

**The 2011  
Drought in  
Texas:**

**Real-Time  
Monitoring and  
Historical  
Perspective**

**John W.  
Nielsen-Gammon**

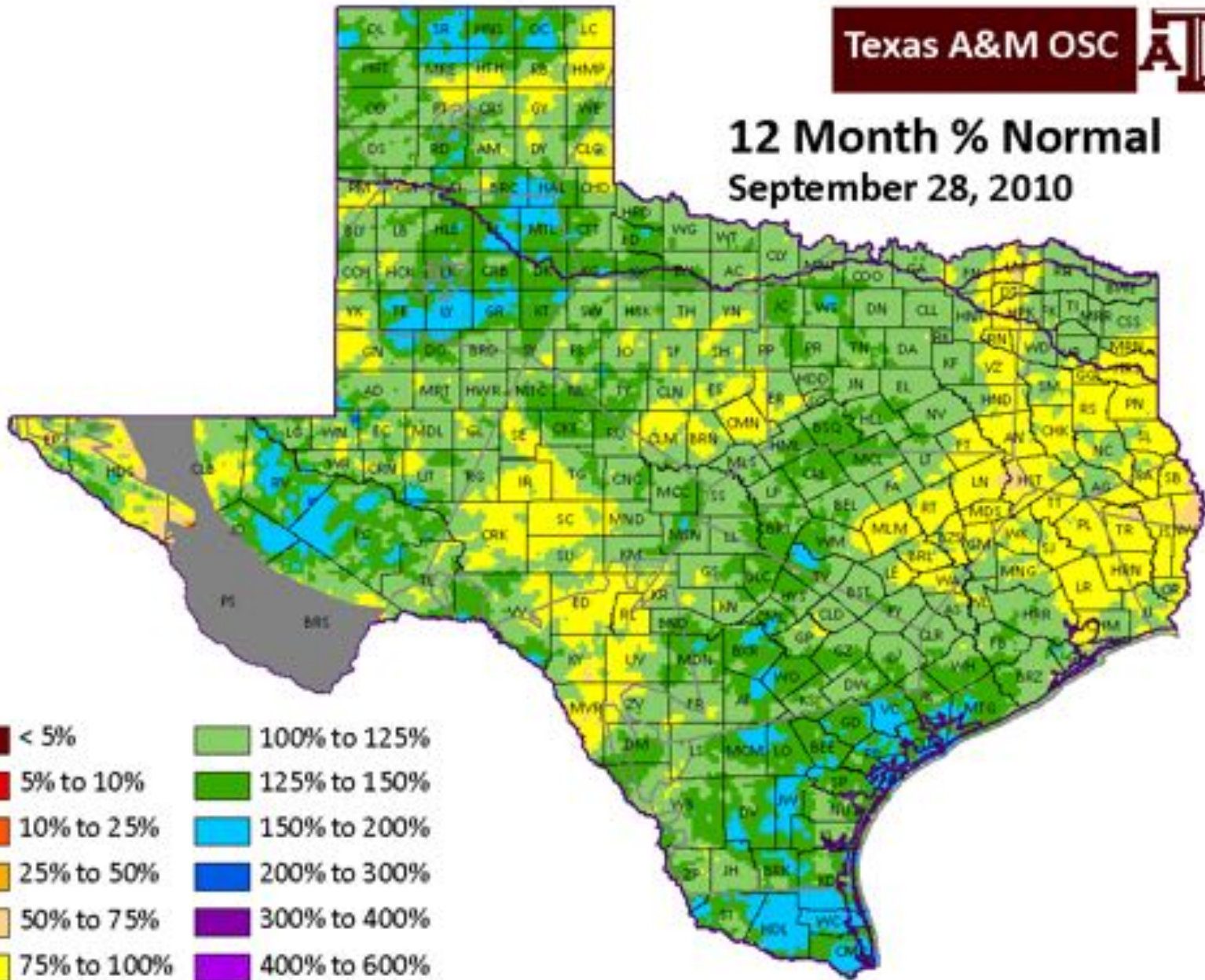
**Texas State  
Climatologist**














**Texas A&M  
University**

(collaboration with Brent McRoberts)

- McRoberts, D. B., and J. W. Nielsen-Gammon, 2011: The use of a high-resolution SPI for drought monitoring and assessment. *J. Appl. Meteor. Clim.*, early online release.
- <http://atmo.tamu.edu/osc/drought>
- <http://blog.chron.com/climateabyss>

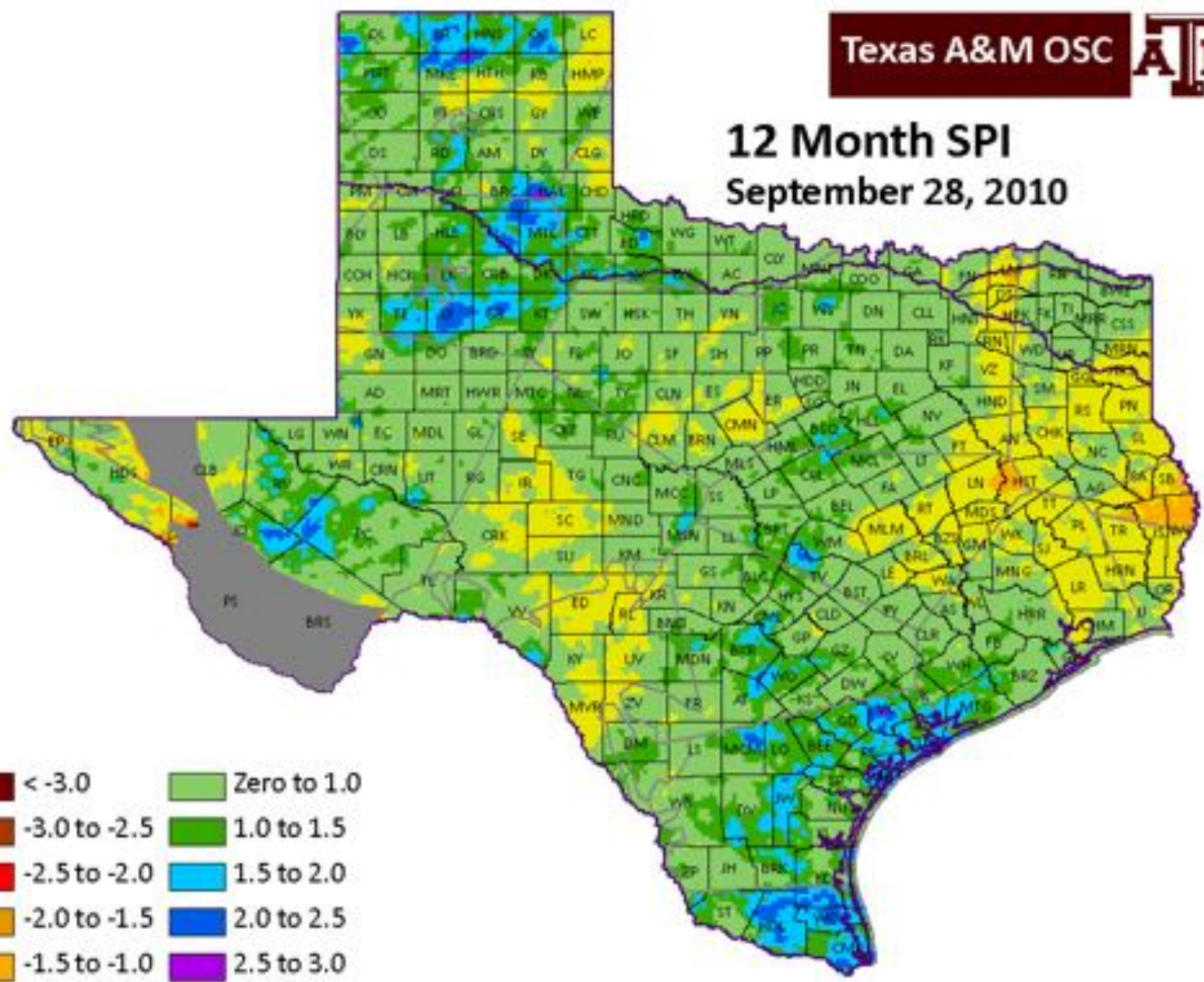
# 12 Month % Normal September 28, 2010



- |   |             |   |              |
|---|-------------|---|--------------|
|  | < 5%        |  | 100% to 125% |
|  | 5% to 10%   |  | 125% to 150% |
|  | 10% to 25%  |  | 150% to 200% |
|  | 25% to 50%  |  | 200% to 300% |
|  | 50% to 75%  |  | 300% to 400% |
|  | 75% to 100% |  | 400% to 600% |
|   |             |  | > 600%       |

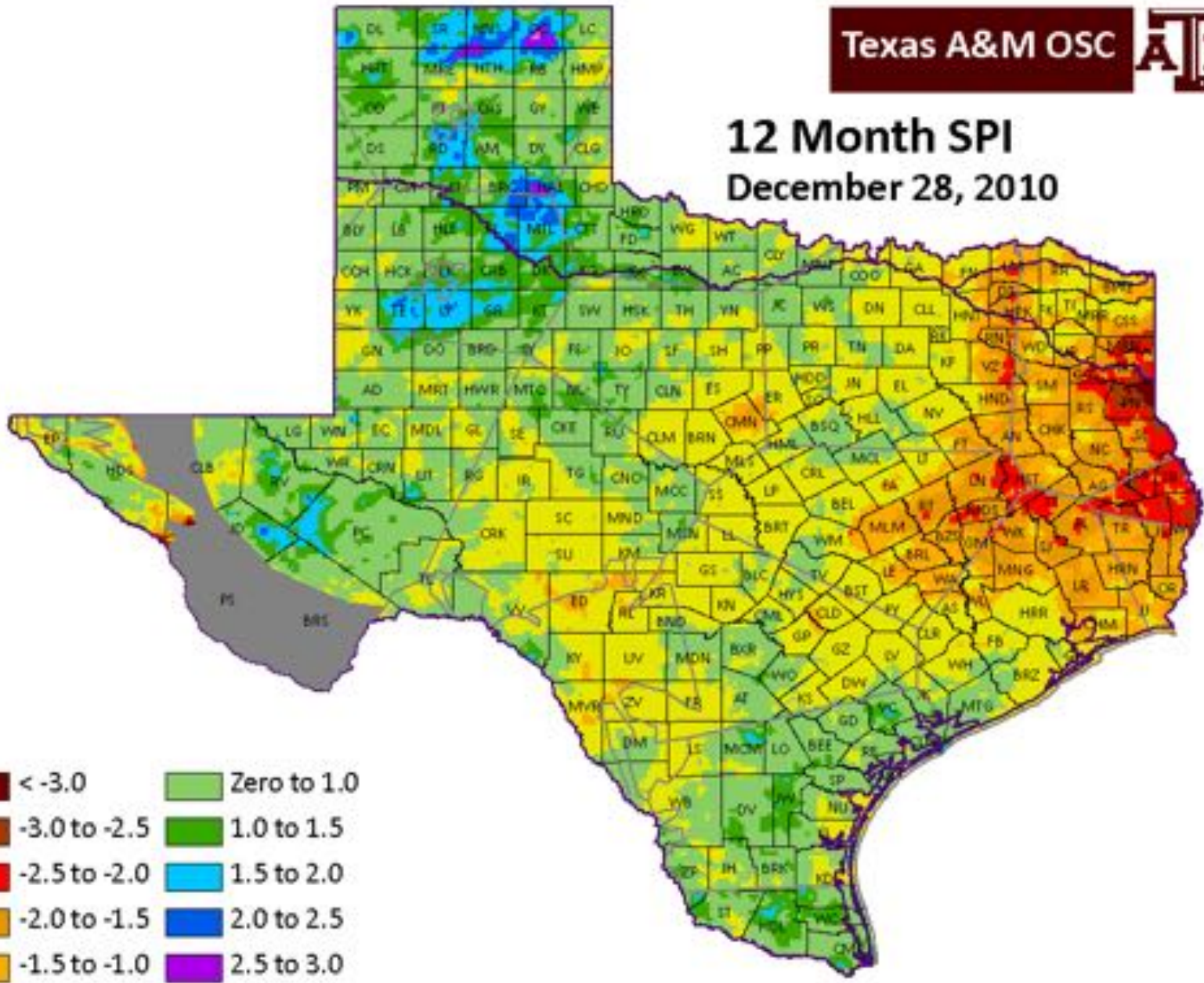
# 12 Month SPI

## September 28, 2010



# 12 Month SPI

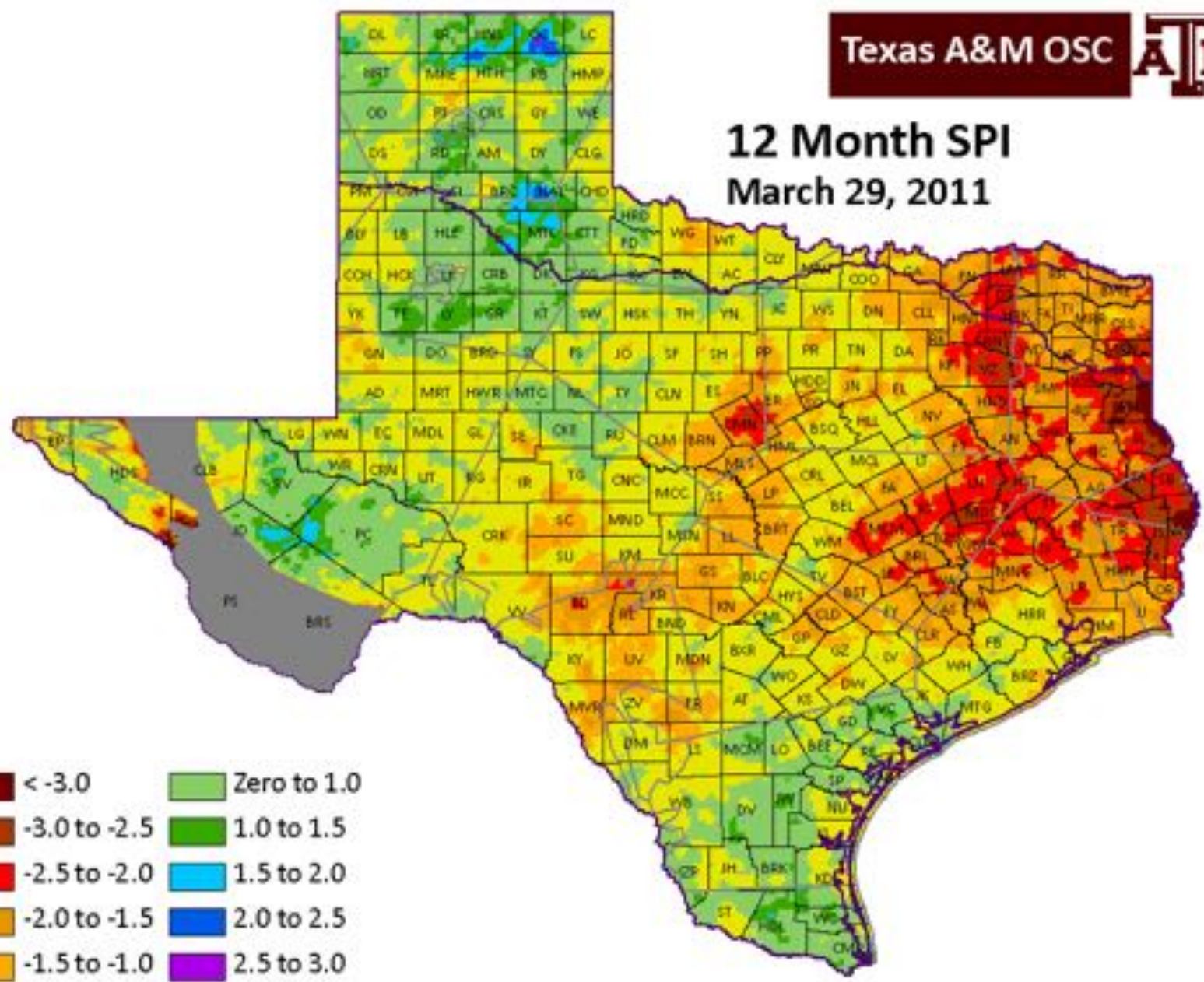
## December 28, 2010



- |  |   |
|--|---|
|  < -3.0       |  Zero to 1.0 |
|  -3.0 to -2.5 |  1.0 to 1.5  |
|  -2.5 to -2.0 |  1.5 to 2.0  |
|  -2.0 to -1.5 |  2.0 to 2.5  |
|  -1.5 to -1.0 |  2.5 to 3.0  |
|  -1.0 to Zero |  > 3.0       |

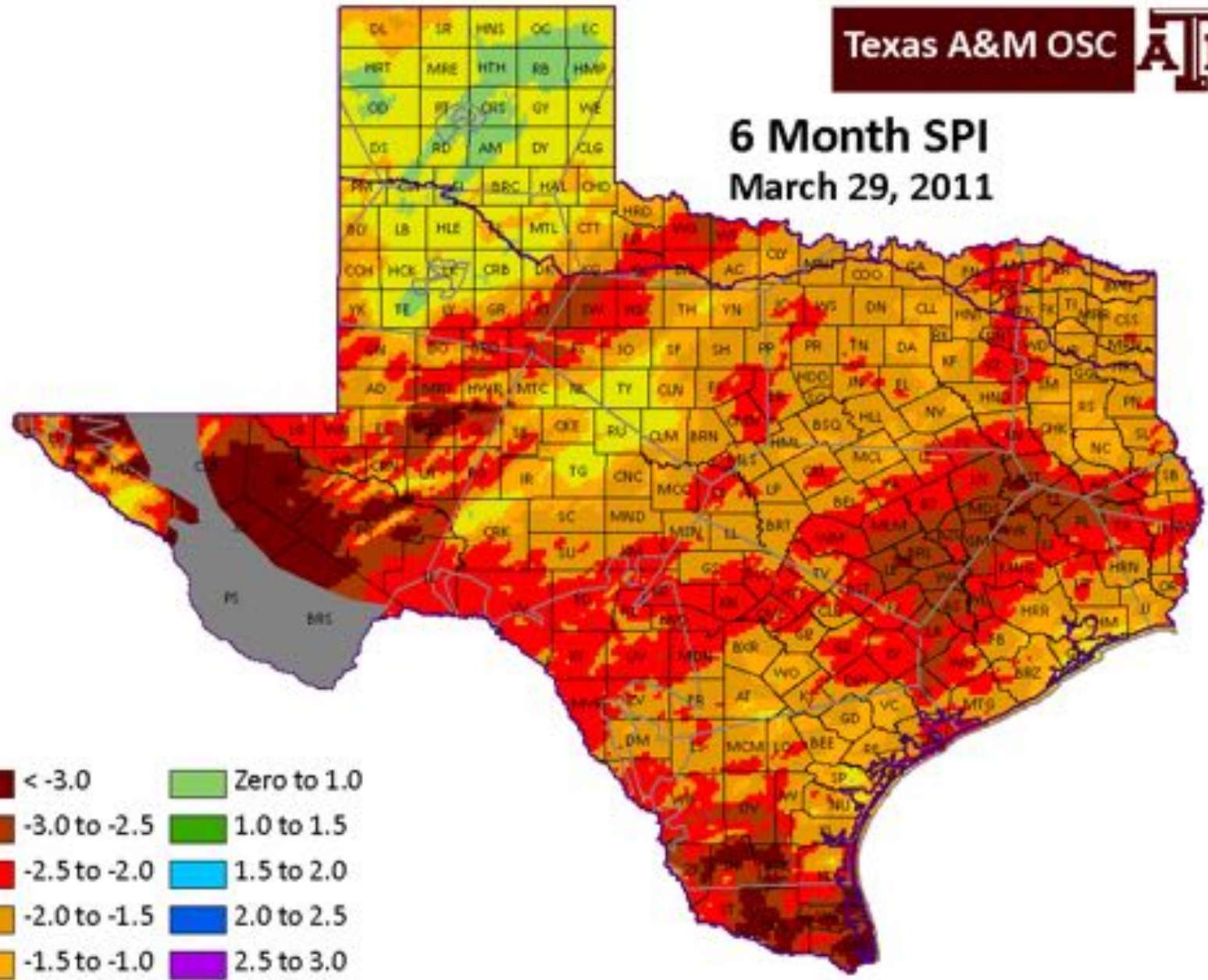
# 12 Month SPI

## March 29, 2011



# 6 Month SPI

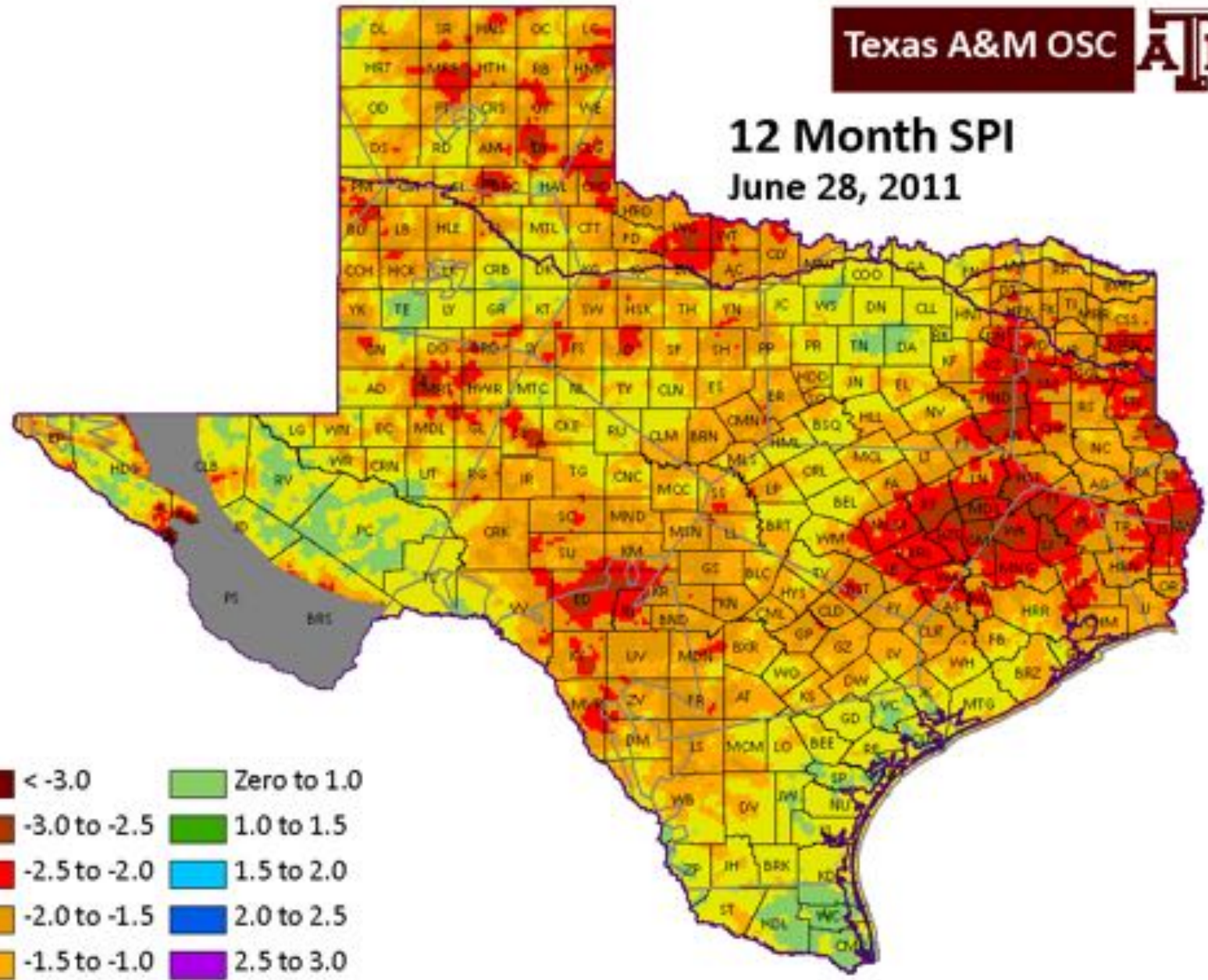
## March 29, 2011



- |   |              |   |             |
|---|--------------|---|-------------|
|  | < -3.0       |  | Zero to 1.0 |
|  | -3.0 to -2.5 |  | 1.0 to 1.5  |
|  | -2.5 to -2.0 |  | 1.5 to 2.0  |
|  | -2.0 to -1.5 |  | 2.0 to 2.5  |
|  | -1.5 to -1.0 |  | 2.5 to 3.0  |
|  | -1.0 to Zero |  | > 3.0       |

# 12 Month SPI

## June 28, 2011

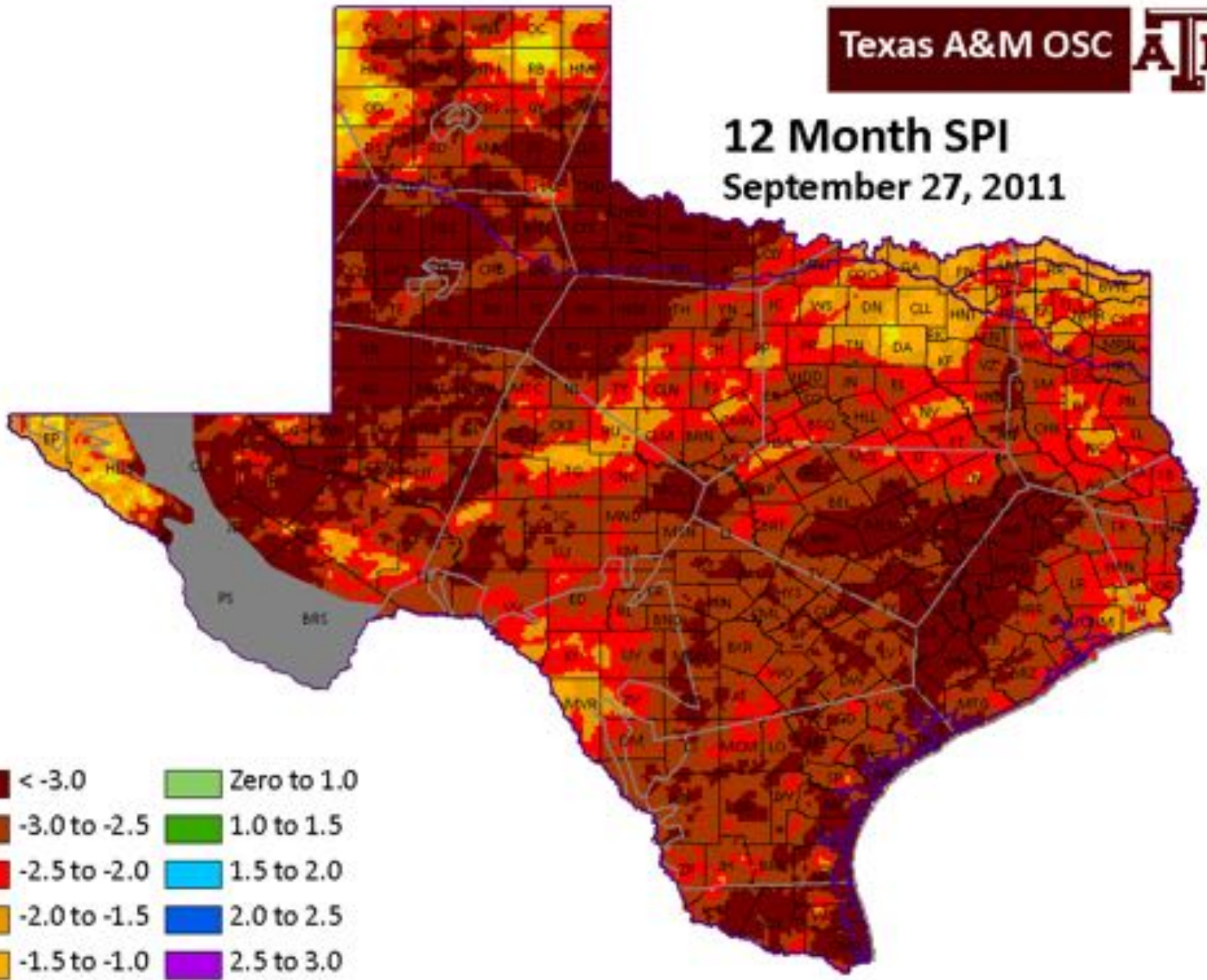


- |  |   |
|--|---|
|  < -3.0       |  Zero to 1.0 |
|  -3.0 to -2.5 |  1.0 to 1.5  |
|  -2.5 to -2.0 |  1.5 to 2.0  |
|  -2.0 to -1.5 |  2.0 to 2.5  |
|  -1.5 to -1.0 |  2.5 to 3.0  |
|  -1.0 to Zero |  > 3.0       |



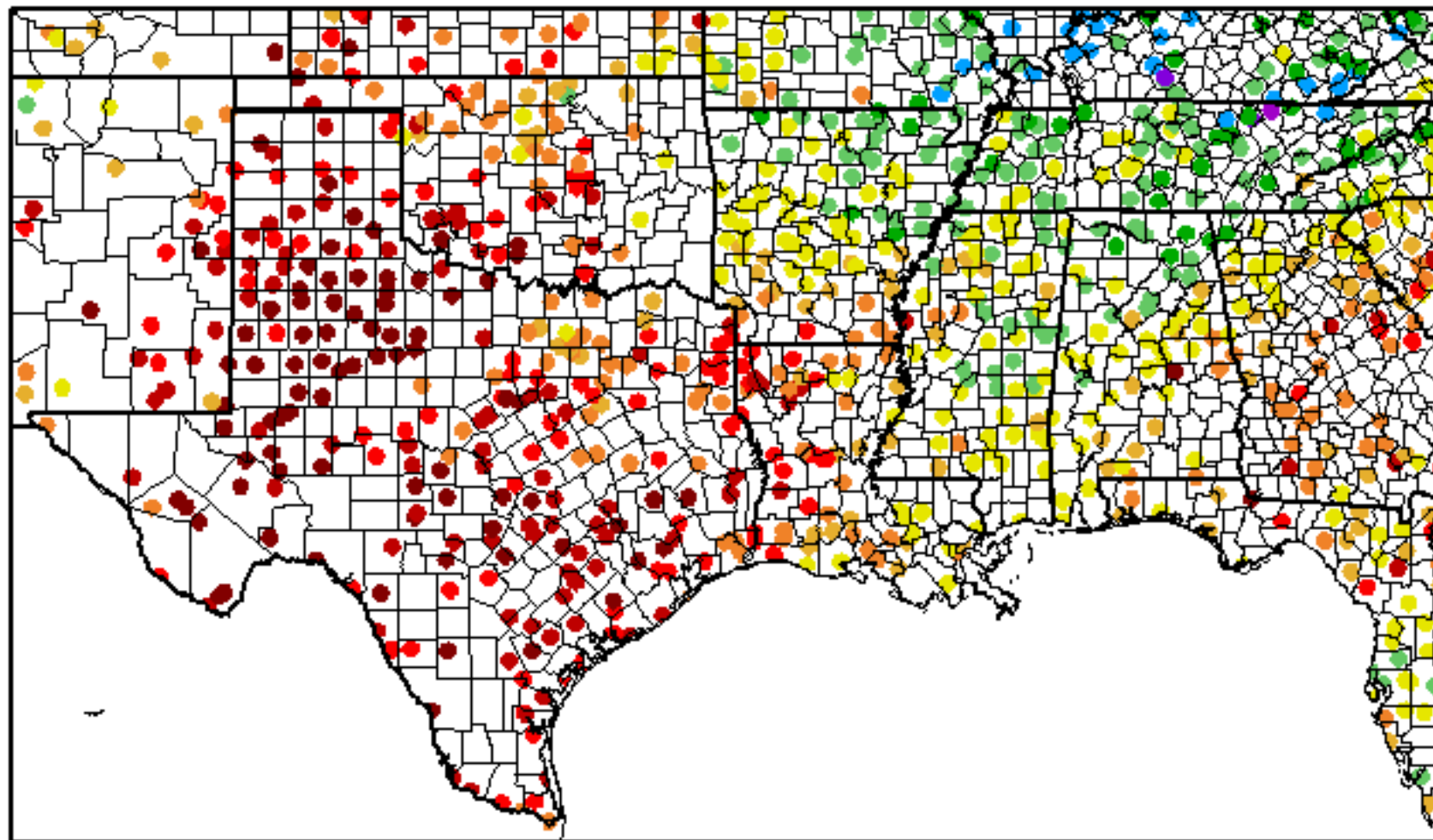
# 12 Month SPI

September 27, 2011

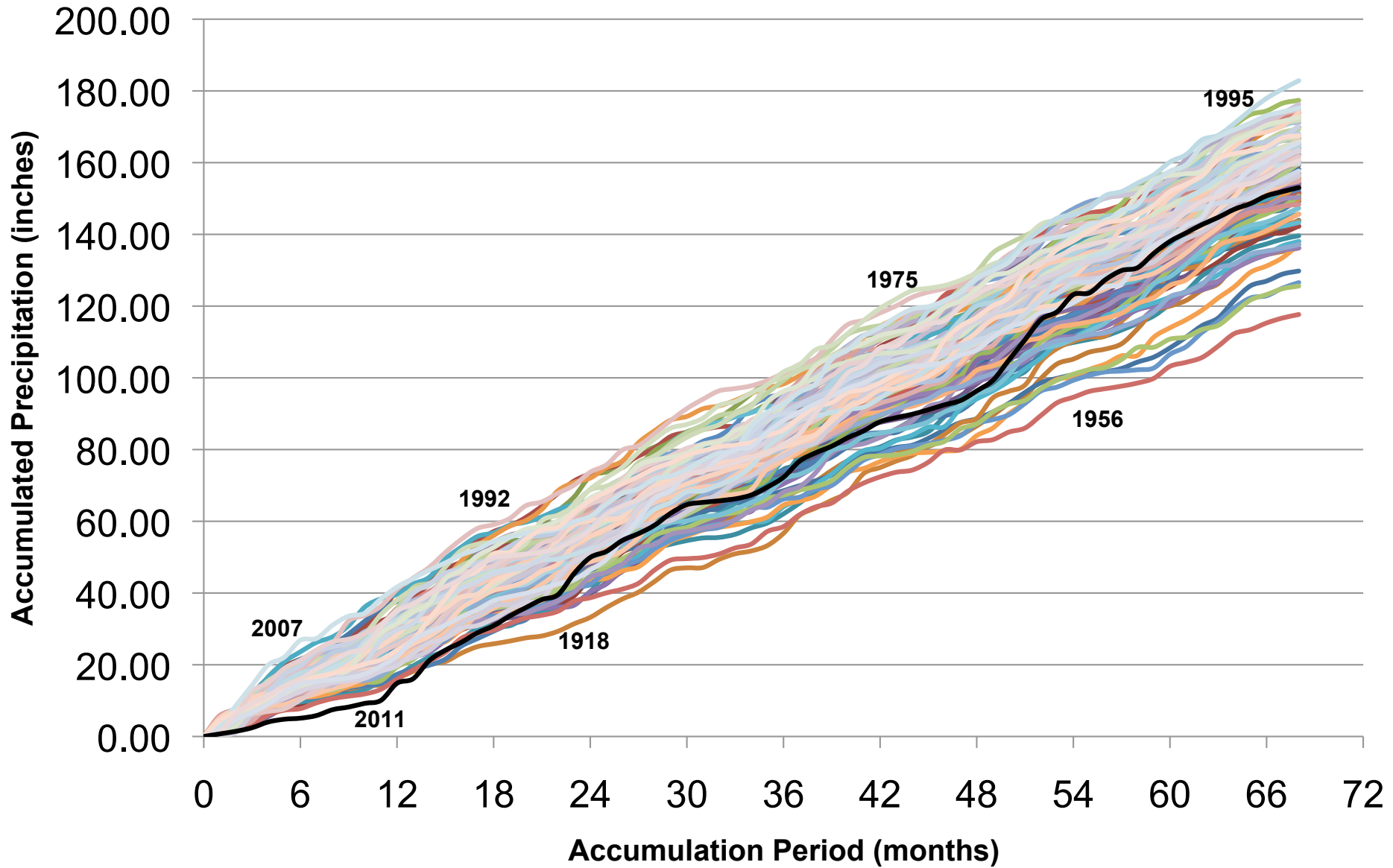


# 12 Month SPI

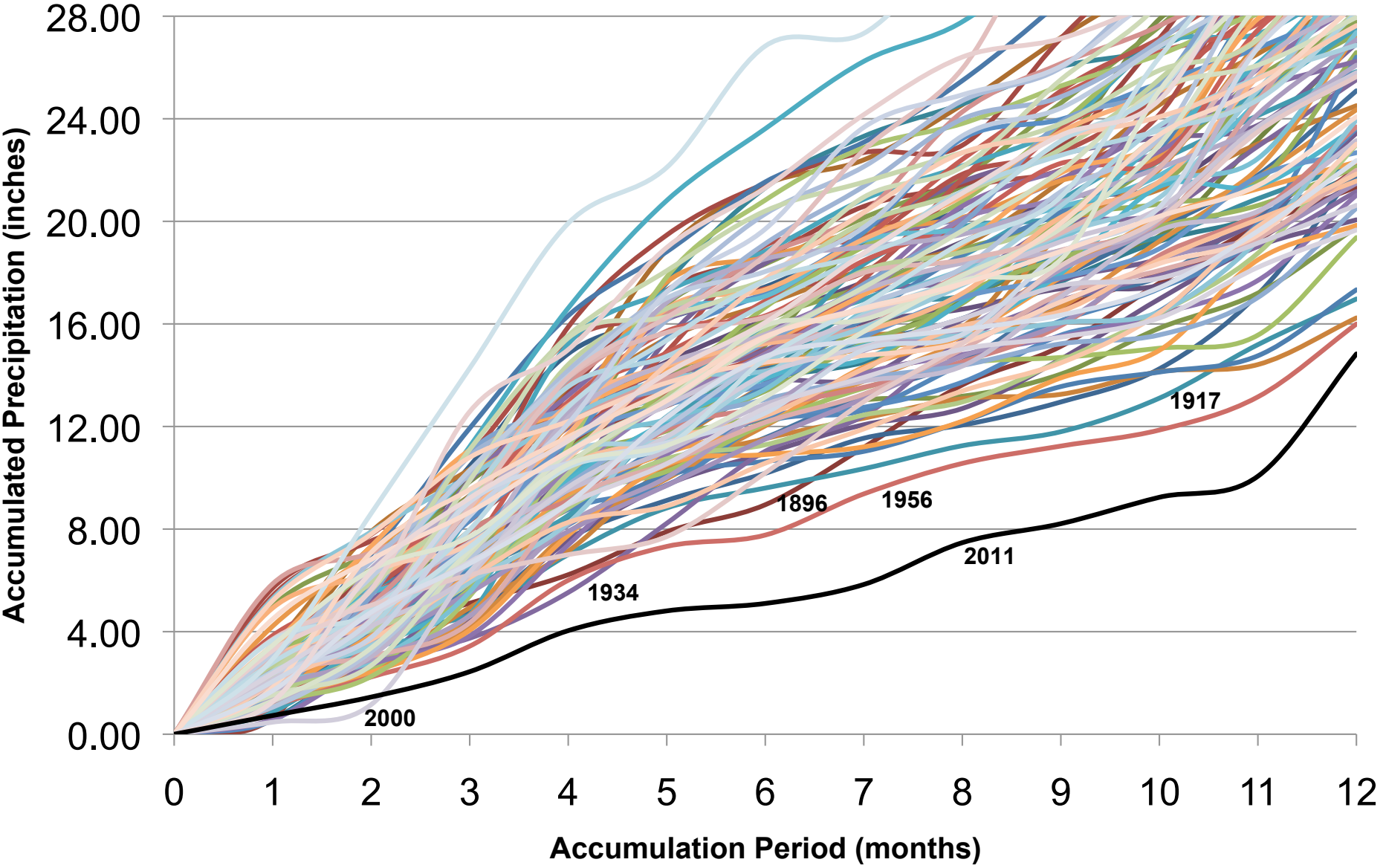
10/1/2010 - 9/30/2011



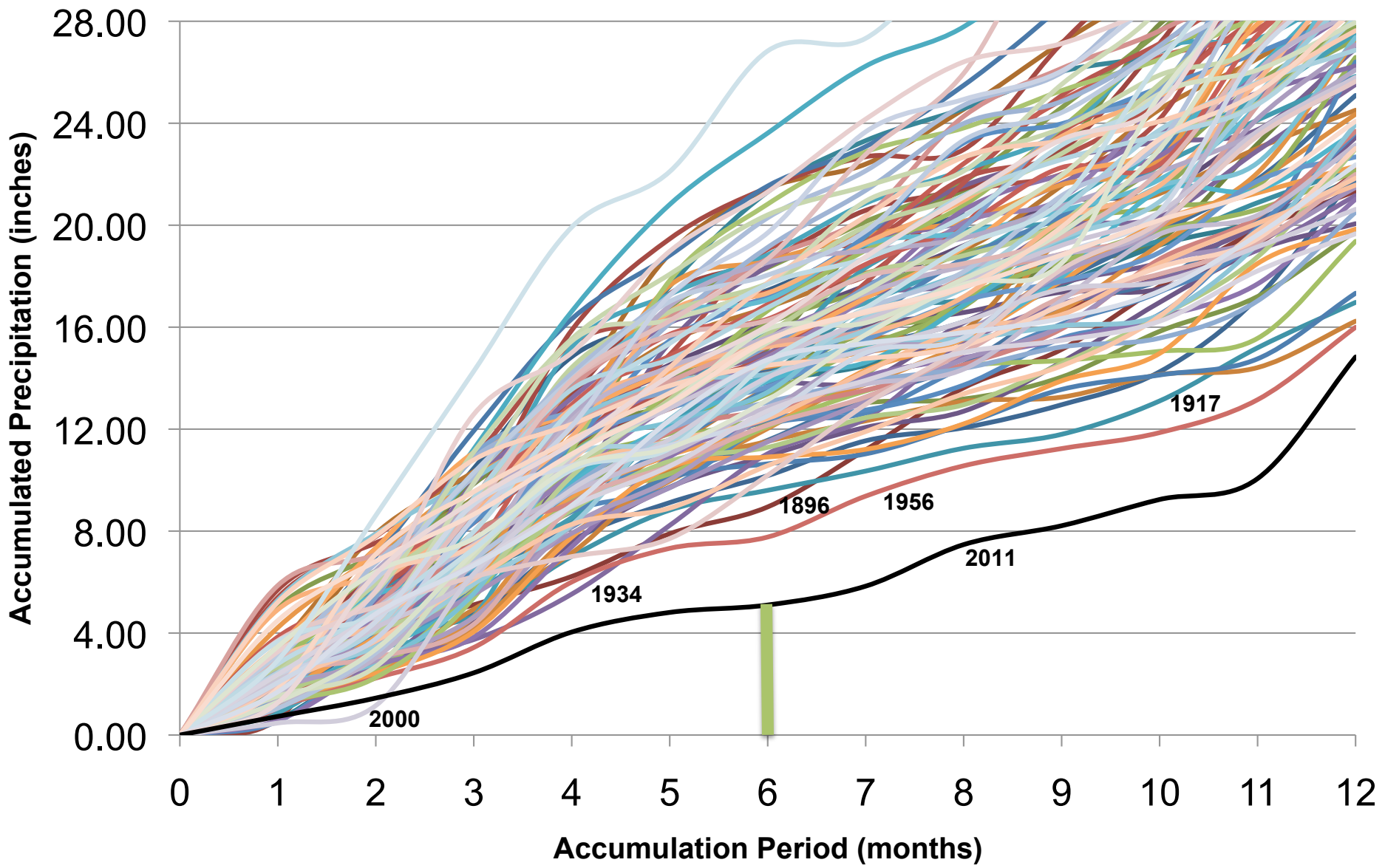
# Texas Long-Term Drought Status Through August



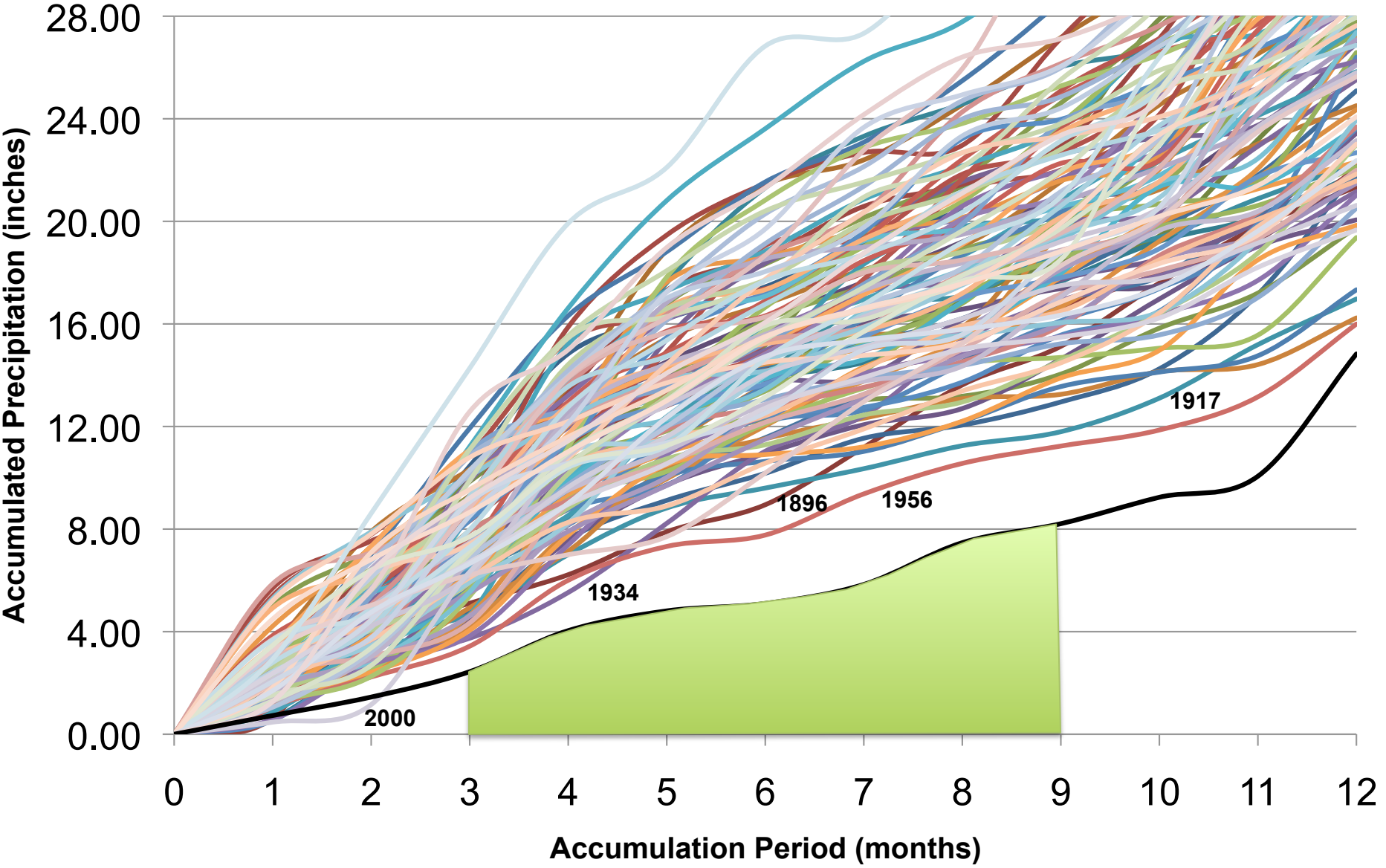
# Texas Short-Term Drought Status



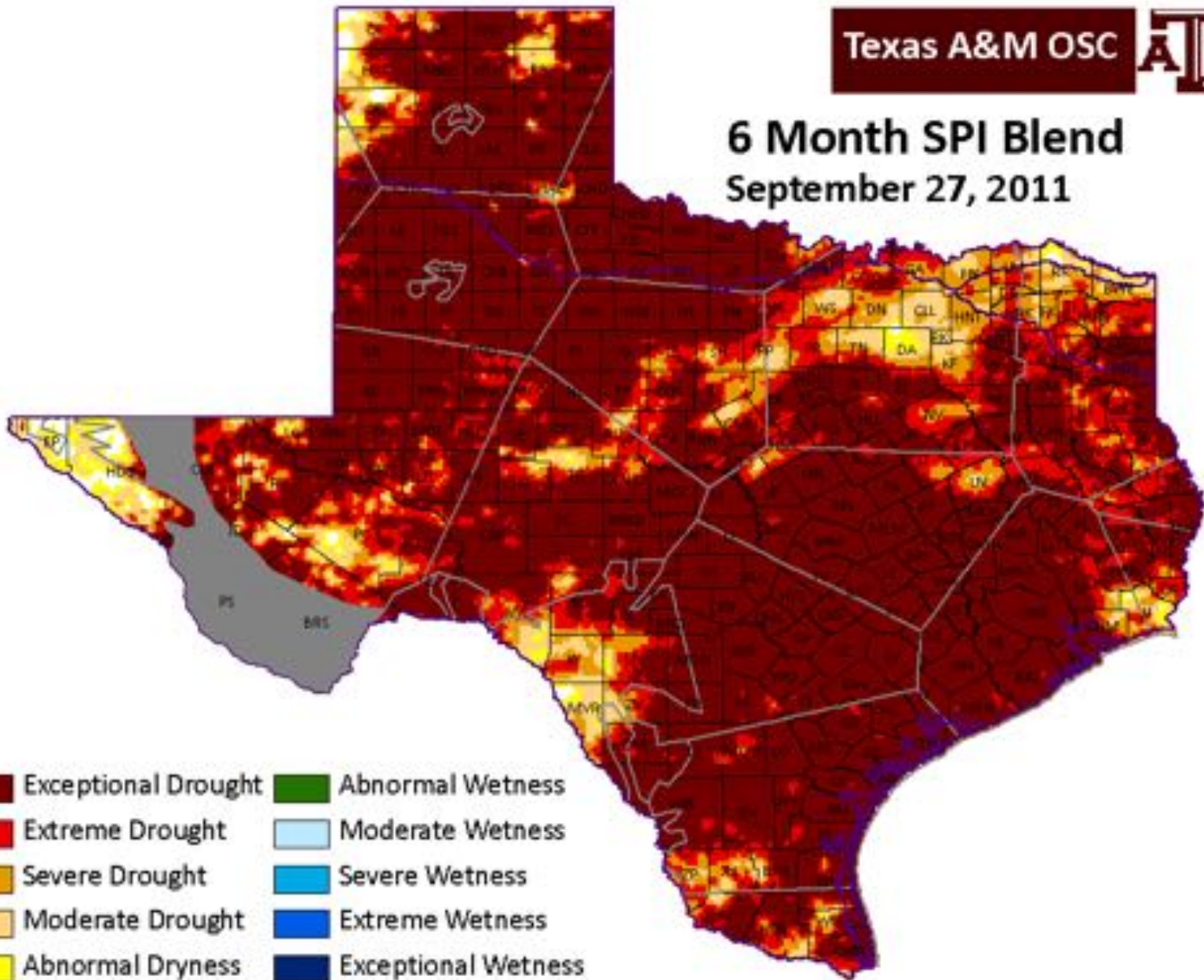
# Texas Short-Term Drought Status



# Texas Short-Term Drought Status

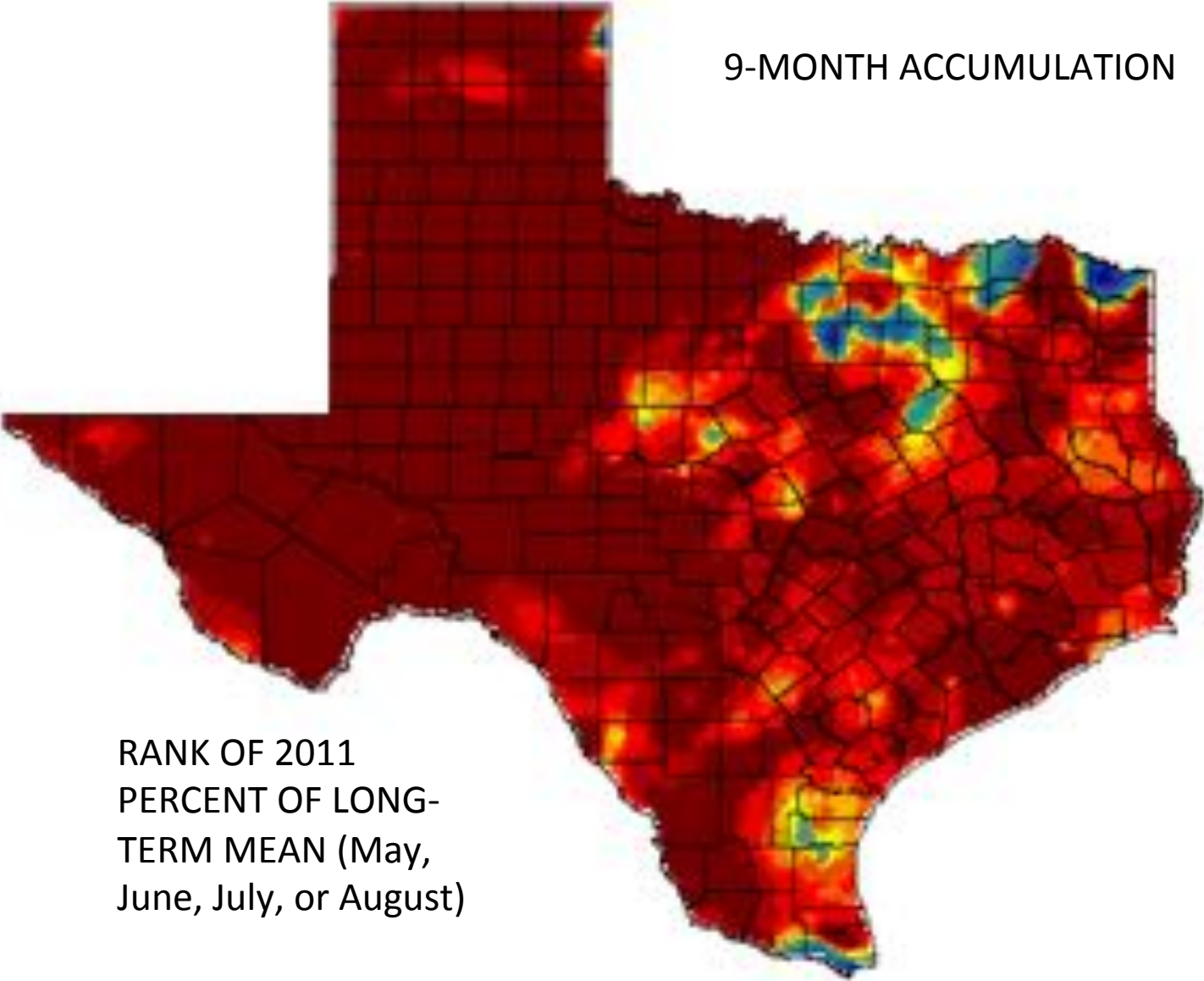


# 6 Month SPI Blend September 27, 2011



- |                     |                     |
|---------------------|---------------------|
| Exceptional Drought | Abnormal Wetness    |
| Extreme Drought     | Moderate Wetness    |
| Severe Drought      | Severe Wetness      |
| Moderate Drought    | Extreme Wetness     |
| Abnormal Dryness    | Exceptional Wetness |
| Normal              |                     |

9-MONTH ACCUMULATION

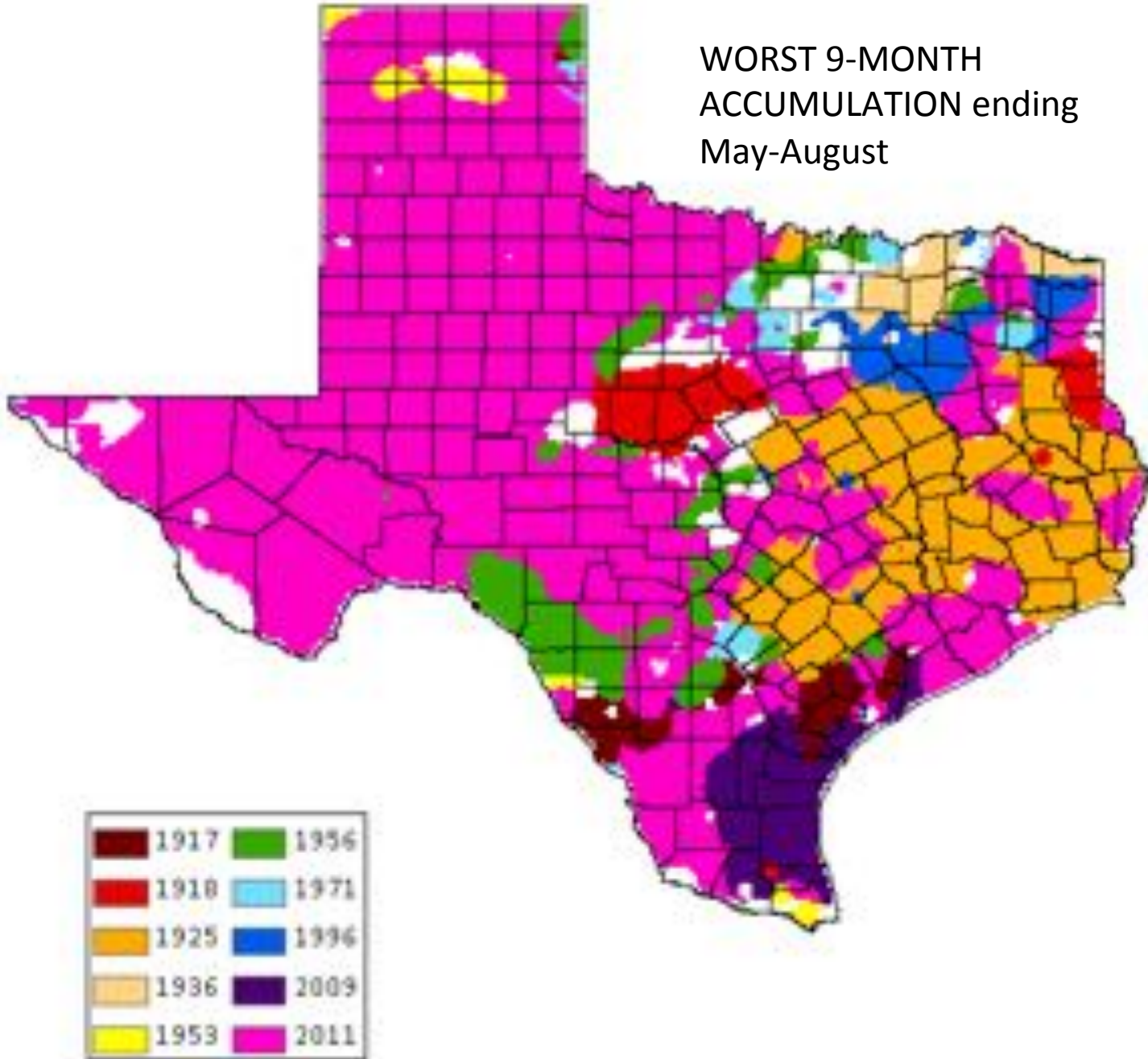


RANK OF 2011  
PERCENT OF LONG-  
TERM MEAN (May,  
June, July, or August)

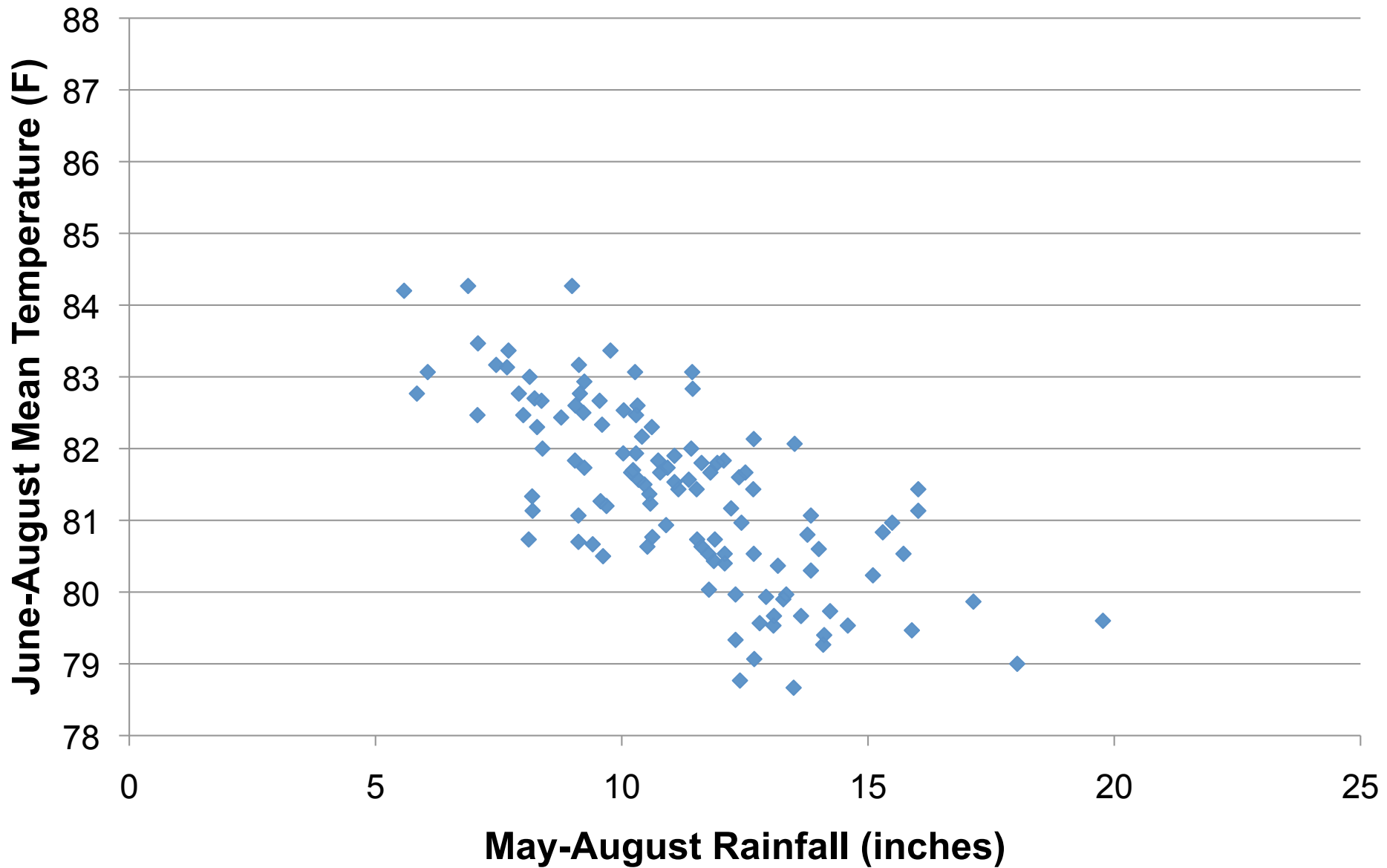
■ Driest	■ 5th driest	■ 9th driest	■ 15th - 16th	■ 26th - 30th
■ 2nd driest	■ 6th driest	■ 10th driest	■ 17th - 18th	■ 31st - 40th
■ 3rd driest	■ 7th driest	■ 11th - 12th	■ 19th - 20th	■ 41st - 50th
■ 4th driest	■ 8th driest	■ 13th - 14th	■ 21st - 25th	■ 51st - 100th



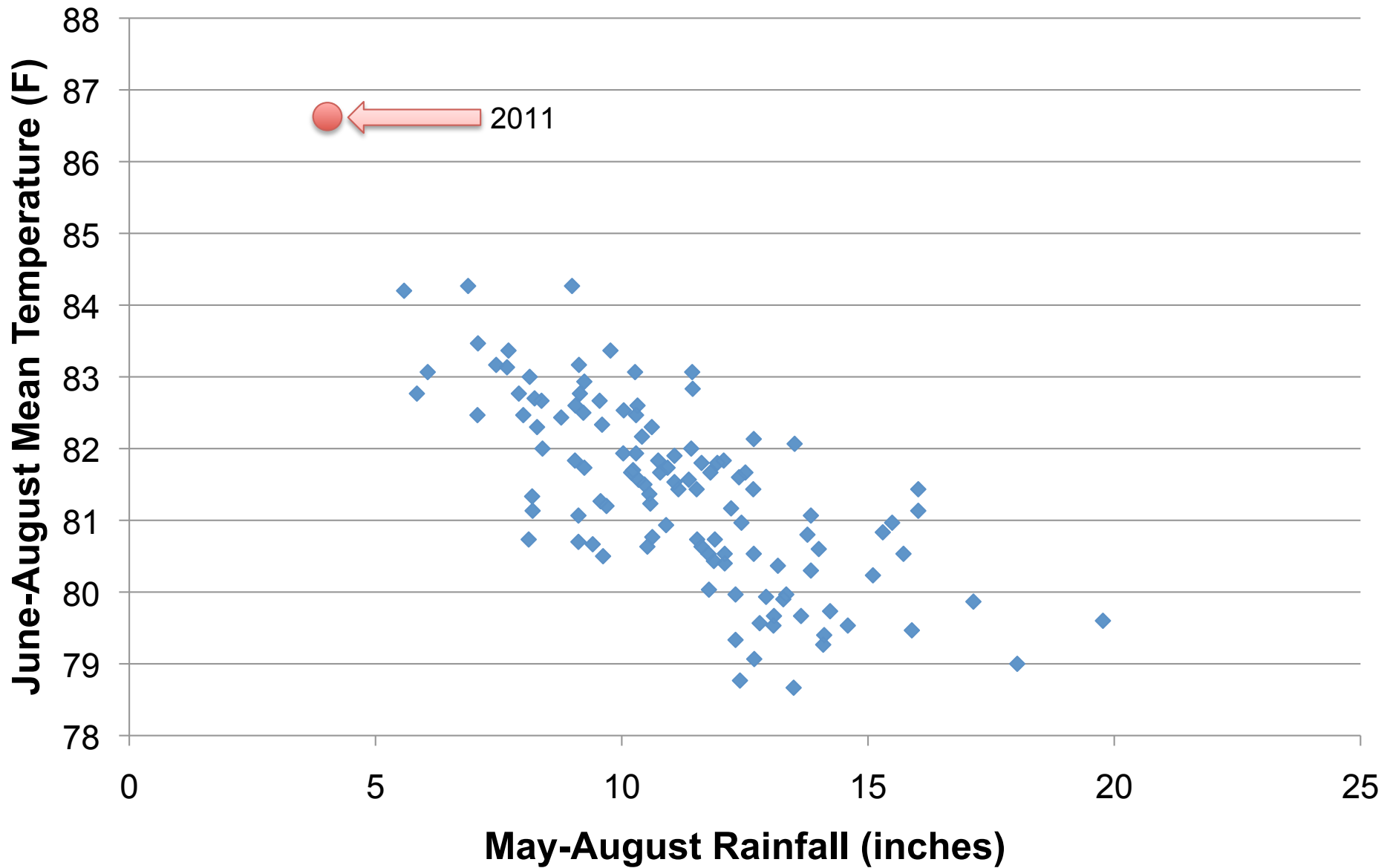
WORST 9-MONTH  
ACCUMULATION ending  
May-August



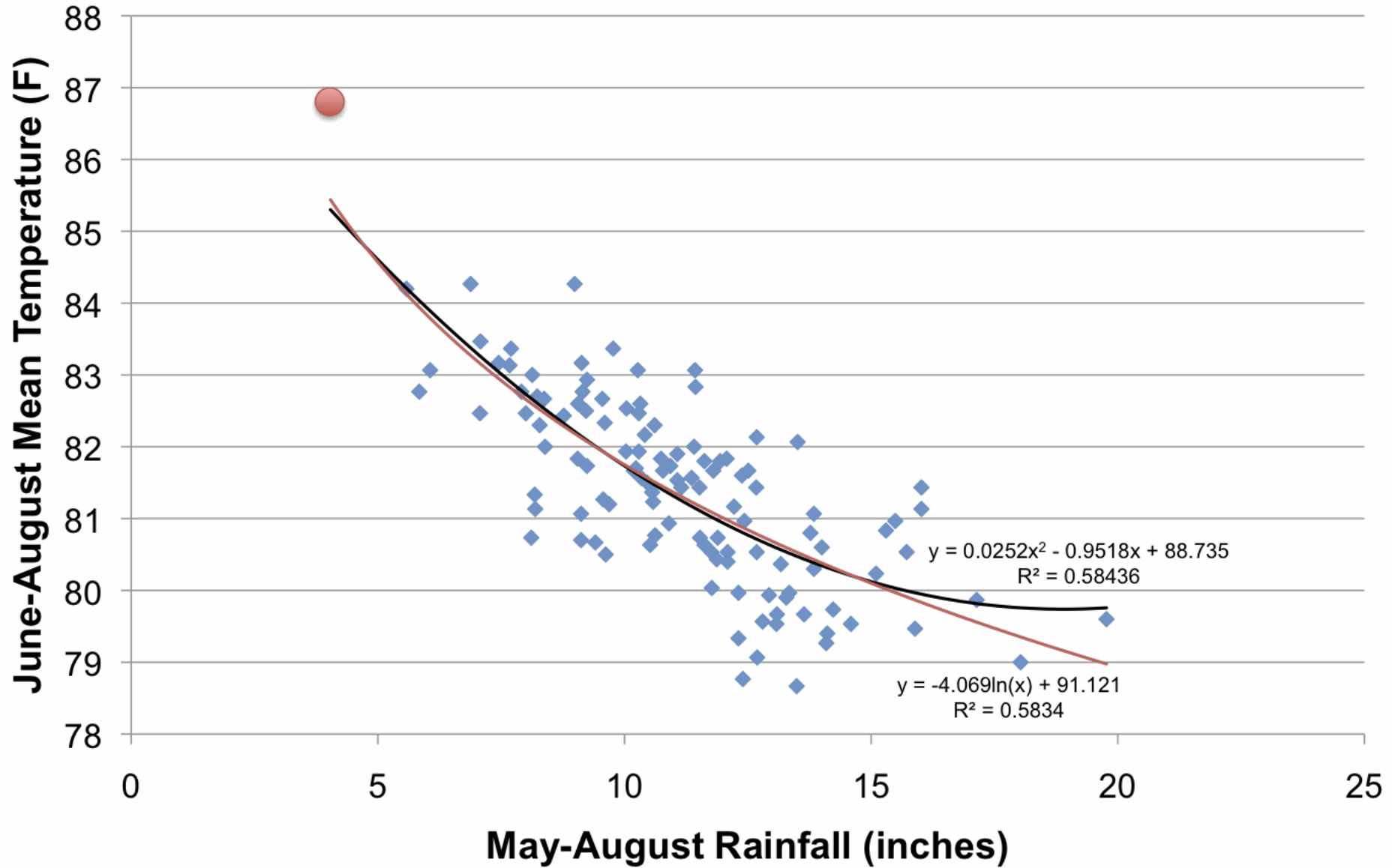
# Texas Summertime Rainfall and Temperatures, 1895-2011



# Texas Summertime Rainfall and Temperatures, 1895-2011



# Texas Summertime Rainfall and Temperatures, 1895-2011



# Summary

- Worst one-year drought on record
  - Statewide
  - Majority of locations within state
- Driest consecutive 8, 9, 10, 11, and 12 months on record
  - Oct-Sep 2011: 11.00”-11.50; prev. record 13.69”
- Hottest June, July, and/or August on record
- Climate change role in drought intensity?
  - See poster tomorrow