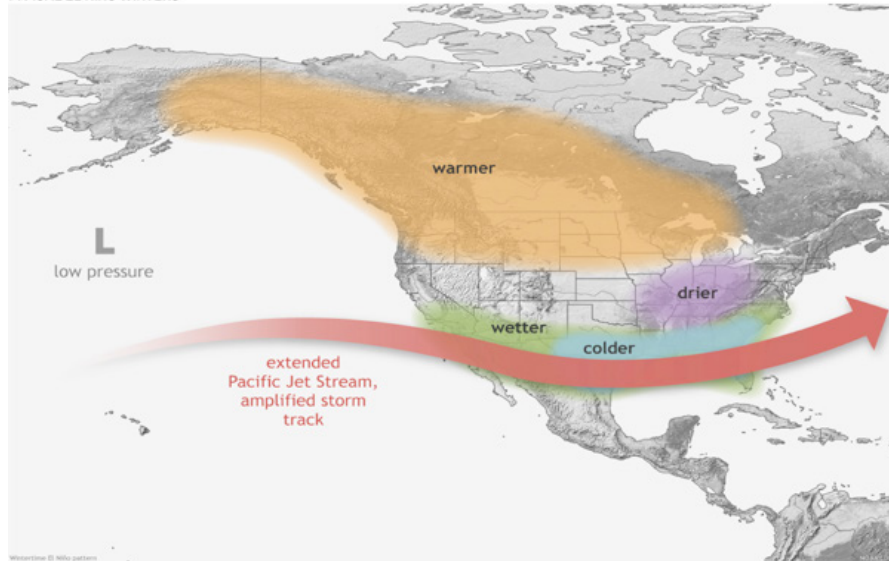




## Typical El Niño Winter Pattern

TYPICAL EL NIÑO WINTERS



Typical winter temperature and precipitation impacts during an El Niño event in the United States. Impacts are not distributed equally over areas or over time, and the magnitudes vary from event to event. Figure: <https://www.climate.gov/enso>

### El Niño in Winter

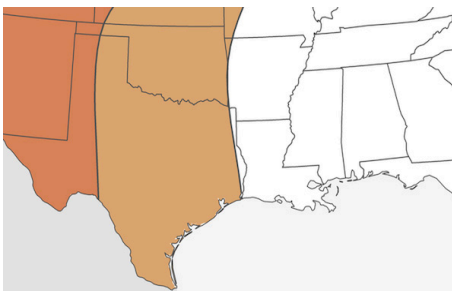
An El Niño develops when equatorial Pacific sea surface temperatures are warmer than normal for an extended period of time. El Niño causes displacements of the polar and subtropical jet streams, impacting weather patterns throughout the United States.

The typical El Niño pattern (left) generally results in cooler and wetter than normal conditions across the Southern Region with the exception of the Tennessee and mid-Mississippi valleys, which are typically drier than normal. Each El Niño event is different and impacts are not equally distributed over areas or over time.

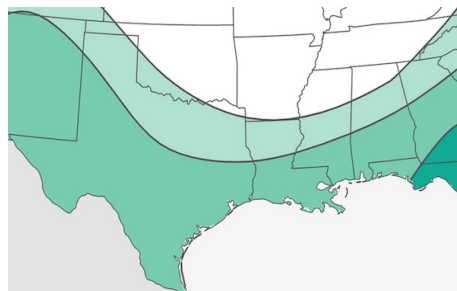
## Winter Outlook

### Temperature and Precipitation Outlook

#### Temperature



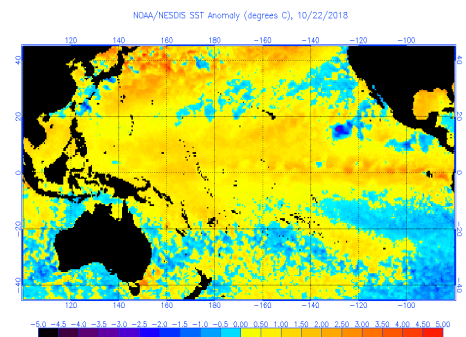
#### Precipitation



The Climate Prediction Center temperature outlook for winter (December-January-February) shows that Texas and Oklahoma have at least a 33% chance to be warmer than normal. Far western Texas and far western Oklahoma have a 40%–50% chance of being warmer than normal. Louisiana, Mississippi, Tennessee, and Arkansas have equal chances of being warmer or cooler than normal.

The Climate Prediction Center precipitation outlook for winter (December-January-February) shows that much of Texas, southern and central Louisiana, and southern Mississippi have a 40%–50% chance of being wetter than normal. Areas to the north (light green) have a lesser chance (33%–40%). The rest of the Southern Region has equal chances of being drier or wetter than normal.

### El Niño Evolution

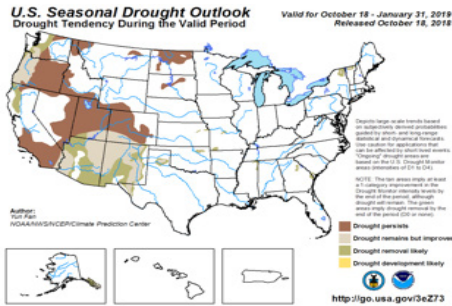


In October, sea surface and sub-surface temperatures in the central and eastern Pacific were above normal as a transition from a La Niña continued to take place.

There is a 70%–75% chance of an El Niño forming in the central and eastern Pacific this winter. Several models, including the IRI/CPC plume model and the North American Multi-Model Ensemble (NMME), favor a weak El Niño.

# Climate Impacts

## Drought



U.S. Seasonal Drought Outlook

As of October 23, 2018, only 6.34% of the Southern Region was designated as abnormally dry or in drought, with the worst conditions located in western Texas. A recent wet pattern has significantly improved conditions, and the forecasted El Niño event should continue this pattern in the long term. The corresponding reduction in the remaining dryness/drought is reflected in the seasonal drought outlook.

## Agriculture



Credit: NOAA

Winter is a time of soil moisture recharge for the Southern Region, and the expected wetter than normal pattern should provide plenty of moisture and help any areas still experiencing longer-term dryness/drought. There could also be impacts to planting and harvesting operations if prolonged wet periods interfere with field work. Crop yields may be affected as well, depending on the type of crop.

## Economy



Credit: Texas AgriLife Extension Service

El Niño-influenced economic impacts can vary across the Southern Region. Winter crop yields could potentially be reduced (depending on the type of crop) due to cooler and wetter conditions, reducing profit margins and leading to increased prices for consumers. There is an increased risk of property damage or loss due to flooding. If above normal temperatures occur as forecasted, there could be a reduction in heating costs but an increase in cooling costs.

## El Niño Episodes – No Two El Niños are the Same

This winter's El Niño is expected to be weak, similar to El Niño events during the winters of 2006–2007 and 2014–2015. In the Southern Region (images below), temperatures were below normal during the winter of 2014–2015 but mostly warmer than normal in 2006–2007. Precipitation was a mixed bag in 2014–2015 with drier and wetter than normal areas intertwined; however, there was a stark gradient in 2006–2007 with Oklahoma, Texas, and much of Arkansas wetter than normal and Louisiana, Mississippi, and Tennessee much drier than normal.

Each El Niño is different, and impacts will vary across areas and time in the Southern Region. Within the long-term pattern there will be short-term perturbations. Even if the Climate Prediction Center winter forecast of above normal precipitation and above normal temperatures occur, there will be short-term periods this winter in which precipitation and temperatures are below normal.

## El Niño and Hurricanes

El Niño events typically increase Pacific activity and storm tracks into northern and central Mexico can (and have) stream(ed) moisture into the Southern Region. El Niño events typically decrease Atlantic activity but systems can form at any time and strengthen quickly, even this late in the season.

## Gulf Regional Partners

- Earth Scan Laboratory at Louisiana State University ([esl.lsu.edu](http://esl.lsu.edu))
- NOAA/NWS Climate Prediction Center ([cpc.noaa.gov](http://cpc.noaa.gov))
- NOAA/NOS Gulf of Mexico Coastal Services Center ([csc.noaa.gov](http://csc.noaa.gov))
- NOAA Gulf of Mexico Collaboration Team ([regions.noaa.gov](http://regions.noaa.gov))
- NOAA/NESDIS National Centers for Environmental Information ([ncei.noaa.gov](http://ncei.noaa.gov))
- NOAA/NWS Southern Region ([srh.noaa.gov](http://srh.noaa.gov))
- Southern Climate Impacts Planning Program ([southernclimate.org](http://southernclimate.org))
- Southern Regional Climate Center ([srcc.lsu.edu](http://srcc.lsu.edu))

