EXTENDED HYDROLOGIC OUTLOOK
AUGUST 6, 2019
Summary

• The Climate Prediction Center (CPC) is forecasting equal chances of above normal, normal and below normal rainfall for August through October.

• El Niño is present. A transition from El Niño to ENSO-neutral is expected in the next month or two, with ENSO-neutral most likely to continue through fall and winter. El Niño increases the chances of a wetter-than-normal dry season and decreases the potential for tropical storm activity from the Main Development Region in the Atlantic Ocean.

• Monitoring Atlantic Multidecadal Oscillation (AMO) index for switch to negative (cold) phase, which has the potential to contribute to drier-than-normal wet seasons.
The seasonal outlooks combine the effects of long-term trends, soil moisture, and, when appropriate, ENSO.
Teleconnections to South Florida

Climate anomalies being related to each other at large distances:

**El Niño Southern Oscillation (ENSO)**

South Florida dry season (November through May) rainfall is positively correlated with El Niño which has a frequency that ranges between 3 to 7 years while rainfall is negatively correlated with La Niña November through March with a potential increase in tropical rainfall during La Niña

**Atlantic Multidecadal Oscillation (AMO)**

Average annual inflow to Lake Okeechobee is nearly 50% greater during the warm phase compared to the cold phase of the AMO, easterly flow toward south Florida affected by phase

**Pacific Decadal Oscillation (PDO)**

Increases variations of south Florida dry season rainfall
Current Global Sea Surface Temperature Anomalies

Global sea surface anomaly and snow cover
06 Aug 2019

Anomalie de la température de la mer et épaisseur de la neige
06 Aout 2019

Sea surface temperature anomaly / Anomalie de la température de la mer (°C)

-3.0 -2.5 -2.0 -1.5 -1.0 -0.5 0.0 0.5 1.0 1.5 2.0 2.5 3.0

Snow depth / Épaisseur de la neige (cm)

1.0 10.0 50.0 100.0

Uncovered sea ice
Glace marine à découvert

Climatologie 1995-2009 Climatology

CMC Environnement Canada
Niño Region SST Departures (°C) Recent Evolution

The latest weekly SST departures are:

- Niño 4: 1.0°C
- Niño 3.4: 0.5°C
- Niño 3: -0.2°C
- Niño 1+2: -0.5°C
In early August, October, November 2018 and in January-March 2019, positive subsurface temperature anomalies increased, partly due to downwelling Kelvin waves.

During May 2019, an upwelling Kelvin wave contributed to the reduction of positive subsurface anomalies and emergence of negative anomalies around 110°-90°W.

During May and July, downwelling Kelvin waves helped to increase the positive subsurface anomalies across the central and east-central Pacific. However, negative subsurface anomalies remained over the eastern Pacific.

Equatorial oceanic Kelvin waves have alternating warm and cold phases. The warm phase is indicated by dashed lines. Downwelling and warming occur in the leading portion of a Kelvin wave, and upwelling and cooling occur in the trailing portion.
Warm Water Volume (5°N–5°S, 120°E–80°W) and NINO 3.4 SST Anomaly

SST (°C)

Global Tropical Moored Buoy Array Program Office, NOAA/PMEL
MEI.v2 Evolution of Current ENSO Event in Historical Context

![Graph showing the MEI.v2 evolution over time for different years, including 1983, 1987, 1992, 1998, and 2016. The graph highlights the 2019 event.](image-url)
CFSv2 forecast Nino3.4 SST anomalies (K) (PDF corrected)

The average of the dynamical models (thick red line) predicts ENSO-neutral during the Northern Hemisphere fall and into the winter 2019-20.

The average of the statistical models (thick green line) predicts a weak El Niño to continue into the Northern Hemisphere winter 2019-20.
Recent Pacific warm (red) and cold (blue) periods based on a threshold of +/- 0.5 °C for the Oceanic Nino Index (ONI) [3 month running mean of ERSST.v5 SST anomalies in the Nino 3.4 region (5N-5S, 120-170W)]. For historical purposes, periods of below and above normal SSTs are colored in blue and red when the threshold is met for a minimum of 5 consecutive over-lapping seasons.

The ONI is one measure of the El Niño-Southern Oscillation, and other indices can confirm whether features consistent with a coupled ocean-atmosphere Southern Oscillation phenomenon accompanied these periods. The complete table going back to DJF 1950 can be found [here](#).

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</table>
ENSO-neutral is favored to emerge in the next season and to then continue through the Northern Hemisphere fall and winter 2019-20.
2019 Tropical Outlook
2019 Atlantic Hurricane Season Outlook

Season probability

- Above-normal: 30%
- Near-normal: 30%
- Below-normal season: 40%

- Named storms: 9-15
- Hurricanes: 4-8
- Major hurricanes: 2-4

Be prepared: Visit hurricanes.gov and follow @NWS and @NHC_Atlantic on Twitter.

May 23, 2019
## 2019 FORECAST AS OF 5 AUGUST 2019

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<th>Forecast Parameter</th>
<th>CSU Forecast</th>
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<td>Net Tropical Cyclone Activity (NTC)</td>
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*Forecast numbers include Andrea and Barry*