Increasing Water Resource Communication

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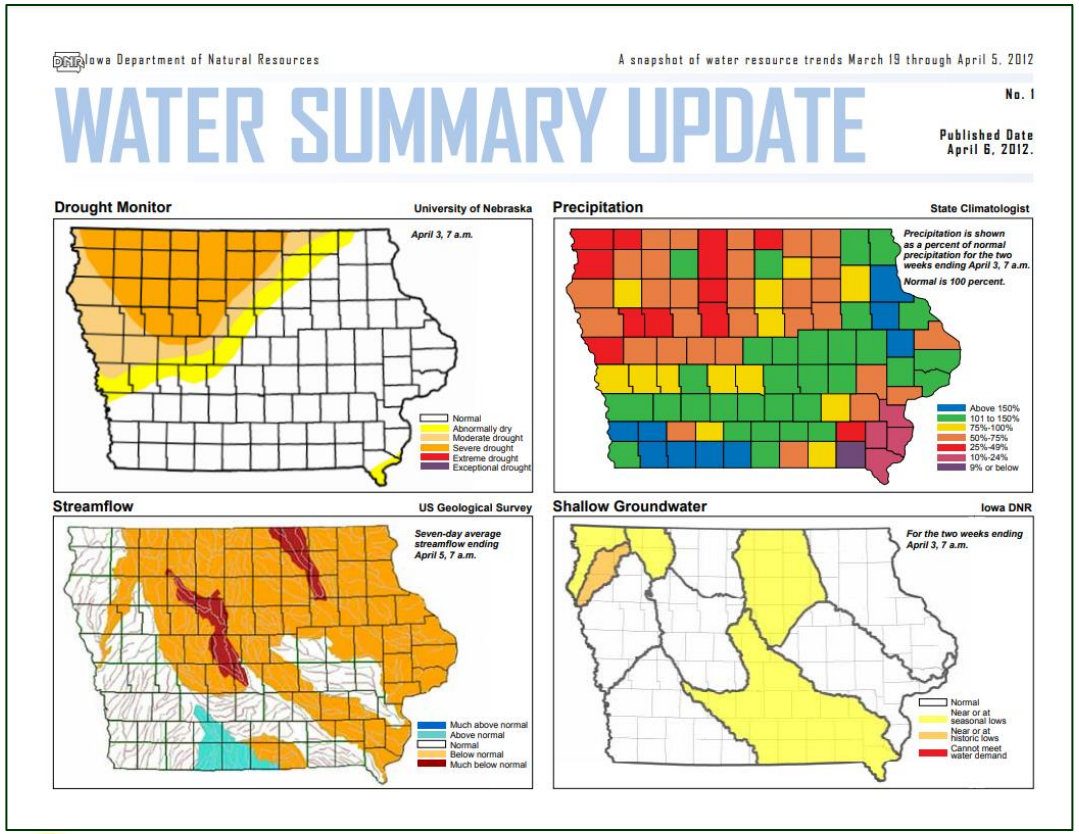
4/1/2021

Borrowing from Success in Iowa



Iowa Department of Natural Resources

A snapshot of water resource trends March 19 through April 5, 2012

WATER SUMMARY UPDATE

No. 1

Published Date
April 6, 2012.

Drought Monitor — University of Nebraska

April 3, 7 a.m.

Normal
Abnormally dry
Moderate drought
Severe drought
Extreme drought
Exceptional drought

Precipitation — State Climatologist

Precipitation is shown as a percent of normal precipitation for the two weeks ending April 3, 7 a.m.

Normal is 100 percent.

Above 150%
101 to 150%
75%-100%
50%-75%
25%-49%
10%-24%
9% or below

Streamflow — US Geological Survey

Seven-day average streamflow ending April 5, 7 a.m.

Much above normal
Above normal
Normal
Below normal
Much below normal

Shallow Groundwater — Iowa DNR

For the two weeks ending April 3, 7 a.m.

Normal
Near or at seasonal lows
Near or at historic lows
Cannot meet water demand

Recent Developments and Changes

Overall Conditions
Today's Water Summary Update shows that despite recent rainfallin parts of the state, northwest to north-central Iowa remains very dry. Shallow groundwater levels are causing concerns for some communities, and streams and ponds are very low locally. It is hoped that normal spring rains will bring long-term relief to that part of the state. However, warm temperatures and low precipitation in March have put the "hydrologic calendar" a month ahead, and those with interests in water should be keeping aware of the situation.

Drought Monitor
The drought monitor, put together by the University of Nebraska, shows that almost 20 percent of Iowa is in a severe drought condition, but this a smaller area than three months ago. As the map shows, drought conditions are confined to the northwest part of the state, with one exception: a small area in extreme southeast Iowa.

Currently about 40 percent of Iowa is in some form of drought. This is a much smaller area than the 70 percent of the state that was in some form of drought in September 2011.

Precipitation
The past two weeks brought exceptionally warm weather to Iowa with temperatures averaging 17 degrees above normal. Statewide precipitation was slightly below average. The benefit of this rain was offset by unusually high evaporation resulting from record heat. Rain amounts were well below normal in the already dry northwest and north central portions of Iowa, as well as in the extreme southeast corner of the state. Heaviest rain fell in far southwest Iowa. Widespread light to moderate rain fell from March 20 to March 22 while thunderstorms brought highly variable amounts of rain on the night of March 29.

Streamflow
Streamflow conditions over the last seven days were below normal for much of Iowa as compared to the normal streamflows at this time of year historically. Observed streamflows were generally less than 25 percent of normal streamflow conditions, with the lowest area being the upper portions of the Cedar River, which was less than 10 percent of normal streamflow conditions.

Shallow Groundwater
Shallow groundwater levels were stable to slightly higher across most of Iowa during the month of March. Higher than normal temperatures, along with trees and shrubs beginning to leaf-out, will increase evaporation and transpiration rates. This may cause a drop in shallow groundwater levels in April unless substantial rainfall occurs.

Notable Events for the Period

The following observations were made by Iowa DNR and other agency technical and field staff:

Tile lines in northwest Iowa are dry or discharging at very low levels.

Tile lines in Lyon county had been running in early March but are now dry.

Tile lines in O'Brien, Clay, Buena Vista, and Palo Alto counties are dry or just trickling.

The water levels in small streams and ponds in Lyon and Sioux counties have dropped over the past two weeks and a few streams have stopped flowing.

A public water system along the Floyd River has had problems maintaining adequate water supplies from their alluvial wells, but March shallow groundwater levels improved slightly in this system.

Borrow pits (where earth is taken for use as fill elsewhere) and ponds along Highway 20 are extremely low or dry.

Center Lake in Dickinson county is already experiencing a blue-green algae bloom (months ahead of typical conditions) due in part to low water levels.

Warm temperatures and low precipitation in March have put the "hydrologic calendar" a month ahead. Early vegetation growth has moved the evaporation and transpiration conditions about a month ahead of schedule. This could deplete soil moisture unless precipitation increases during the early growing season.

Iowa DNR staff conducted a drought status meeting in Sioux Center on March 27.

Contacts

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Prepared by the Iowa DNR in collaboration with the Iowa Department of Agriculture and Land Stewardship, the U.S. Geological Survey, and The Iowa Homeland Security and Emergency Management Division.

SOUTH CAROLINA DEPARTMENT OF NATURAL RESOURCES

Production Adaption for South Carolina

Considered Data:

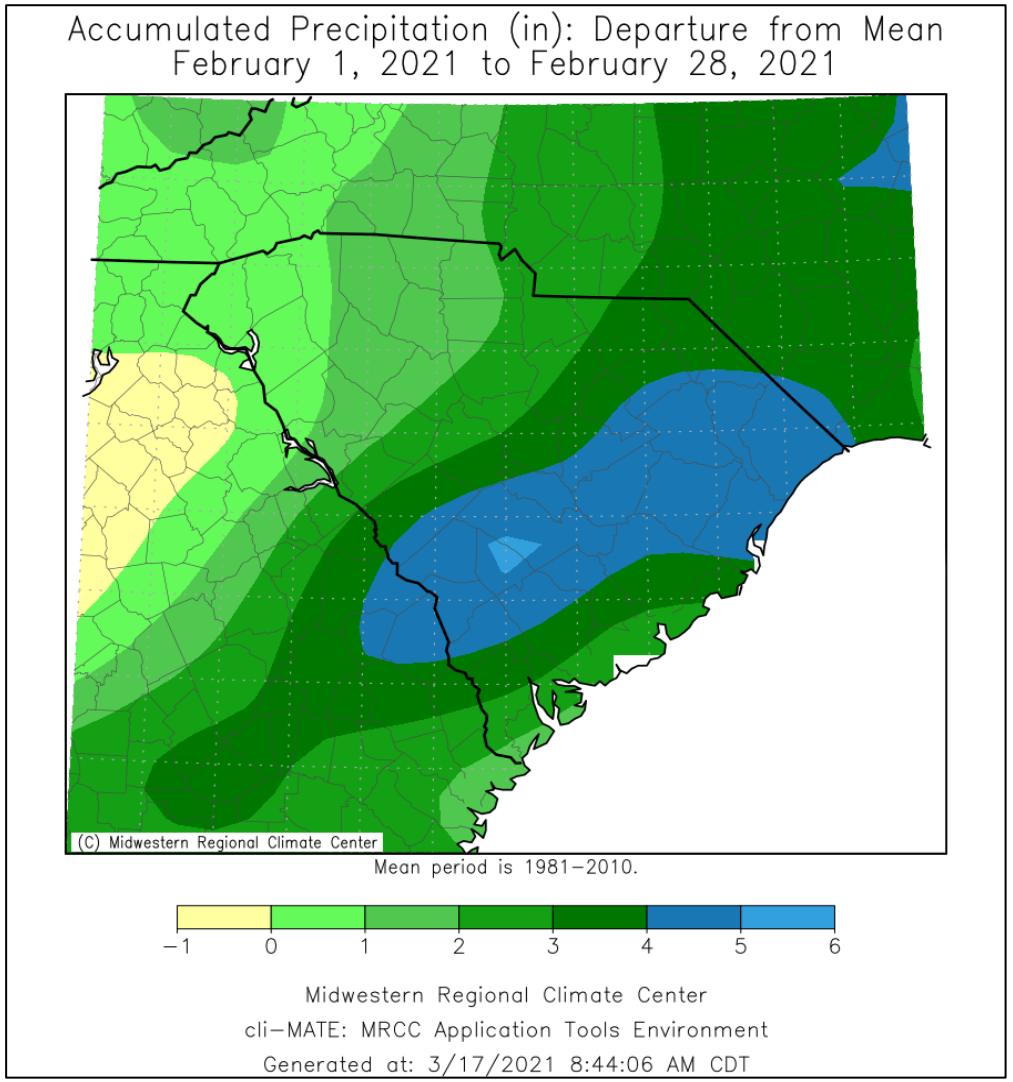
- Precipitation & Temperature
- Drought Monitor Map
- Streamflow
- Reservoir Levels
- Groundwater
- Climate forecast

Precipitation

Data we can include:

1. Average observed precipitation across the state and deviation from normal
   - *"Statewide precipitation in February totaled 6.12 inches, which is 2.22 inches above normal."*
2. Climatological ranking of precipitation for each Month (if ranking is substantial)
   - *"February 2021 was the 10th wettest February on record. "*
3. Regional Analysis across state of observed precipitation and deviation from normal
   - *"All of South Carolina saw above normal precipitation, with portions of the Midlands, Lowcountry, and Pee Dee regions receiving 5 inches of precipitation above normal."*

This type of data is not available until about the 10th of the month.



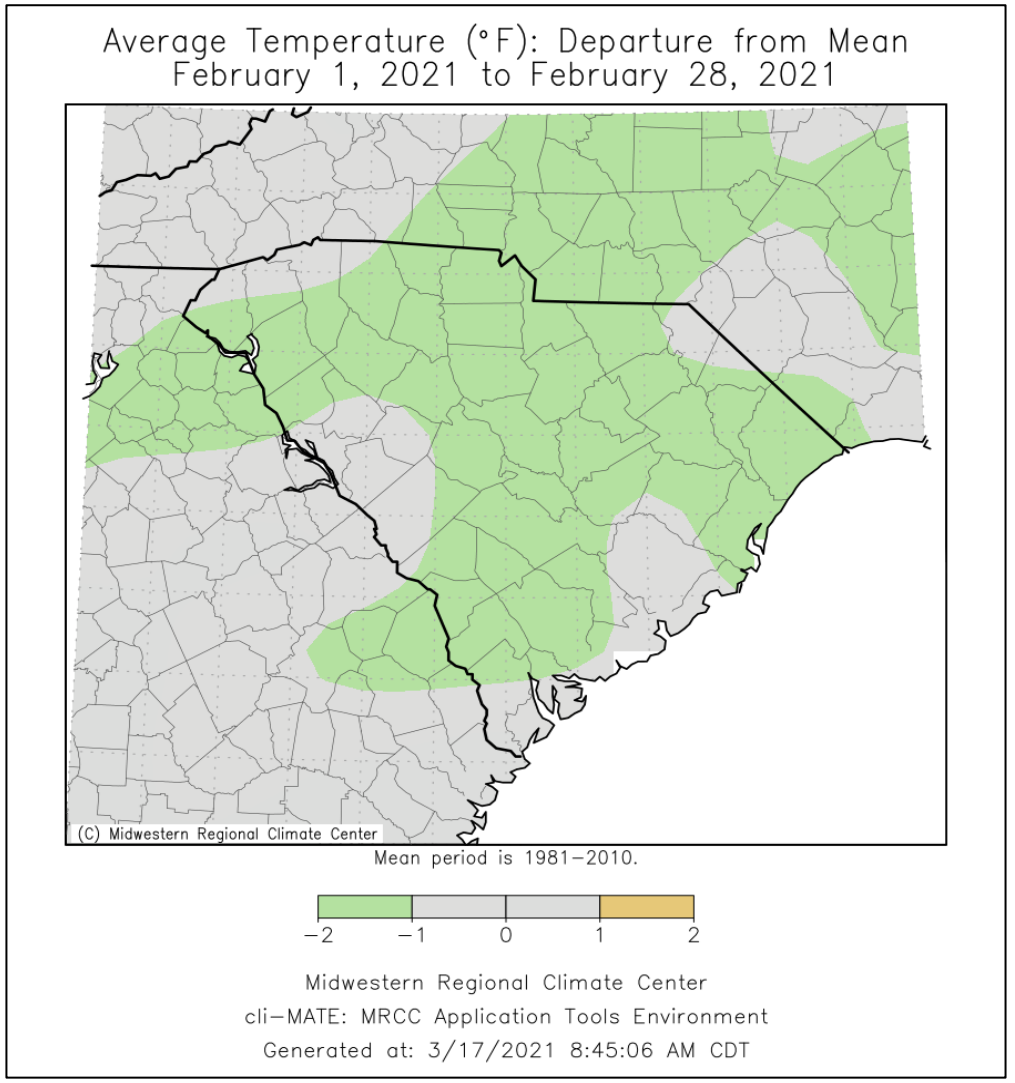
If this data is not available until the 10th of the month, the report will not be released until the 15th or so. Is this information valuable enough to have a later release?

Temperature

Data we can include:

1. Average observed temperature across the state and deviation from normal
   - *"Statewide temperature in February averaged 47.3°F, which is 0.5 °F above normal."*
2. Climatological ranking of Temperature for each Month (if ranking is substantial)
   - *"February 2021 was the 60th warmest on record. "*
3. Deviation in monthly average maximum and minimum temperatures
   - *"Average minimum temperatures across the state were near normal, ranging 1 degree above or below normal. Average Maximum temperatures were below normal, with most of the state seeing average maximum temperatures 2 to 3 degrees below normal. "*
4. Regional Analysis across state of observed precipitation and deviation from normal (if substantial).

This type of data is not available until about the 10th of the month.



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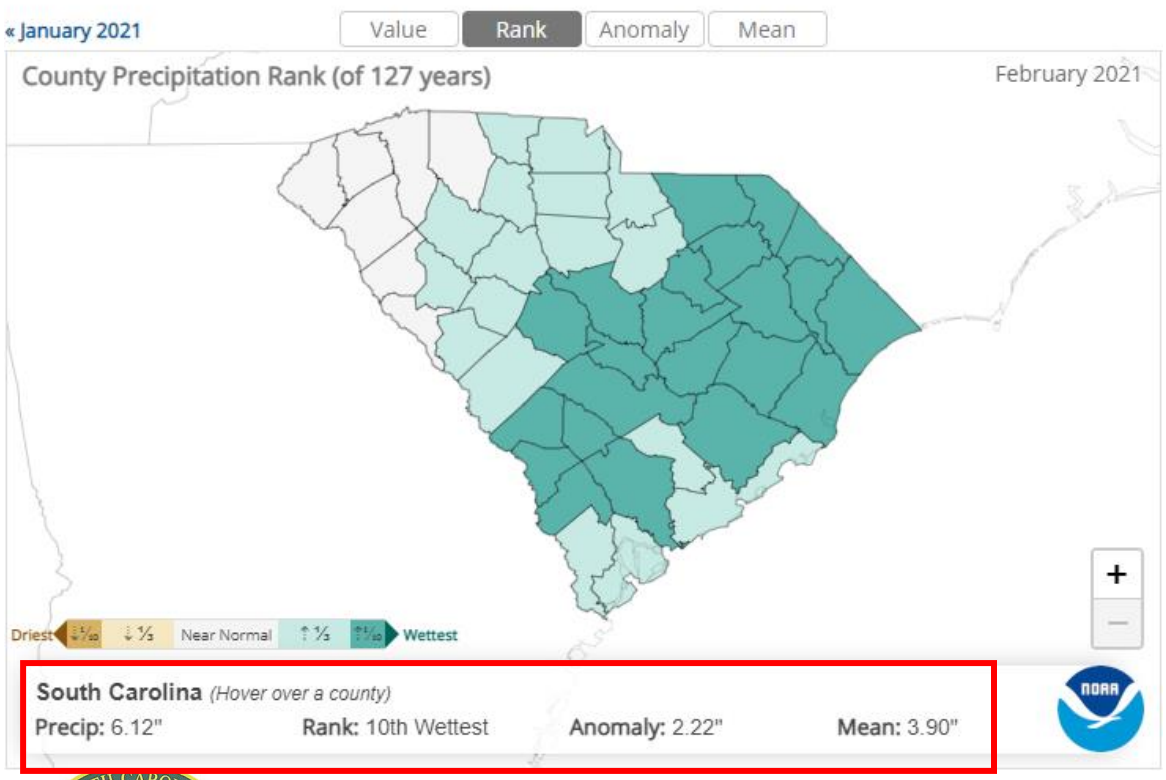
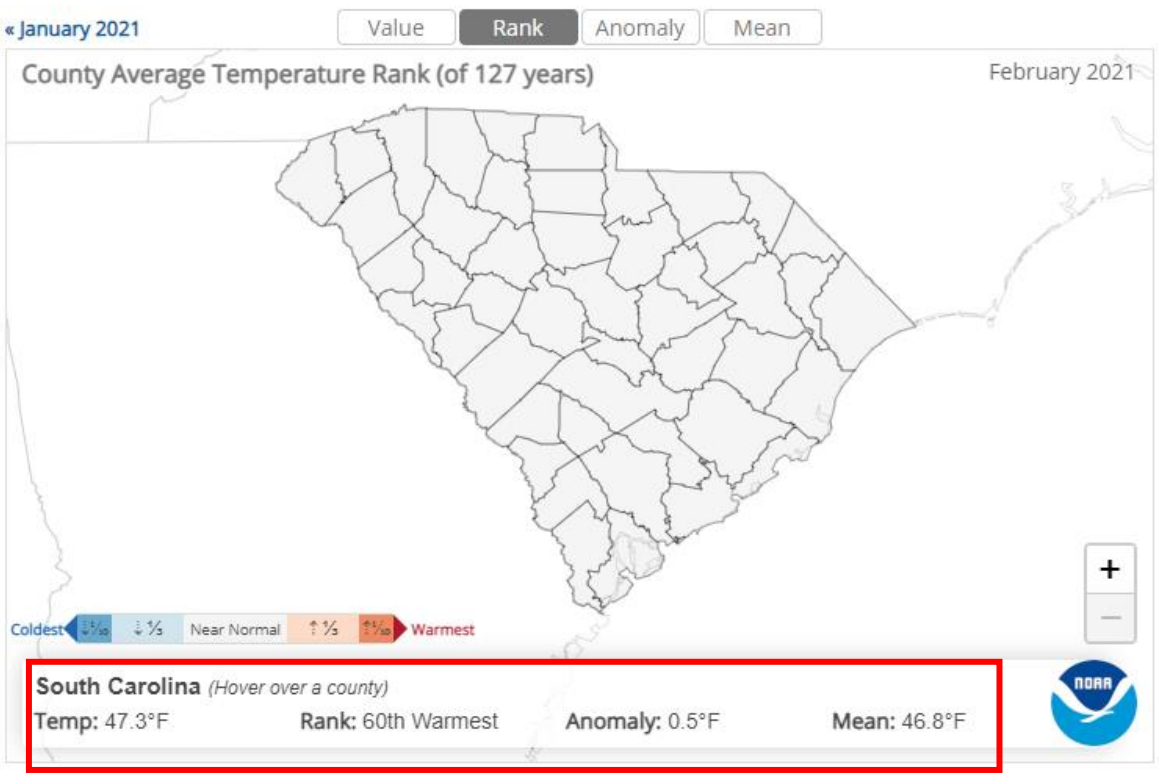
Statewide Averages and Rankings for Monthly Climate Values

Precipitation



Temperature

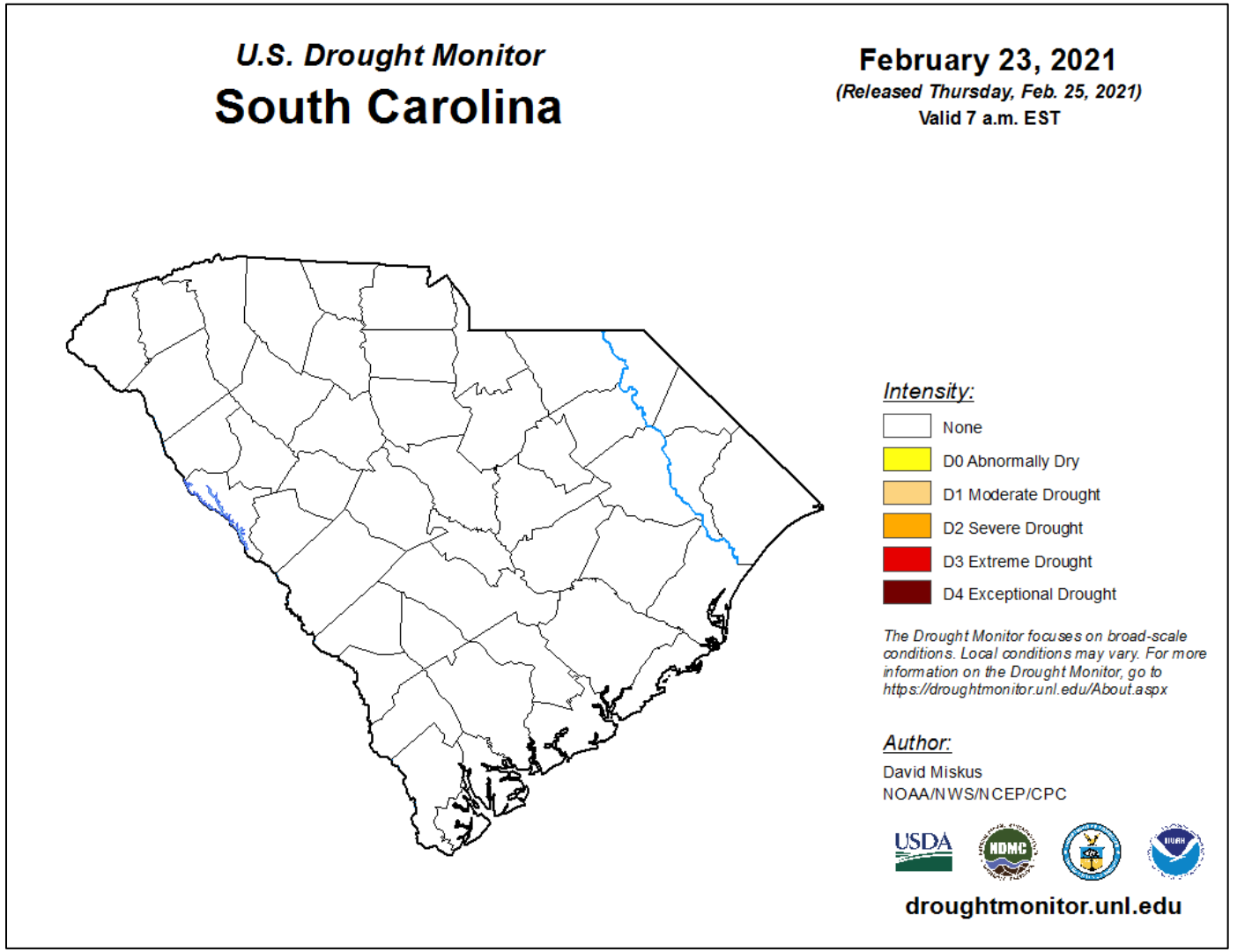


Is this data valuable to end users in understanding conditions, which would lead to a mid-month release?

Or, is this information not so useful and should be left out, which would lead to product release earlier in the month?

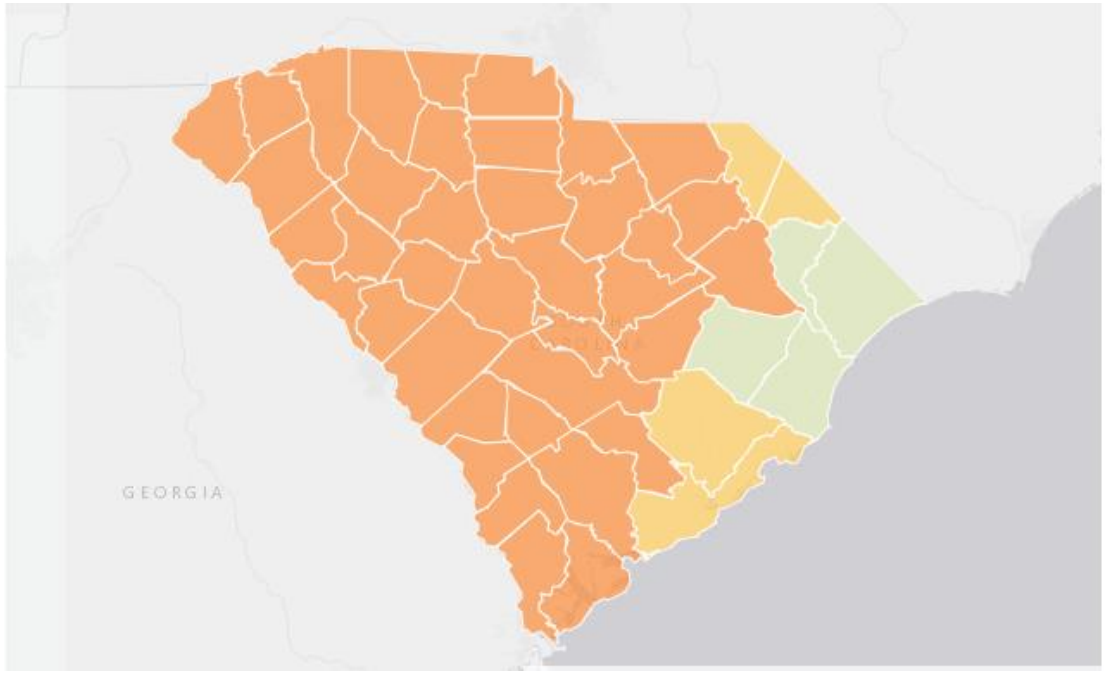
U.S. Drought Monitor

"Abnormally dry (D0) conditions existed along portions of the coast in the Lowcountry in the beginning of February, covering 2.61% of the state. This area included portions of Jasper, Beaufort, Colleton, and Charleston Counties. After heavy rains that fell in the middle of the month, across the Piedmont and Coastal regions, the abnormally dry conditions along portions of the coast in the Lowcountry turned to wetter than normal conditions. For the remainder of February, all of South Carolina was free of any USDM category designations."

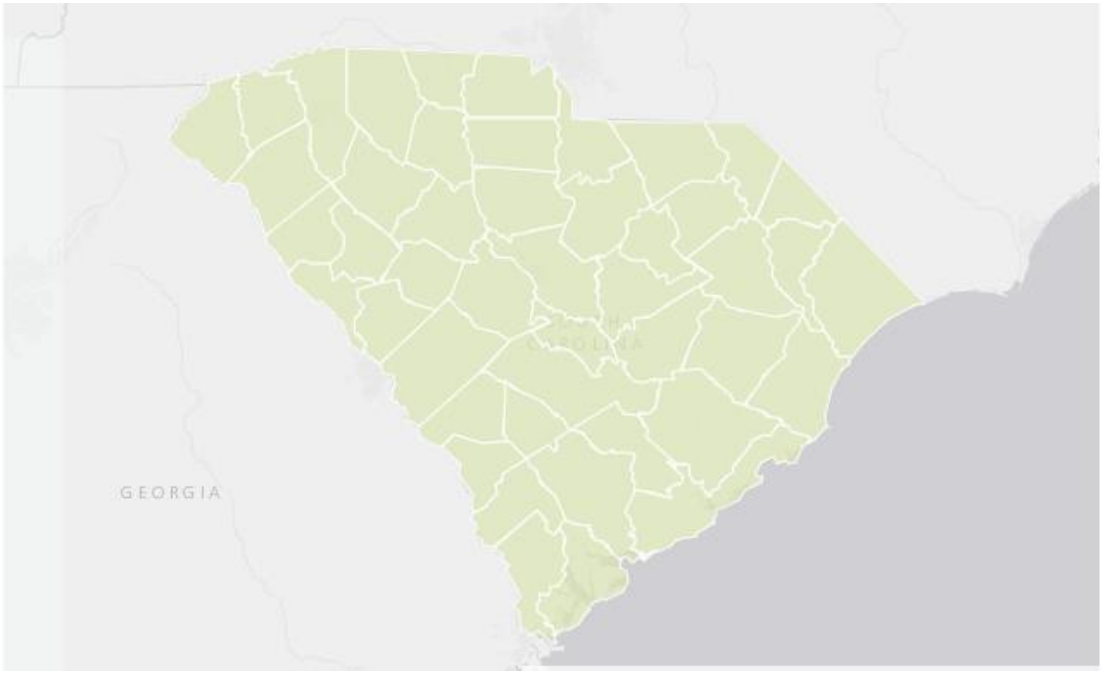


South Carolina Drought Designations

SC Drought Declaration Map by County (10/17/2019)



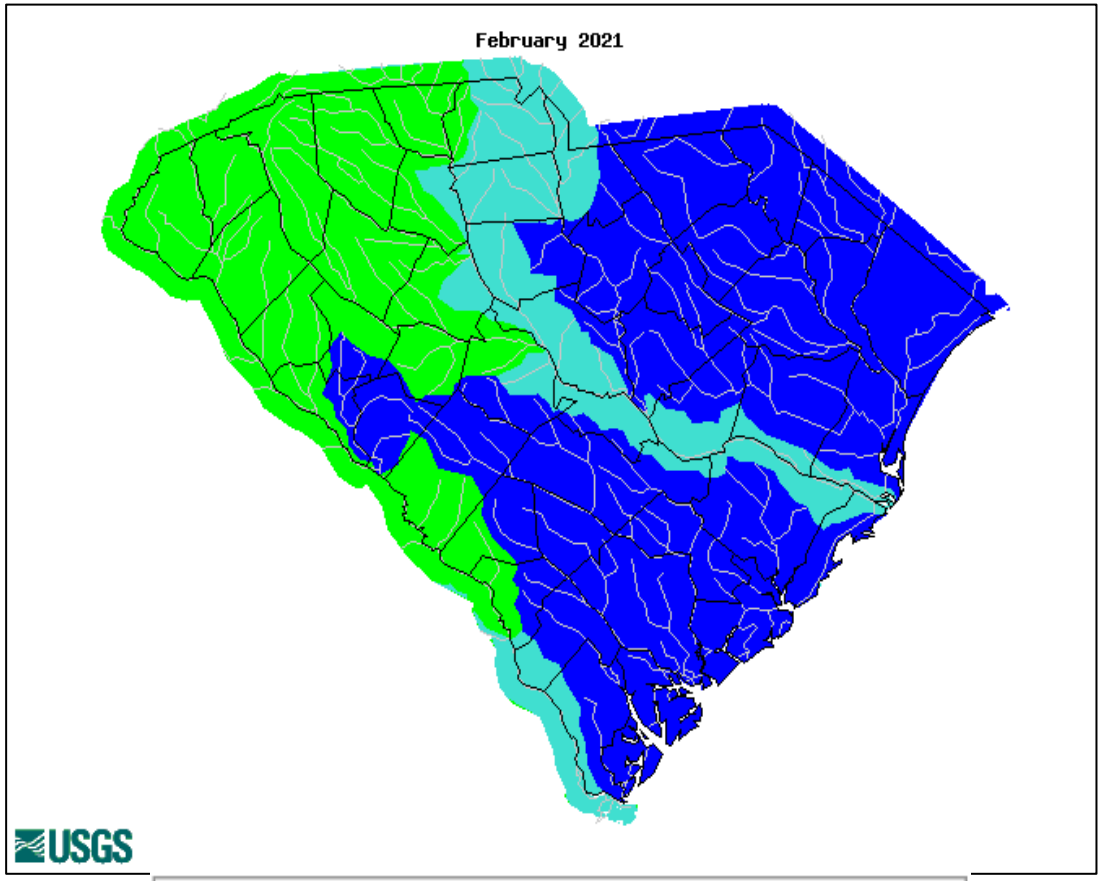
SC Drought Declaration Map by County (4/1/2021)



Normal | Incipient | Moderate | Severe | Extreme

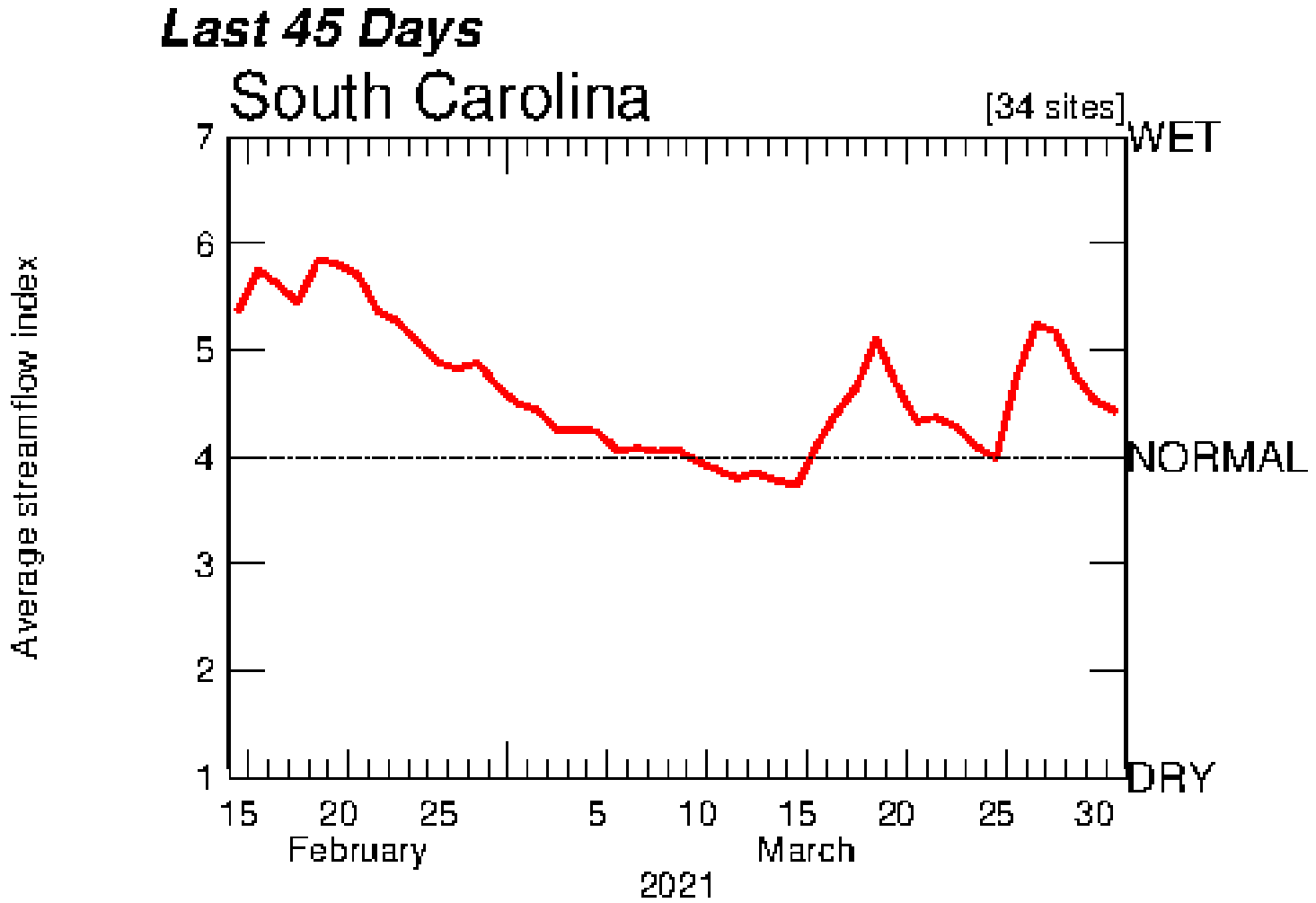
Streamflow

"With higher-than-normal precipitation, the much of South Carolina had above normal streamflows. The Pee Dee and much of the Lowcountry Regions had average streamflow levels for February above the 90th percentile. The Lower Savanna River Basin and much of the Santee River basin had average monthly streamflows in the 76th to 90th percentile. With less rain falling in the Upstate, much this region and parts of the Central Savannah River Area (CSRA) saw normal monthly streamflow levels (25th to 75th) percentile. The heavy rains caused many watersheds in the Pee Dee, Midlands, and Lowcountry to reach their highest ever recorded streamflows for 7- and 14-day averages in February."



Overall State Streamflow Levels

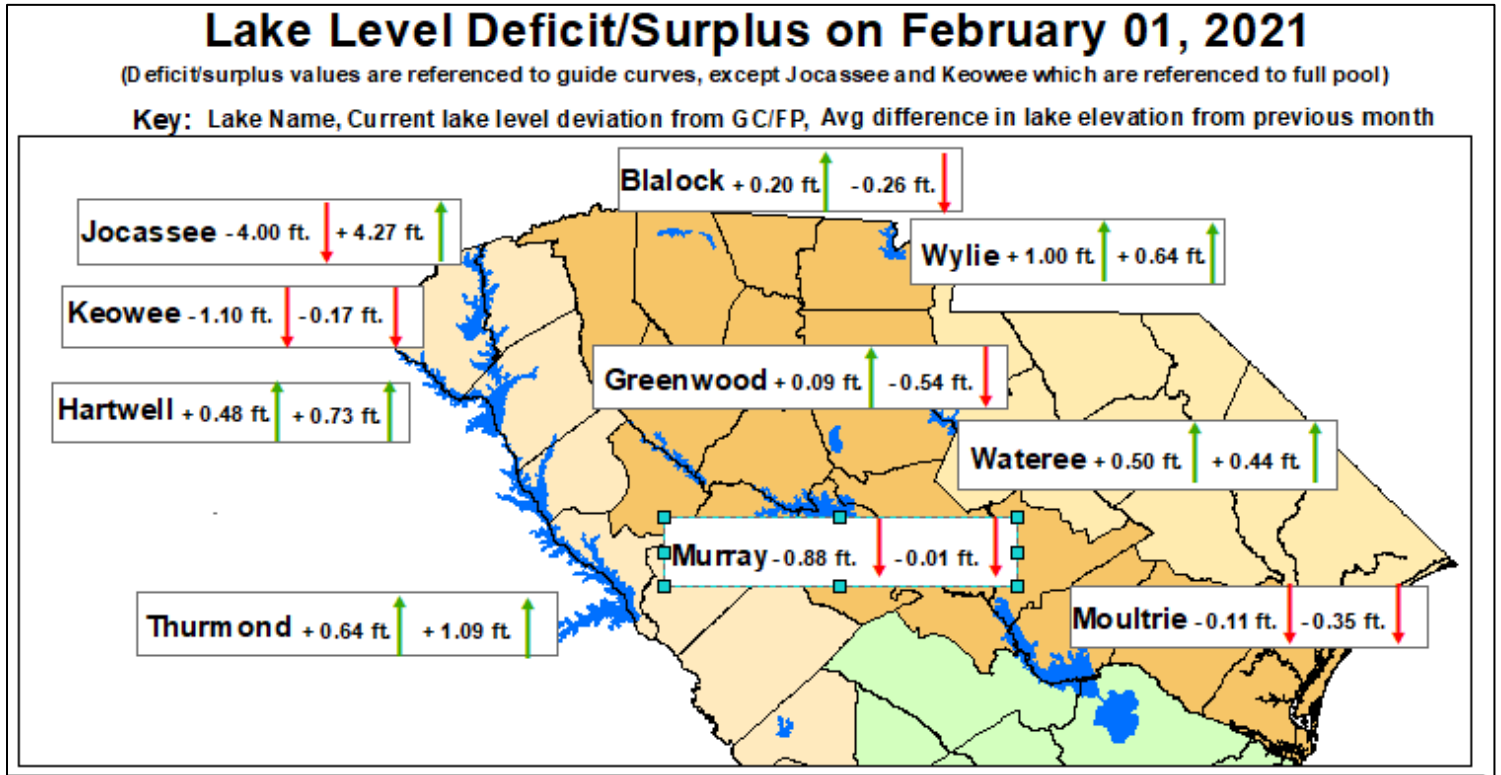
Explanation - Percentile classes							
Low	<10	10-24	25-75	76-90	>90	High	No Data
	Much below normal	Below normal	Normal	Above normal	Much above normal		
1	2	3	4	5	6	7	



Reservoir Levels: State-wide

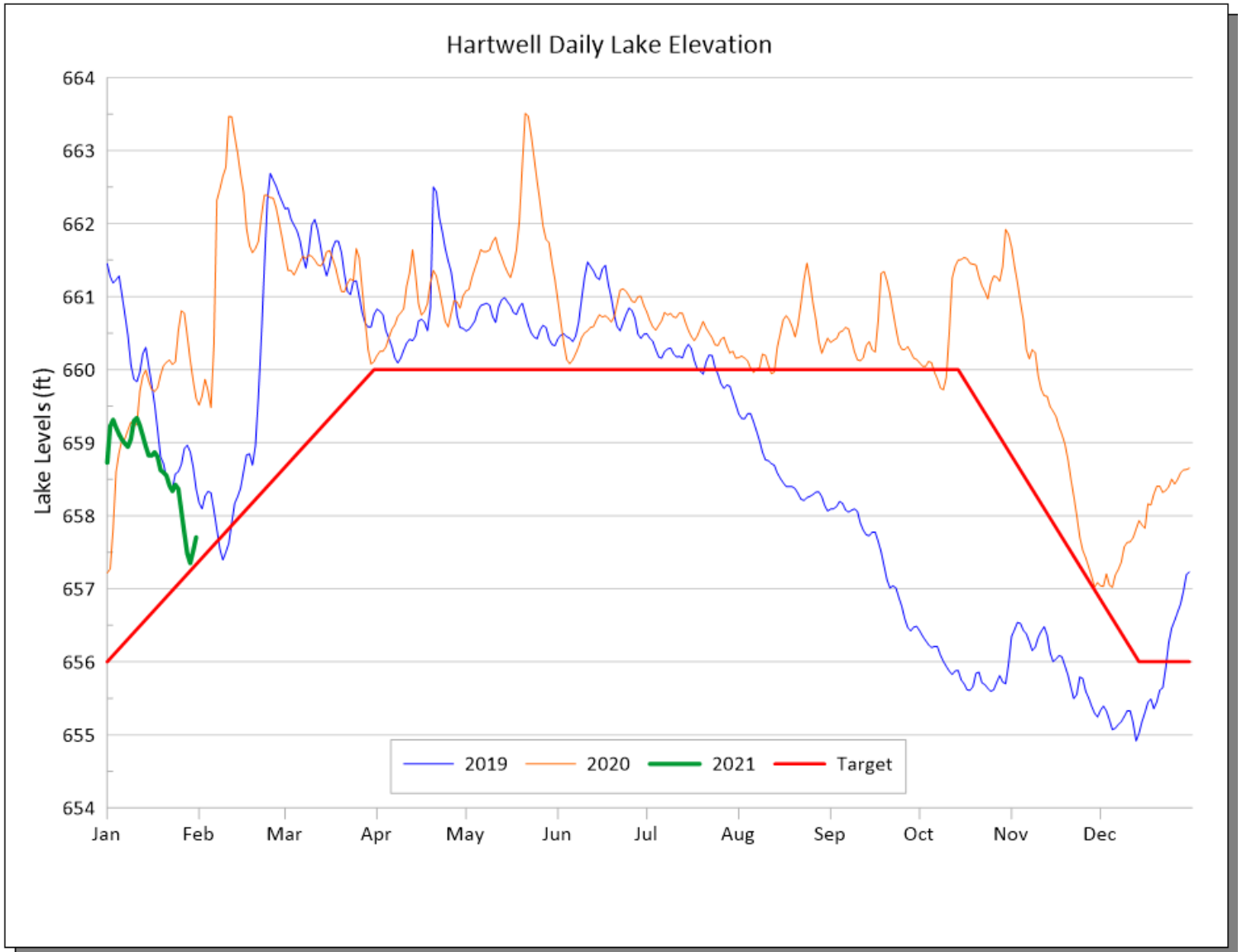
Which data is more valuable:

- Change in monthly average storage; or,
- Change in end of the month storage values

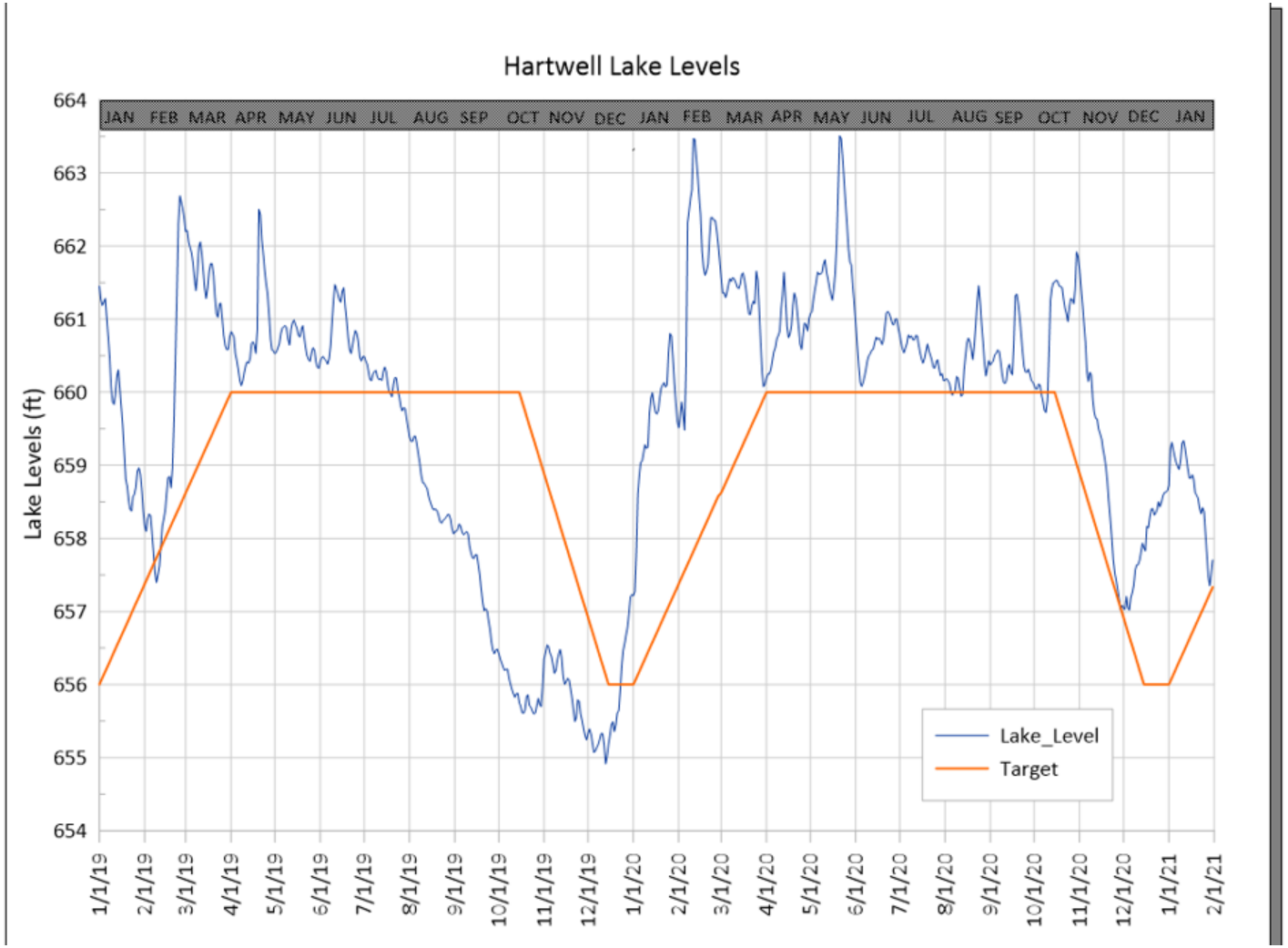


Lake	Current Elevation (ft)	Target (ft)	Full Pool (ft)	Deviation from Guide Curve	Deviation from Full Pool	Dec Avg Lake elevation (ft)	Jan Avg Lake elevation (ft)	Avg Monthly Difference (ft)
Greenwood	434.65	434.56	439.00	**0.09**	-4.35	436.20	435.66	**-0.54**
Murray	355.12	356.00	360.00	**-0.88**	-4.88	354.62	354.62	**-0.01**
Moultrie	73.77	73.88	75.60	**-0.11**	-1.83	72.68	72.33	**-0.35**
Jocassee	96.00	NA	100.00	NA	**-4.00**	92.89	97.16	**4.27**
Keowee	98.90	NA	100.00	NA	**-1.10**	98.16	97.99	**-0.17**
Wateree	95.50	95.00	100.00	**0.50**	-4.50	94.60	95.05	**0.44**
Wylie	98.00	97.00	100.00	**1.00**	-2.00	97.16	97.79	**0.64**
Hartwell	657.86	657.38	660.00	**0.48**	-2.14	657.92	658.65	**0.73**
Thurmond	328.02	327.38	330.00	**0.64**	-1.98	327.13	328.22	**1.09**
Blalock	710.20	710.00	710.00	**0.20**	0.20	710.23	709.97	**-0.26**

Reservoir Levels: Monthly Change Comparisons



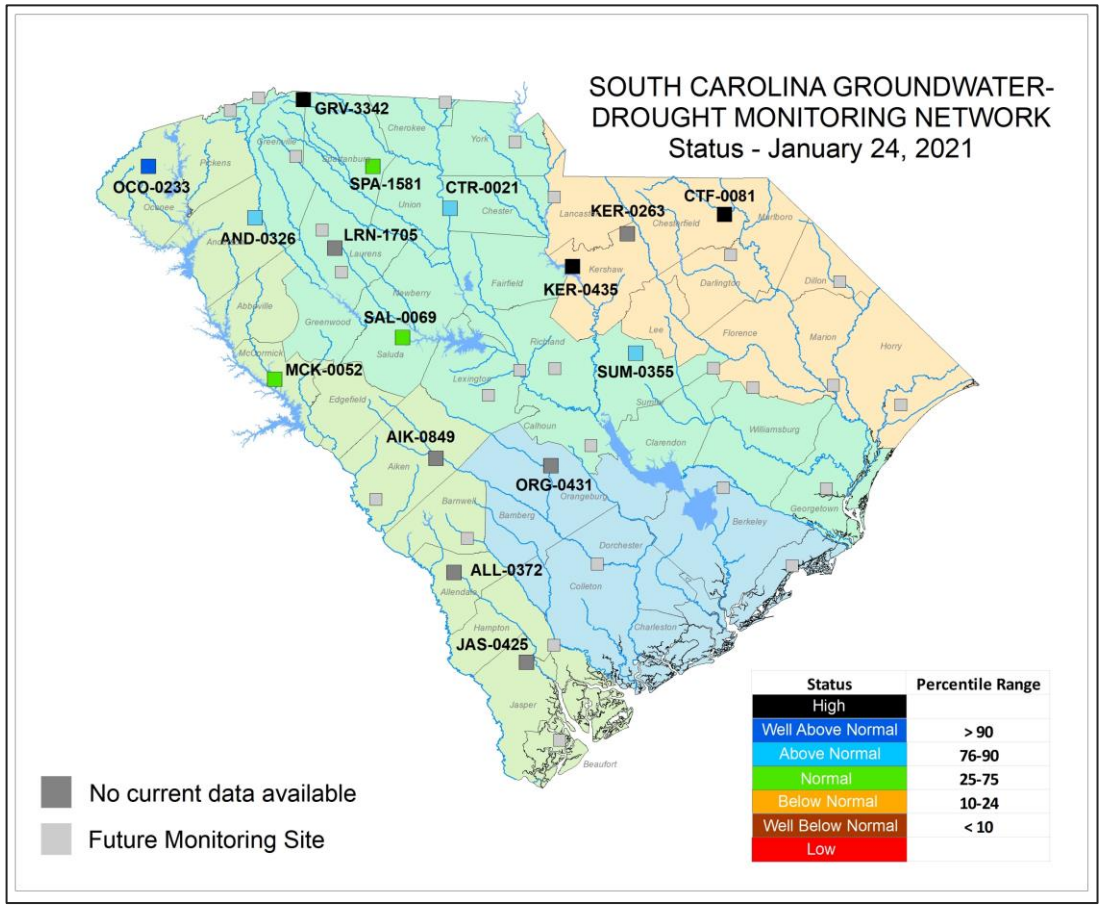
Reservoir Levels: Longer-term storage change



Groundwater

Which data is more valuable:

- Change in monthly average storage; or,
- Change in end of the month storage values



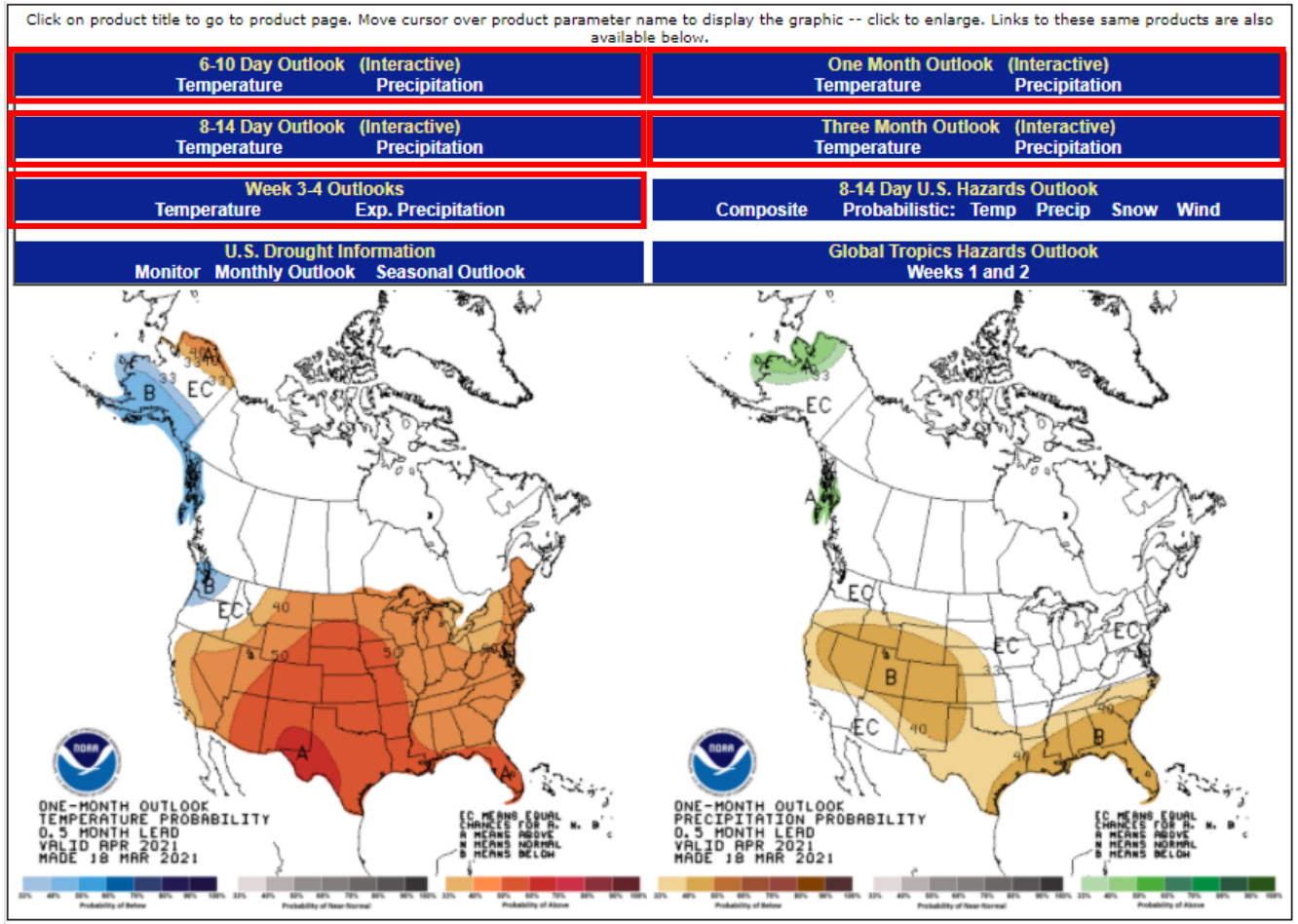
	Dec 2020 (ft, below land surface) Monthly mean in ft	Jan 2021 (ft, below land surface) Monthly mean in ft	Difference in monthly mean from past month (ft)
SUM-035	11.43	9.92	**+ 1.51**
GRV-3342	39.84	39.79	**+ 0.06**
SAL-0069	19.89	15.17	**+ 4.72**
CTF-0081	86.32	86.06	**+ 0.26**
OCO-233	27.37	26.87	**+ 0.50**
AND-326	2.90	2.82	**+ 0.09**
SPA-1581	42.69	42.56	**+ 0.13**
CTR-0021	87.11	86.94	**- 0.17**
KER-0435	45.73	45.17	**+ 0.56**
MCK-0052	39.47	39.22	**+ 0.25**

Climatological Outlooks

These maps show the probability or likelihood that temperature and precipitation will be above or below normal over the next month.

These maps ***do not*** show how much rain or temperature will deviate from normal over the next month.

Available timescale Outlooks (one-month shown)



Temperature Outlook

Precipitation Outlook

User Input and Feedback

End user input:

- Release date*
- Statewide streamflows
- Reservoir data
- Groundwater maps
- Flood information
- Outlook (forecast information)
- U.S. Monthly Change maps
- Links to Data
- Accessing reports

survey question 1*

survey question 2

survey questions3, 4, 5, & 6

survey question 7

survey question 8

survey question 9

survey question 10

survey question 11

survey question 12

To provide input on these topics, please answer the following survey

Access survey here

Survey completion by Friday, April 15 would be most appreciated.

Questions? Please contact Elliot Wickham at wickhame@dnr.sc.gov

**Release date of the product is based on what type of monthly climatological data you find informative and what should be included in the document (slides 4, 5, & 6)*

Thank you!

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