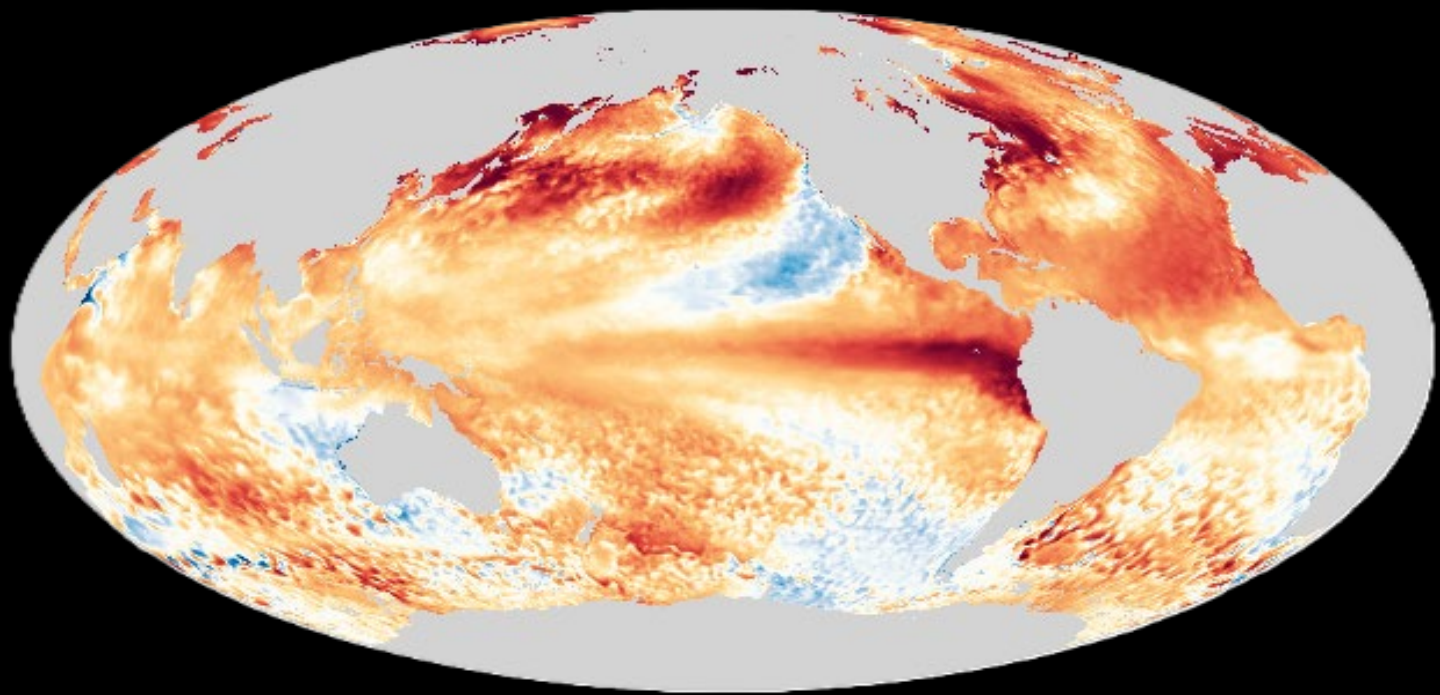
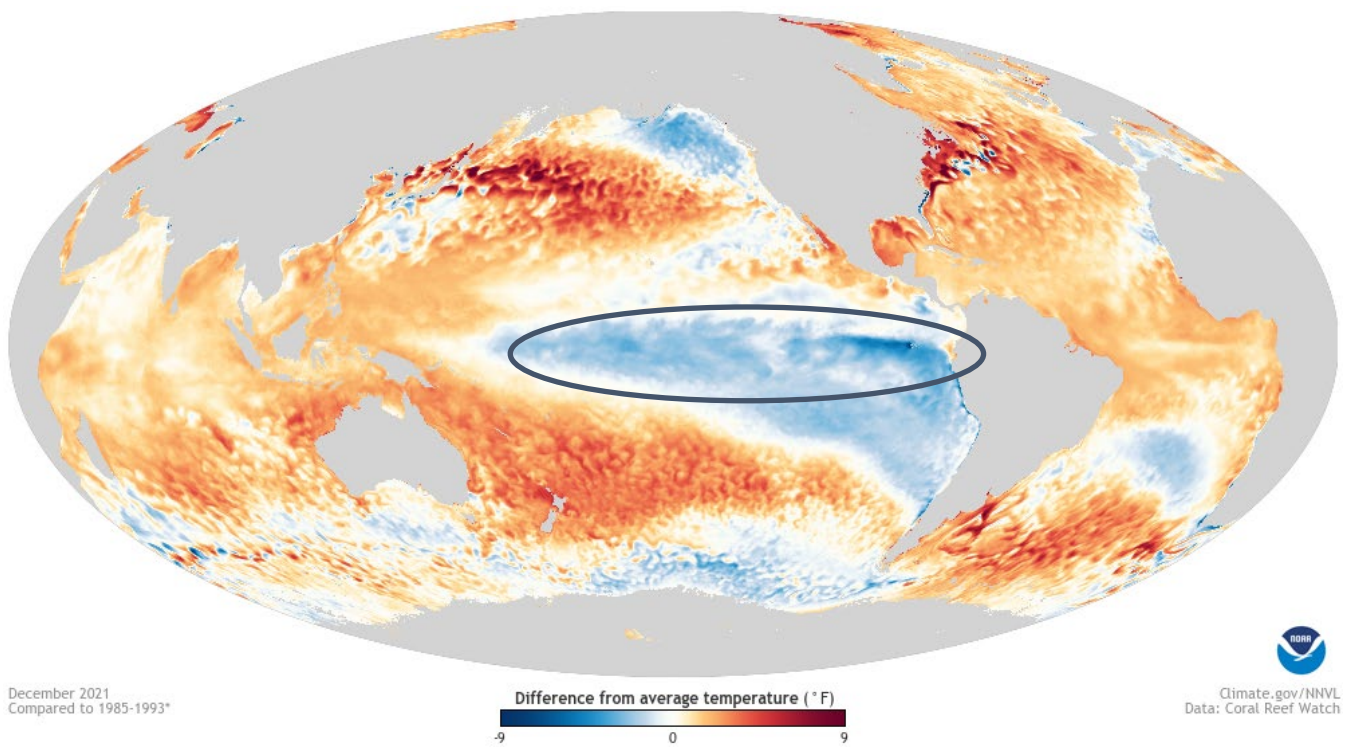


UNDERSTANDING ENSO AND IMPACTS IN SOUTH CAROLINA AND THE SOUTHEAST UNITED STATES



Prepared by
South Carolina State Climatology Office
Land, Water, and Conservation Division
South Carolina Department of Natural Resources





A very strong **El Niño** in 2023 (front cover), indicated by the large area of above-average sea surface temperatures (red) in the equatorial Pacific, and a **La Niña** event, indicated by the area of below-average sea surface temperatures (blue) in the equatorial Pacific (above image). (Credit: [NOAA/NESDIS](https://www.noaa.gov/))

Narratives and data analysis provided in this report were completed by the South Carolina State Climatology Office. Data and images included in this document were provided by the National Oceanic and Atmospheric Administration's (NOAA) Physical Sciences Laboratory, the National Environmental Satellite, Data and Information Services, the Pacific Marine Environmental Laboratory, the National Centers for Environmental Information, and the Southeast Regional Climate Center.

If you have any additional questions regarding the information provided in this document, please contact Dr. Hope Mizzell at the State Climatology Office.

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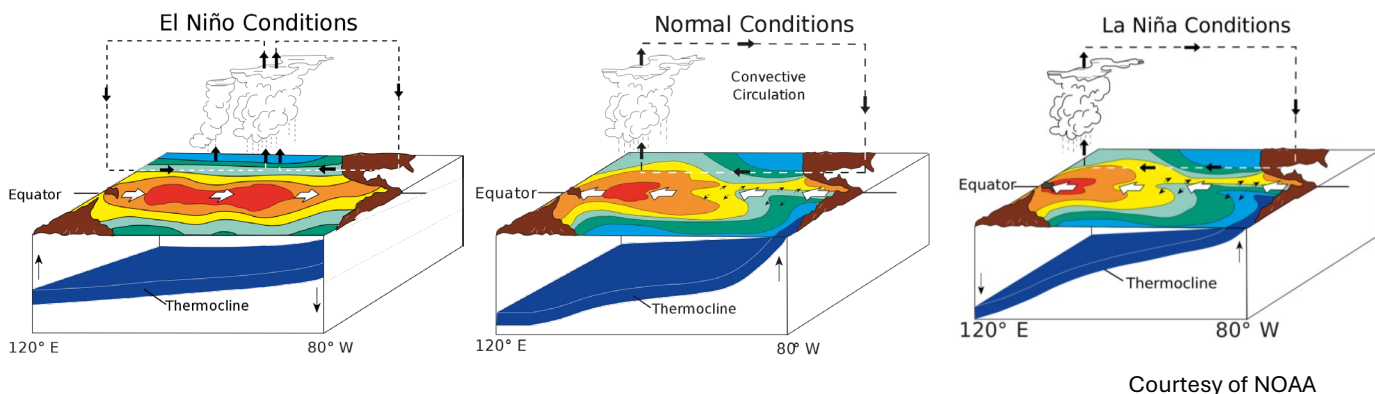
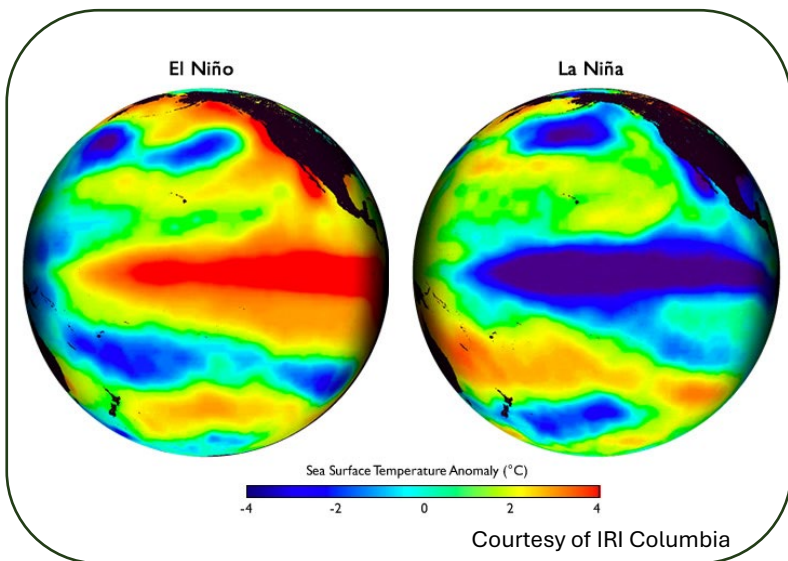


UNDERSTANDING EL NIÑO AND LA NIÑA

A large part of Earth's climate is from the [movement of air](#) and [ocean currents](#) around the globe. The ocean and atmosphere do not remain constant; they continually exchange heat and moisture and interact to influence weather and climate patterns.

What are El Niño and La Niña?

The El Niño–Southern Oscillation, commonly called ENSO, describes the shift in the equatorial Pacific trade winds that happens every two or more years. This shift leads to changes in sea surface temperatures, causing shifts in global weather patterns. It has three phases: warm (**El Niño**), cold (**La Niña**), and Neutral. During an **El Niño**, unusually warm water is observed in the eastern Pacific Ocean off the coasts of Peru and Ecuador. During **La Niña**, unusually cold water is present in these locations. Neutral conditions occur when neither **El Niño** nor **La Niña** is present.



Did You Know...

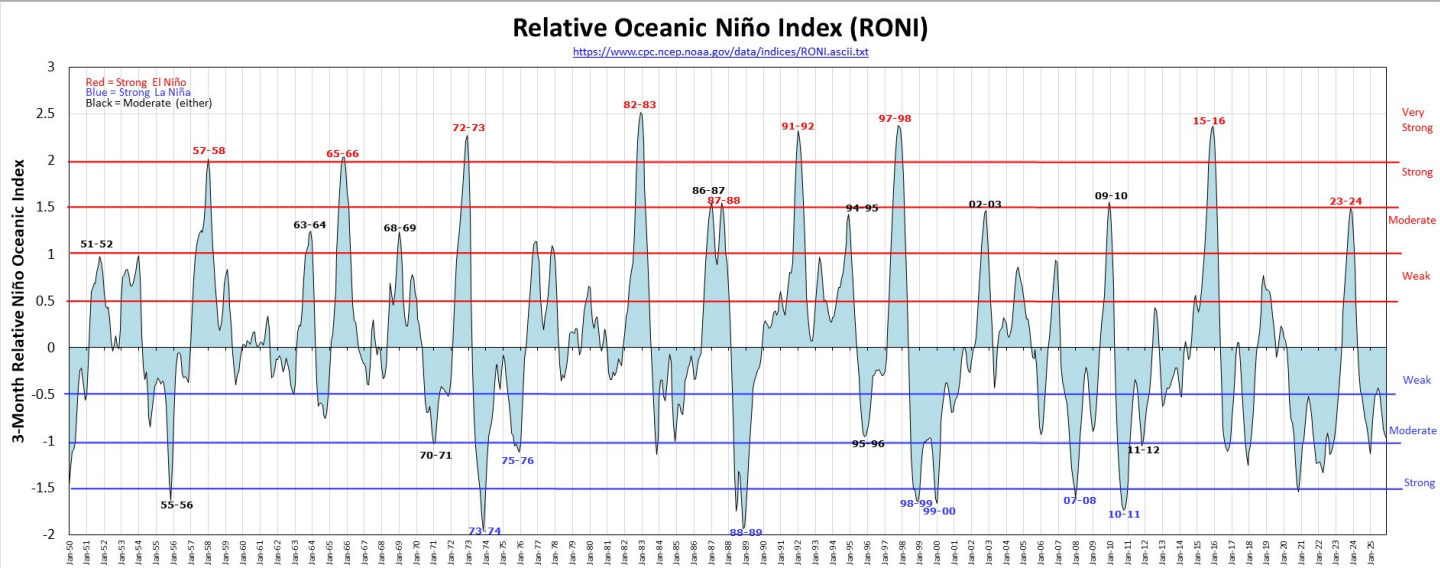
It is called El Niño because South American fishers first noticed periods of unusually warm waters in the Pacific Ocean around Christmas in the 1600s. El Niño means Little Boy or Christ Child in Spanish.

Each **El Niño** or **La Niña** event varies in strength, duration, and size. **El Niño** and **La Niña** events do not occur on a regular schedule. Some events can be very strong, and others can be weaker; some can last less than a year, while others can last for multiple years. The impacts of ENSO stretch far beyond the Pacific. It is one of the most significant causes of seasonal temperature and precipitation variability in the Southeastern United States, with the most pronounced impacts during the winter and spring.

STRONGEST ENSO EVENTS SINCE 1950

The [Relative Oceanic Niño Index \(RONI\)](#) is the standard index NOAA uses to track the El Niño-Southern Oscillation (ENSO) climate pattern. The RONI is a rolling 3-month sea surface temperature anomaly (difference from the 30-year average) in the eastern and central tropical Pacific near the International Dateline, known as the Niño 3.4 region. NOAA defines **El Niño** conditions when the RONI in the area is 0.5 degrees Celsius (0.9 degrees Fahrenheit) warmer than average, with **La Niña** conditions indicated when the RONI is 0.5 degrees Celsius (0.9 degrees Fahrenheit) cooler than average.

ENSO is further broken down into four categories: weak (+/- 0.5 to 0.9 degrees Celsius), moderate (+/- 1.0 to 1.4 degrees Celsius), strong (+/- 1.5 to 1.9 degrees Celsius), and very strong (+/- > 2.0 degrees Celsius). Below is a time series of RONI values since 1950, showing seasonal-scale cycles, and a table of moderate to very strong **El Niño** and **La Niña** events during the same period.



Courtesy of J. Null, CCM

RONI EL NIÑO EVENTS

Moderate (9)	Strong (3)	Very Strong (4)
1963 – 1964	1957 – 1958	1982 – 1983
1968 – 1969	1965 – 1966	1991 – 1992
1976 – 1977	1972 – 1973	1997 – 1998
1986 – 1987		2015 – 2016
1987 – 1988		
1994 – 1995		
2002 – 2003		
2009 – 2010		
2023 - 2024		

RONI LA NIÑA EVENTS

Moderate (6)	Strong (7)
1955 – 1956	1973 – 1974
2016 – 2017	1975 – 1976
2017 – 2018	1988 – 1989
2020 – 2021	1998 – 1999
2021 – 2022	1999 – 2000
2022 – 2023	2007 – 2008
	2010 – 2011

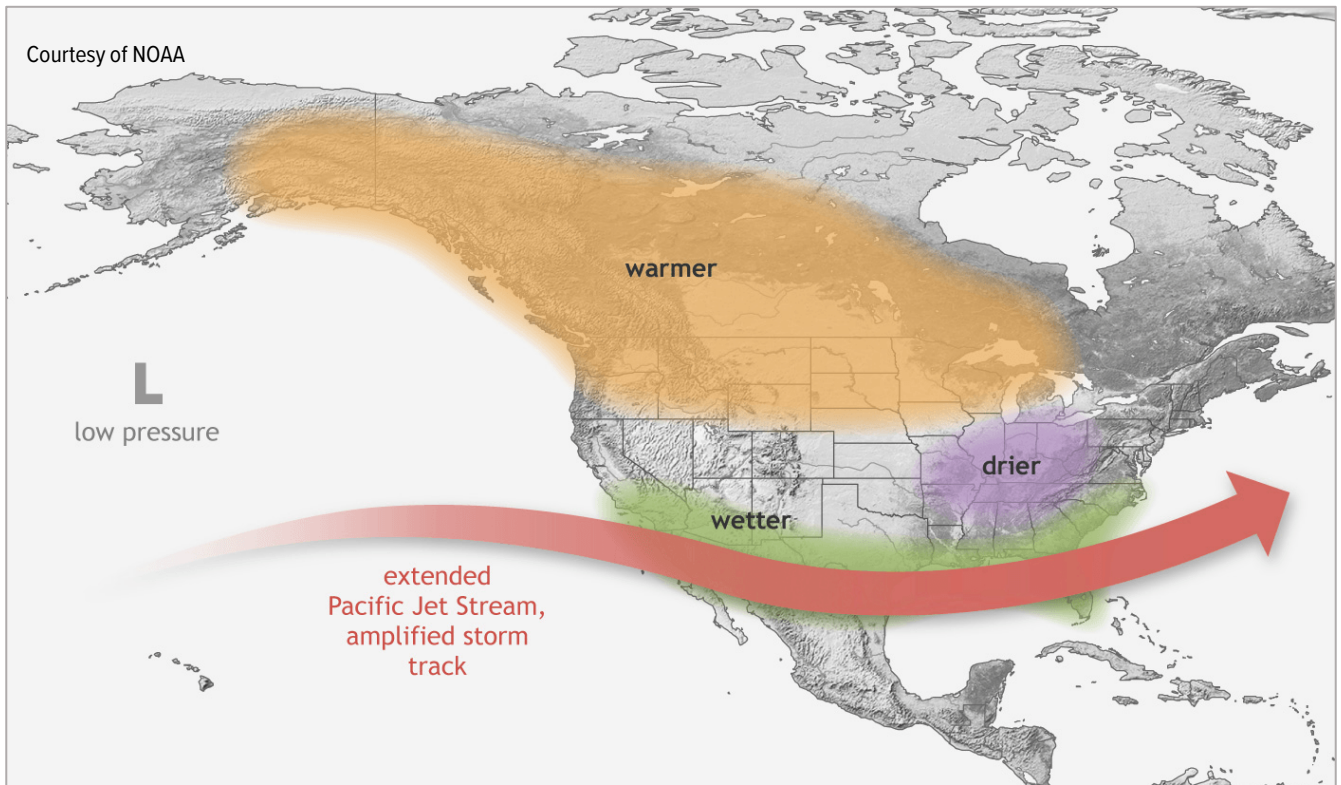
*No Very Strong **La Niña** Events Since 1950



ENSO AND JET STREAMS

Jet streams are narrow bands of strong winds high in the atmosphere that blow from west to east in the Northern Hemisphere. These ‘rivers of air’ move weather systems worldwide and gain strength from temperature differences. During **El Niño** and **La Niña**, the jet stream shifts the atmospheric circulation in ways that affect temperatures and precipitation over the United States, especially in winter. The map below, provided by NOAA, illustrates the typical impacts of **El Niño** on the Pacific Jet (Subtropical Jet) stream and the winter weather across the United States.

Typical wintertime **El Niño** pattern



During an **El Niño** winter, warm water in the tropical Pacific strengthens the Pacific (or subtropical) jet stream and pushes it farther south. As a result, the storm track shifts across the Gulf Coast and Southeast instead of farther north. This shift often brings wetter, stormier conditions to the southern tier of the United States. **El Niño** also significantly affects the Atlantic hurricane season. It tends to increase upper-level winds and vertical wind shear across the Atlantic Basin, which inhibits storm development.

During the 2026 hurricane season, **El Niño** played a major role in reducing both the number and intensity of storms. Remarkably, it has been more than a century since the Atlantic experienced such a long stretch without a hurricane, until Tropical Storm Isaias strengthened into a hurricane on October 7, 2026.

Did You Know...

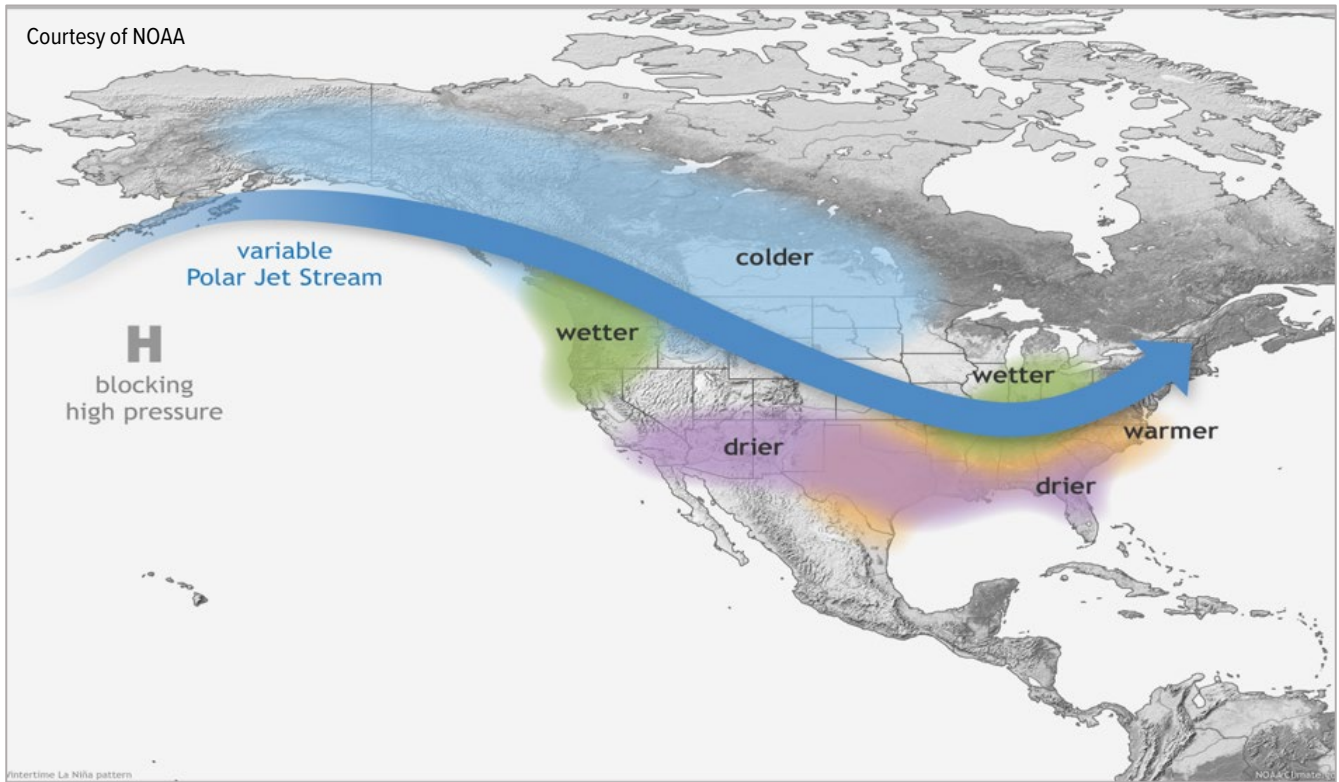
Wind shear is the change in wind speed or direction with height in the atmosphere. Increased wind shear can limit tropical cyclone development.



ENSO AND JET STREAMS

During **La Niña**, the Pacific jet stream typically shifts farther north into the North Pacific, becoming less consistent over the southern United States. The map below, provided by NOAA, illustrates **La Niña's** typical impacts on the Pacific jet stream and winter weather across the United States.

Typical wintertime La Niña pattern



Since the primary storm-steering jet stream and the subtropical jet weaken or shift farther north during **La Niña**, the southern tier of the United States typically experiences warmer-than-normal winter temperatures. With storm tracks moving farther north, the state generally sees below-normal precipitation and experiences fewer frequent or intense winter storms.

In addition to these winter impacts, **La Niña** also affects hurricane activity. Higher up in the atmosphere, **La Niña** reduces vertical wind shear over the Atlantic basin, which tends to increase Atlantic hurricane activity during the June to November hurricane season.

ENSO Neutral Conditions refer to average sea surface temperatures and are generally associated with typical spring and summer weather patterns. Hurricane development is also neither suppressed nor enhanced during ENSO Neutral events.

IMPACTS OF ENSO ON SOUTHEAST SNOWFALL

Because they are rare, winter storms and snow events in the Southeast are usually high-impact. They depend on available cold air and storm tracks governed by the jet stream, such as a cold-air damming setup or a robust Arctic front. These events can affect the region, especially from late December through mid-March.

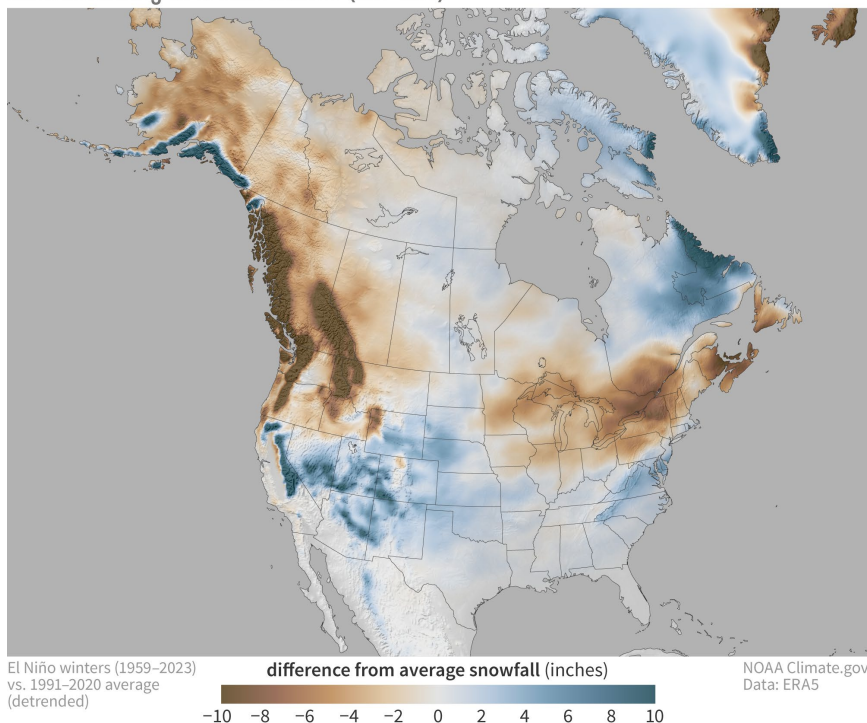
On average, parts of the Southeast tend to see more snow during **El Niño** winters because of the potential for increased precipitation and cooler temperatures. However, the signal in South Carolina is not as strong as in other parts of the Southeast. **El Niño** winters can still bring warmer-than-normal temperatures and below-normal precipitation.

The maps provided by NOAA (right) show historical snowfall patterns for **El Niño** and **La Niña** winters (January– March) and are not an actual forecast.

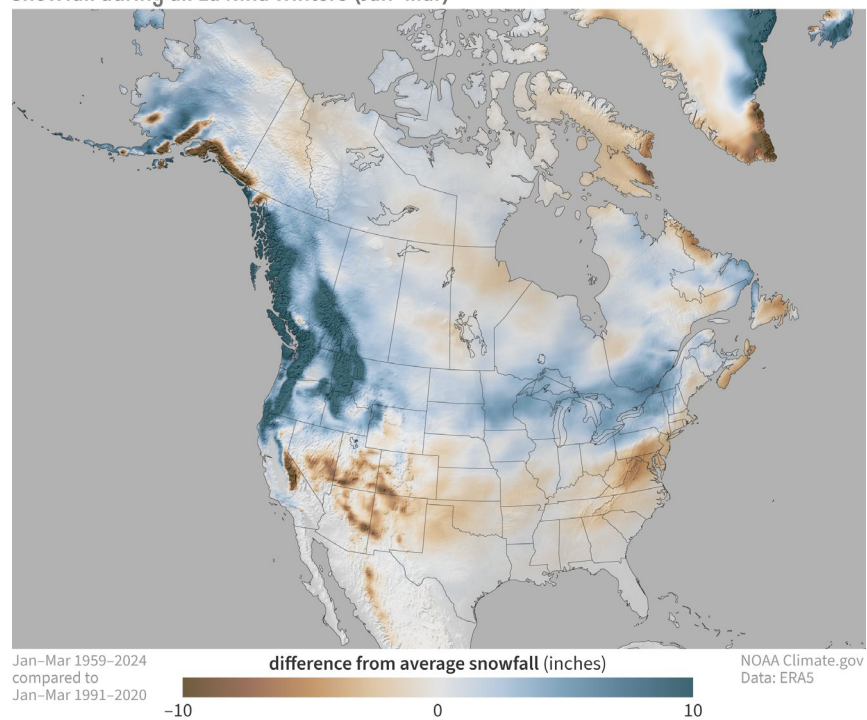
During **La Niña** winters, the jet stream retracts over the Pacific, so storm systems less frequently track across the southern tier of the United States, leading to drier, warmer-than-normal conditions and a lower chance of winter precipitation events.

Winter storms can vary significantly from year to year because of the influence of other ocean-atmospheric oscillations. [Click here](#) for more information on Winter Storms in South Carolina.

Snowfall during all El Niño winters (Jan–Mar)



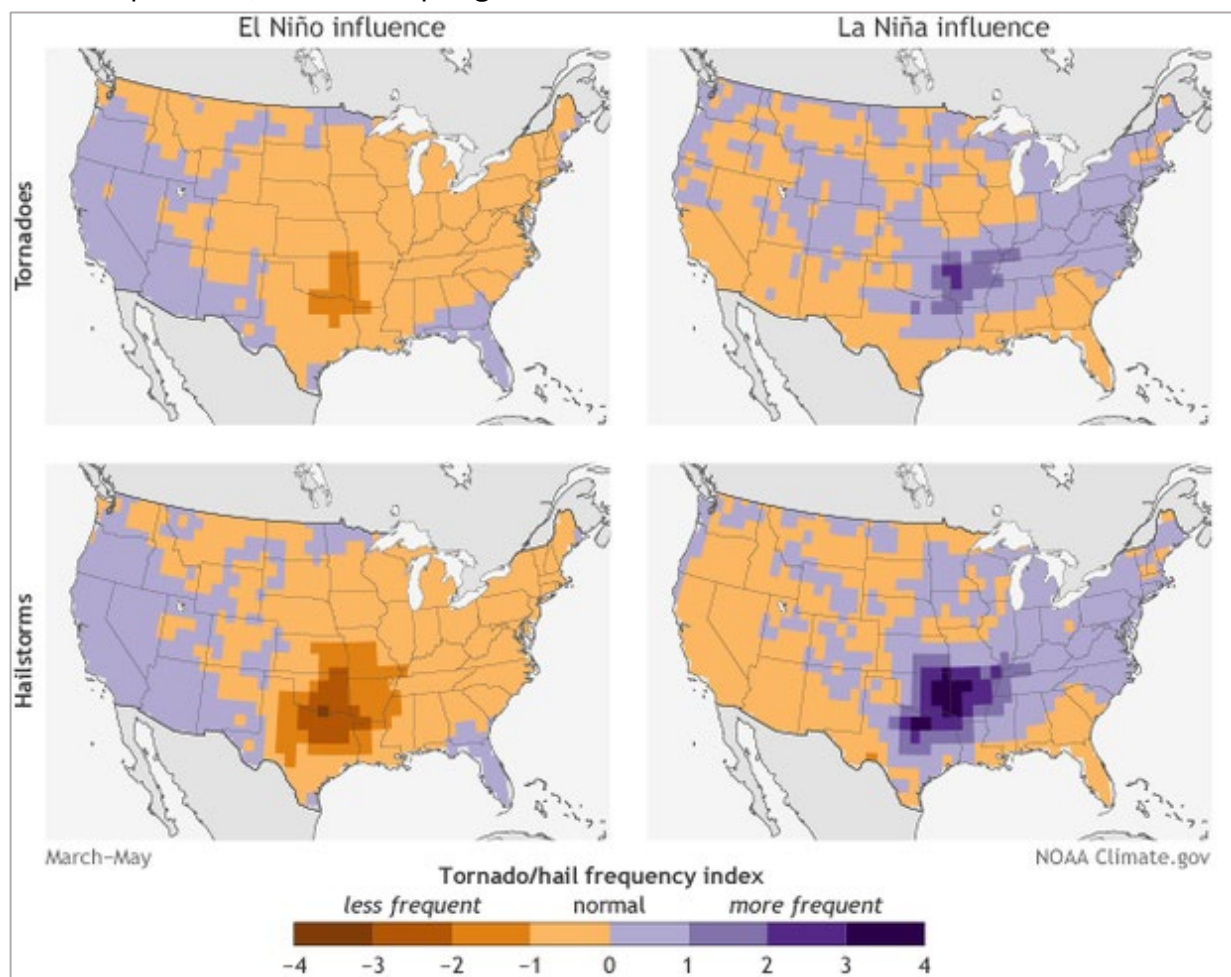
Snowfall during all La Niña winters (Jan–Mar)



IMPACTS OF ENSO ON SEVERE WEATHER IN THE SOUTHEAST

Tornadoes occur when two atmospheric conditions are present: strong instability (warm, humid air near the surface and cool, dry air aloft) and favorable wind shear (winds change direction clockwise with height over the lowest 1,500 to 5,000 feet of the atmosphere). The different phases of ENSO can affect how these ingredients come together to create a more or less favorable environment for severe weather to develop during spring (March to May) in certain parts of the United States.

La Niña years usually bring more severe thunderstorms and tornadoes to the southern U.S. During La Niña years, the regions most affected by severe thunderstorms often shift east, making areas east of the Mississippi River more likely to experience these events. **El Niño** years tend to see fewer outbreaks. Florida is an exception, with slightly more severe storms during **El Niño**. However, every severe weather season is different. ENSO rarely affects South Carolina's severe-storm frequency, as impacts are mostly farther west. Of three major **La Niña** events (1974, 2008, 2011), only 2008 significantly impacted the state. South Carolina had no tornadoes in the April 1974 'Super Outbreak' and only three in April 2011. More recently, South Carolina saw 14 tornadoes during an outbreak in April 2022, a **La Niña** spring.



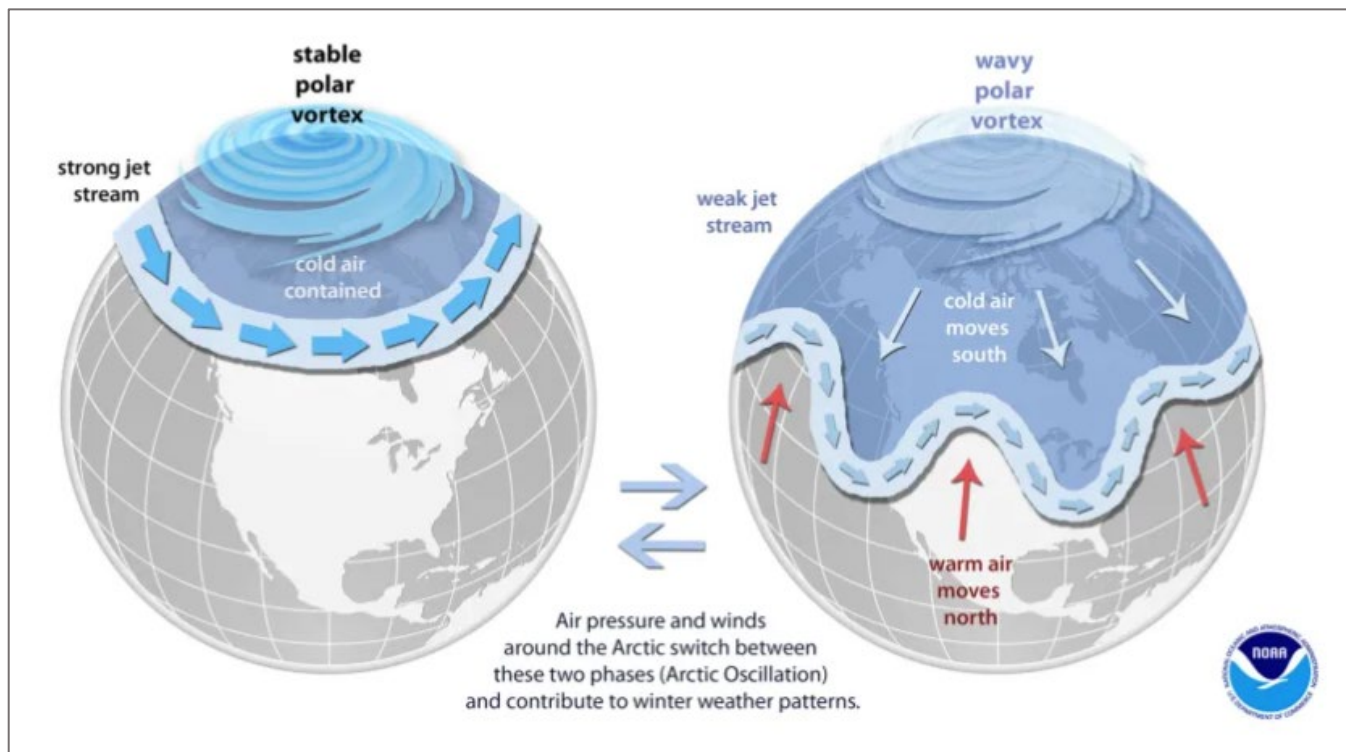
The Tornado/Hail Frequency Index shows event frequency across the United States. Darker blue shows above-average event frequency, while darker brown shows below-average frequency. Lighter colors indicate a near-normal number of events. NOAA provided the maps, which were adapted from [research](#).



ENSO AND OTHER OCEAN-ATMOSPHERIC PATTERNS

While **El Niño** and **La Niña** are often the best predictors for trends in temperatures and precipitation during the cool season, they are not the only factors affecting the weather across the region. Other prominent ocean-atmospheric oscillations, called [teleconnections](#), affect the region on different time scales and can reinforce or mask ENSO's influence. Below are the more important ones for South Carolina.

- [Arctic Oscillation](#) (AO): A weather pattern describing the behavior of the polar jet stream. A positive AO means the polar vortex is tightly contained by strong jet stream winds. A negative AO produces a weaker, wavier jet stream that allows Arctic air to reach the midlatitudes. Cycles last weeks to months.



- [North Atlantic Oscillation](#) (NAO): A cycle of sea level pressure differences between the North Atlantic's subtropical high (Bermuda-Azores high) and its Subpolar Low (usually over Greenland and Iceland). Its negative phase usually brings colder, stormier weather to the southeastern U.S. Cycles last weeks to months.
- [Pacific-North American Pattern](#) (PNA): Describes upper-level features over four areas: the southeastern U.S., western North America, the North Pacific, and the area over and west of Hawaii. The positive phase brings cooler, stormier weather to the southeastern U.S., while the negative phase is normally warm and dry. Cycles last weeks to months.
- [Madden-Julian Oscillation](#) (MJO): A slow-moving weather pattern in the tropics featuring areas of disturbed and tranquil weather drifting eastward and taking 45-60 days to circle the globe. Effects can reach the midlatitudes, including the southeastern United States.

Each **El Niño** and **La Niña** event can impact the region differently, depending on the state of other ocean-atmosphere oscillations. No two ENSO events are exactly alike.

CURRENT CONDITIONS AND WINTER 2026-2027 OUTLOOK

El Niño strengthened during Fall, with sea surface temperature anomalies exceeding +4.0°C in portions of the eastern equatorial Pacific (Figure 1). NOAA is forecasting that **El Niño** conditions will continue to strengthen, with a strong-to-very strong **El Niño** likely through January-March 2027. The graph on page 3 shows that seven strong or very strong **El Niño** events have happened in the last 50 years. The State Climatology Office analyzed these seven events, and the following pages provide guidance for the upcoming winter.

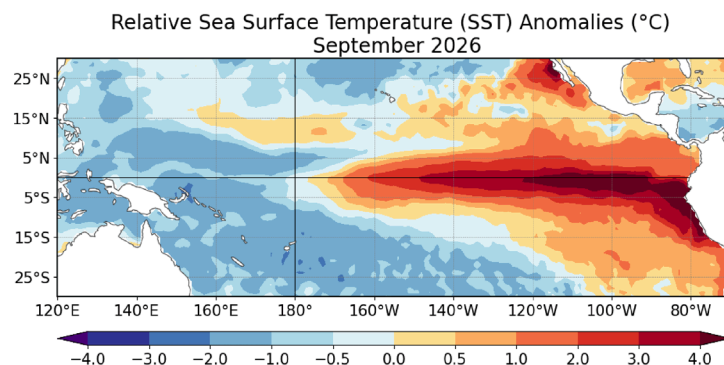


Figure 1. Average relative sea surface temperature (SST) anomalies (°C) for September 2026. Anomalies are computed with respect to the 1991-2020 base period monthly means. Data: OISSTv2.1.

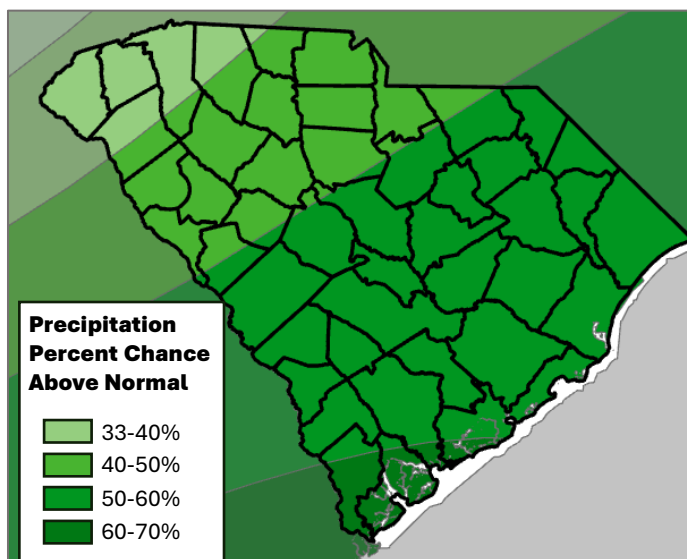
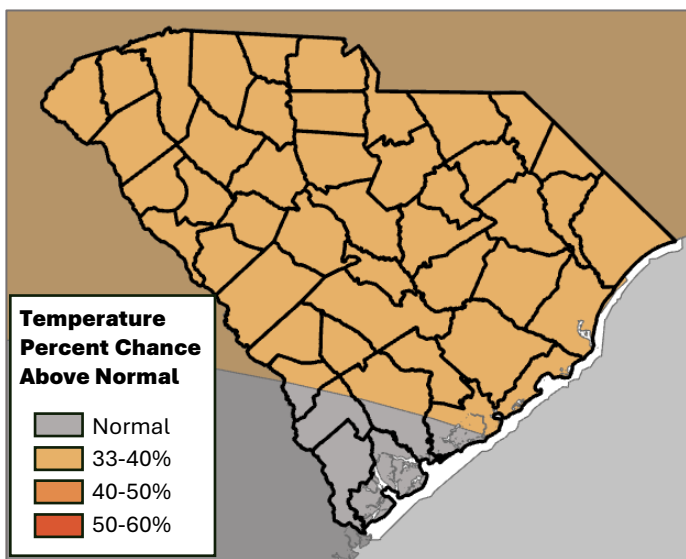
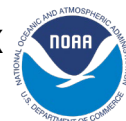
South Carolina often receives above-average rainfall during strong to very strong **El Niño** winters, while the temperature trends are less clear. The 2026-2027 event is likely to surpass the intensity of any **El Niño** event since 1950, with a [3-month RONI value](#) of +2.5°C or higher. Such an event would greatly increase, but not guarantee, the likelihood of **El Niño**-related impacts.

Below is the current [NOAA Climate Prediction Center's](#) Seasonal Temperature and Precipitation Outlook. The colored shading on the maps reflects the forecaster's confidence in each category; darker shades indicate higher confidence. For temperature, blue means "below-normal" and orange-red means "above-normal." For precipitation, brown means "below-normal" and green means "above-normal."

Seasonal Temperature and Precipitation Outlook

Valid: Dec 2026 – Feb 2027

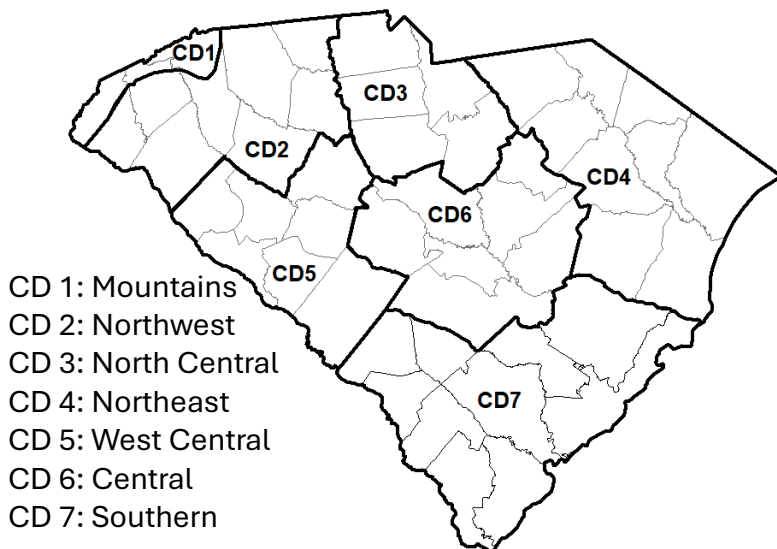
Issued: October 15, 2026



SOUTH CAROLINA CLIMATE DIVISIONS

Climate Divisions (CD) were created to generate historical, long-term temporal, and spatial complete datasets for the United States. The dataset was originally developed for climate division, statewide, regional, national, and population-weighted monitoring of drought, temperature, precipitation, and heating/cooling degree day values. Since the dataset was at the divisional spatial scale, it naturally lent itself to agricultural and hydrological applications.

South Carolina Climate Divisions



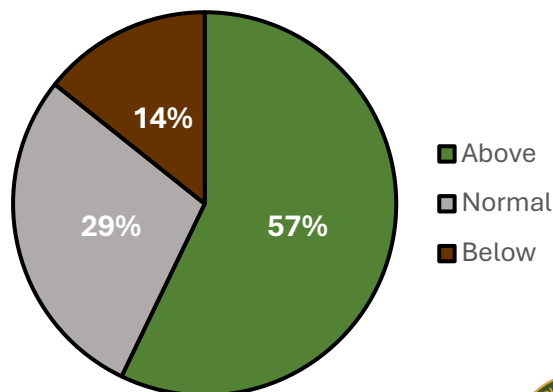
To illustrate ENSO's impacts on temperature and precipitation across South Carolina, data will be presented by climate division (shown above). Divisional data are used to assess large-scale climate features and anomalies over long timescales. Independent station data and localized values can vary from the divisional dataset.

The following pages analyze average temperatures and precipitation totals for the seasons of December through February (DJF) and November through March (NDJFM), as well as monthly data for November, December, January, February, and March observed during previous strong-to-very-strong **El Niño** events. The data were classified as above or below normal if they deviated by more than one standard deviation from the long-term average of the available data. This means values above or below normal fall outside the normal range.

The example (right) shows the percentage of three-month (DJF) precipitation totals that fall within the three classifications for Climate Division 2 (Northwest).

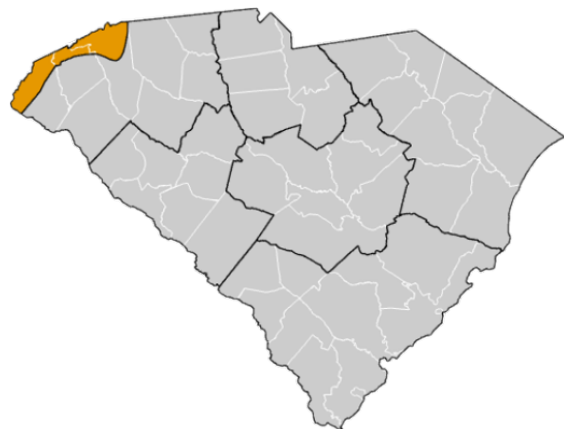
The pie chart shows that during the seven strong or very strong **El Niño** events, observed precipitation was normal or above normal 86% of the time (29% normal, 57% above normal) and below normal 14% of the time.

Precipitation (Dec – Feb) (relative to normal)



CLIMATE DIVISION 1: MOUNTAINS

PRECIPITATION TRENDS

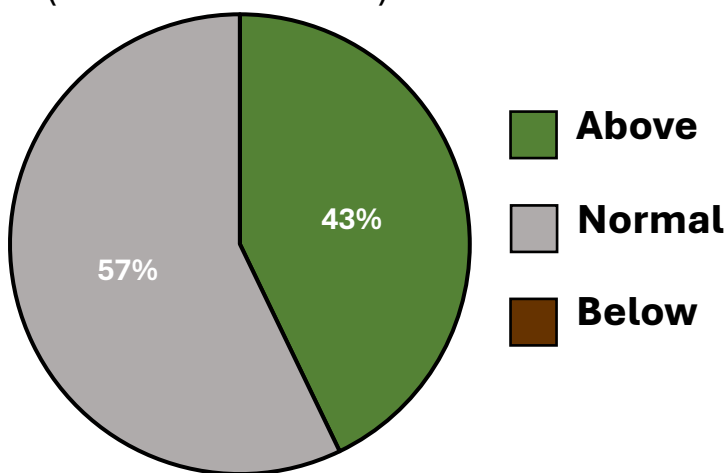


CLIMATE DIVISION 1: RANGES	PRECIPITATION (DEC – FEB)	PRECIPITATION (NOV – MAR)
Above Normal	> 21.30"	> 30.54"
Normal	14.21 – 18.93"	24.34 – 30.54"
Below Normal	< 11.84"	< 24.34"

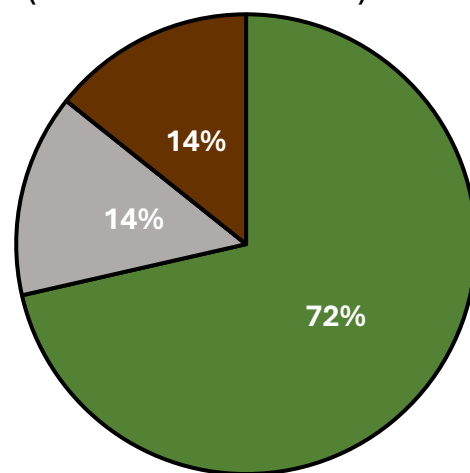
Rainfall was classified as above or below normal if it deviated by more than one standard deviation from the long-term average of the available data.

Precipitation Trends in Very Strong (VS) and Strong (S) El Niño Winters

Precipitation (Dec – Feb)
(relative to normal)



Precipitation (Nov – Mar)
(relative to normal)



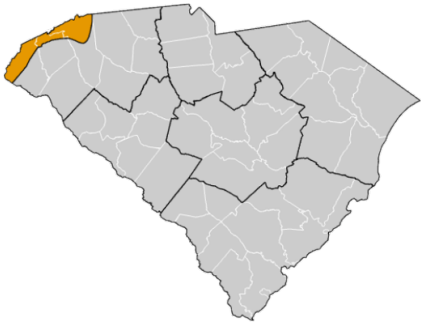
RONI EL NIÑO EVENTS (Strength)	PRECIPITATION DEC – FEB (AVG: 16.57")	DEPARTURE	PRECIPITATION NOV – MAR (AVG: 27.44")	DEPARTURE
2015 – 2016 (VS)	22.61"	3.10"	35.25"	7.81"
1997 – 1998 (VS)	25.95"	9.38"	34.74"	7.30"
1991 – 1992 (VS)	15.90"	-0.67"	25.31"	-2.13"
1982 – 1983 (VS)	18.74"	2.17"	33.28"	5.84"
1972 – 1973 (S)	20.12"	3.55"	37.37"	9.93"
1965 – 1966 (S)	15.49"	-1.08"	22.61"	-4.83"
1957 – 1958 (S)	15.62"	0.95"	30.93"	3.49"



CLIMATE DIVISION 1: MOUNTAINS

PRECIPITATION TRENDS

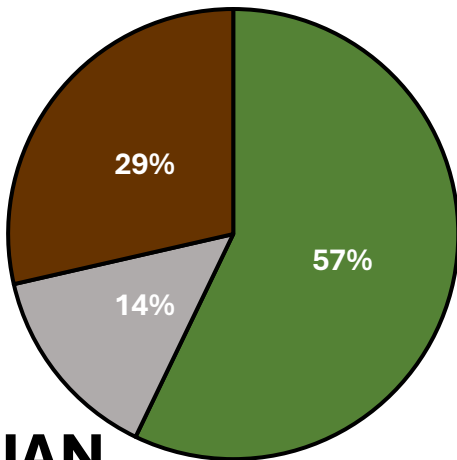
Precipitation Trends in Very Strong (VS) and Strong (S) **El Niño** Winters



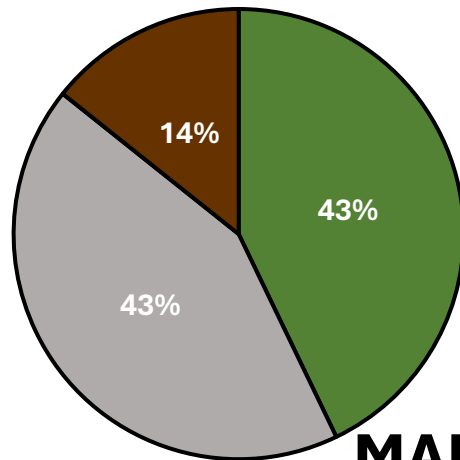
MONTH	BELOW NORMAL	NORMAL	ABOVE NORMAL
NOV	< 3.11"	3.11 – 5.55"	> 5.55"
DEC	< 4.40"	4.40 – 7.20"	> 7.20"
JAN	< 4.36"	4.36 – 6.82"	> 6.82"
FEB	< 4.17"	4.17 – 6.61"	> 6.61"
MAR	< 4.96"	4.96 – 7.68"	> 7.68"

BELOW
 NORMAL
 ABOVE

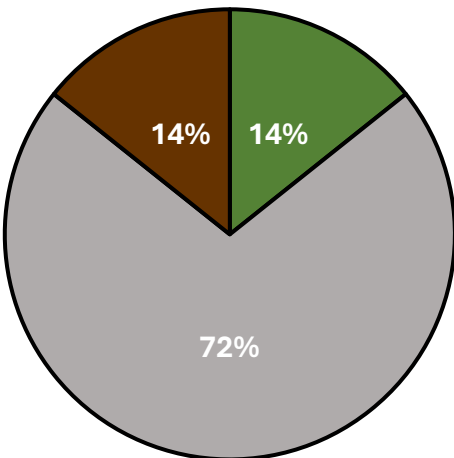
NOV



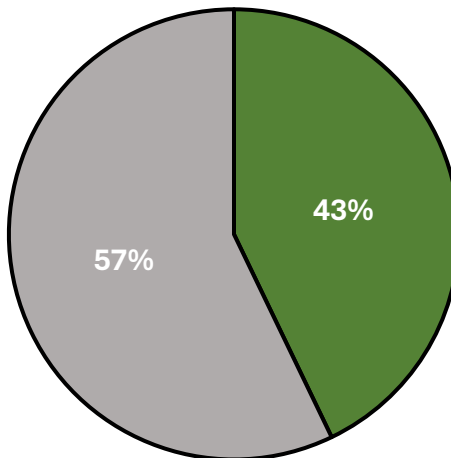
DEC



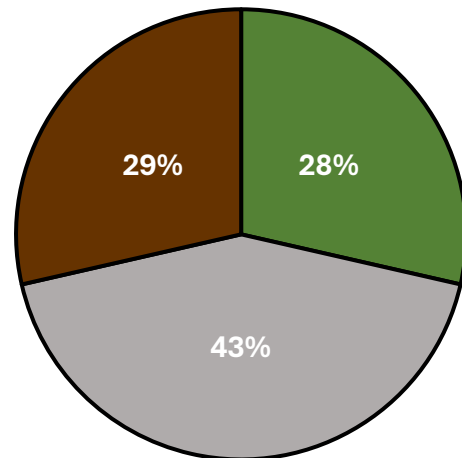
JAN



FEB



MAR

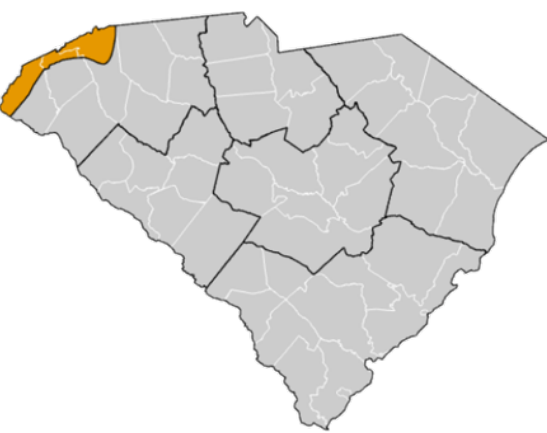


Rainfall was classified as above or below normal if it deviated by more than one standard deviation from the long-term average of the available data.



CLIMATE DIVISION 1: MOUNTAINS

AVERAGE TEMPERATURE TRENDS



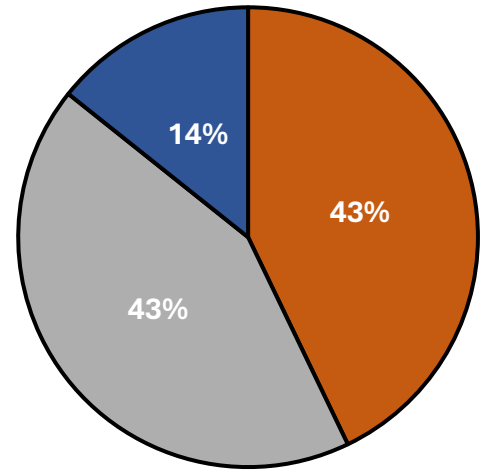
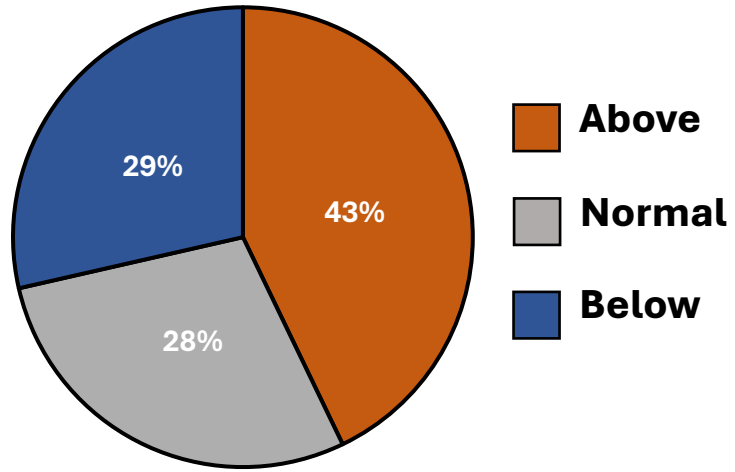
CLIMATE DIVISION 1: RANGES	AVERAGE TEMPERATURE (DEC – FEB)	AVERAGE TEMPERATURE (NOV – MAR)
Above Normal	> 43.0°F	> 45.3°F
Normal	40.3– 43.0°F	43.5 – 45.3°F
Below Normal	< 40.3°F	< 43.5°F

Temperatures were classified as above or below normal if they deviated by more than one standard deviation from the long-term average of the available data.

Average Temperature Trends in Very Strong (VS) and Strong (S) El Niño Winters

Average Temperature (Dec – Feb)
(relative to normal)

Average Temperature (Nov – Mar)
(relative to normal)



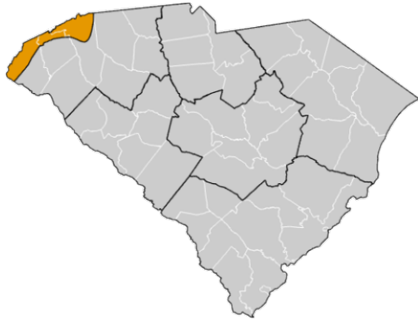
RONI EL NIÑO EVENTS (Strength)	AVG. TEMPERATURE DEC – FEB (AVG: 41.6°F)	DEPARTURE	AVG. TEMPERATURE NOV - MAR (AVG: 44.5°F)	DEPARTURE
2015 – 2016 (VS)	44.7°F	3.1°F	48.7°F	4.2°F
1997 – 1998 (VS)	43.0°F	1.4°F	44.3°F	-0.2°F
1991 – 1992 (VS)	44.7°F	3.1°F	46.1°F	1.6°F
1982 – 1983 (VS)	41.5°F	-0.1°F	44.8°F	0.3°F
1972 – 1973 (S)	42.5°F	0.9°F	45.7°F	1.2°F
1965 – 1966 (S)	39.7°F	-1.9°F	43.5°F	-1.0°F
1957 – 1958 (S)	37.1°F	-4.5°F	41.2°F	-3.3°F



CLIMATE DIVISION 1: MOUNTAINS

AVERAGE TEMPERATURE TRENDS

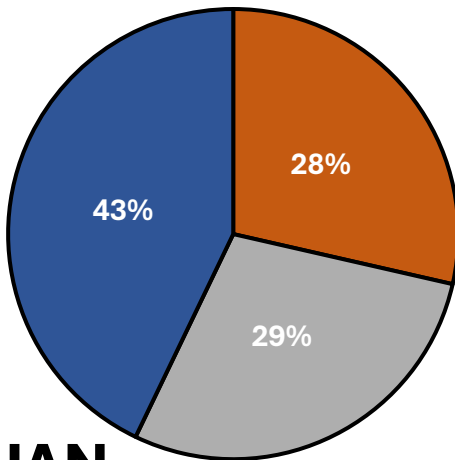
Average Temperature Trends in Very Strong (VS) and Strong (S) El Niño Winters



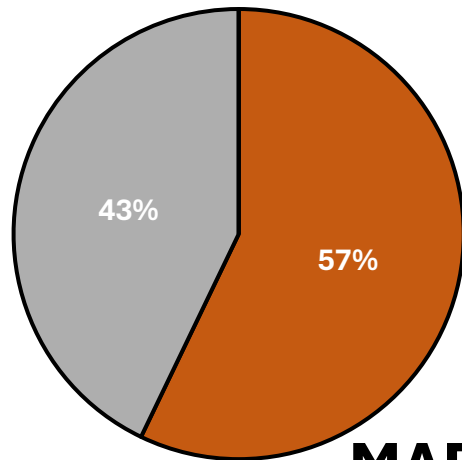
MONTH	BELOW NORMAL	NORMAL	ABOVE NORMAL
NOV	< 47.5°F	47.5 – 50.5°F	> 50.5°F
DEC	< 39.4°F	39.4 – 43.2°F	> 43.2°F
JAN	< 38.0°F	38.0 – 42.2°F	> 42.2°F
FEB	< 40.5°F	40.5 – 44.5°F	> 44.5°F
MAR	< 47.6°F	47.6 – 51.4°F	> 51.4°F

BELOW
 NORMAL
 ABOVE

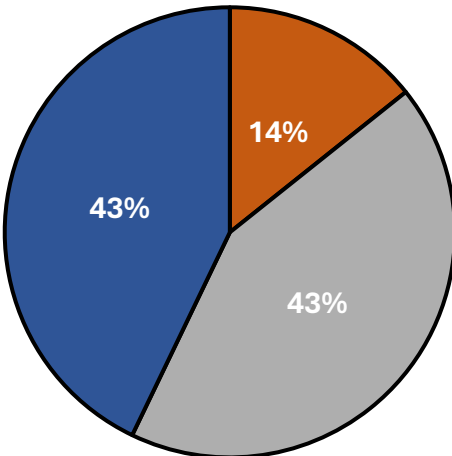
NOV



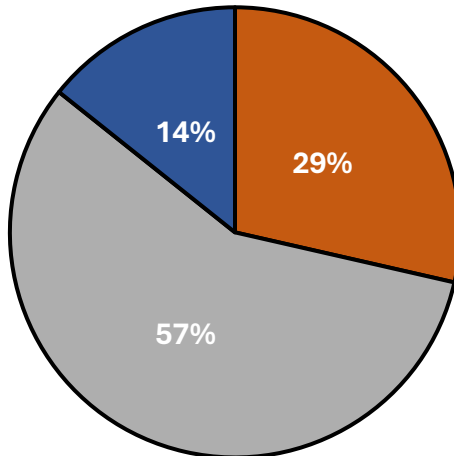
DEC



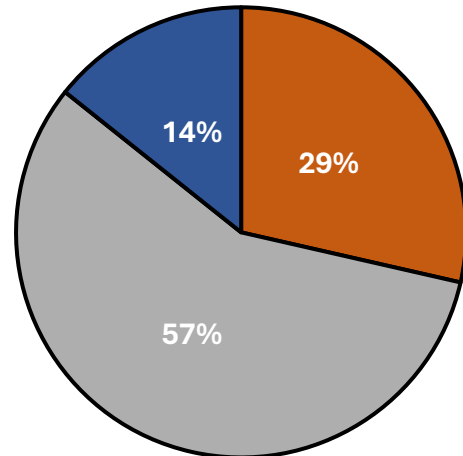
JAN



FEB



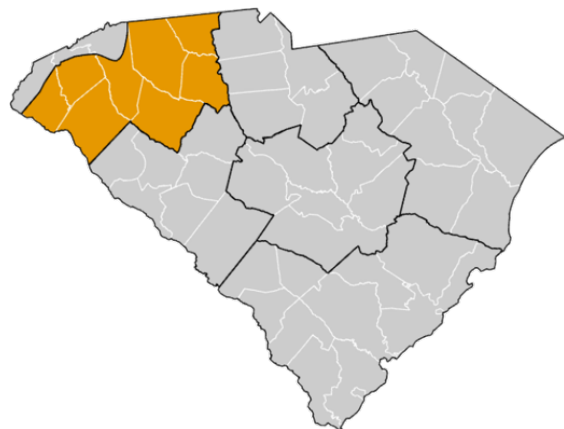
MAR



Temperatures were classified as above or below normal if they deviated by more than one standard deviation from the long-term average of the available data.



CLIMATE DIVISION 2: NORTHWEST PRECIPITATION TRENDS

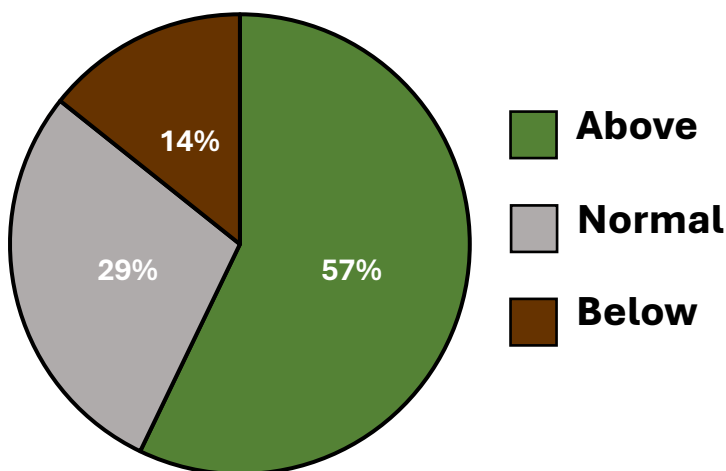


CLIMATE DIVISION 2: RANGES	PRECIPITATION (DEC – FEB)	PRECIPITATION (NOV – MAR)
Above Normal	> 15.06"	> 24.32"
Normal	11.34 – 15.06"	21.79 – 24.32"
Below Normal	< 11.34"	< 21.73"

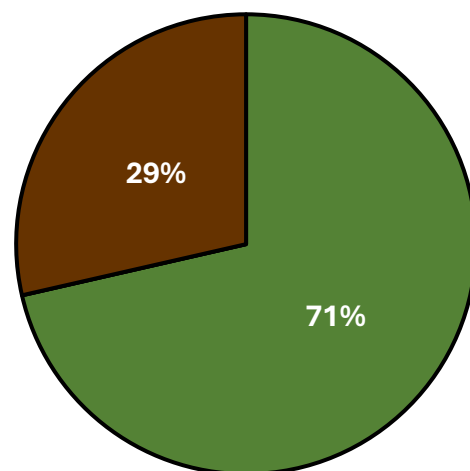
Rainfall was classified as above or below normal if it deviated by more than one standard deviation from the long-term average of the available data.

Precipitation Trends in Very Strong (VS) and Strong (S) El Niño Winters

Precipitation (Dec – Feb)
(relative to normal)



Precipitation (Nov – Mar)
(relative to normal)

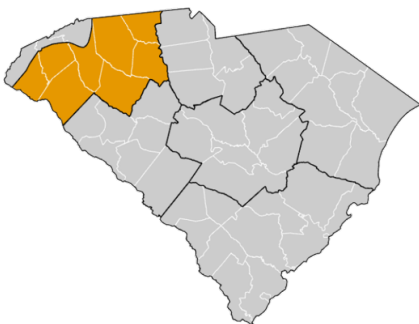


RONI EL NIÑO EVENTS (Strength)	PRECIPITATION DEC – FEB (AVG: 13.20")	DEPARTURE	PRECIPITATION NOV – MAR (AVG: 21.79")	DEPARTURE
2015 – 2016 (VS)	17.35"	4.15"	28.47"	6.68"
1997 – 1998 (VS)	19.28"	6.08"	27.79"	6.00"
1991 – 1992 (VS)	11.52"	-1.68"	18.43"	-3.36"
1982 – 1983 (VS)	15.60"	2.40"	26.63"	4.84"
1972 – 1973 (S)	16.12"	2.92"	29.35"	7.56"
1965 – 1966 (S)	12.48"	-0.72"	18.82"	-2.97"
1957 – 1958 (S)	11.30"	-1.90"	25.04"	3.25"



CLIMATE DIVISION 2: NORTHWEST PRECIPITATION TRENDS

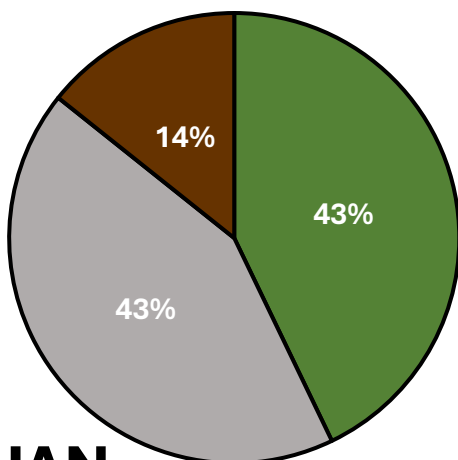
Precipitation Trends in Very Strong (VS) and Strong (S) **El Niño** Winters



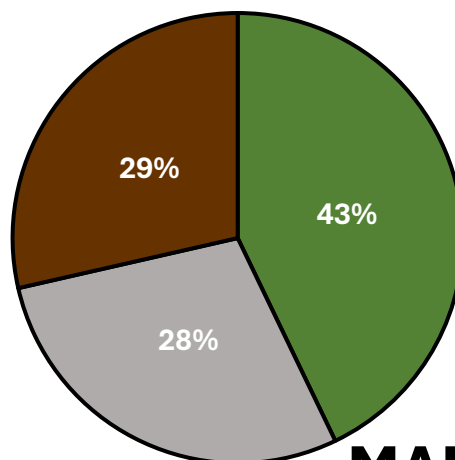
MONTH	BELOW NORMAL	NORMAL	ABOVE NORMAL
NOV	< 2.31"	2.31 – 4.27"	> 4.27"
DEC	< 3.40"	3.40 – 5.54"	> 5.54"
JAN	< 3.43"	3.43 – 5.33"	> 5.33"
FEB	< 3.36"	3.36 – 5.34"	> 5.34"
MAR	< 3.86"	3.86 – 6.02"	> 6.02"

BELOW
 NORMAL
 ABOVE

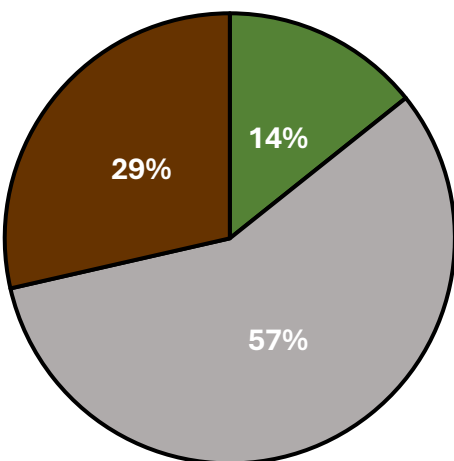
NOV



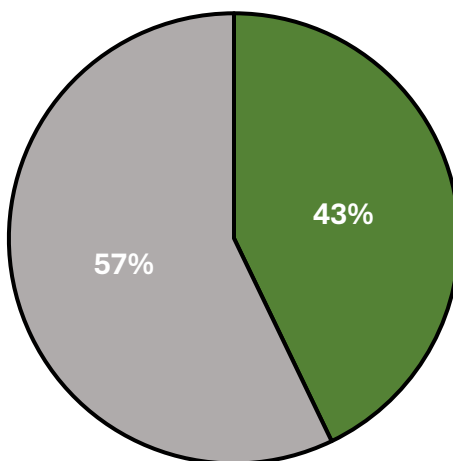
DEC



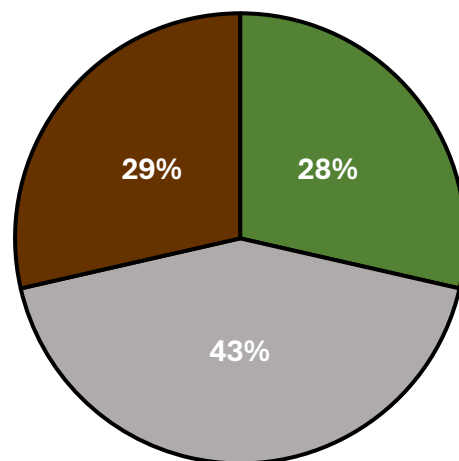
JAN



FEB



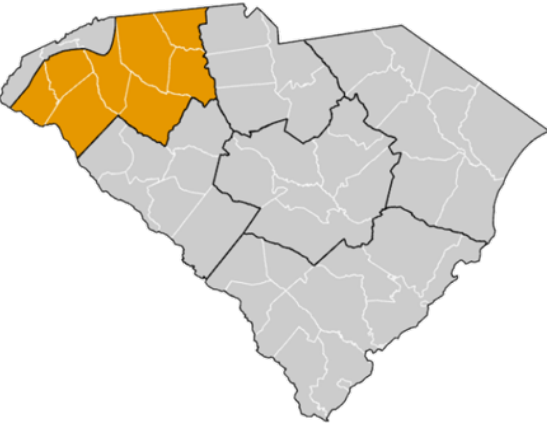
MAR



Rainfall was classified as above or below normal if it deviated by more than one standard deviation from the long-term average of the available data.



CLIMATE DIVISION 2: NORTHWEST AVERAGE TEMPERATURE TRENDS

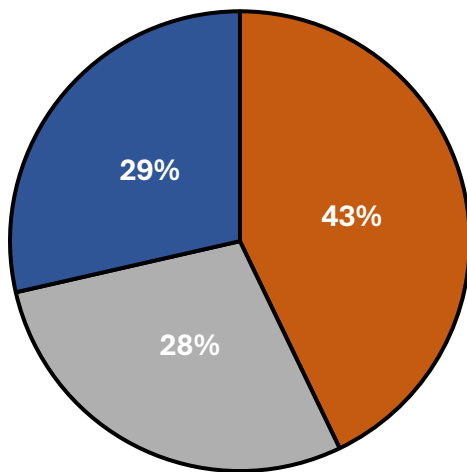


CLIMATE DIVISION 2: RANGES	AVERAGE TEMPERATURE (DEC – FEB)	AVERAGE TEMPERATURE (NOV – MAR)
Above Normal	> 44.4°F	> 47.0°F
Normal	41.7 – 44.4°F	45.0 – 47.0°F
Below Normal	< 41.7°F	< 45.0°F

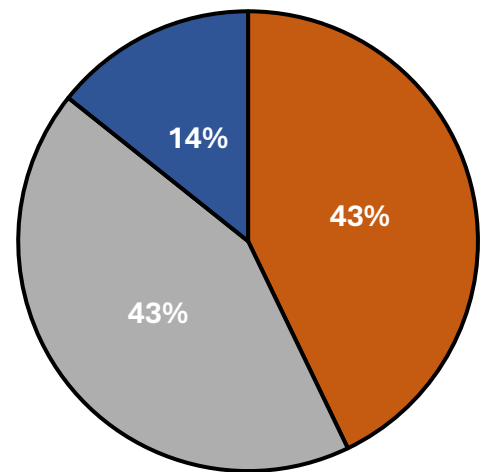
Temperatures were classified as above or below normal if they deviated by more than one standard deviation from the long-term average of the available data.

Average Temperature Trends in Very Strong (VS) and Strong (S) El Niño Winters

Average Temperature (Dec – Feb)
(relative to normal)



Average Temperature (Nov – Mar)
(relative to normal)



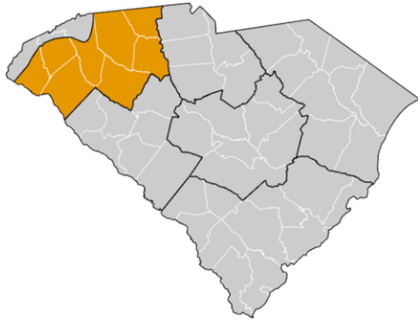
Above
Normal
Below

RONI EL NIÑO EVENTS (Strength)	AVG. TEMPERATURE DEC – FEB (AVG: 43.0°F)	DEPARTURE	AVG. TEMPERATURE NOV – MAR (AVG: 46.0°F)	DEPARTURE
2015 – 2016 (VS)	46.6°F	3.6°F	50.5°F	4.5°F
1997 – 1998 (VS)	45.1°F	2.1°F	46.4°F	0.4°F
1991 – 1992 (VS)	46.5°F	3.5°F	47.9°F	1.9°F
1982 – 1983 (VS)	43.1°F	0.1°F	46.5°F	0.5°F
1972 – 1973 (S)	43.6°F	0.6°F	47.1°F	1.1°F
1965 – 1966 (S)	41.3°F	-1.7°F	45.0°F	-1.0°F
1957 – 1958 (S)	39.0°F	-4.0°F	43.0°F	-3.0°F



CLIMATE DIVISION 2: NORTHWEST AVERAGE TEMPERATURE TRENDS

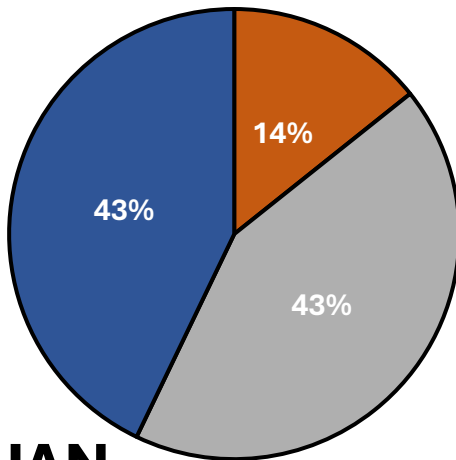
Average Temperature Trends in Very Strong (VS) and Strong (S) El Niño Winters



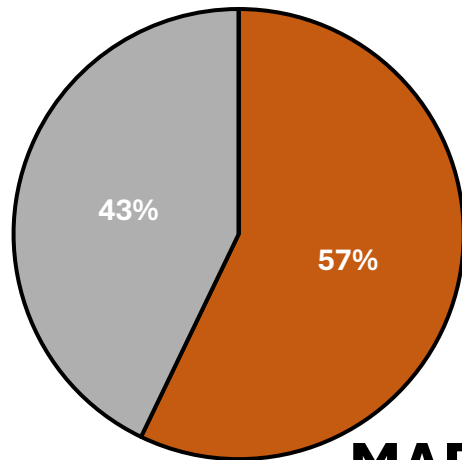
MONTH	BELOW NORMAL	NORMAL	ABOVE NORMAL
NOV	< 50.8°F	50.8 – 52.2°F	> 52.2°F
DEC	< 41.2°F	41.2 – 45.0°F	> 45.0°F
JAN	< 39.6°F	39.6 – 43.6°F	> 43.6°F
FEB	< 42.3°F	42.3 – 46.3°F	> 46.3°F
MAR	< 49.8°F	49.8 – 53.6°F	> 53.6°F

BELOW
 NORMAL
 ABOVE

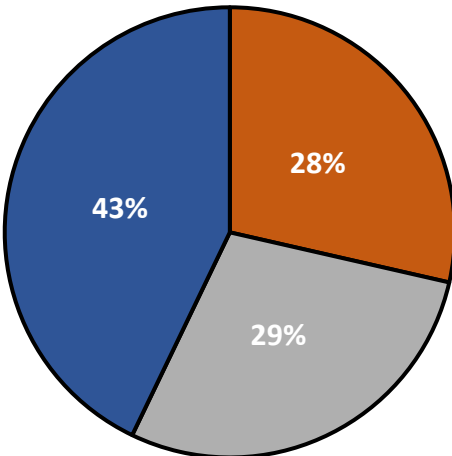
NOV



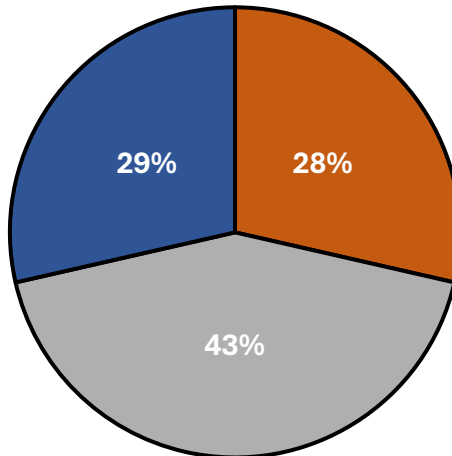
DEC



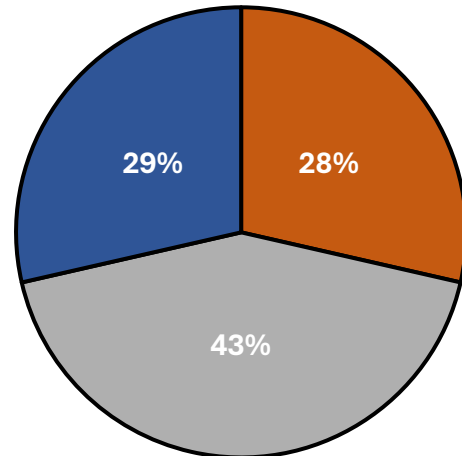
JAN



FEB



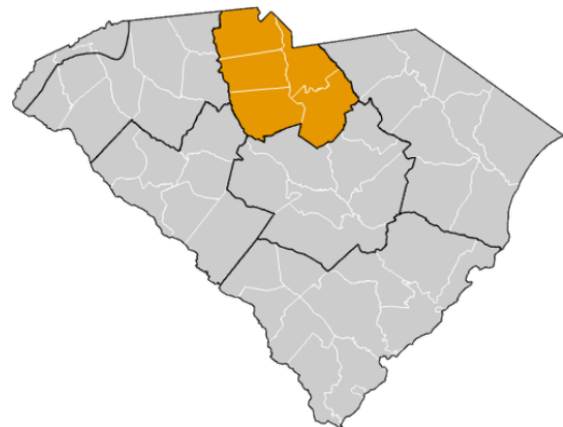
MAR



Temperatures were classified as above or below normal if they deviated by more than one standard deviation from the long-term average of the available data.



CLIMATE DIVISION 3: NORTH CENTRAL PRECIPITATION TRENDS

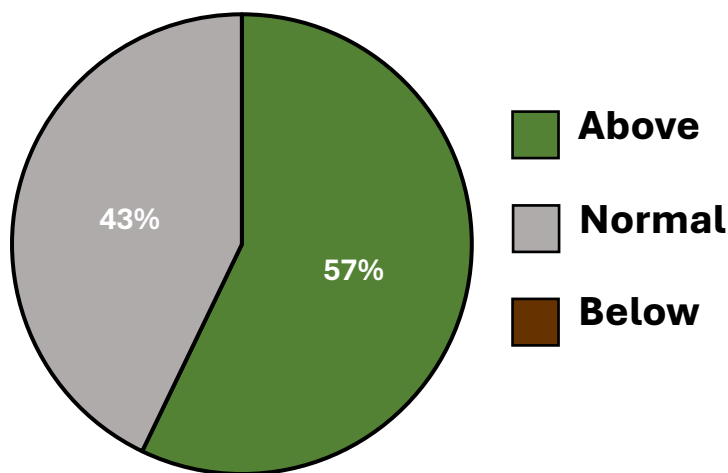


CLIMATE DIVISION 3: RANGES	PRECIPITATION (DEC – FEB)	PRECIPITATION (NOV – MAR)
Above Normal	> 12.81"	> 20.69"
Normal	9.59 – 12.81"	16.13 – 20.69"
Below Normal	< 9.59"	< 16.13"

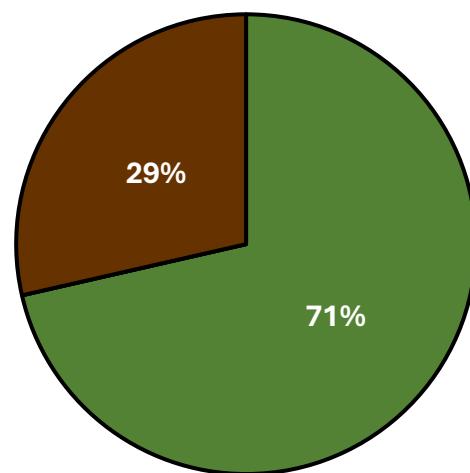
Rainfall was classified as above or below normal if it deviated by more than one standard deviation from the long-term average of the available data.

Precipitation Trends in Very Strong (VS) and Strong (S) El Niño Winters

Precipitation (Dec – Feb)
(relative to normal)



Precipitation (Nov – Mar)
(relative to normal)

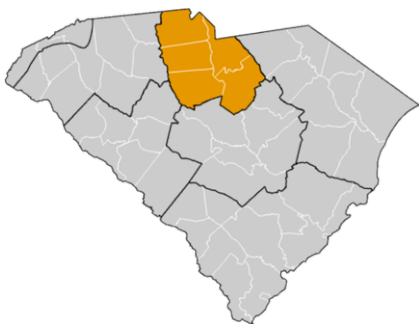


RONI EL NIÑO EVENTS (Strength)	PRECIPITATION DEC – FEB (AVG: 11.20")	DEPARTURE	PRECIPITATION NOV – MAR (AVG: 18.41")	DEPARTURE
2015 – 2016 (VS)	13.64"	2.42"	23.63"	5.22"
1997 – 1998 (VS)	17.97"	6.75"	26.82"	8.41"
1991 – 1992 (VS)	9.62"	-1.60"	15.03"	-3.03"
1982 – 1983 (VS)	13.60"	2.38"	24.67"	6.26"
1972 – 1973 (S)	14.60"	3.38"	24.80"	6.39"
1965 – 1966 (S)	10.20"	-1.02"	15.89"	-2.52"
1957 – 1958 (S)	10.50"	-0.72"	23.21"	4.80"



CLIMATE DIVISION 3: NORTH CENTRAL PRECIPITATION TRENDS

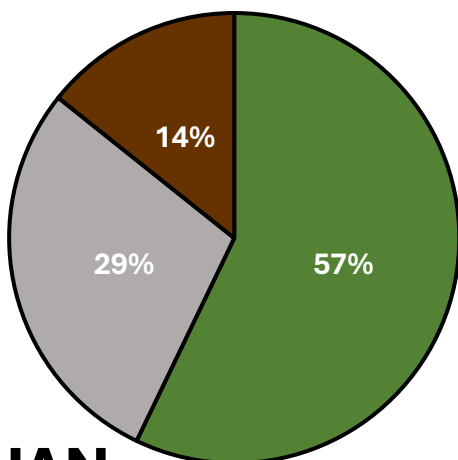
Precipitation Trends in Very Strong (VS) and Strong (S) **El Niño** Winters



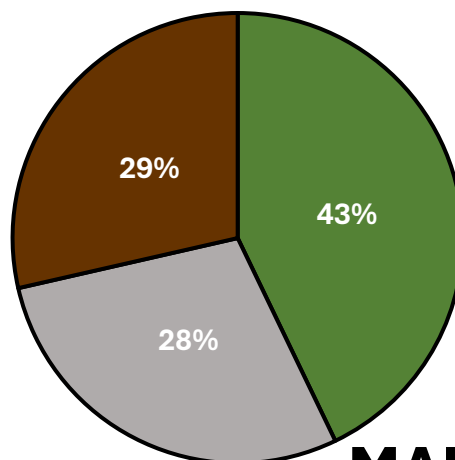
MONTH	BELOW NORMAL	NORMAL	ABOVE NORMAL
NOV	< 1.81"	1.81 – 3.57"	> 3.57"
DEC	< 2.73"	2.73 – 4.51"	> 4.51"
JAN	< 3.05"	3.05 – 4.77"	> 4.77"
FEB	< 2.98"	2.98 – 4.72"	> 4.72"
MAR	< 3.34"	3.34 – 5.24"	> 5.24"

BELOW
 NORMAL
 ABOVE

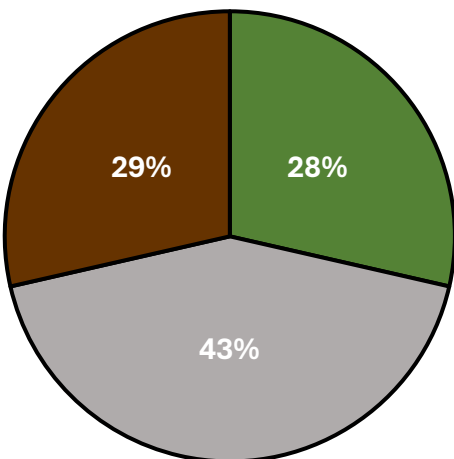
NOV



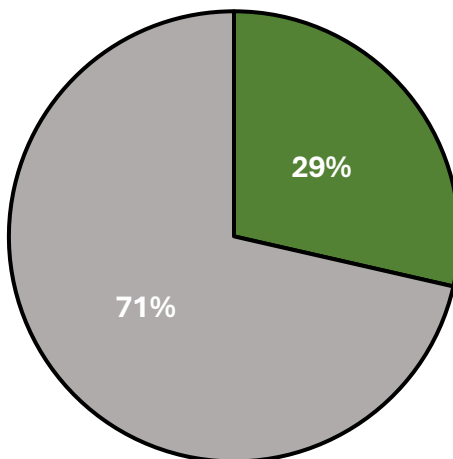
DEC



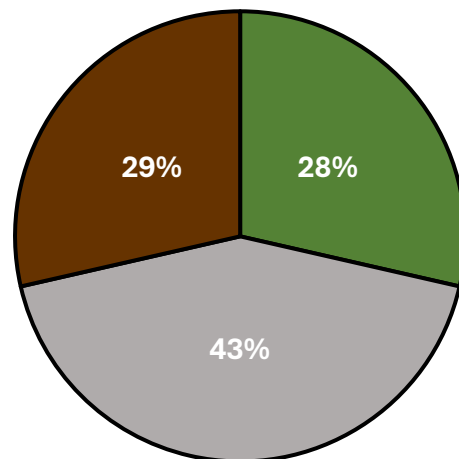
JAN



FEB



MAR

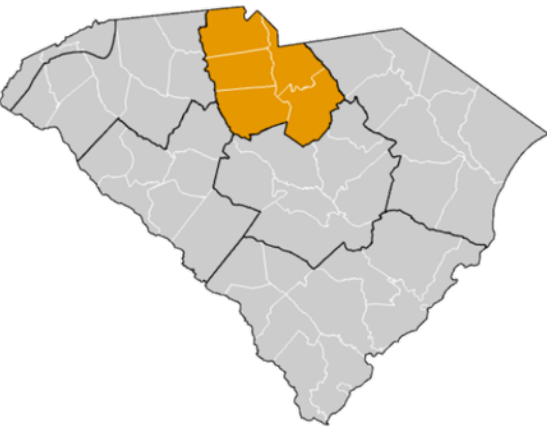


Rainfall was classified as above or below normal if it deviated by more than one standard deviation from the long-term average of the available data.



CLIMATE DIVISION 3: NORTH CENTRAL

AVERAGE TEMPERATURE TRENDS

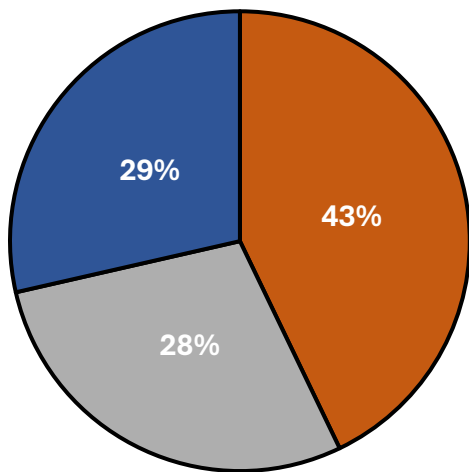


CLIMATE DIVISION 3: RANGES	AVERAGE TEMPERATURE (DEC – FEB)	AVERAGE TEMPERATURE (NOV – MAR)
Above Normal	> 45.1°F	> 47.7°F
Normal	42.3 – 45.1°F	45.7 – 47.7°F
Below Normal	< 42.3°F	< 45.7°F

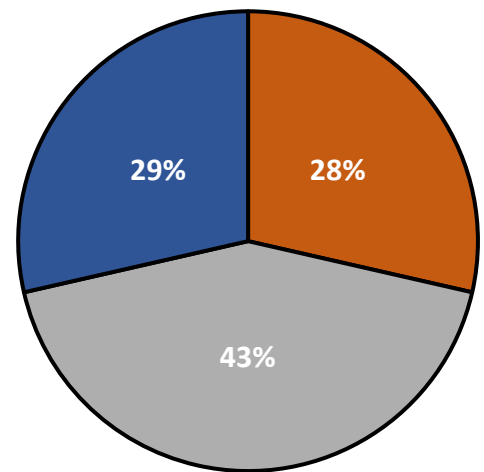
Temperatures were classified as above or below normal if they deviated by more than one standard deviation from the long-term average of the available data.

Average Temperature Trends in Very Strong (VS) and Strong (S) El Niño Winters

Average Temperature (Dec – Feb)
(relative to normal)



Average Temperature (Nov – Mar)
(relative to normal)



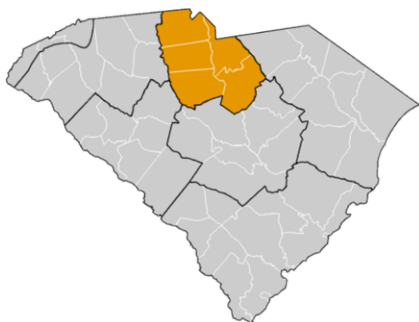
Above
Normal
Below

RONI EL NIÑO EVENTS (Strength)	AVG. TEMPERATURE DEC – FEB (AVG: 43.7°F)	DEPARTURE	AVG. TEMPERATURE NOV – MAR (AVG: 46.7°F)	DEPARTURE
2015 – 2016 (VS)	47.4°F	3.7°F	51.3°F	4.6°F
1997 – 1998 (VS)	45.6°F	1.9°F	47.2°F	0.5°F
1991 – 1992 (VS)	46.6°F	2.9°F	48.2°F	1.5°F
1982 – 1983 (VS)	43.5°F	-0.2°F	47.1°F	0.4°F
1972 – 1973 (S)	43.5°F	-0.2°F	47.2°F	0.5°F
1965 – 1966 (S)	41.6°F	-2.1°F	45.2°F	-1.5°F
1957 – 1958 (S)	39.4°F	-4.3°F	43.4°F	-3.3°F



CLIMATE DIVISION 3: NORTH CENTRAL AVERAGE TEMPERATURE TRENDS

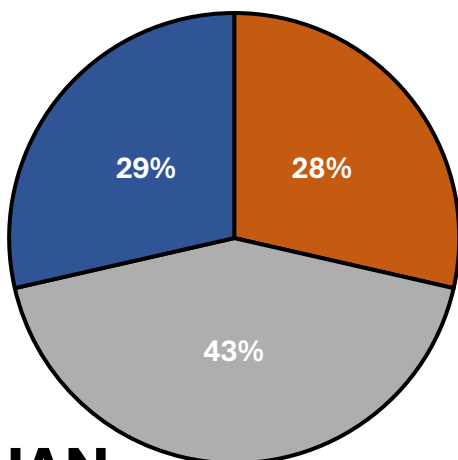
Average Temperature Trends in Very Strong (VS) and Strong (S) El Niño Winters



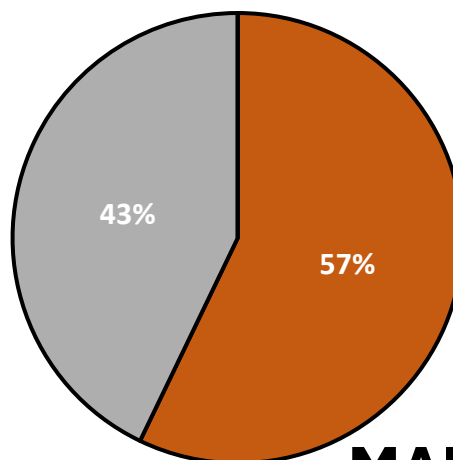
MONTH	BELOW NORMAL	NORMAL	ABOVE NORMAL
NOV	< 49.9°F	49.9 – 52.7°F	> 52.7°F
DEC	< 41.5°F	41.5 – 45.3°F	> 45.3°F
JAN	< 40.1°F	40.1 – 44.3°F	> 44.3°F
FEB	< 42.5°F	42.5 – 46.7°F	> 46.7°F
MAR	< 50.0°F	50.0 – 53.8°F	> 53.8°F

BELOW
 NORMAL
 ABOVE

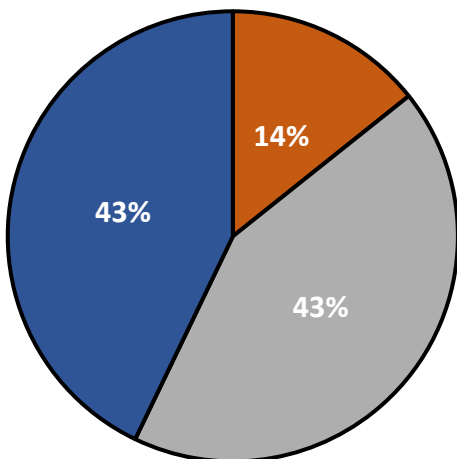
NOV



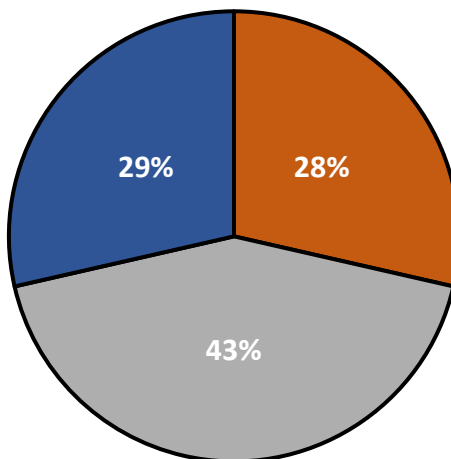
DEC



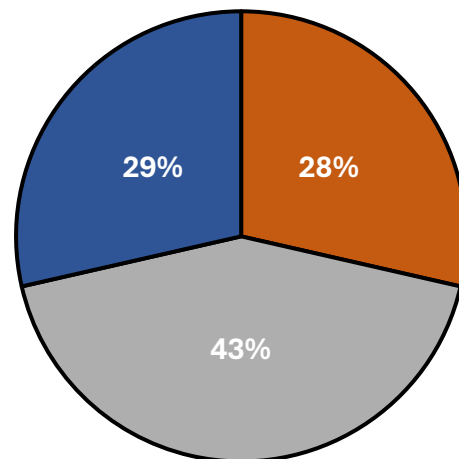
JAN



FEB



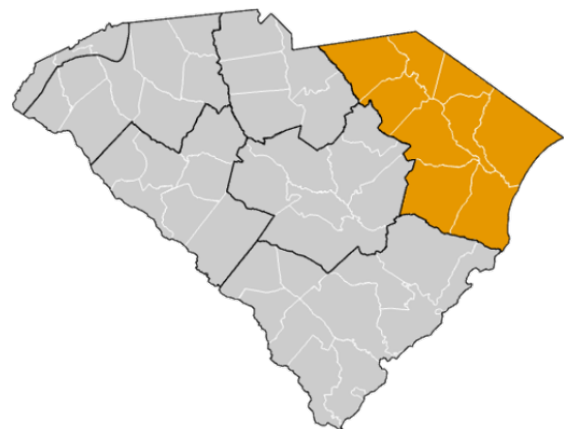
MAR



Temperatures were classified as above or below normal if they deviated by more than one standard deviation from the long-term average of the available data.



CLIMATE DIVISION 4: NORTHEAST PRECIPITATION TRENDS

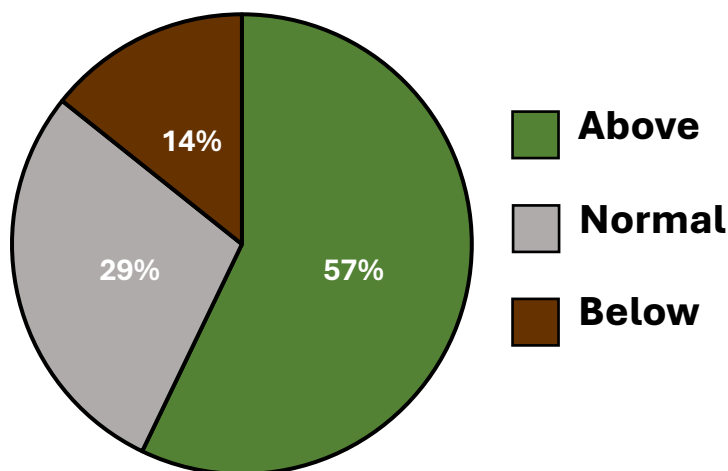


CLIMATE DIVISION 4: RANGES	PRECIPITATION (DEC – FEB)	PRECIPITATION (NOV – MAR)
Above Normal	> 11.97"	> 19.06"
Normal	8.73 – 11.97"	14.72 – 19.06"
Below Normal	< 8.73"	< 14.72"

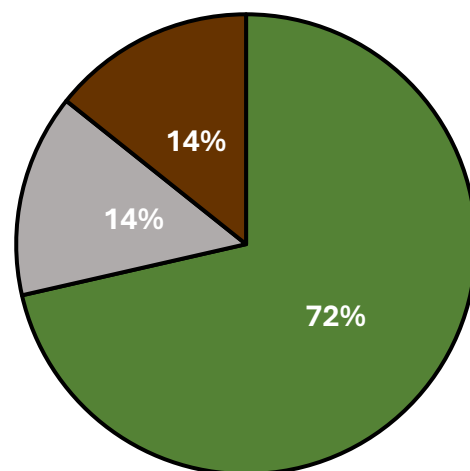
Rainfall was classified as above or below normal if it deviated by more than one standard deviation from the long-term average of the available data.

Precipitation Trends in Very Strong (VS) and Strong (S) El Niño Winters

Precipitation (Dec – Feb)
(relative to normal)



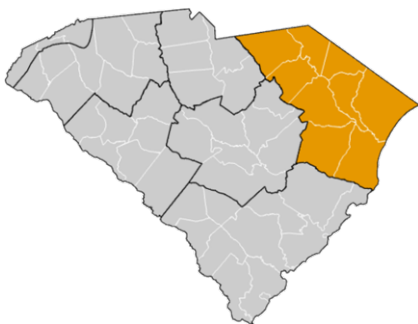
Precipitation (Nov – Mar)
(relative to normal)



RONI EL NIÑO EVENTS (Strength)	PRECIPITATION DEC – FEB (AVG: 10.35")	DEPARTURE	PRECIPITATION NOV – MAR (AVG: 16.89")	DEPARTURE
2015 – 2016 (VS)	14.18"	3.83"	22.27"	5.38"
1997 – 1998 (VS)	21.49"	11.14"	31.39"	14.50"
1991 – 1992 (VS)	8.68"	-1.67"	14.02"	-2.87"
1982 – 1983 (VS)	15.42"	5.07"	26.68"	9.79"
1972 – 1973 (S)	14.87"	4.52"	23.98"	7.06"
1965 – 1966 (S)	10.66"	0.31"	16.33"	-0.56"
1957 – 1958 (S)	11.66"	1.31"	21.90"	5.01"

CLIMATE DIVISION 4: NORTHEAST PRECIPITATION TRENDS

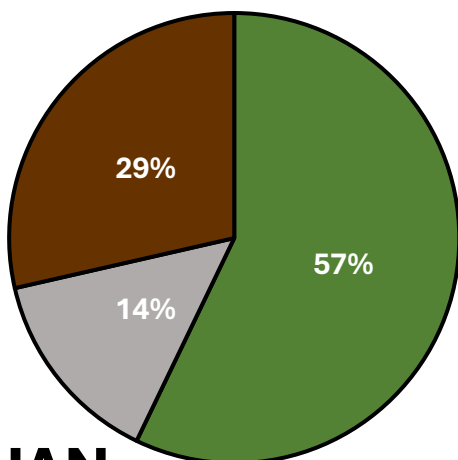
Precipitation Trends in Very Strong (VS) and Strong (S) **El Niño** Winters



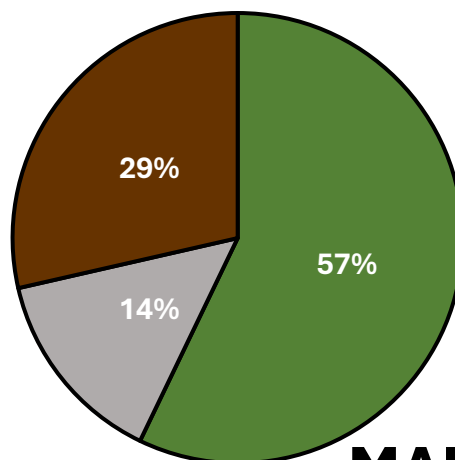
MONTH	BELOW NORMAL	NORMAL	ABOVE NORMAL
NOV	< 1.68"	1.68 – 3.26"	> 3.26"
DEC	< 2.50"	2.50 – 4.12"	> 4.12"
JAN	< 2.72"	2.72 – 4.34"	> 4.34"
FEB	< 2.79"	2.79 – 4.53"	> 4.53"
MAR	< 3.07"	3.07 – 4.71"	> 4.71"

BELOW
 NORMAL
 ABOVE

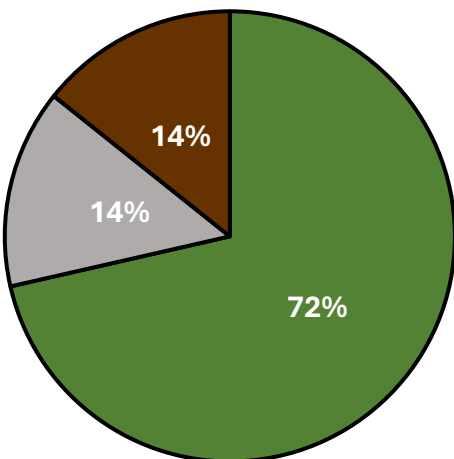
NOV



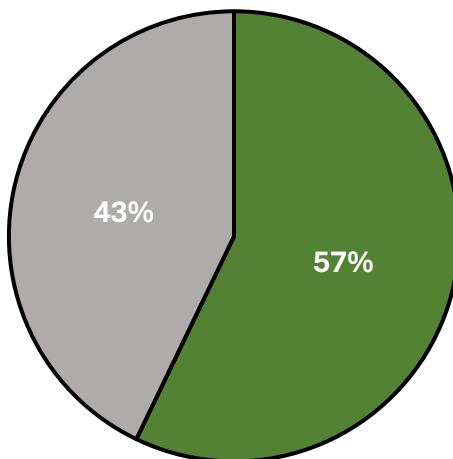
DEC



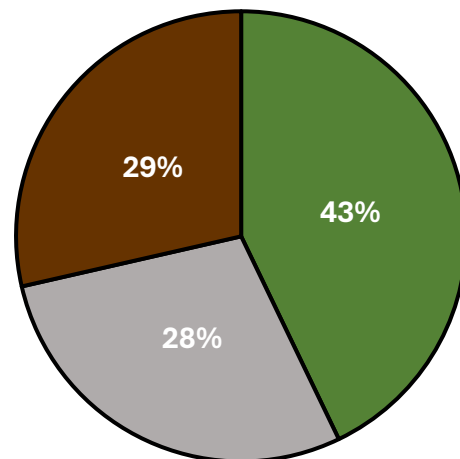
JAN



FEB



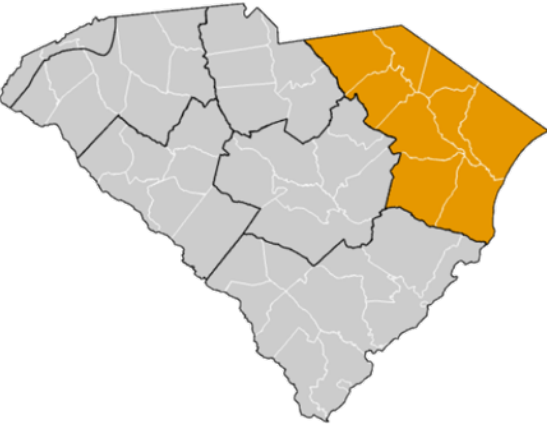
MAR



Rainfall was classified as above or below normal if it deviated by more than one standard deviation from the long-term average of the available data.



CLIMATE DIVISION 4: NORTHEAST AVERAGE TEMPERATURE TRENDS

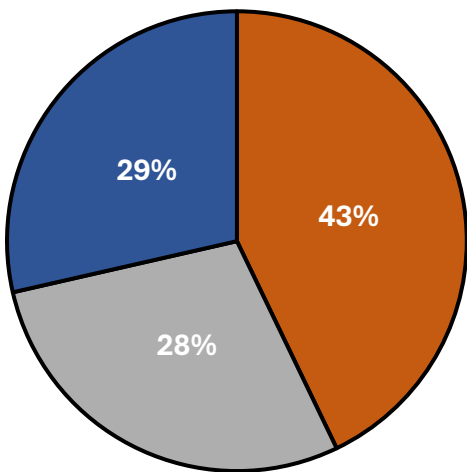


CLIMATE DIVISION 4: RANGES	AVERAGE TEMPERATURE (DEC – FEB)	AVERAGE TEMPERATURE (NOV – MAR)
Above Normal	> 47.7°F	> 50.2°F
Normal	44.9 – 47.7°F	48.0 – 50.2°F
Below Normal	< 44.9°F	< 48.0°F

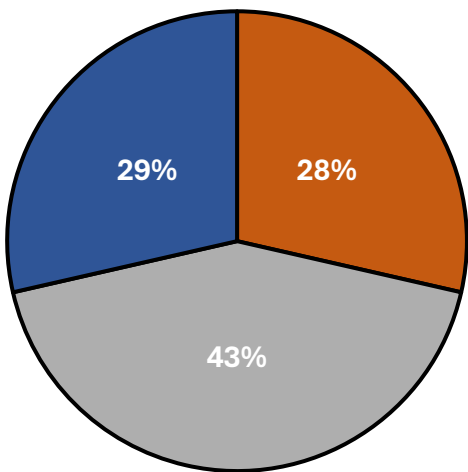
Temperatures were classified as above or below normal if they deviated by more than one standard deviation from the long-term average of the available data.

Average Temperature Trends in Very Strong (VS) and Strong (S) El Niño Winters

Average Temperature (Dec – Feb)
(relative to normal)



Average Temperature (Nov – Mar)
(relative to normal)



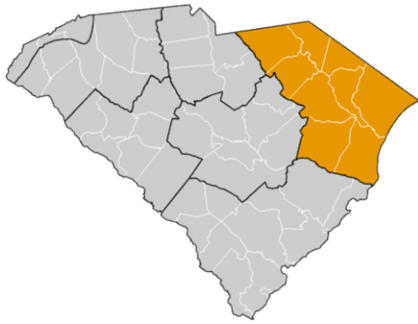
Above
Normal
Below

RONI EL NIÑO EVENTS (Strength)	AVG. TEMPERATURE DEC – FEB (AVG: 46.3°F)	DEPARTURE	AVG. TEMPERATURE NOV - MAR (AVG: 49.1°F)	DEPARTURE
2015 – 2016 (VS)	50.4°F	4.1°F	54.2°F	5.1°F
1997 – 1998 (VS)	48.0°F	1.7°F	49.7°F	0.6°F
1991 – 1992 (VS)	48.8°F	2.5°F	50.3°F	1.2°F
1982 – 1983 (VS)	46.3°F	0.0°F	49.8°F	0.7°F
1972 – 1973 (S)	45.6°F	-0.7°F	49.6°F	0.5°F
1965 – 1966 (S)	43.8°F	-2.5°F	47.5°F	-1.6°F
1957 – 1958 (S)	41.9°F	-4.4°F	45.9°F	-3.2°F



CLIMATE DIVISION 4: NORTHEAST AVERAGE TEMPERATURE TRENDS

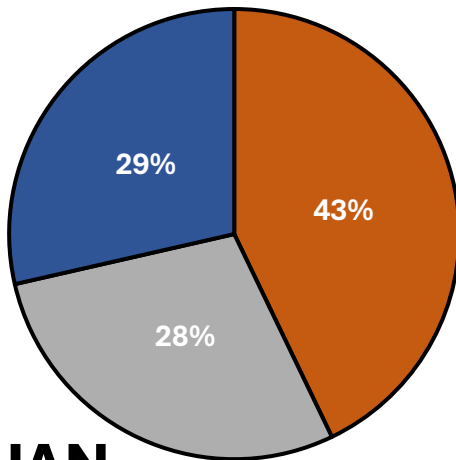
Average Temperature Trends in Very Strong (VS) and Strong (S) **El Niño** Winters



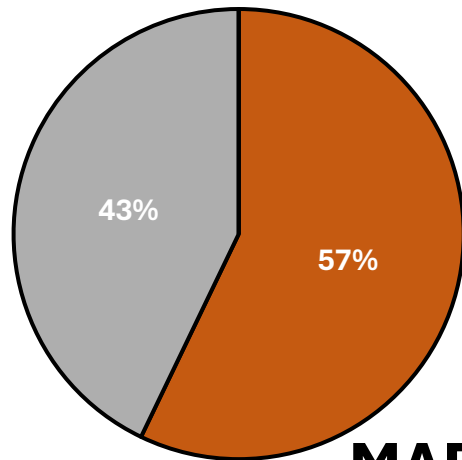
MONTH	BELOW NORMAL	NORMAL	ABOVE NORMAL
NOV	< 51.9°F	51.1 – 54.9°F	> 54.9°F
DEC	< 44.0°F	44.0 – 48.0°F	> 48.0°F
JAN	< 41.7°F	41.7 – 45.9°F	> 45.9°F
FEB	< 44.9°F	44.9 – 49.1°F	> 49.1°F
MAR	< 52.4°F	52.4 – 56.0°F	> 56.0°F

BELOW
 NORMAL
 ABOVE

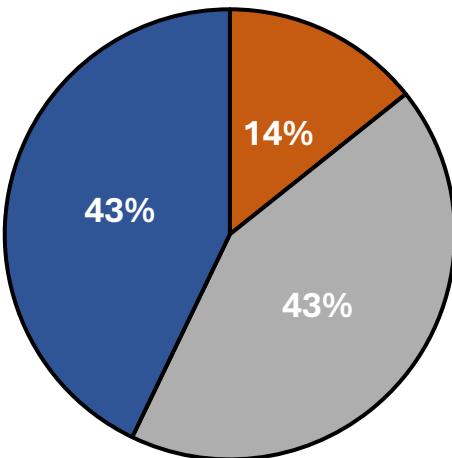
NOV



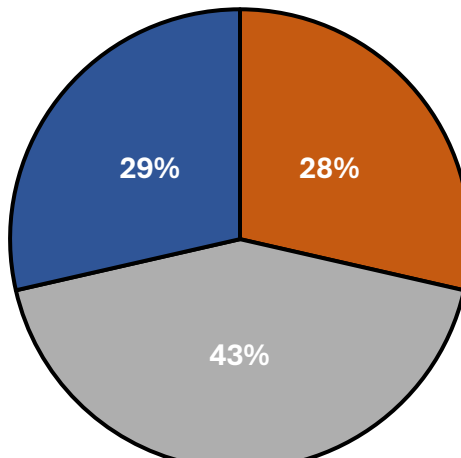
DEC



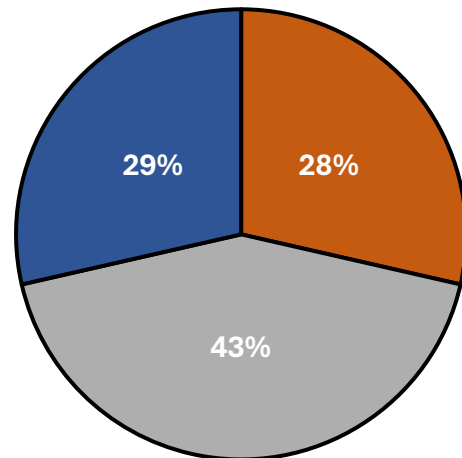
JAN



FEB



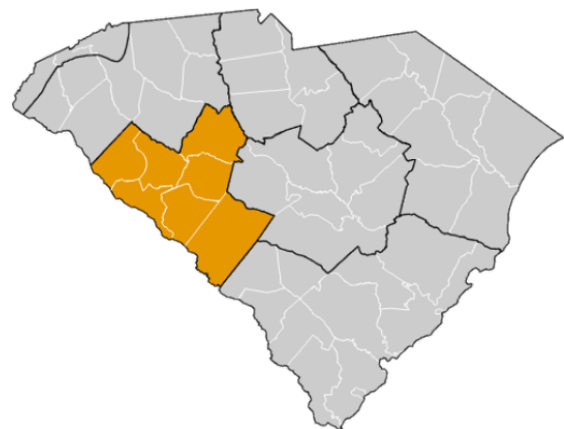
MAR



Temperatures were classified as above or below normal if they deviated by more than one standard deviation from the long-term average of the available data.



CLIMATE DIVISION 5: WEST CENTRAL PRECIPITATION TRENDS

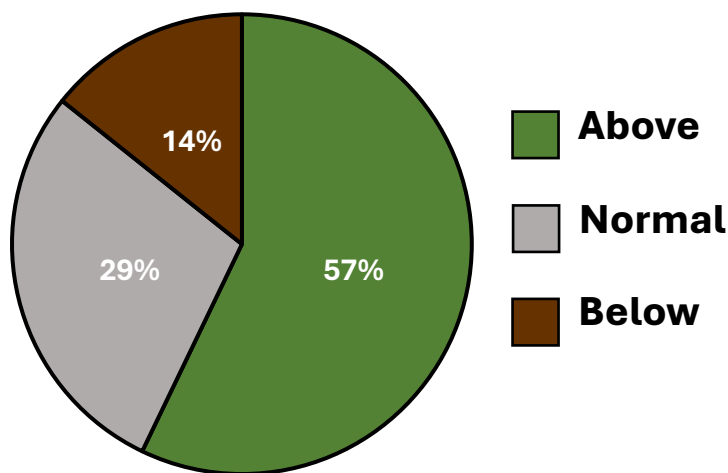


CLIMATE DIVISION 5: RANGES	PRECIPITATION (DEC – FEB)	PRECIPITATION (NOV – MAR)
Above Normal	> 13.72"	> 21.76"
Normal	10.34 – 13.72"	16.96 – 21.76"
Below Normal	< 10.34"	< 16.96"

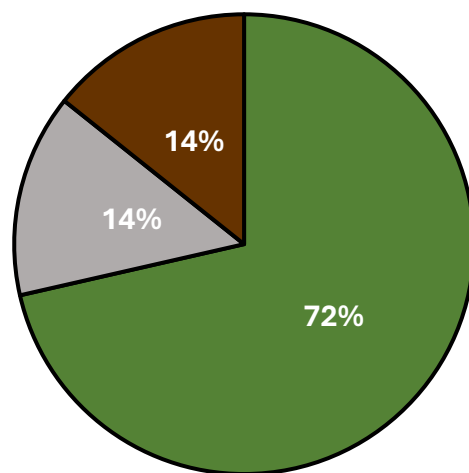
Rainfall was classified as above or below normal if it deviated by more than one standard deviation from the long-term average of the available data.

Precipitation Trends in Very Strong (VS) and Strong (S) El Niño Winters

Precipitation (Dec – Feb)
(relative to normal)



Precipitation (Nov – Mar)
(relative to normal)

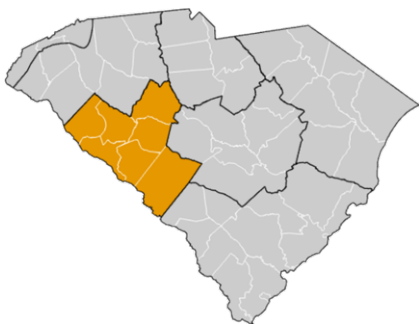


RONI EL NIÑO EVENTS (Strength)	PRECIPITATION DEC – FEB (AVG: 12.03")	DEPARTURE	PRECIPITATION NOV – MAR (AVG: 19.36")	DEPARTURE
2015 – 2016 (VS)	14.73"	2.70"	24.01"	4.65"
1997 – 1998 (VS)	18.48"	6.45"	27.90"	8.54"
1991 – 1992 (VS)	10.24"	-1.79"	16.49"	-2.87
1982 – 1983 (VS)	15.10"	3.07"	25.27"	5.91"
1972 – 1973 (S)	15.43"	3.40"	25.76"	6.40"
1965 – 1966 (S)	12.08"	0.05"	17.67"	-1.69"
1957 – 1958 (S)	11.16"	-0.87"	22.85"	3.49"



CLIMATE DIVISION 5: WEST CENTRAL PRECIPITATION TRENDS

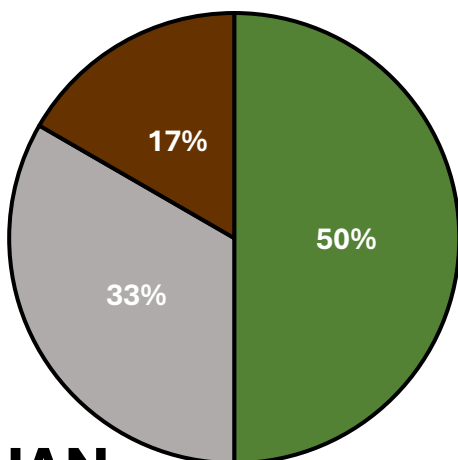
Precipitation Trends in Very Strong (VS) and Strong (S) **El Niño** Winters



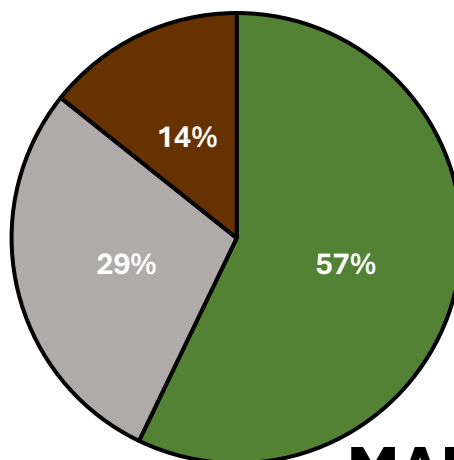
MONTH	BELOW NORMAL	NORMAL	ABOVE NORMAL
NOV	< 1.79"	1.79 – 3.35"	> 3.55"
DEC	< 2.83"	2.83 – 4.73"	> 4.73"
JAN	< 3.23"	3.23 – 5.03"	> 5.03"
FEB	< 3.29"	3.29 – 5.03"	> 5.03"
MAR	< 3.52"	3.52 – 6.67"	> 6.67"

BELOW
 NORMAL
 ABOVE

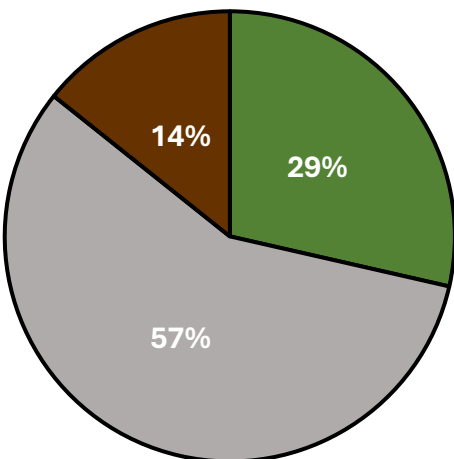
NOV



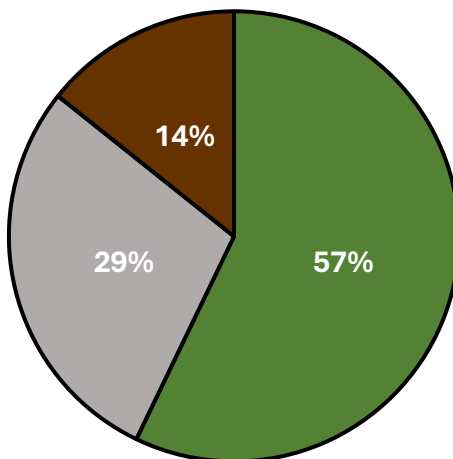
DEC



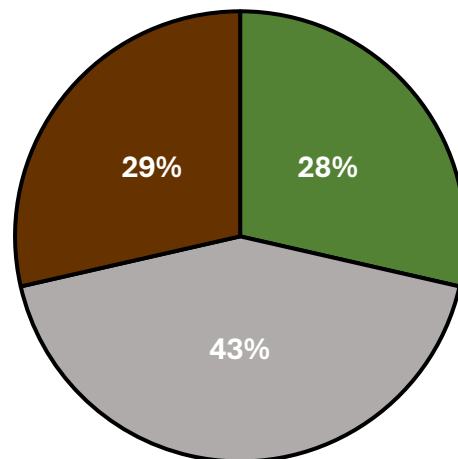
JAN



FEB



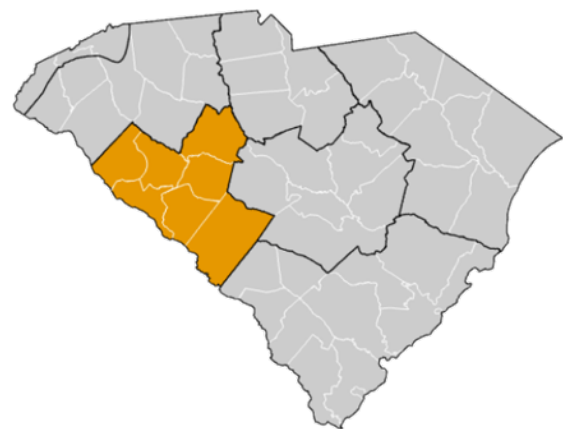
MAR



Rainfall was classified as above or below normal if it deviated by more than one standard deviation from the long-term average of the available data.



CLIMATE DIVISION 5: WEST CENTRAL AVERAGE TEMPERATURE TRENDS



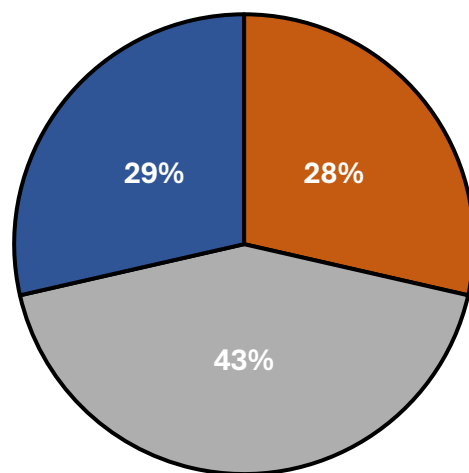
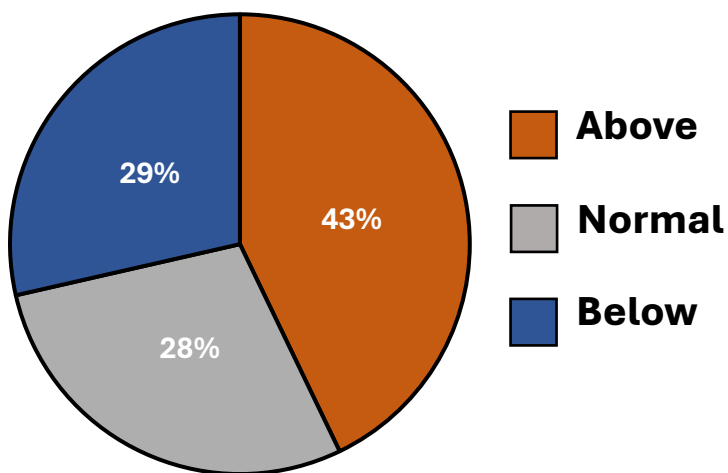
CLIMATE DIVISION 5: RANGES	AVERAGE TEMPERATURE (DEC – FEB)	AVERAGE TEMPERATURE (NOV – MAR)
Above Normal	> 46.7°F	> 50.7°F
Normal	43.9 – 46.7°F	48.5 – 50.7°F
Below Normal	< 43.9°F	< 48.5°F

Temperatures were classified as above or below normal if they deviated by more than one standard deviation from the long-term average of the available data.

Average Temperature Trends in Very Strong (VS) and Strong (S) El Niño Winters

Average Temperature (Dec – Feb)
(relative to normal)

Average Temperature (Nov – Mar)
(relative to normal)

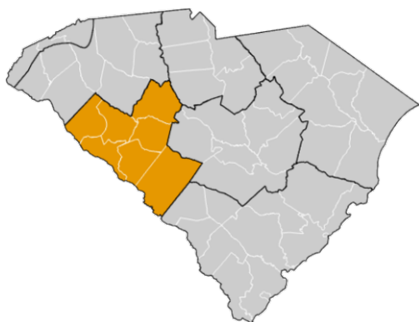


RONI EL NIÑO EVENTS (Strength)	AVG. TEMPERATURE DEC – FEB (AVG: 45.3°F)	DEPARTURE	AVG. TEMPERATURE NOV – MAR (AVG: 48.2°F)	DEPARTURE
2015 – 2016 (VS)	49.3°F	4.0°F	52.9°F	4.7°F
1997 – 1998 (VS)	46.9°F	1.6°F	48.4°F	0.2°F
1991 – 1992 (VS)	48.2°F	2.9°F	49.6°F	1.4°F
1982 – 1983 (VS)	44.9°F	-0.4°F	45.4°F	0.2°F
1972 – 1973 (S)	45.2°F	-0.1°F	49.0°F	0.8°F
1965 – 1966 (S)	43.2°F	-2.1°F	46.8°F	-1.4°F
1957 – 1958 (S)	41.0°F	-4.3°F	45.0°F	-3.2°F



CLIMATE DIVISION 5: WEST CENTRAL AVERAGE TEMPERATURE TRENDS

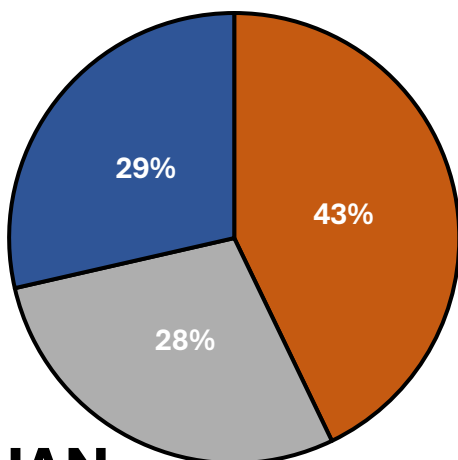
Average Temperature Trends in Very Strong (VS) and Strong (S) **El Niño** Winters



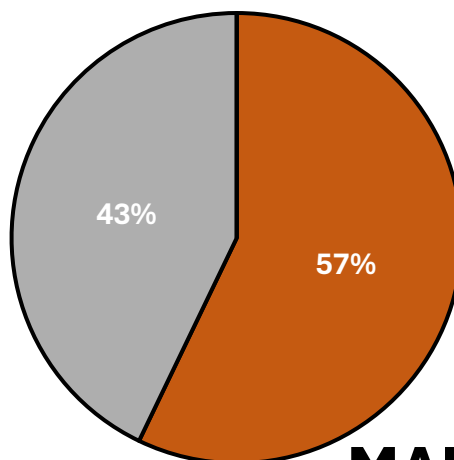
MONTH	BELOW NORMAL	NORMAL	ABOVE NORMAL
NOV	< 51.1°F	51.1 – 54.0°F	> 54.0°F
DEC	< 43.0°F	43.0 – 46.8°F	> 46.8°F
JAN	< 41.7°F	41.7 – 45.9°F	> 45.9°F
FEB	< 44.2°F	44.2 – 48.3°F	> 48.3°F
MAR	< 51.6°F	51.6 – 55.4°F	> 55.4°F

BELOW
 NORMAL
 ABOVE

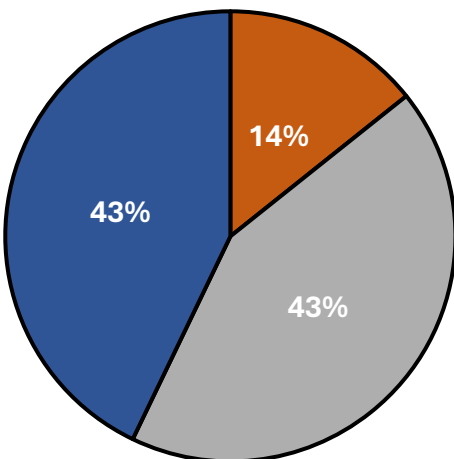
NOV



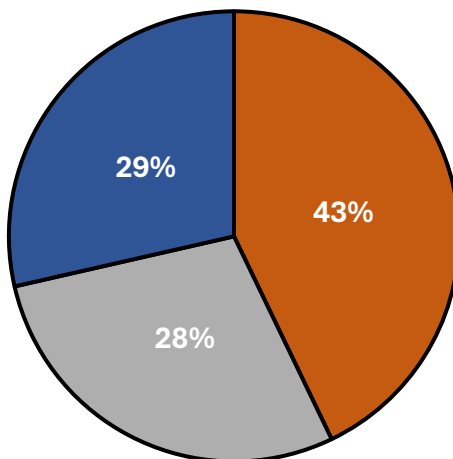
DEC



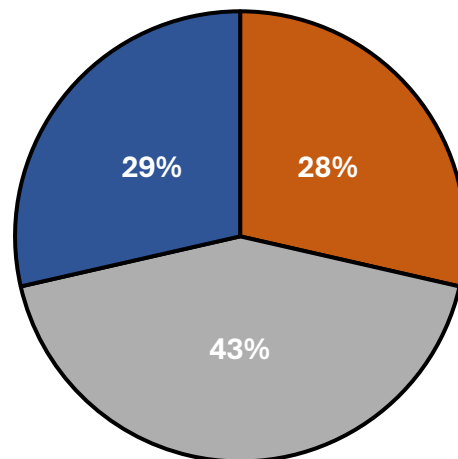
JAN



FEB



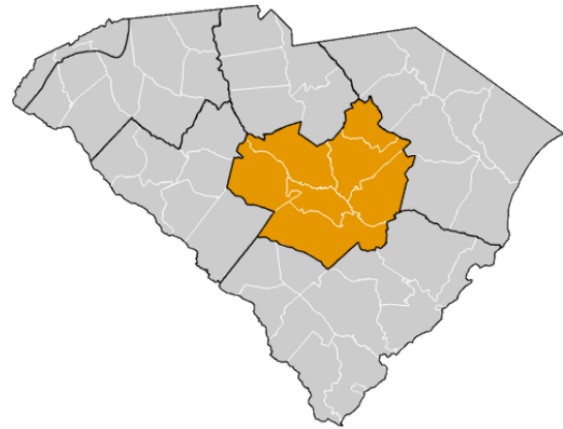
MAR



Temperatures were classified as above or below normal if they deviated by more than one standard deviation from the long-term average of the available data.



CLIMATE DIVISION 6: CENTRAL PRECIPITATION TRENDS

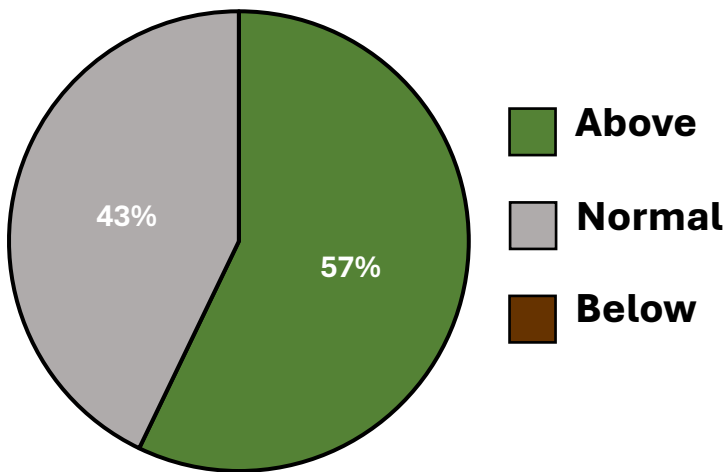


CLIMATE DIVISION 6: RANGES	PRECIPITATION (DEC – FEB)	PRECIPITATION (NOV – MAR)
Above Normal	> 12.34"	> 19.46"
Normal	9.08 – 12.34"	14.96 – 19.46"
Below Normal	< 9.08"	< 14.96"

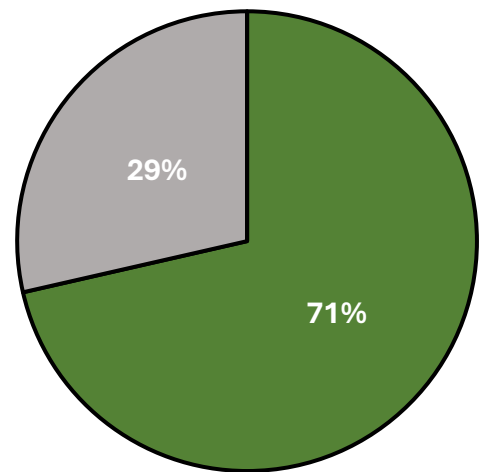
Rainfall was classified as above or below normal if it deviated by more than one standard deviation from the long-term average of the available data.

Precipitation Trends in Very Strong (VS) and Strong (S) El Niño Winters

Precipitation (Dec – Feb)
(relative to normal)



Precipitation (Nov – Mar)
(relative to normal)

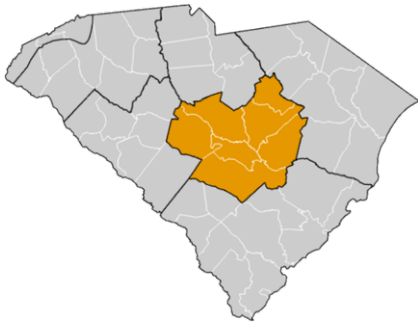


RONI EL NIÑO EVENTS (Strength)	PRECIPITATION DEC – FEB (AVG: 10.71")	DEPARTURE	PRECIPITATION NOV – MAR (AVG: 17.21")	DEPARTURE
2015 – 2016 (VS)	12.73"	2.02"	20.75"	3.54"
1997 – 1998 (VS)	20.62"	9.91"	30.15"	12.94"
1991 – 1992 (VS)	10.41"	-0.30"	15.15"	-2.06"
1982 – 1983 (VS)	14.31"	3.60"	24.66"	7.45"
1972 – 1973 (S)	15.67"	4.96"	25.58"	8.37"
1965 – 1966 (S)	10.97"	0.26"	16.95"	-0.26"
1957 – 1958 (S)	10.70"	-0.01"	21.45"	4.24"



CLIMATE DIVISION 6: CENTRAL PRECIPITATION TRENDS

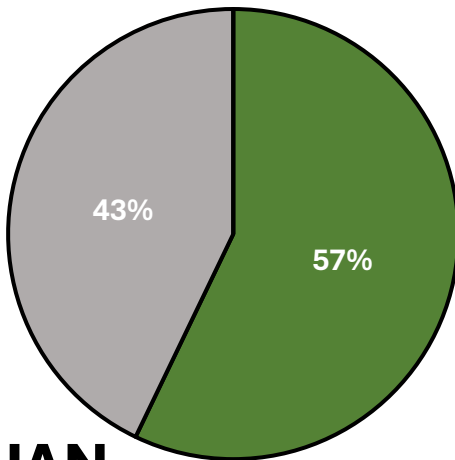
Precipitation Trends in Very Strong (VS) and Strong (S) **El Niño** Winters



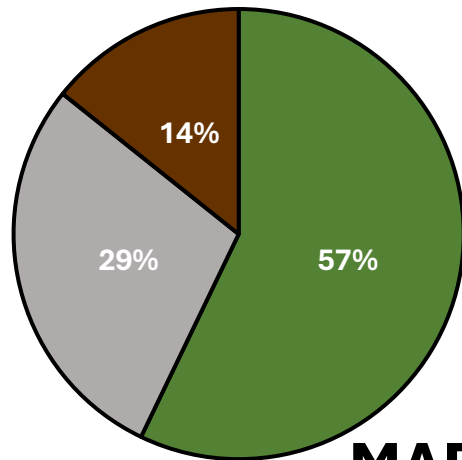
MONTH	BELOW NORMAL	NORMAL	ABOVE NORMAL
NOV	< 1.58"	1.58 – 3.14"	> 3.14"
DEC	< 2.55"	2.55 – 4.19"	> 4.19"
JAN	< 2.76"	2.76 – 4.50"	> 4.50"
FEB	< 2.89"	2.89 – 4.67"	> 4.67"
MAR	< 3.11"	3.11 – 4.93"	> 4.93"

BELOW
 NORMAL
 ABOVE

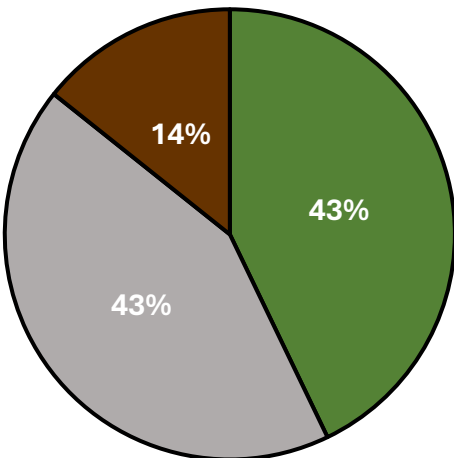
NOV



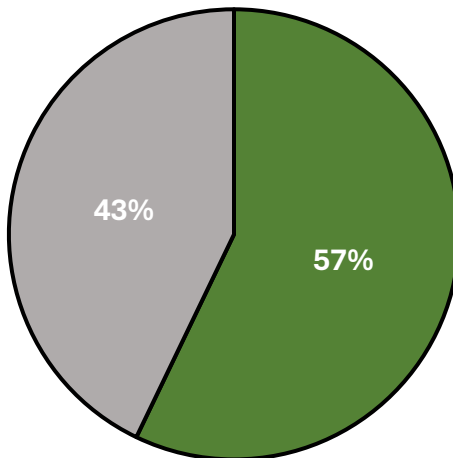
DEC



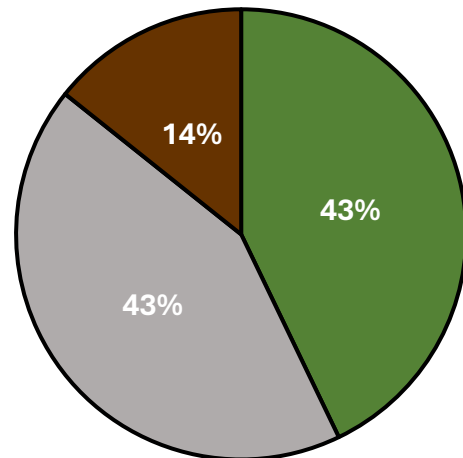
JAN



FEB



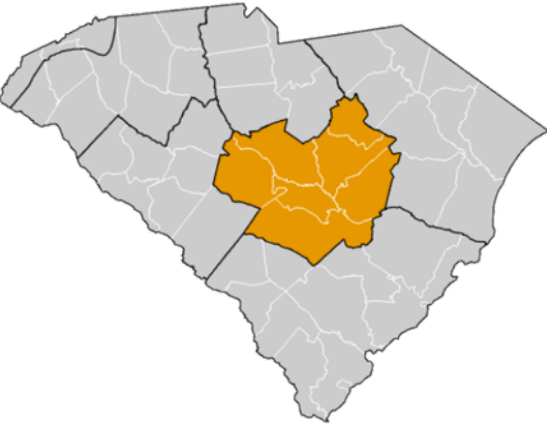
MAR



Rainfall was classified as above or below normal if it deviated by more than one standard deviation from the long-term average of the available data.



CLIMATE DIVISION 6: CENTRAL AVERAGE TEMPERATURE TRENDS

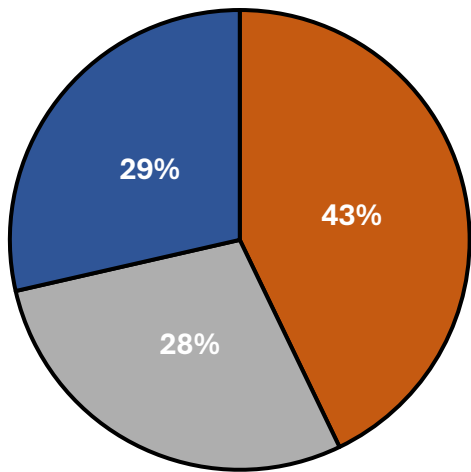


CLIMATE DIVISION 6: RANGES	AVERAGE TEMPERATURE (DEC – FEB)	AVERAGE TEMPERATURE (NOV – MAR)
Above Normal	> 48.1°F	> 50.7°F
Normal	45.3 – 48.1°F	48.5 – 50.7°F
Below Normal	< 45.3°F	< 48.5°F

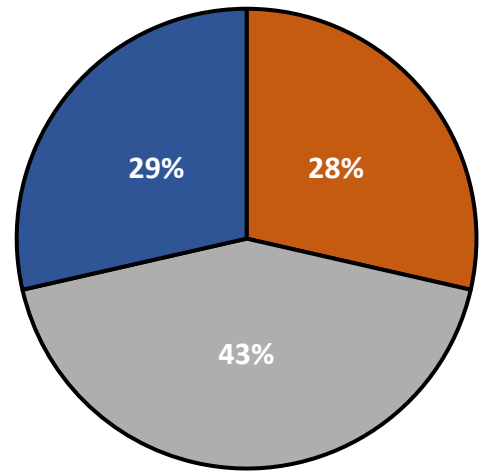
Temperatures were classified as above or below normal if they deviated by more than one standard deviation from the long-term average of the available data.

Average Temperature Trends in Very Strong (VS) and Strong (S) El Niño Winters

Average Temperature (Dec – Feb)
(relative to normal)



Average Temperature (Nov – Mar)
(relative to normal)



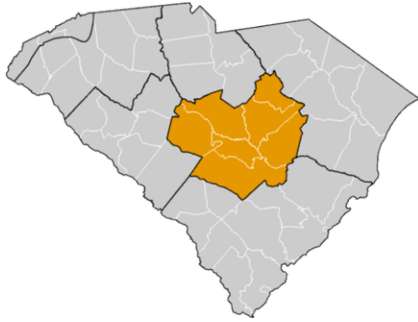
Above
Normal
Below

RONI EL NIÑO EVENTS (Strength)	AVG. TEMPERATURE DEC – FEB (AVG: 46.7°F)	DEPARTURE	AVG. TEMPERATURE NOV – MAR (AVG: 49.6°F)	DEPARTURE
2015 – 2016 (VS)	50.4°F	3.7°F	54.2°F	4.6°F
1997 – 1998 (VS)	48.2°F	1.5°F	49.8°F	0.2°F
1991 – 1992 (VS)	49.1°F	2.4°F	50.6°F	1.0°F
1982 – 1983 (VS)	46.3°F	-0.4°F	49.7°F	0.1°F
1972 – 1973 (S)	46.4°F	-0.3°F	50.1°F	0.5°F
1965 – 1966 (S)	44.2°F	-2.5°F	49.8°F	-1.8°F
1957 – 1958 (S)	42.1°F	-4.6°F	46.1°F	-3.5°F



CLIMATE DIVISION 6: CENTRAL AVERAGE TEMPERATURE TRENDS

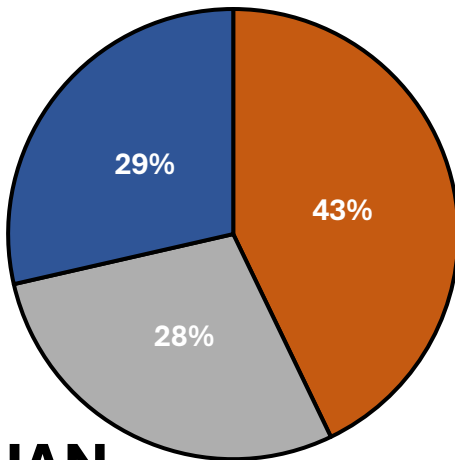
Average Temperature Trends in Very Strong (VS) and Strong (S) El Niño Winters



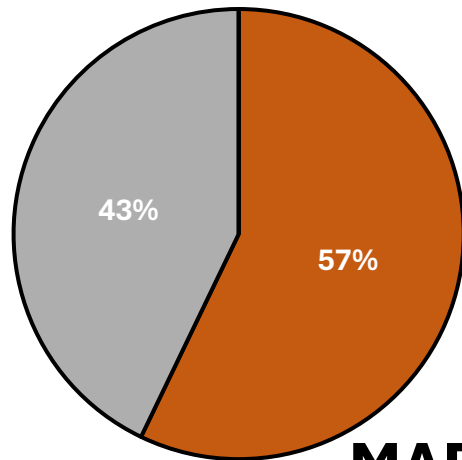
MONTH	BELOW NORMAL	NORMAL	ABOVE NORMAL
NOV	< 52.2°F	52.2 – 55.2°F	> 55.2°F
DEC	< 44.4°F	44.4 – 48.3°F	> 48.3°F
JAN	< 43.2°F	43.2 – 47.6°F	> 47.6°F
FEB	< 45.5°F	45.5 – 49.7°F	> 49.7°F
MAR	< 52.8°F	52.8 – 56.6°F	> 56.6°F

BELOW
 NORMAL
 ABOVE

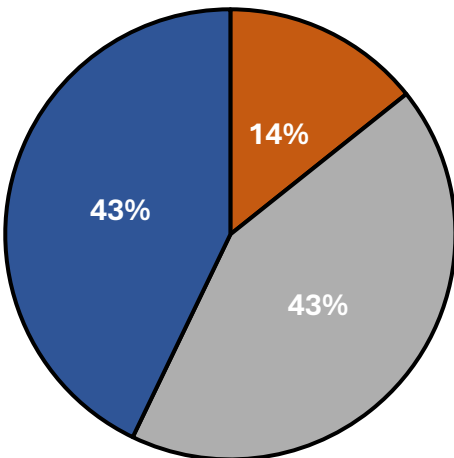
NOV



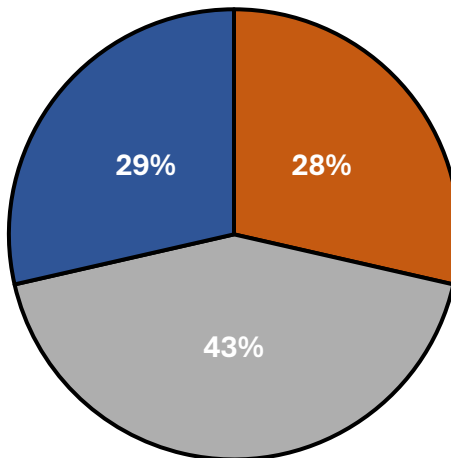
DEC



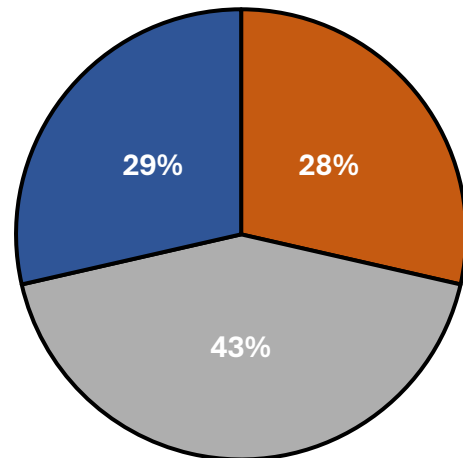
JAN



FEB



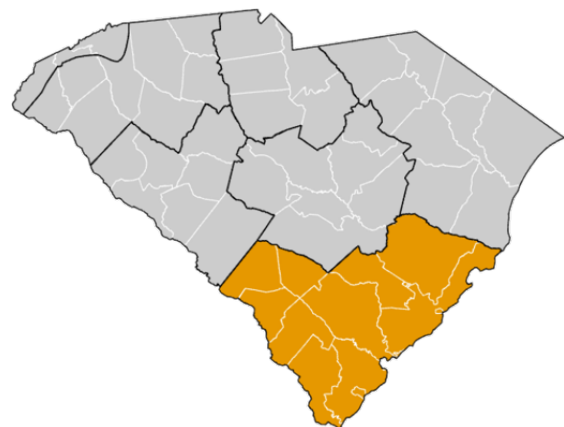
MAR



Temperatures were classified as above or below normal if they deviated by more than one standard deviation from the long-term average of the available data.



CLIMATE DIVISION 7: SOUTHERN PRECIPITATION TRENDS

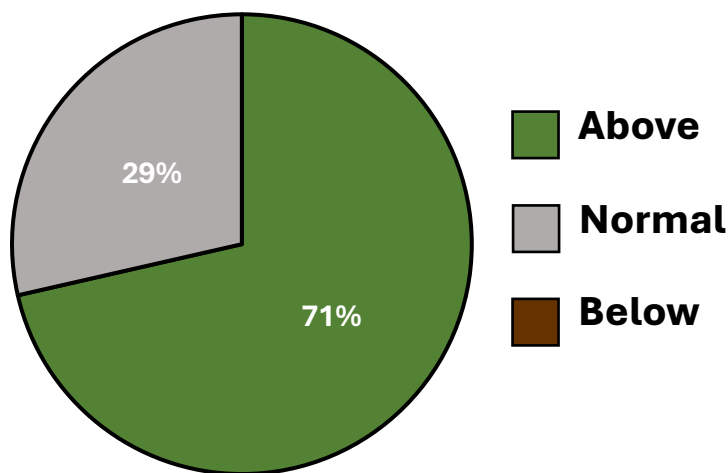


CLIMATE DIVISION 7: RANGES	PRECIPITATION (DEC – FEB)	PRECIPITATION (NOV – MAR)
Above Normal	> 11.85"	> 18.80"
Normal	8.43 – 11.85"	13.94 – 18.80"
Below Normal	< 8.43"	< 13.94"

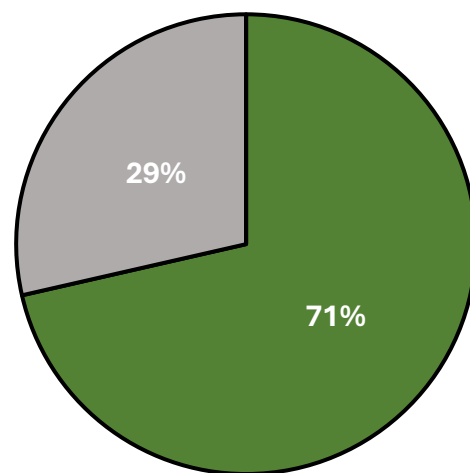
Rainfall was classified as above or below normal if it deviated by more than one standard deviation from the long-term average of the available data.

Precipitation Trends in Very Strong (VS) and Strong (S) El Niño Winters

Precipitation (Dec – Feb)
(relative to normal)



Precipitation (Nov – Mar)
(relative to normal)

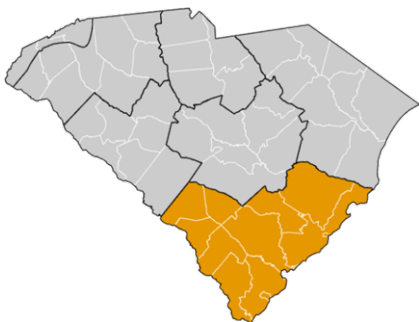


RONI EL NIÑO EVENTS (Strength)	PRECIPITATION DEC – FEB (AVG: 10.12")	DEPARTURE	PRECIPITATION NOV – MAR (AVG: 16.37")	DEPARTURE
2015 – 2016 (VS)	12.27"	2.15"	22.38"	6.01"
1997 – 1998 (VS)	22.11"	11.99"	32.16"	15.79"
1991 – 1992 (VS)	10.41"	0.29"	15.35"	-1.02"
1982 – 1983 (VS)	16.13"	6.01"	25.91"	9.54"
1972 – 1973 (S)	14.78"	4.66"	25.17"	8.80"
1965 – 1966 (S)	11.71"	1.59"	17.82"	1.45"
1957 – 1958 (S)	10.08"	-0.04"	20.04"	4.03"



CLIMATE DIVISION 7: SOUTHERN PRECIPITATION TRENDS

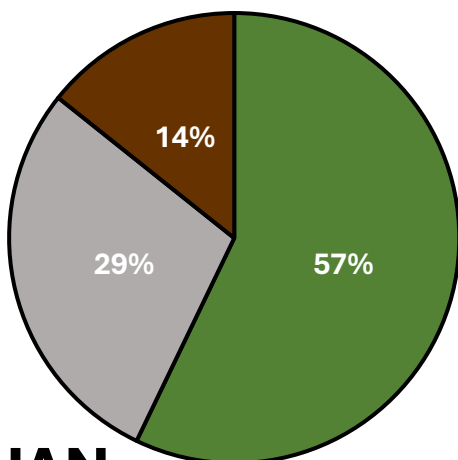
Precipitation Trends in Very Strong (VS) and Strong (S) **El Niño** Winters



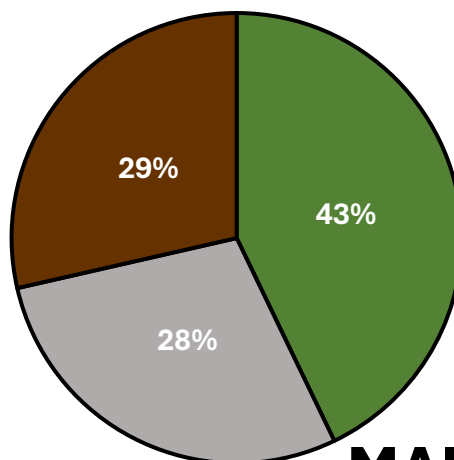
MONTH	BELOW NORMAL	NORMAL	ABOVE NORMAL
NOV	< 1.51"	1.51 – 3.01"	> 3.01"
DEC	< 2.36"	2.36 – 4.02"	> 4.02"
JAN	< 2.54"	2.54 – 4.28"	> 4.28"
FEB	< 2.66"	2.66 – 4.48"	> 4.48"
MAR	< 2.96"	2.96 – 4.88"	> 4.88"

BELOW
 NORMAL
 ABOVE

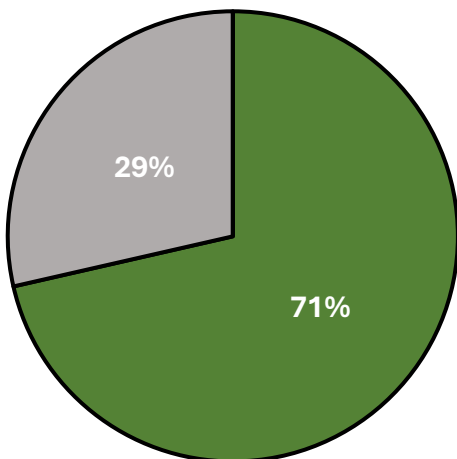
NOV



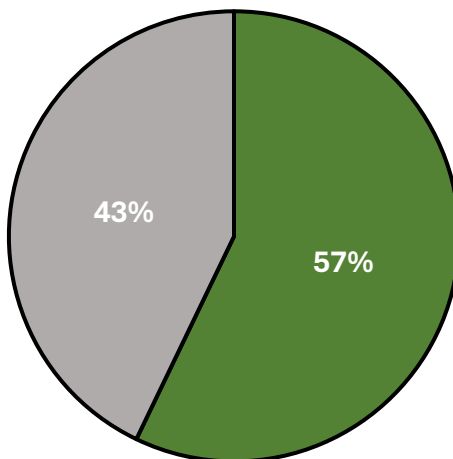
DEC



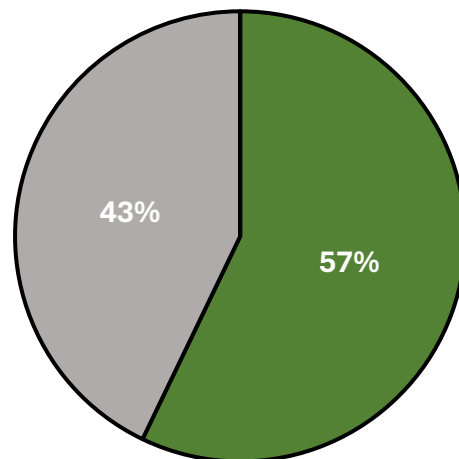
JAN



FEB



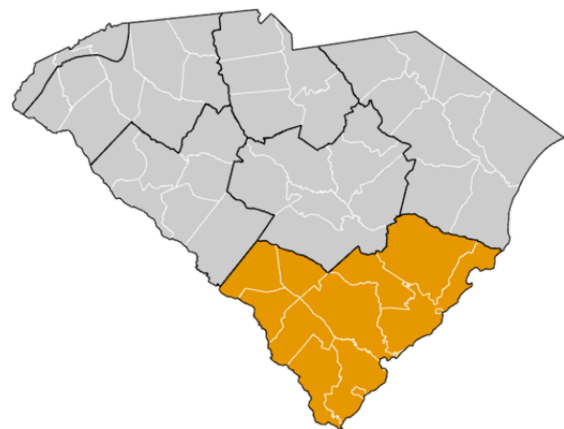
MAR



Rainfall was classified as above or below normal if it deviated by more than one standard deviation from the long-term average of the available data.



CLIMATE DIVISION 7: SOUTHERN AVERAGE TEMPERATURE TRENDS

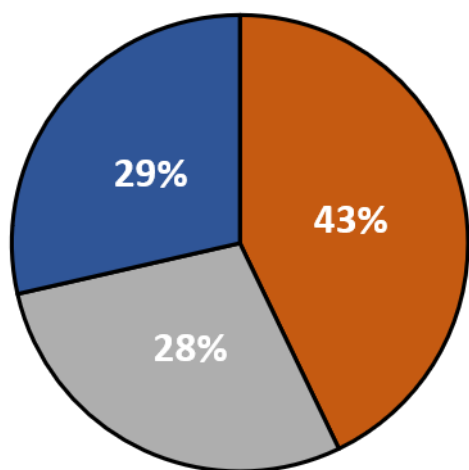


CLIMATE DIVISION 7: RANGES	AVERAGE TEMPERATURE (DEC – FEB)	AVERAGE TEMPERATURE (NOV – MAR)
Above Normal	> 50.3°F	> 52.7°F
Normal	47.5 – 50.3°F	50.6 – 52.7°F
Below Normal	< 47.5°F	< 50.6°F

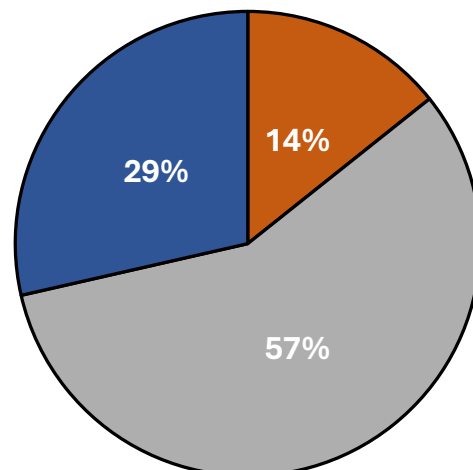
Temperatures were classified as above or below normal if they deviated by more than one standard deviation from the long-term average of the available data.

Average Temperature Trends in Very Strong (VS) and Strong (S) El Niño Winters

Average Temperature (Dec – Feb)
(relative to normal)



Average Temperature (Nov – Mar)
(relative to normal)



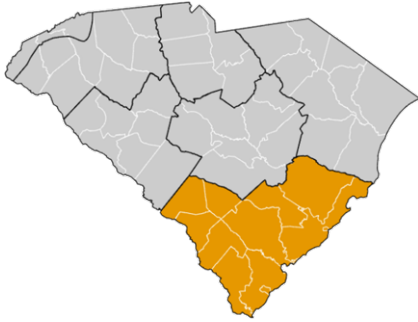
Above
Normal
Below

RONI EL NIÑO EVENTS (Strength)	AVG. TEMPERATURE DEC – FEB (AVG: 49.0°F)	DEPARTURE	AVG. TEMPERATURE NOV – MAR (AVG: 51.6°F)	DEPARTURE
2015 – 2016 (VS)	52.8°F	3.8°F	56.5°F	4.9°F
1997 – 1998 (VS)	50.5°F	1.5°F	51.9°F	0.3°F
1991 – 1992 (VS)	50.9°F	1.9°F	52.4°F	0.8°F
1982 – 1983 (VS)	48.5°F	-0.5°F	51.8°F	0.2°F
1972 – 1973 (S)	48.9°F	-0.1°F	52.4°F	0.8°F
1965 – 1966 (S)	46.2°F	-2.8°F	49.7°F	-1.9°F
1957 – 1958 (S)	43.9°F	-5.1°F	48.0°F	-3.6°F



CLIMATE DIVISION 7: SOUTHERN AVERAGE TEMPERATURE TRENDS

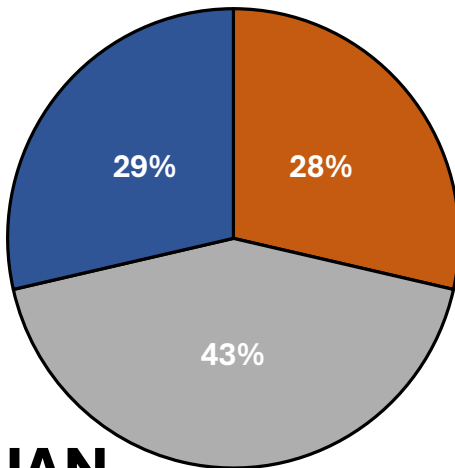
Average Temperature Trends in Very Strong (VS) and Strong (S) **El Niño** Winters



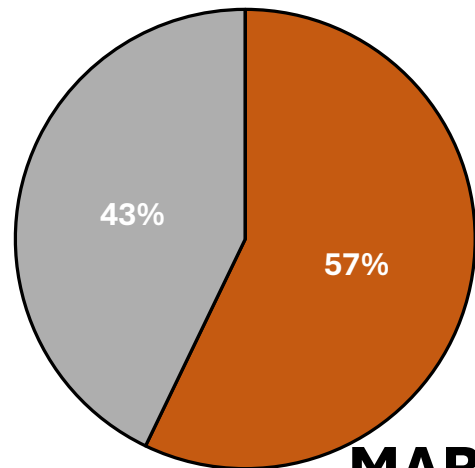
MONTH	BELOW NORMAL	NORMAL	ABOVE NORMAL
NOV	< 54.1°F	54.1 – 57.1°F	> 57.1°F
DEC	< 46.5°F	46.5 – 50.5°F	> 50.5°F
JAN	< 45.5°F	45.5 – 49.9°F	> 49.9°F
FEB	< 47.7°F	47.7 – 51.7°F	> 51.7°F
MAR	< 54.5°F	54.5 – 58.1°F	> 58.1°F

BELOW
 NORMAL
 ABOVE

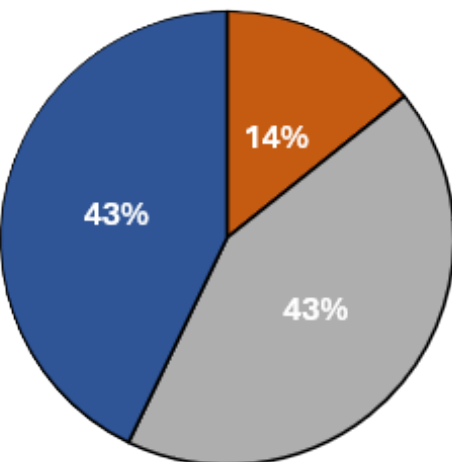
NOV



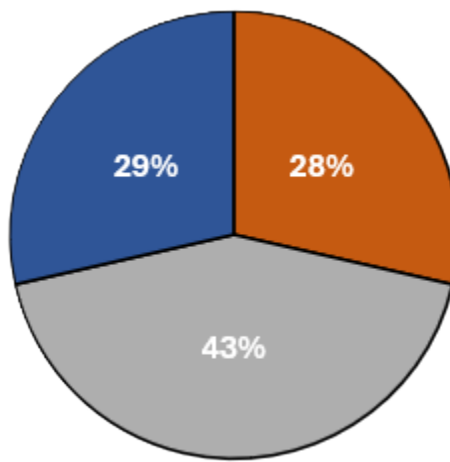
DEC



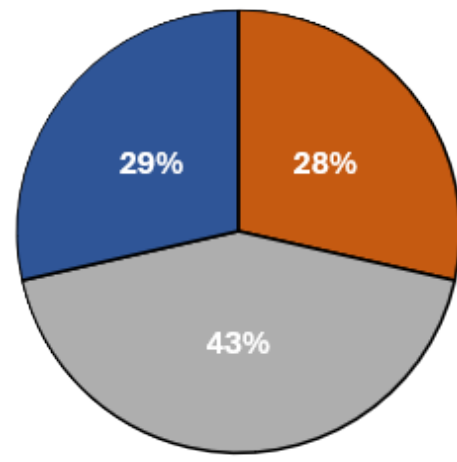
JAN



FEB



MAR

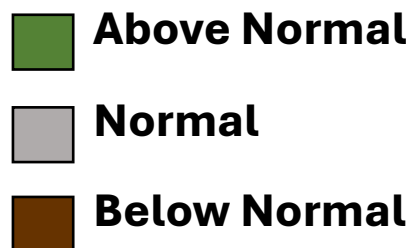


Temperatures were classified as above or below normal if they deviated by more than one standard deviation from the long-term average of the available data.

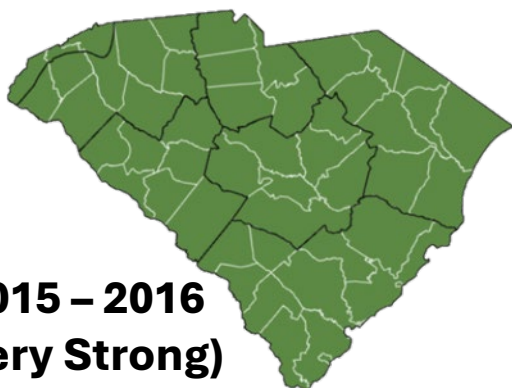


STATEWIDE PRECIPITATION TRENDS DURING DEC - FEB

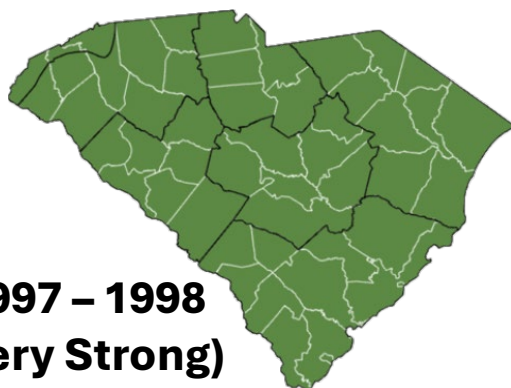
Of the seven strong to very strong **El Niño** events, three had above-normal precipitation across the entire state; one had above-normal precipitation everywhere except the Mountains Climate Division, which had normal precipitation; one had normal precipitation statewide; and two had below-normal precipitation across some climate divisions.



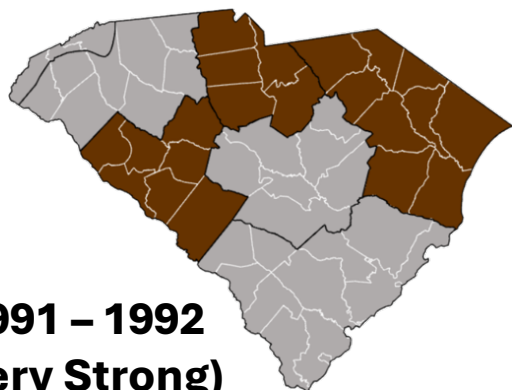
**2015 – 2016
(Very Strong)**



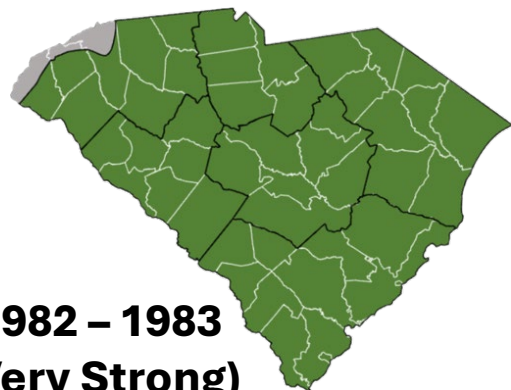
**1997 – 1998
(Very Strong)**



**1991 – 1992
(Very Strong)**



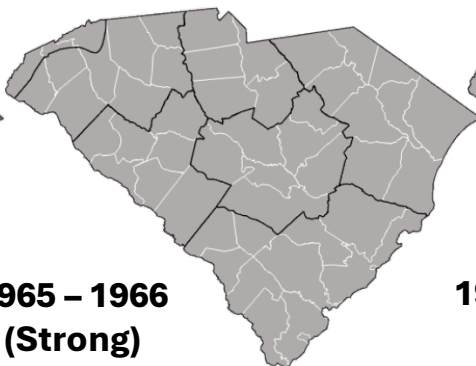
**1982 – 1983
(Very Strong)**



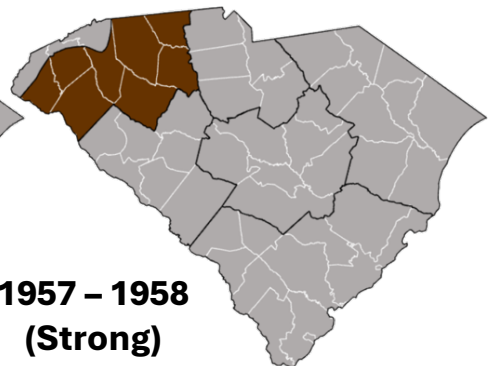
**1972 – 1973
(Strong)**



**1965 – 1966
(Strong)**



**1957 – 1958
(Strong)**

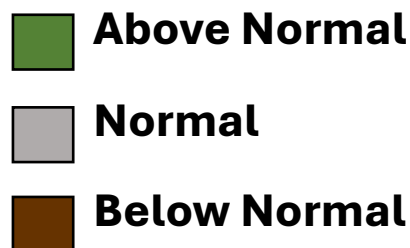


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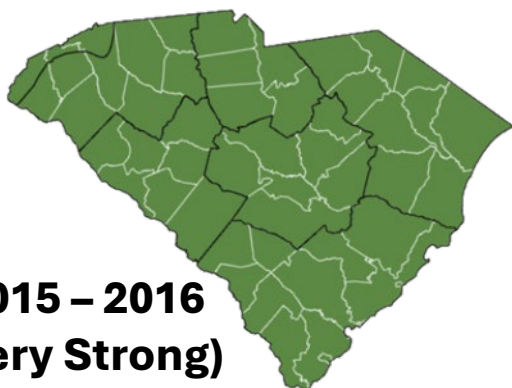


STATEWIDE PRECIPITATION TRENDS DURING NOV-MAR

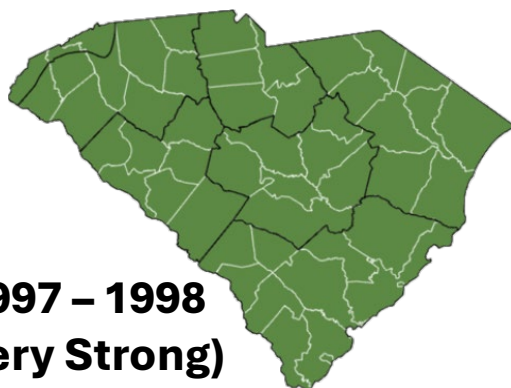
Of the seven strong to very strong **El Niño** events, five had above-normal precipitation across the entire state, and two had below-normal precipitation across some climate divisions.



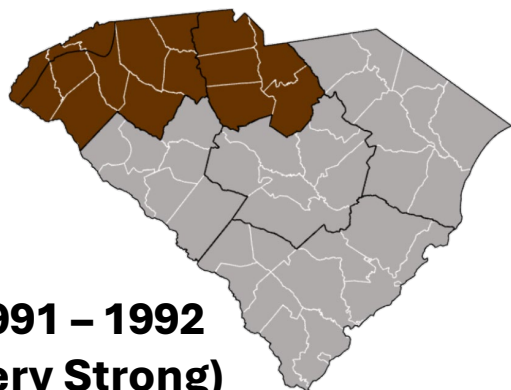
**2015 – 2016
(Very Strong)**



**1997 – 1998
(Very Strong)**



**1991 – 1992
(Very Strong)**



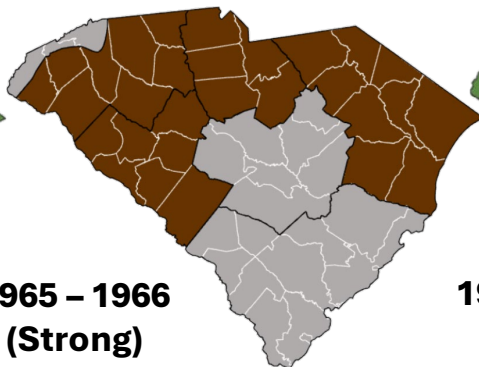
**1982 – 1983
(Very Strong)**



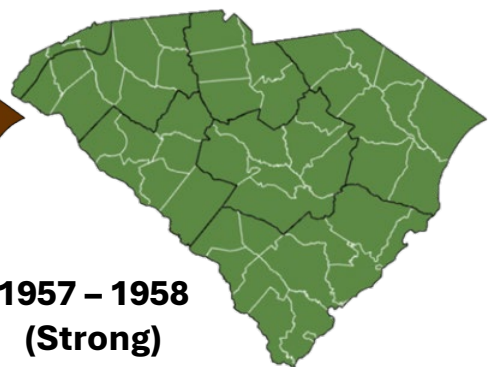
**1972 – 1973
(Strong)**



**1965 – 1966
(Strong)**



**1957 – 1958
(Strong)**

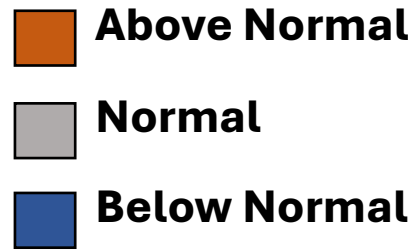


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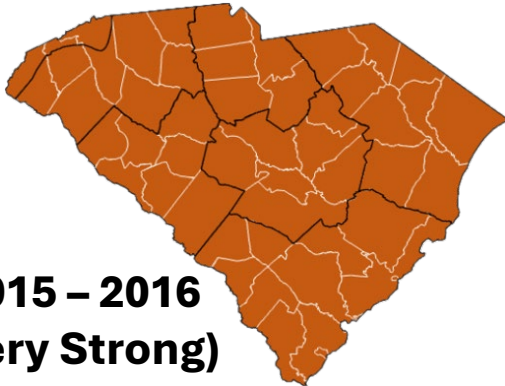


STATEWIDE TEMPERATURE TRENDS DURING DEC - FEB

Of the seven strong to very strong **El Niño** events, three had above-normal average temperatures statewide; two had normal average temperatures; and two had below-normal average temperatures across all climate divisions.



**2015 – 2016
(Very Strong)**



**1997 – 1998
(Very Strong)**



**1991 – 1992
(Very Strong)**



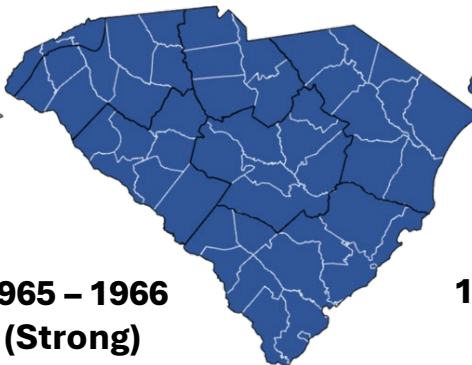
**1982 – 1983
(Very Strong)**



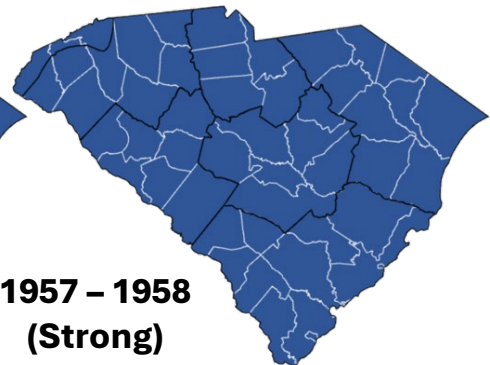
**1972 – 1973
(Strong)**



**1965 – 1966
(Strong)**



**1957 – 1958
(Strong)**

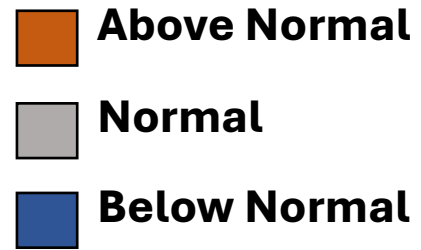


Rainfall was classified as above or below normal if it deviated by more than one standard deviation from the long-term average of the available data.

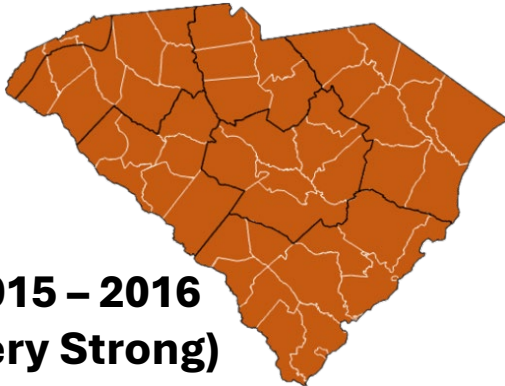


STATEWIDE TEMPERATURE TRENDS DURING NOV-MAR

Of the seven strong to very strong **El Niño** events, three had above-normal average temperatures statewide; two had normal average temperatures; and two had below-normal average temperatures across all climate divisions.



**2015 – 2016
(Very Strong)**



**1997 – 1998
(Very Strong)**



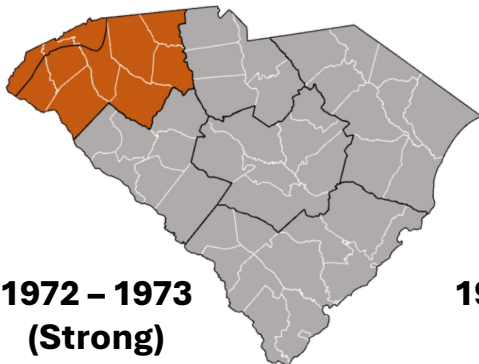
**1991 – 1992
(Very Strong)**



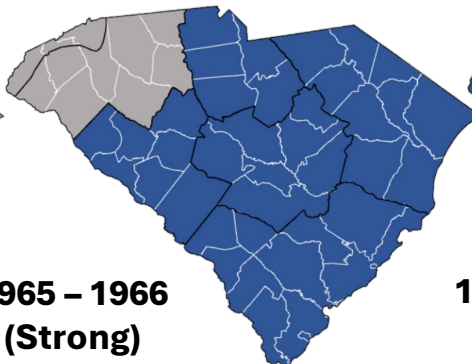
**1982 – 1983
(Very Strong)**



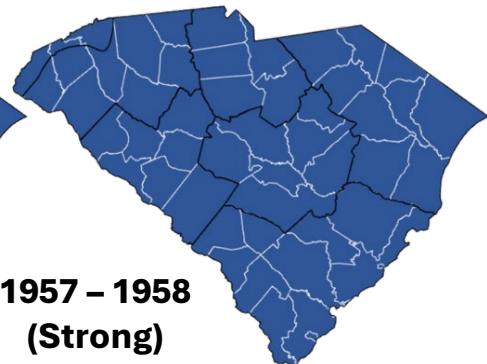
**1972 – 1973
(Strong)**



**1965 – 1966
(Strong)**



**1957 – 1958
(Strong)**



Rainfall was classified as above or below normal if it deviated by more than one standard deviation from the long-term average of the available data.





FALL 2026