

# **Applying the Standardized Precipitation Index(SPI) as a Drought Indicator**

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*Georgetown, April 26,2018*

# Outline of Presentation

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- **Characteristics of the Standardized Precipitation Index(SPI)**
- **How it Works**
- **Short-term drought forecasting plans**
- **Overview of the Drought Monitoring Bulletin for April**

# Characteristics of the Standardized Precipitation Index(SPI)

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- Developed by McKee et al. in 1993.
- Simple index currently being used in research or operational mode in over 60 countries.
- The SPI is not a forecasting tool.
- SPI can also be compared across regions of different climatic zones.

# How it Works

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- It uses only rainfall totals(Monthly). Ideally at least 30 years of data.
- Precipitation is normalized using a probability distribution so that values of SPI are actually seen as standard deviations from the median.
- SPI enables rainfall conditions to be quantified over different time scales (e.g.1-, 3-, 6-,12-, or 24-month rainfall).

# How it Works

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- A drought event occurs any time the SPI is continuously negative and reaches an intensity of -1.0 or less. The event ends when the SPI becomes positive.
- Positive SPI values indicate greater than median precipitation and negative values indicate less than median precipitation.

# Pros and Cons of the SPI

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## Pros:

- The SPI can be computed for different timescales .
- Can provide early warning of drought and help assess drought severity.
- Less complex than other indexes.

## Cons:

- Based on Precipitation only(no Temp, no ET)

# SPI Classification

<b>SPI Value</b>	<b>Category</b>	<b>SPI Value</b>	<b>Category</b>
-0.50 to -0.01	Normal	0.50 to 0.01	Normal
-0.80 to -0.51	Slightly dry	0.80 to 0.51	Slightly wet
-1.30 to -0.81	Moderately dry	1.30 to 0.81	Moderately wet
-1.60 to -1.31	Severely dry	1.60 to 1.31	Very wet
-2.00 to -1.61	Extremely dry	2.00 to 1.61	Extremely wet
less than or equal to -2.01	Exceptionally dry	greater than or equal to +2.01	Exceptionally wet

# Interpretation of the SPI Timescales

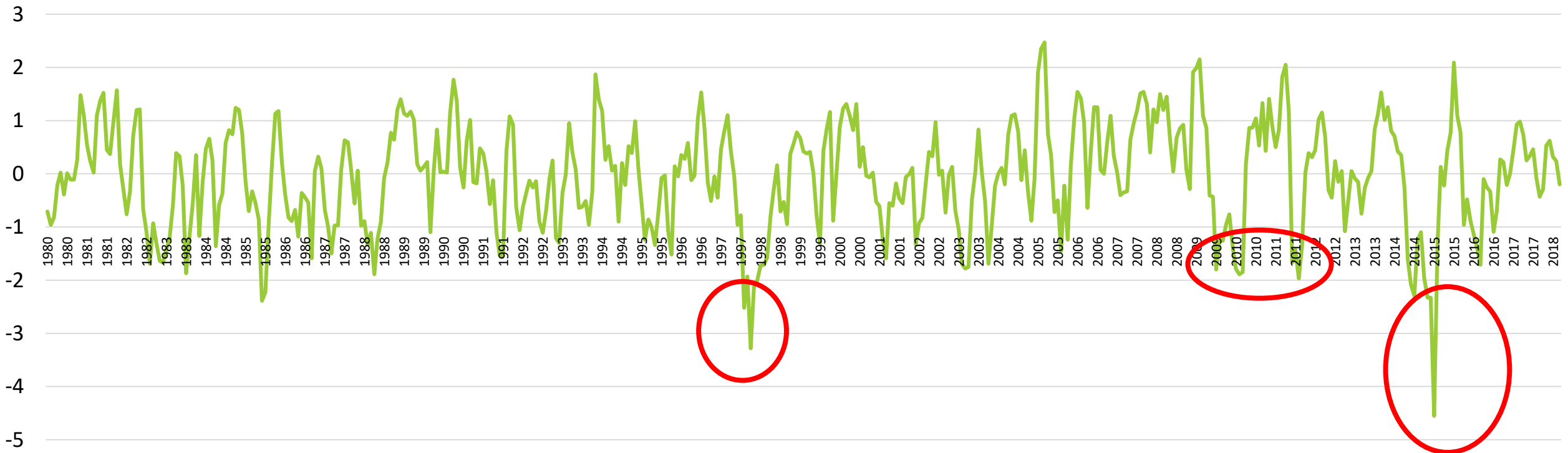
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For example, the 3-month SPI provides a comparison of the precipitation over a specific 3-month period with the precipitation totals from the same 3-month period for all the years included in the historical record. The same concept applies to the other timescales. Additionally, a 3-month SPI reflects short- and medium-term moisture conditions and provides a seasonal estimation of precipitation. In primary agricultural regions, a 3-month SPI might be more effective in highlighting available moisture conditions.



# A historical look at the SPI for Georgetown

**Georgetown 3-Month SPI(Jan 1980 - Mar 2018)**



**Fig 1:Georgetown 3-Month SPI(Jan 1980 - Mar 2018) CDC, 1998; CDEMA, 2016; EM-DAT, 2017**

# Short-Term Plans

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To use the Climate Predictability Tool(CPT) to do drought forecasting up to 6 months in the future.

- By June drought forecasting maps should be integrated into the Drought Monitoring Bulletin.

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# **April Drought Monitoring Bulletin Overview**

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***THANK YOU!!!!***

***MUCHAS GRACIAS***

***QUESTIONS???***

