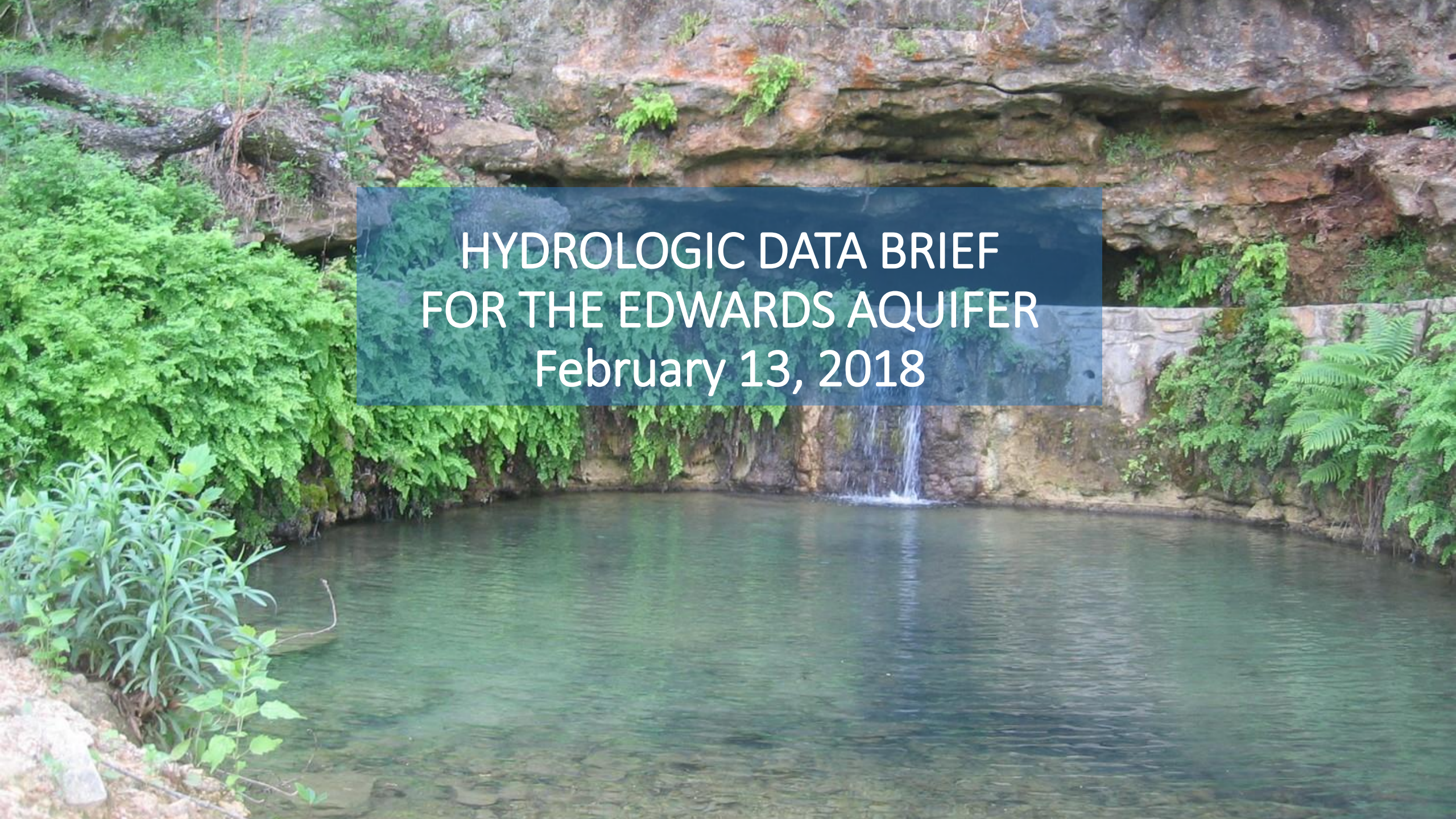


HYDROLOGIC DATA BRIEF FOR THE EDWARDS AQUIFER

February 13, 2018

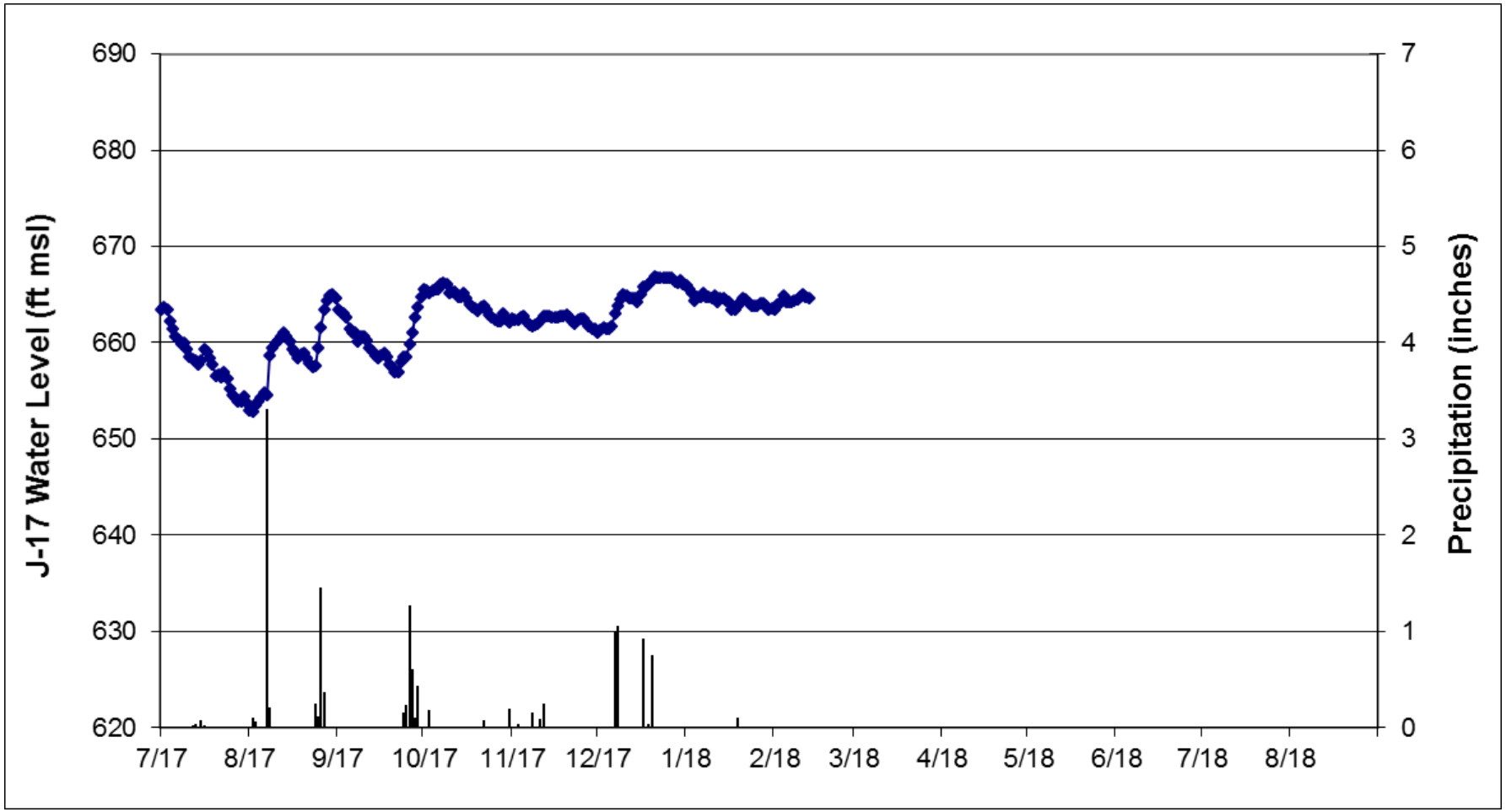
Current Water Levels and Springflows

Well or Spring	Current Reading	Trend over last 10 days
J-27	875 msl (2/13)	-0.2 ft
J-17	664.6 msl (2/13)	+0.5 ft
Comal Springs	295 cfs (2/12)	-7.34 cfs
San Marcos Springs	170 cfs (2/12)	+3 cfs

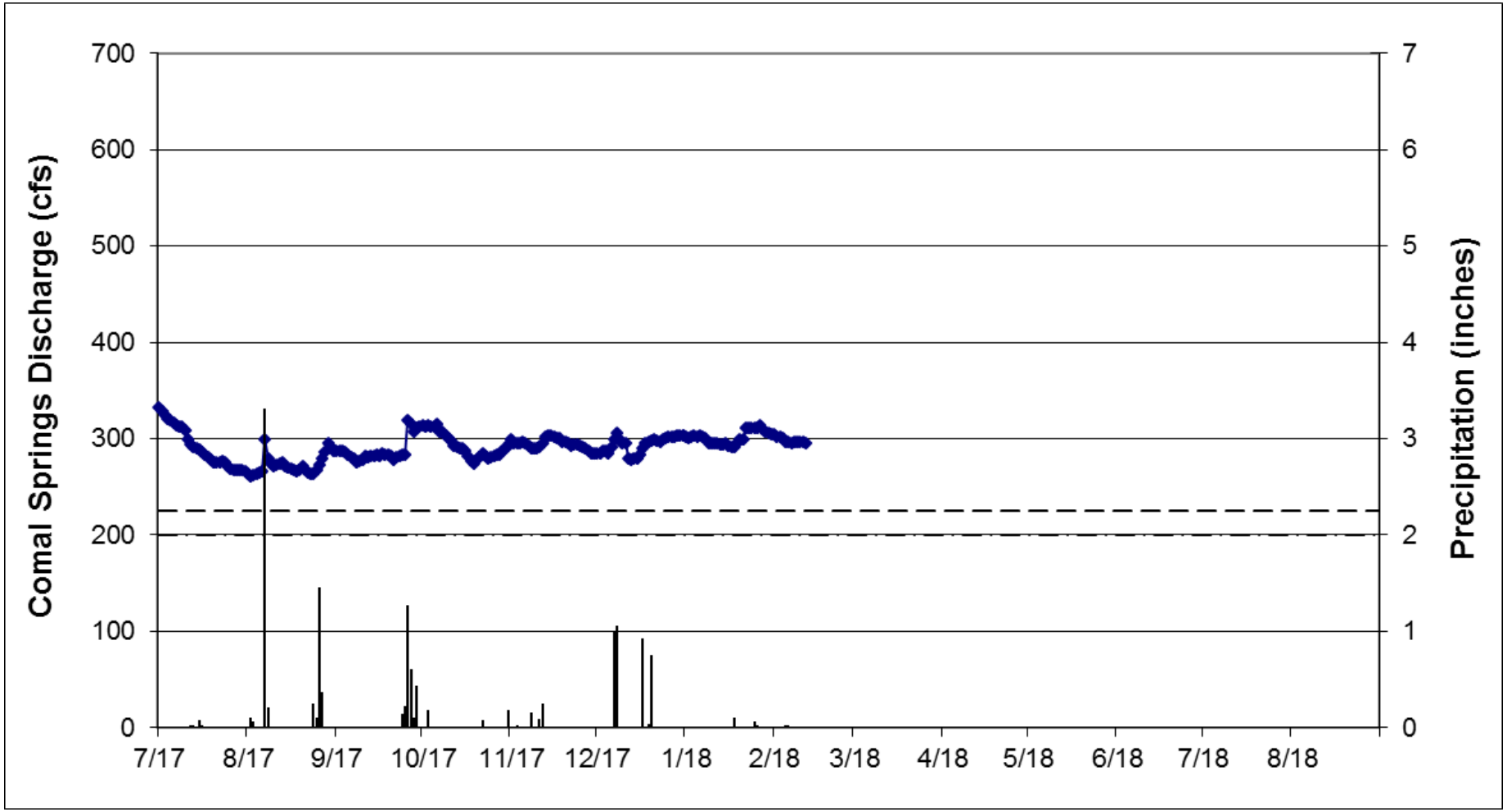
Long-Term Changes

Well or Spring	Current Reading	Year Ago	One Year Deviation	Deviation from Historical Average
J-27	875 msl (2/13)	875.4 msl	-0.4 ft	+7 ft
J-17	664.6 msl (2/13)	683.3 msl	-18.7 ft	-4 ft
Comal Springs	295 cfs (2/12)	399 cfs	-104 cfs	-10 cfs
San Marcos Springs	170 cfs (2/12)	236 cfs	-66 cfs	-6 cfs

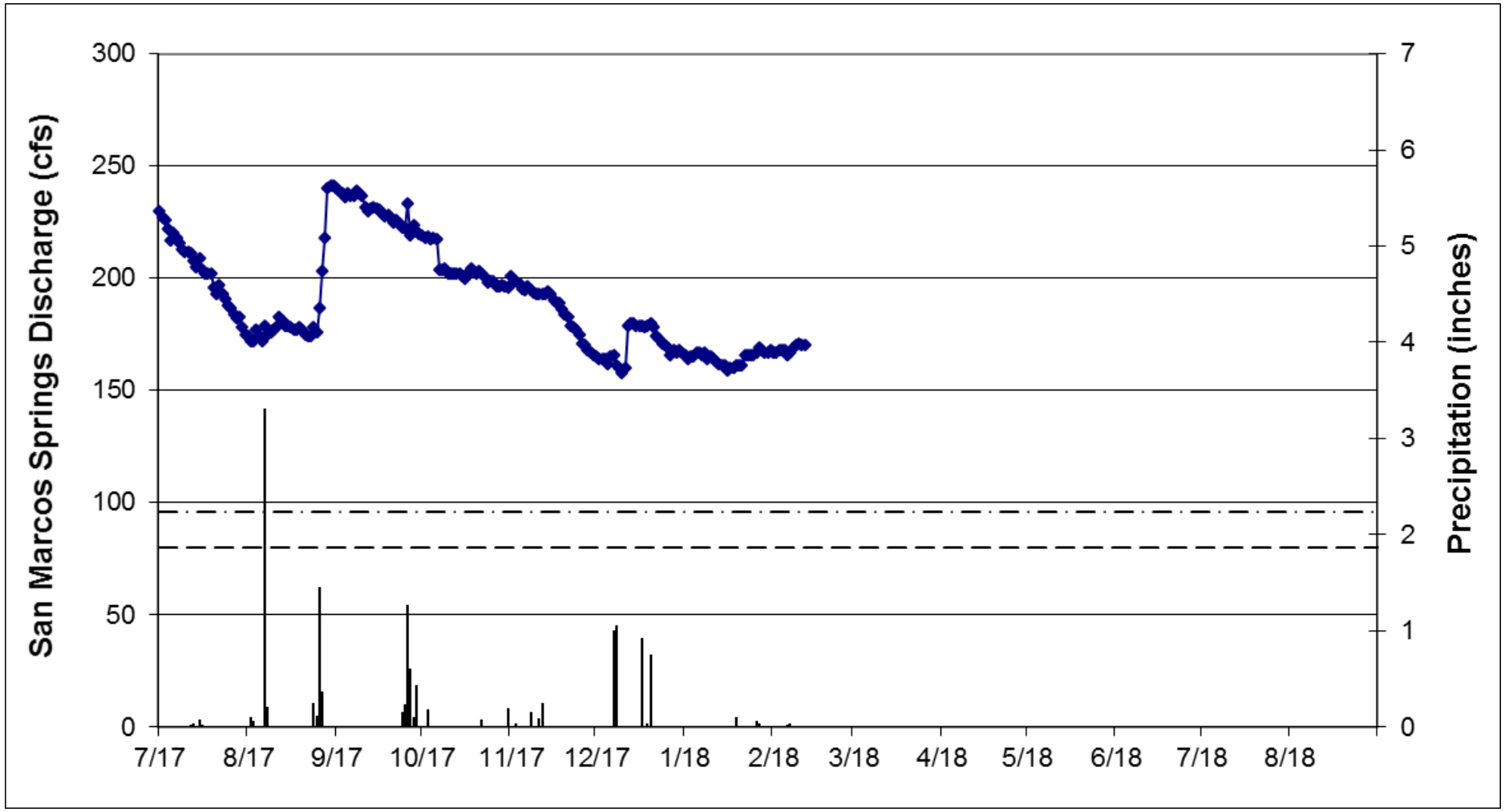
Well J-17 Water Level to Date (2-13-2018)



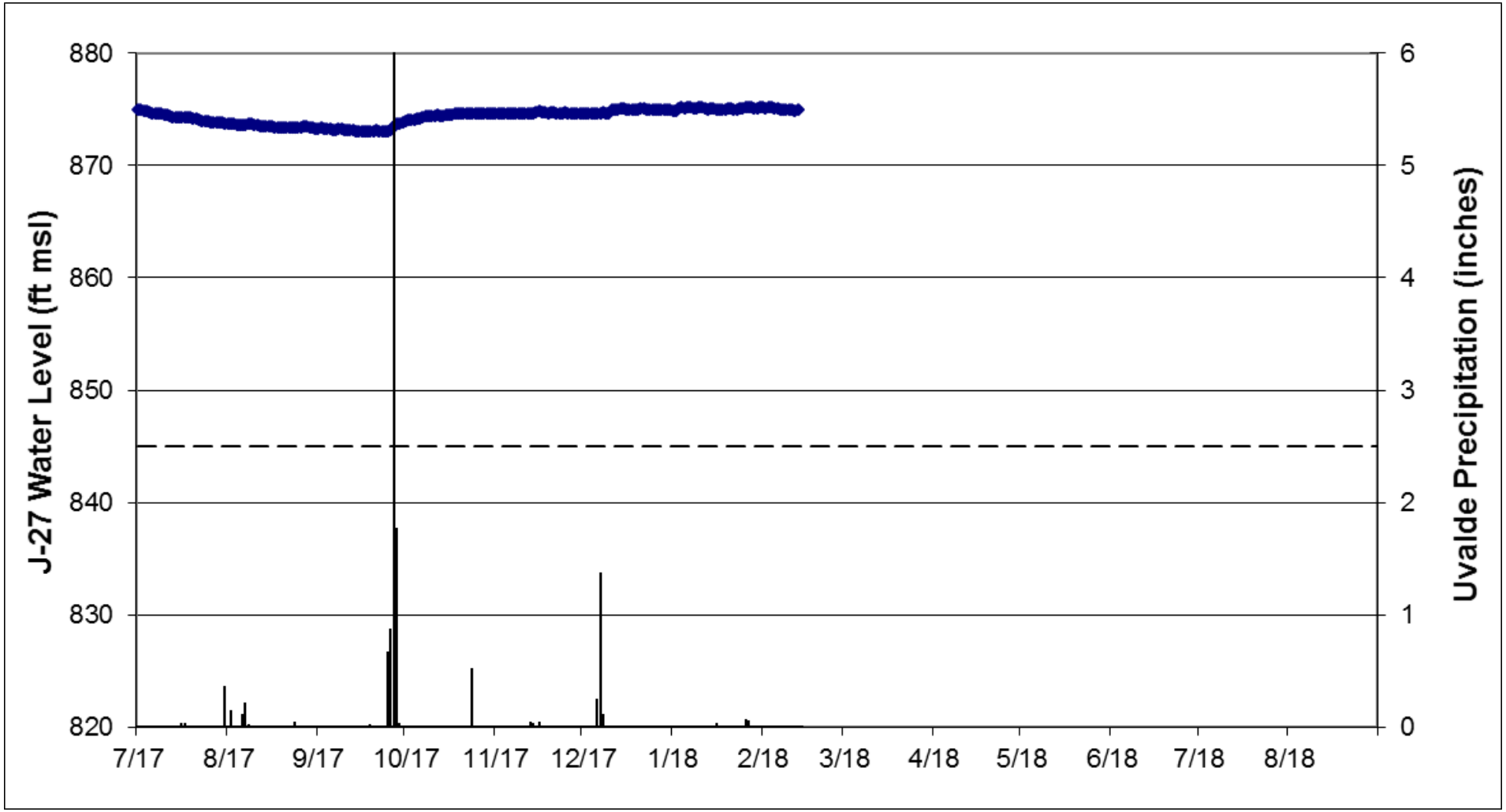
Comal Springs Discharge to Date (2-13-2018)



San Marcos Springs Discharge to Date (2-13-2018)

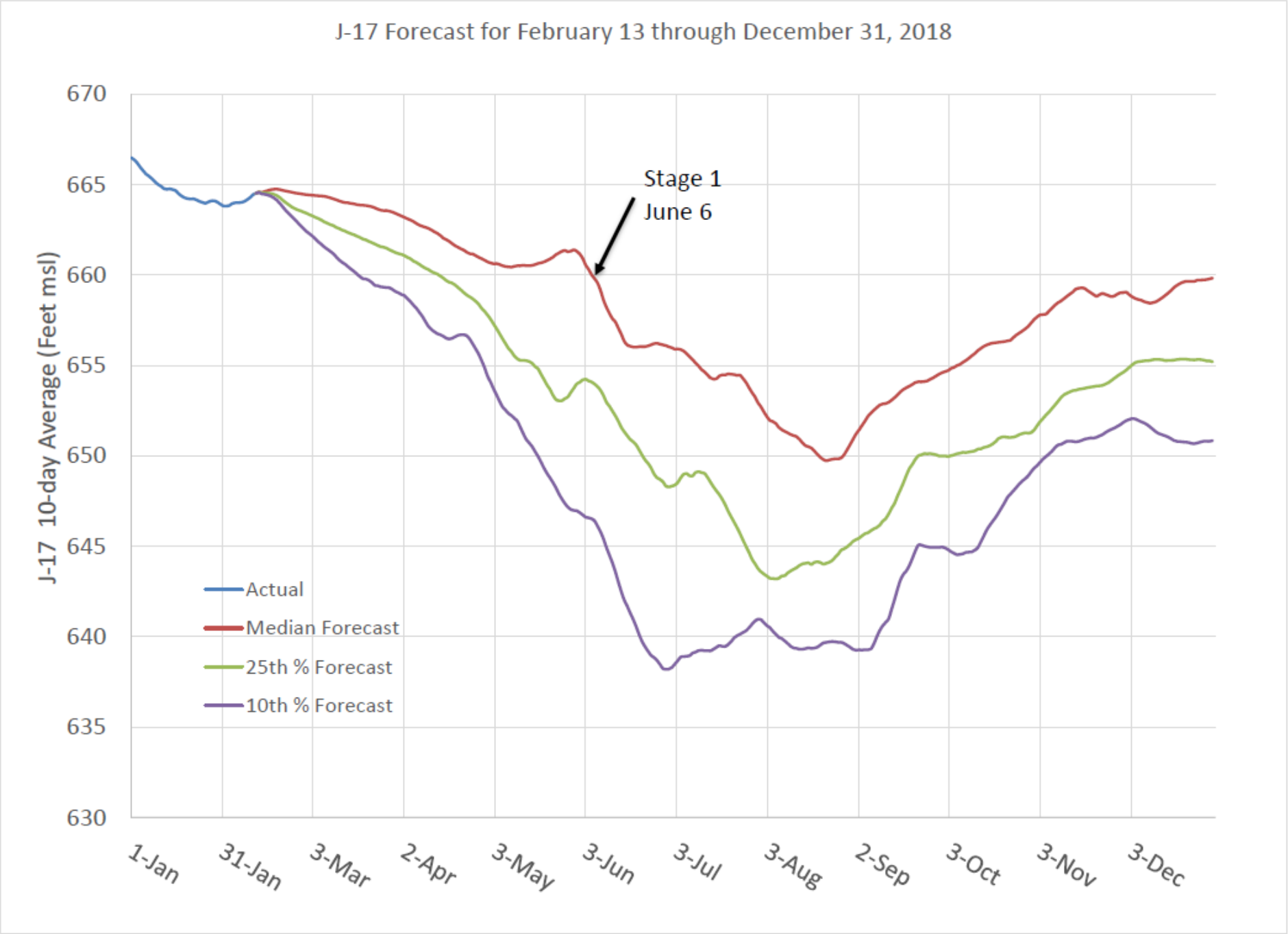


Well J-27 Water Level to Date (2-13-2018)



Forecast based on historical record for J-17 water level

Forecast does not incorporate predictions for precipitation, drought, etc.



If we wanted to add other factors, what would we add and how useful would they be?

- A very good source of information (maps and data) for all things drought-related is:

U.S. Drought Portal at https://www.drought.gov/drought/

Soil Moisture Anomaly Map

Difference in moisture content compared to long term record

Palmer Hydrological Drought Index

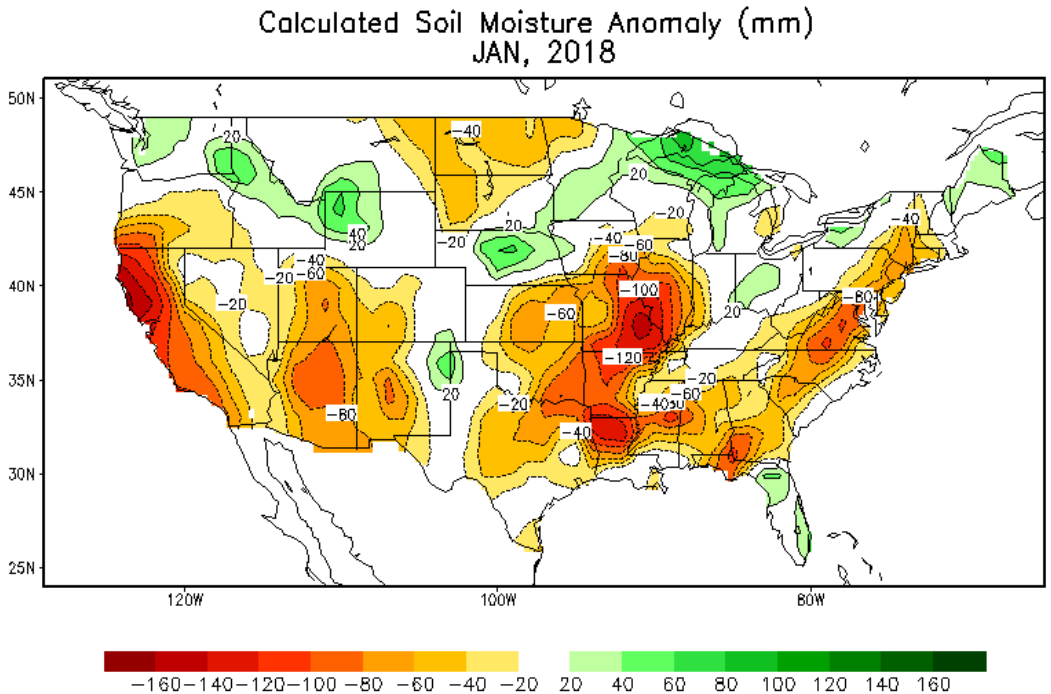
Precipitation and evapotranspiration applied to soil moisture model

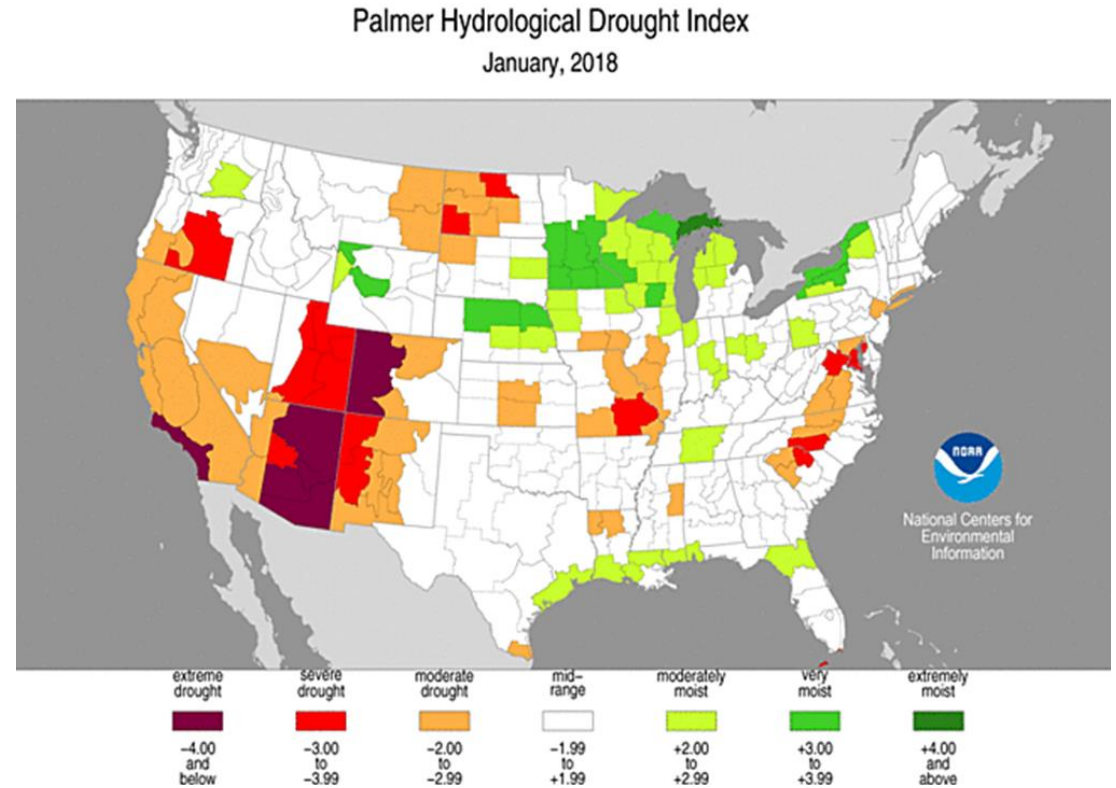
NASA GRACE Shallow Groundwater

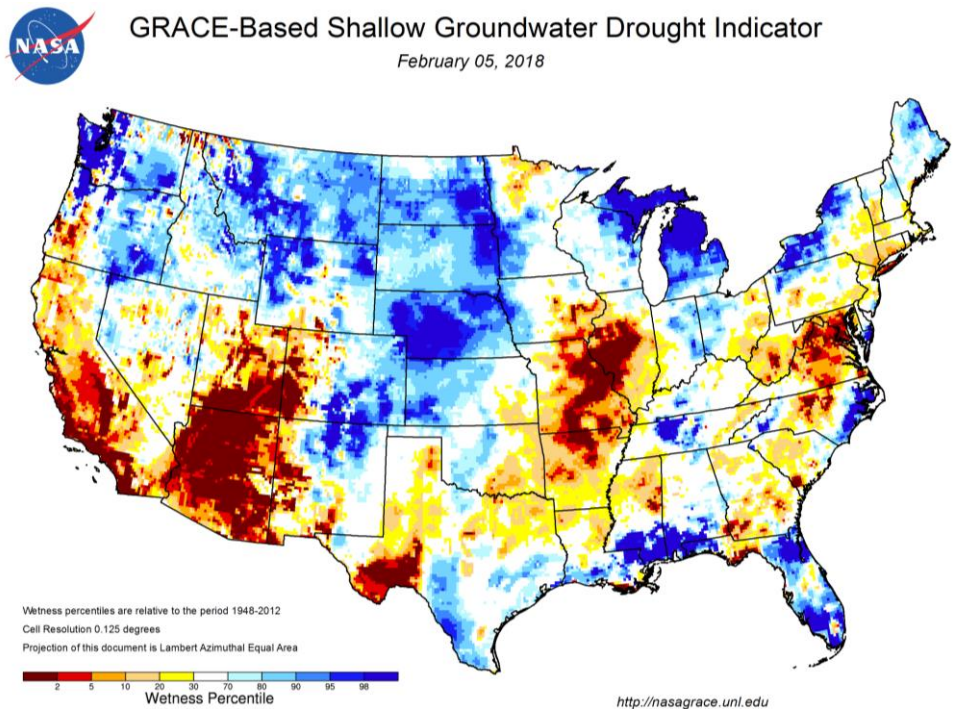
Gravity measurement-based moisture content compared to long term record

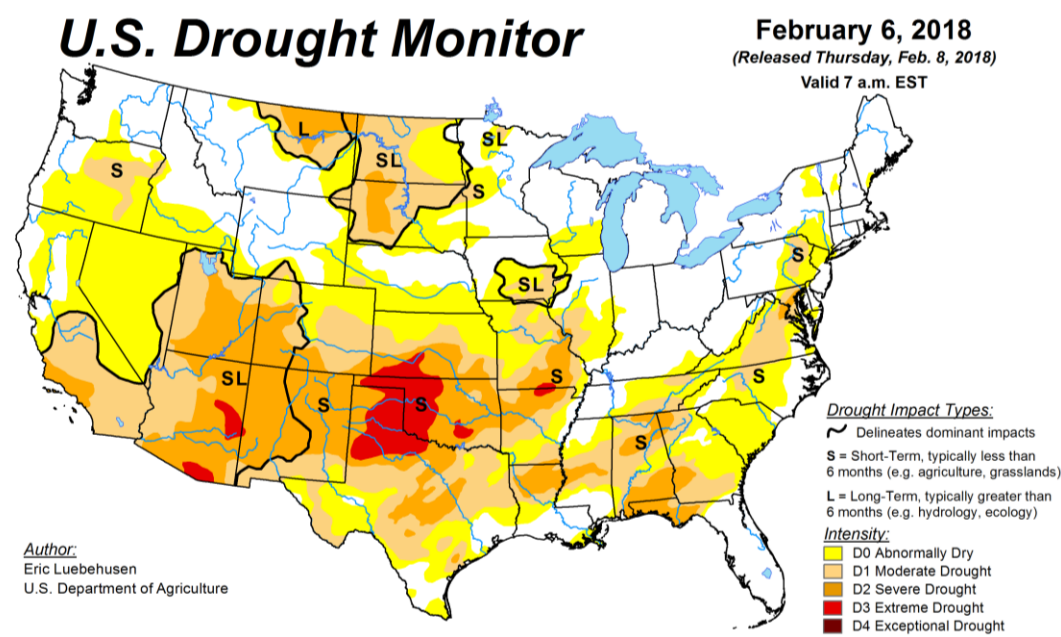
U.S. Drought Monitor

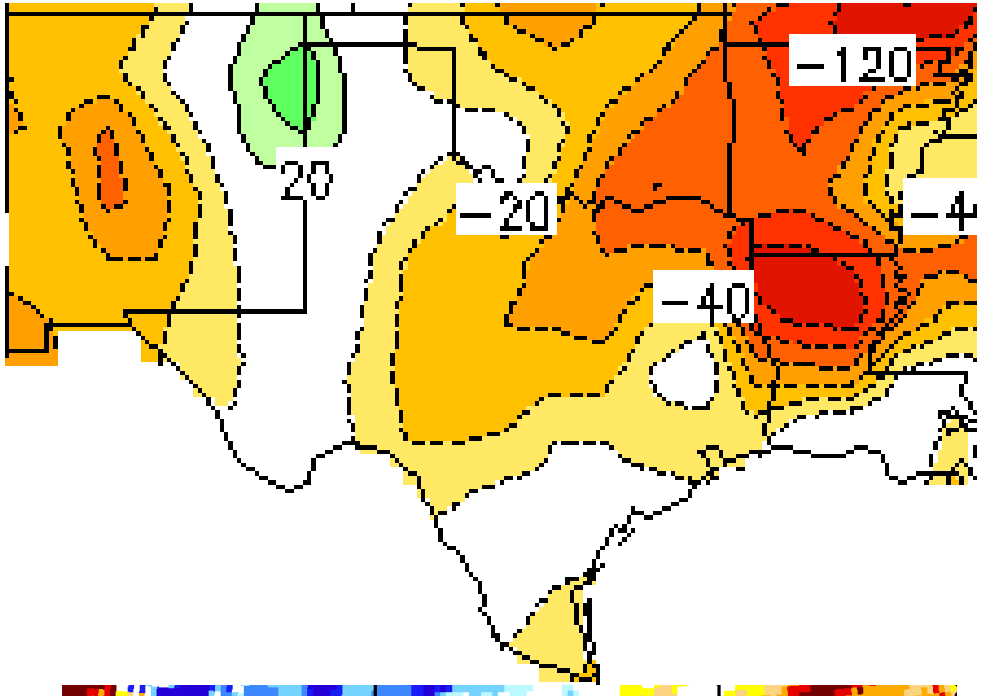
Combines data with qualitative estimates by experts

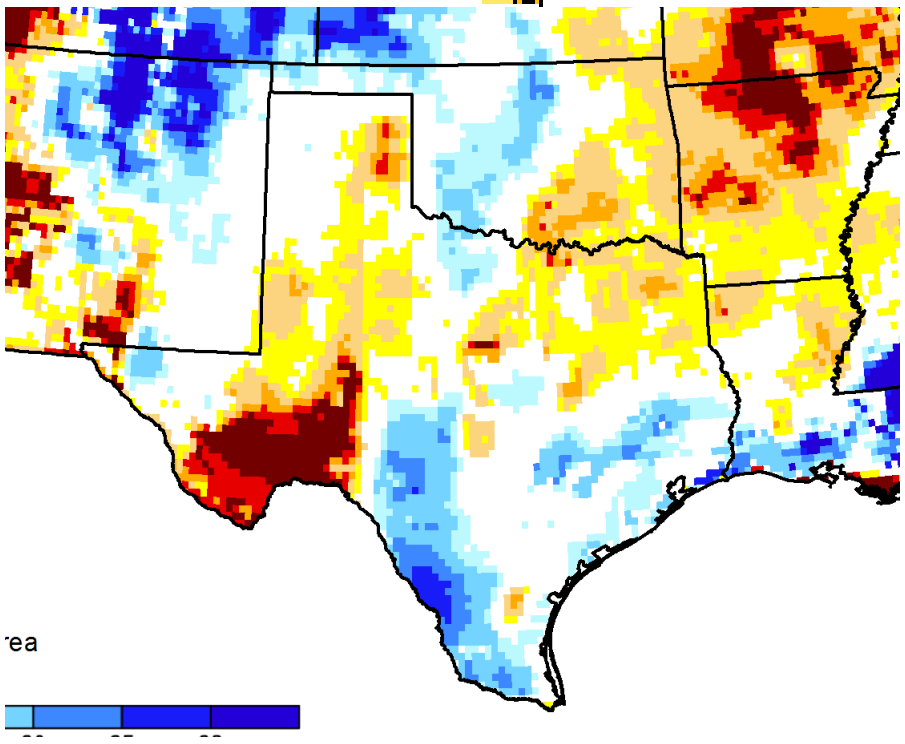

Calculated Soil Moisture Anomaly (mm)
JAN, 2018
50N
45N
40N
35N
30N
25N
120W
100W
80W
−160 −140 −120 −100 −80 −60 −40 −20 20 40 60 80 100 120 140 160

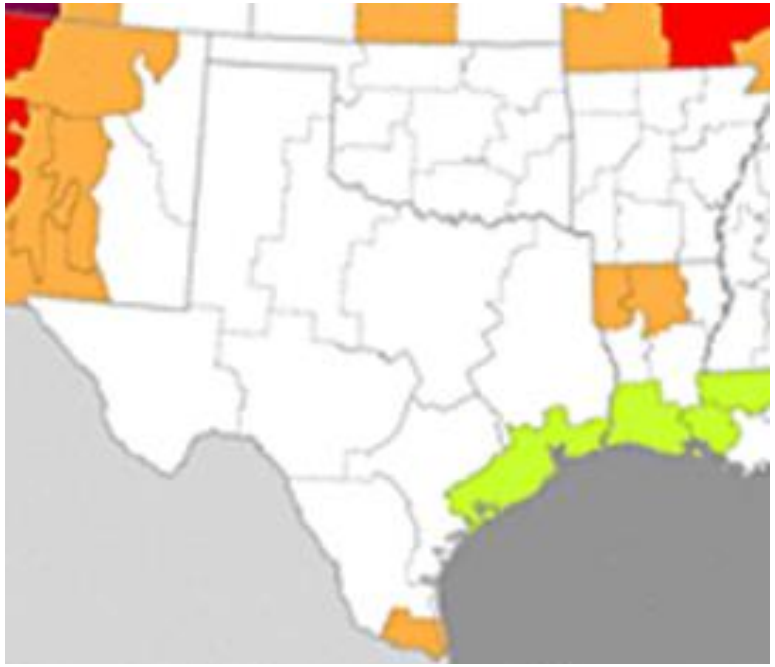

Palmer Hydrological Drought Index
January, 2018
National Centers for Environmental Information
extreme drought
severe drought
moderate drought
mid-range
moderately moist
very moist
extremely moist
−4.00 and below
−3.00 to −3.99
−2.00 to −2.99
−1.99 to +1.99
+2.00 to +2.99
+3.00 to +3.99
+4.00 and above


GRACE-Based Shallow Groundwater Drought Indicator
February 05, 2018
Wetness percentiles are relative to the period 1948-2012
Cell Resolution 0.125 degrees
Projection of this document is Lambert Azimuthal Equal Area
2 5 10 20 30 70 80 90 95 98
Wetness Percentile
http://nasagrace.unl.edu


U.S. Drought Monitor
February 6, 2018
(Released Thursday, Feb. 8, 2018)
Valid 7 a.m. EST
Drought Impact Types:
Delineates dominant impacts
S = Short-Term, typically less than 6 months (e.g. agriculture, grasslands)
L = Long-Term, typically greater than 6 months (e.g. hydrology, ecology)
Intensity:
D0 Abnormally Dry
D1 Moderate Drought
D2 Severe Drought
D3 Extreme Drought
D4 Exceptional Drought
Author:
Eric Luebehusen
U.S. Department of Agriculture

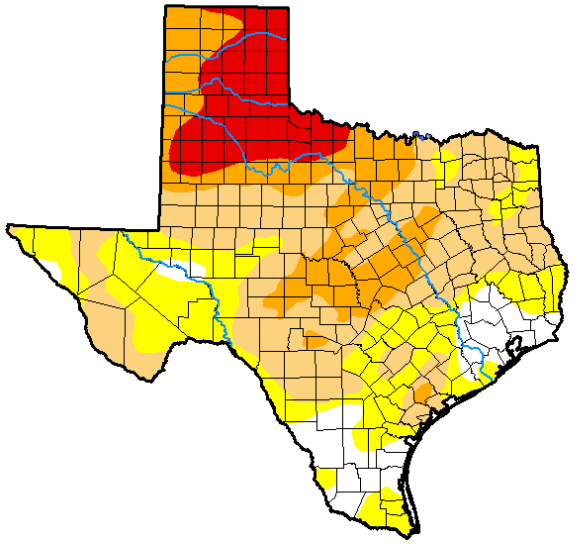






U.S. Drought Monitor

Texas



February 6, 2018

(Released Thursday, Feb. 8, 2018)

Valid 7 a.m. EST

Drought Conditions (Percent Area)

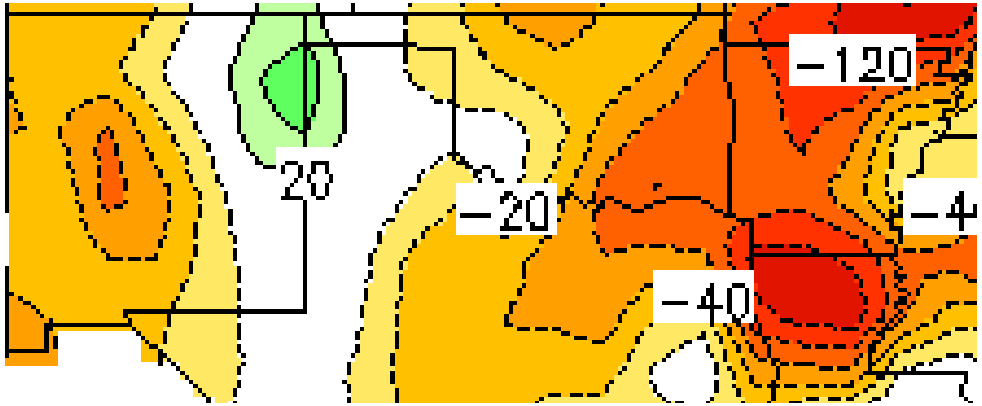
	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	9.76	90.24	64.88	29.56	11.79	0.00
Last Week *01-30-2018*	13.27	86.73	56.47	21.98	7.30	0.00
3 Months Ago *11-07-2017*	58.23	41.77	8.80	0.56	0.00	0.00
Start of Calendar Year *01-02-2018*	33.37	66.63	33.56	5.94	0.11	0.00
Start of Water Year *09-26-2017*	70.54	29.46	4.17	0.04	0.00	0.00
One Year Ago *02-07-2017*	90.56	9.44	3.40	1.22	0.19	0.00

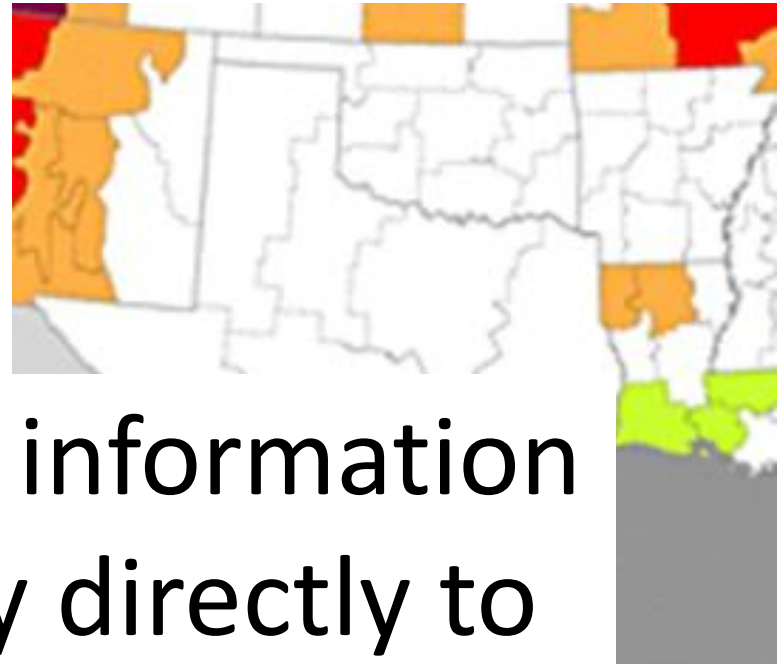
Intensity:

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

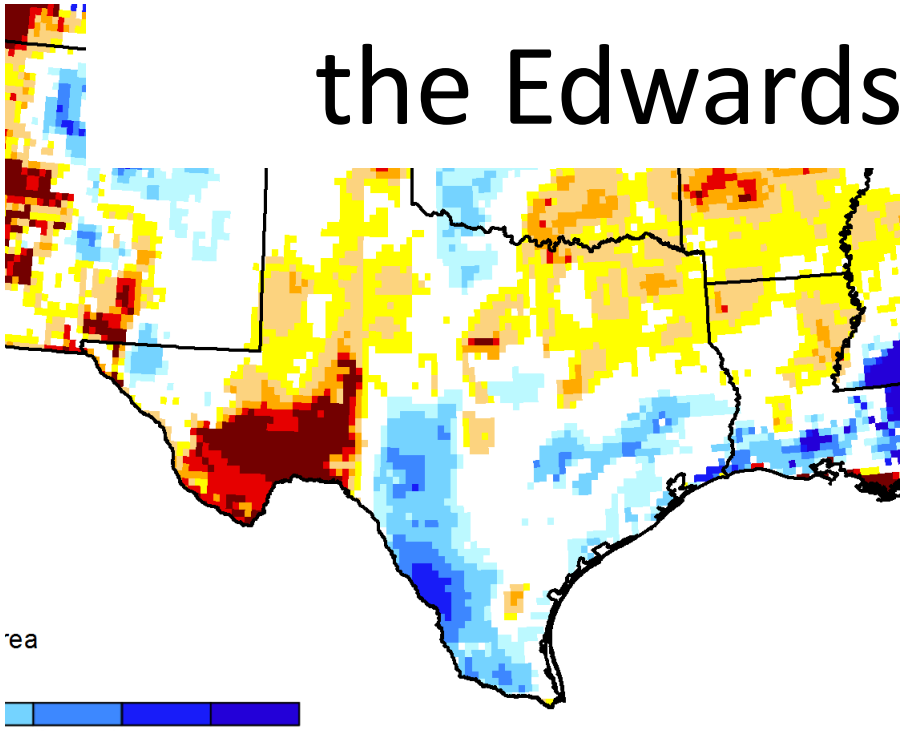
The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. See accompanying text summary for forecast statements.

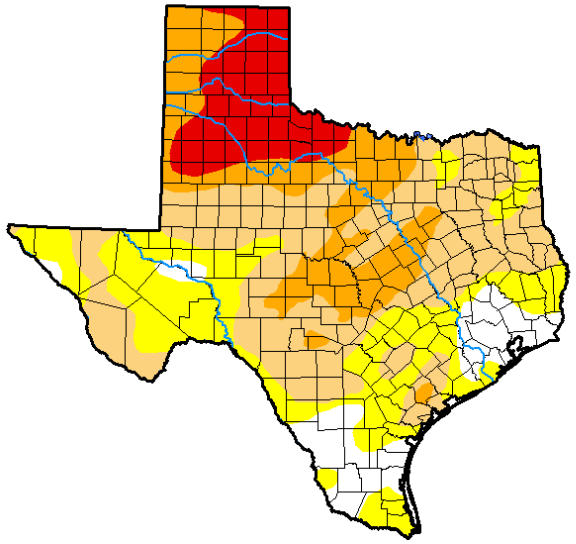
Author:
Eric Luebehusen
U.S. Department of Agriculture





Each tool has a use, but information can be difficult to apply directly to the Edwards Aquifer system





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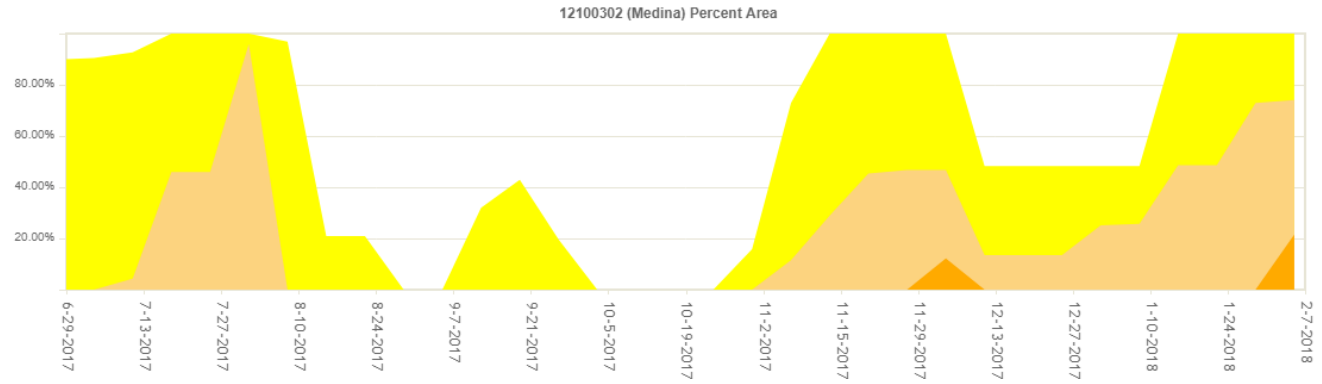
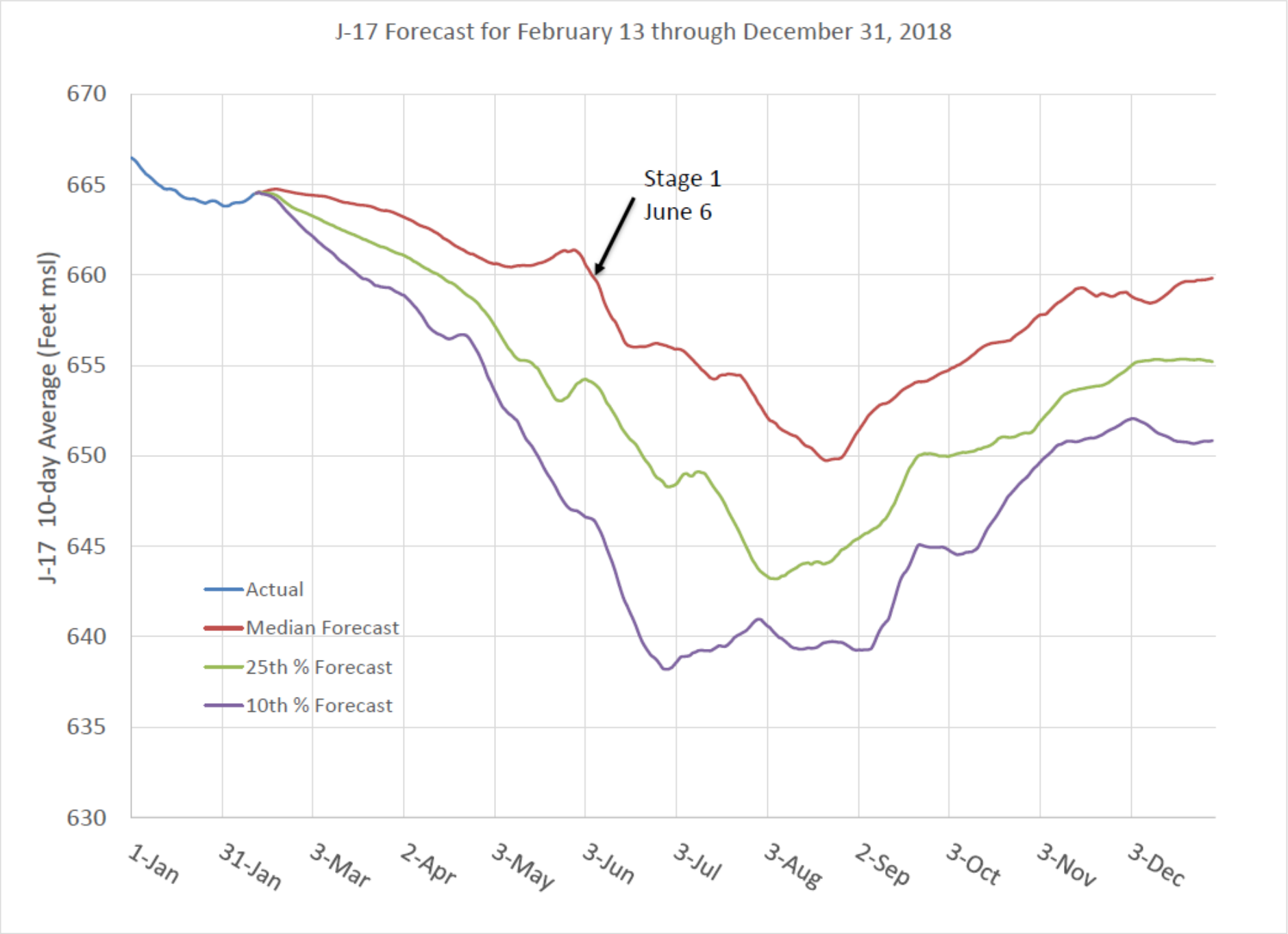
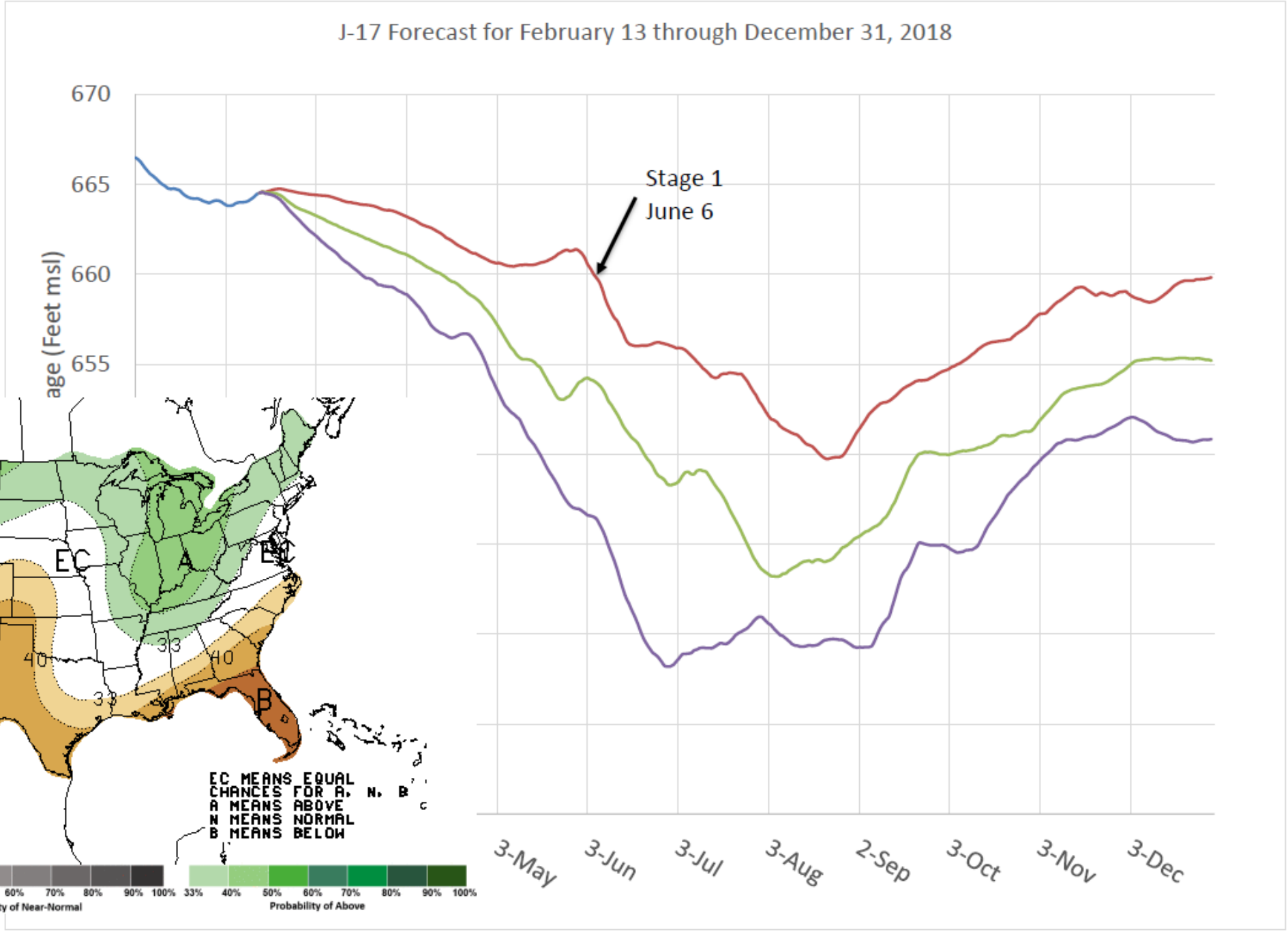
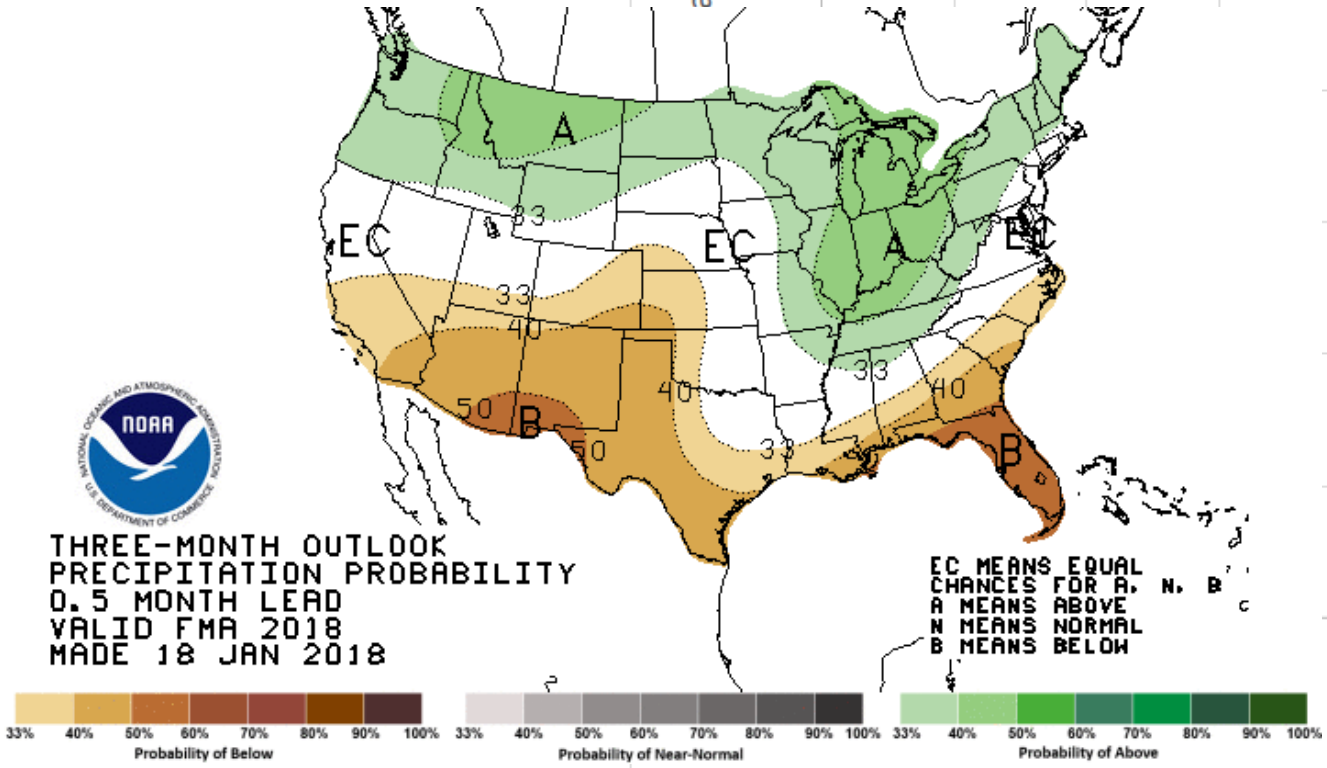


Drought percentage for Medina River Basin in Bandera, Medina, and Bexar counties (U.S. Drought Map)

Rough correlation but system response not consistent with drought values

Forecast based on historical record for J-17 water level



Forecast based on historical record for J-17 water level