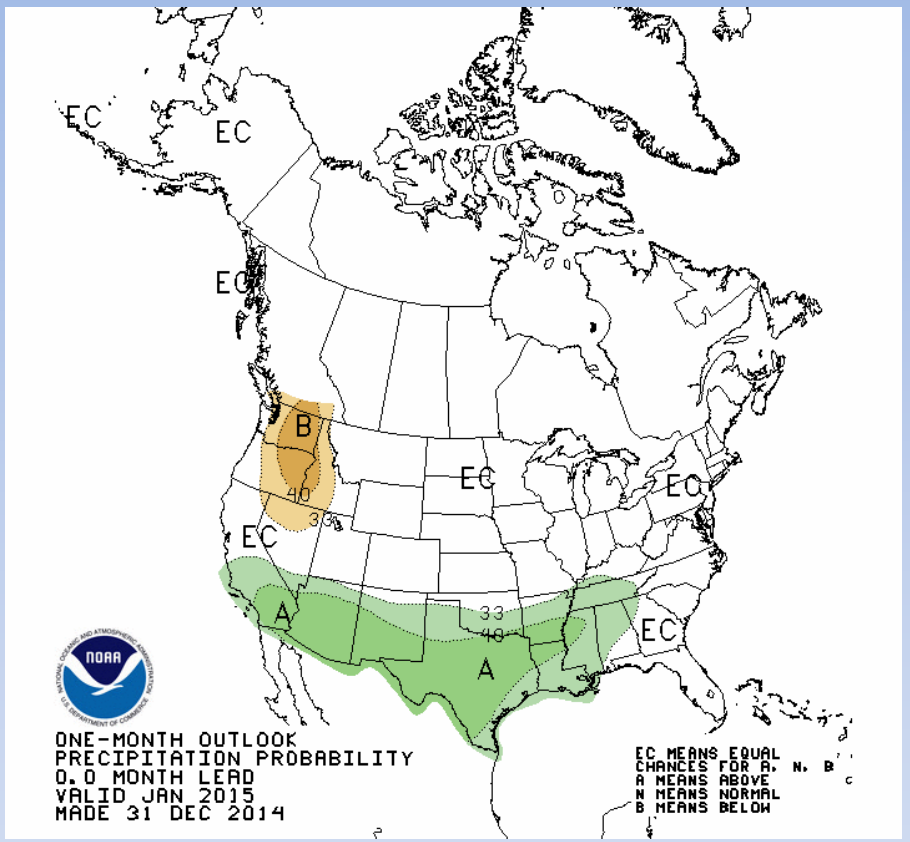


7-Day Precipitation Forecast



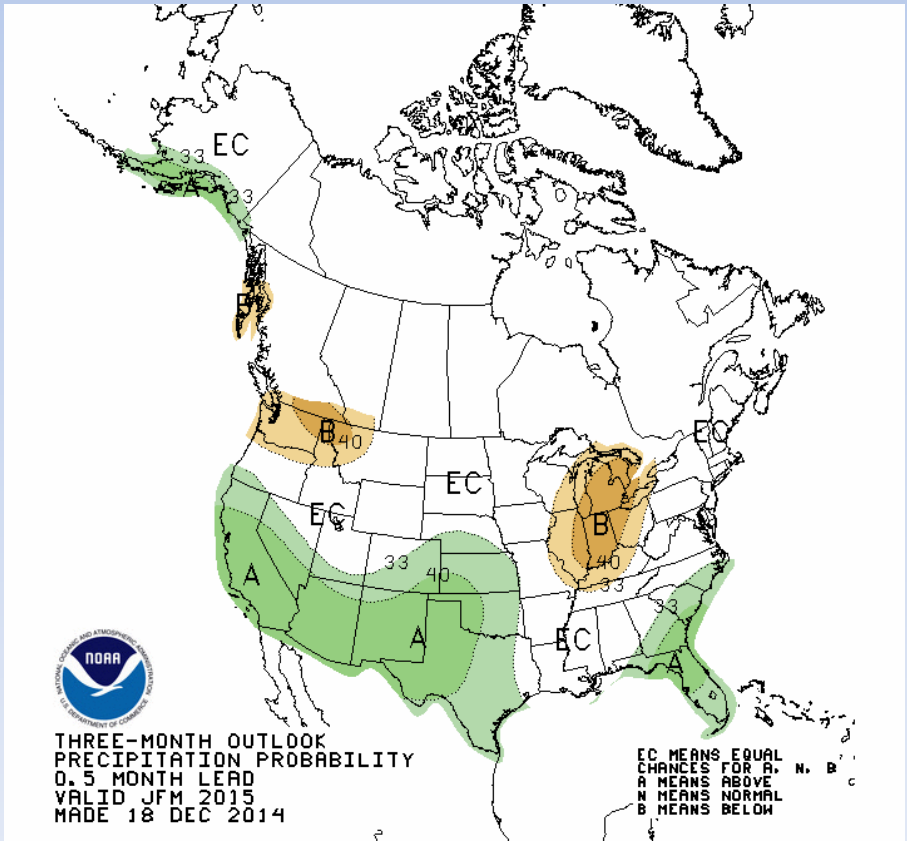
http://www.hpc.ncep.noaa.gov/qpf/day1-5.shtml

1-3 Month Precipitation Outlook



1 Month

3 Month



Bi-Polar El Nino

Supporting El Nino

- Inactive Atlantic Hurricane season, active E. Pacific
- “Pineapple express” winter storms in California
- Wet Panhandle
- Active Southern jet stream

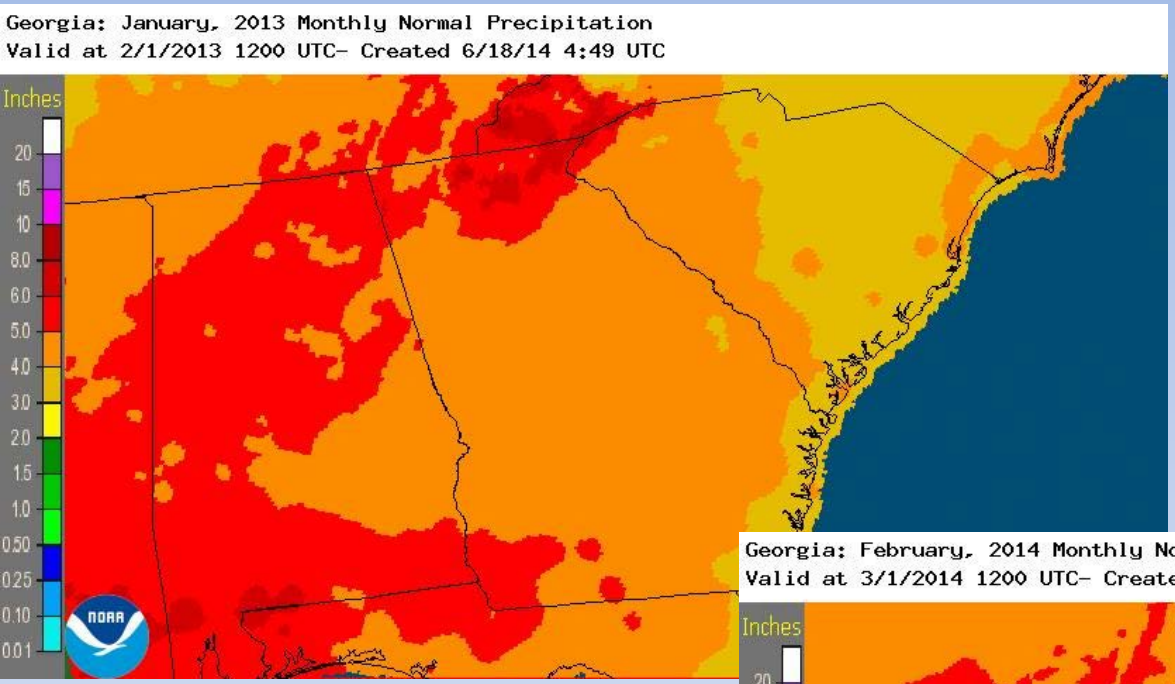
Not Supporting El Nino

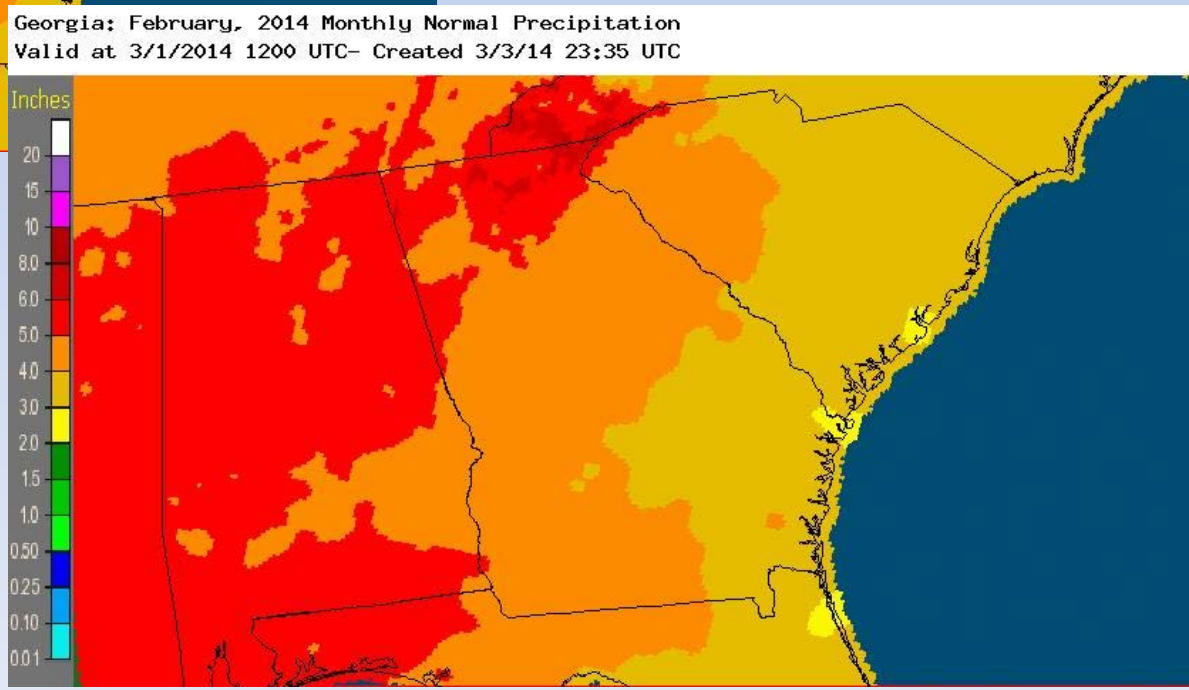
- Dry South Florida
- Infrequent rainfall
- SST’s dropping below 0.5C (Nino 3.4)
- General lack of Westerly trade wind anomalies

Latest Forecasts

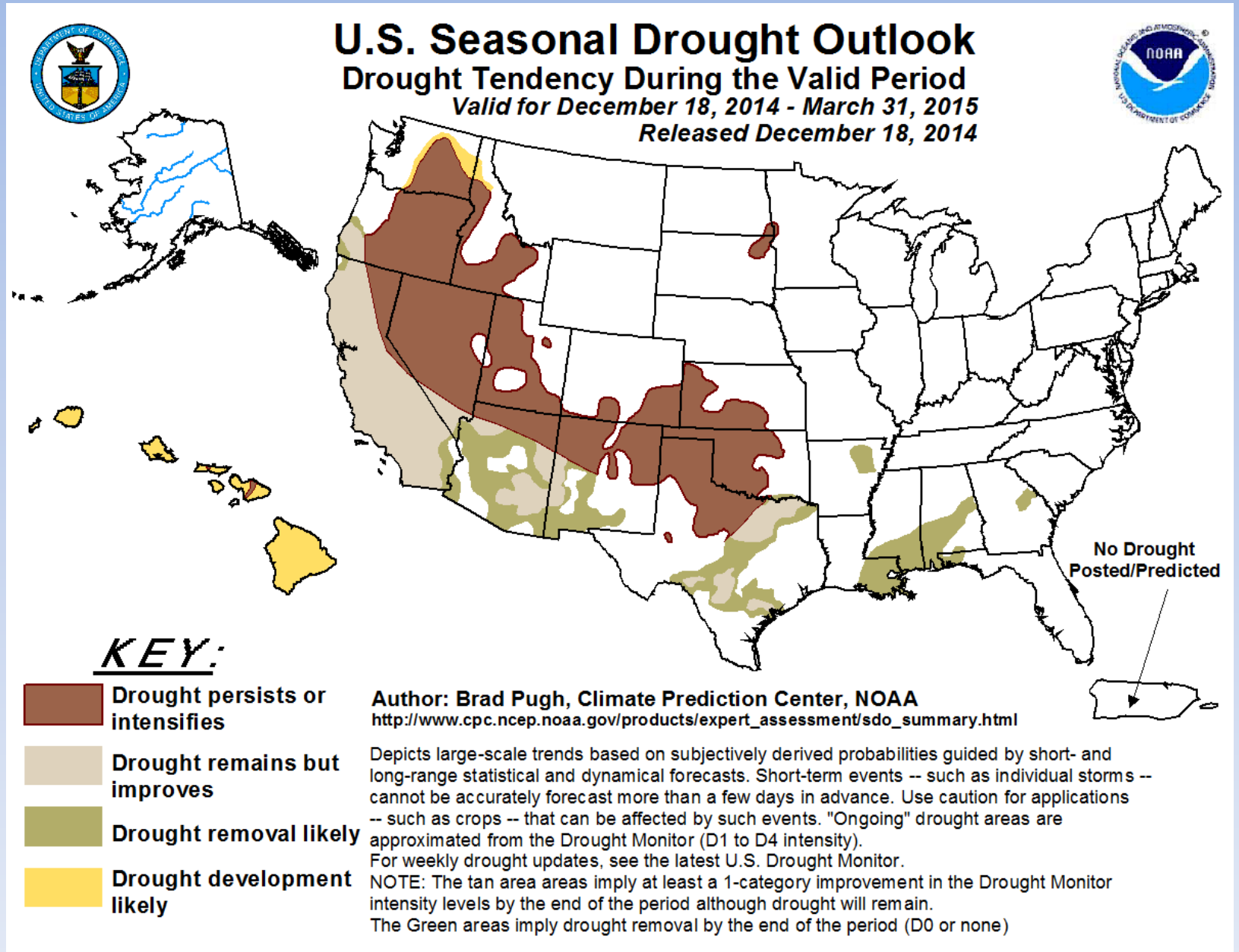
- NOAA: 50% - 60% next two months
- BOM: 50%

Winter Rainfall Climatology





U.S. Drought Outlook



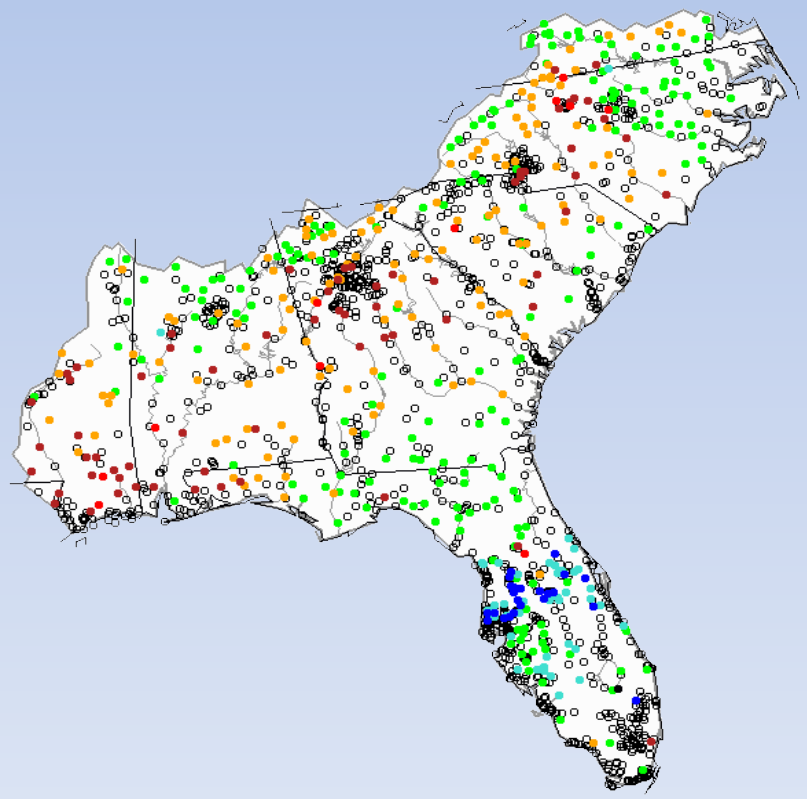
Streamflows and Groundwater

Tony Gotvald

Realtime stream flow compared with historical monthly averages

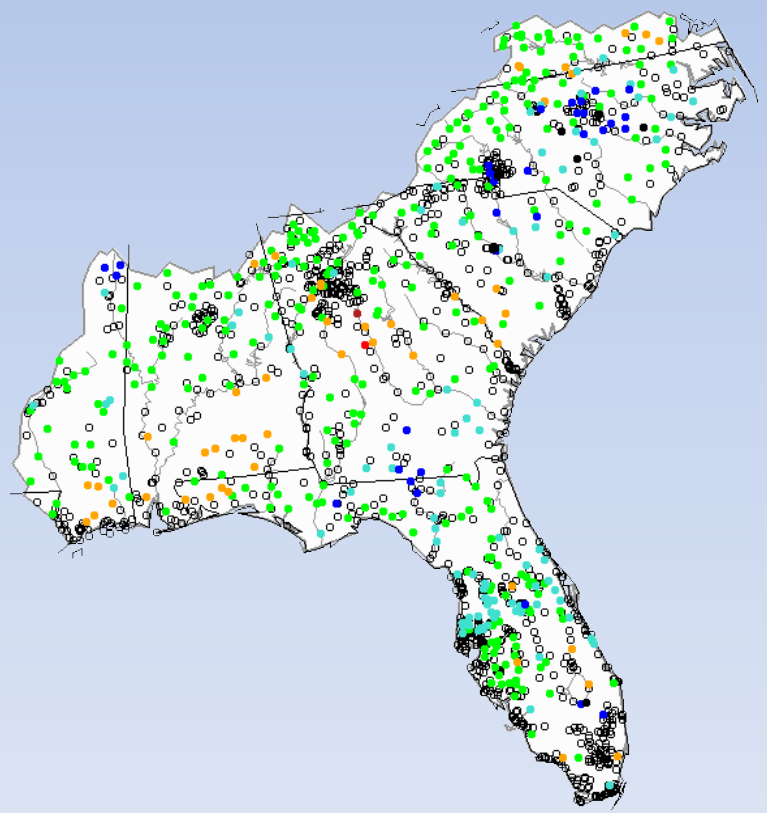
Previous Brief:

Monday, December 15, 2014 06:31ET



Current:

Monday, January 12, 2015 16:31ET



USGS

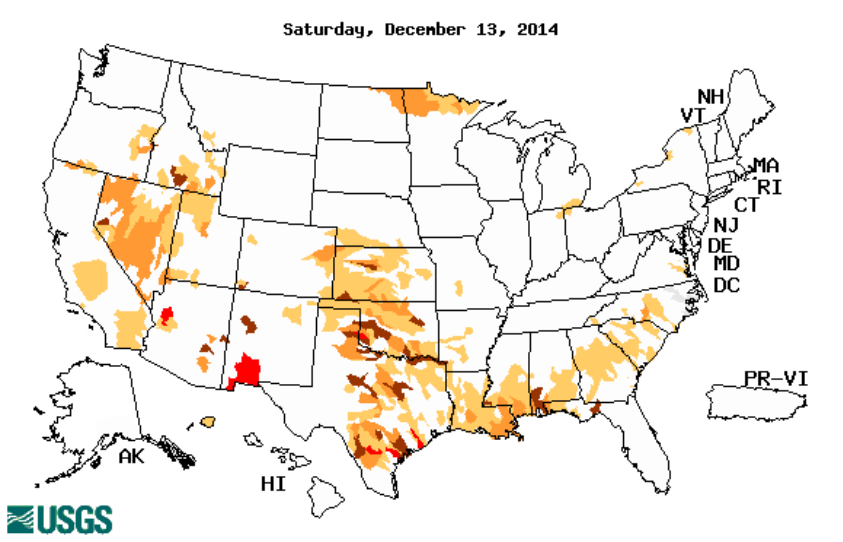
Explanation - Percentile classes

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

USGS http://waterwatch.usgs.gov

Below Normal 7-day Average Streamflows

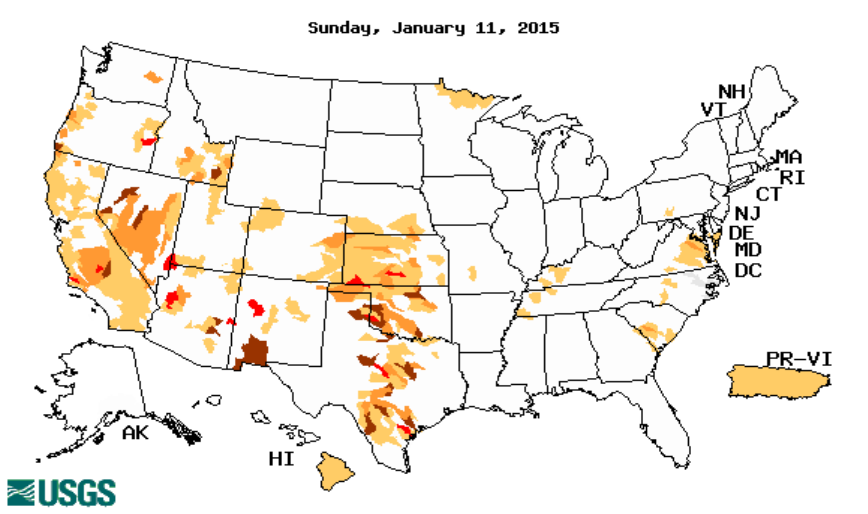
Previous brief:



Below normal 7-day average streamflow as compared with historical streamflow for day shown

Explanation - Percentile classes				
Low	<=5	6-9	10-24	Insufficient data for a hydrologic region
Extreme hydrologic drought	Severe hydrologic drought	Moderate hydrologic drought	Below normal	

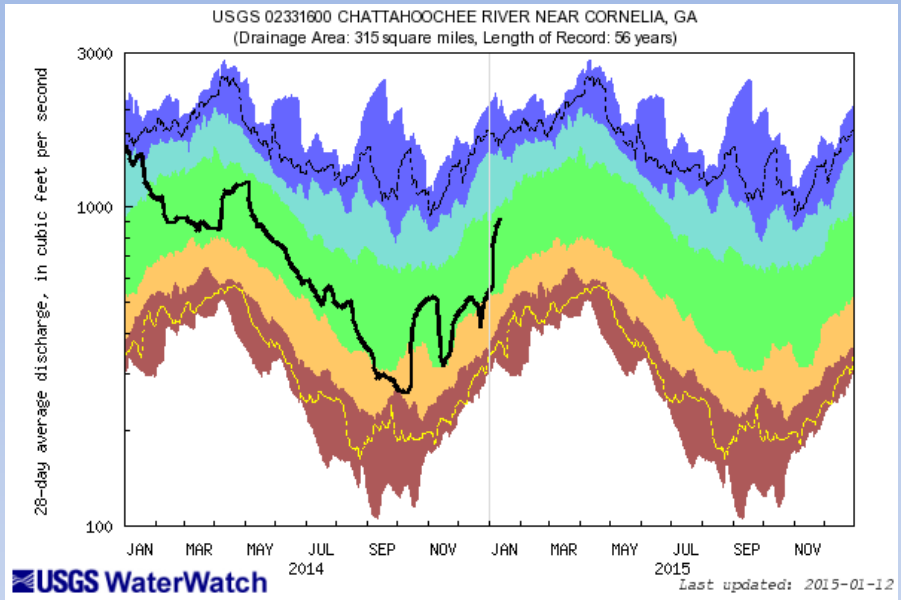
Current:



http://waterwatch.usgs.gov

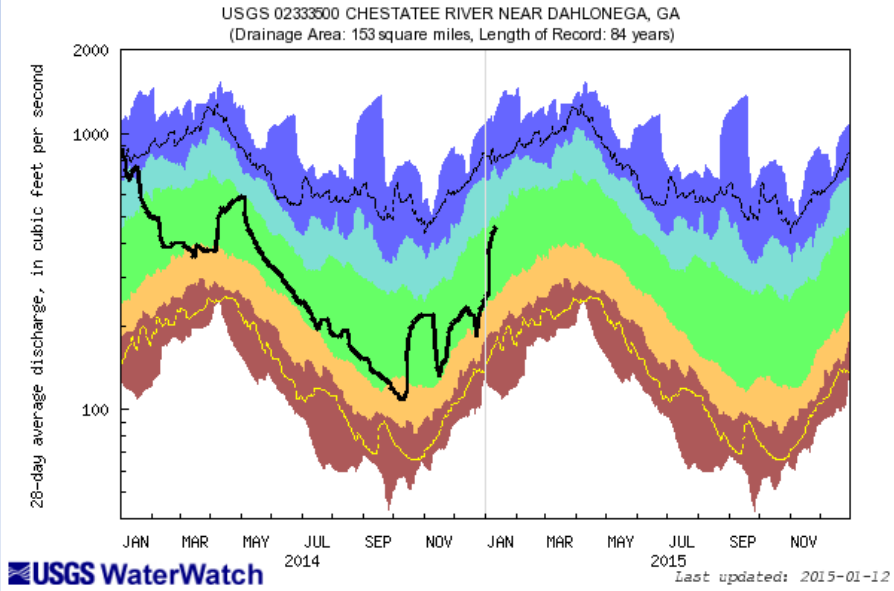
Lake Lanier Inflows

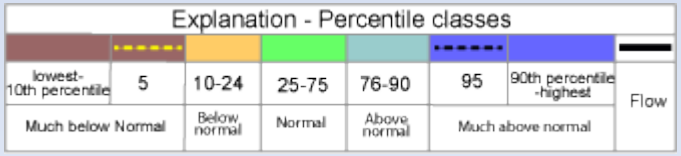
Chattahoochee near Cornelia (02331600)



http://waterwatch.usgs.gov

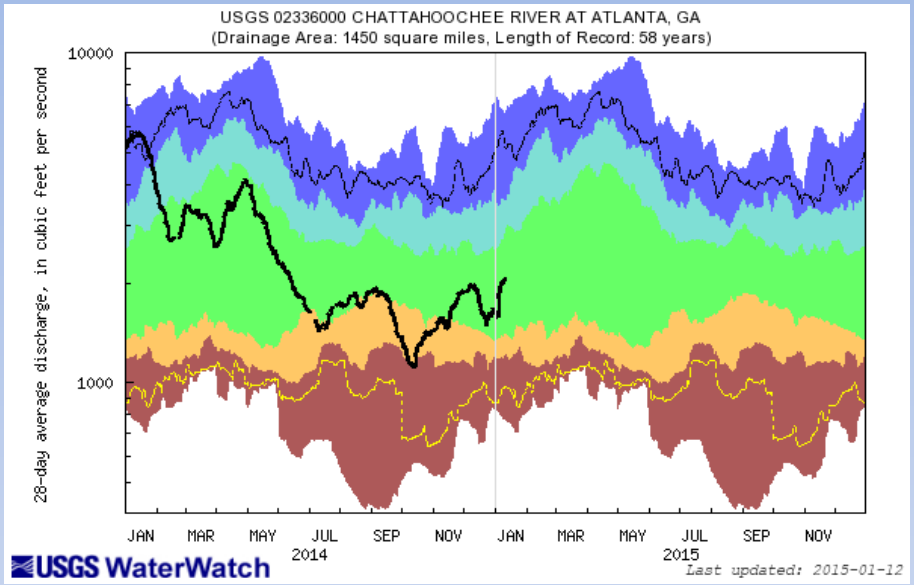
Chestatee near Dahlonega (02333500)





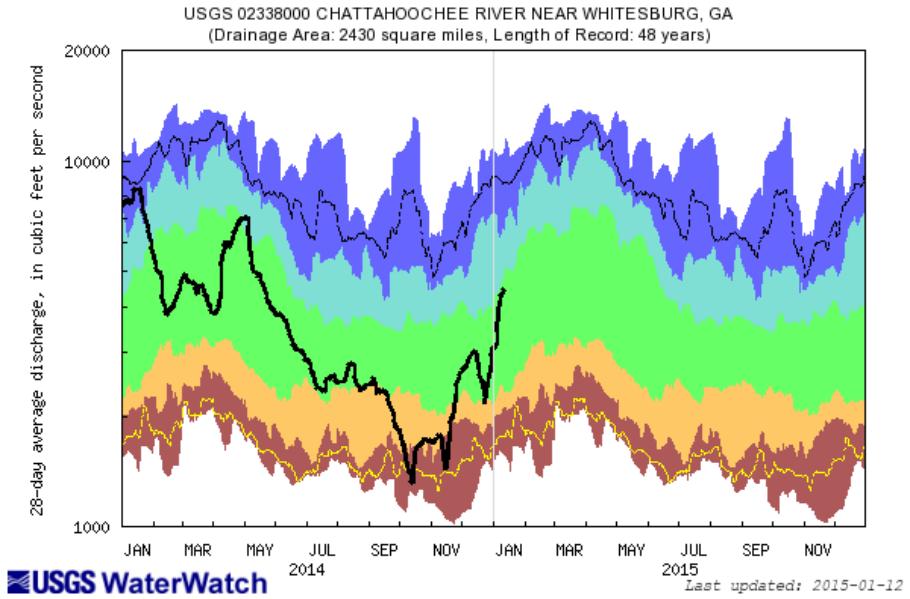
Current Streamflows

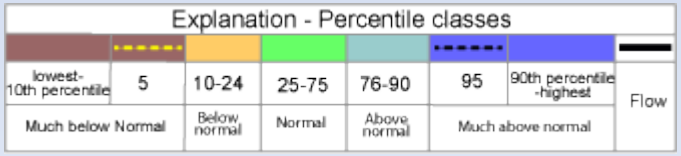
Chattahoochee at Atlanta (02336000)



http://waterwatch.usgs.gov

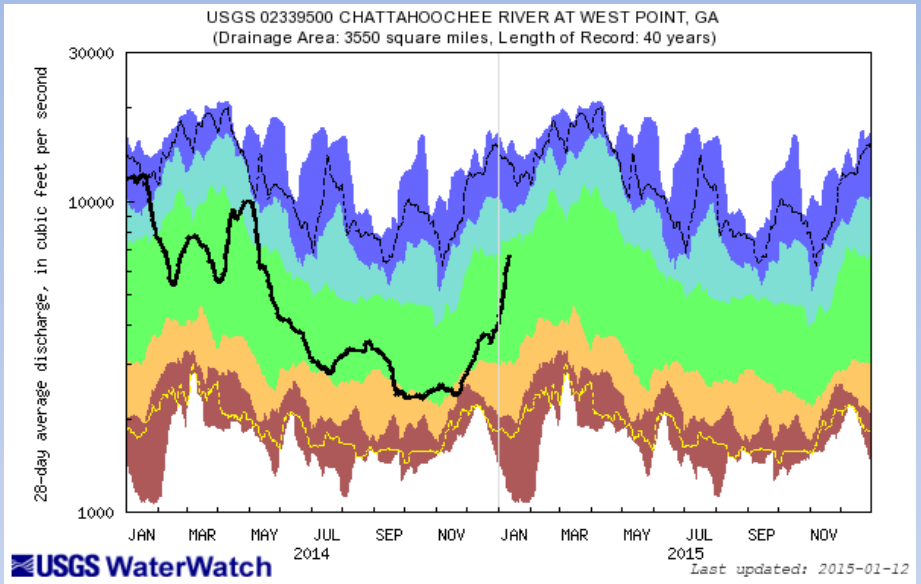
Chattahoochee near Whitesburg (02338000)





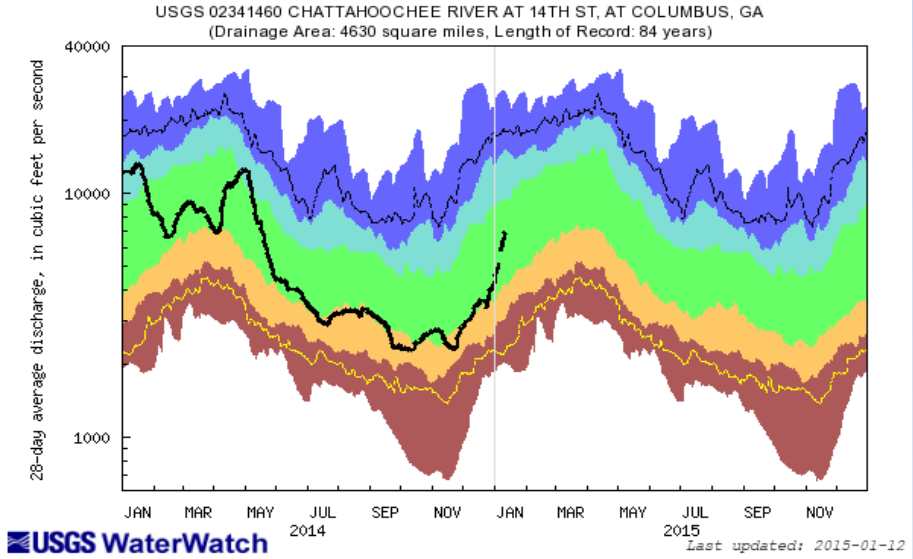
Current Streamflows

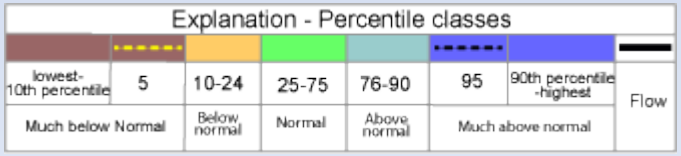
Chattahoochee at West Point (02339500)



http://waterwatch.usgs.gov

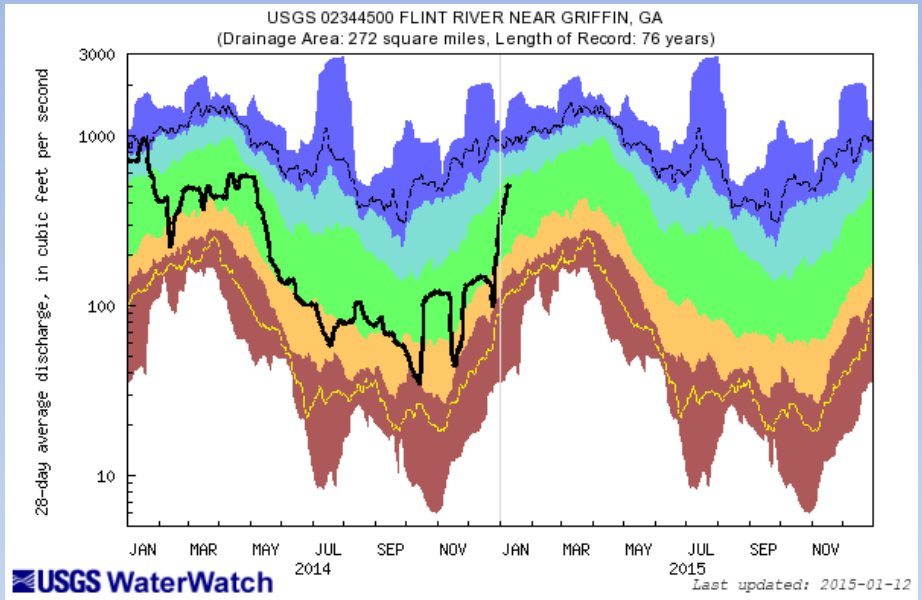
Chattahoochee at Columbus(02341460)





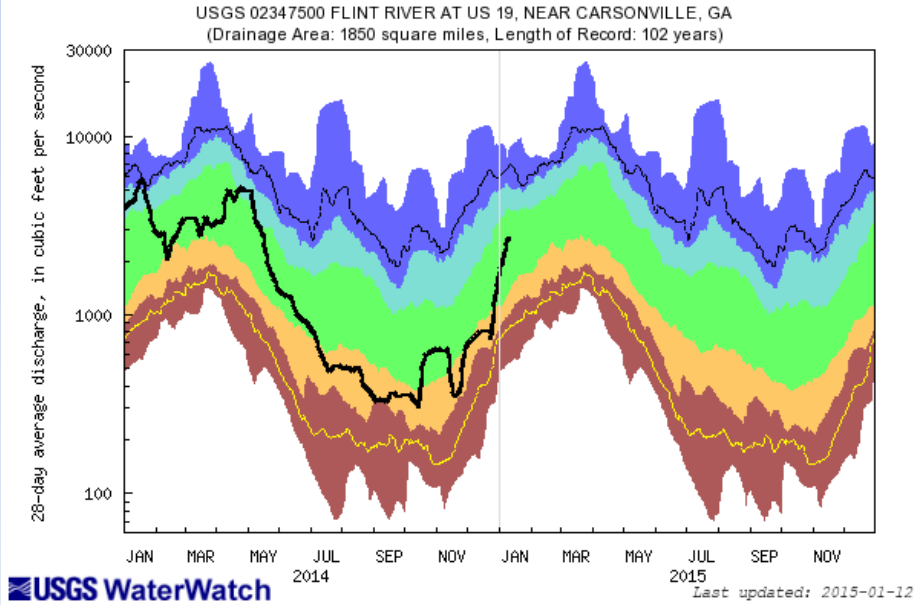
Current Streamflows

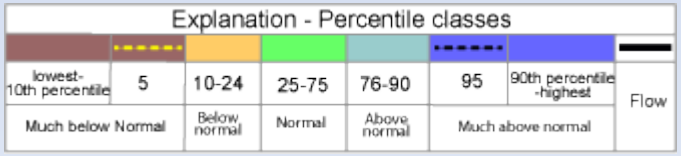
Flint River near Griffin (02344500)



http://waterwatch.usgs.gov

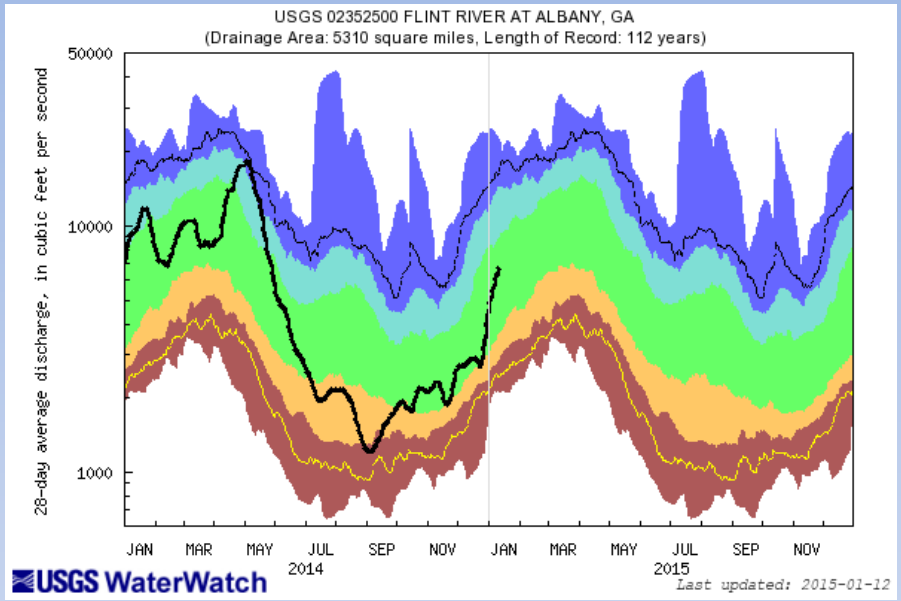
Flint River near Carsonville (02347500)





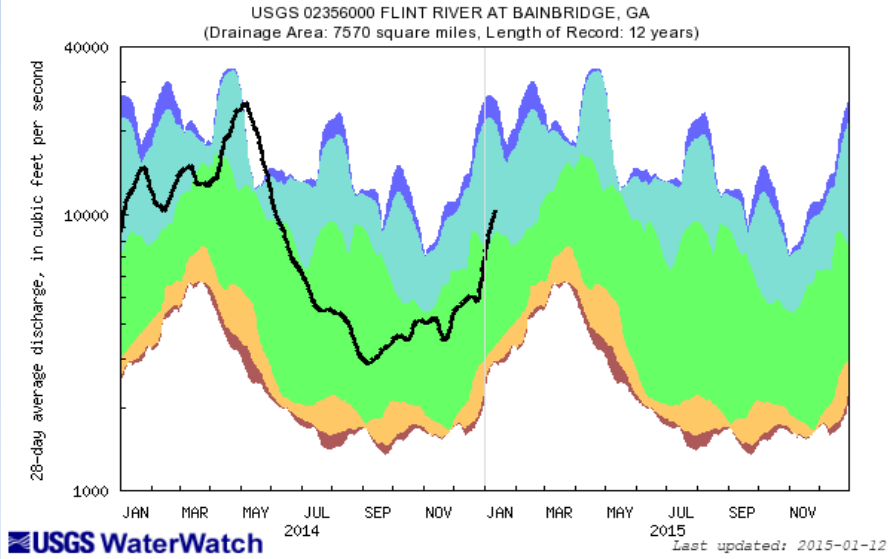
Current Streamflows

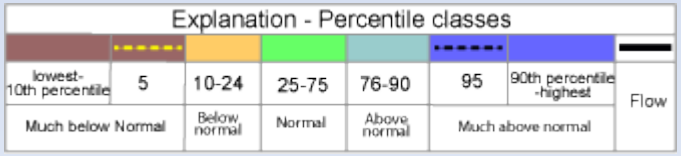
Flint River at Albany (02352500)



http://waterwatch.usgs.gov

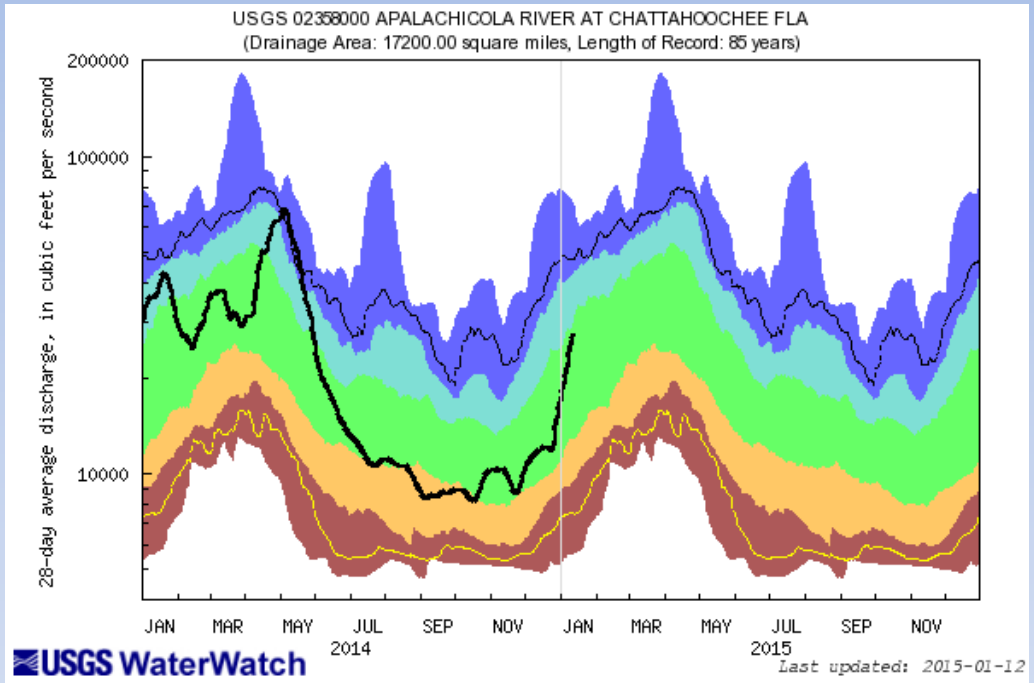
Flint at Bainbridge (02356000)



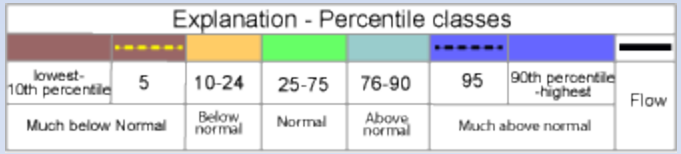


Streamflows

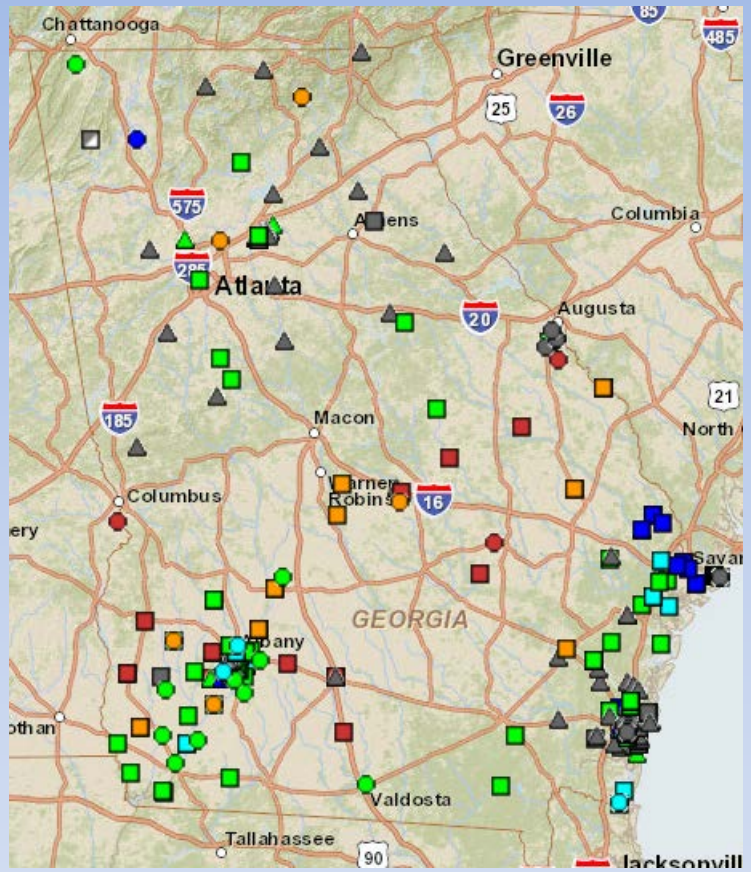
Apalachicola at Chattahoochee (02358000)



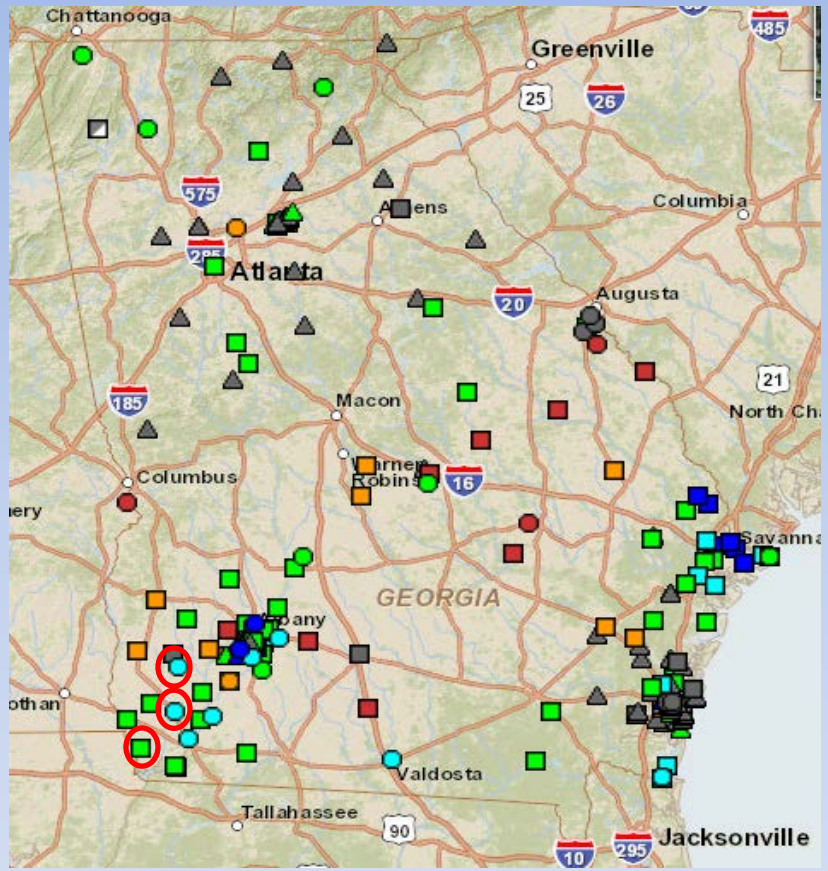
http://waterwatch.usgs.gov



Groundwater Conditions



Previous brief



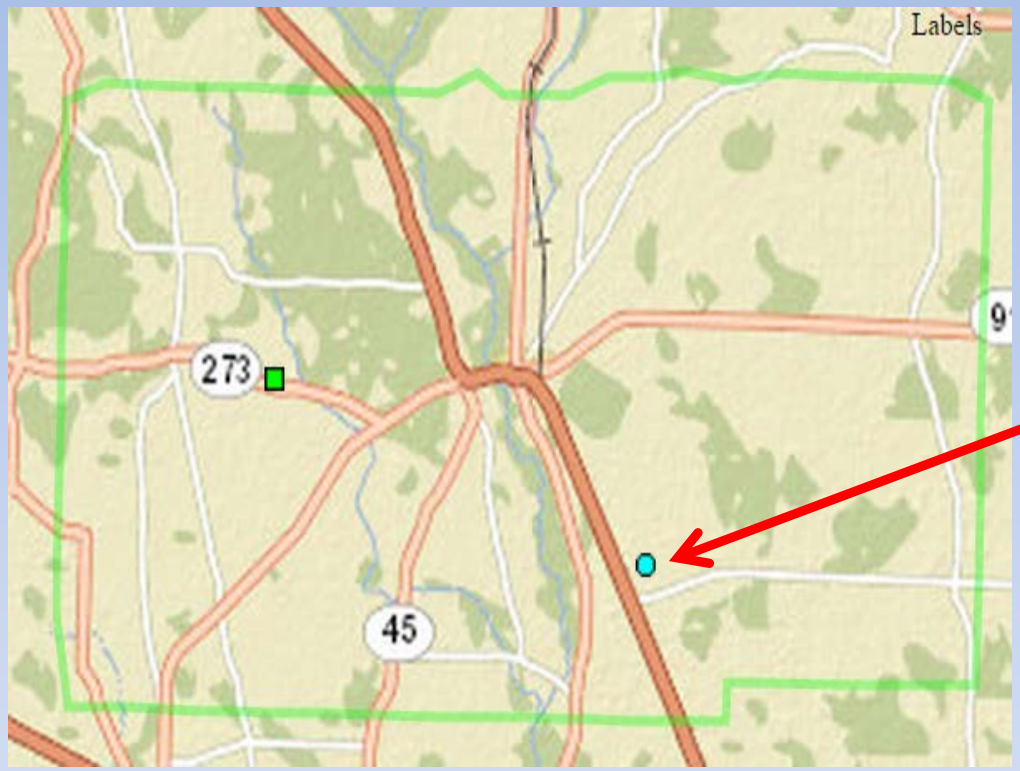
Current brief

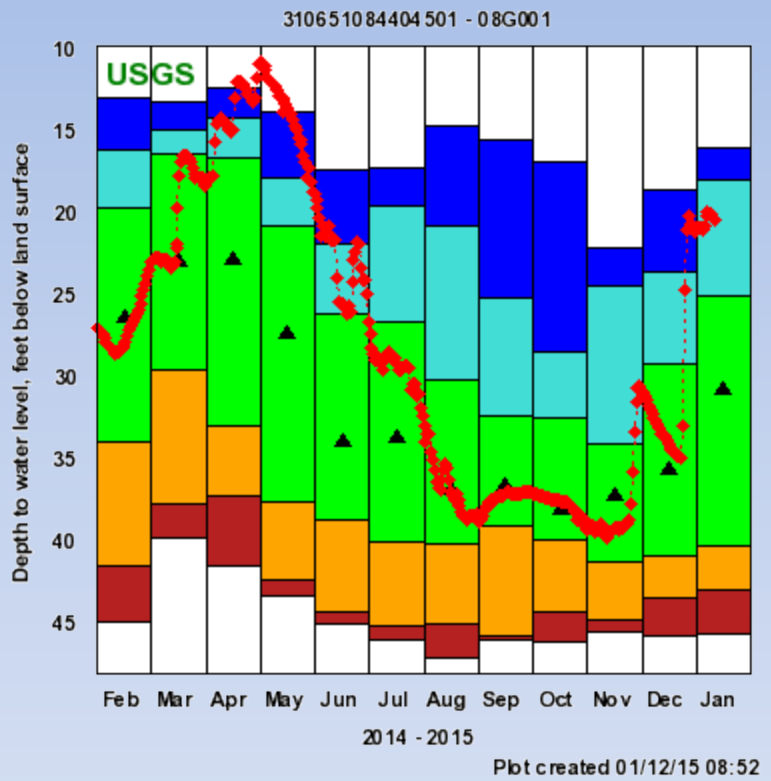
Explanation - Percentile classes (symbol color based on most recent measurement)							
Low	<10 Much Below Normal	10-24 Below Normal	25-75 Normal	76-90 Above Normal	>90 Much Above Normal	High	Not Ranked

Wells	Springs
Real-Time	
Continuous	
Periodic Measurements	

http://groundwaterwatch.usgs.gov

Groundwater Status – Miller County 08G001



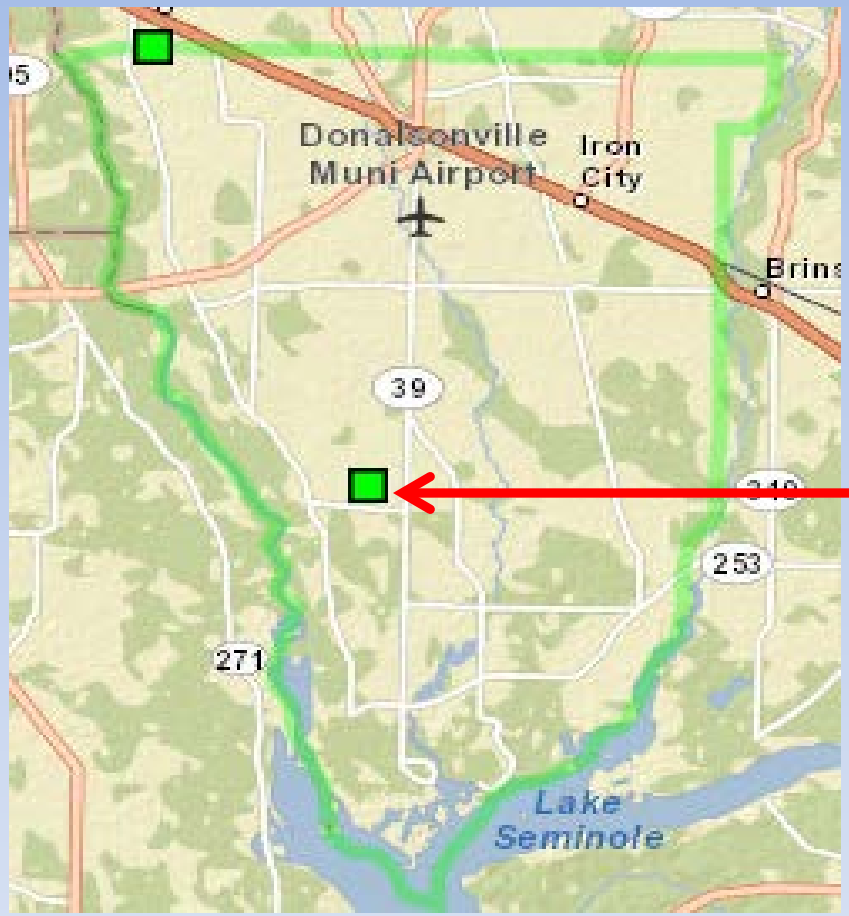


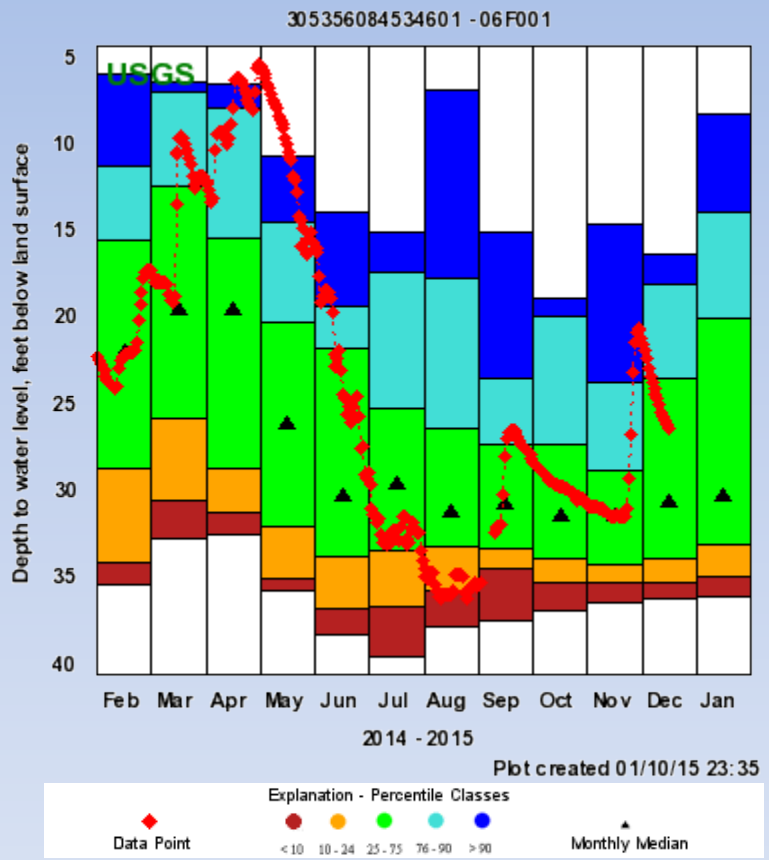
Explanation - Percentile classes (symbol color based on most recent measurement)							
Low	<10 Much Below Normal	10-24 Below Normal	25-75 Normal	76-90 Above Normal	>90 Much Above Normal	High	Not Ranked

Wells	Springs
Real-Time	
Continuous	
Periodic Measurements	

(Upper Floridan Aquifer)

Groundwater Status – Seminole County 06F001



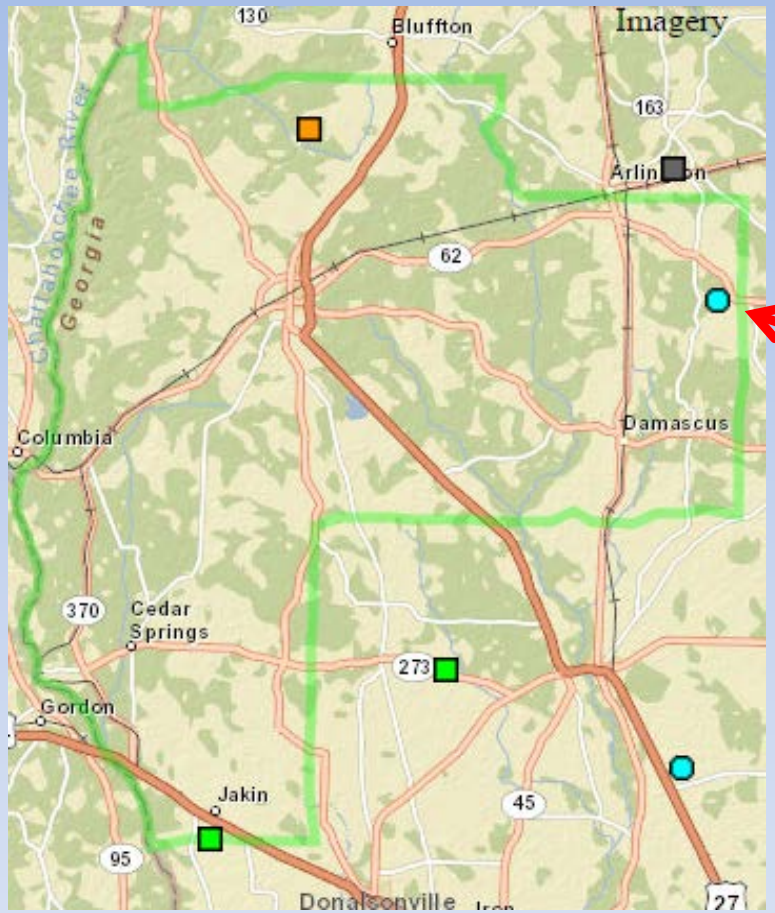


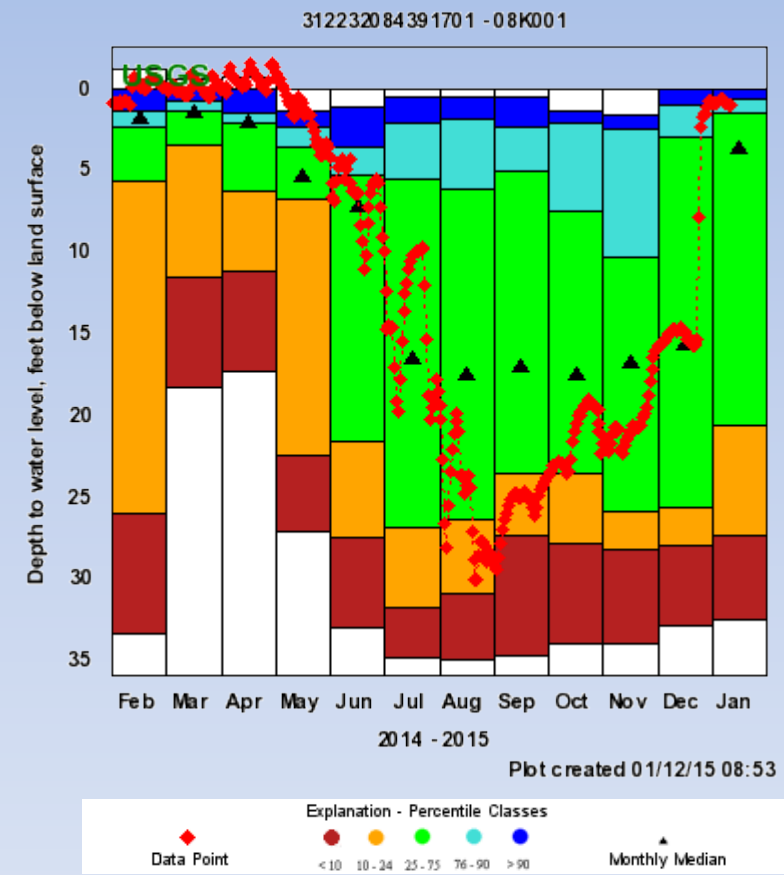
Explanation - Percentile classes (symbol color based on most recent measurement)							
Low	<10 Much Below Normal	10-24 Below Normal	25-75 Normal	76-90 Above Normal	>90 Much Above Normal	High	Not Ranked

Wells	Springs
Real-Time	
Continuous	
Periodic Measurements	

(Upper Floridan Aquifer)

Groundwater Status – Early County 08K001





Explanation - Percentile classes (symbol color based on most recent measurement)							
Low	<10 Much Below Normal	10-24 Below Normal	25-75 Normal	76-90 Above Normal	>90 Much Above Normal	High	Not Ranked

Wells	Springs
Real-Time	
Continuous	
Periodic Measurements	

(Upper Floridan Aquifer)

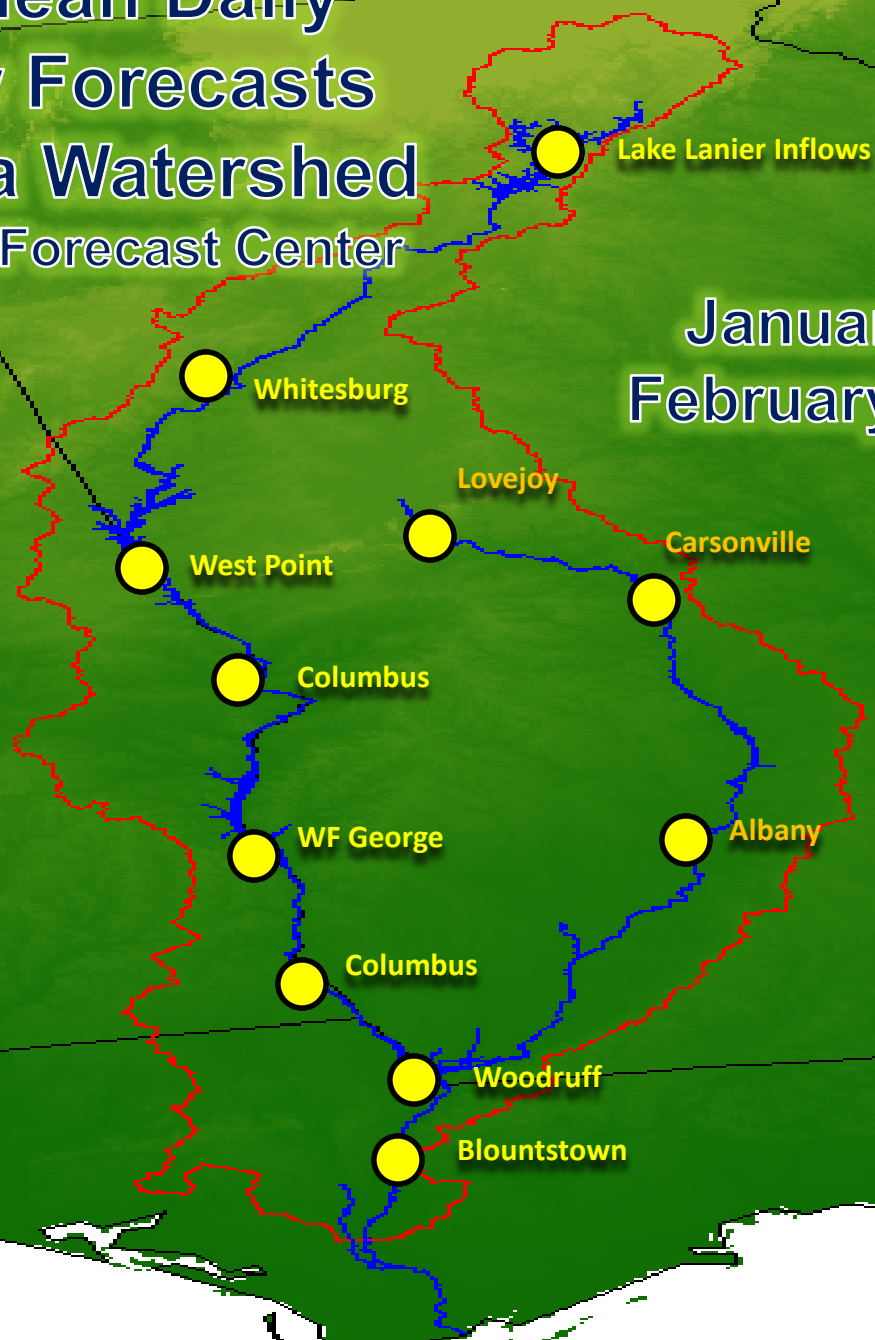
Streamflow forecasts

Jeff Dobur

1-Month Mean Daily Streamflow Forecasts Apalachicola Watershed

Southeast River Forecast Center

January 6th – February 6th 2015



- Above Normal
- Near Normal
- Below Normal

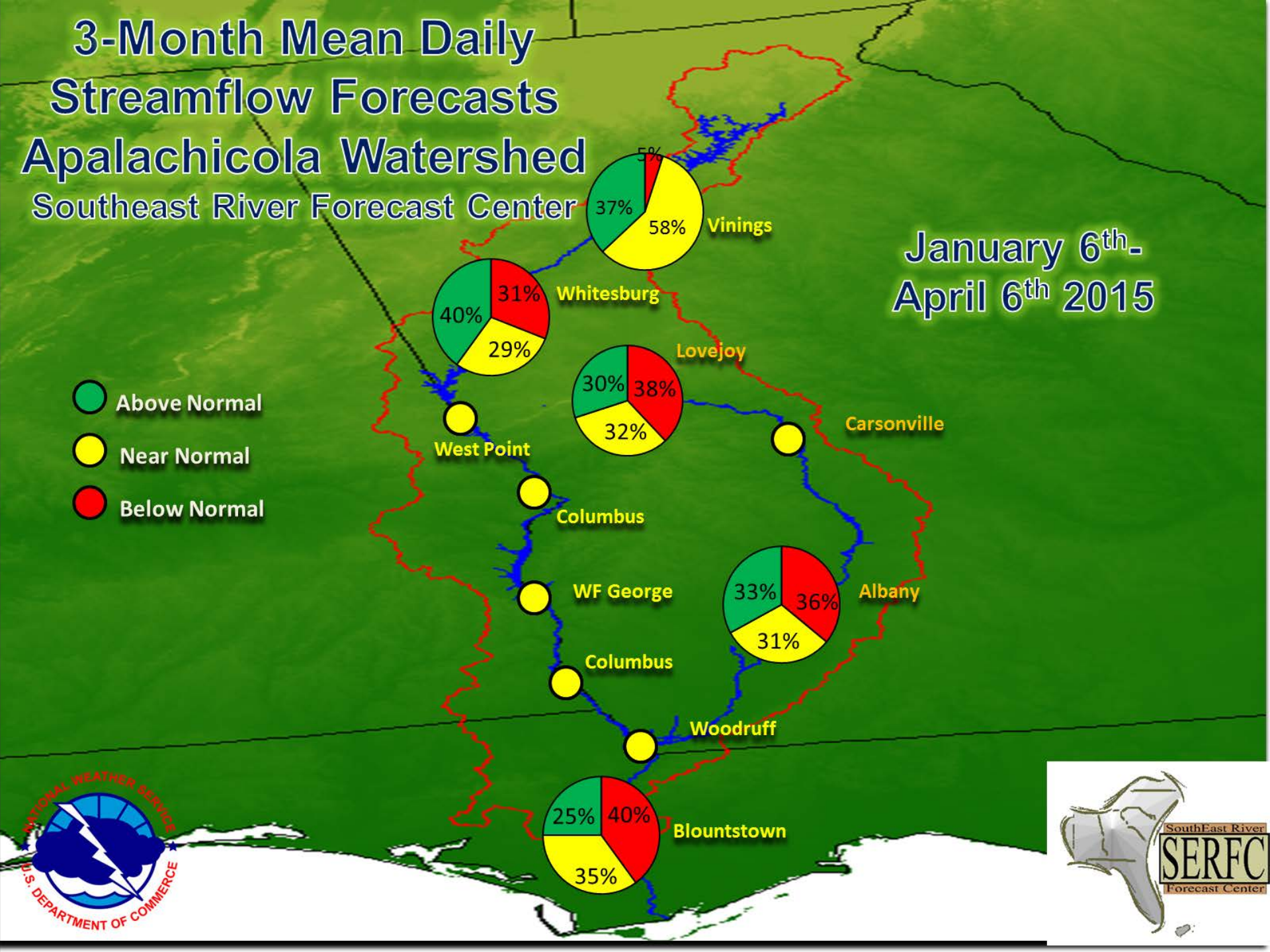
NATIONAL WEATHER SERVICE
U.S. DEPARTMENT OF COMMERCE

SouthEast River SERFC Forecast Center

3-Month Mean Daily Streamflow Forecasts Apalachicola Watershed

Southeast River Forecast Center

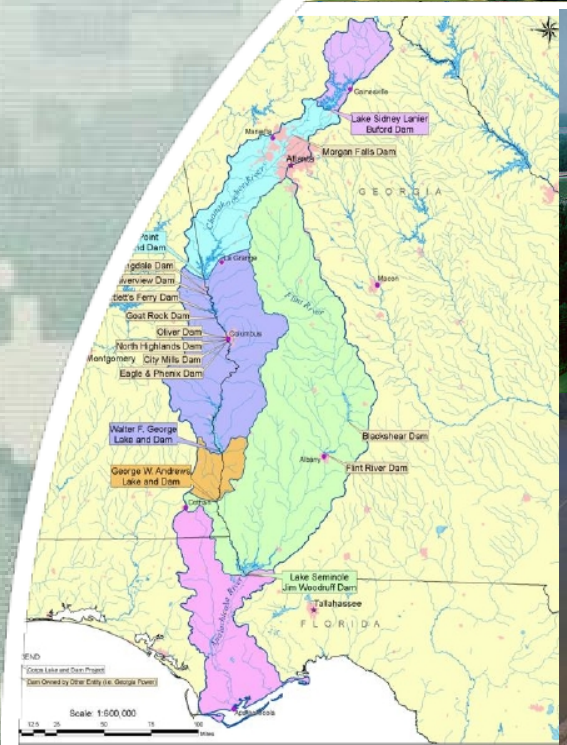
January 6th-
April 6th 2015



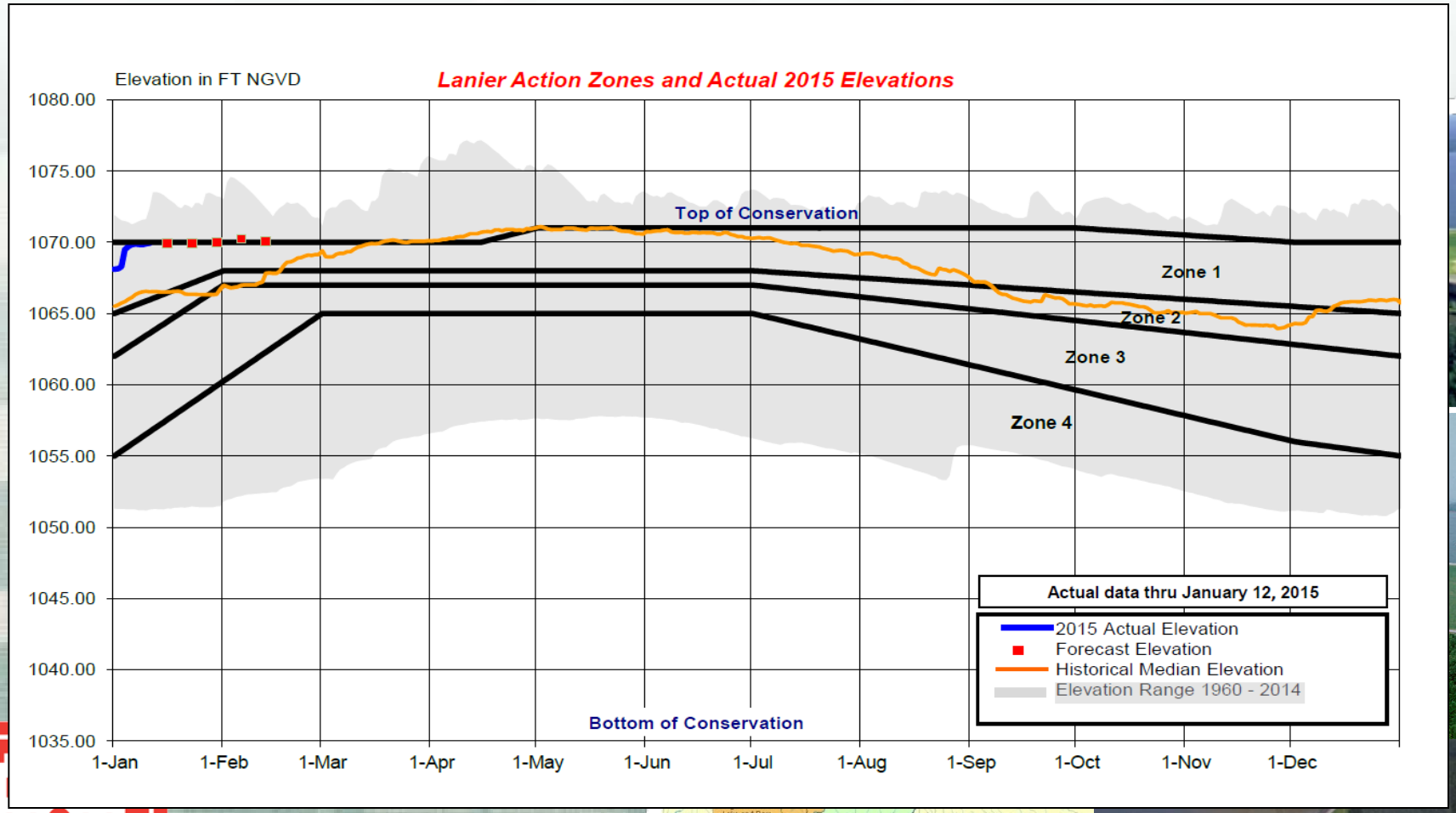
ACF Reservoir Conditions

Bailey Crane, United States Army Corps of Engineers

USACE – ACF Reservoir Conditions Jan 12th 2015

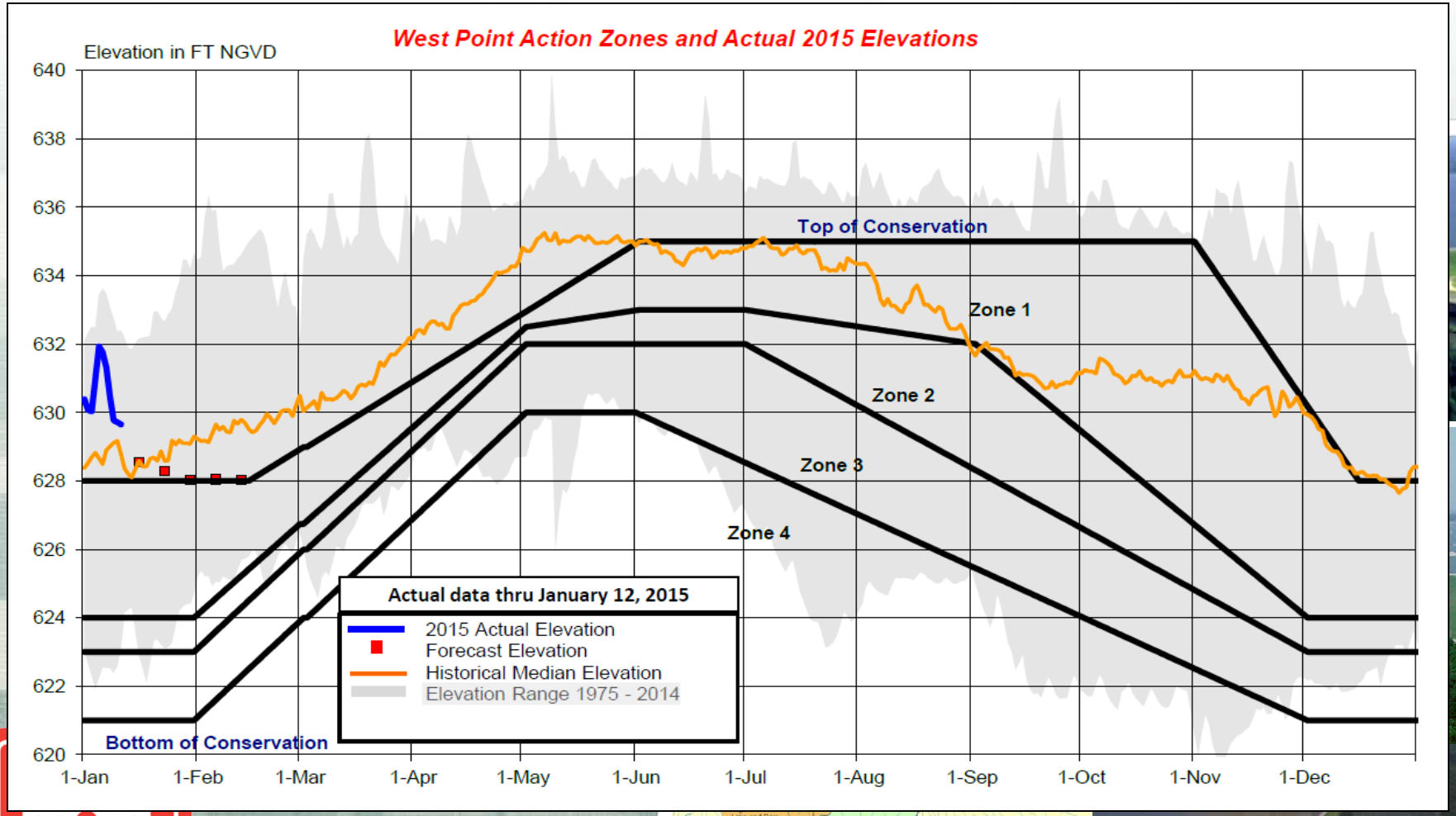


Lake Lanier


Elevation in FT NGVD
Lanier Action Zones and Actual 2015 Elevations
1080.00
1075.00
1070.00
1065.00
1060.00
1055.00
1050.00
1045.00
1040.00
1035.00
Top of Conservation
Zone 1
Zone 2
Zone 3
Zone 4
Bottom of Conservation
Actual data thru January 12, 2015
2015 Actual Elevation
Forecast Elevation
Historical Median Elevation
Elevation Range 1960 - 2014
1-Jan
1-Feb
1-Mar
1-Apr
1-May
1-Jun
1-Jul
1-Aug
1-Sep
1-Oct
1-Nov
1-Dec

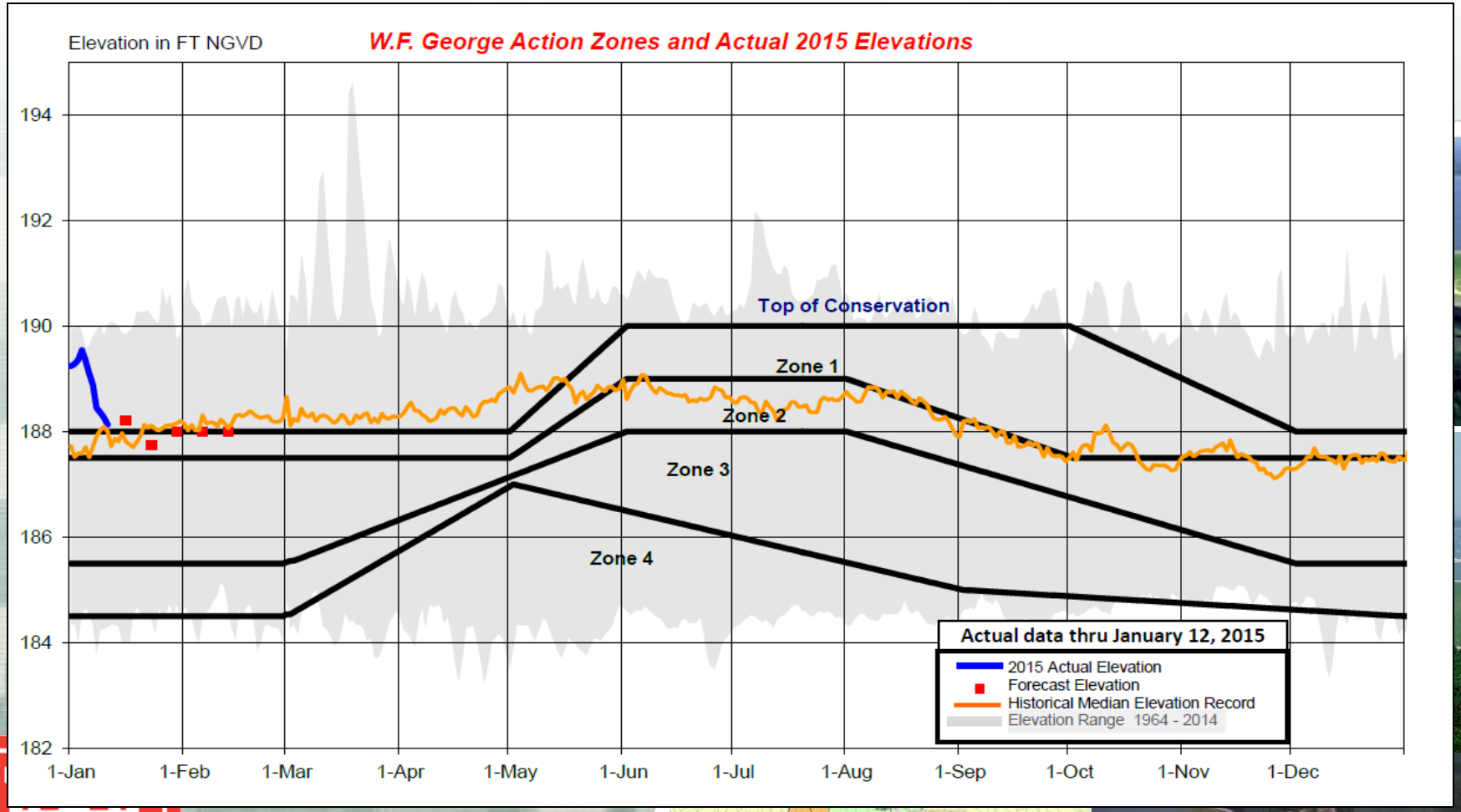
Lake and Dam
Lake Seminole
Jim Woodruff Dam
Tallahassee
F L O R I D A
Scale: 1:600,000

West Point

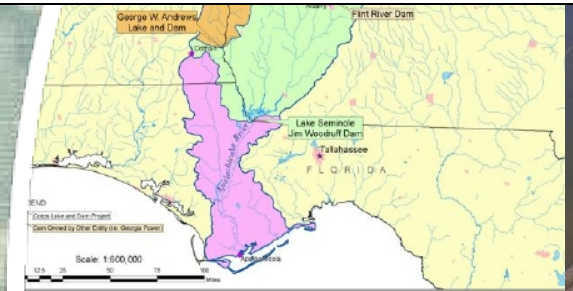

West Point Action Zones and Actual 2015 Elevations
Elevation in FT NGVD
640
638
636
634
632
630
628
626
624
622
620
1-Jan
1-Feb
1-Mar
1-Apr
1-May
1-Jun
1-Jul
1-Aug
1-Sep
1-Oct
1-Nov
1-Dec
Top of Conservation
Zone 1
Zone 2
Zone 3
Zone 4
Bottom of Conservation
Actual data thru January 12, 2015
2015 Actual Elevation
Forecast Elevation
Historical Median Elevation
Elevation Range 1975 - 2014

Lake and Dam
Lake Seminole
Jim Woodruff Dam
Tallahassee
F L O R I D A
Scale: 1:600,000

W.F. George

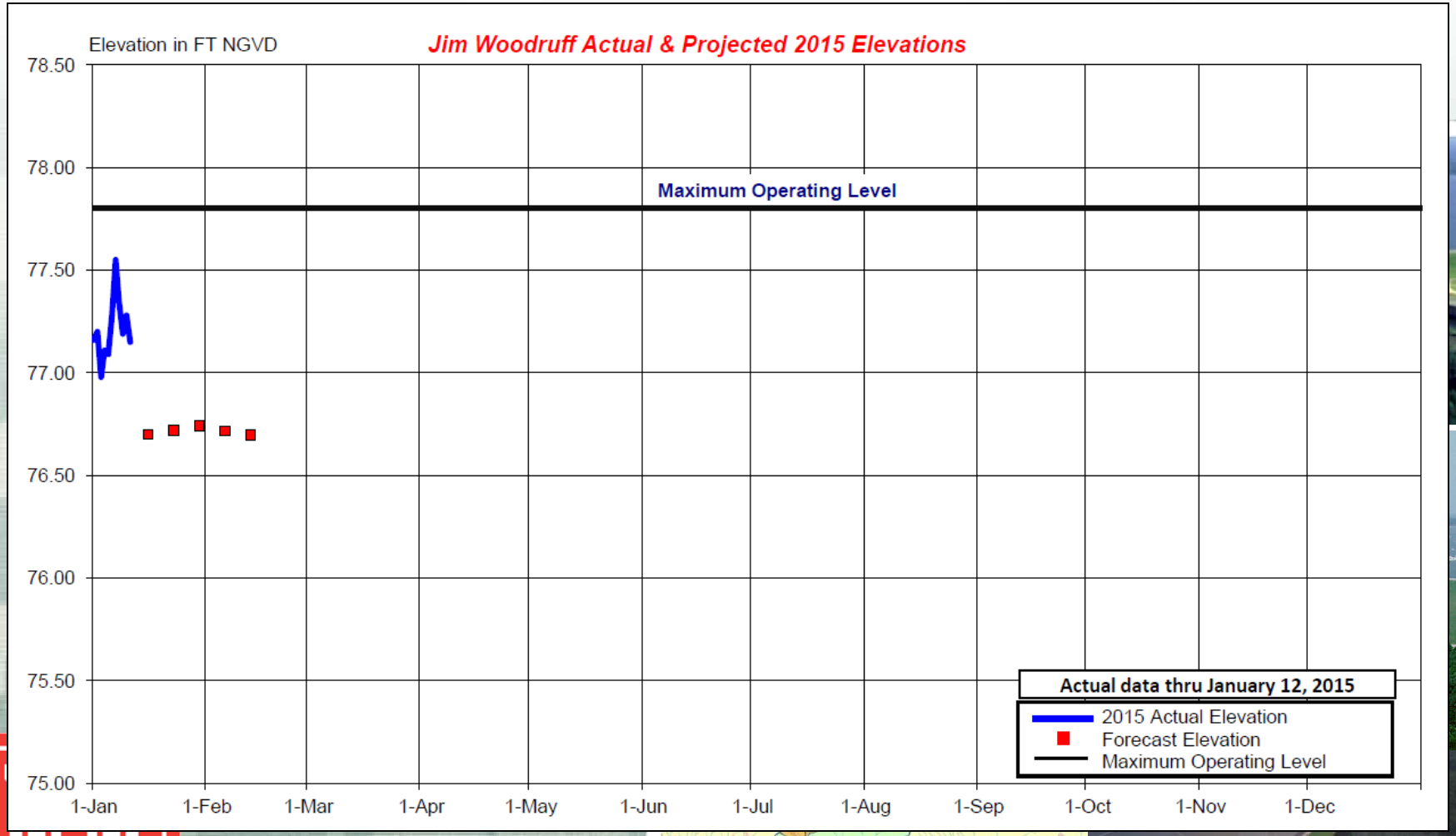


Elevation in FT NGVD
W.F. George Action Zones and Actual 2015 Elevations
194
192
190
188
186
184
182
1-Jan
1-Feb
1-Mar
1-Apr
1-May
1-Jun
1-Jul
1-Aug
1-Sep
1-Oct
1-Nov
1-Dec
Top of Conservation
Zone 1
Zone 2
Zone 3
Zone 4
Actual data thru January 12, 2015
2015 Actual Elevation
Forecast Elevation
Historical Median Elevation Record
Elevation Range 1964 - 2014



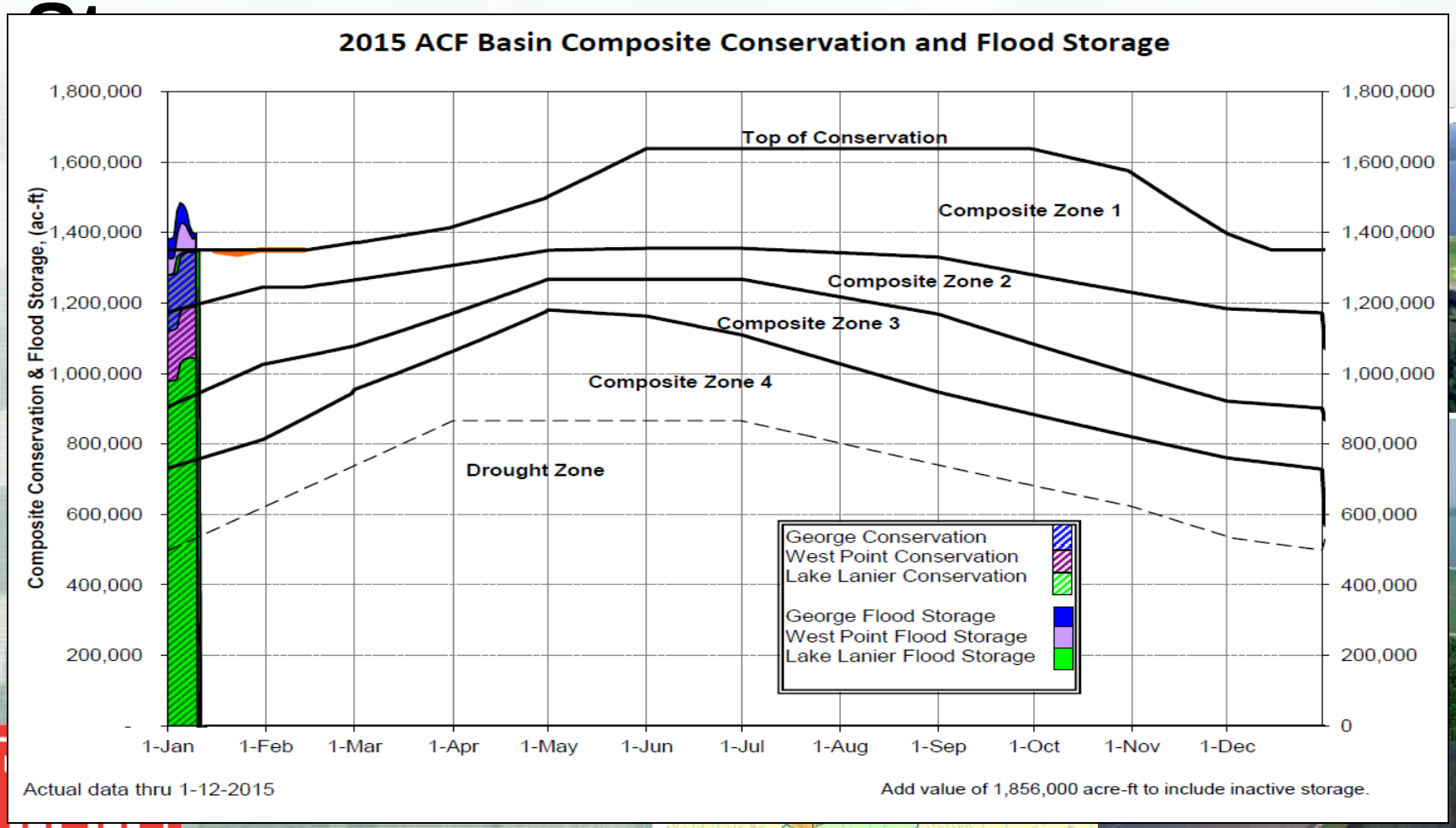
George W. Andrews Lake and Dam
Flint River Dam
Lake Seminole
Jim Woodruff Dam
Tallahassee
FLORIDA
Scale: 1:600,000

Woodruff

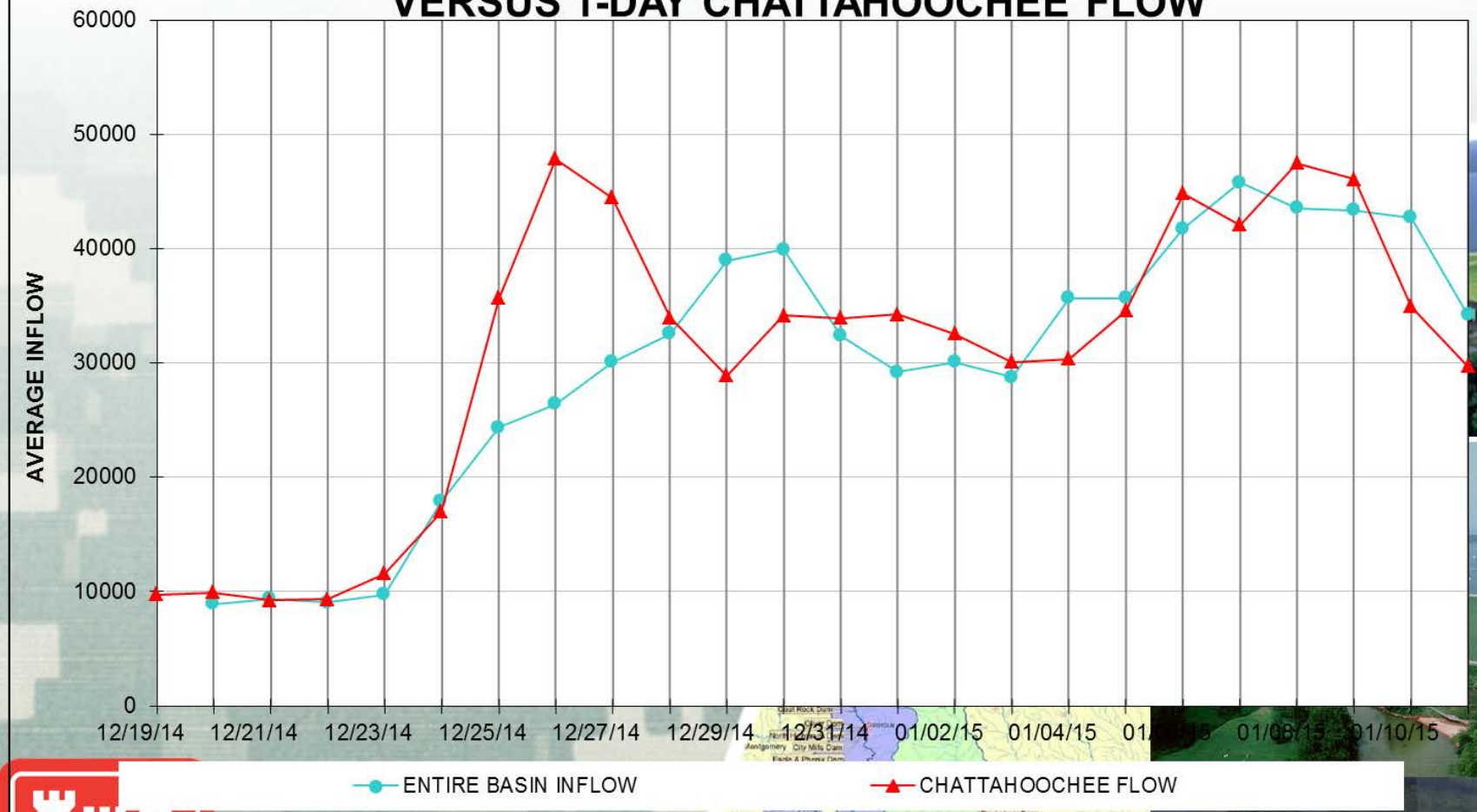

Elevation in FT NGVD
Jim Woodruff Actual & Projected 2015 Elevations
78.50
78.00
77.50
77.00
76.50
76.00
75.50
75.00
Maximum Operating Level
1-Jan
1-Feb
1-Mar
1-Apr
1-May
1-Jun
1-Jul
1-Aug
1-Sep
1-Oct
1-Nov
1-Dec
Actual data thru January 12, 2015
2015 Actual Elevation
Forecast Elevation
Maximum Operating Level

Lake Seminole
Jim Woodruff Dam
Tallahassee
FLORIDA
Scale: 1:600,000

ACF Composite Conservation St



7-DAY MOVING AVERAGE INFLOW VERSUS 1-DAY CHATTAHOOCHEE FLOW



Summary – David Zierden

- Above normal rainfall for the upper and lower ACF in the last three months, near normal for the middle basin.
- Much of the rainfall has come in just a few heavy events in the lower ACF.
- ACF designated as drought-free by the *US Drought Monitor*
- Pacific SST's have cooled in recent weeks, now below the 0.5C threshold for El Nino
- Some atmospheric patterns consistent with El Nino, some not
- Recent Westerly winds in the W. Pacific interesting….
- CPC Outlooks favor El Nino patter of above normal rainfall for Southern U.S. for the next 1-3 months

Summary-Tony Gotvald

- Realtime streamflows are in the normal range for most of the ACF basin.
- Inflows into Lake Lanier are in the normal range for the 28-day average flows.
- Streamflows are in the normal throughout the Flint River basin for the 28-day average flows.
- Groundwater levels are in the normal to above normal range in Southwest Georgia.

Summary-Jeff Dobur

- 1 Month Streamflow forecast - Near Normal
- 3 Month Streamflow forecast – Nearly equal chances at all 3 categories except the upper Chattahoochee where more confidence on Normal
- Not much change from previous forecast

Summary-Bailey Crane

- Recent rain in early January has refilled Lanier and kept West Point and Walter F. George at or above their full winter pool elevation
- All reservoirs are expected to remain near their winter pool levels through winter.
- System conservation storage is expected remain near the top of conservation storage(full) through the winter.
- Basin inflow remains above average for this time of year largely due to precipitation in early January

Questions, Comments, Discussion

References

Speakers

David Zierden, FSU

Tony Gotvald, USGS

Jeff Dobur, SERFC

Bailey Crane, United States Army Corps of Engineers

Moderator

Eric Reutebuch, AU WRC

Additional information

General drought information

http://drought.gov
http://www.drought.unl.edu

General climate and El Niño information

http://agroclimate.org/climate/

Streamflow monitoring & forecasting

http://waterwatch.usgs.gov

http://www.srh.noaa.gov/serfc/

Groundwater monitoring

http://groundwaterwatch.usgs.gov

Thank you!

Next briefing

February 17, 2015, 1:00 pm EDT

Moderator: Eric Reutebuch

Slides from this briefing will be posted at

http://drought.gov/drought/content/regional-programs/regional-drought-webinars

Please send comments and suggestions to:

reuteem@auburn.edu