

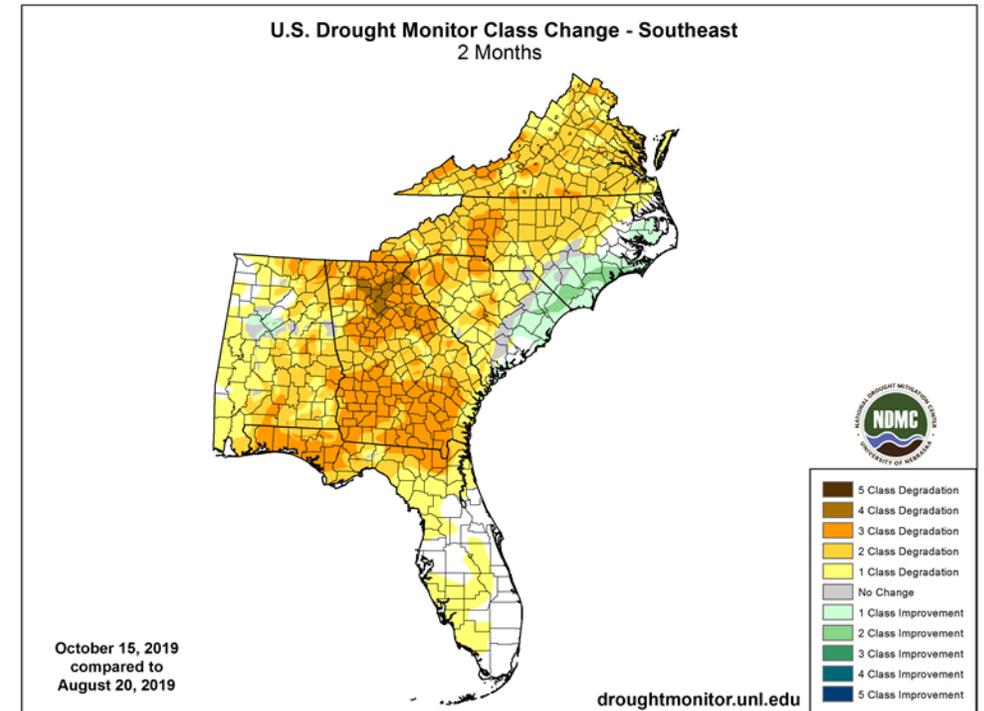
Understanding Flash Drought and Sectoral Impacts

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What is a Flash Drought?

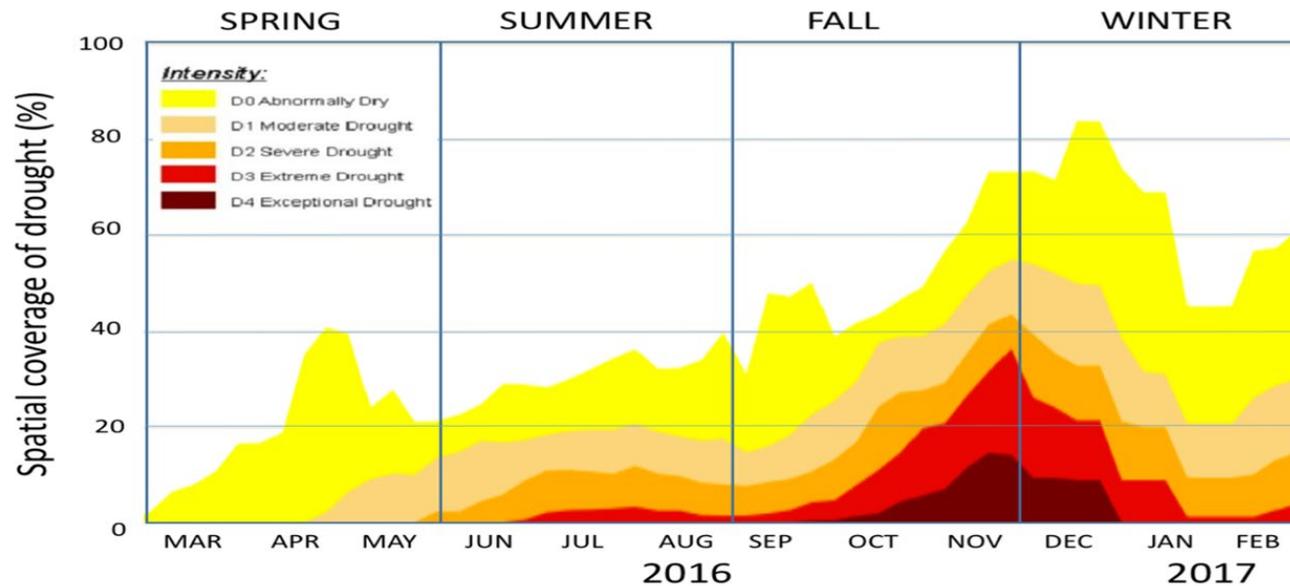
- Drought that develops rapidly
- Usually associated with abnormally high temperatures , high ET rates, and lack of rainfall
- Can morph into hydrological drought if water deficits last long enough to affect water supplies



What is a Flash Drought?

- Term first used in 2001 by Mark Svoboda of NDMC to describe a drought with rapid onset
- Flash droughts are frequently missed by the Drought Monitor because authors have to weigh short- versus long-term impacts
- Lack of reporting can make identification more difficult

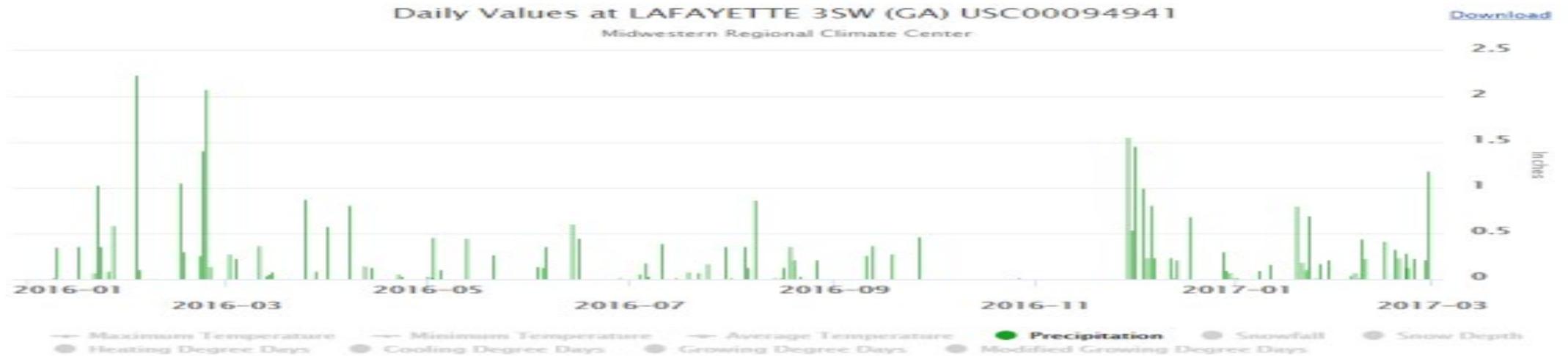
Drought of 2016



- Drought began as a flash drought in spring 2016 in NW Georgia and NE Alabama
- Flash drought morphed into hydrologic drought in fall 2016 with extremely hot temperatures

Precipitation during 2016-2017 in NE GA

Many stations went almost two months with no rain at all



First Impacts: Agriculture

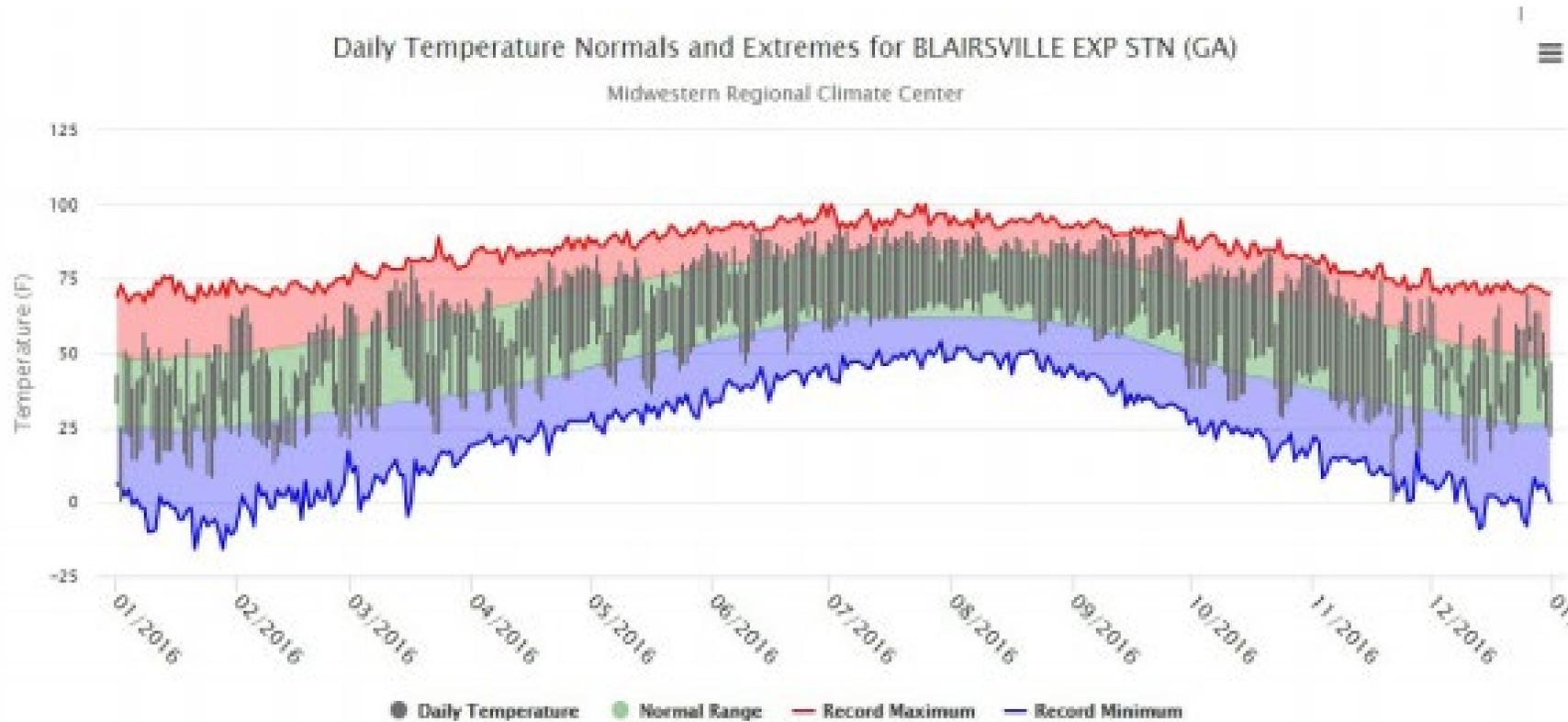


- May 2016 was extremely dry in NE Alabama and NW Georgia during corn pollination season, resulting in lack of kernels
- Pastures stopped growing just when winter hay was almost gone, requiring import of hay from as far away as Missouri
- Most dryland corn was chopped up for animal feed

What caused the 2016 drought?

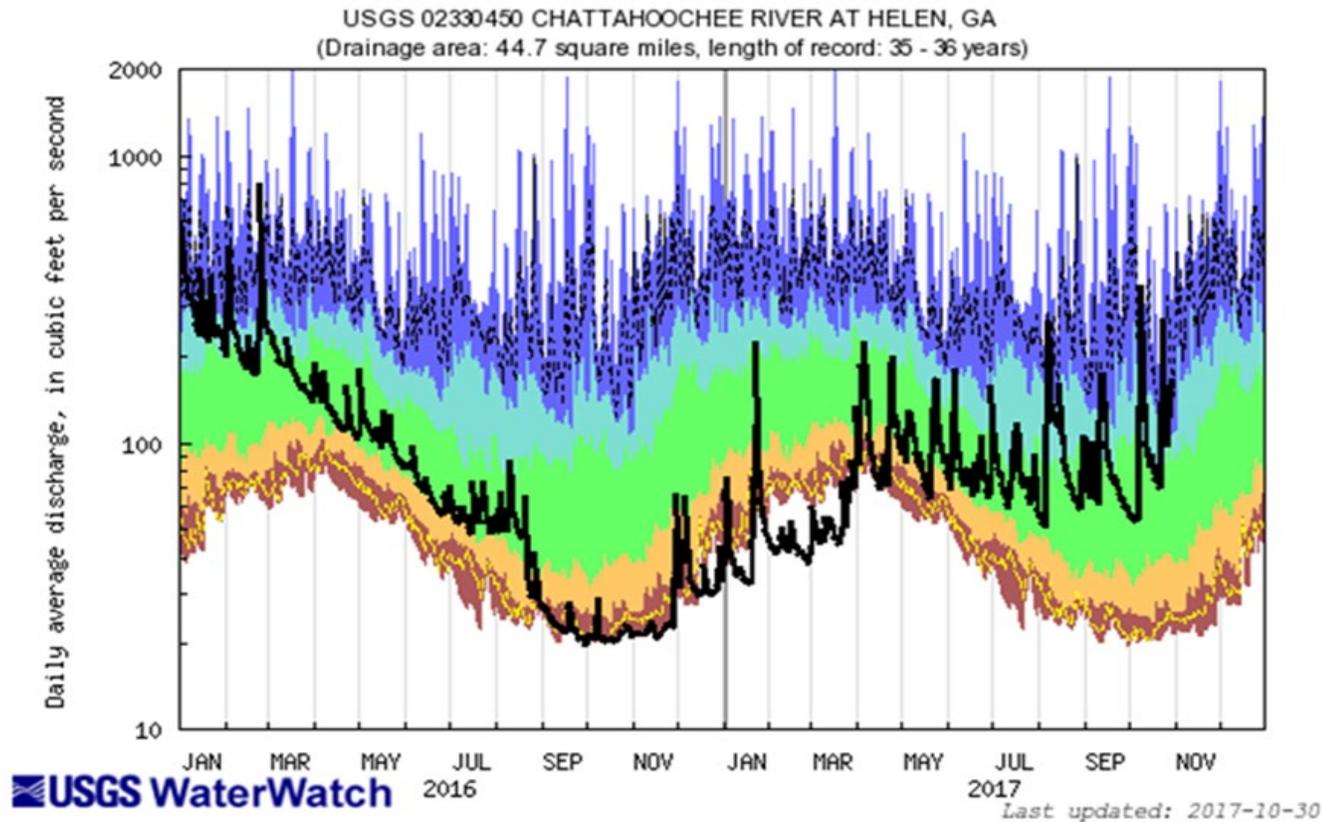
- High pressure over area caused suppression of rainfall, high temperatures, lack of tropical systems
- Initiated by precipitation deficits in March 2016 and compounded by long dry spells in May and in fall 2016
- Drought impacts accelerated by record-setting high temperatures in September through November 2016

Fall expansion and strengthening of drought



Maximum temperatures in fall were ranked near the hottest ever for individual stations

Lingering hydrological drought into spring



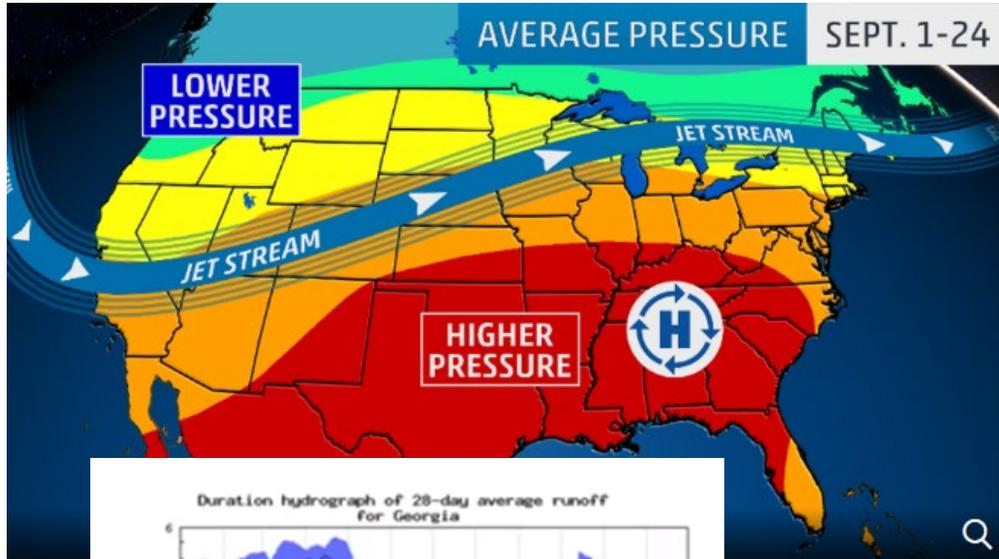
Stream flows were lower in March 2017 than in 2016 due to lingering dry conditions over winter

Later impacts of 2016 drought

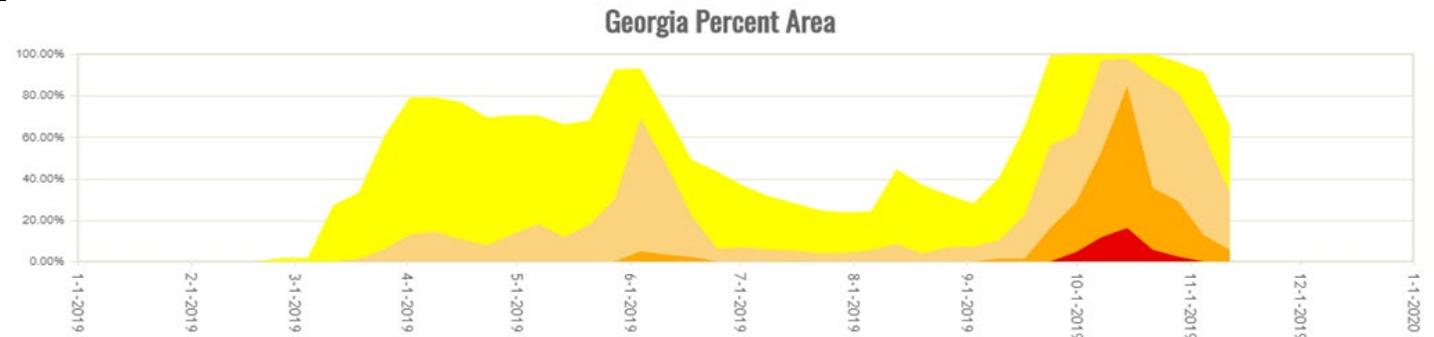
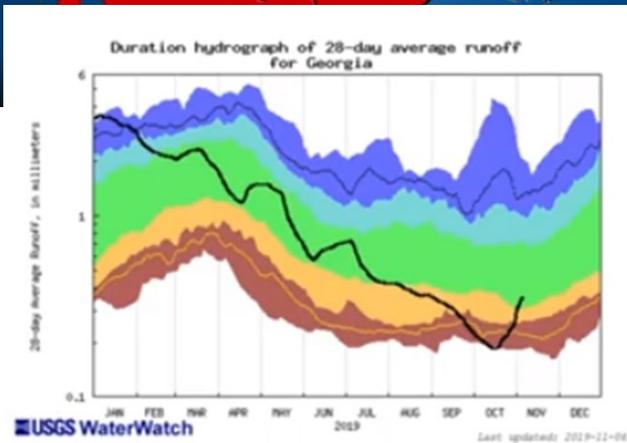
- Fires in southern Appalachian Mountains
- Steep declines of stream flow lasting into spring 2017
- Agricultural losses in most crops



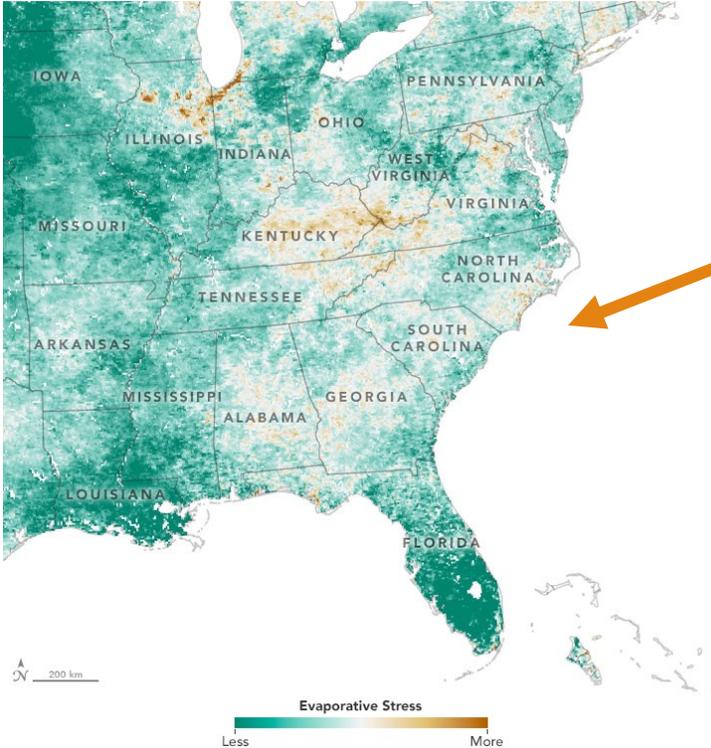
Flash Drought of 2019



- High pressure dominated Southeast
- Record-setting high temperatures
- Lack of rain and tropical systems

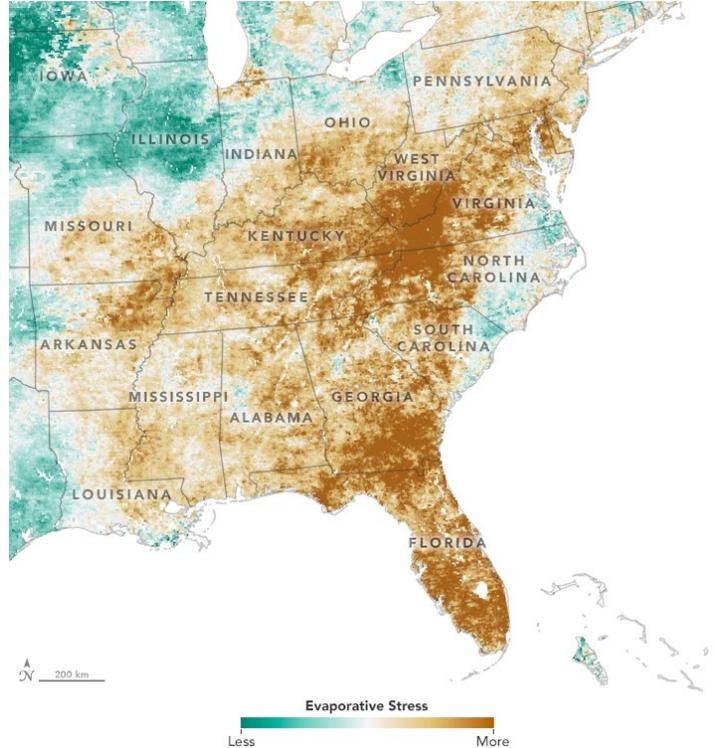


Evaporative stress increase



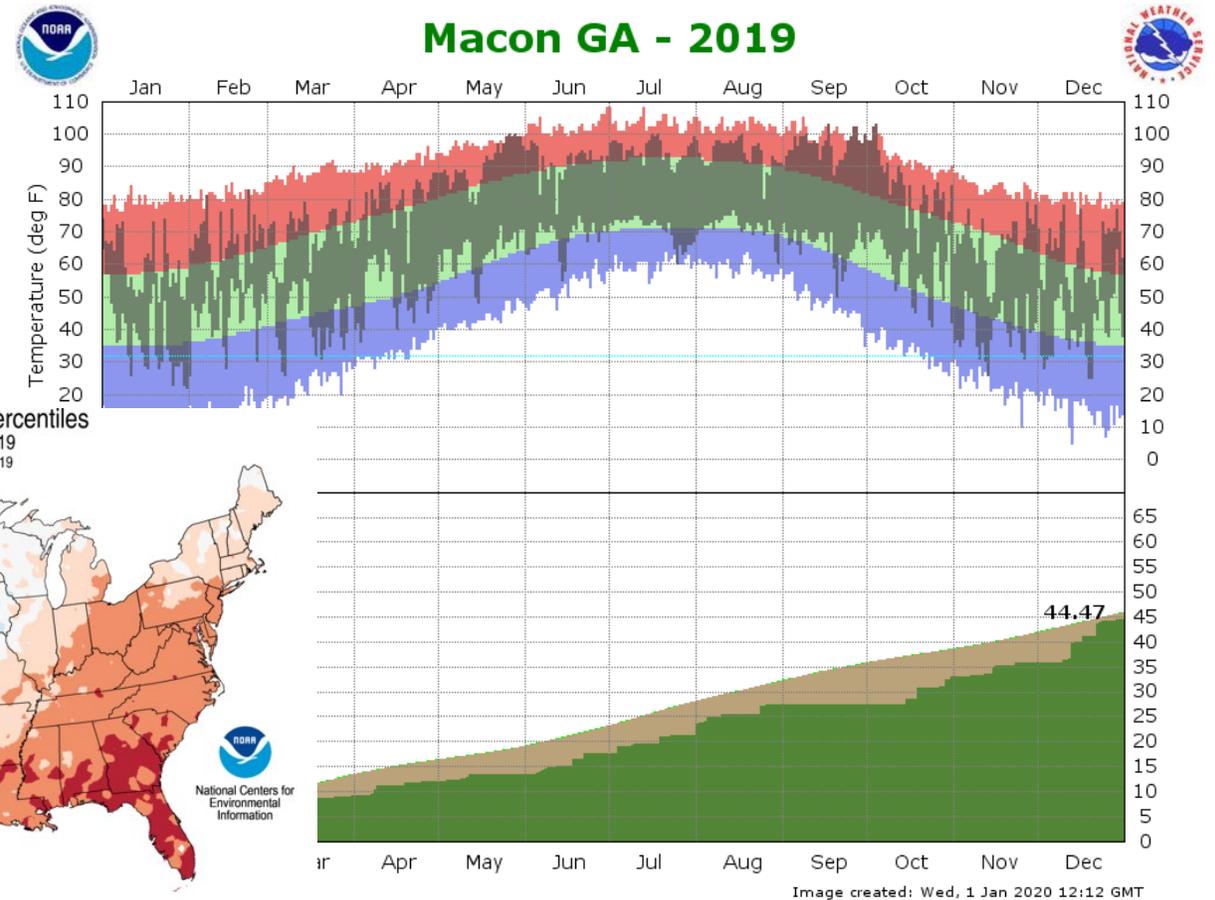
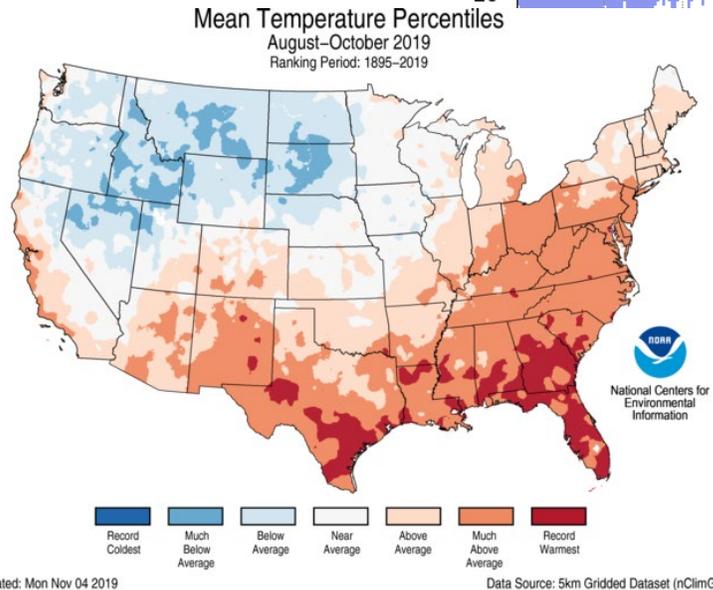
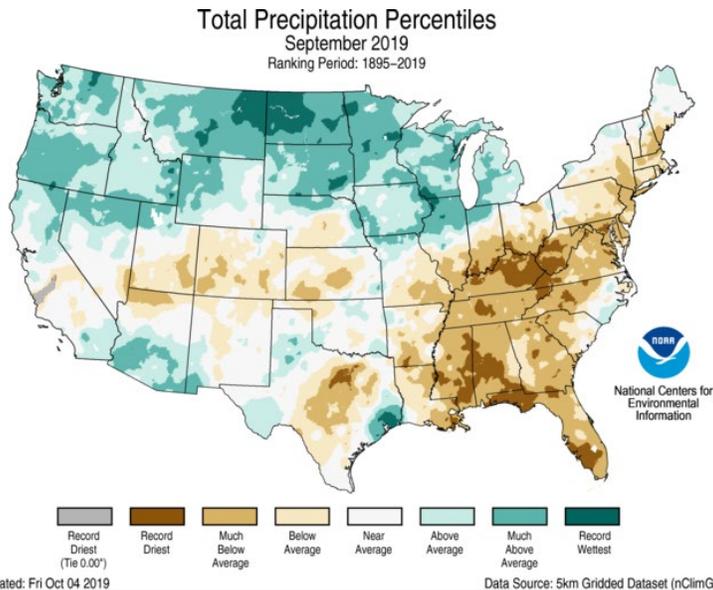
July 15-August 13,
2019

September 10 –
October 8, 2019



Causes of the 2019 Drought

- Very dry September
- Record setting heat August-early Oct
- Little tropical rainfall



Impacts of the 2019 flash drought

- Dryland crops lost significant yield due to no rain late in the season
- Irrigated crops were generally OK
- Wine grapes (irrigated) had a disease-free season
- Harvest of cotton, peanuts, soybeans ahead of schedule
- Dryland peanuts could not be harvested due to hard ground
- Pastures stopped growing, leading to loss of hay production
- Some livestock producers had to start feeding hay stocks as early as July, which led to shortages in winter

Lessons learned from flash droughts

1. Drought initiation not well identified and impacts occur before drought shown in Drought Monitor
2. More use of Drought Impact Reporter and CoCoRaHS would also help DM authors provide accurate assessment of drought
3. States vary in how they coordinate drought identification and monitoring. More interagency and interstate coordination would aid in identifying and responding to drought.

References

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Thank you!

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