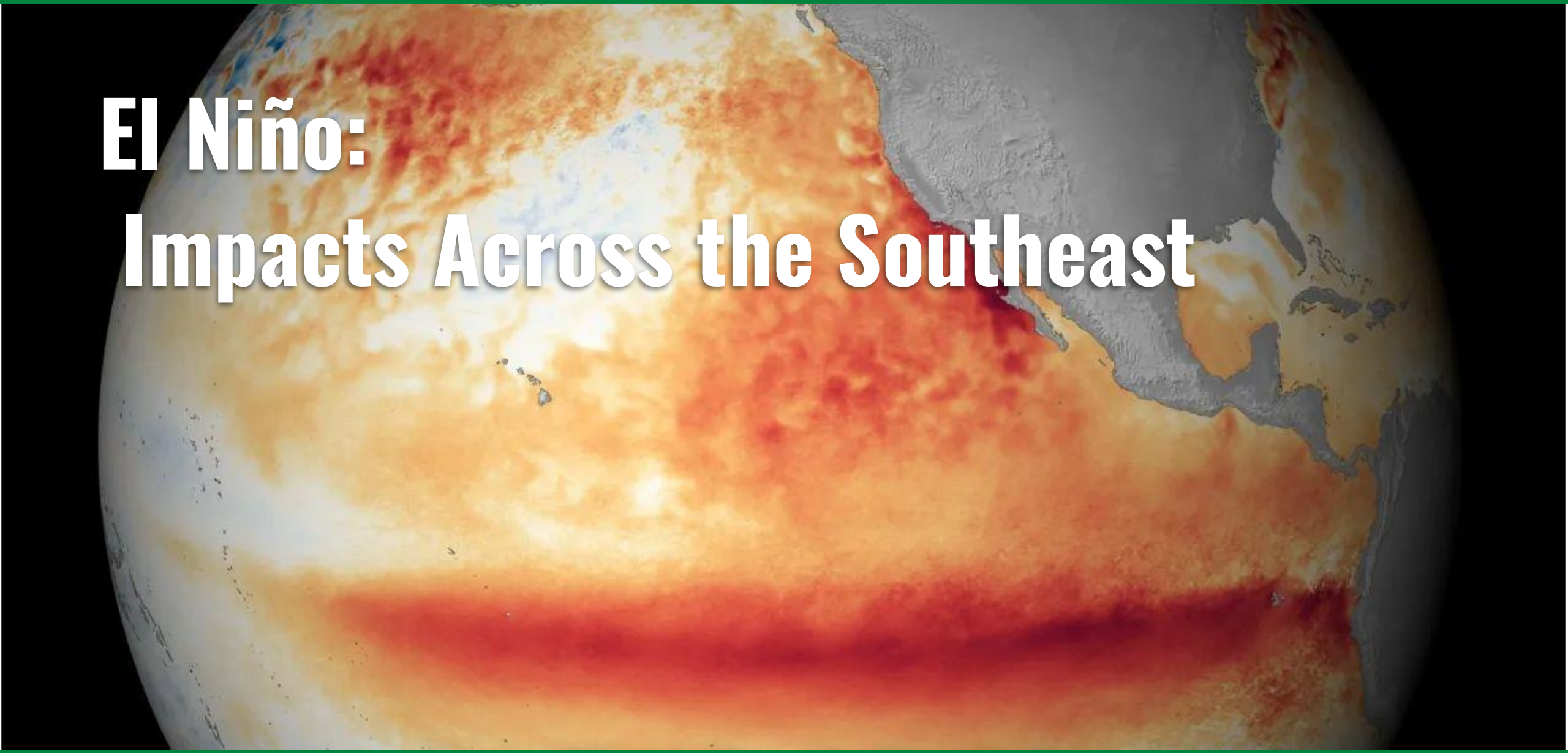
El Niño:
Impacts Across the Southeast



Impacts on Atlantic hurricane suppression and winter weather anomalies across Florida.

GLOBAL DRIVER

The Oceanic Shift

Anomalous Warming

Central and eastern equatorial Pacific.

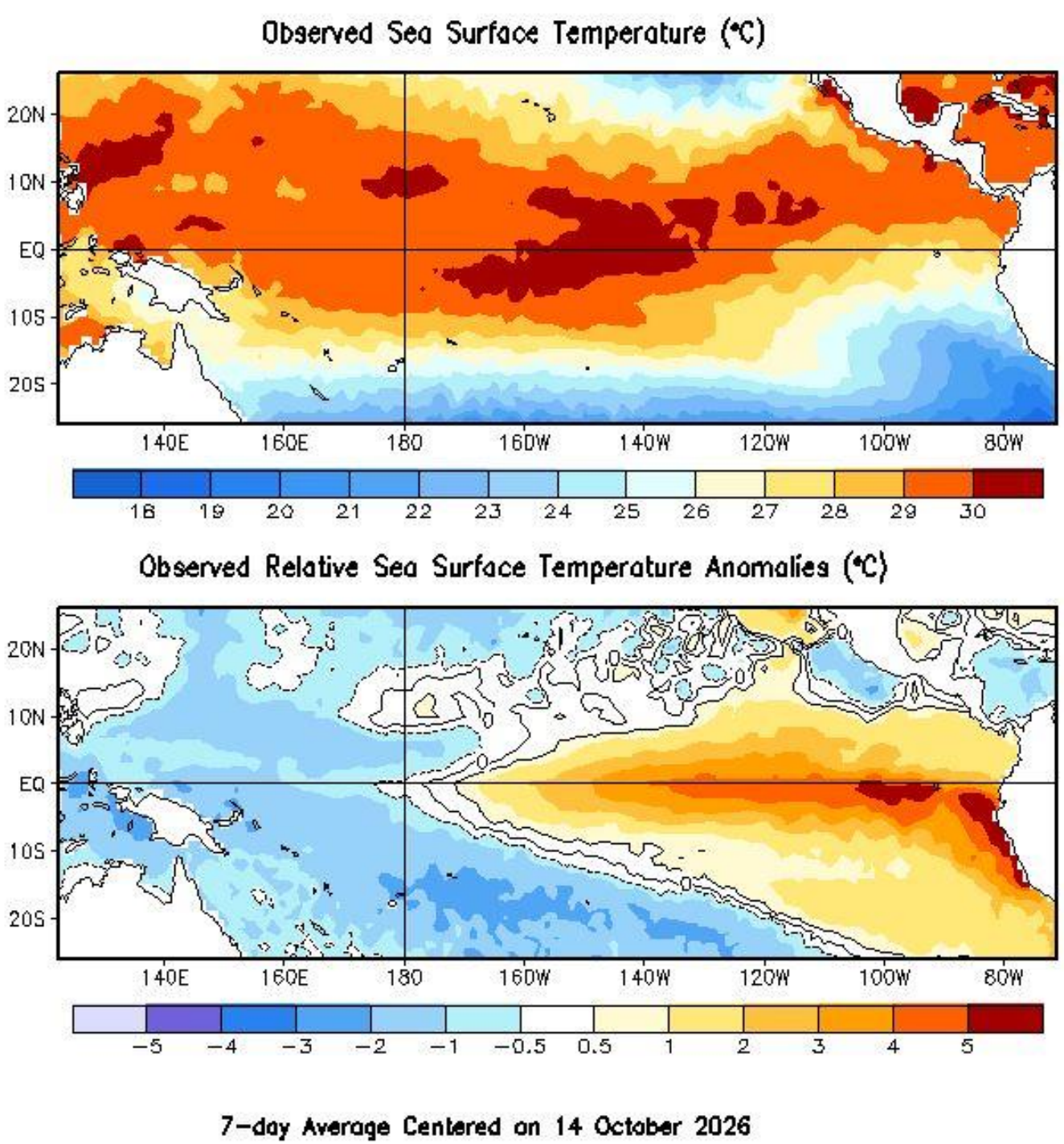
The current El Nino is the strongest on record.

Weakened Trades

Easterly trade winds collapse or reverse.

Teleconnections

Pacific changes dictate global weather patterns.

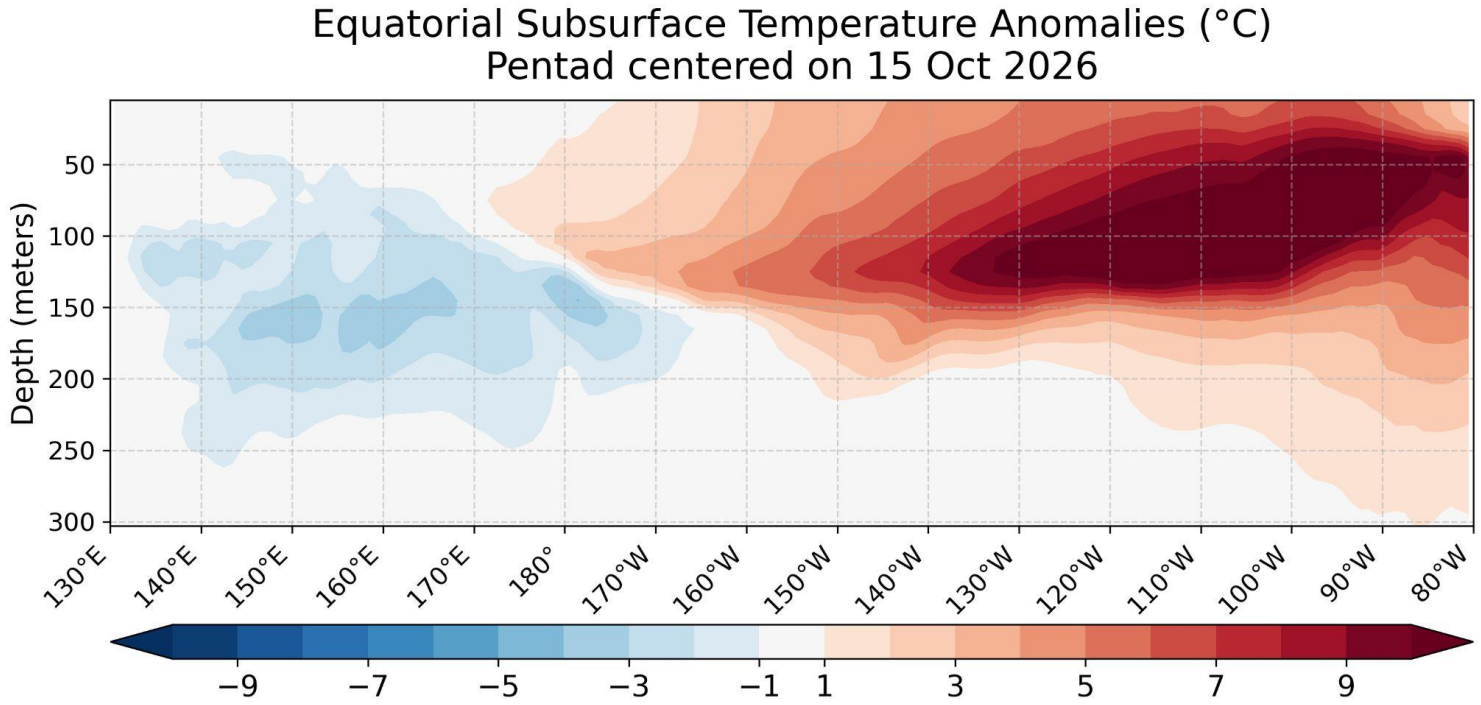


GLOBAL DRIVER

Even Impressive at Depth

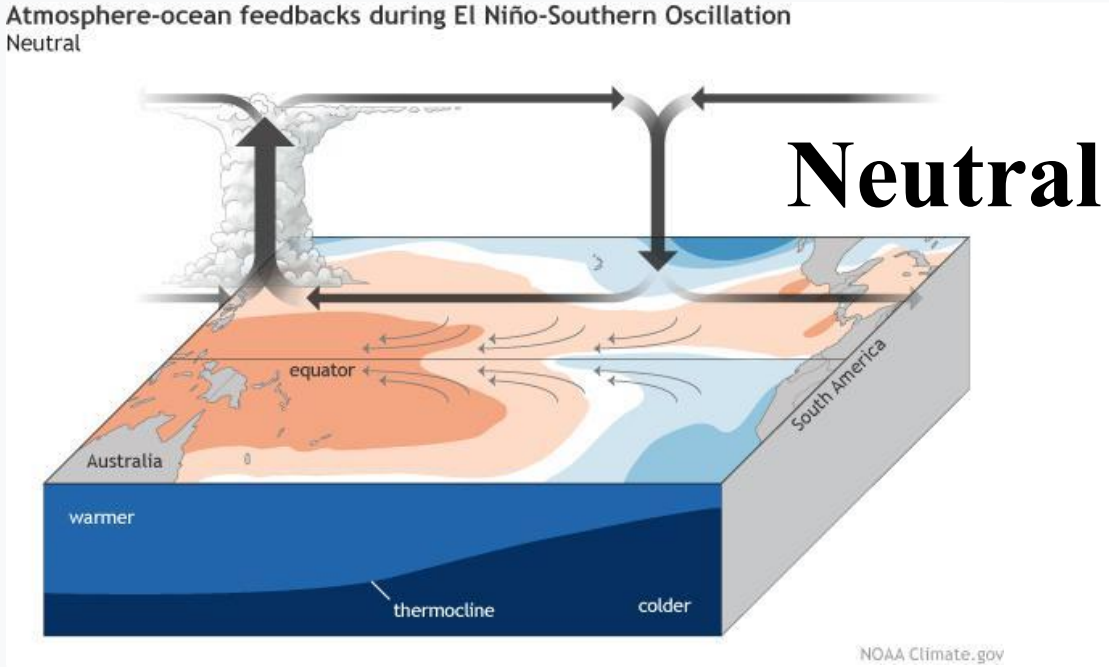
Anomalous Warming

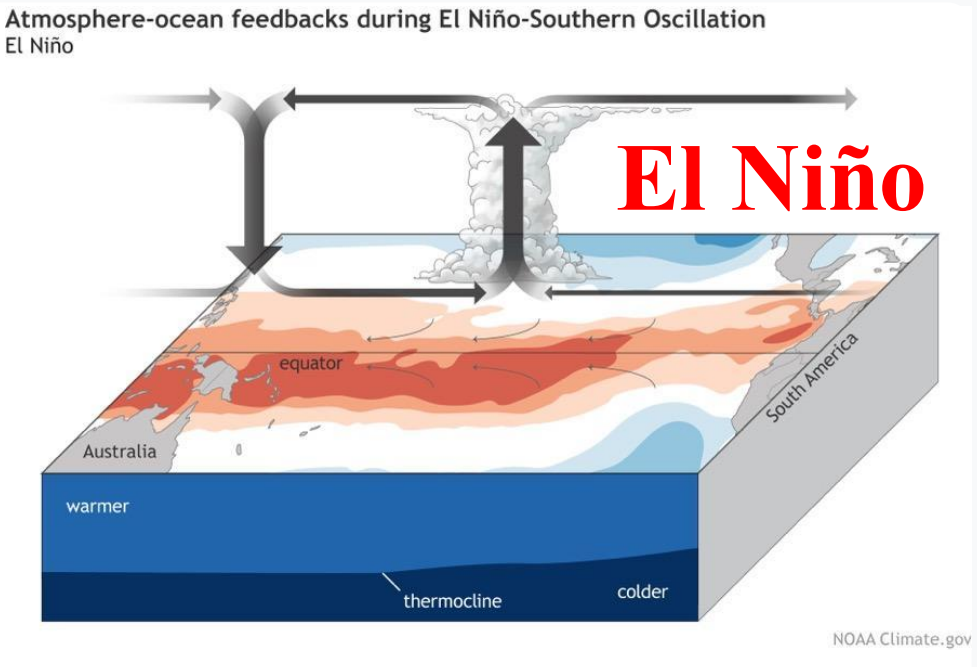
Anomalously warm water exists down to 300 m, into the twilight zone.



Coupled Ocean-Atmosphere Phenomenon

The atmospheric engine (Walker Circulation) shifts eastward.





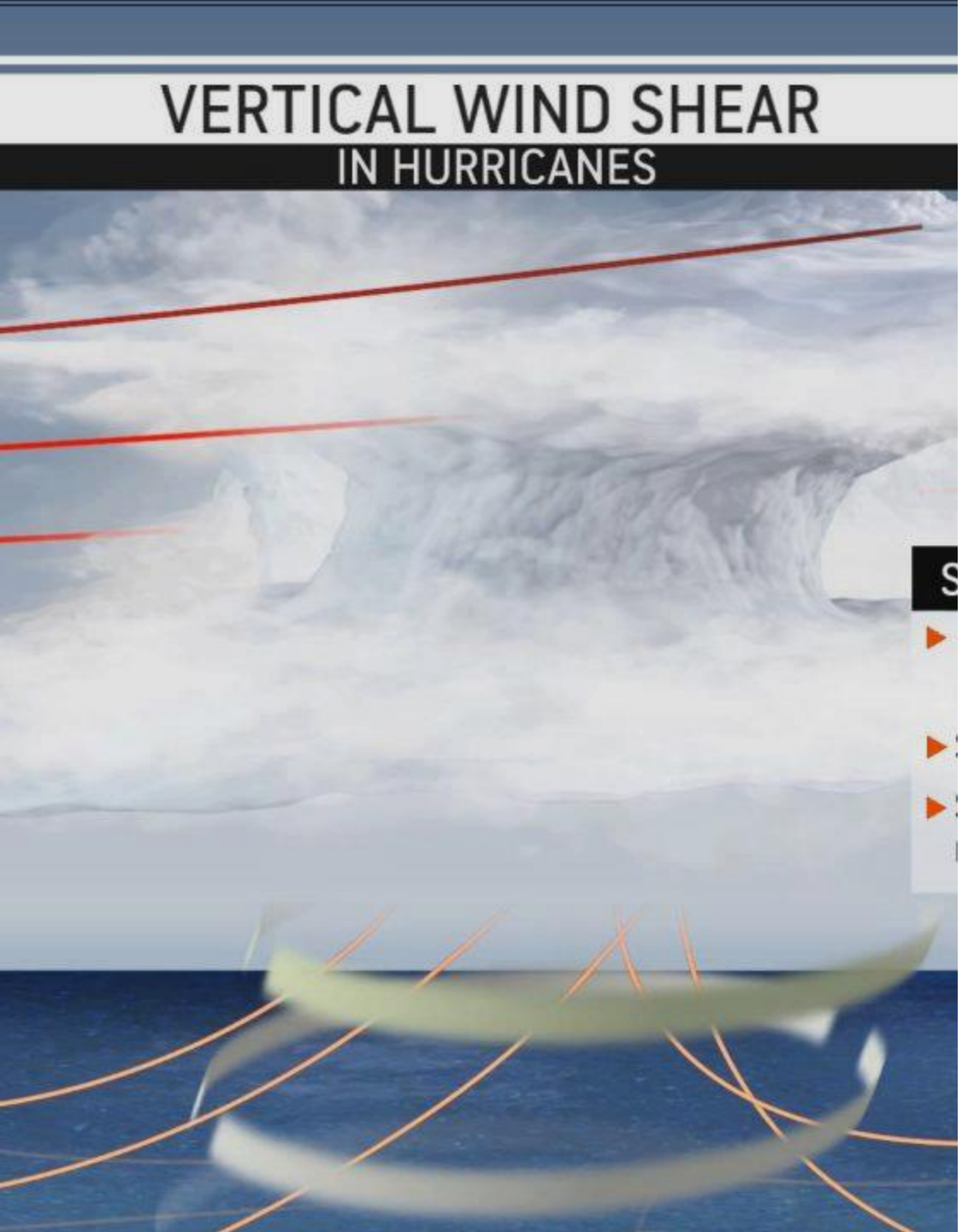
Convection Shift

Thunderstorms move from Indonesia to the central Pacific.

Upper-Level Winds

Altered jet streams ripple across the hemisphere: teleconnections

Part I:
Atlantic Hurricane Season



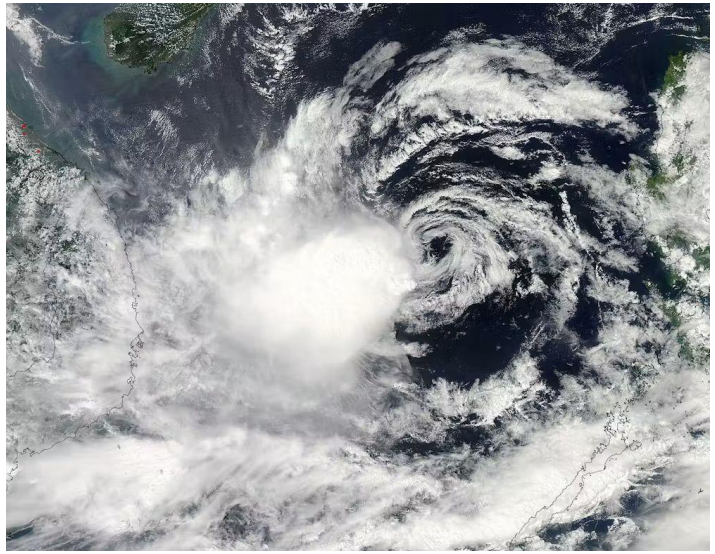
THE CORE MECHANISM

The Wind Shear Shield

> Strong westerly winds tear apart developing tropical cyclones.

Hostile Environment
Increased Caribbean and tropical Atlantic shear.

Decapitated Storms
Tops of thunderstorms blown off center of circulation.



Historical Output: El Niño vs. Average

-25%

Named Storms

Significant drop in overall system formation.

-40%

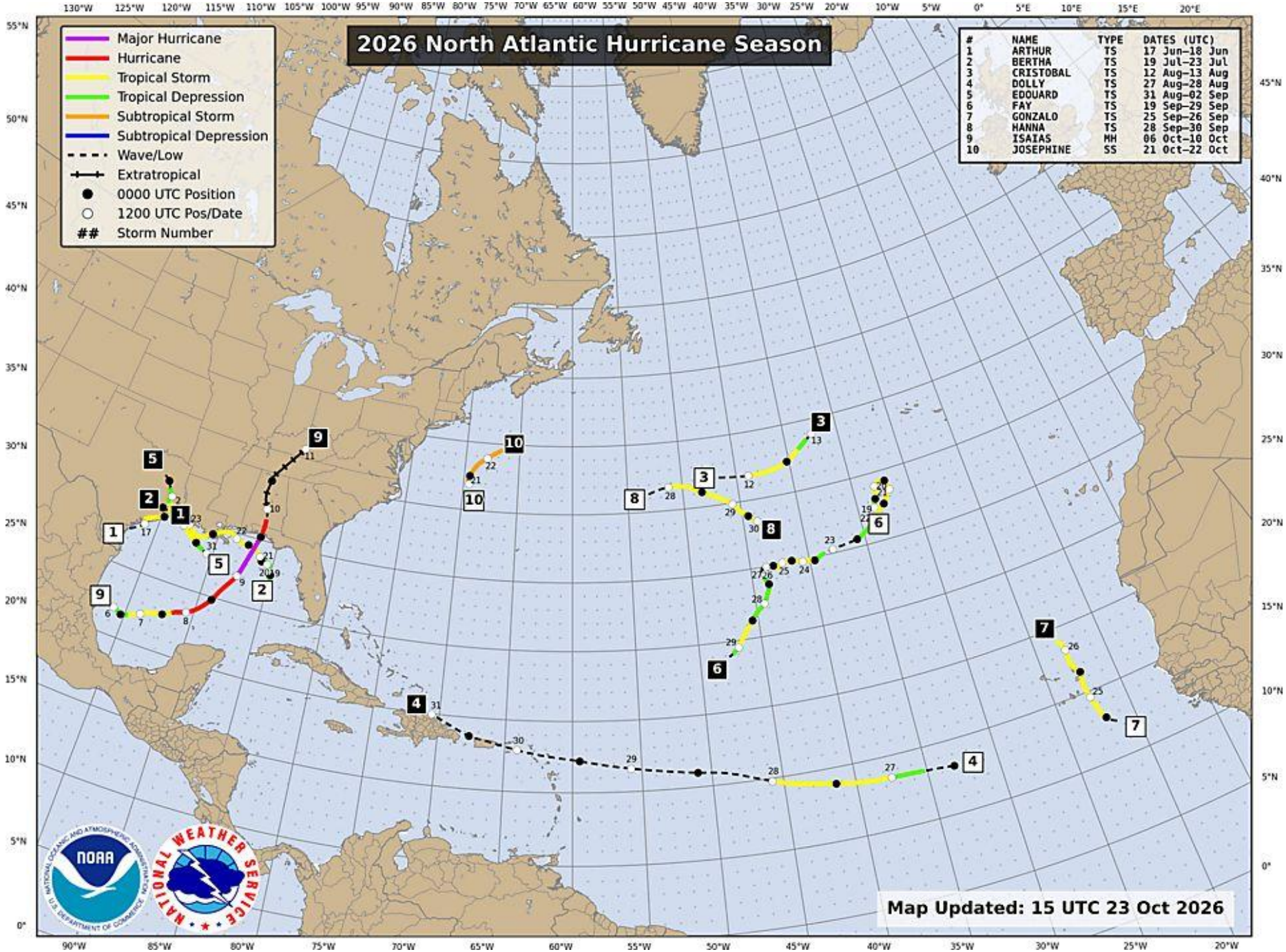
Major Hurricanes

Fewer Category 3+ monsters in the basin.

Lower

A.C.E. Index

Accumulated Cyclone Energy drops significantly.


2026 North Atlantic Hurricane Season
Major Hurricane
Hurricane
Tropical Storm
Tropical Depression
Subtropical Storm
Subtropical Depression
Wave/Low
Extratropical
0000 UTC Position
1200 UTC Pos/Date
Storm Number
NAME TYPE DATES (UTC)
1 ARTHUR TS 17 Jun–18 Jun
2 BERTHA TS 19 Jul–23 Jul
3 CRISTOBAL TS 12 Aug–13 Aug
4 DOLLY TS 27 Aug–28 Aug
5 EDOUARD TS 31 Aug–02 Sep
6 FAY TS 19 Sep–29 Sep
7 GONZALO TS 25 Sep–26 Sep
8 HANNA TS 28 Sep–30 Sep
9 ISAIAS MH 06 Oct–10 Oct
10 JOSEPHINE SS 21 Oct–22 Oct
NOAA
NATIONAL WEATHER SERVICE
Map Updated: 15 UTC 23 Oct 2026



"It Only Takes One."

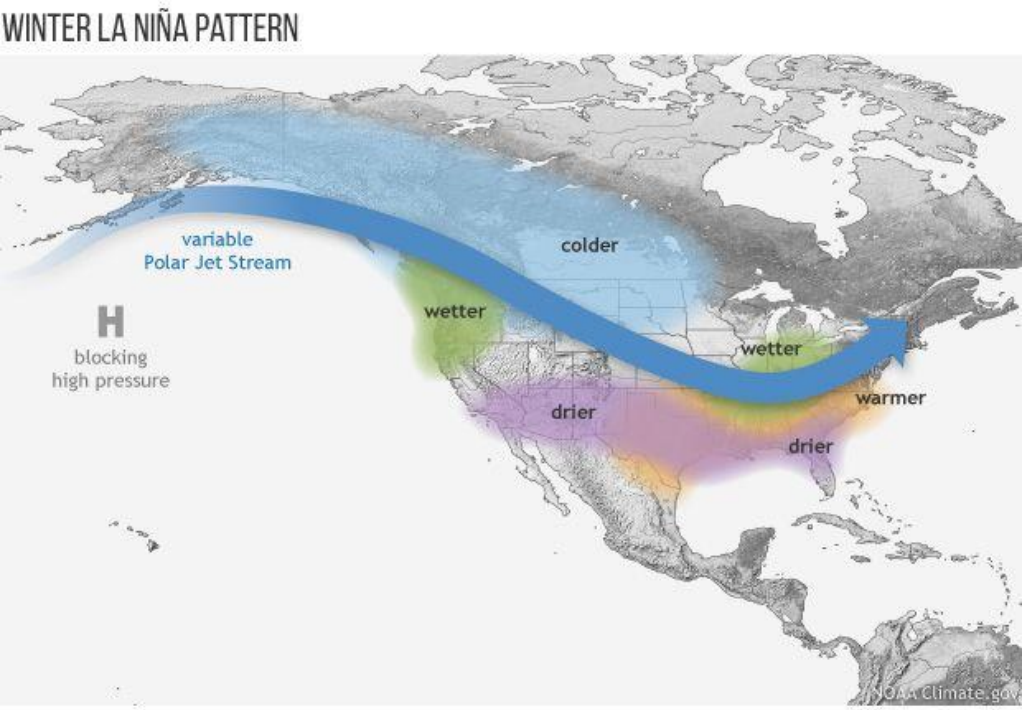
El Niño suppresses overall activity, but guarantees nothing for Florida.

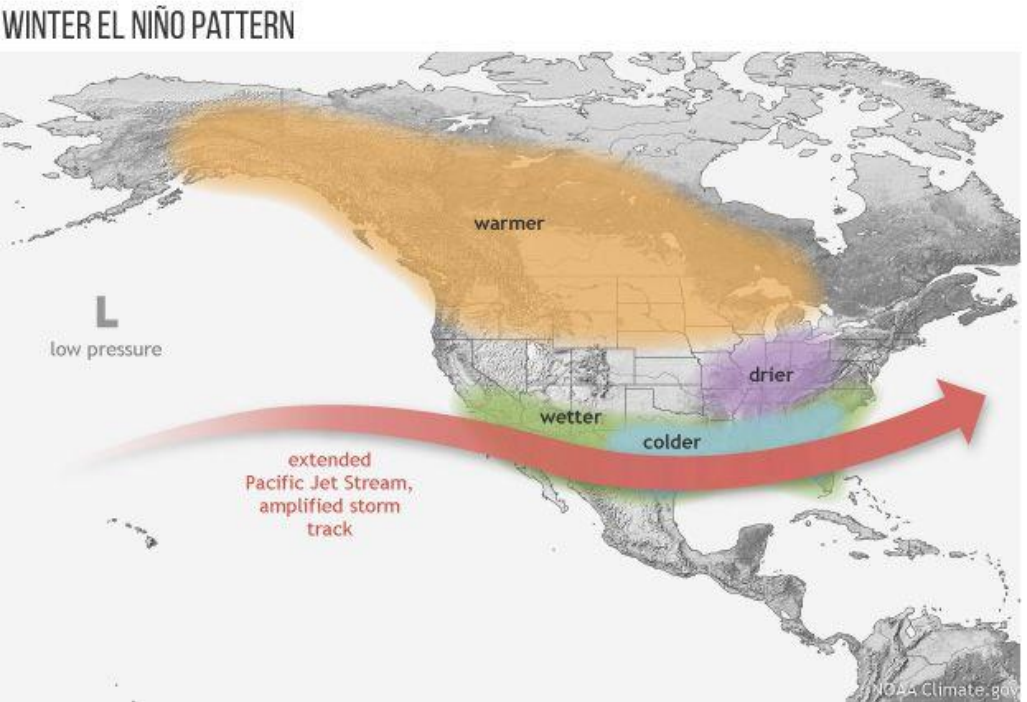
CASE STUDY: 1992

An El Niño year produced a quiet season—until Category 5 Hurricane Andrew struck South Florida.

Part II:
Winter Impacts

How the Southeast experiences the season.





The Subtropical Jet

The core driver of southeastern winter weather anomalies.

1. Jet shifts significantly southward.
2. Pulls Pacific moisture across the Gulf.
3. Blocks warmer air from pushing north, but also blocks arctic air from reaching the Gulf Coast.

Florida's El Niño Winter Profile



Above Average Rain - Flooding

Regular storm systems tracking across the Gulf.



Cooler Temperatures

Increased cloud cover blocks daytime solar heating. However, arctic outbreaks are less likely.



Dreary Conditions

Significantly fewer sunny days in Tallahassee.

Local El Niño Winter Impacts

Severe Weather

- More frequent storm systems
- Potential for more severe weather events including tornado events

Winter Weather

- Less frequent freeze events due to progressive storm pattern.
- Decreased periods of 'entrenched' cold air which favors lower chances of snow/ice

Freeze Events

- More progressive storm systems creates less time for extended duration freeze events.
- More daytime cloud cover with storm systems favors below average daytime temperatures.

Rainfall Events

- More frequent storm systems bring above average rainfall.
- Increases risk of flash flood and river flood events.

HAZARD WARNING

The Tornado Threat

Severe weather occurs every winter. El Niño changes the math.

- Highly dynamic atmosphere & wind shear.
- Increased central Florida tornado frequency.
- Dangerous nocturnal squall lines.



HAZARD WARNING

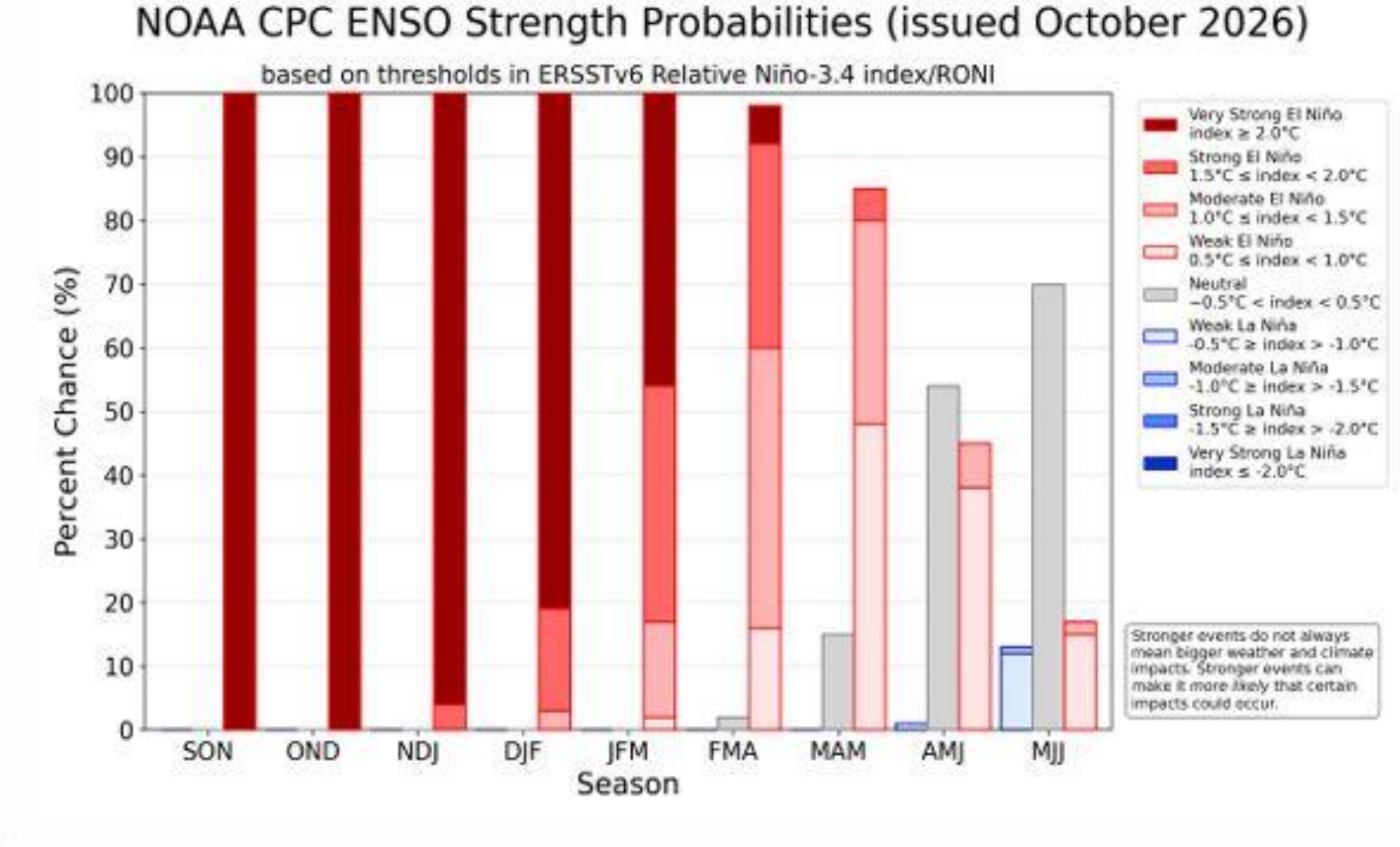
The Flooding Threat

More frequent rain storms increase the flood risk

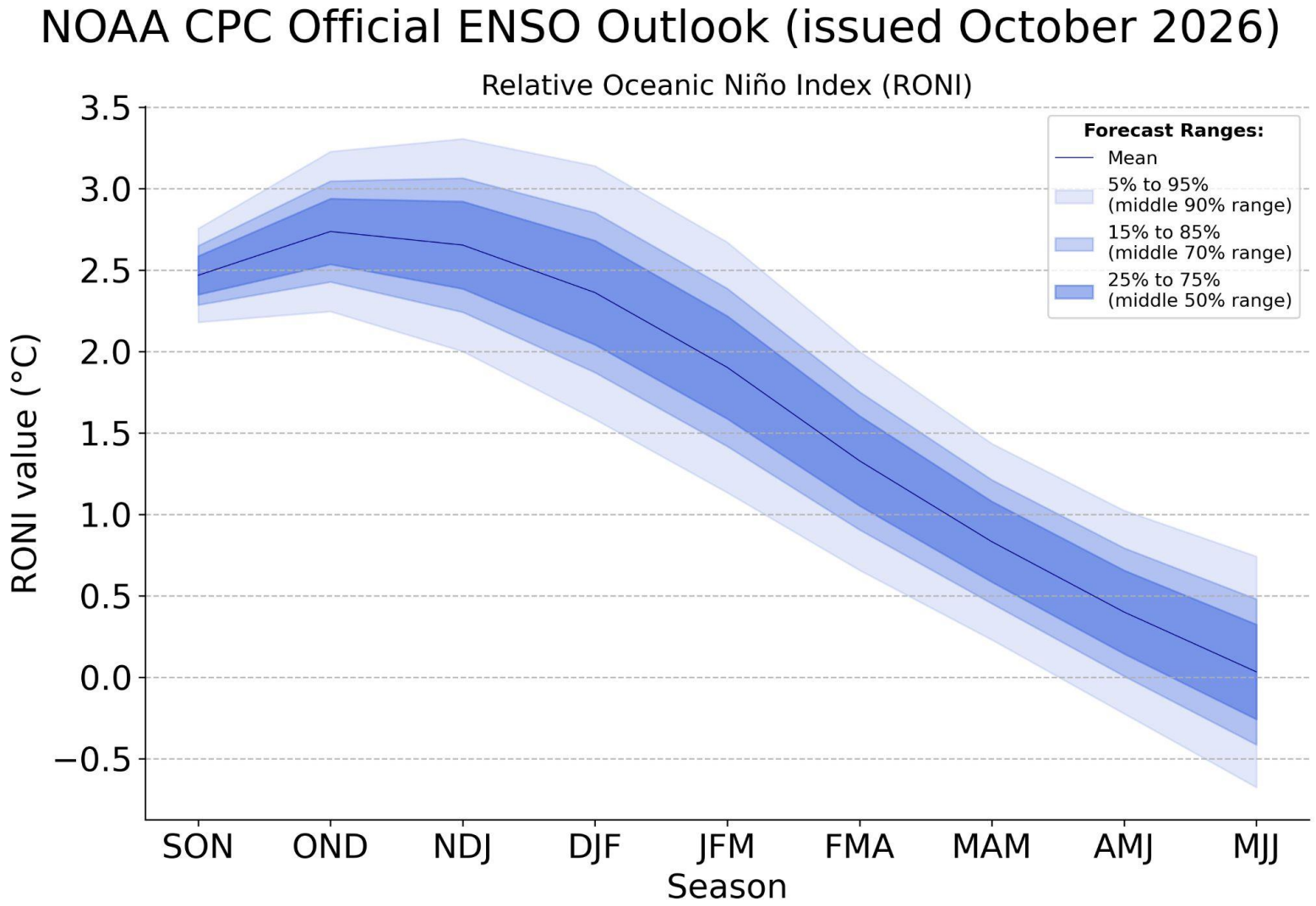
Flash flooding & riverine flooding



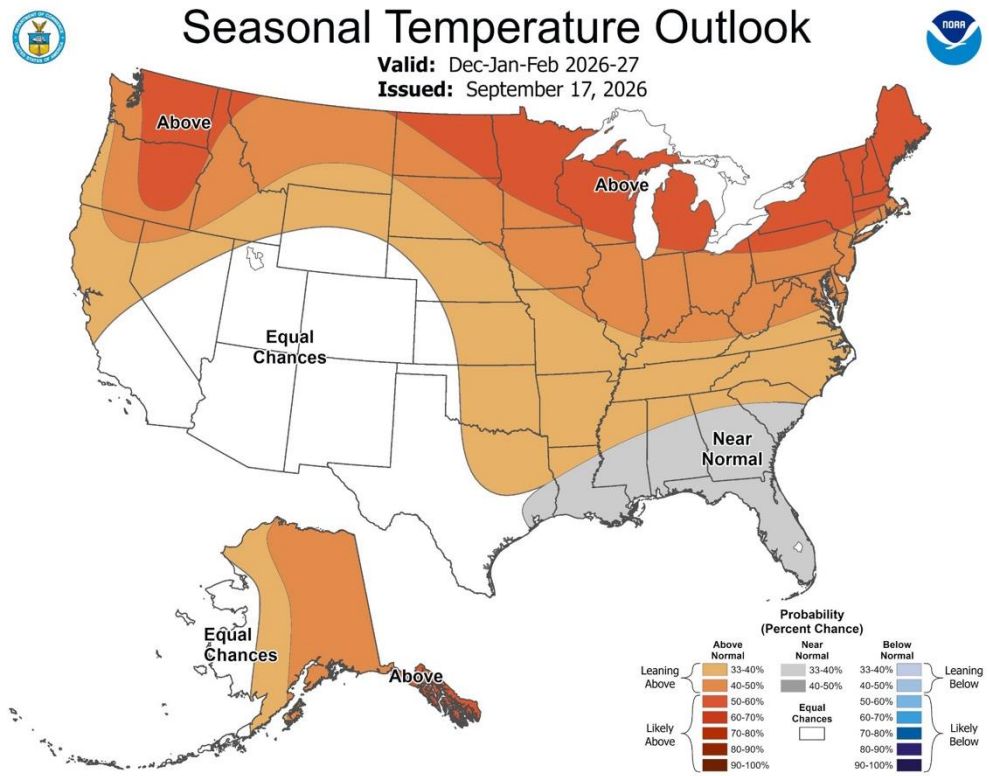
The ENSO Outlook

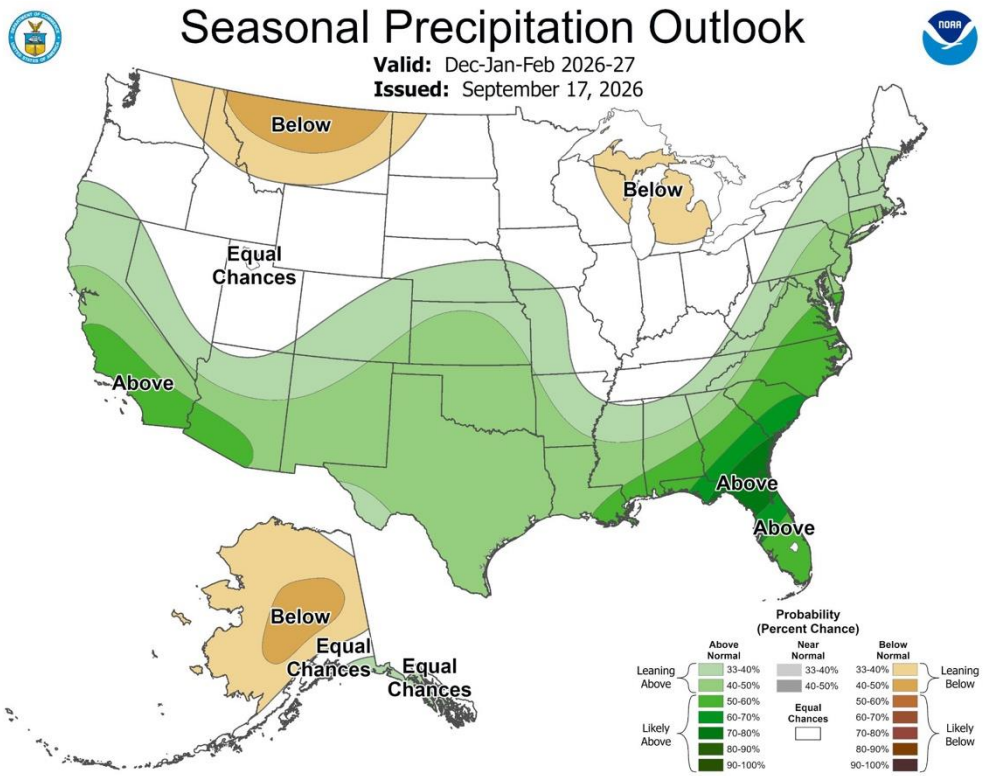


The ENSO Outlook

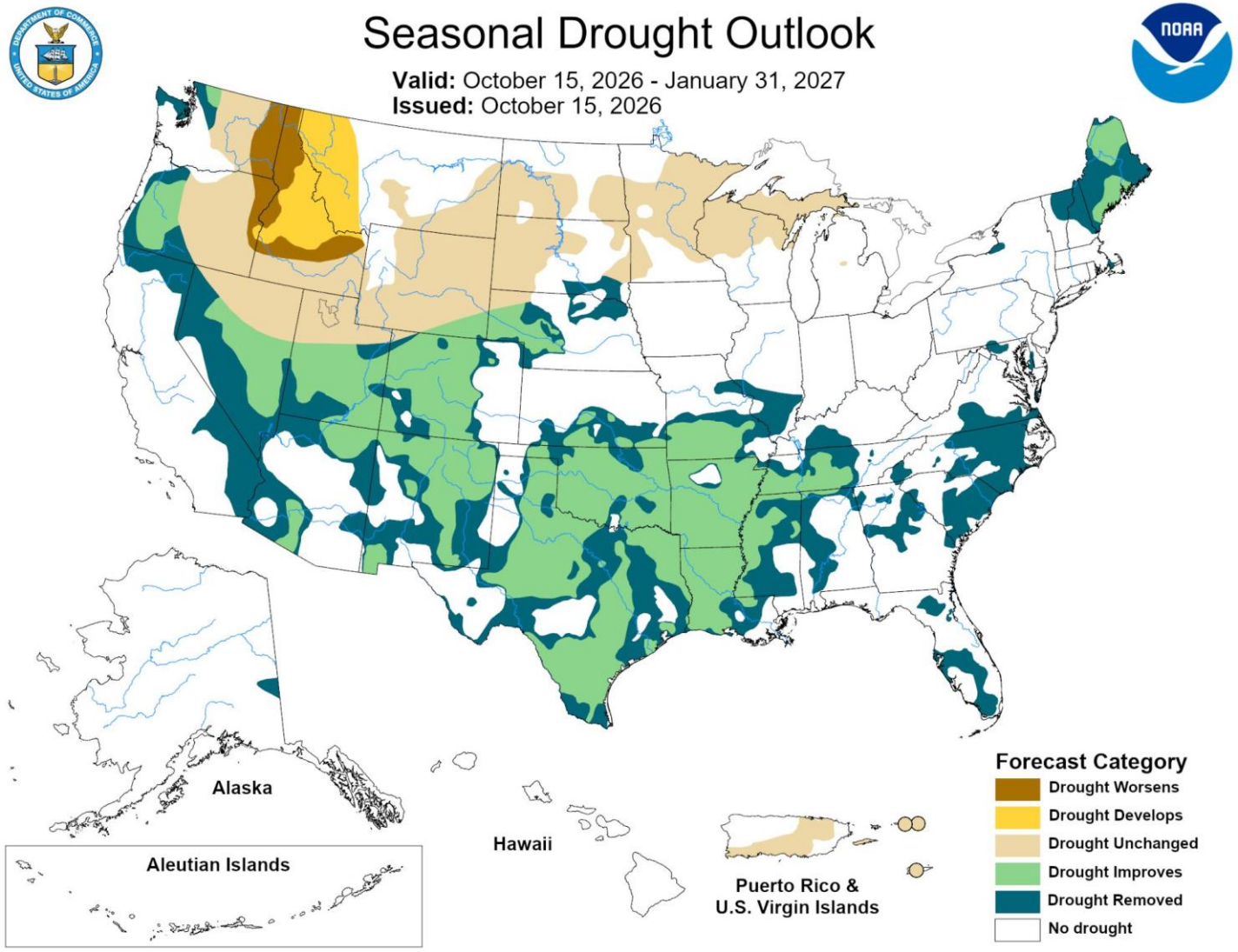


The Winter Outlook

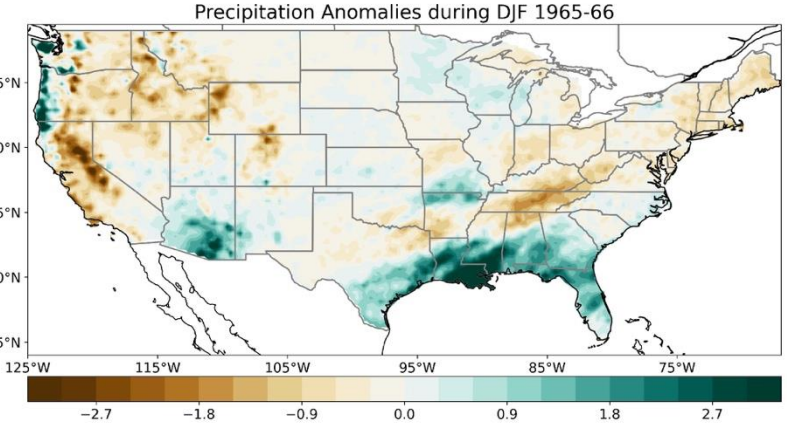


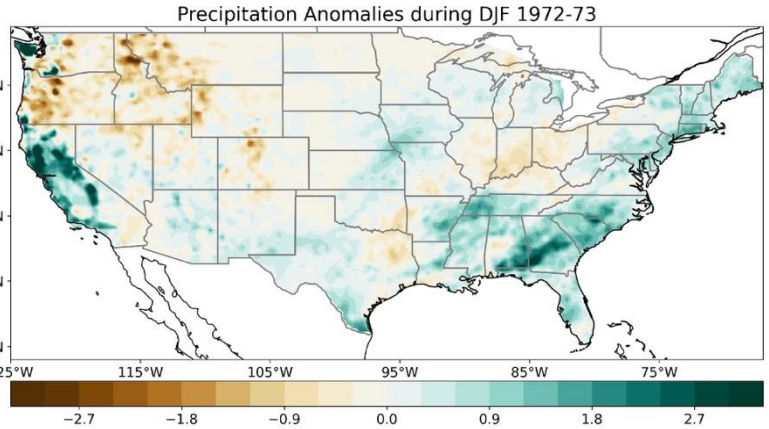


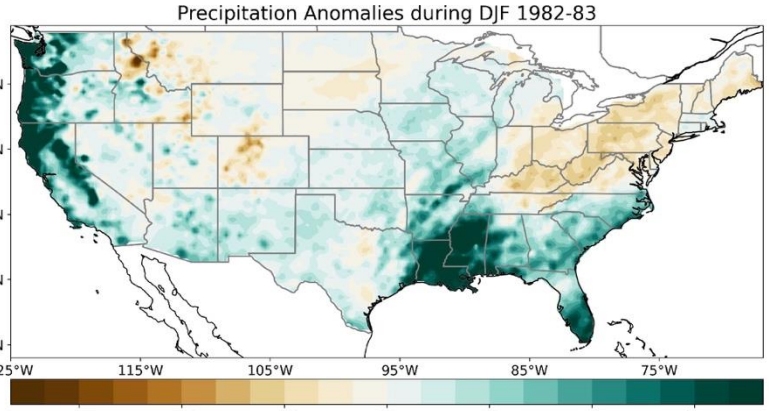
Seasonal Drought Outlook

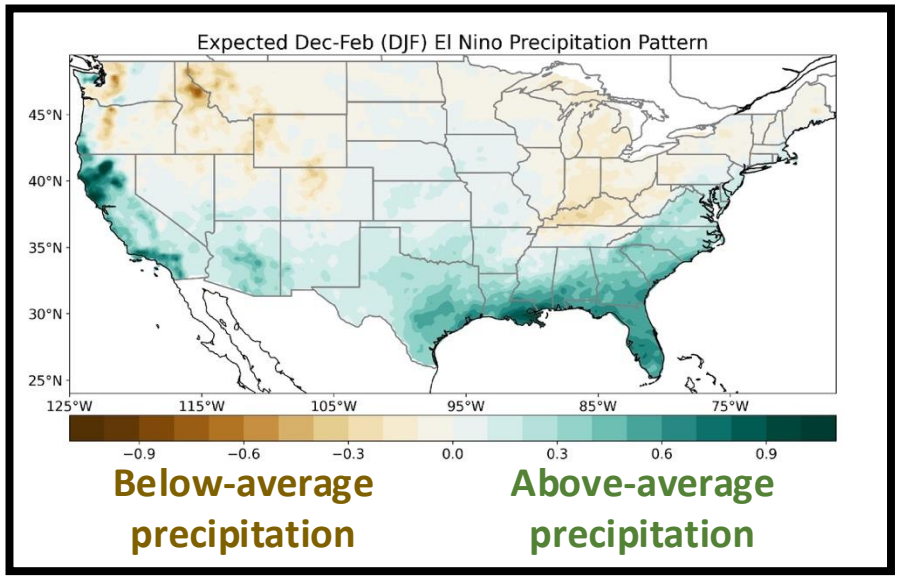


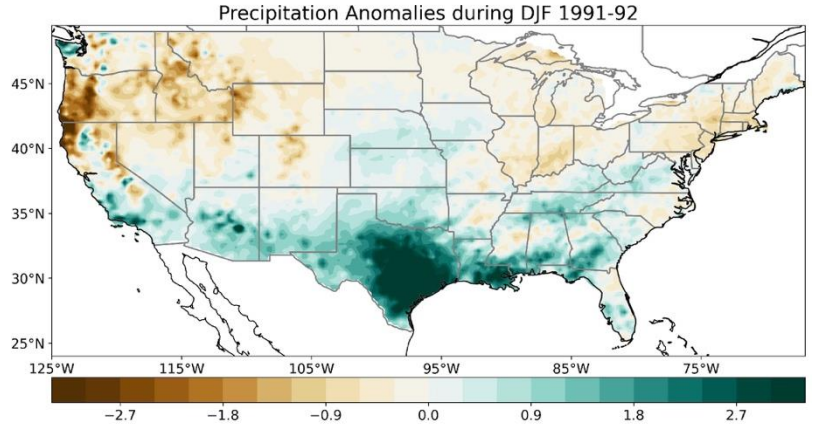
Very Strong El Niños (RONI ≥ 2.0C) Can Have Event-to-Event Variability

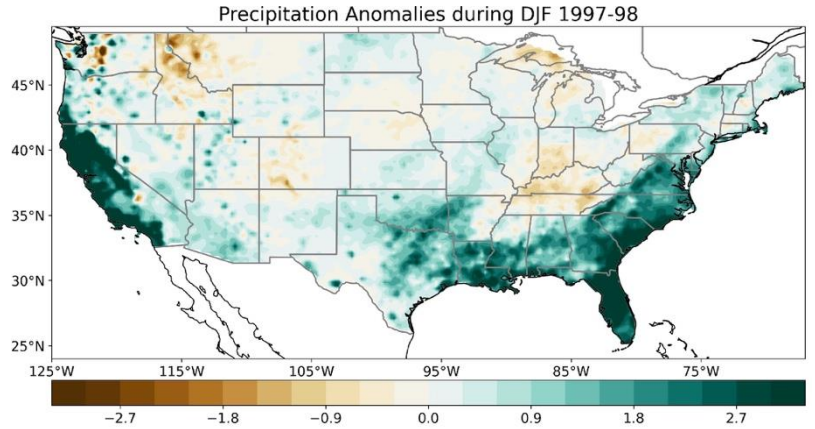


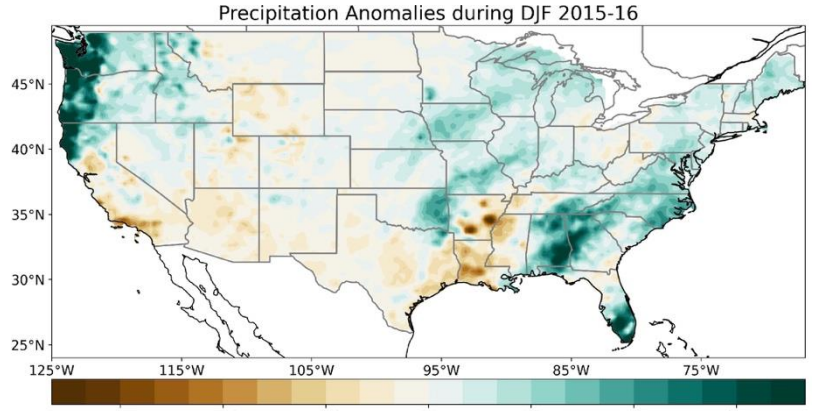












CPC Guage-based Unified data (mm/day)

El Niño *Shifting Actions Timeline*

Seasonal Outlooks

KNOW



Know how El Niño can change weather risks in your area.



Know your home insurance policies. Flood insurance is often a separate policy.

Monthly Outlooks

PREPARE



Prepare your home by clearing brush and debris from drains and gutters.



Obtain/check flood remediation items such as sandbags and pumps.

Weekly Outlooks

REVIEW



Review the contents of your emergency supply kit. Replenish any medicine or other items as needed.



Review your family communication plan.

Weather Outlooks

ACT!



Be ready to act in the days ahead of forecasted hazards.

This could include securing loose outdoor items, deploying sandbags, or even preparing for evacuation.

weather.gov

Core Takeaways

- **Pacific Warming:** Alters Walker Circulation and global wind patterns.
- **Hurricane Suppression:** High wind shear over the Caribbean dismantles developing storms.
- **Jet Stream Shift:** Subtropical jet dips south, driving active weather across the Gulf Coast during winter.
- **Florida Winter:** Expect cooler, wetter conditions with an elevated tornado risk over the peninsula and higher flood risk over North Florida.
- **Caveats:** Even with a very strong El Niño, certain seasonal outcomes are favored but do not come with guarantees. Stronger events can only make potential outcomes more likely, bringing into play higher chances of extremes. Precise timing/location of extremes cannot be predicted months in advance.

Questions?

National Weather Service

Tallahassee, FL