# FLORIDA WATER & CLIMATE ALLIANCE WEBINAR

## Water Utility Risk and Resilience to Climate Change Impacts

September 25, 2020
10:00am - 12:00pm

UF UNIVERSITY of FLORIDA Water Institute

FLORIDA Water & Climate Alliance

Resilient Utility Coalition

# Agenda

- Introduction to the Florida Water & Climate Alliance & **Pop Quiz**

  Dr. Tirusew Asefa, Manager, Planning & System Decision Support, Tampa Bay Water

- Latest Advances on NASA-Funded FloridaWCA Project

  Dr. Chris Martinez, Associate Professor of Agricultural & Biological Engineering, University of Florida

- Panel Session: EPA America's Water Infrastructure Act of 2018 (AWIA) Risk and Resilience Assessments
  - Moderator: Dr. Carolina Maran, Chief of District Resiliency, South Florida Water Management District
  - Panelists:
    - Carlos Garcia, Expansion Project Administrator, Broward County Water and Wastewater Services Operations Division
    - Thea Dunmire, Environmental Compliance Senior Manager, Tampa Bay Water
    - Debbie Griner, Resilience Manager, Miami-Dade Water and Sewer Department

# Agenda

- Aquifer Storage and Recovery (ASR) and Water Supply Resilience Strategy

  Dr. Virginia Walsh, Senior Professional Geologist, Chief Hydrogeology Section, Miami-Dade Water and Sewer Department Water

- Breakout Room Discussion on Climate Resilience

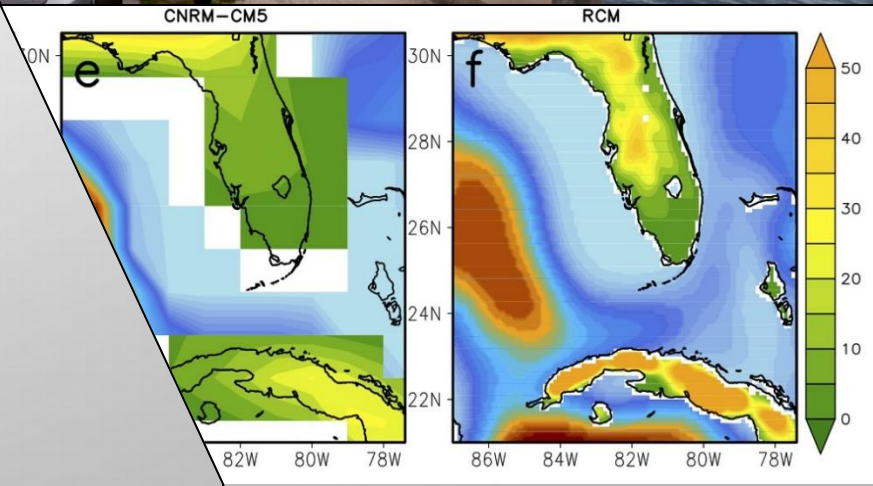
- Close

# Logistics

- Webinar is being recorded
- Can be helpful to use “speaker view” (top right corner)
- Send your questions via chat to the host; they will get read during Q & A
- Send technical issues to Paloma (co-host) in chat
- Send any announcements you have (new publications, webinars of interest, proposed legislation, etc.) in the chat – we will share
- Can receive Continuing Education Units for PE license

FLORIDA Water & Climate Alliance

A stakeholder-scientist partnership committed to the co-development of locally relevant and actionable climate science to support informed decision-making in water resource management, planning and supply operations in Florida

## Our Vision:

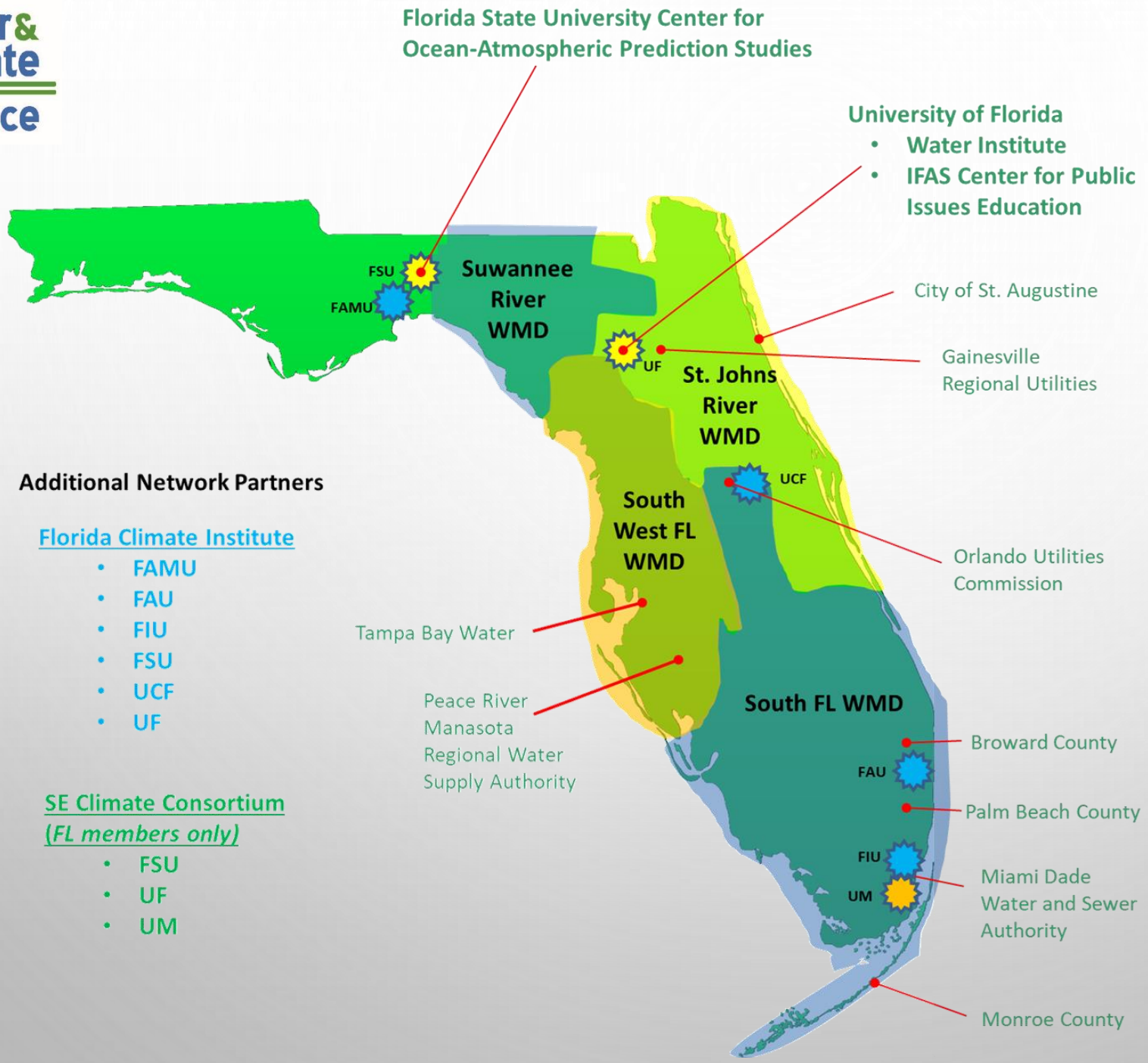
A climate-resilient water sector in Florida.

## Our Mission:

Foster partnerships to co-develop and share actionable climate science, data and decision support that promotes sustainability in the water sector through applied research, learning and outreach.

FLORIDA Water & Climate Alliance

# Members and Supporters of the Florida Water & Climate Alliance




**Additional Network Partners**

Florida Climate Institute
- FAMU
- FAU
- FIU
- FSU
- UCF
- UF

SE Climate Consortium
*(FL members only)*
- FSU
- UF
- UM

SOUTHEAST Climate Adaptation Science Center

# ANNOUNCEMENTS

Publication in Press by the FloridaWCA:

**Authors:** Vasubandhu Misra, Tracy Irani, Lisette Staal, Kevin Morris, Tirusew Asefa, Chris Martinez, Wendy Graham

**Title:** The Florida Water and Climate Alliance (FloridaWCA): Developing A Stakeholder-scientist Partnership to Create Actionable Science in Climate Adaptation and Water Resource Management

**Journal:** *BULLETIN OF THE AMERICAN METEOROLOGICAL SOCIETY*

# FLORIDA WATER & CLIMATE ALLIANCE

10-YEAR ANNIVERSARY POP QUIZ

FLORIDA Water & Climate Alliance

# DISCLAIMER…

**A decade does not constitute enough time to show long term climate trends.** We have to account for, at least, periods of wet and dry multidecadal oscillations when evaluating these metrics. This period was selected as an exercise to celebrate the FloridaWCA's 10-year anniversary, but a more in-depth and longer data analysis is needed for decision making processes.

# TEMPERATURE

# IN THE PAST 10 YEARS (2010-2020)…

FLORIDA'S AVERAGE TEMPERATURE HAS

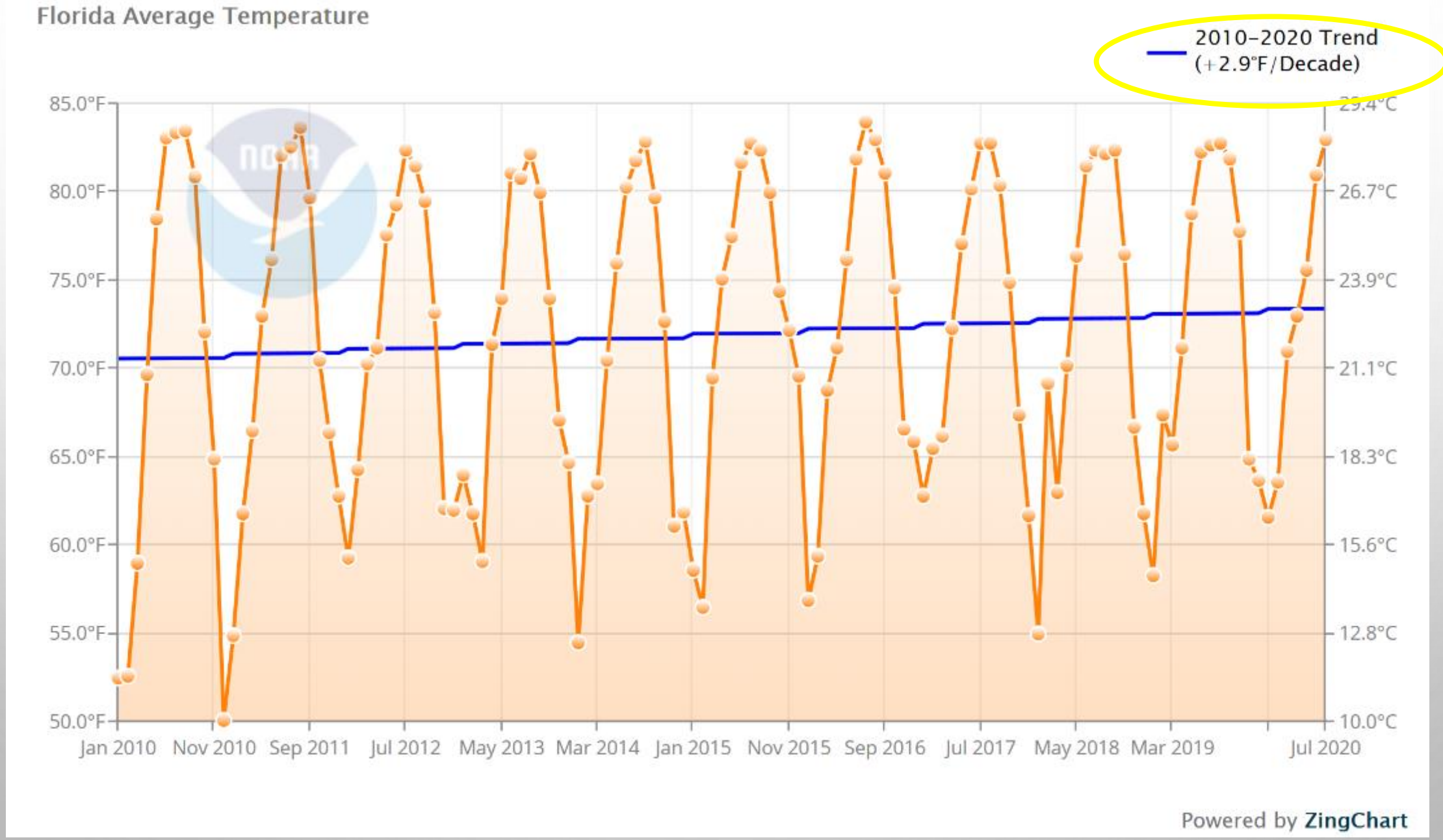
A. STAYED THE SAME

B. INCREASED BY 1°F

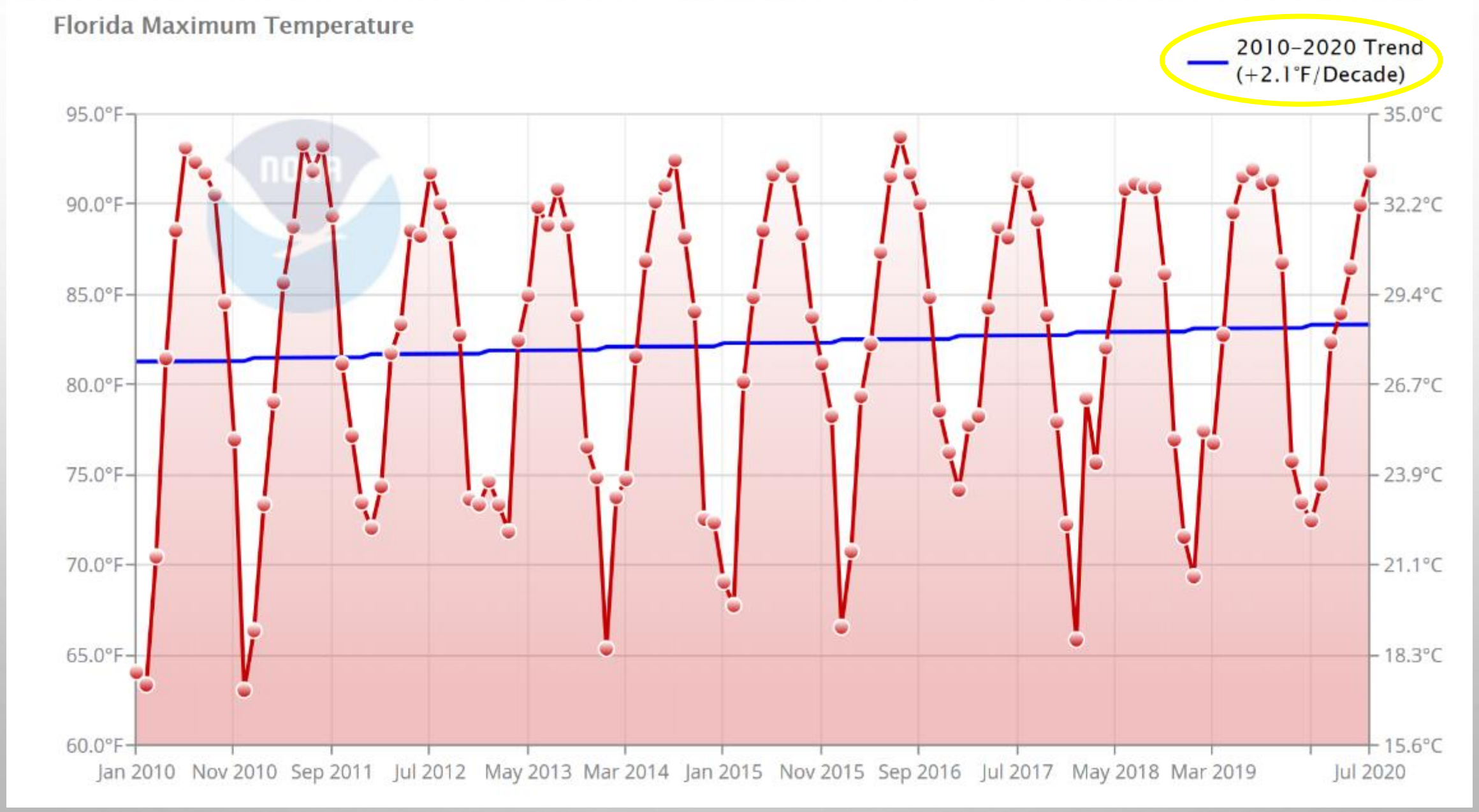
C. INCREASED BY 2°F

**D. INCREASED BY 3°F**

E. INCREASED BY 4°F




https://www.ncdc.noaa.gov/cag/statewide/time-series

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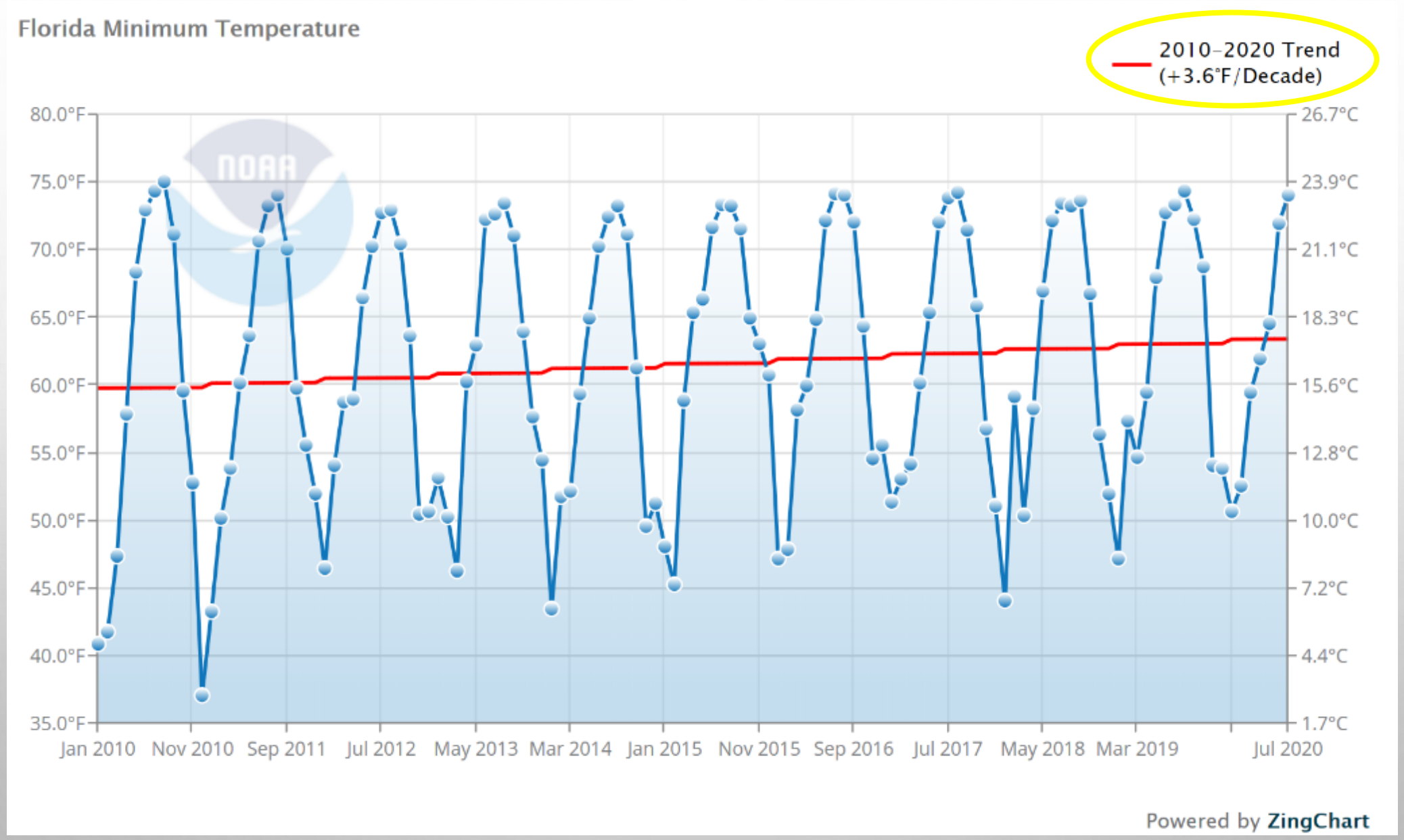


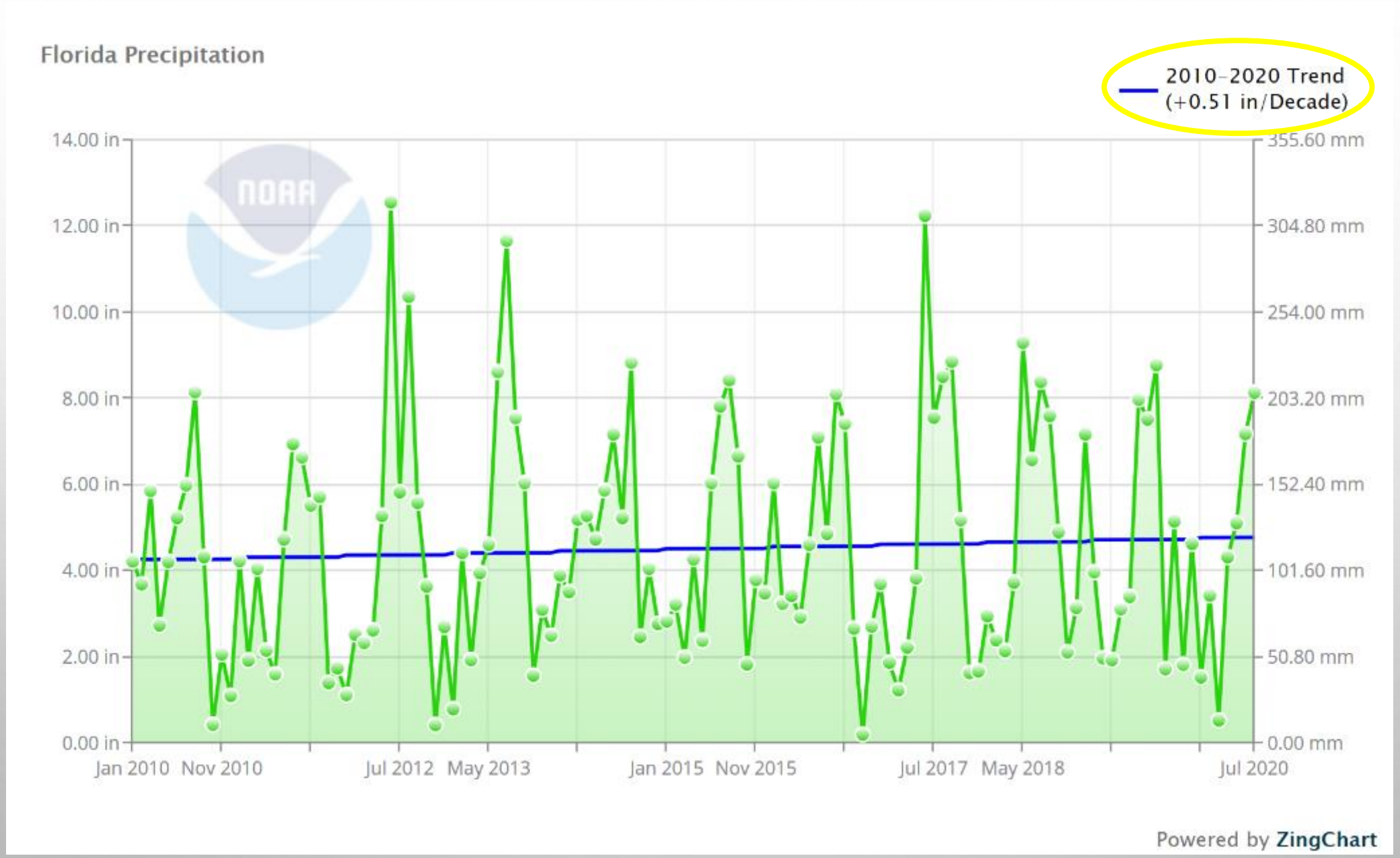

https://www.ncdc.noaa.gov/cag/statewide/time-series

# PRECIPITATION

# IN THE PAST 10 YEARS (2010-2020)…

FLORIDA'S AVERAGE PRECIPITATION HAS

A. DECREASED BY 1 INCH
B. DECREASED BY 0.5 INCHES
C. STAYED THE SAME
**D. INCREASED BY 0.5 INCHES**
E. INCREASED BY 1 INCH




https://www.ncdc.noaa.gov/cag/statewide/time-series

# POPULATION

# IN THE PAST 10 YEARS (2010-2020)…

FLORIDA'S POPULATION GREW BY

A. 1.2 MILLION PEOPLE
B. 2 MILLION PEOPLE
C. **2.6 MILLION PEOPLE**
D. 3.5 MILLION PEOPLE
E. 5 MILLION PEOPLE

- 76.5% of Florida's population lives in coastal areas
- $688 billion in gross domestic product is generated annually in coastal areas

https://www.census.gov/newsroom/press-releases/2019/popest-nation.html

https://coast.noaa.gov/states/florida.html

# TROPICAL STORMS AND HURRICANES

# IN THE PAST 10 YEARS (2010-2020)…

THE NUMBER OF LANDFALLING TROPICAL STORMS AND HURRICANES IN FLORIDA WAS

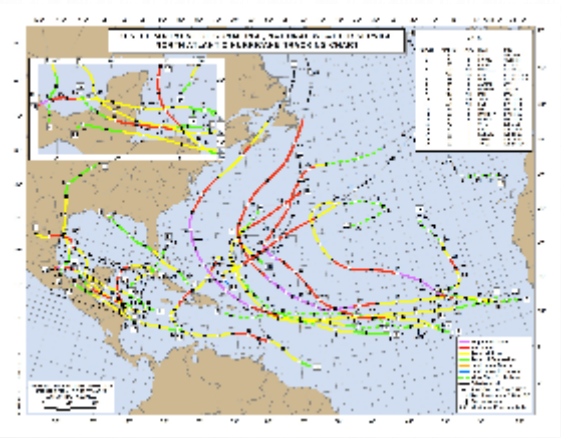
A. 10

**B. 13**

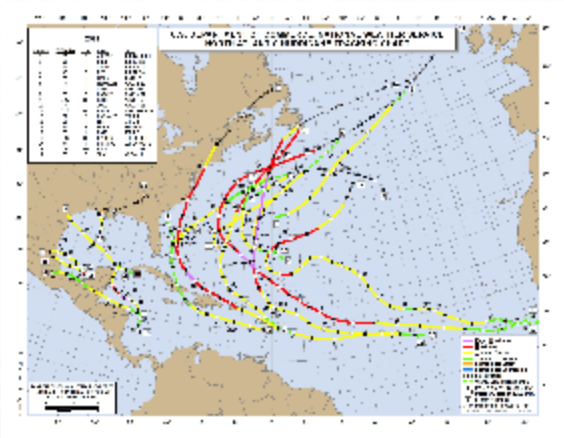
C. 15

D. 18

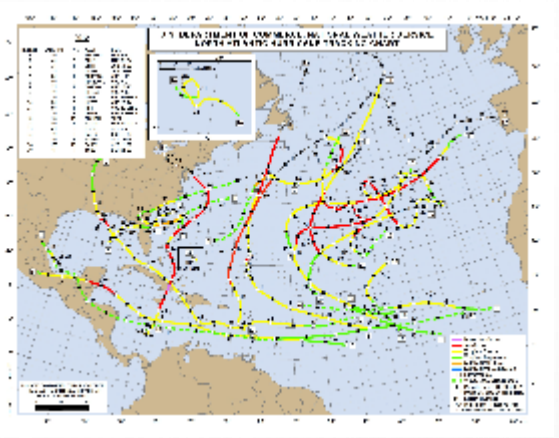
E. 20



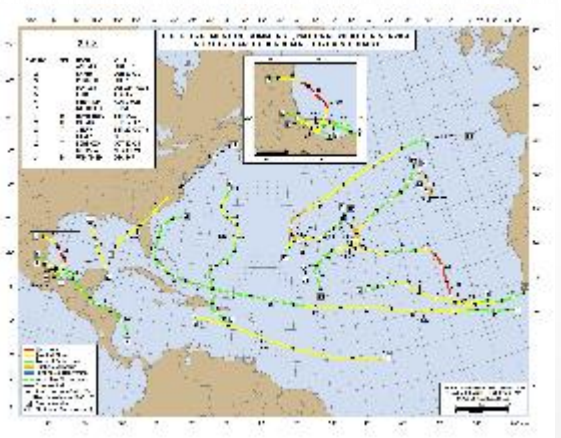
2010 (1) – TS Bonnie



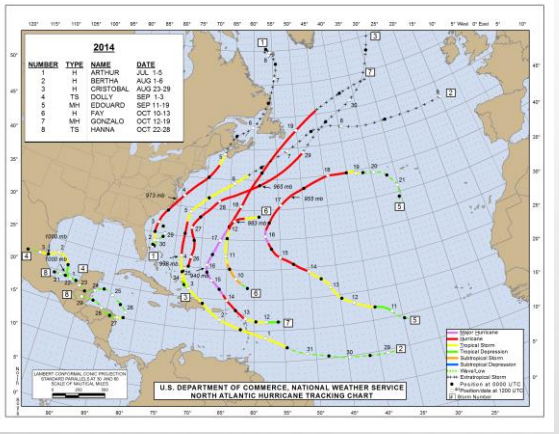
2011 (0)



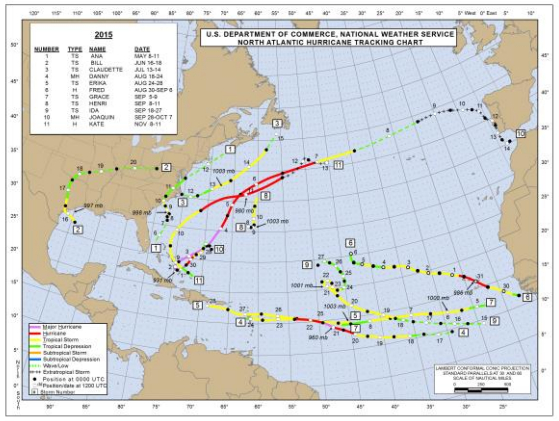
2012 (2) – TS Beryl & TS Debby



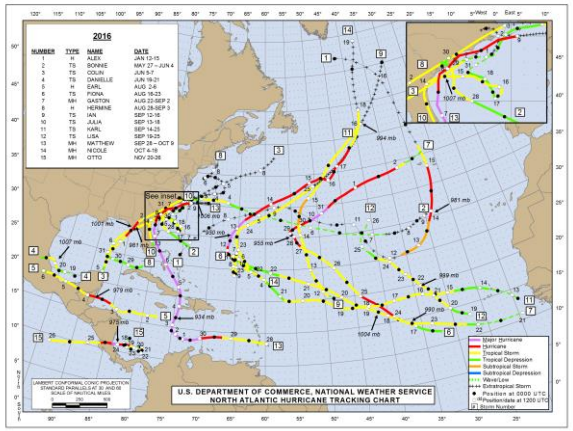
2013 (1) – TS Andrea



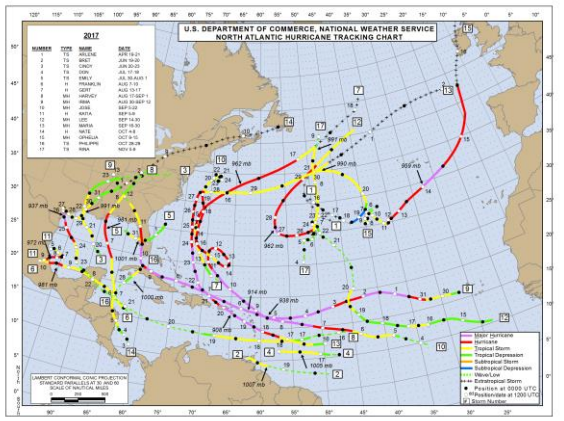
2014 (0)



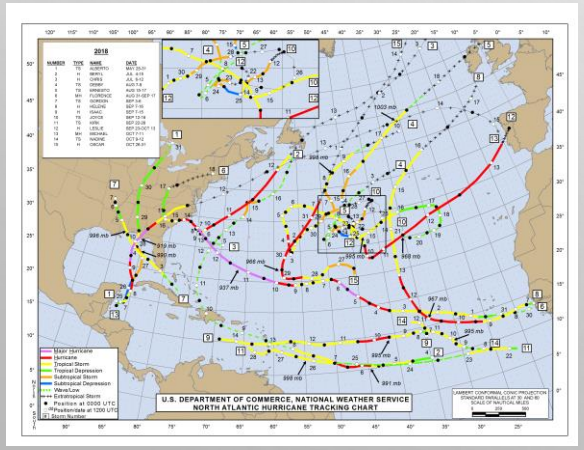
2015 (0)



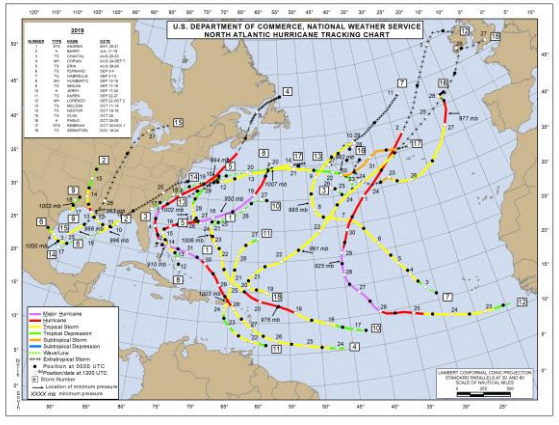
2016 (3) – TS Collin, H Hermine, TS Julia



2017 (2) – TS Emily, MH Irma



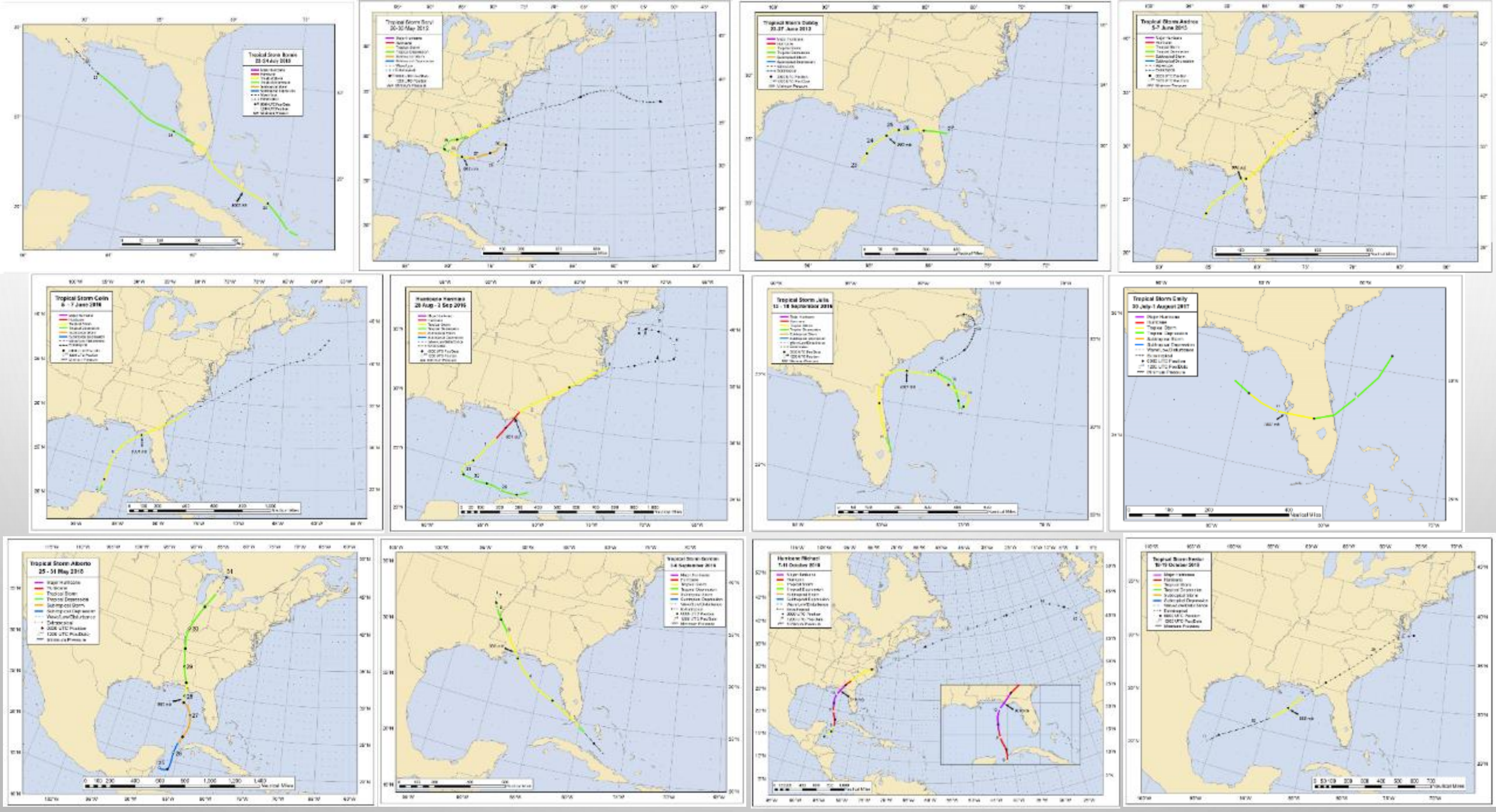
2018 (3) – TS Alberto, TS Gordon, MH Michael



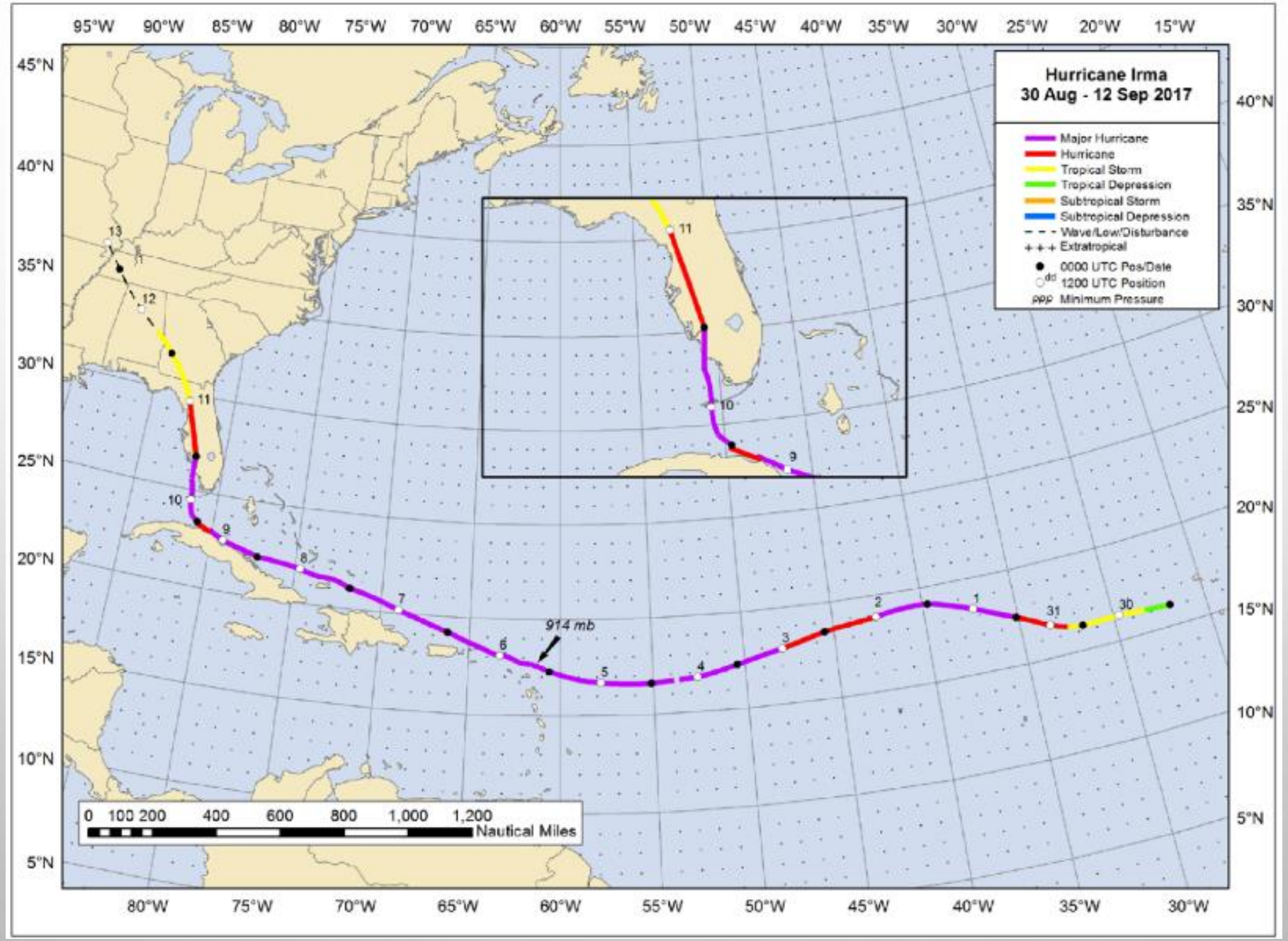
2019 (1) – TS Nestor

**Since 2010, a total of 13 Tropical Storms and Hurricanes made landfall in the State of Florida**

Source: https://www.nhc.noaa.gov/data/tcr/index.php?season=2016&basin=atl



Source: https://www.nhc.noaa.gov/data/tcr/index.php?season=2016&basin=atl




Source: https://www.nhc.noaa.gov/data/tcr/index.php?season=2016&basin=atl

# ECONOMIC DAMAGE FROM STORMS

# IN THE PAST 10 YEARS (2010-2020)…

THE 3 MAJOR HURRICANES AND 10 TROPICAL STORMS CAUSED AN ESTIMATED

A. $21 BILLION IN DAMAGES
B. $35 BILLION IN DAMAGES
C. $67 BILLION IN DAMAGES
D. $94 BILLION IN DAMAGES
**E. $123 BILLION IN DAMAGES**

https://coast.noaa.gov/states/florida.html
https://en.wikipedia.org/wiki/List_of_Florida_hurricanes_(2000-present)

# SEA LEVEL RISE

# IN THE PAST 10 YEARS (2010-2020)…

IN COASTAL AREAS NEAR PANAMA CITY AND JACKSONVILLE, SEA LEVELS ROSE BY APPROXIMATELY

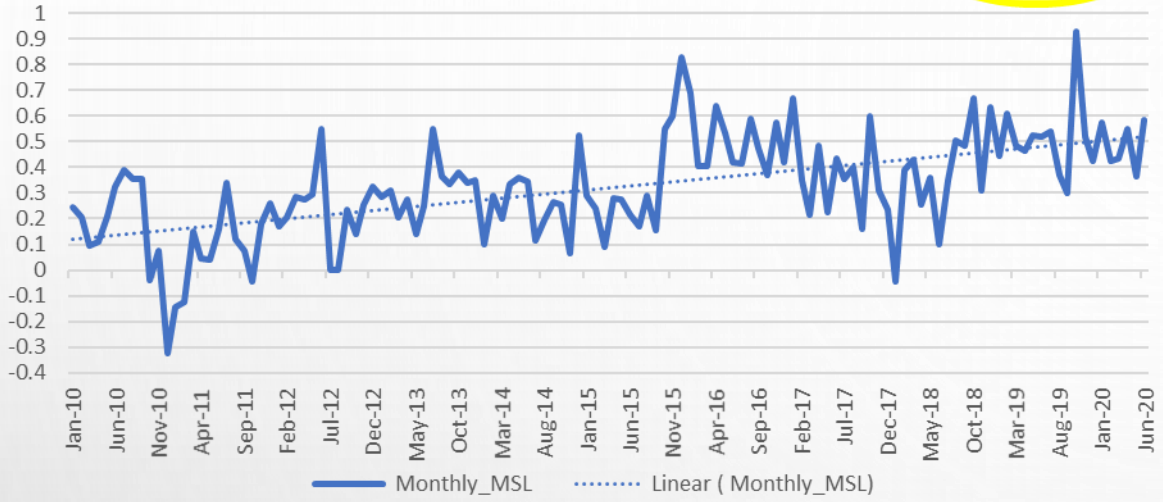
A. 1 INCH
B. 2 INCHES
C. 3 INCHES
D. 4 INCHES
**E. 5 INCHES**

# Sea Level Trends


Source: https://tidesandcurrents.noaa.gov/sltrends/sltrends.html

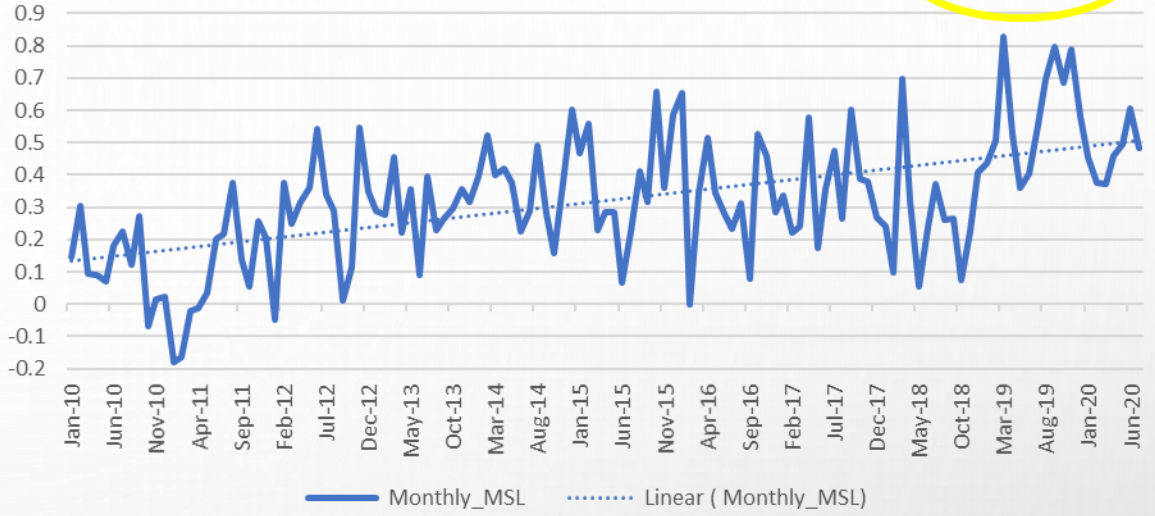
## Relative Sea Level Trend
## 8723214 Panama City, Florida

2010-2020 Trend
(+0.41 ft/Decade)



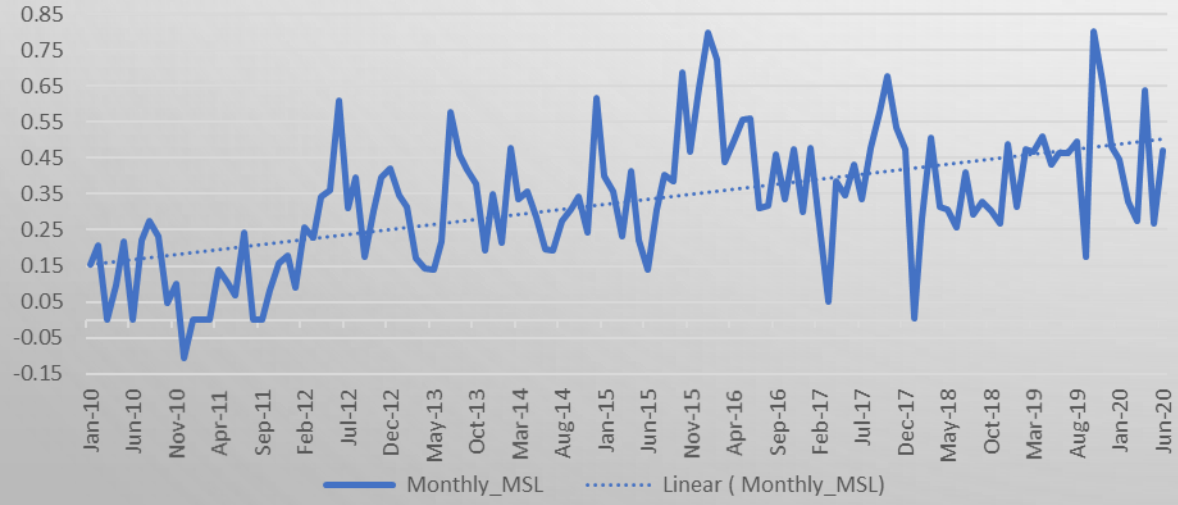

## Relative Sea Level Trend
## 8723214 Virginia Key, Florida

2010-2020 Trend
(+0.355ft/Decade)



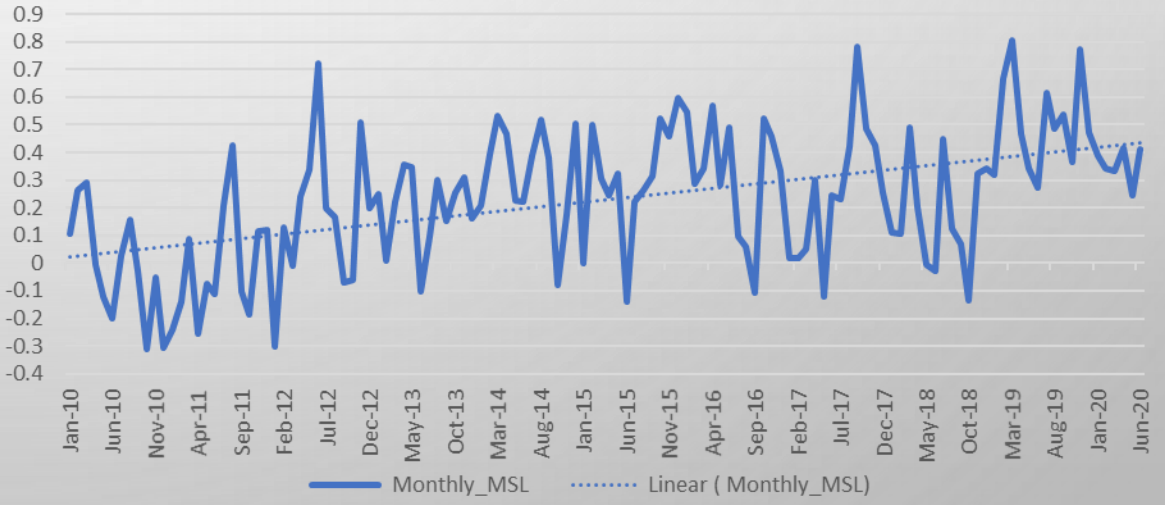

## Relative Sea Level Trend
## 8723214 Fort Myers, Florida

2010-2020 Trend
(+0.33ft/Decade)




## Relative Sea Level Trend
## 8723214 Mayport, Florida

2010-2020 Trend
(+0.41 ft/Decade)




Source: https://tidesandcurrents.noaa.gov/sltrends/sltrends.html

# THE FLORIDAWCA IS 10 YEARS OLD!

# NEXT FLORIDAWCA WEBINAR:

CLIMATE CHANGE AND WATER QUALITY

NOVEMBER 13, 12:00-2:00PM

TO RECEIVE CONTINUING EDUCATION UNITS,
SEND YOUR NAME AND PE LICENSE NUMBER TO:

**KSCHLATTER@UFL.EDU**

FOR MORE INFORMATION ABOUT THE FLORIDAWCA VISIT:

**WWW.FLORIDAWCA.ORG**

FLORIDA Water & Climate Alliance

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