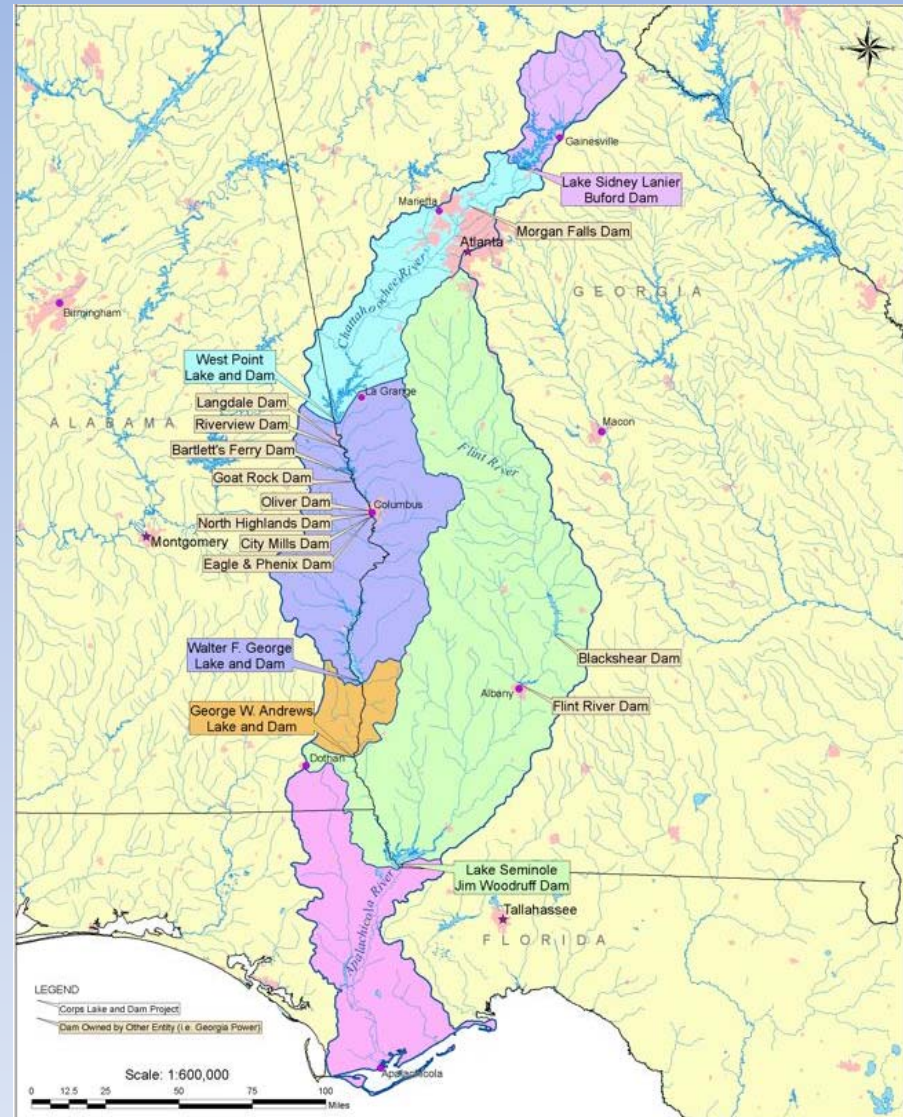
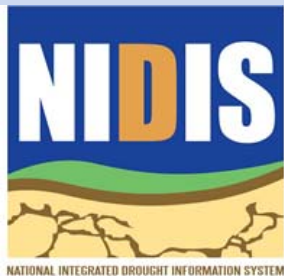


National Integrated Drought Information System

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

19 April 2016



Outline

Welcome – Eric Reutebuch, AU Water Resources Center

- Current drought status, seasonal forecasts and outlooks – David Zierden, Florida Climate Center, FSU
- Streamflows and groundwater – Paul Ankorn, USGS
- Streamflow forecasts – Jeff Dobur, SERFC
- ACF reservoir conditions – Cynthia Donald, United States Army Corps of Engineers
- Summary and Discussion

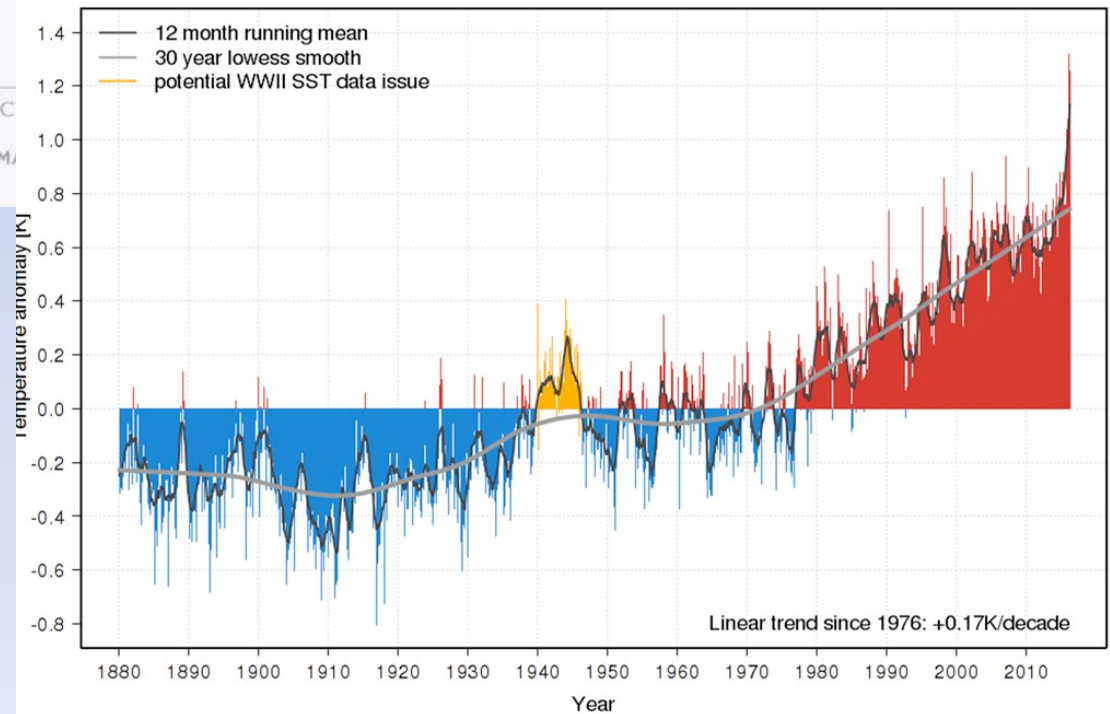
Global Average Temperature

2016 Blowing Records Away

Year-to-date average global temperature anomalies (°C)



GISS Land/Ocean (ERSSTv4) temperature (01/1880-03/2016) - baseline 1901-2000

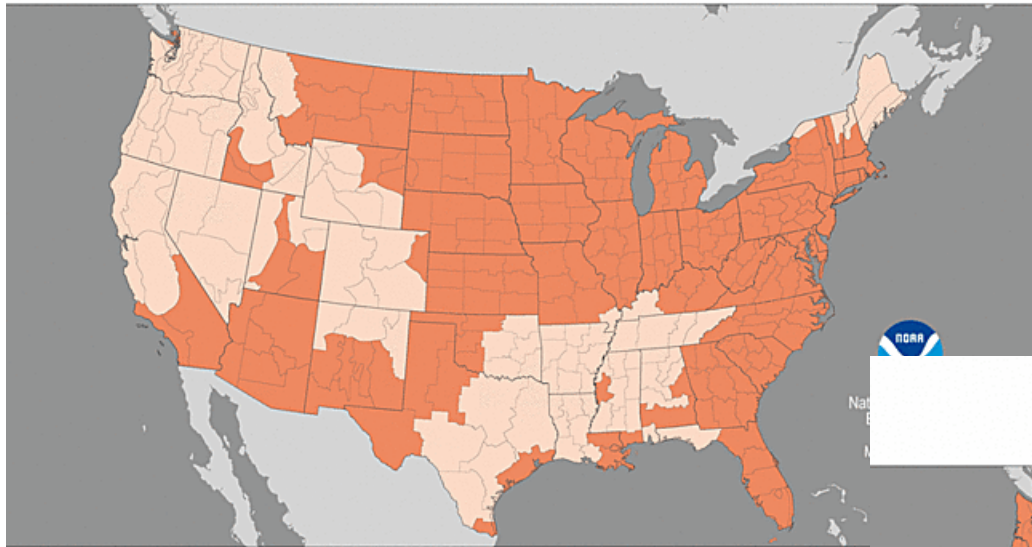


U.S. Average Temperature

Divisional Average Temperature Ranks

March 2016

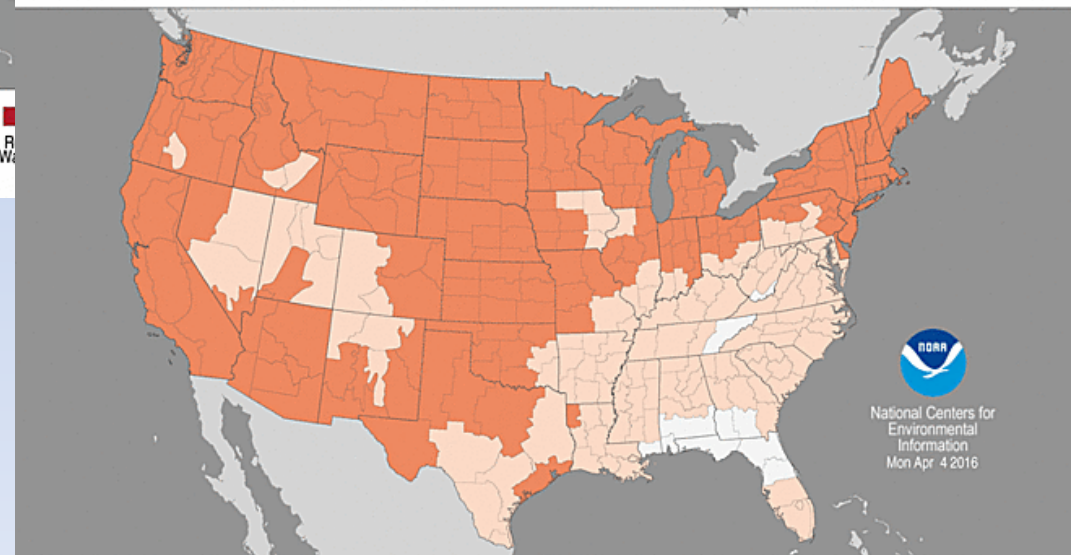
Period: 1895–2016



Divisional Average Temperature Ranks

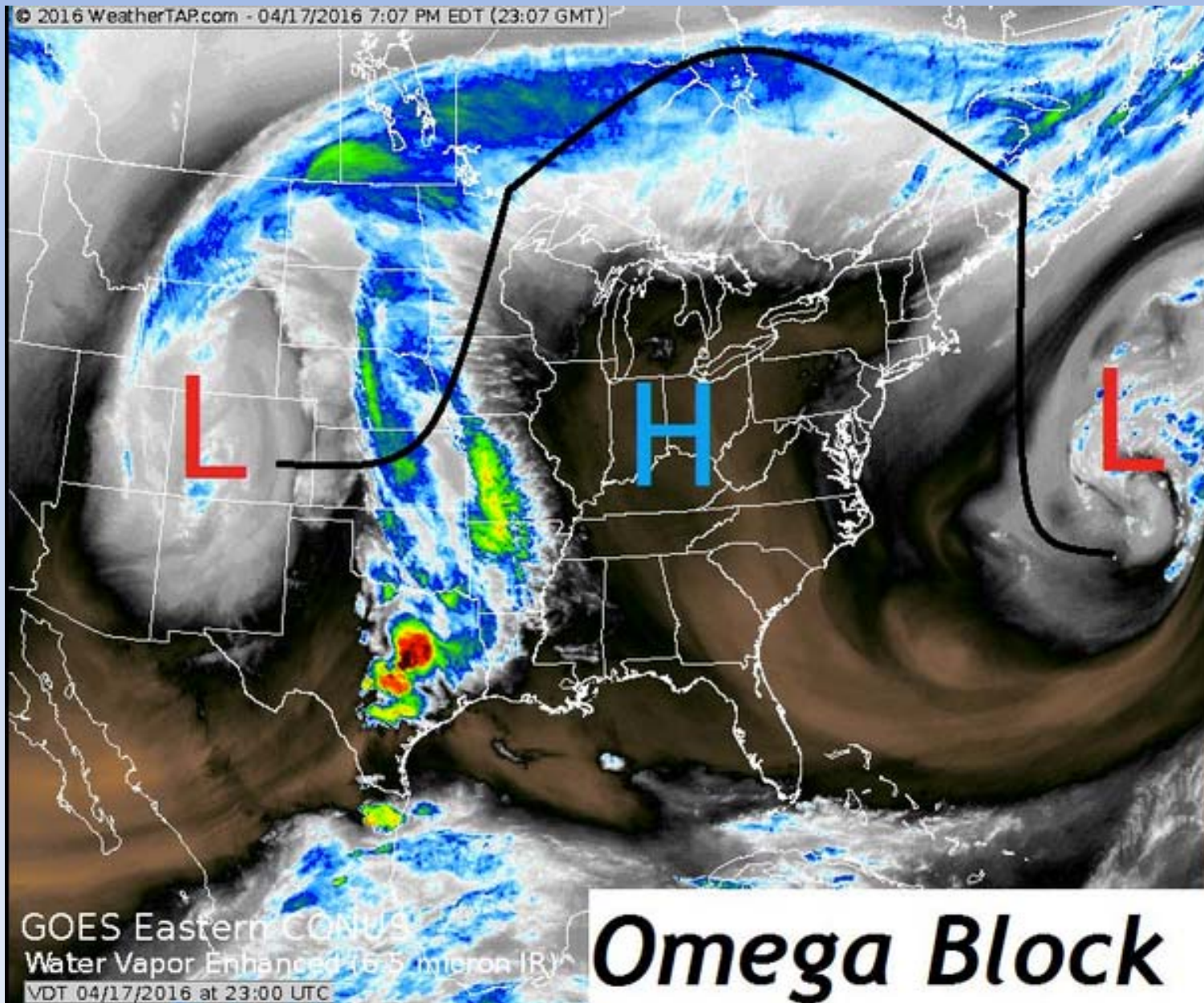
January–March 2016

Period: 1895–2016

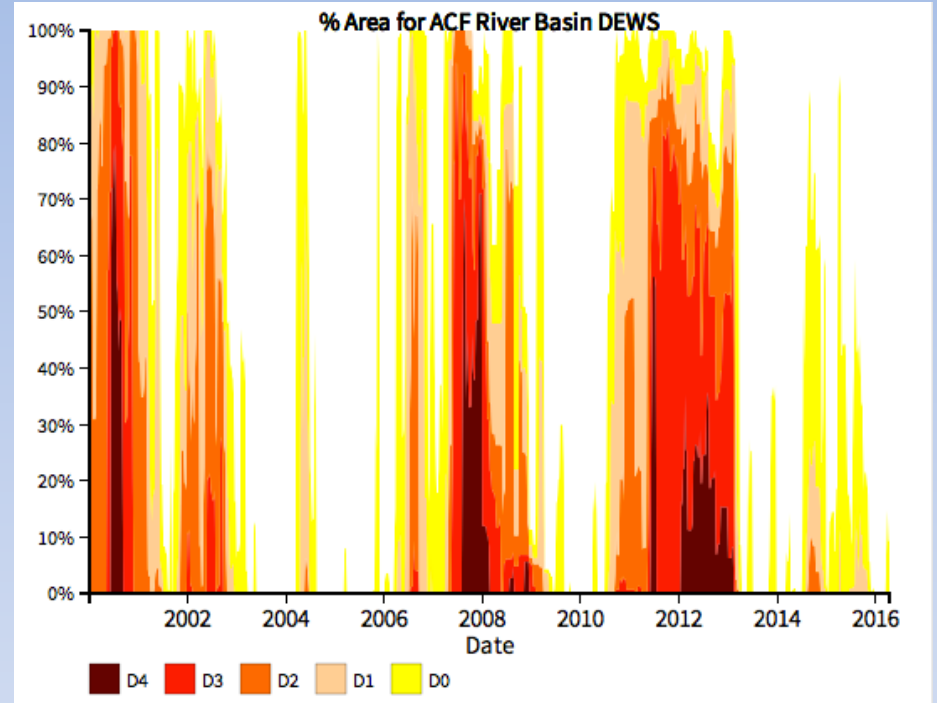
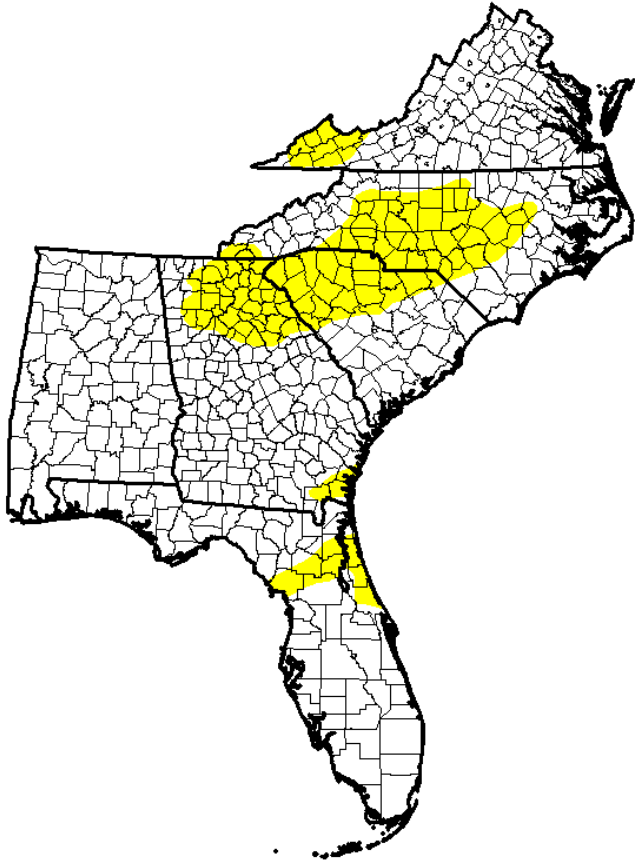


NOAA
National Centers for
Environmental
Information
Mon Apr 4 2016



Houston Floods



Current drought status



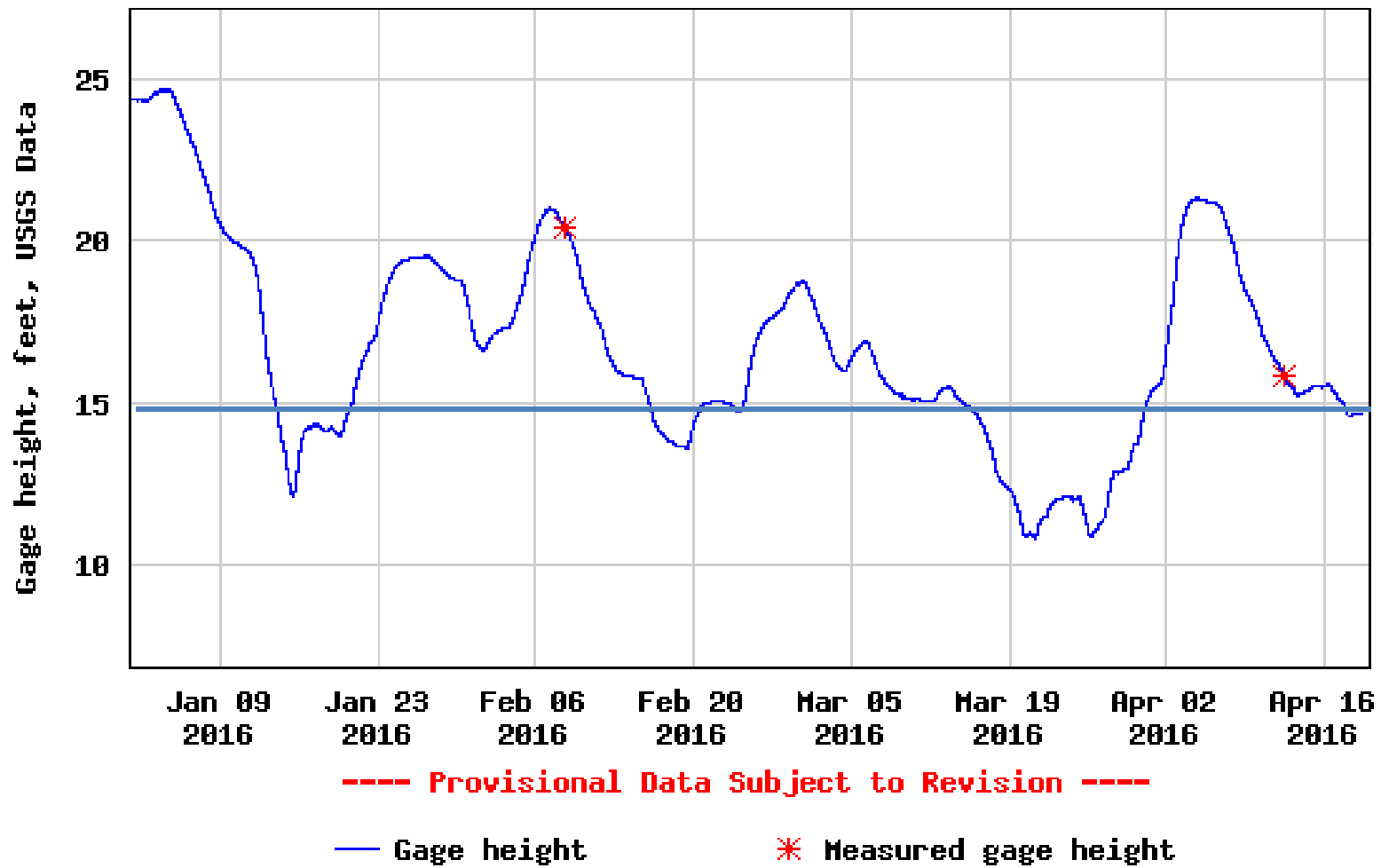
Intensity:

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

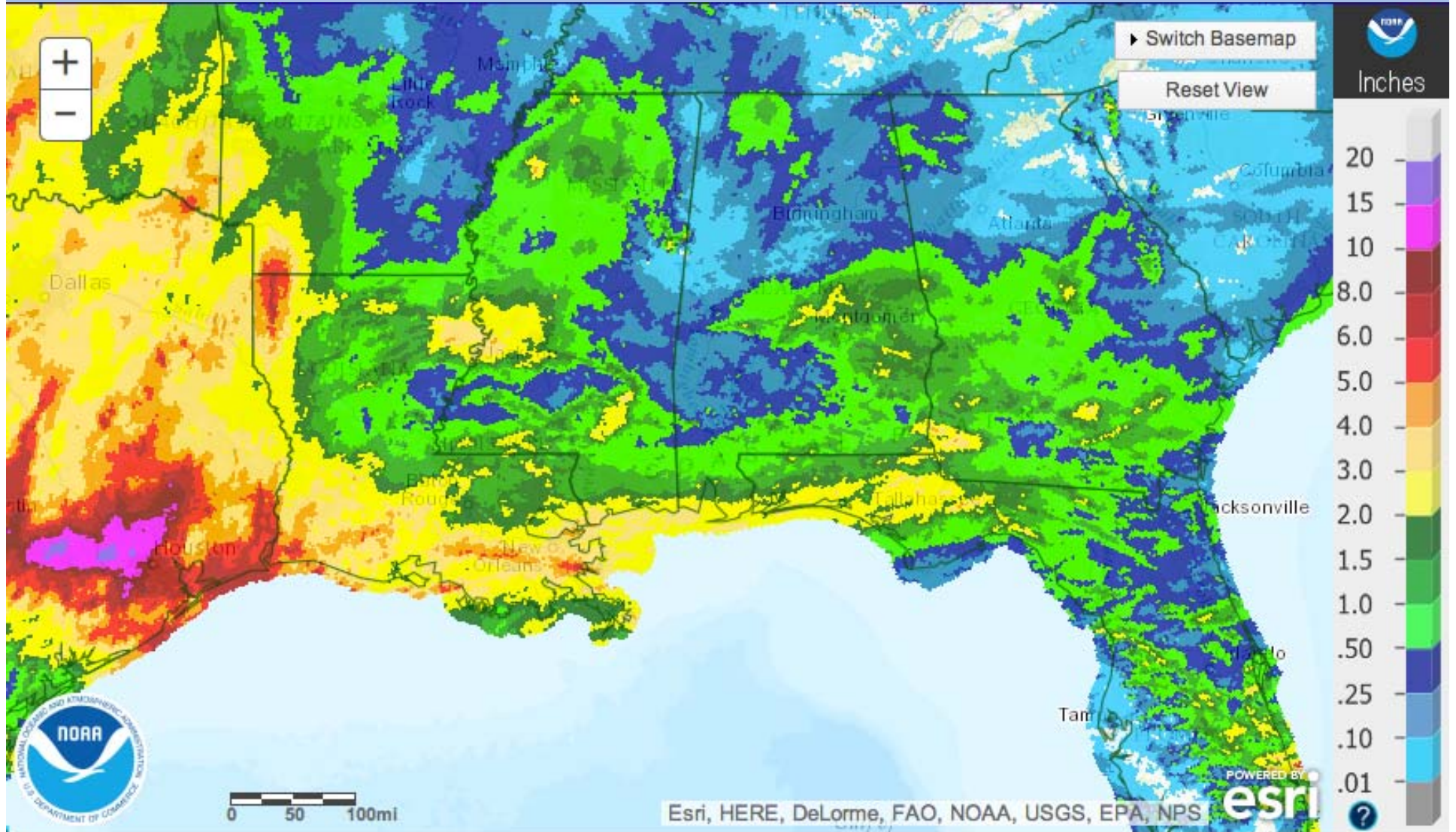
The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. See accompanying [text summary](#) for forecast statements.

Apalachicola River at Blounstown

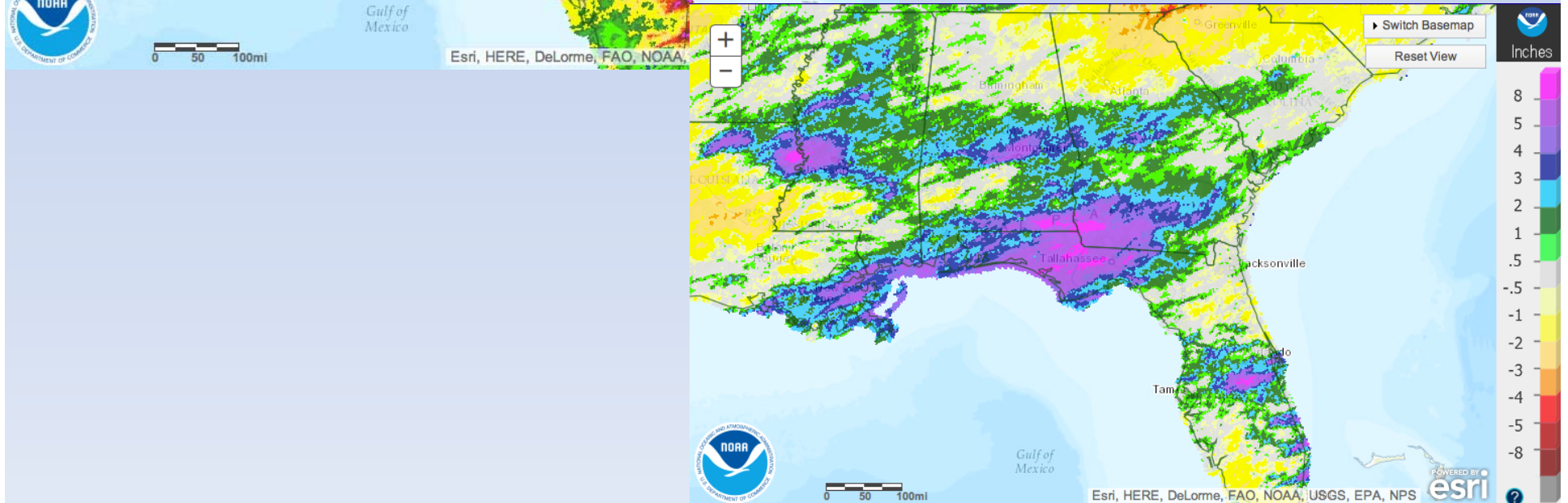
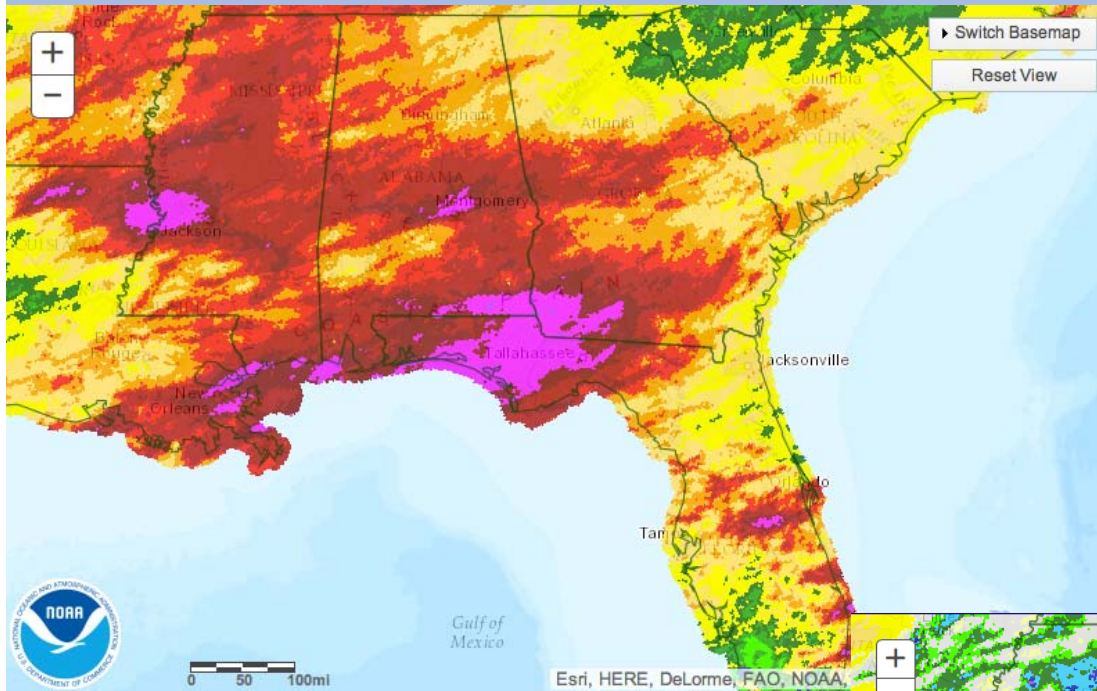
USGS 02358700 APALACHICOLA RIVER NR BLOUNTSTOWN, FLORIDA



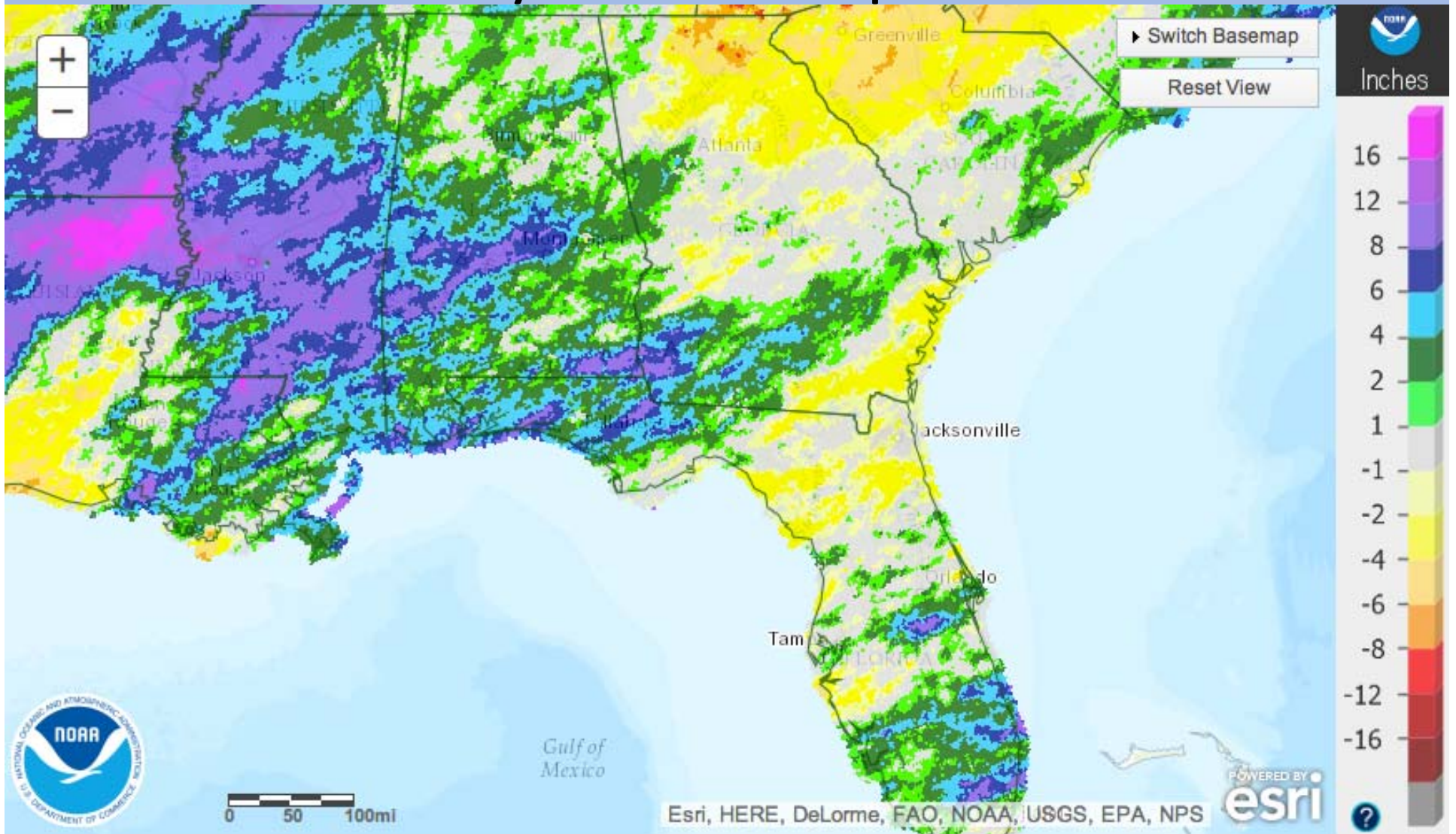
Rainfall – Last 7 Days



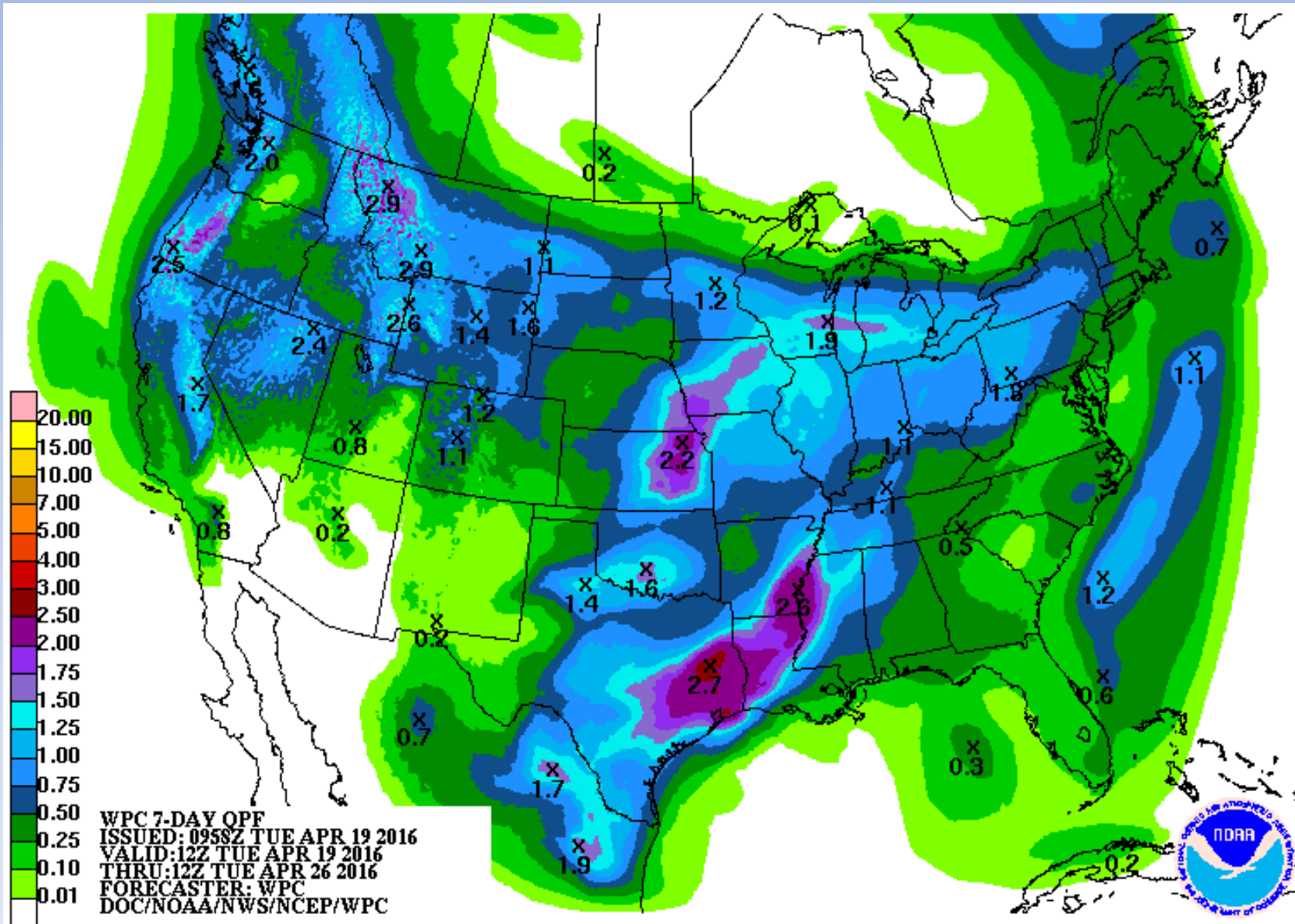
Rainfall – Last 30 Days



90-day Rainfall Departures

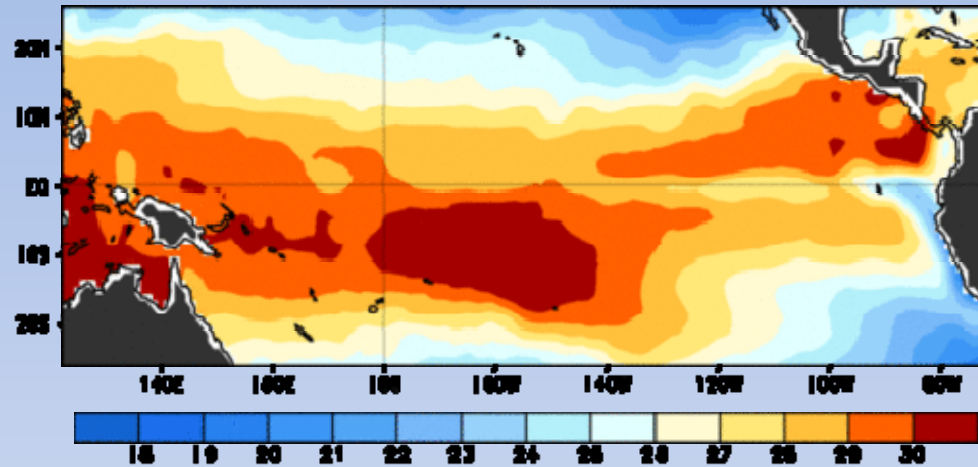


7-Day Precipitation Forecast

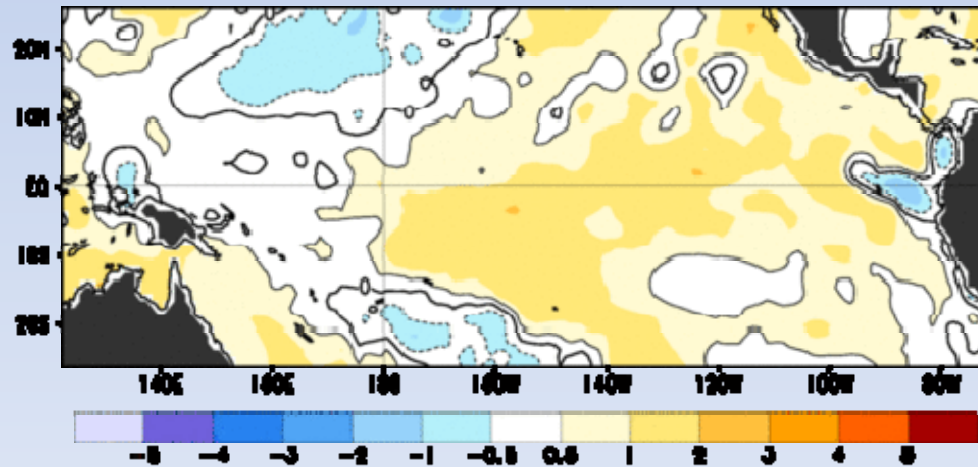


Current SST Anomalies

Observed Sea Surface Temperature (°C)

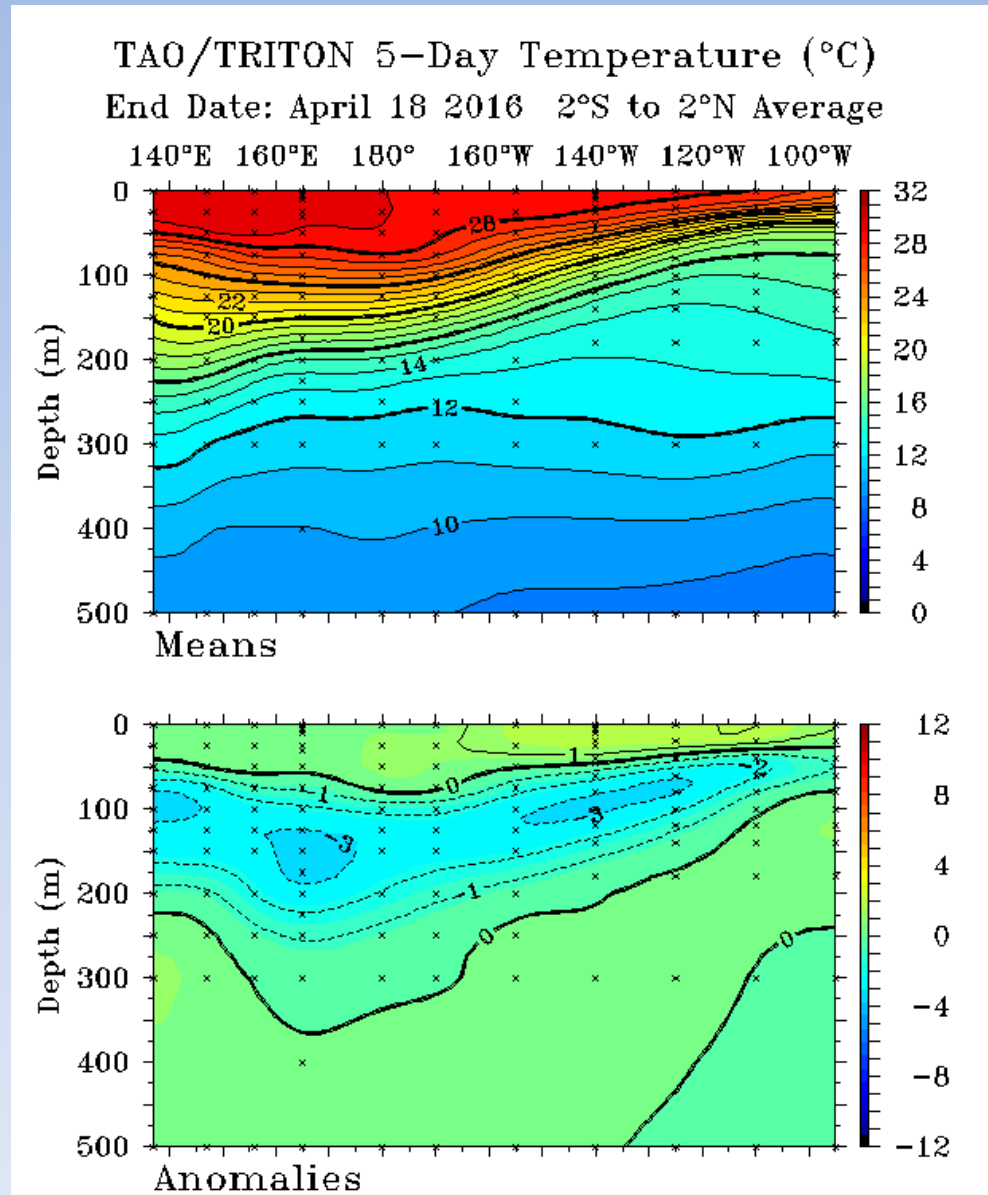


Observed Sea Surface Temperature Anomalies (°C)

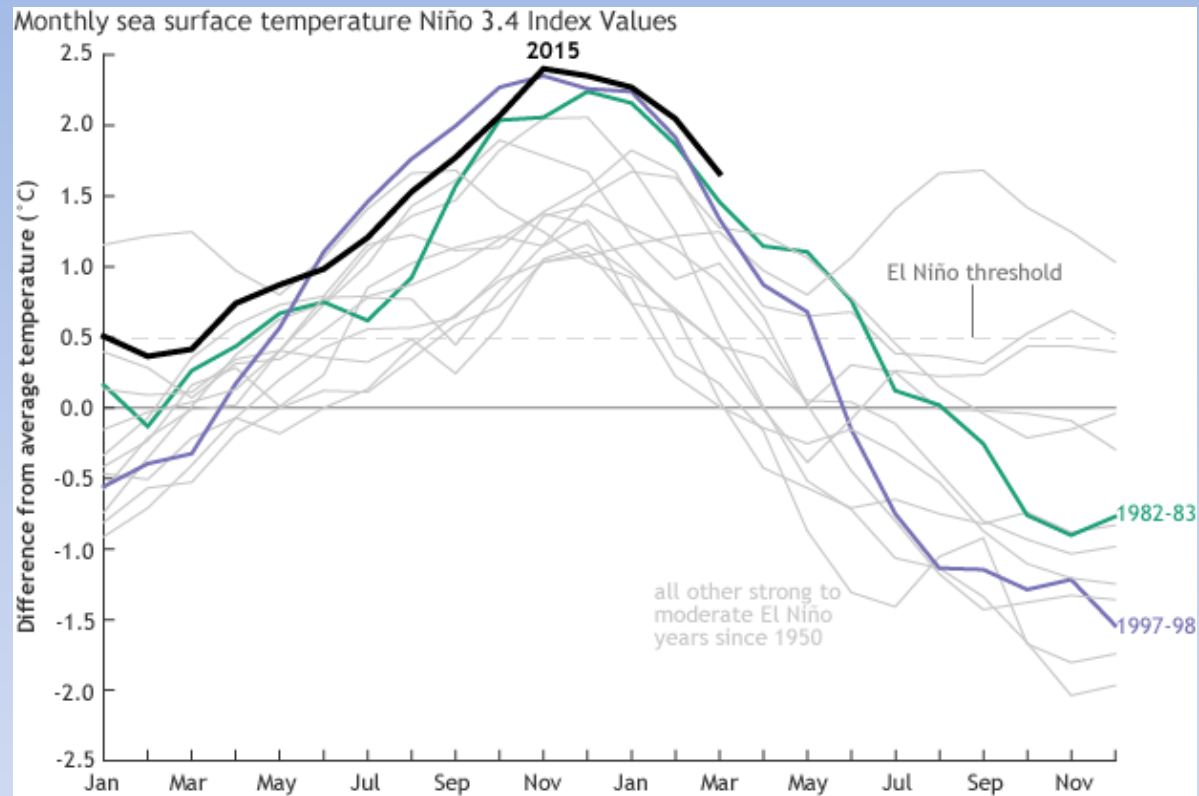


7-day Average Centered on 13 April 2016

Subsurface Temperatures

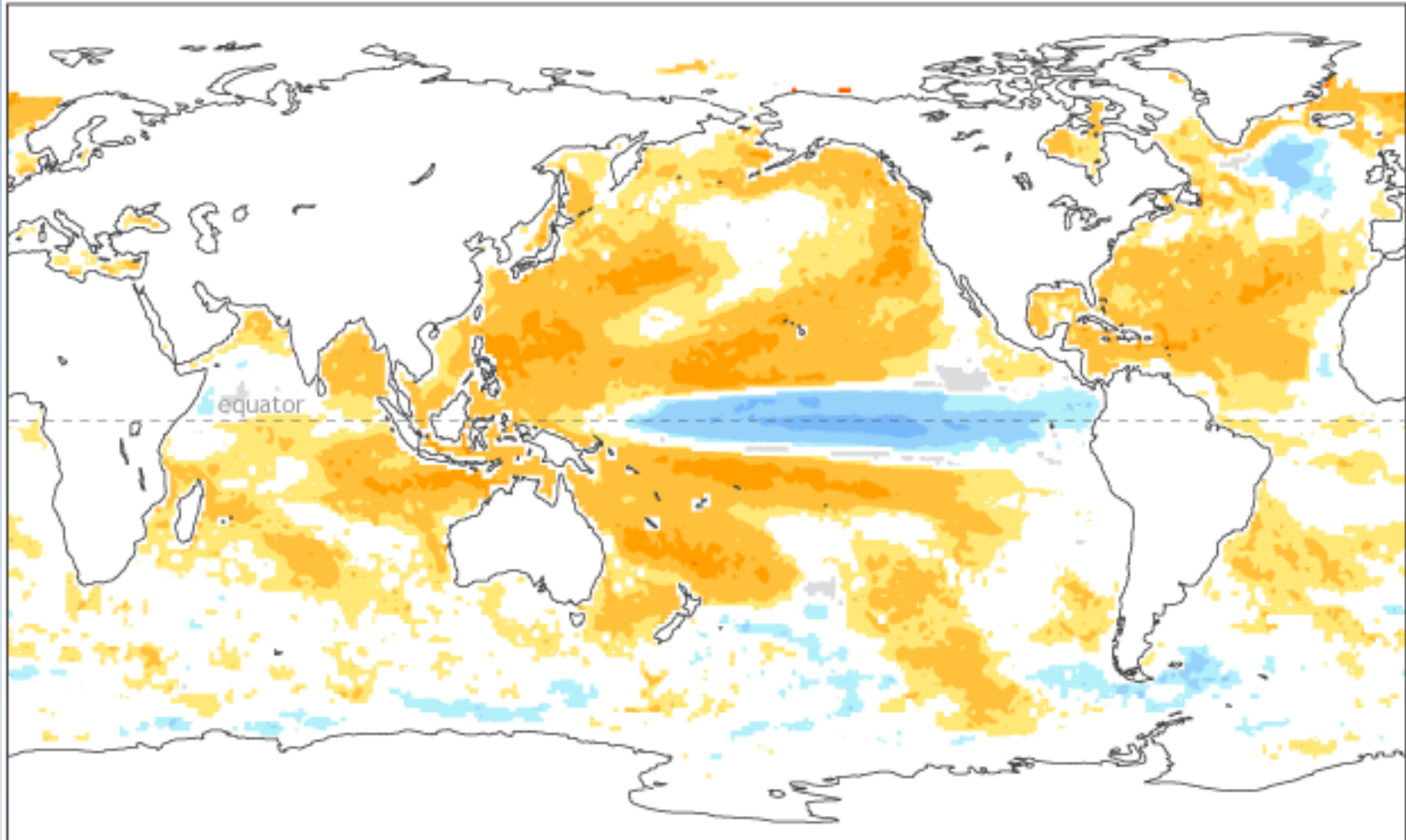


El Nino on the decline

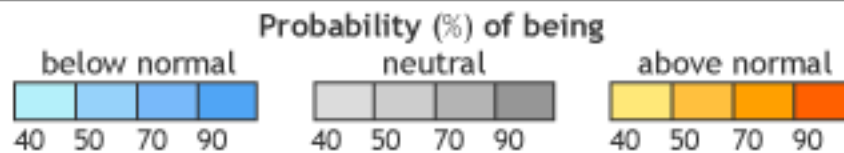


La Nina on the Way?

Sea surface temperature forecast for Sep–Nov 2016



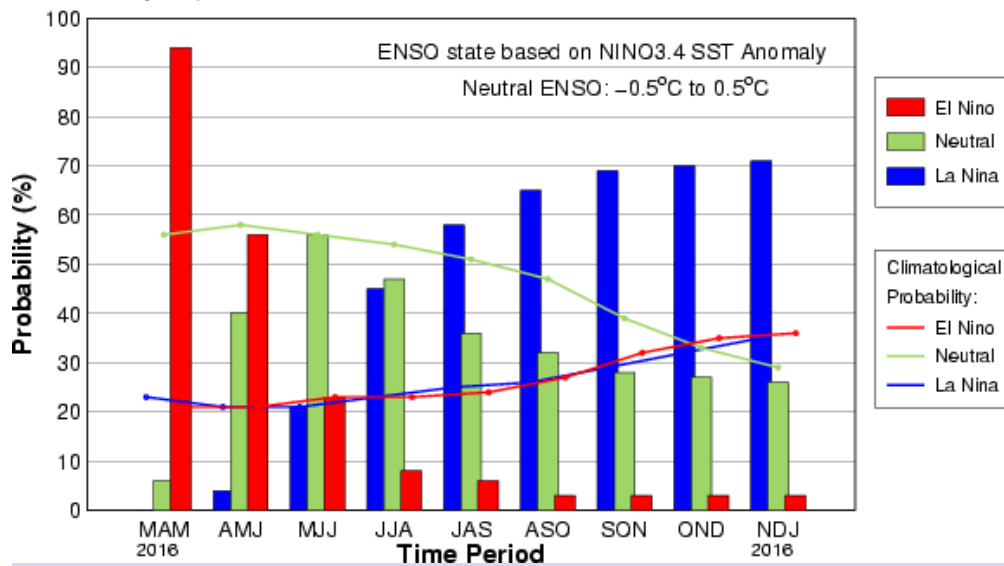
Issued April 2016



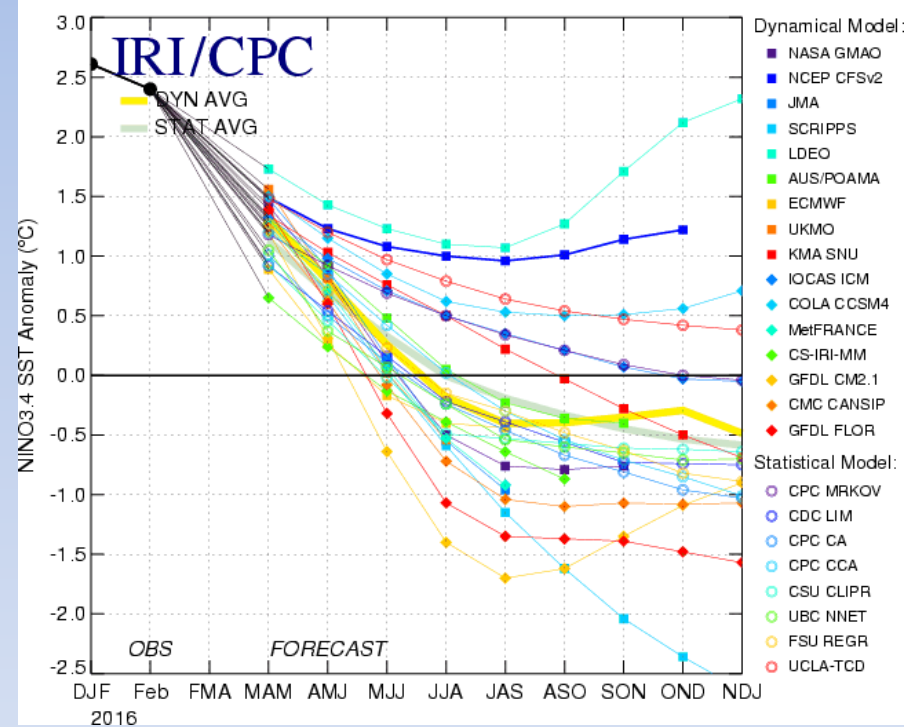
NOAA Climate.gov
Data: CPC

El Nino Forecast

Early-Apr CPC/IRI Official Probabilistic ENSO Forecast

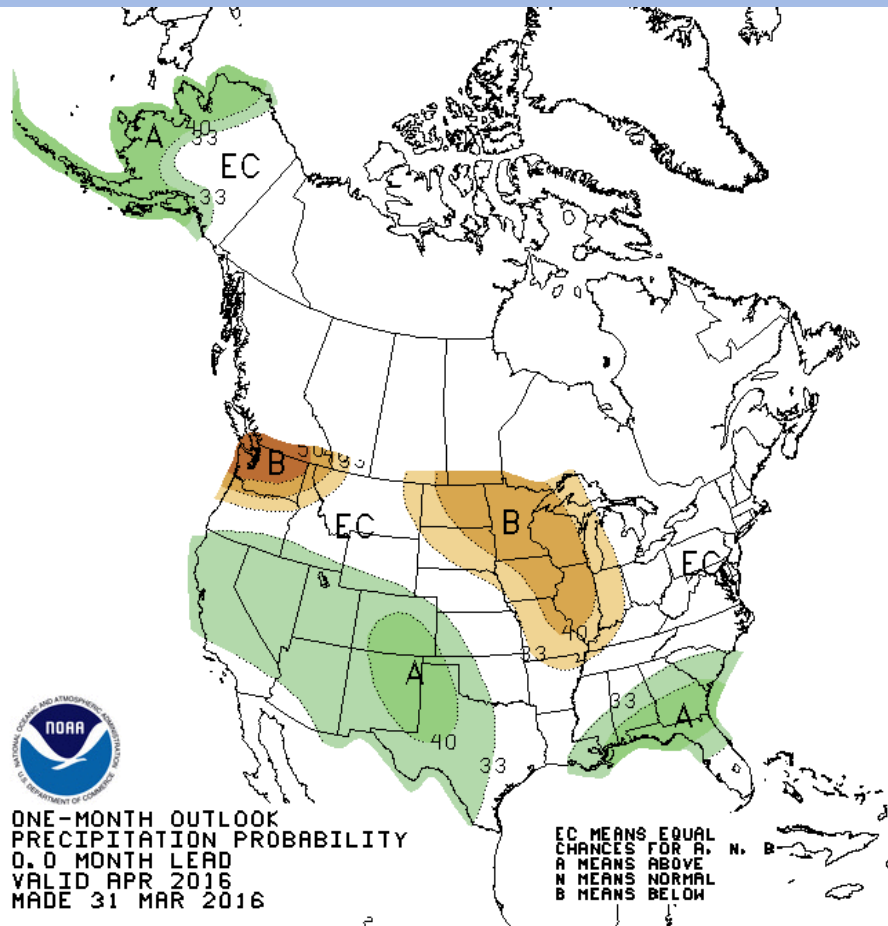


Mid-Mar 2016 Plume of Model ENSO Predictions

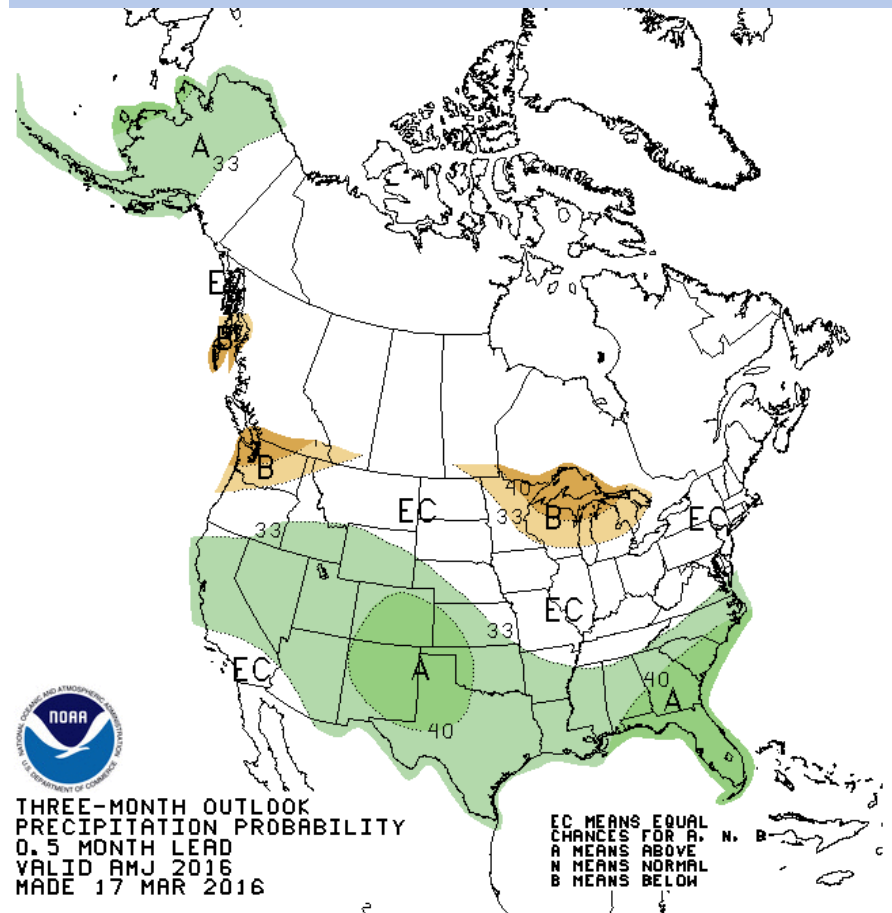


Official NOAA Outlook

One Month



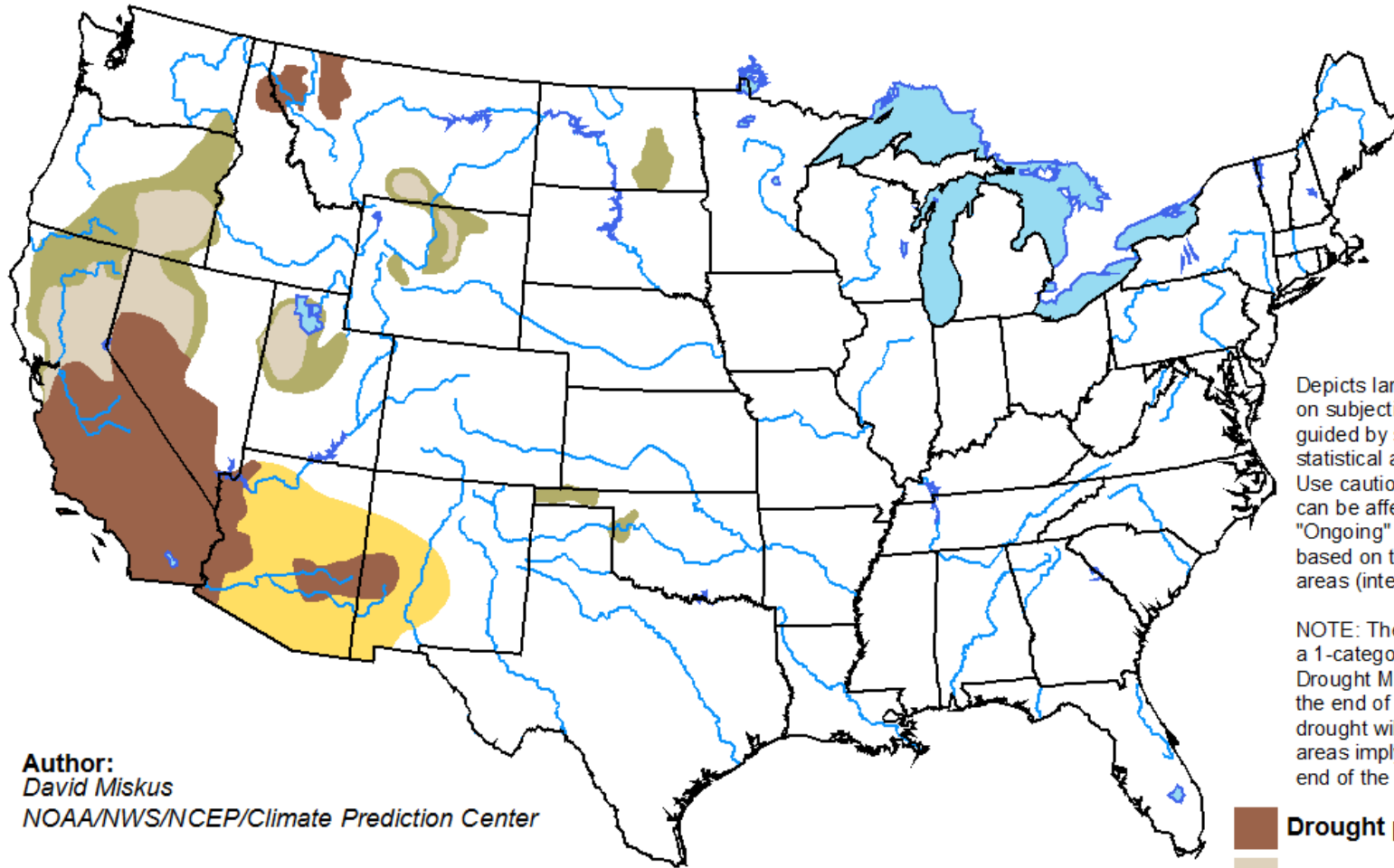
Three-month



U.S. Seasonal Drought Outlook

Drought Tendency During the Valid Period




Valid for March 17 - June 30, 2016
Released March 17, 2016

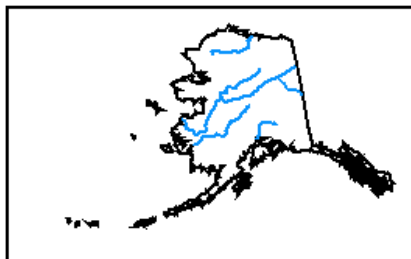


Depicts large-scale trends based on subjectively derived probabilities guided by short- and long-range statistical and dynamical forecasts. Use caution for applications that can be affected by short lived events. "Ongoing" drought areas are based on the U.S. Drought Monitor areas (intensities of D1 to D4).

NOTE: The tan areas imply at least a 1-category improvement in the Drought Monitor intensity levels by the end of the period, although drought will remain. The green areas imply drought removal by the end of the period (D0 or none).

Author:
David Miskus
NOAA/NWS/NCEP/Climate Prediction Center

-  Drought persists
-  Drought remains but improves
-  Drought removal likely
-  Drought development likely



<http://go.usa.gov/3eZ73>

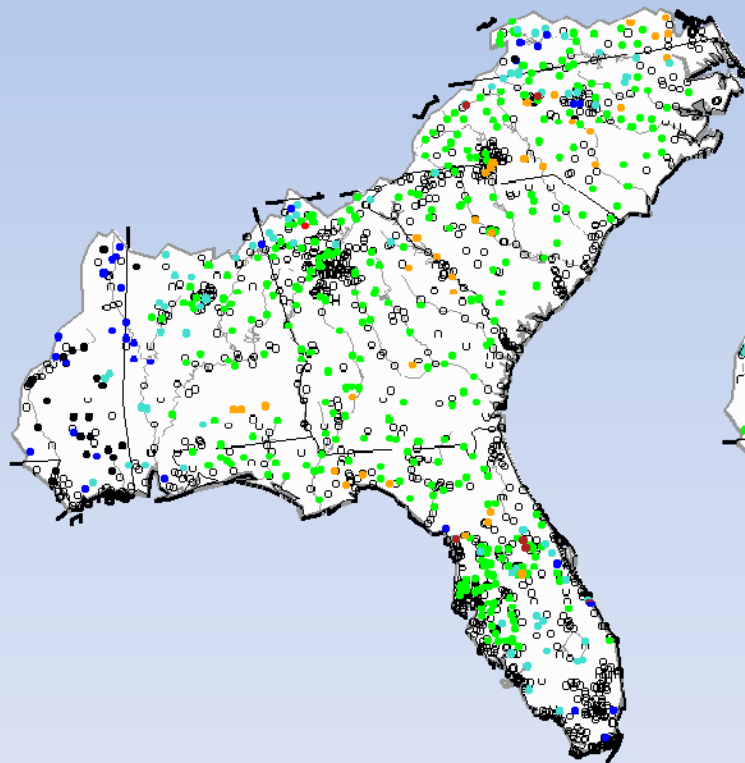
Streamflows and Groundwater

(Paul Ankorn)

Realtime stream flow compared with historical monthly averages

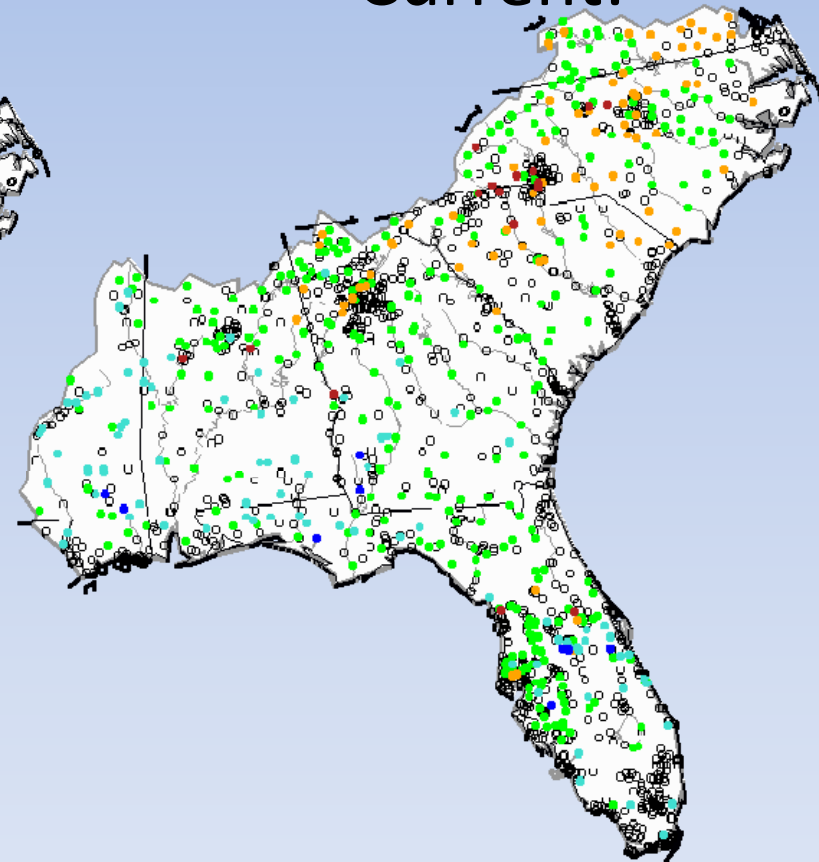
Previous Brief:

Monday, March 14, 2016 12:31ET



Monday, April 10, 2016 08:30ET

Current:



Explanation - Percentile classes



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

<http://waterwatch.usgs.gov>

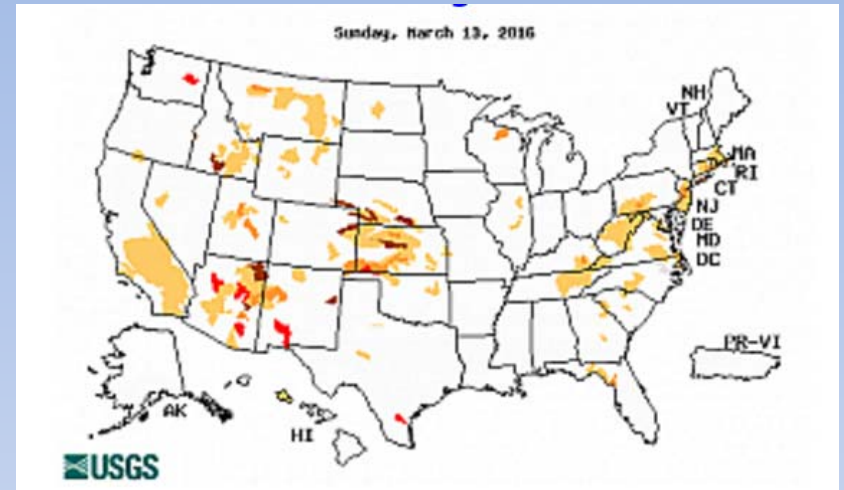
Below Normal 7-day Average Streamflows

Previous brief:

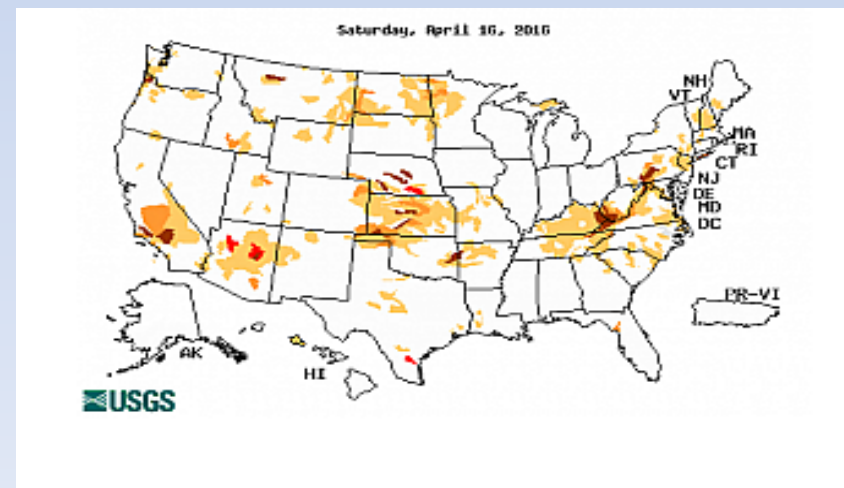
Below normal 7-day average streamflow as compared with historical streamflow for day shown

Current:

<http://waterwatch.usgs.gov>



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



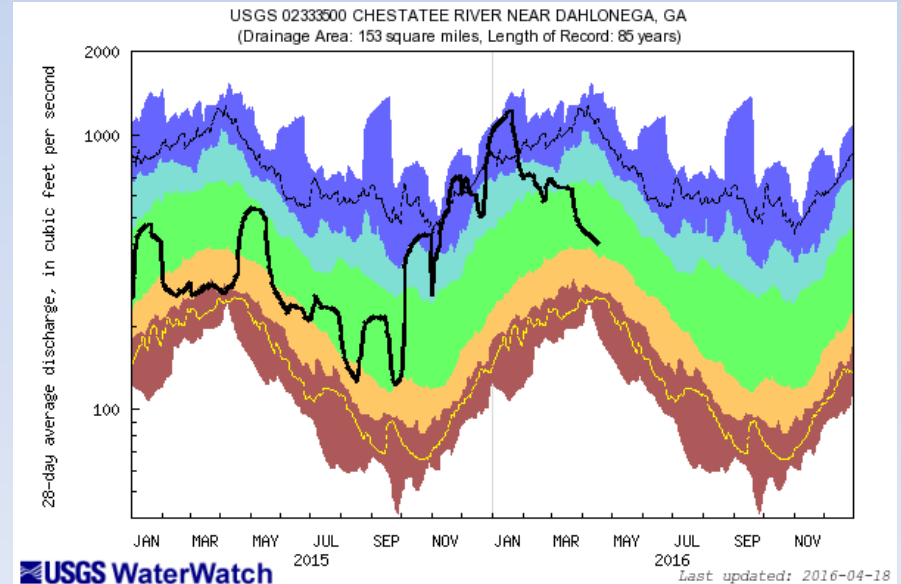
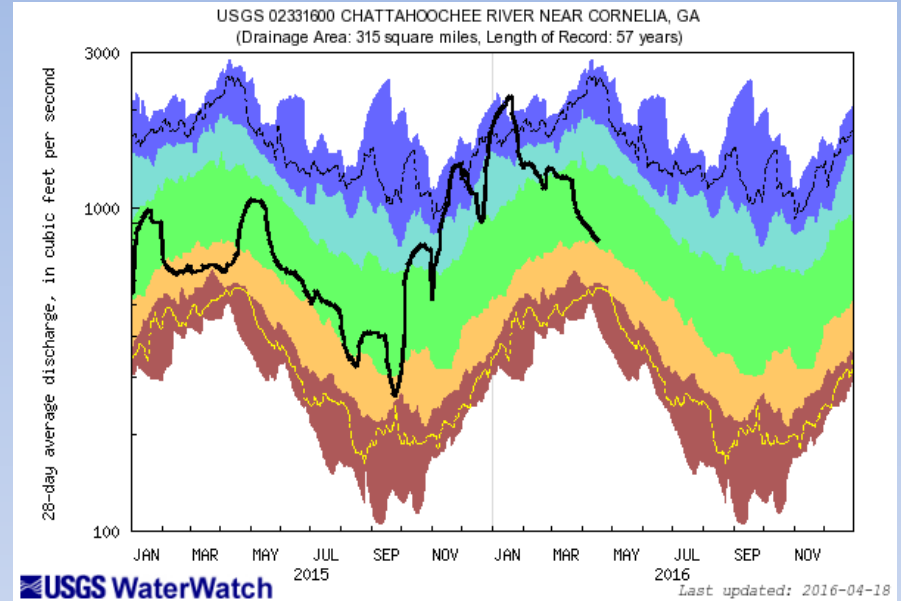
Lake Lanier Inflows

Chattahoochee near
Cornelia (02331600)

<http://waterwatch.usgs.gov>

Chestatee near
Dahlonega (02333500)

Explanation - Percentile classes						
100%	75-99	50	25-75	10-24	5	Below 5th percentile
Very above normal	Above normal	Normal	Above normal	Above normal	Much below normal	Below normal



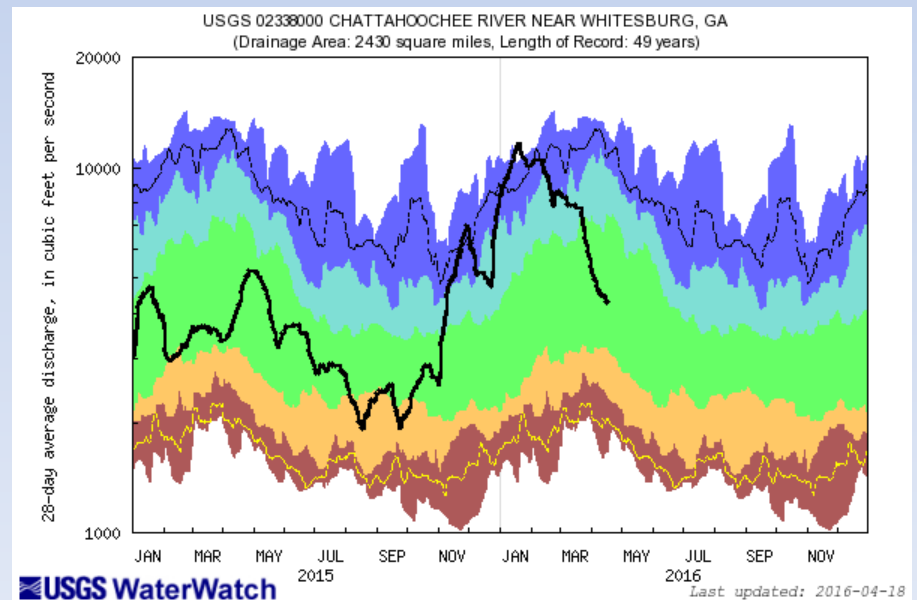
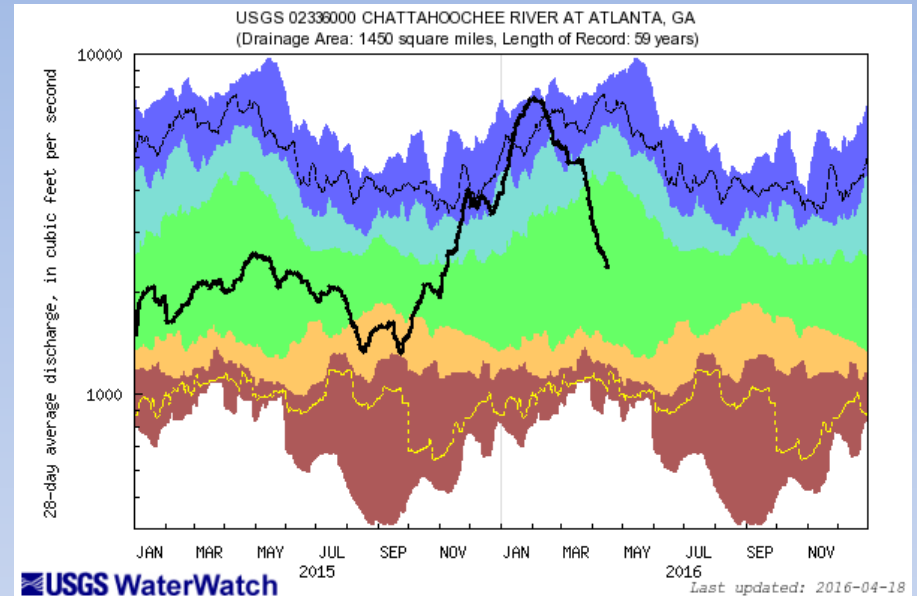
Current Streamflows

Chattahoochee at
Atlanta (02336000)

<http://waterwatch.usgs.gov>

Chattahoochee near
Whitesburg
(02338000)

Explanation - Percentile classes						
5	10-24	25-75	75-99	99	99th percentile	Peak
Much below normal	Below normal	Normal	Above normal	Much above normal		



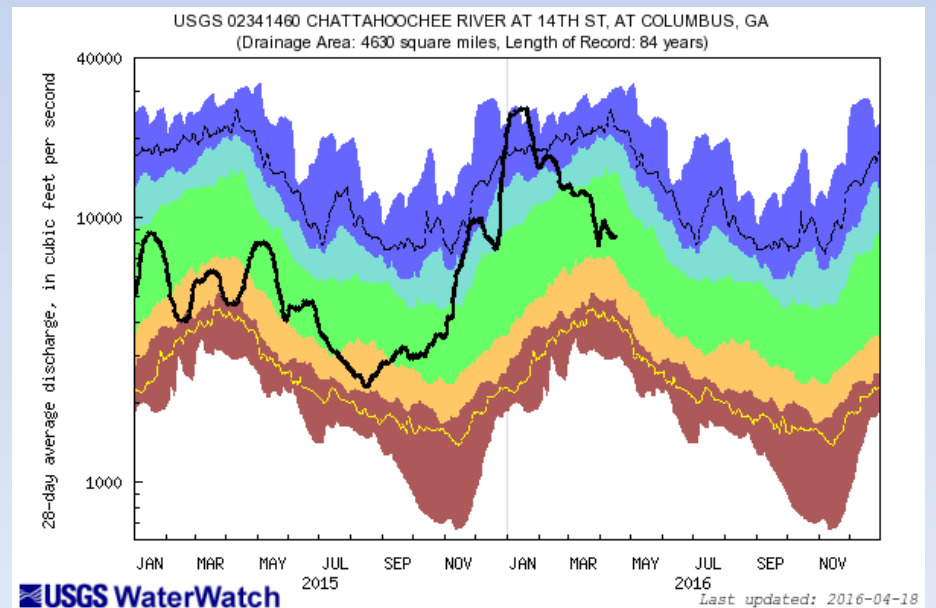
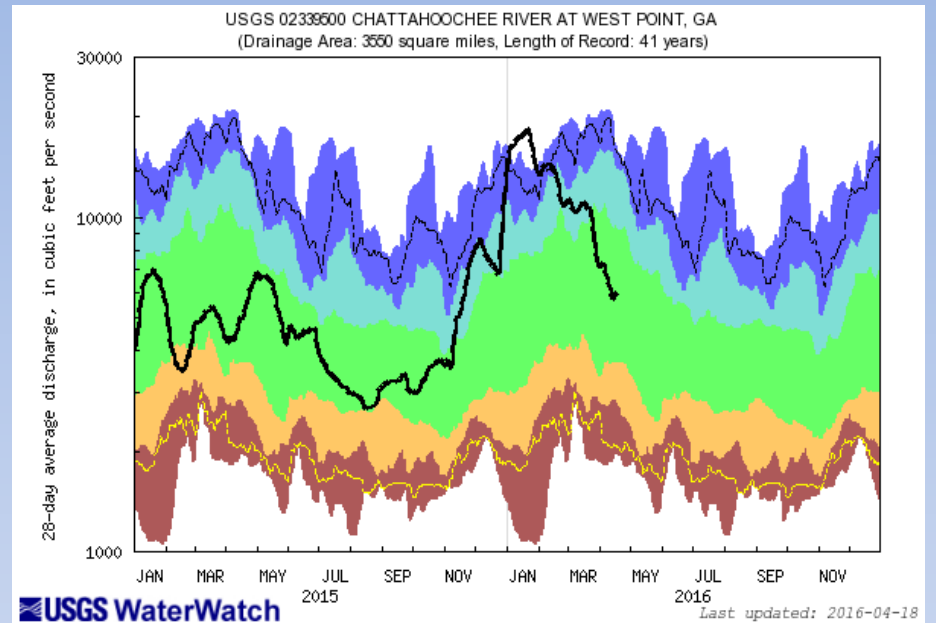
Current Streamflows

Chattahoochee at West Point (02339500)

<http://waterwatch.usgs.gov>

Chattahoochee at Columbus(02341460)

Explanation - Percentile classes						
Less than 5th percentile	5-10.24	10.24-25.75	25.75-50	50-75.99	75.99-95th percentile	More than 95th percentile
Much below normal	Below normal	Normal	Above normal	Much above normal		



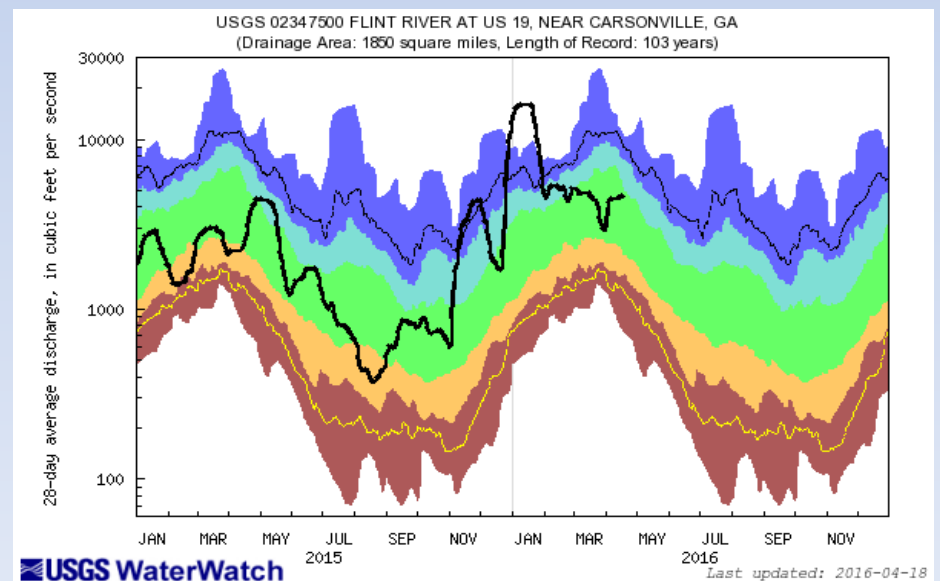
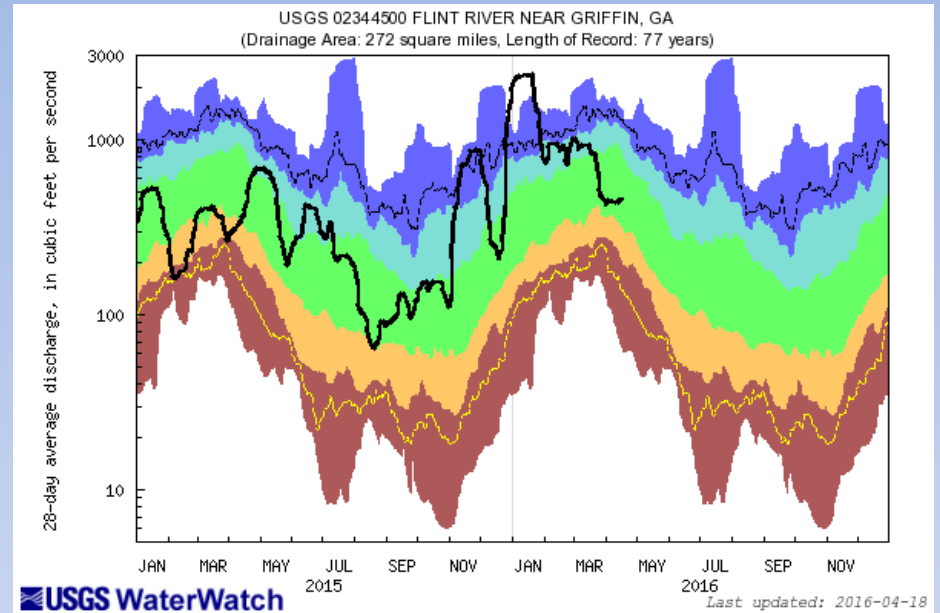
Current Streamflows

Flint River near Griffin
(02344500)

<http://waterwatch.usgs.gov>

Flint River near
Carsonville
(02347500)

Explanation - Percentile classes						
100%	75-99	50	25-75	10-24	5	Below 5th percentile
Much above normal	Above normal	Normal	Above normal	Moderately normal		Worst



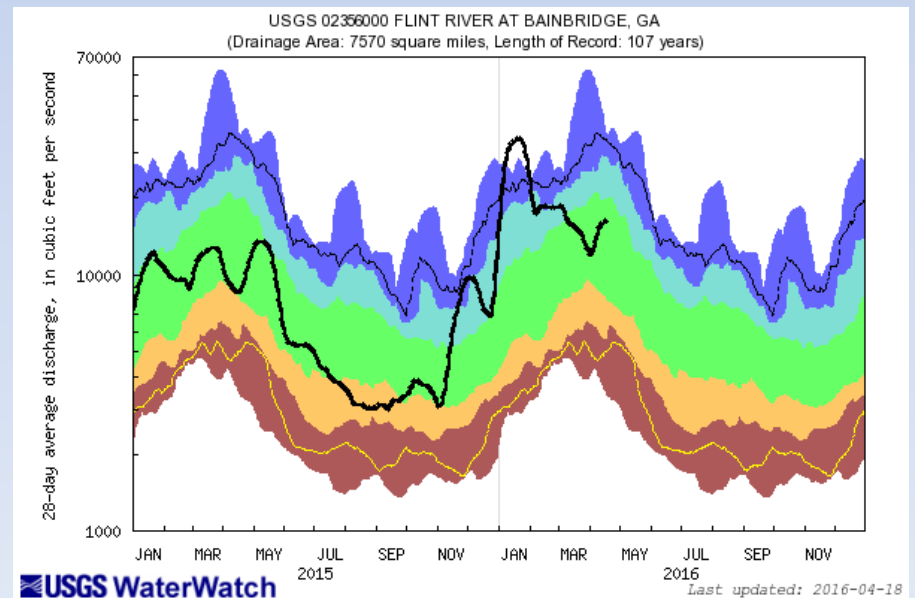
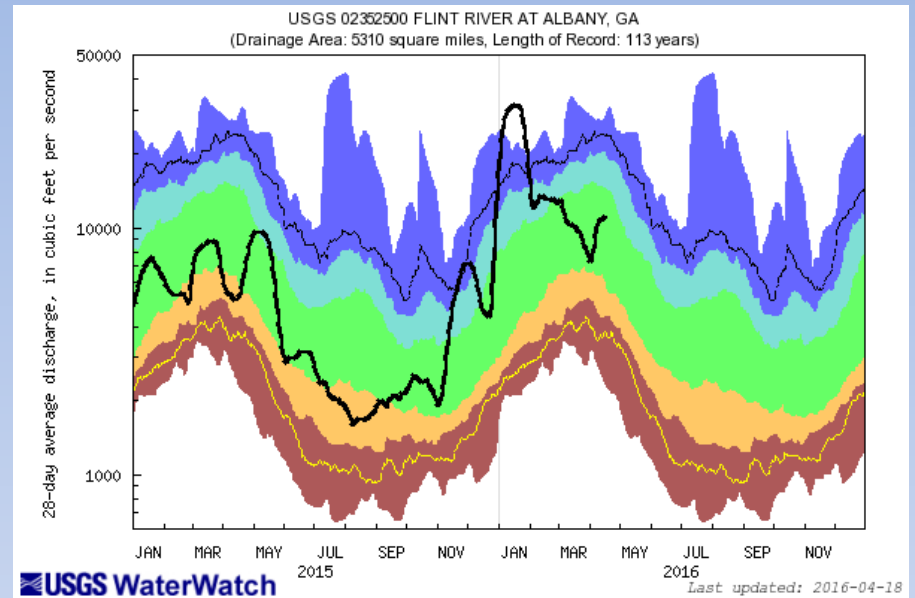
Current Streamflows

Flint River at Albany (02352500)

<http://waterwatch.usgs.gov>

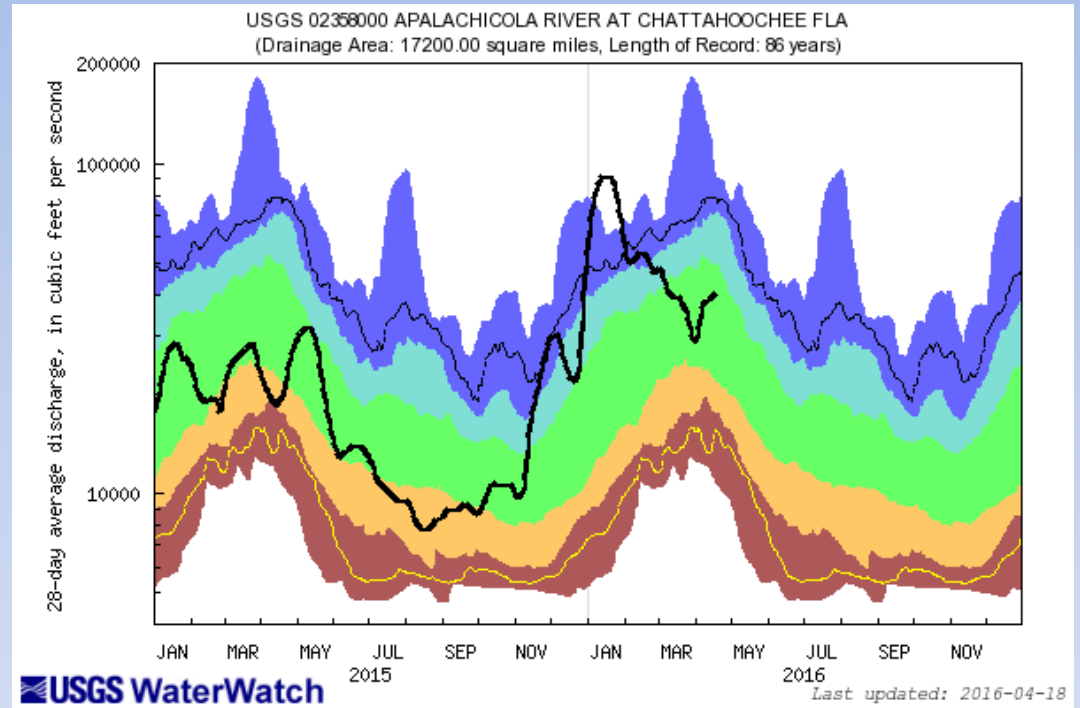
Flint at Bainbridge (02356000)

Explanation - Percentile classes						
100%	75-99	50	25-75	10-24	5	Below 5th percentile
Extremely normal	Abundant normal	Normal	Deficient normal	Abundant deficient	Much below normal	Very low



Streamflows

Apalachicola at
Chattahoochee
(02358000)

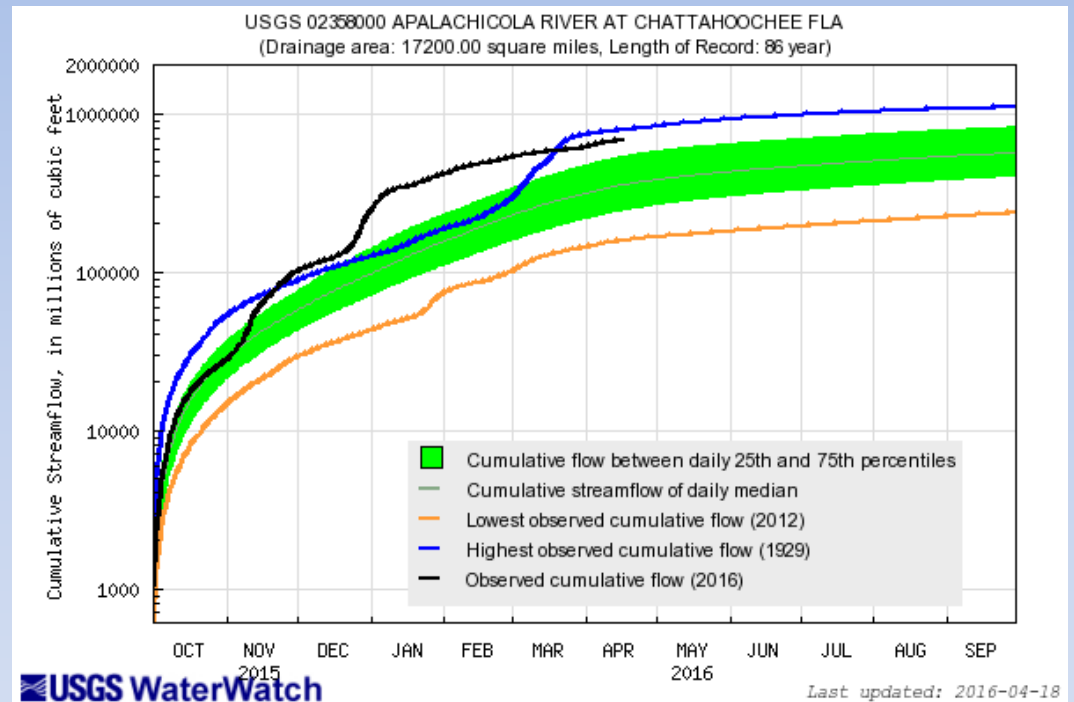


<http://waterwatch.usgs.gov>

Explanation - Percentile classes						
0-5	5-10.24	10.24-25.75	25.75-75.99	75.99-95	95-99th percentile	99th percentile
Much below normal	Below normal	Normal	Above normal	Much above normal		Peak

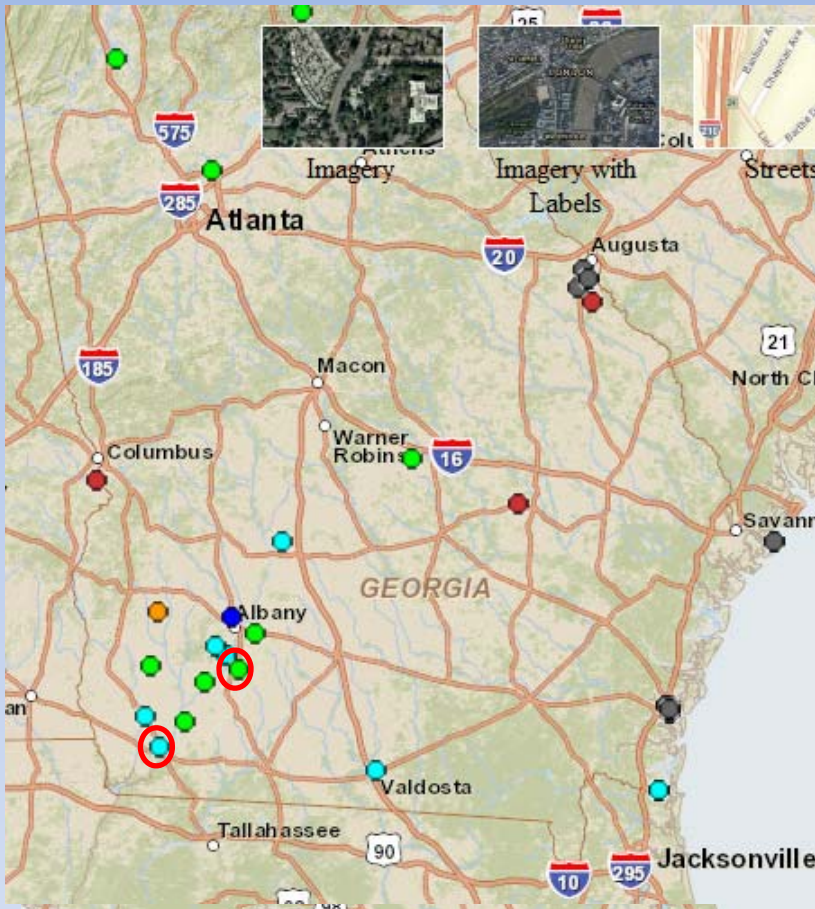
Streamflows

Apalachicola at
Chattahoochee
(02358000)



<http://waterwatch.usgs.gov>

Groundwater Conditions



Previous brief

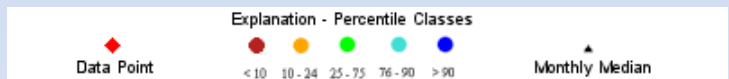
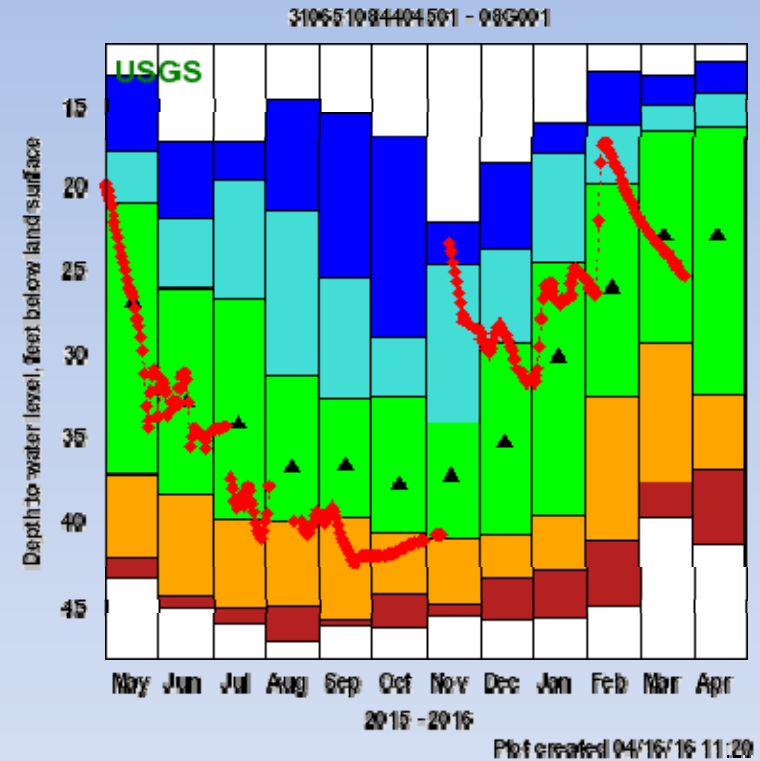
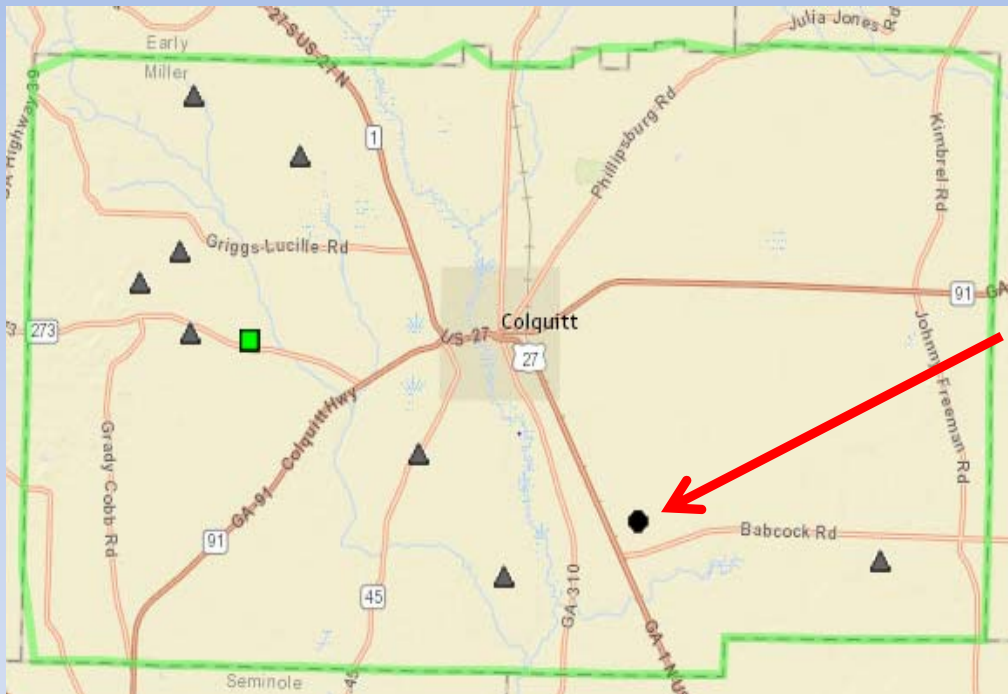


Current brief

Explanation - Percentile classes (symbol color based on most recent measurement)								Wells	Springs
●	●	●	●	●	●	●	●	○	■
Low	<10	10-24	25-75	76-90	>90	High	Not Ranked	□	■
	Much Below Normal	Below Normal	Normal	Above Normal	Much Above Normal			△	■
								Periodic Measurements	

<http://groundwaterwatch.usgs.gov>

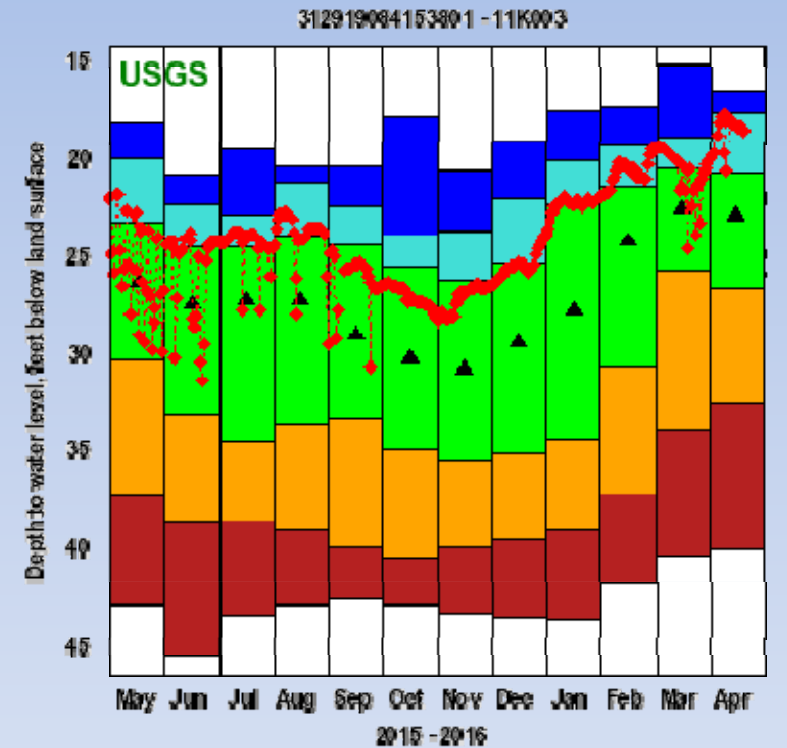
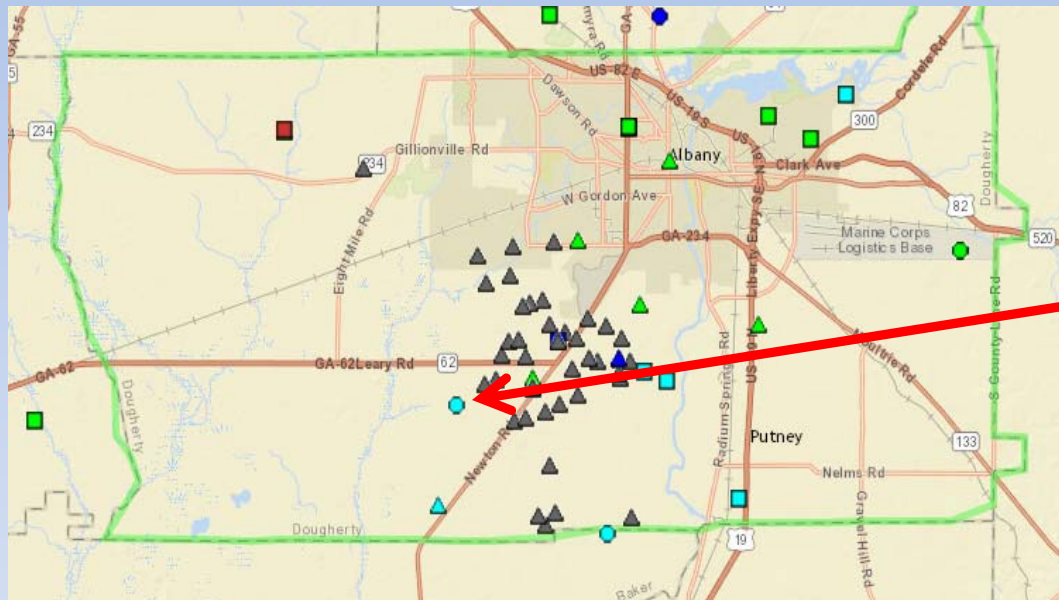
Groundwater Status – Miller County 08G001



Explanation - Percentile classes (symbol color based on most recent measurement)							Wells		Springs	
Low	● <10	● 10-24	● 25-75	● 76-90	● >90	● High	○ Real-Time	■	○	■
	● Much Below Normal	● Below Normal	● Normal	● Above Normal	● Much Above Normal		○ Continuous	■	○	■
							△ Periodic Measurements	■	○	■
										■ Not Ranked

(Upper Floridan Aquifer)

Groundwater Status – Dougherty County 11K003



Explanation - Percentile classes (symbol color based on most recent measurement)							Wells		Springs	
Low	●	●	●	●	●	●	○	■	□	■
	<10	10-24	25-75	76-90	>90	High	Not Ranked	△	▣	▣
	Much Below Normal	Below Normal	Normal	Above Normal	Much Above Normal			Periodic Measurements		

(Upper Floridan Aquifer)

Plot created 04/18/16 10:31
 Explanation - Percentile Classes
 Data Point: ● (red diamond)
 Percentile Classes: ● (<10), ● (10-24), ● (25-75), ● (76-90), ● (>90)
 Monthly Median: ▲ (black triangle)

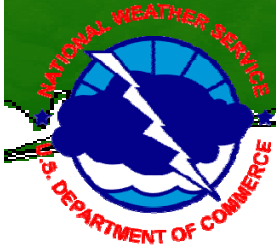
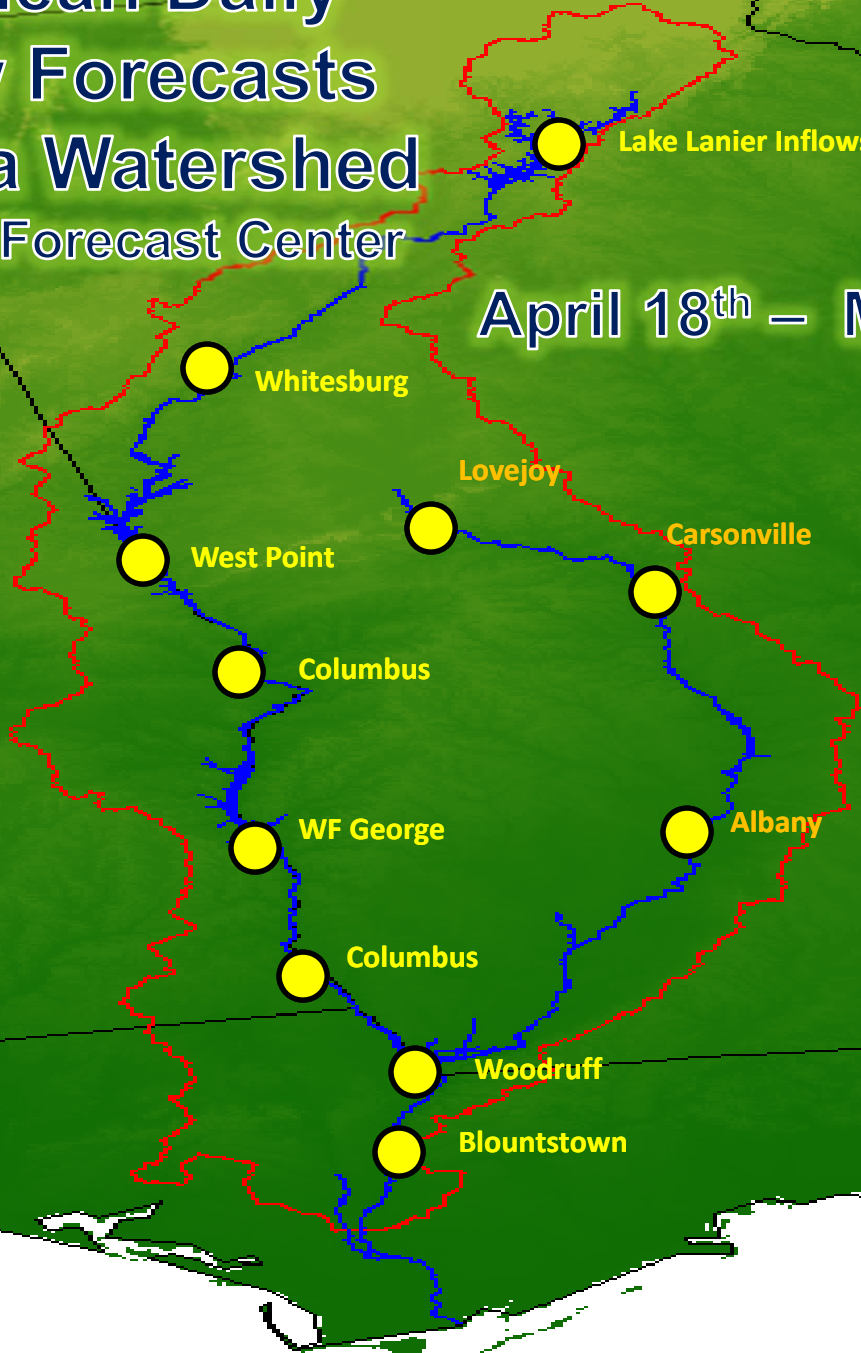
Streamflow Forecasts

Jeff Dobur

1-Month Mean Daily Streamflow Forecasts Apalachicola Watershed Southeast River Forecast Center

April 18th – May 18th 2016

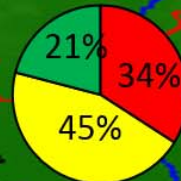
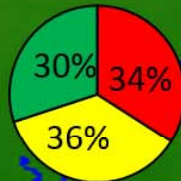
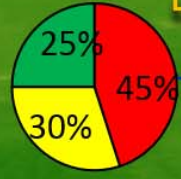
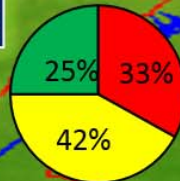
-  Above Normal
-  Near Normal
-  Below Normal



3-Month Mean Daily Streamflow Forecasts Apalachicola Watershed Southeast River Forecast Center

April 18th – July 18th 2016

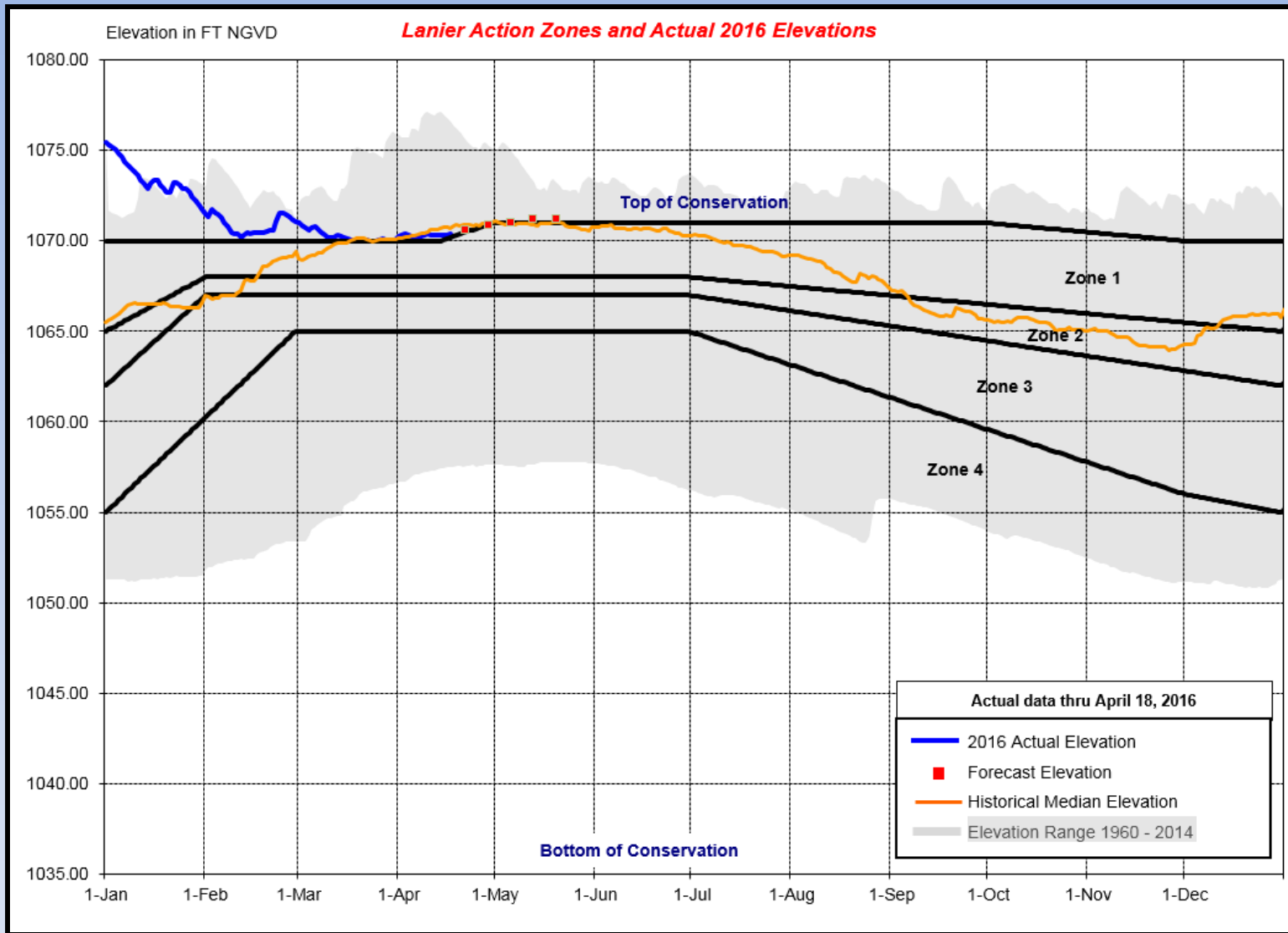
-  Above Normal
-  Near Normal
-  Below Normal



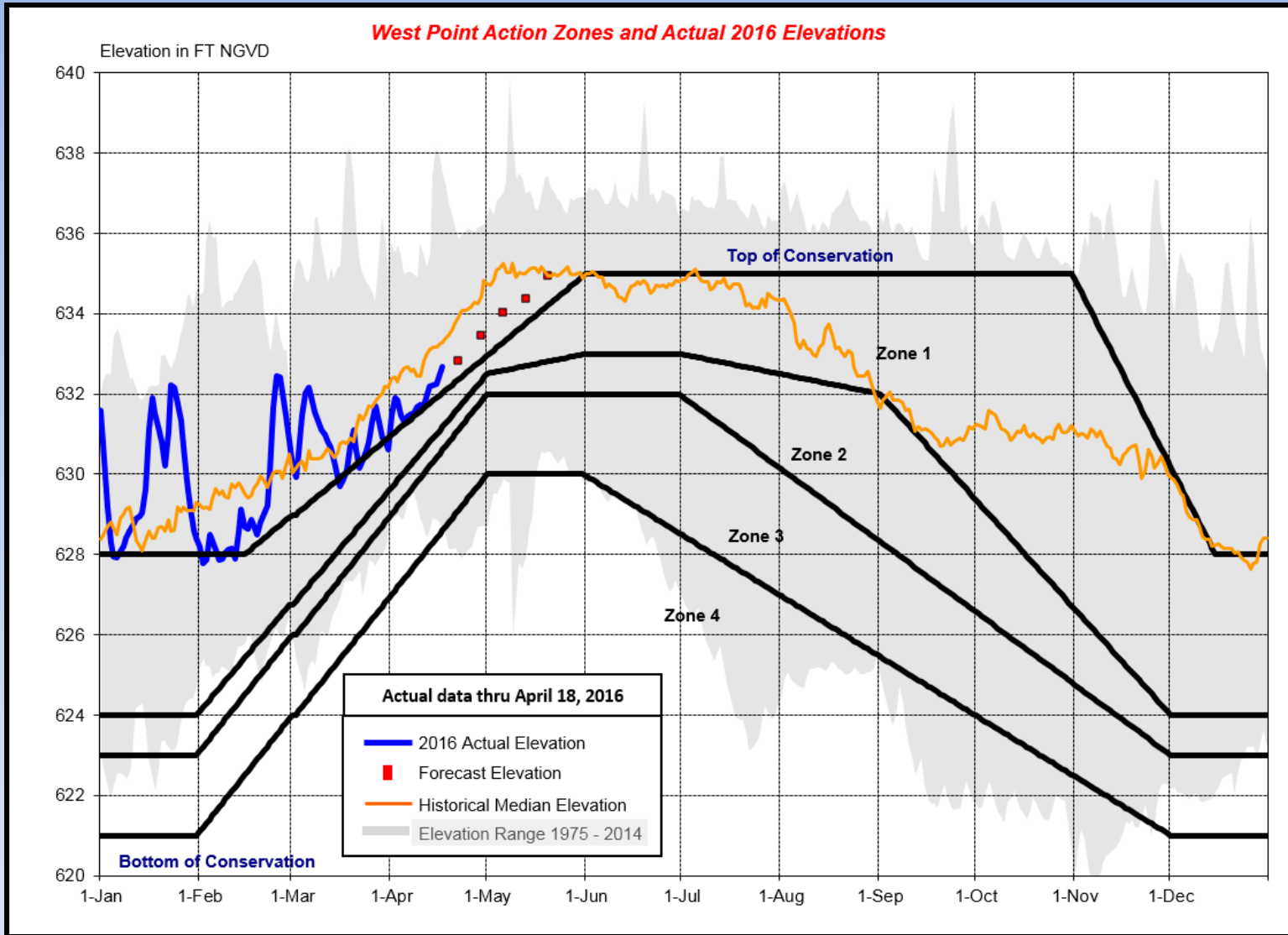
USACE – ACF Reservoir Conditions March 2016



Cynthia Donald

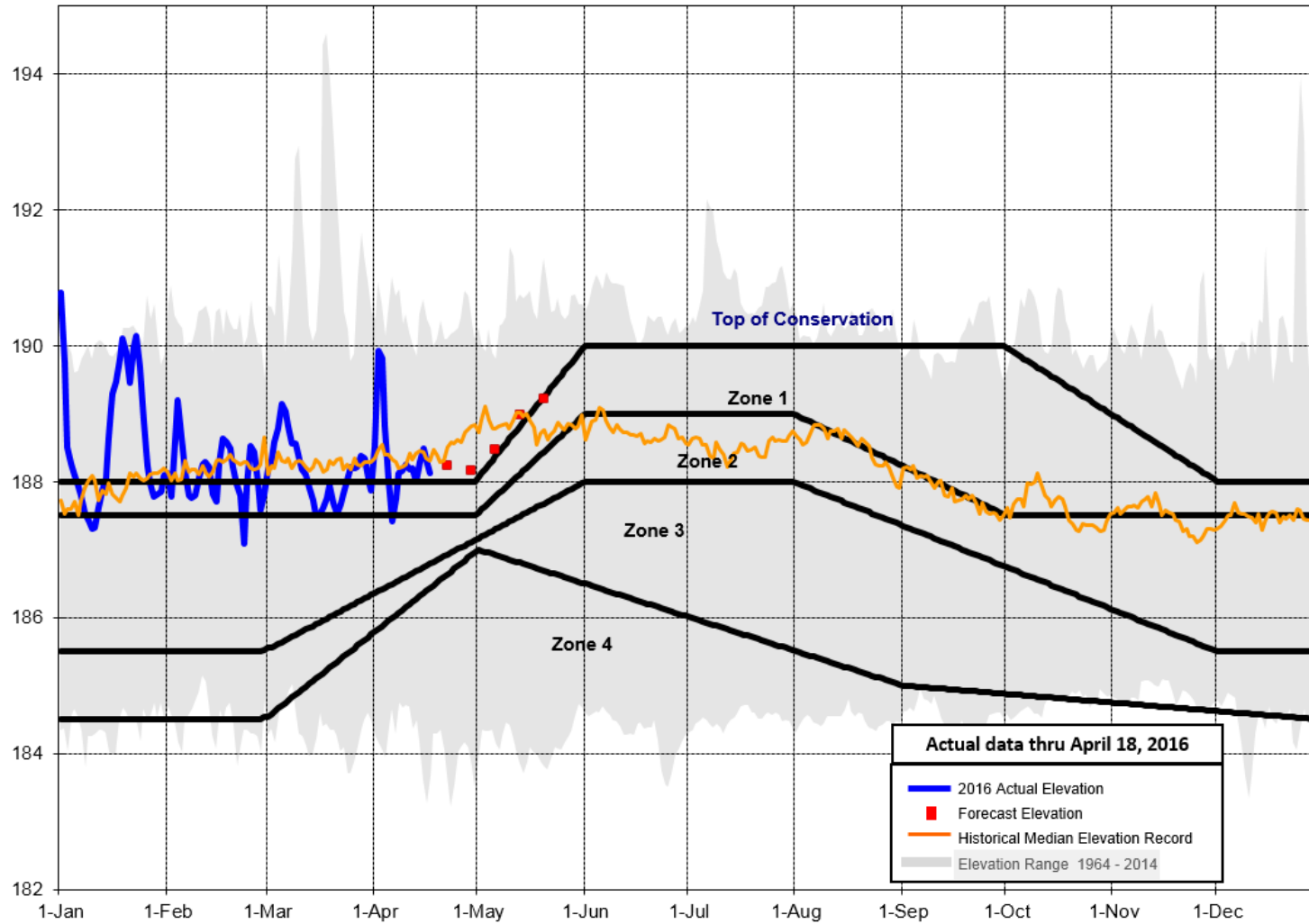


West Point Action Zones and Actual 2016 Elevations



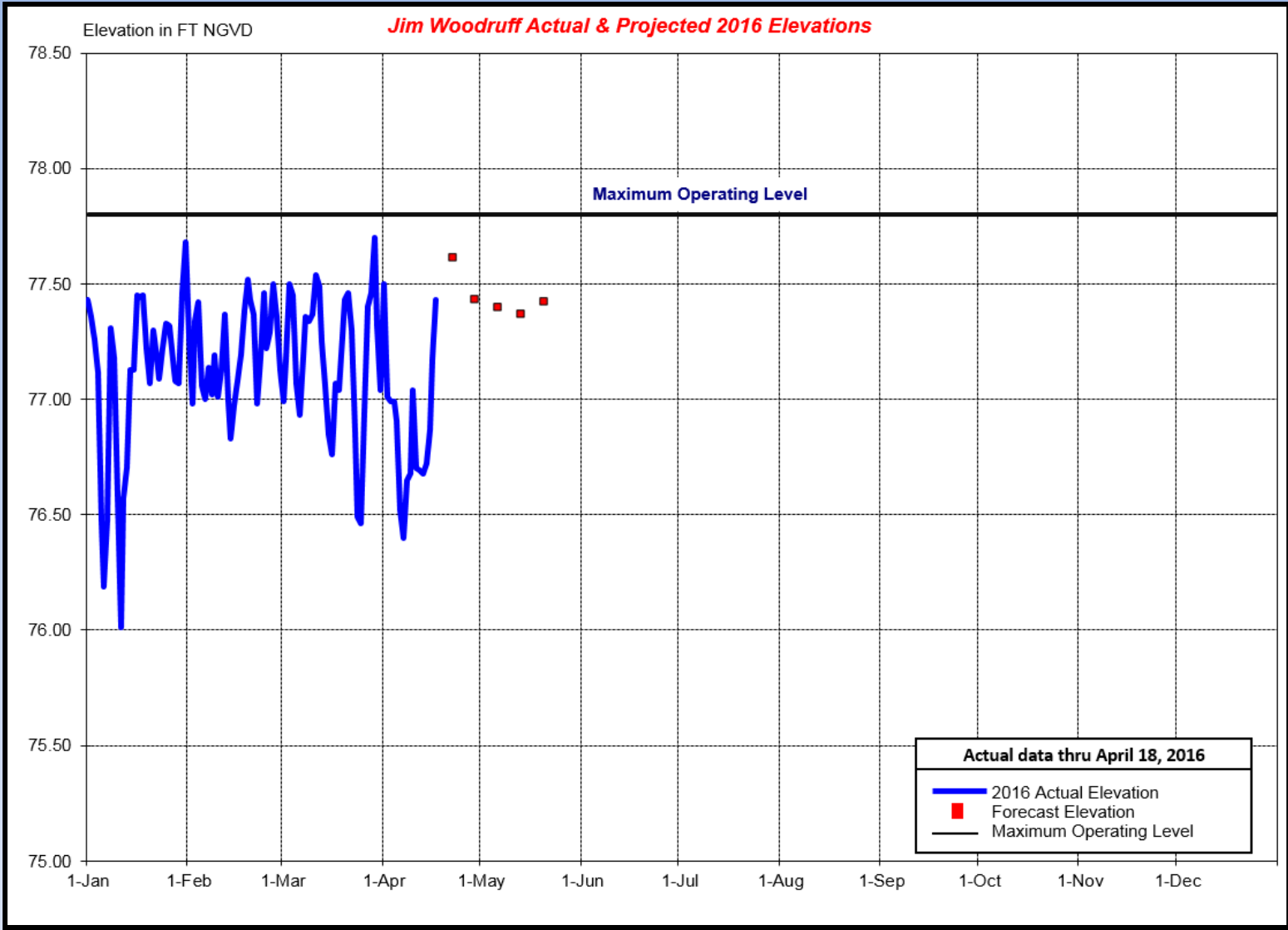
Elevation in FT NGVD

W.F. George Action Zones and Actual 2016 Elevations

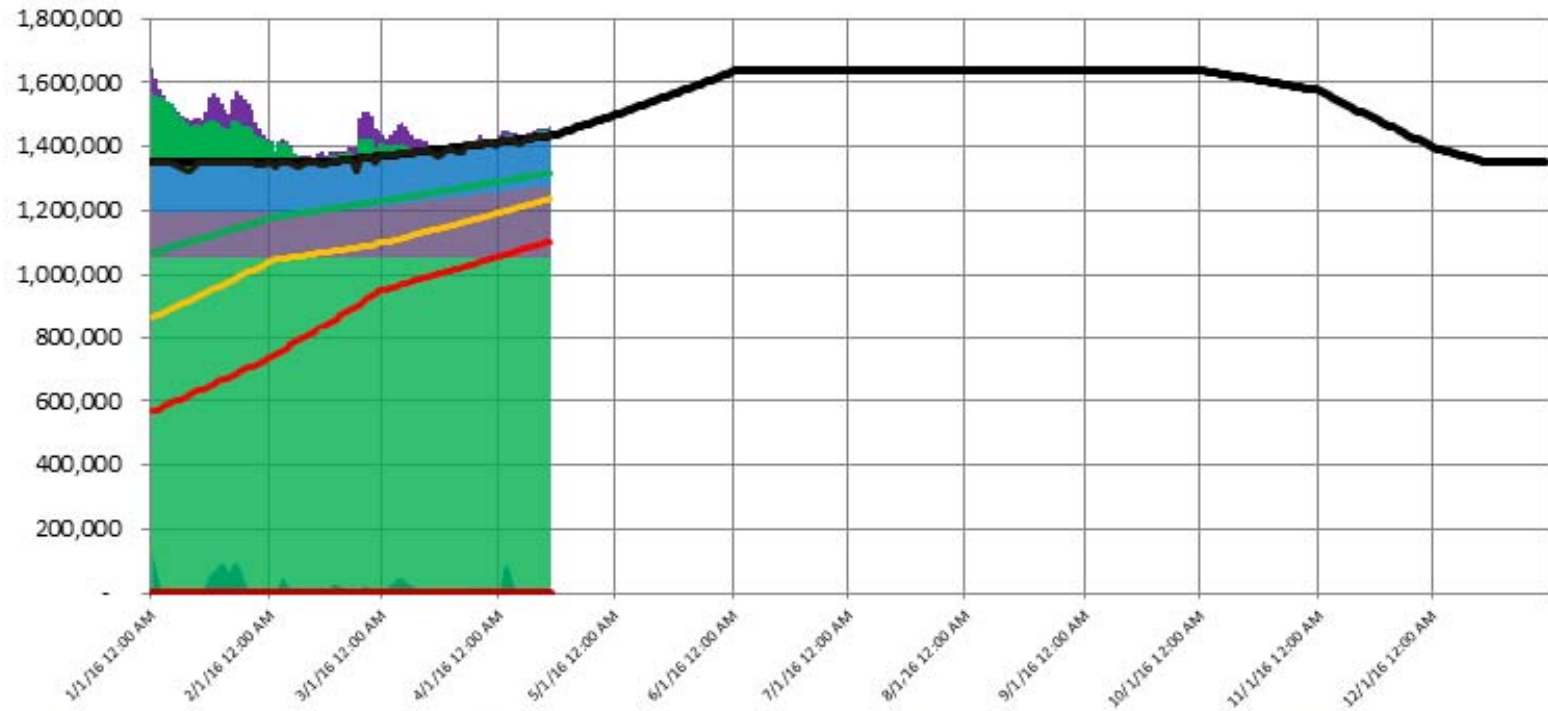


Actual data thru April 18, 2016

- 2016 Actual Elevation
- Forecast Elevation
- Historical Median Elevation Record
- Elevation Range 1964 - 2014



ACF Basin Composite Conservation and Flood Storage



- | | | | |
|-------------------------|--------------------------|-------------------------|----------------------------|
| WF George Flood Control | Lanier Conservation | West Point Conservation | WF George Conservation |
| Lanier Flood Control | West Point Flood Control | Rule Curve | Zone 1 |
| Zone 2 | Zone 3 | Zone 4 | Total Conservation Storage |

Summary – Cynthia Donald

- All ACF federal reservoirs are at or near full pool.
- The ACF system is expected to remain at top of conservation through the spring.
- Lanier began its seasonal refill with the target of 1071 on May 1.
- West Point is continuing its seasonal refill, targeting 635 on June 1st.
- Fish Spawn has begun for all projects in the ACF system.

Summary – David Zierden

- Spike expected in global temperatures, but the magnitude is alarming.
- Apalachicola River discharges far above normal the last 4 months.
- Big Bend, Northeast Florida, and Southeast Georgia are the “hole” in El Nino rain, heavy amounts in the lower ACF the last 30 days.
- El Nino fading quickly and impacts weakening.
- NOAA predicting a transition to La Nina by fall (70%)

Summary - Paul Ankcorn

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

Summary – Jeff Dobur

- 1 Month Streamflow forecast - Near Normal
- 3 Month Streamflow forecast – ESP indicates equal chances. Favor near Normal.
- Pie Charts do not directly include any adjustments to the ESP forecast based on ENSO, CPC or other. Based on soil conditions relative to normal in concert with historical precipitation.

Questions, Comments, Discussion

References

Speakers

David Zierden, FSU

Paul Ankorn, USGS

Jeff Dobur, SERFC

Cynthia Donald, US ACE

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

May 17, 2016, 1:00 pm EDT

Moderator: Eric Reutebuch

Slides from this briefing will be posted at

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