# Tropical Update

## 2:00 PM EDT

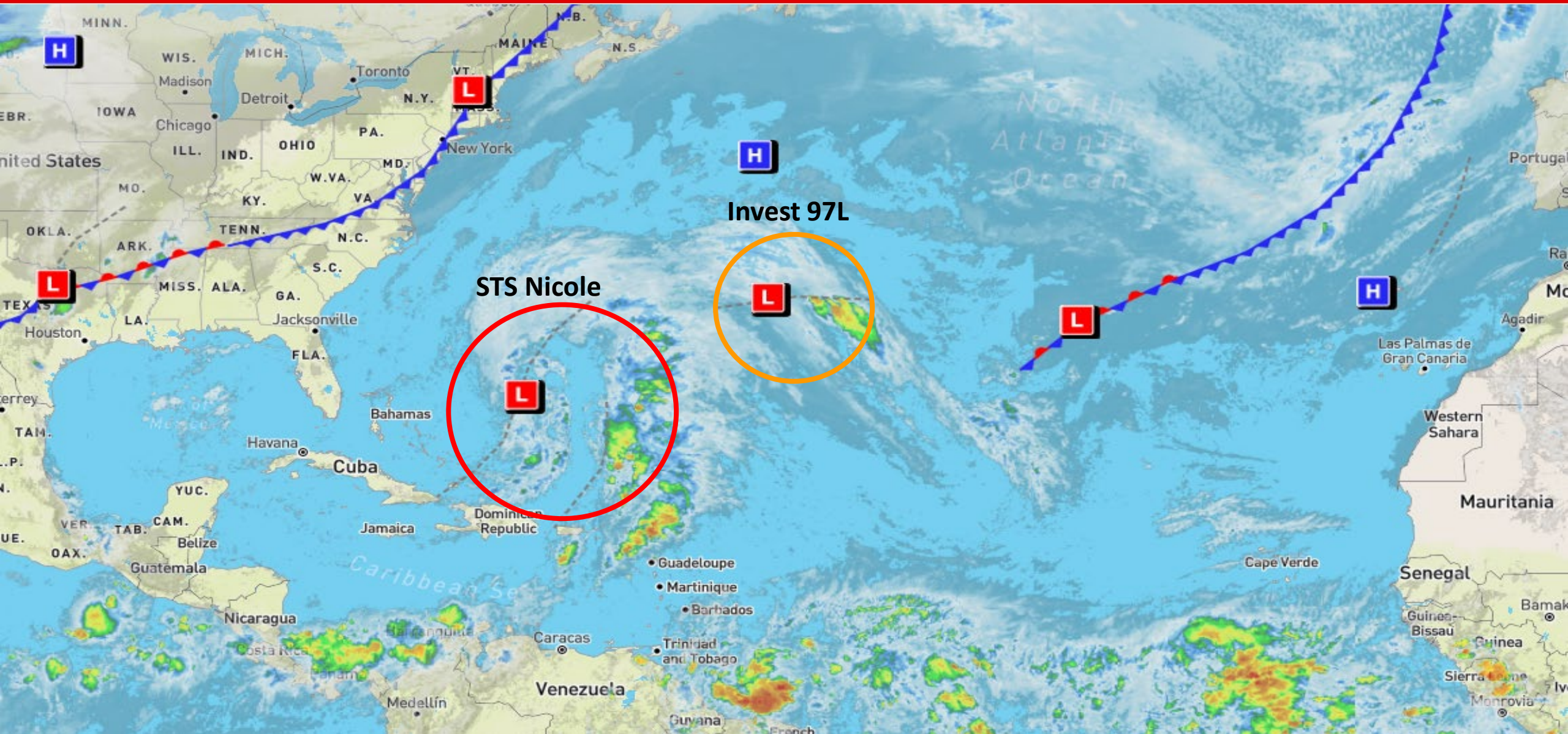
## Monday, November 7, 2022

## Subtropical Storm Nicole & Invest 97L (60%)

**This update is intended for government and emergency response officials, and is provided for informational and situational awareness purposes only. Forecast conditions are subject to change based on a variety of environmental factors. For additional information, or for any life safety concerns with an active weather event please contact your County Emergency Management or Public Safety Office, local National Weather Service forecast office, or visit the National Hurricane Center website at www.hurricanes.gov.**

# Atlantic Basin Satellite Image

Chance of development: None Low Medium High

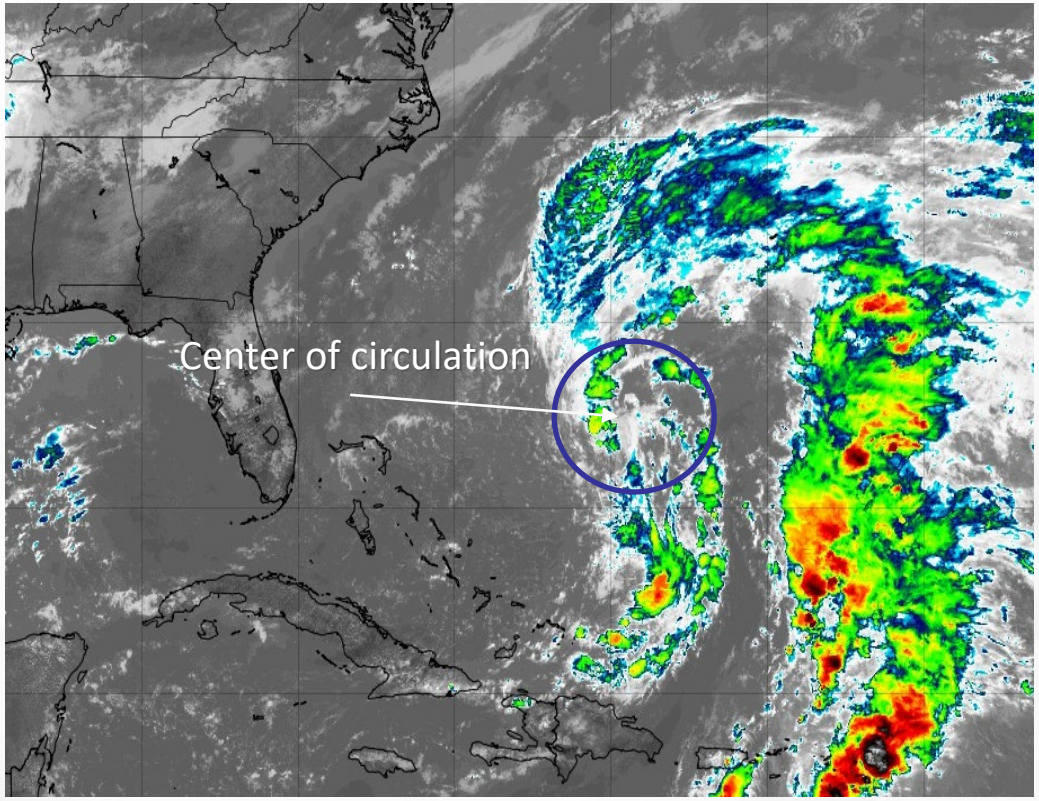


# Subtropical Storm Nicole

## 2 PM EST Monday: Florida Threats & Changes Since Last Packet

| | Minimal | Low | Moderate | High | Extreme |
|---|---|---|---|---|---|
| Winds | | | | | |
| Storm Surge | | | | | |
| Flash Flooding | | | | | |
| Tornadoes | | | | | |

| | Low | Moderate | High |
|---|---|---|---|
| Rip Currents | | | |

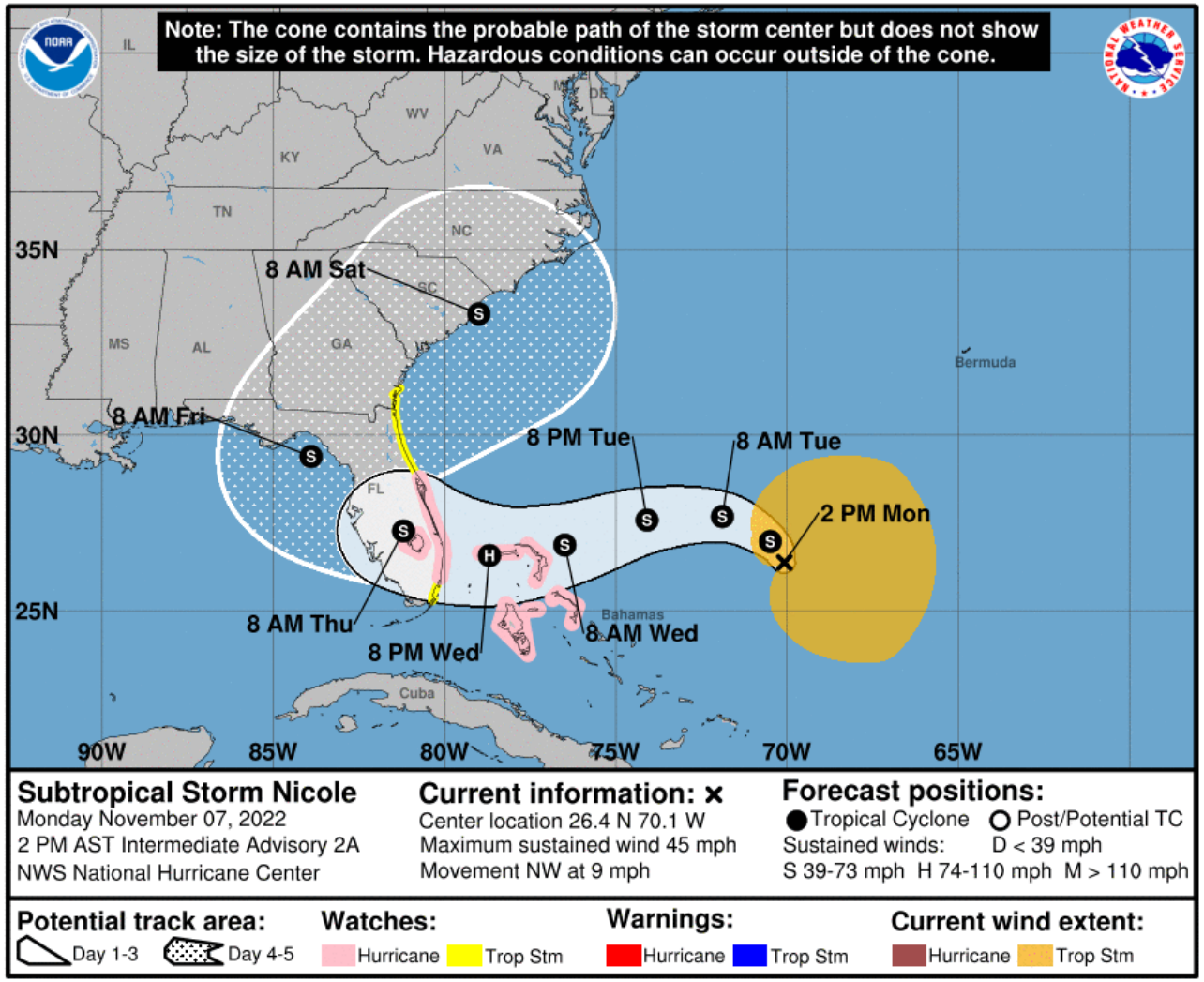



**Overview/Recent Changes:**

Subtropical Storm Nicole formed at 4:00 AM Monday. Maximum sustained winds are near 45 mph. Nicole is expected to strength and impact much of the Florida Peninsula this week. There is a risk of life-threatening storm surge, significant coastal erosion, damaging winds, flooding and isolated tornadoes from this system.

# Forecast Cone

## Subtropical Storm Nicole



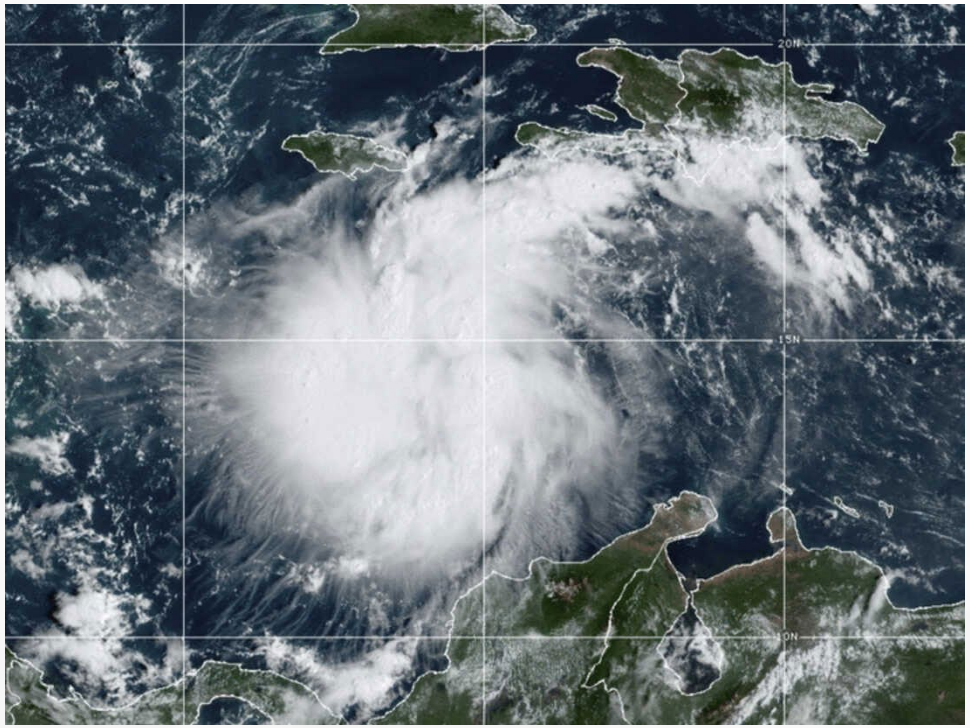

**Location:** 615 miles east of West Palm Beach, FL
**Maximum Winds:** 45 mph
**Movement:** NW at 9 mph

The structure of Nicole this morning remains distinctly subtropical, as the low-level circulation remains tangled up with an elongated upper-level low. The wind-field also remains quite broad. However, Nicole is forecast to transition to a tropical storm sometime in the 24-36 hour period and is forecast to be at hurricane intensity by Wednesday or Wednesday night while it is moving near or over the northwestern Bahamas. Nicole is moving toward the northwest near 9 mph. A turn westward or west-southwestward is then forecast Tuesday through early Thursday. On the forecast track, the center of Nicole will approach the northwestern Bahamas on Tuesday, move near or over those islands on Wednesday, and approach the east coast of Florida by Wednesday night.

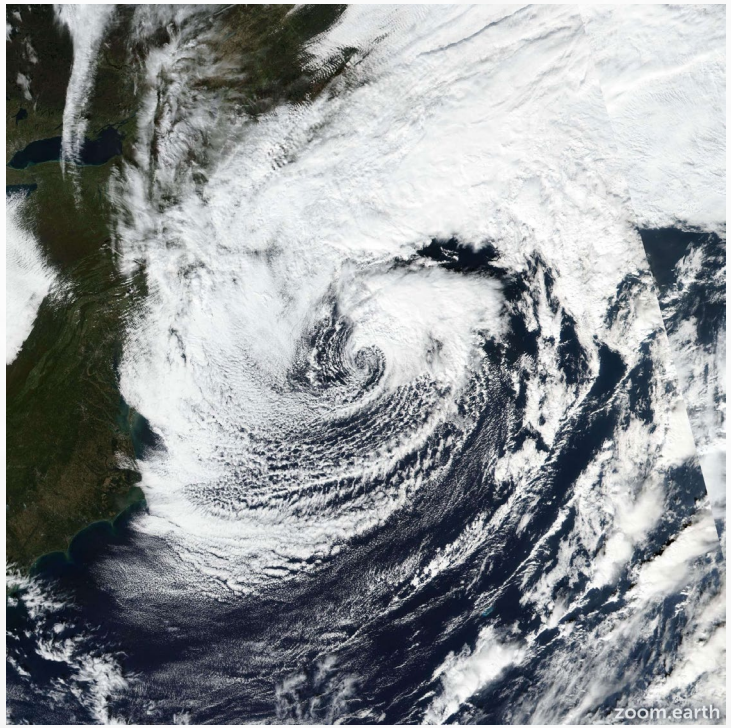
# What is a Subtropical Storm?

- Has characteristics of both a tropical and non-tropical system.
- A subtropical storm is generally more disorganized than a tropical system.
- Subtropical systems have the strongest winds and storms far from the center.

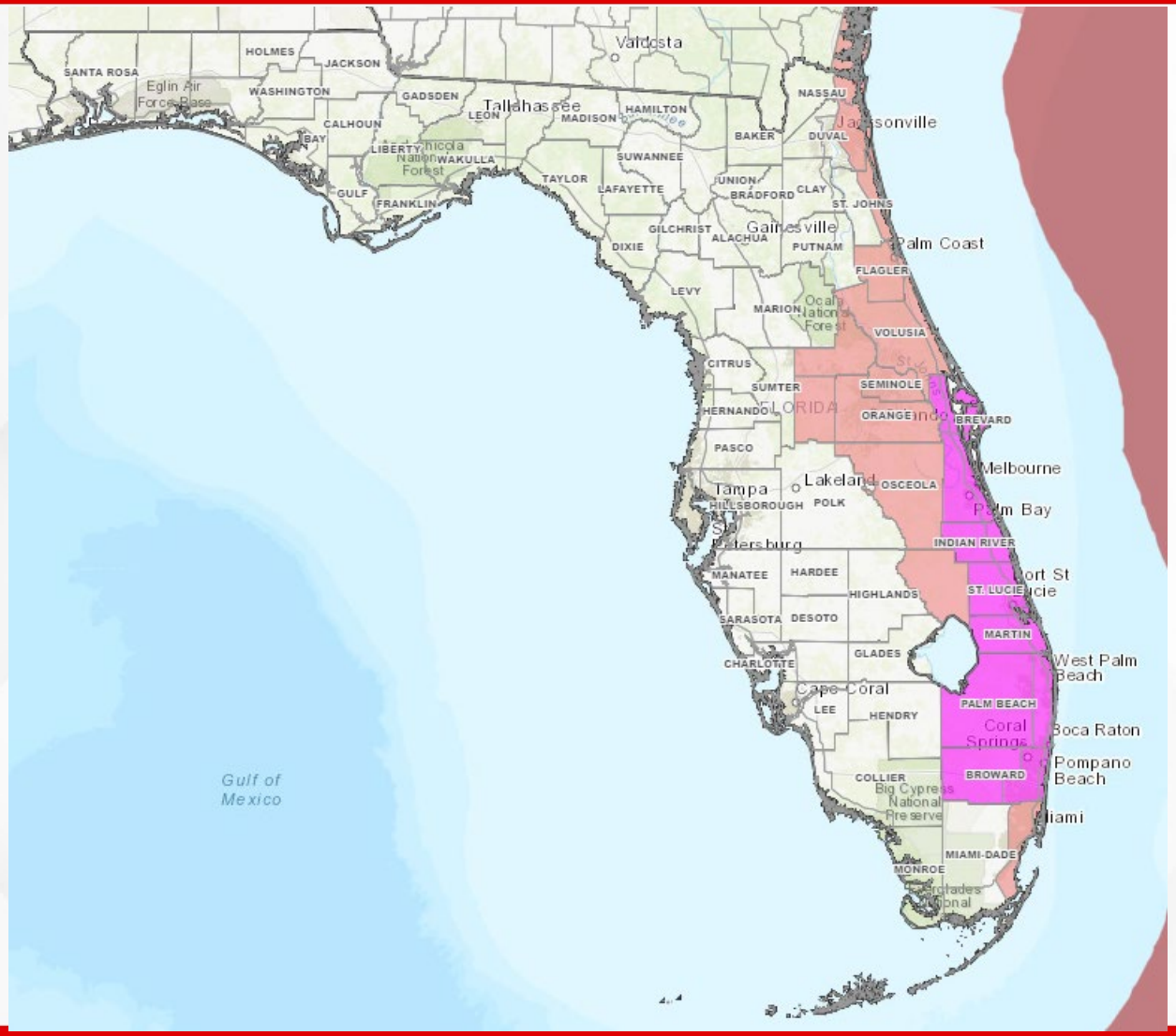
Tropical Storm




Subtropical Storm



# Active Tropical Watches/Warnings




- Hurricane Watch
  - Counties: Broward, Palm Beach, Martin, St. Lucie, Indian River, Brevard
- Tropical Storm Watch
  - Counties: Coastal Miami-Dade, Okeechobee, Osceola, Orange, Seminole, Lake, Volusia, Flagler, coastal St. Johns, coastal Duval, coastal Nassau

**WATCH**

Tropical storm and/or hurricane conditions are POSSIBLE in the "watch area"

Issued up to 48 hours in advance of the onset of tropical storm force winds

**WARNING**

Tropical storm and/or hurricane conditions are EXPECTED in the "warning area"

Issued up to 36 hours in advance of the onset of tropical storm force winds

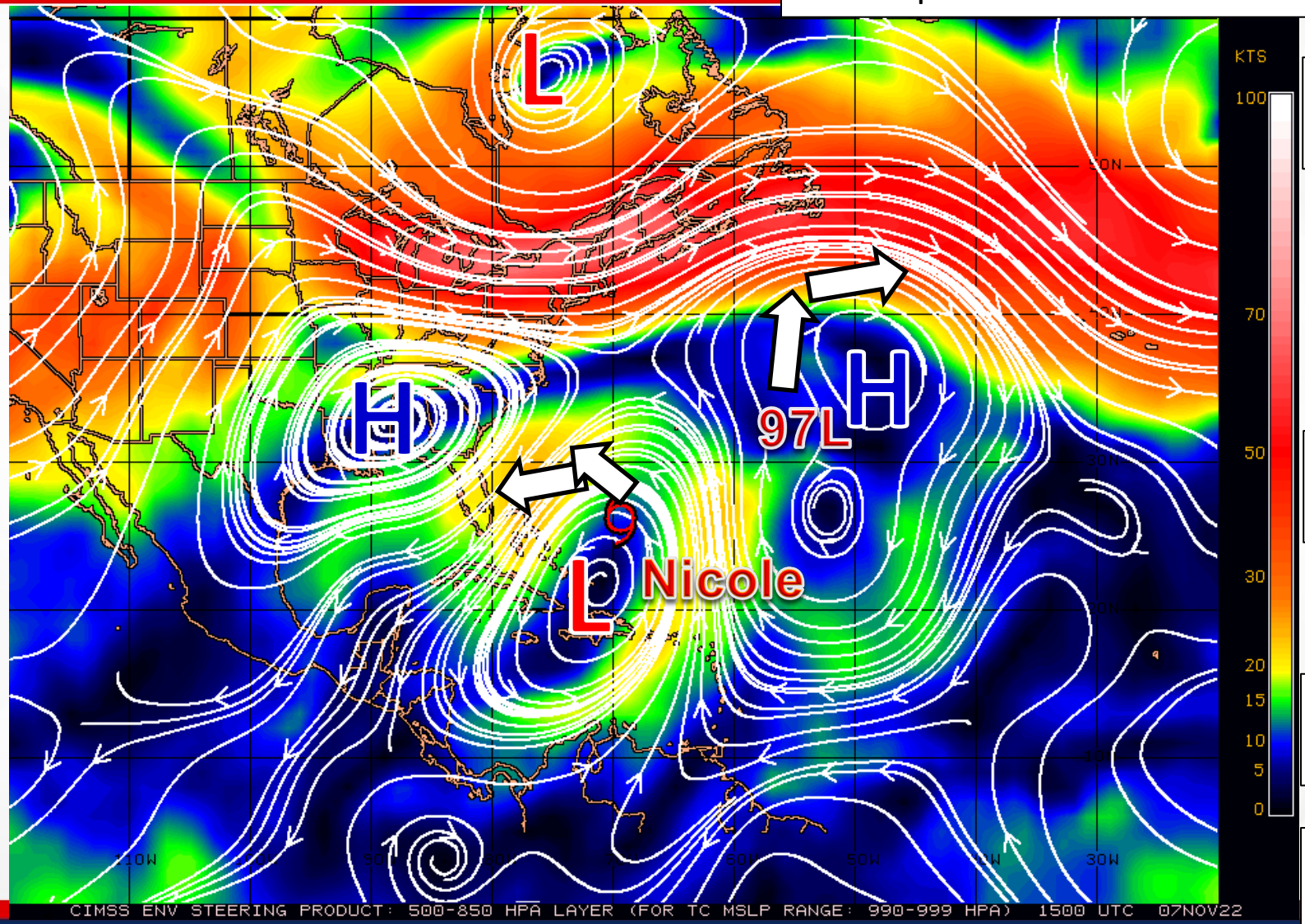
# Steering Currents

## What is Moving the System?

Color denotes the movement speed through the atmosphere and thin white lines denote direction. Tightly clustered white lines represent faster movement as well.

Invest 97L will track north and then northeast around high pressure in the central Atlantic.

Nicole will be steered between low pressure to its south and high pressure to its north, resulting in the westward turn towards Florida.




Fast Moving Storm

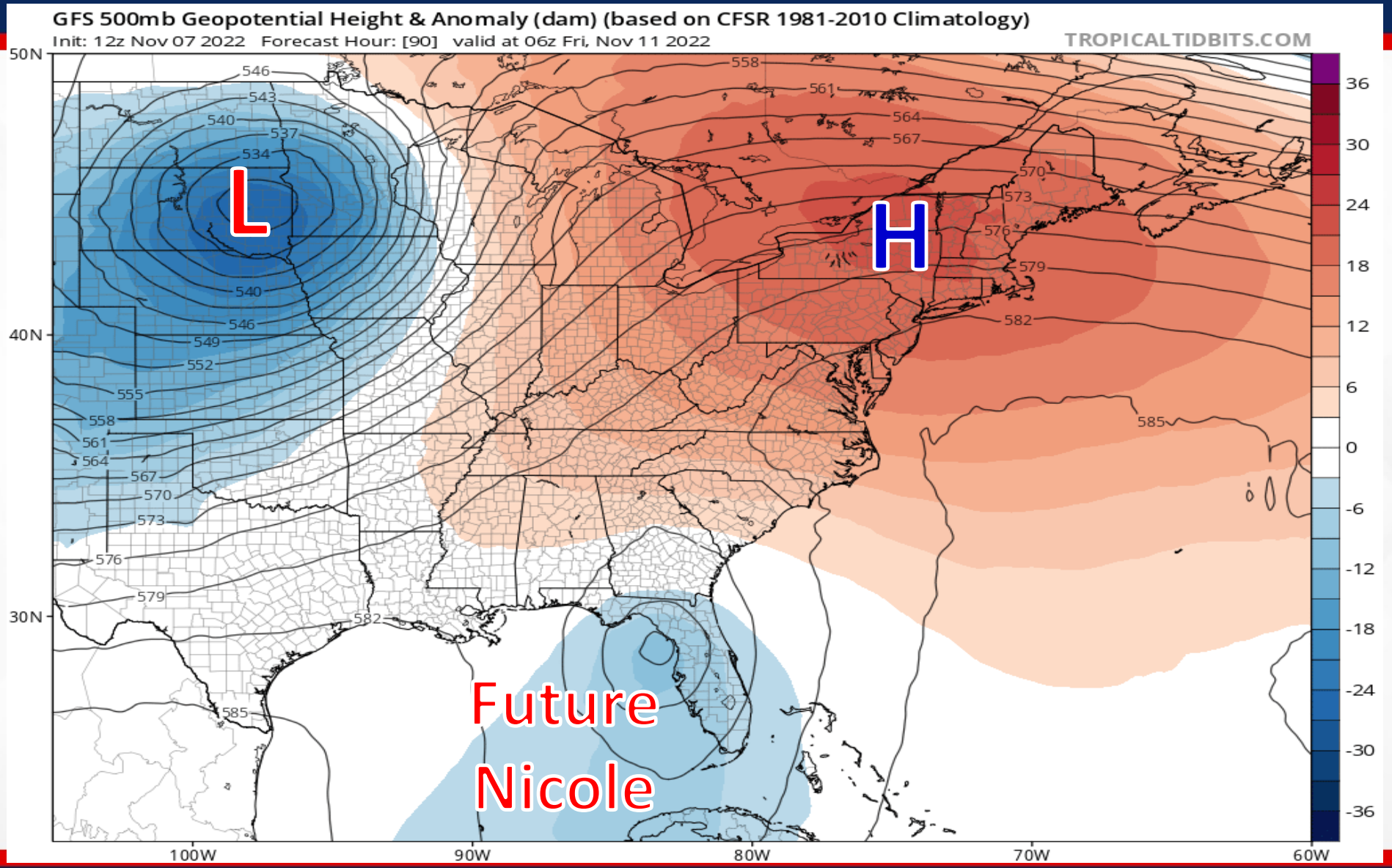
Fast Moving Storm

Typical Moving Storm

Slow Moving Storm

# Forecast Steering Currents - Friday

- An approaching strong cold front will induce a sharp northeast turn on Friday

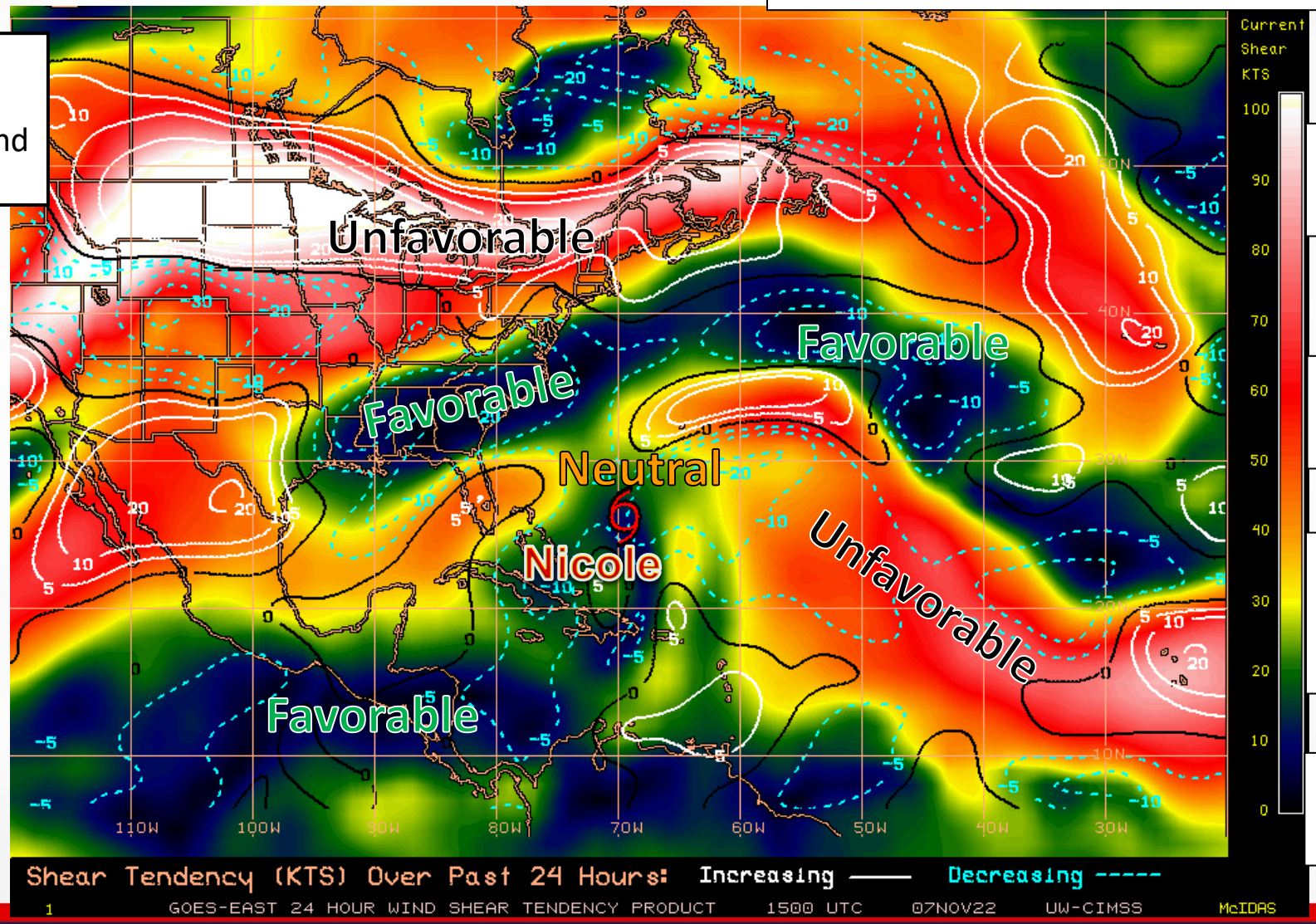


# Wind Shear

## Is the environment favorable for the system?

Color denotes the amount of wind shear and the lines denote how it have changed over the last 24 hours (dotted lines show decreasing shear and solid lines show increasing.

Nicole and Invest 97L are within a somewhat favorable environment, characterized by low to moderate wind shear.




HIGH Shear (Unfavorable)

HIGH Shear (Unfavorable)

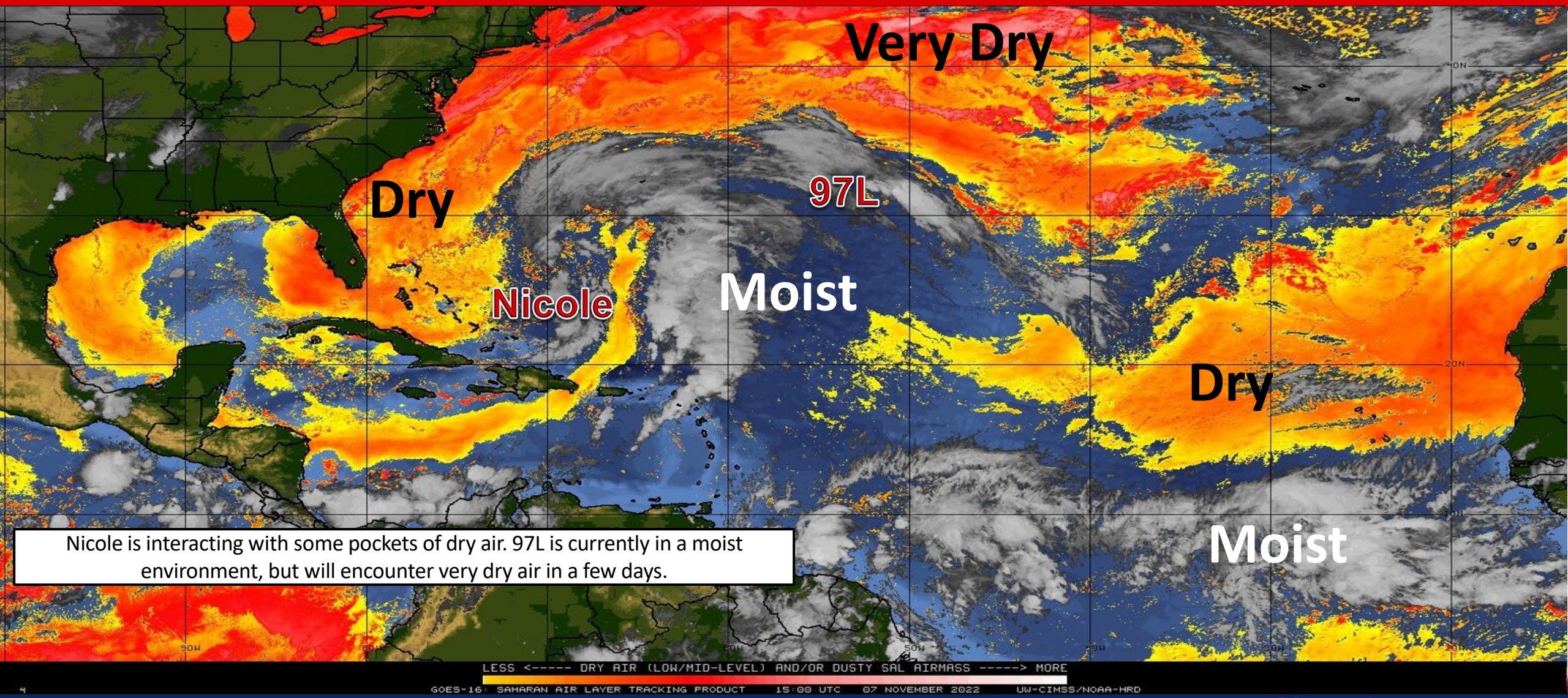
MODERATE Shear (Neutral)

LOW Shear (Favorable)

# Dry Air & Saharan Dust

## Is the environment favorable for the system?

Color denotes concentration of Saharan Dust or dry, stable air.

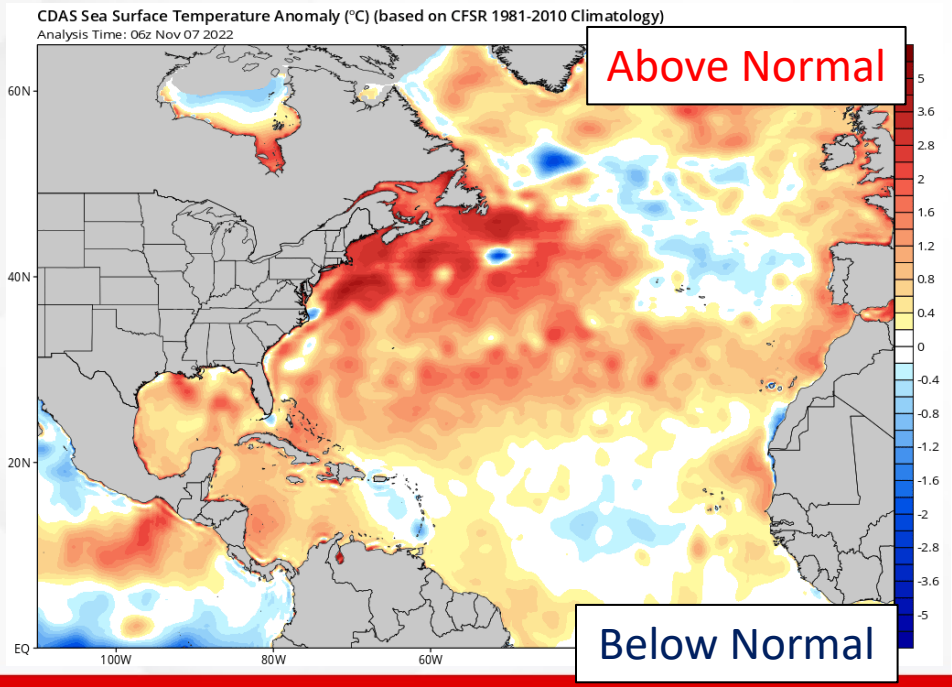


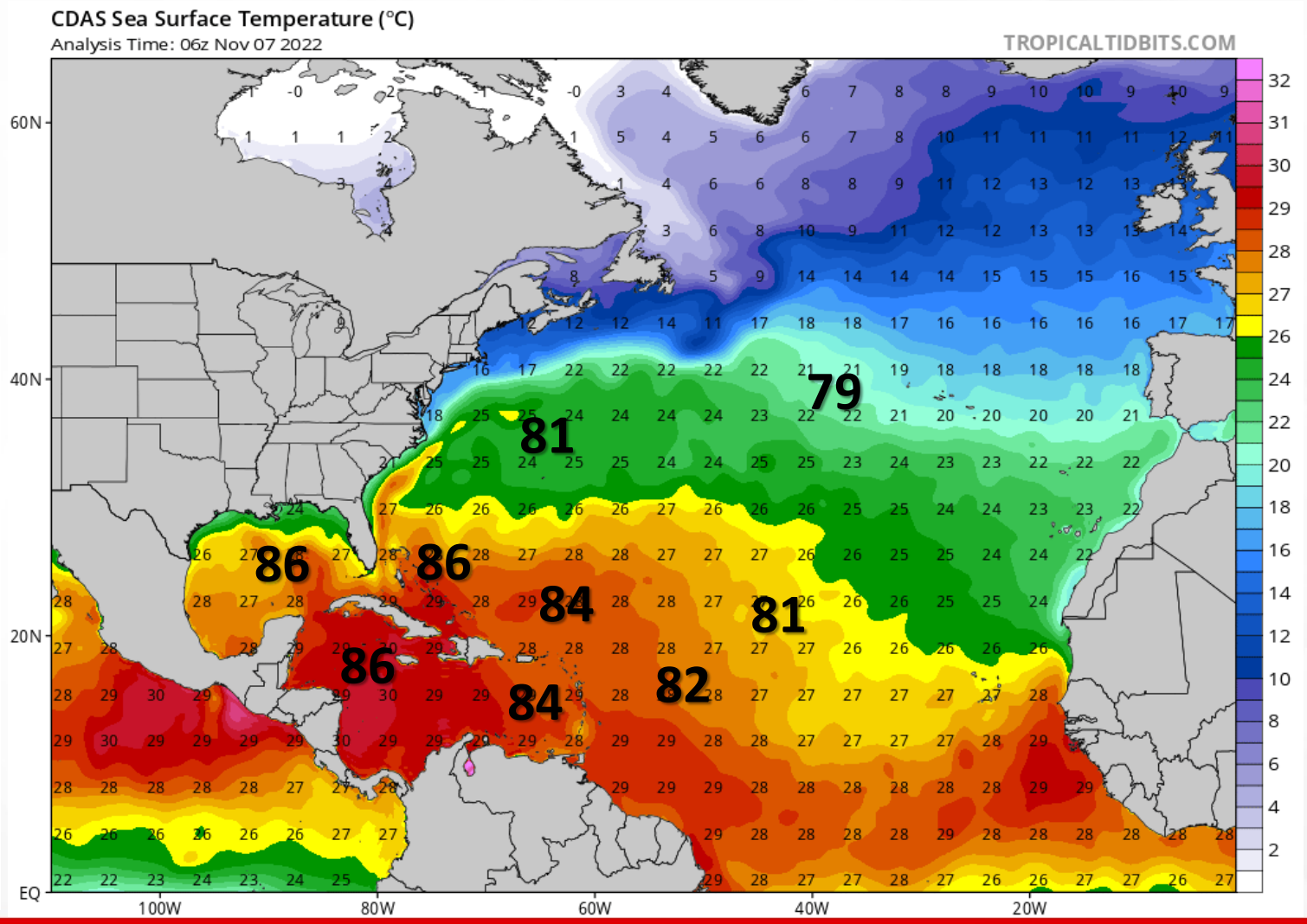

Nicole is interacting with some pockets of dry air. 97L is currently in a moist environment, but will encounter very dry air in a few days.

# Sea Surface Temperatures & Anomalies

## Is the ocean favorable for the system?

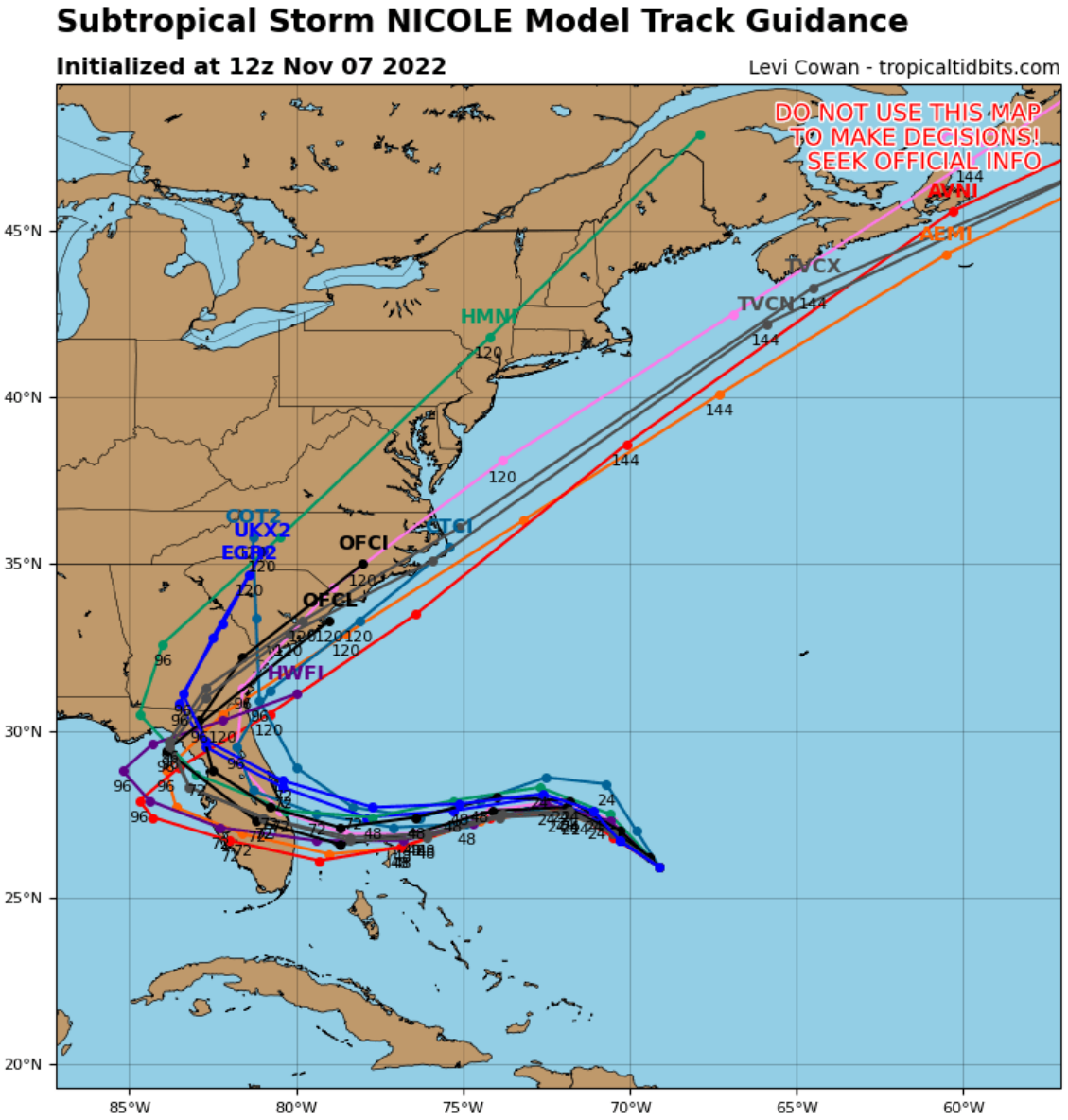
Water temperatures are warm enough to support tropical development across the tropical Atlantic. Water temperatures are running above normal over the Gulf of Mexico, Caribbean Sea and western Atlantic Ocean.



# Model Forecasts – Next 5 Days

## Subtropical Storm Nicole

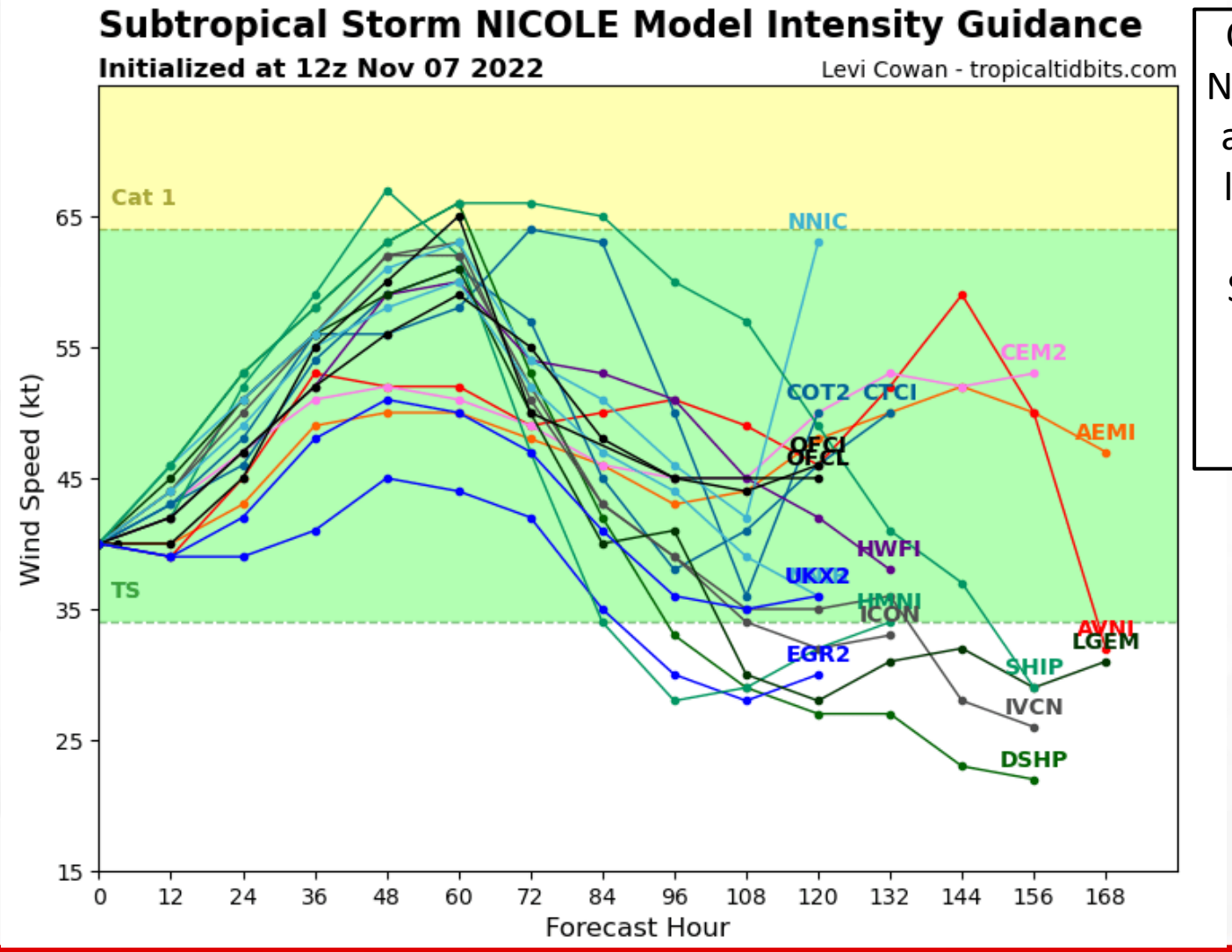



Computer models are in good agreement on a track towards the Florida East Coast and landfall on Wednesday night or Thursday, but still in some disagreement on how far west Nicole will travel before being pulled quickly northeast across the northern Peninsula or eastern Florida Big Bend.

**It is important to note that these model tracks do not depict intensity nor the envelope of impacts. Nicole is a large storm and impacts are likely to be felt across the majority of the Peninsula and eastern Big Bend.**

# Model Forecast Intensity

## Tropical Storm Ian

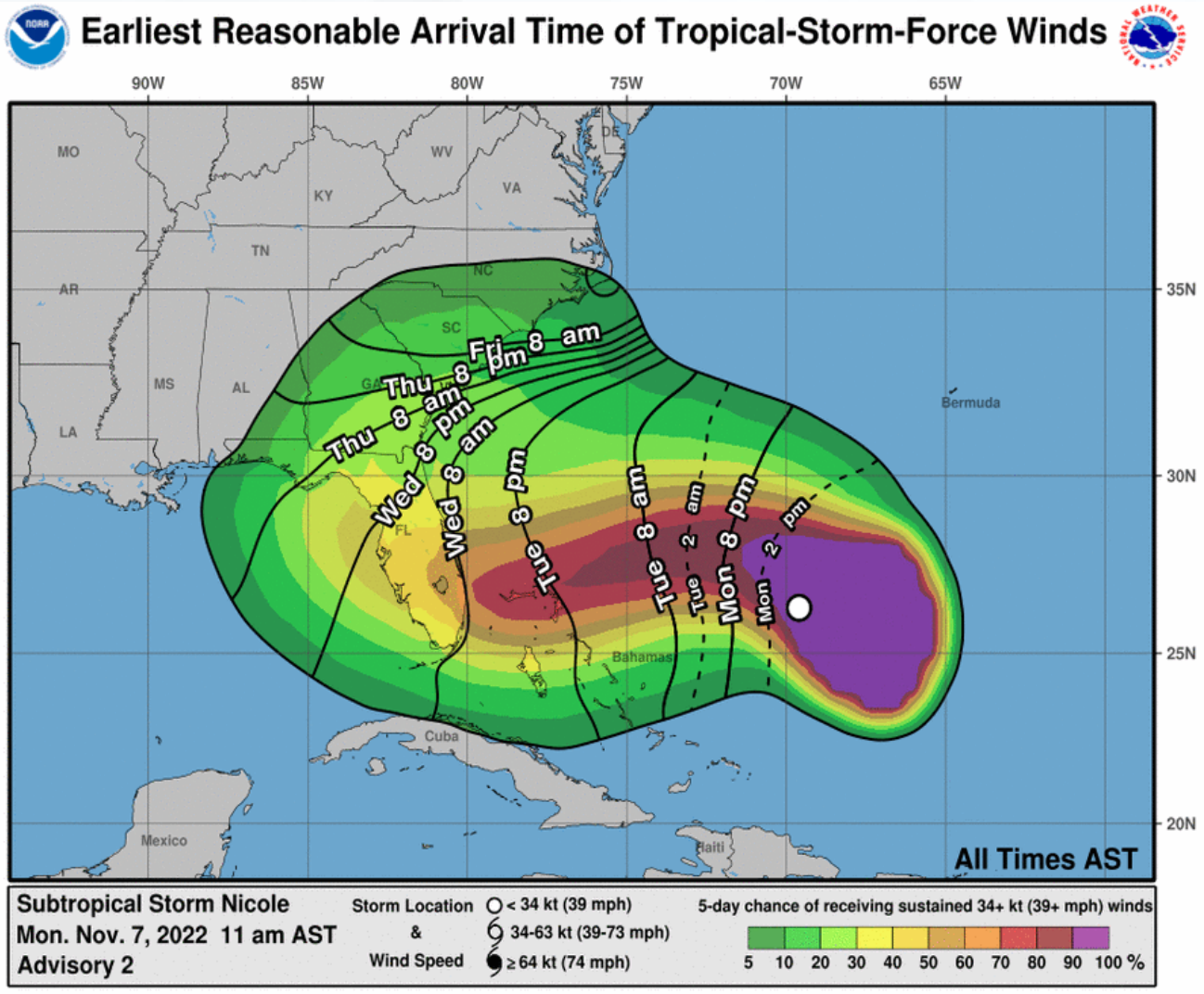



Continued strengthening and organization is forecast for Nicole given the favorable environment. Computer models are in decent agreement that Nicole will strengthen to at least a strong tropical storm or hurricane before landfall.

Some small strengthening is possible if the center of the storm emerges over the eastern Gulf of Mexico, but increasing wind shear should mitigate significant intensification.

# Tropical Storm-Force Wind Probabilities

## Subtropical Storm Nicole




Jacksonville – 26%
Orlando – 41%
Cocoa Beach – 53%
Ft. Pierce – 62%
West Palm Beach – 66%
Miami – 41%
Key West – 16%
Ft. Myers – 38%
Tampa – 46%
Cedar Key – 40%
Tallahassee – 23%
Apalachicola – 29%

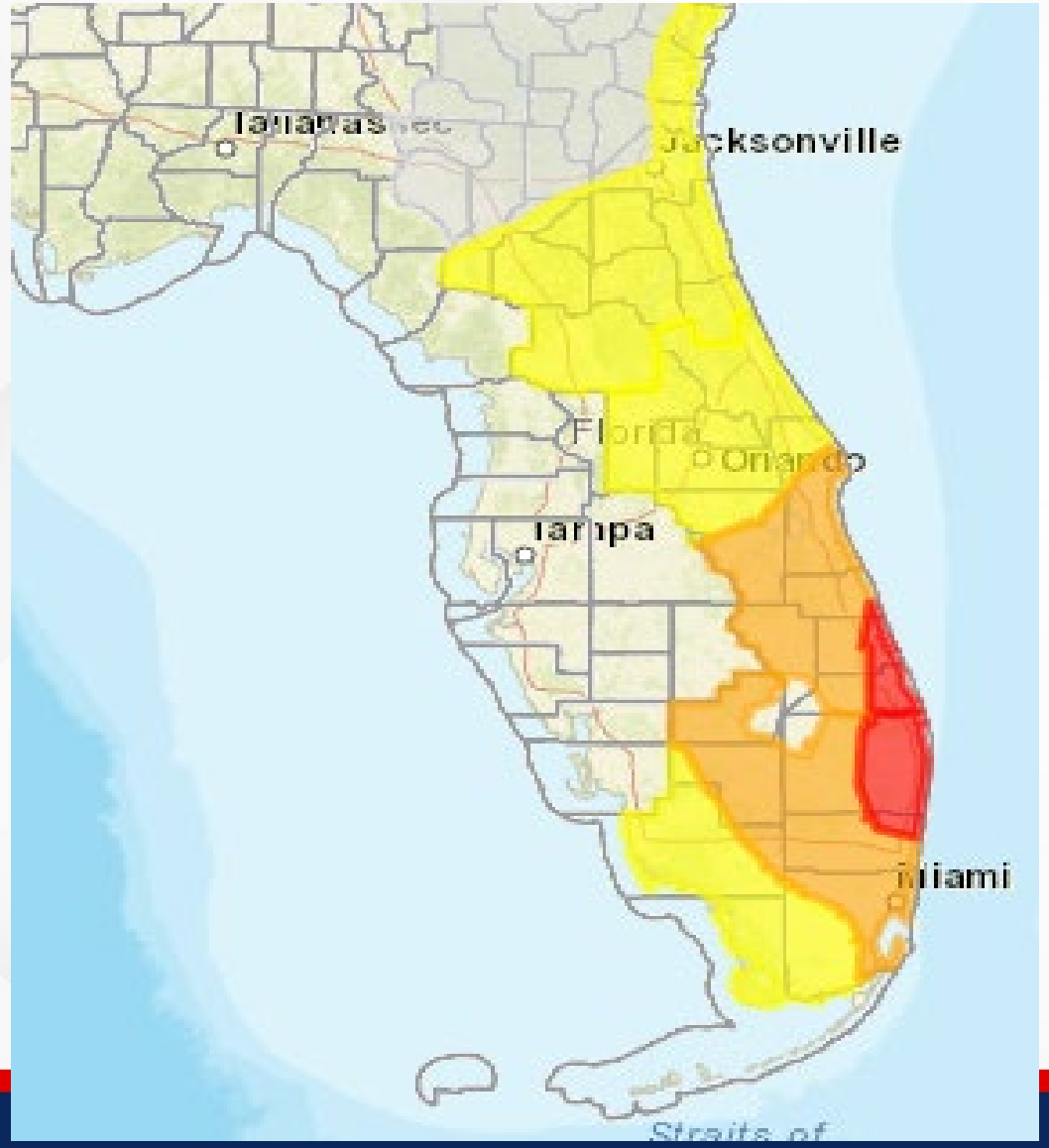
***Numbers in parenthesis show the change in probability since the last briefing packet.***

**Note: A reduction in percentages does not necessarily mean a lower threat. These probabilities are dependent on the track, wind radii and intensity and may fluctuate up and down.**

Tropical storm-force winds may begin as early as late Wednesday morning along the Florida East Coast and could spread through the remainder of the Peninsula during the day. Tropical storm conditions could arrive in the Florida Big Bend overnight Wednesday.

# Damaging Wind Threat Overview

## Subtropical Storm Nicole




The greatest wind threat is mainly along the Treasure Coast and Southeast Florida.

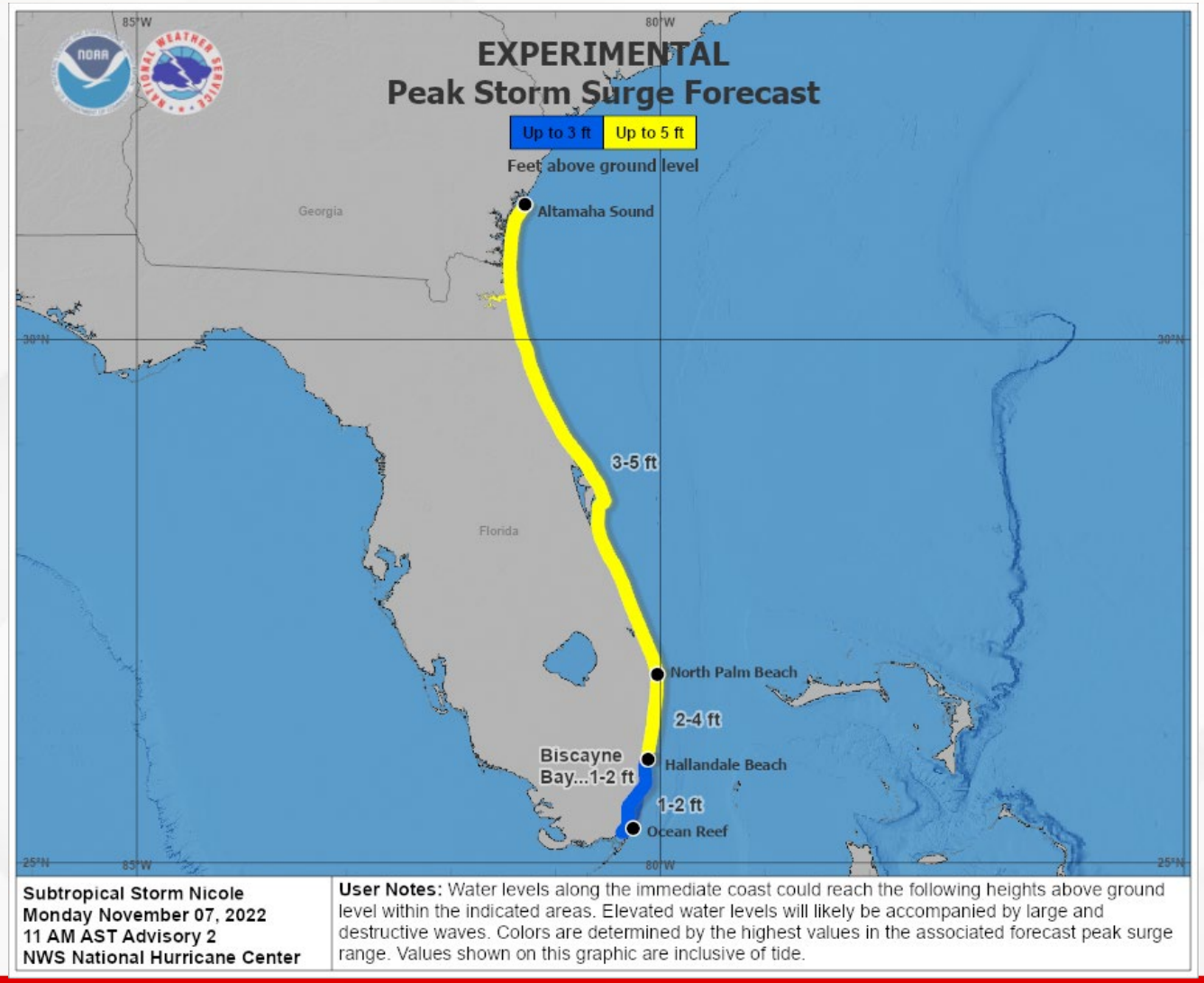
https://www.weather.gov/srh/tropical?office=mfl

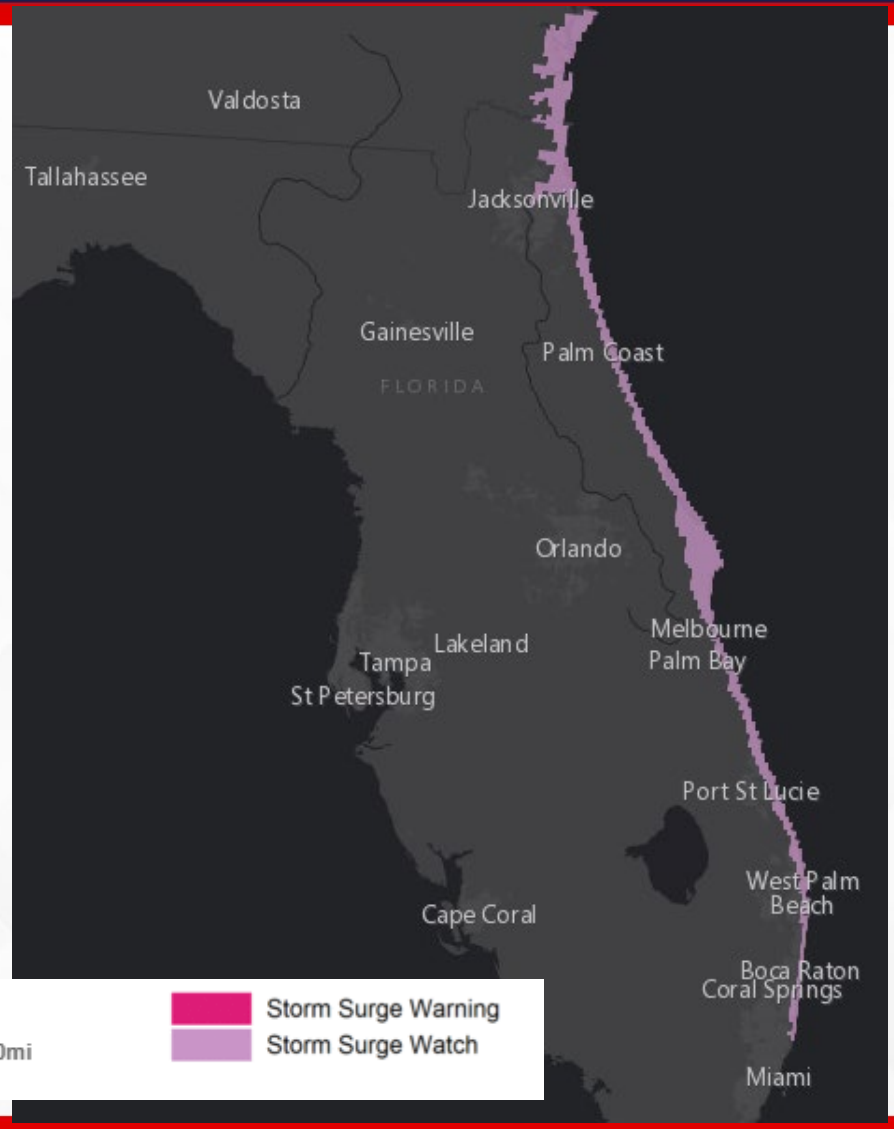
Click on “Threats and Impacts” Tab

| Wind Threat |
| --- |
| Potential for wind greater than 110 mph |
| Potential for wind 74 to 110 mph |
| Potential for wind 58 to 73 mph |
| Potential for wind 39 to 57 mph |
| Wind less than 39 mph |

# Surge Watches and Warnings

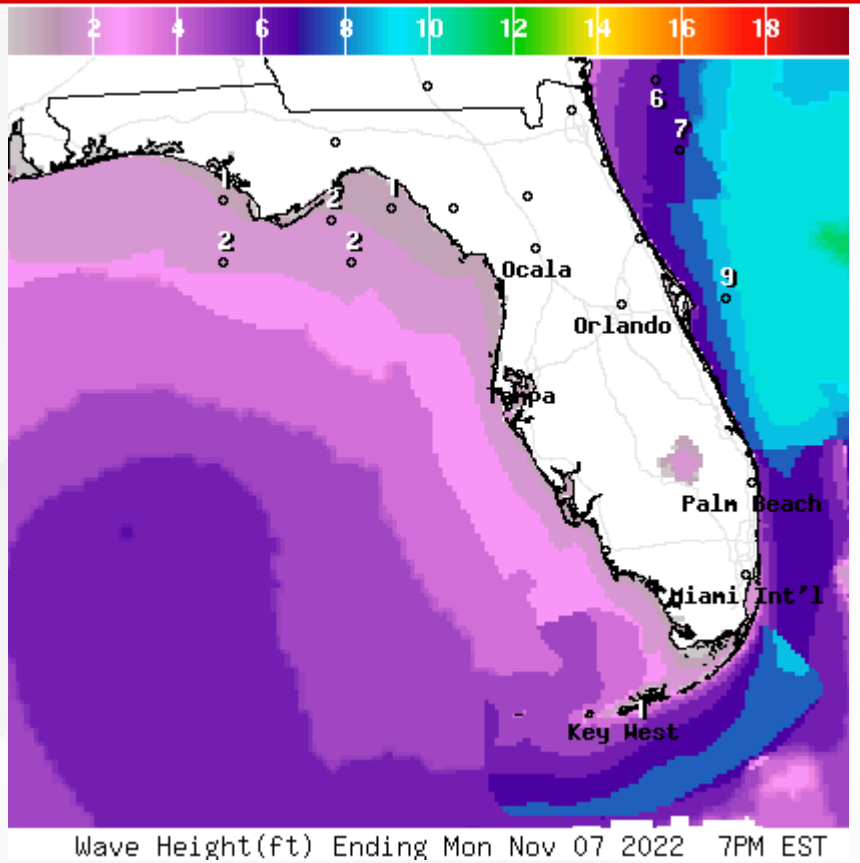
## In Effect Until Further Notice



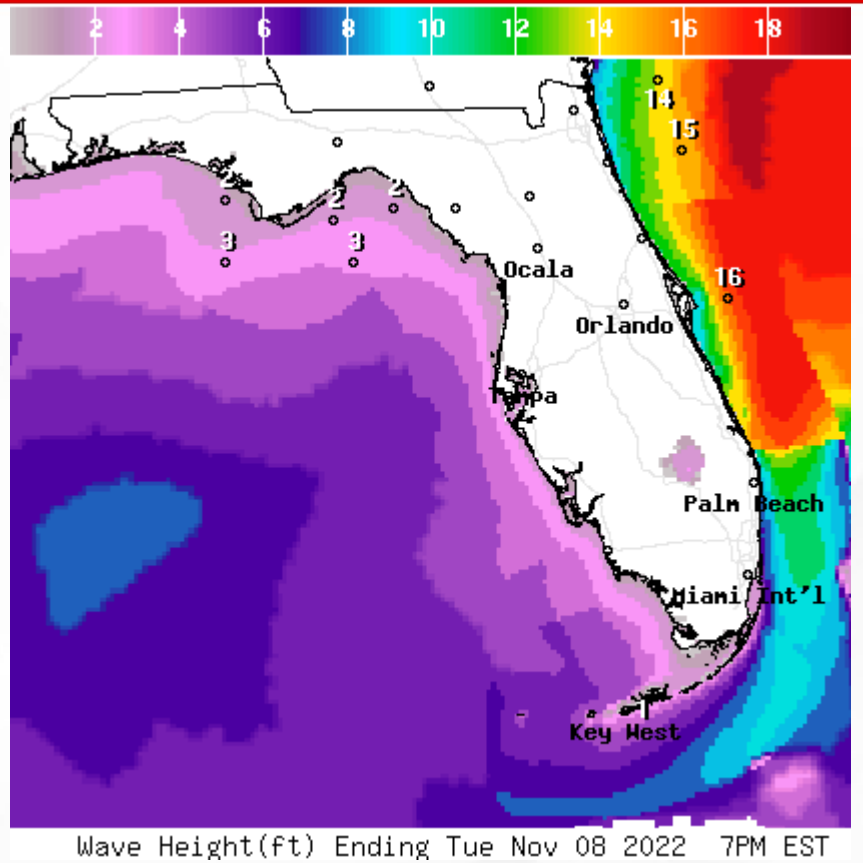



# Wave Heights & Ocean Swells

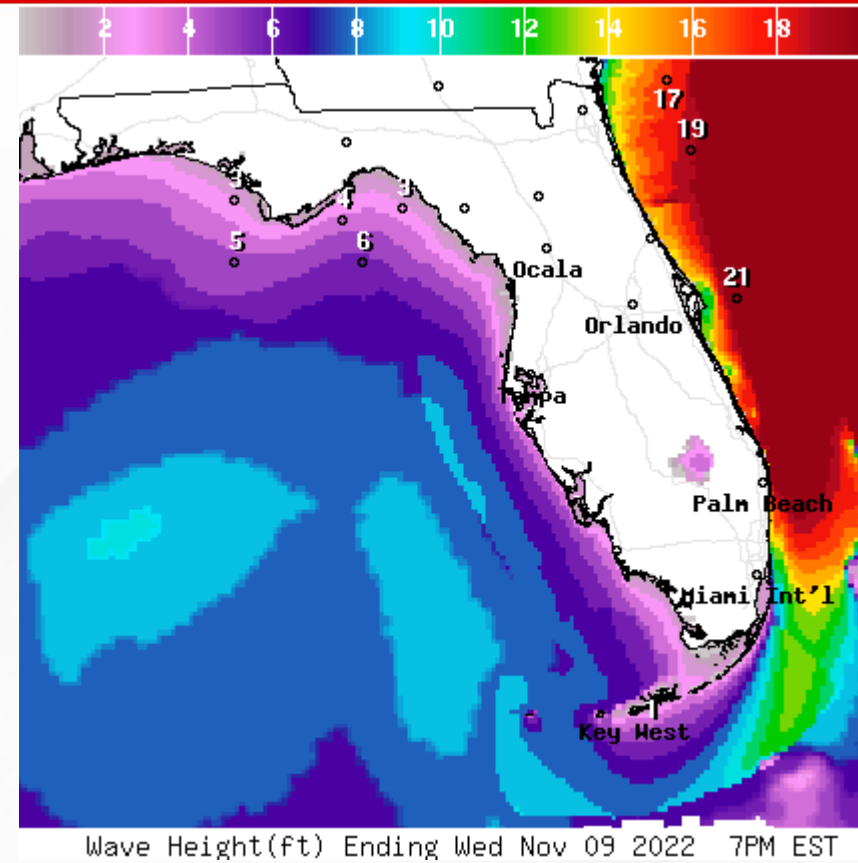
## Monday, Tuesday, & Wednesday




Wave Height(ft) Ending Mon Nov 07 2022 7PM EST




Wave Height(ft) Ending Tue Nov 08 2022 7PM EST

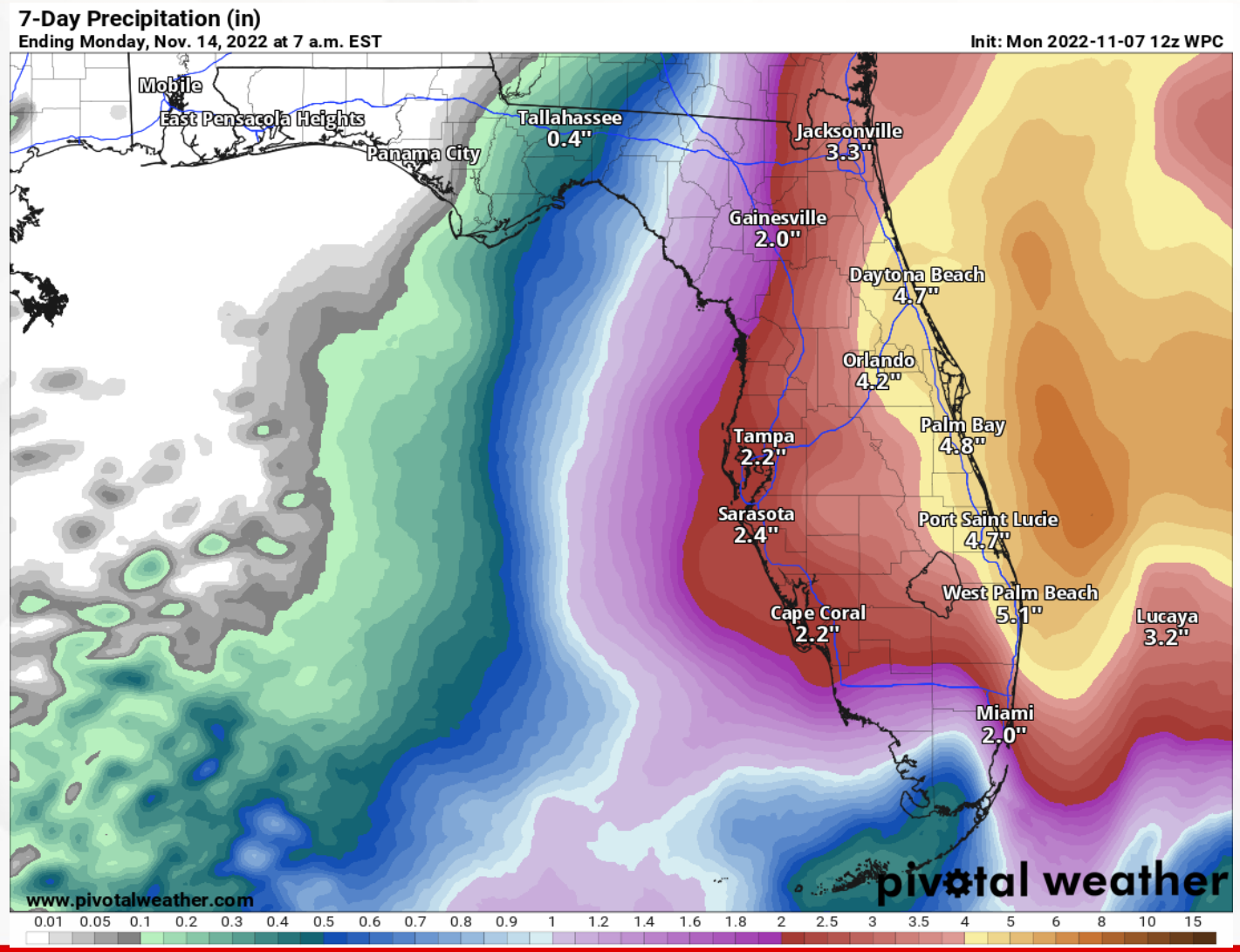



Wave Height(ft) Ending Wed Nov 09 2022 7PM EST

An ocean swell along the east coast will continue to grow throughout the week, resulting in an increase in wave heights. Breaking waves up to 8' are possible Monday, increasing to 8-14' Tuesday and 10-18' Wednesday. This may result in moderate to severe coastal erosion at times of high tide and a high risk of rip currents.

# 7-Day Forecast Rainfall

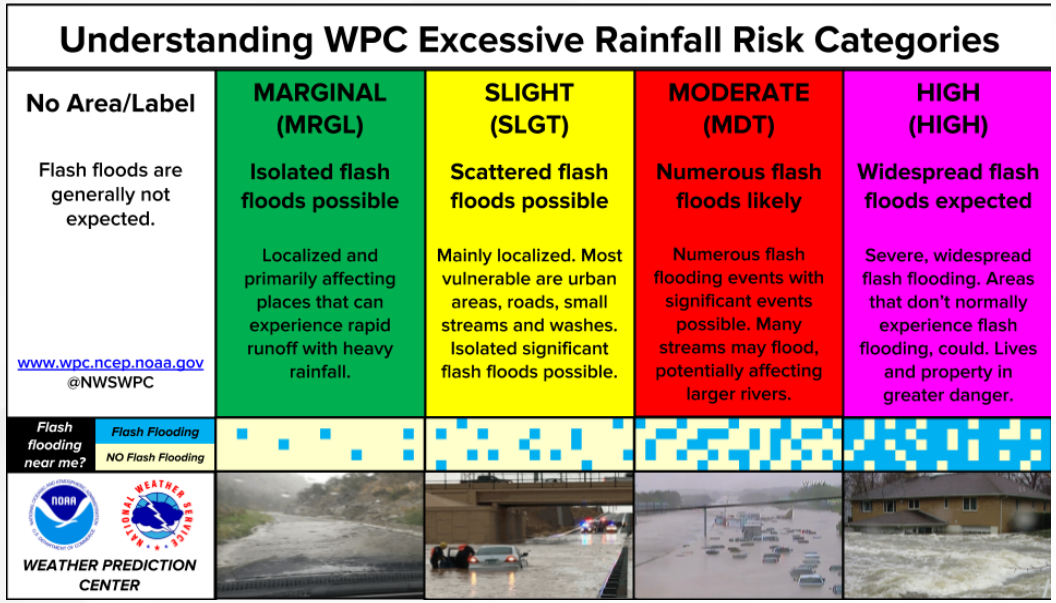
## From the Weather Prediction Center



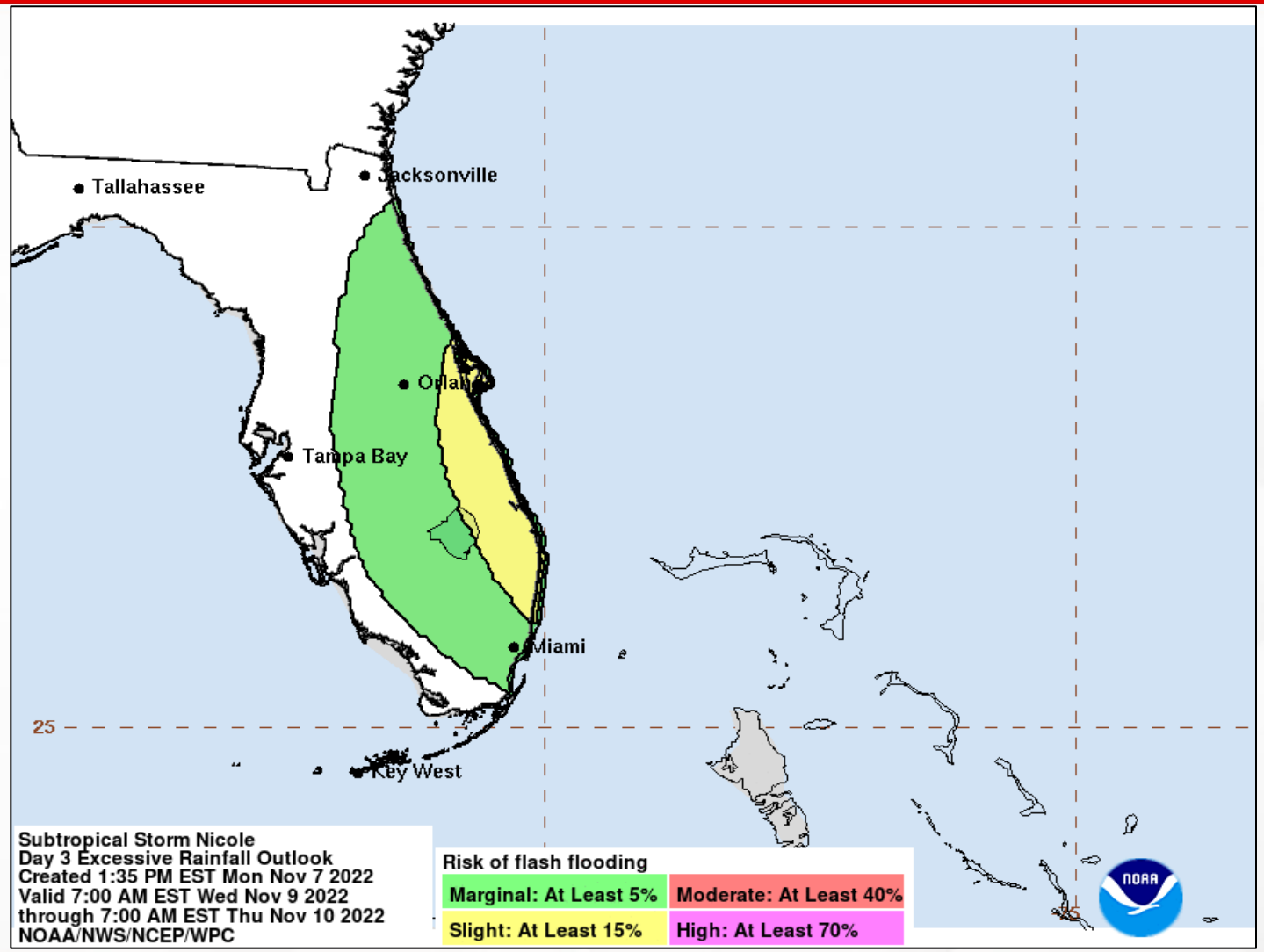

While it is still too early to determine <u>where</u> the heaviest rainfall totals will occur, widespread rainfall totals of 4-6” are possible along portions of the East Coast. Rainfall totals of 2-4” are expected across the remainder of the Peninsula. Isolated higher totals are possible and these amounts could change depending on the forecast track, intensity and structure of the storm.

# Flash Flood Outlooks

## From the Weather Prediction Center

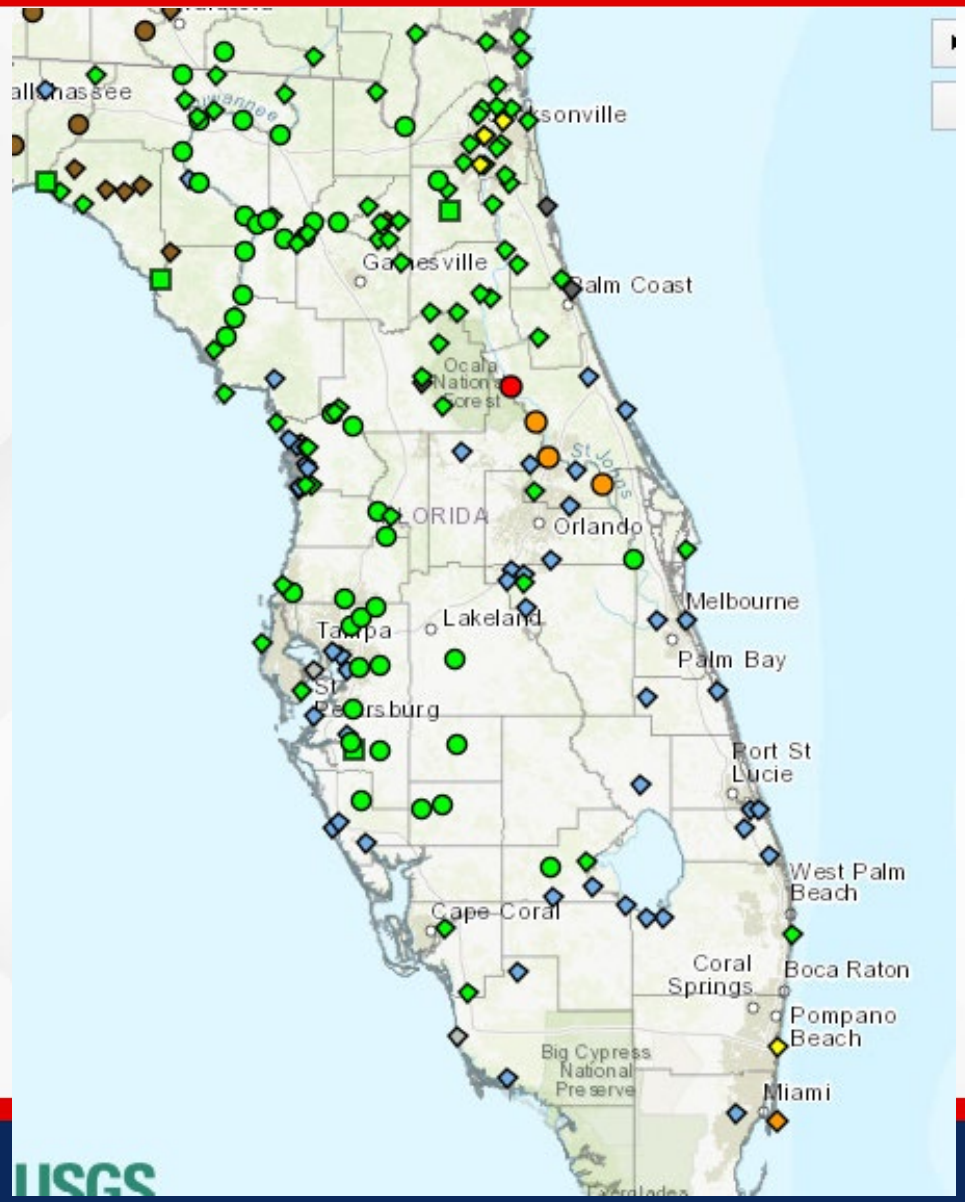


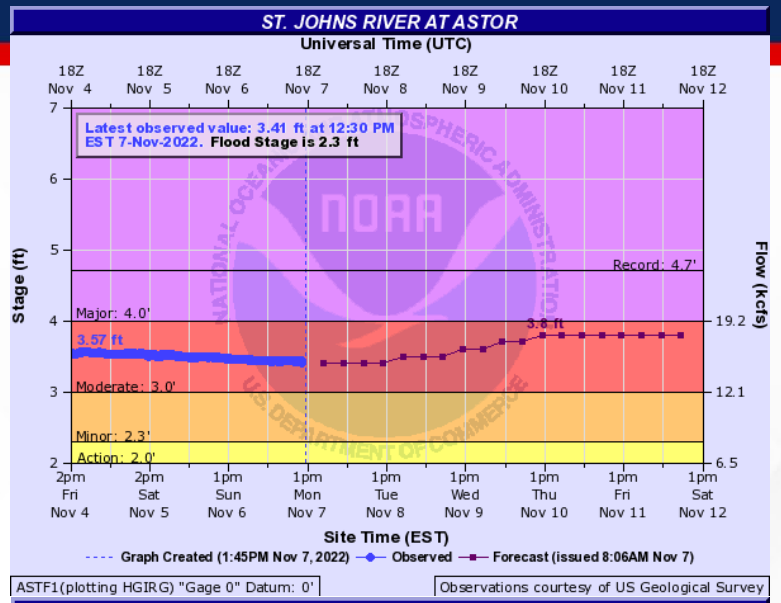

Forecast rain amounts could lead to a slight chance of flash flooding, particularly across the Treasure Coast and Palm Beaches.

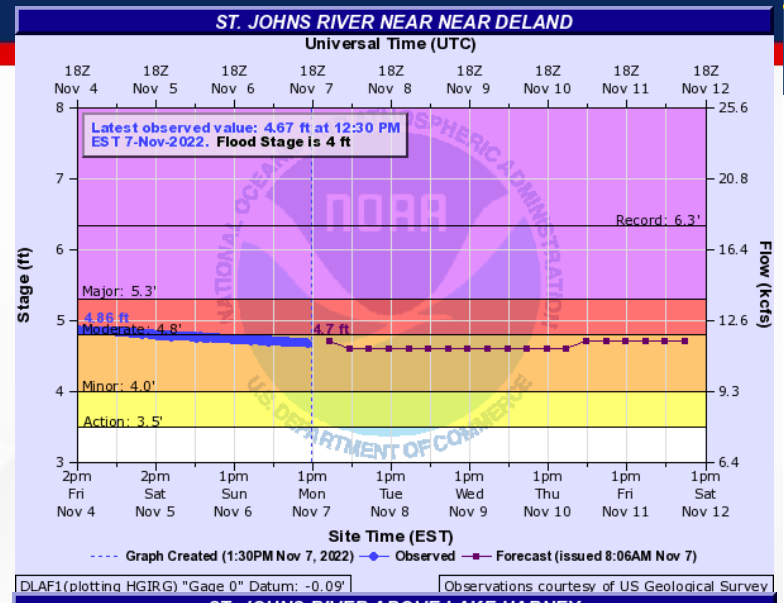


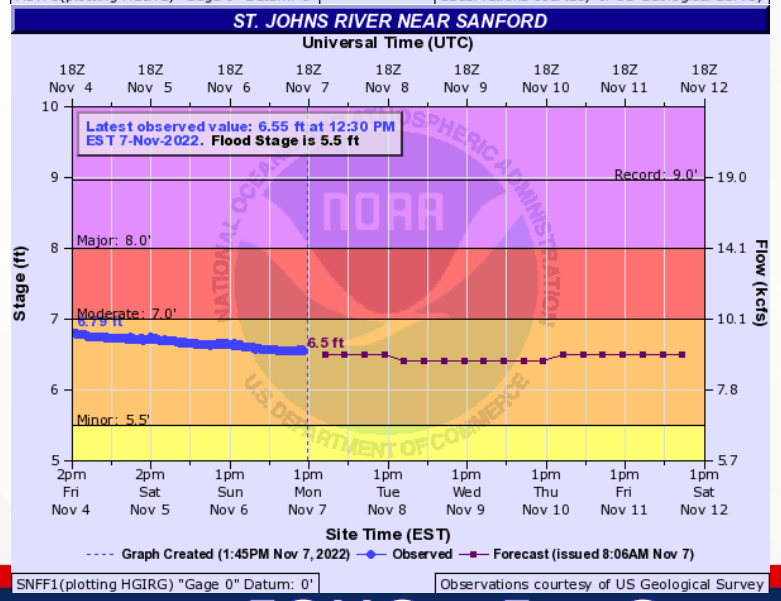
# Current River Status & Forecast Hydrographs

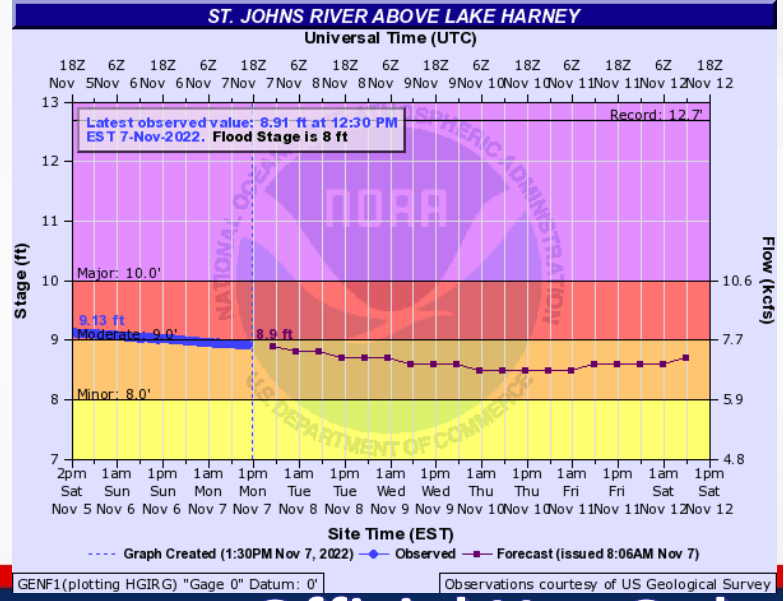
## As of Monday Morning

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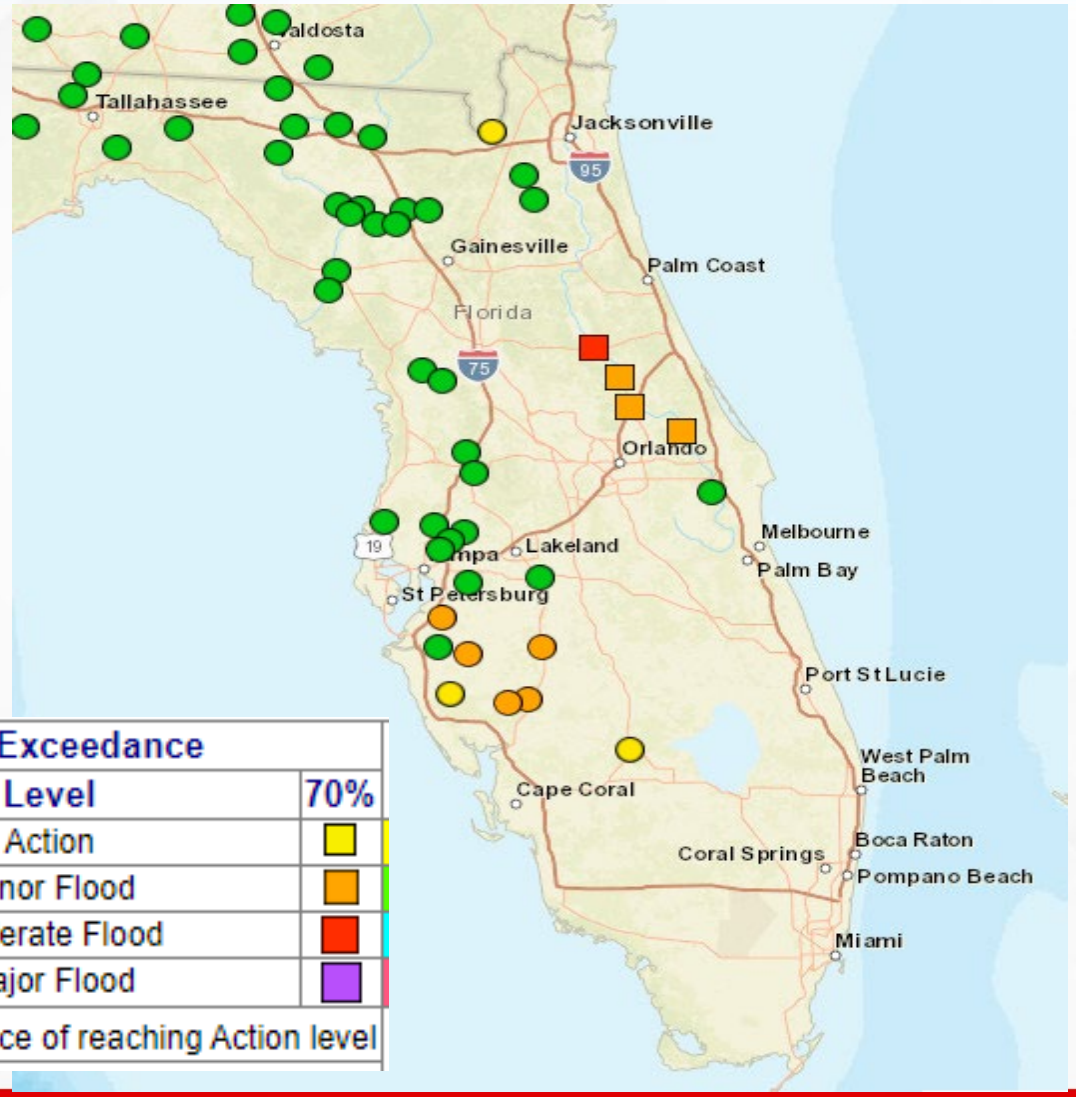
# Possible River Flooding

## Chance of River Flooding Based on Range of Forecast Rainfall




**Based on rainfall modelling, POSSIBLE river crest levels**

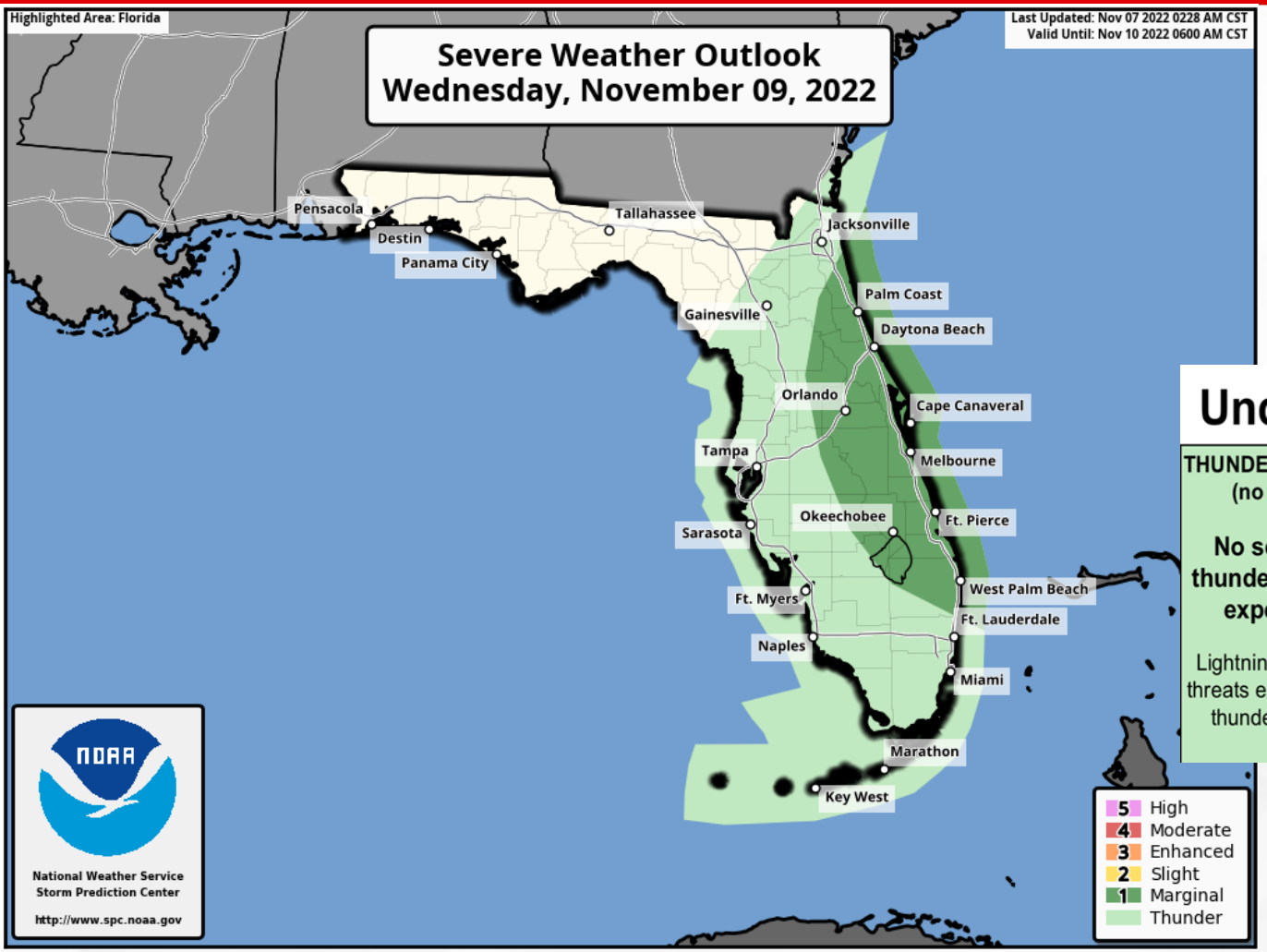
| Chance of Exceedance | | |
|---|---|---|
| 30% | Level | 70% |
| | Action | |
| | Minor Flood | |
| | Moderate Flood | |
| | Major Flood | |
| = less than 30% chance of reaching Action level | | |

There is the potential for some rises on Central Florida rivers.

https://www.weather.gov/erh/mmefs?Lat=32.49123028794759 4&Lon=-83.49609375&Zoom=6&Refresh=0&Model=NAEFS

# Severe Weather Outlooks

## From the Storm Prediction Center




Outer rain bands from Nicole will result in isolated tornadoes across the eastern Peninsula Wednesday. This risk could expand northwestward on Thursday.

### Understanding Severe Thunderstorm Risk Categories

| THUNDERSTORMS (no label) | 1 - MARGINAL (MRGL) | 2 - SLIGHT (SLGT) | 3 - ENHANCED (ENH) | 4 - MODERATE (MDT) | 5 - HIGH (HIGH) |
|---|---|---|---|---|---|
| **No severe* thunderstorms expected** | **Isolated severe thunderstorms possible** | **Scattered severe storms possible** | **Numerous severe storms possible** | **Widespread severe storms likely** | **Widespread severe storms expected** |
| Lightning/flooding threats exist with all thunderstorms | Limited in duration and/or coverage and/or intensity | Short-lived and/or not widespread, isolated intense storms possible | More persistent and/or widespread, a few intense | Long-lived, widespread and intense | Long-lived, very widespread and particularly intense |

# Key Messages
## From the National Hurricane Center

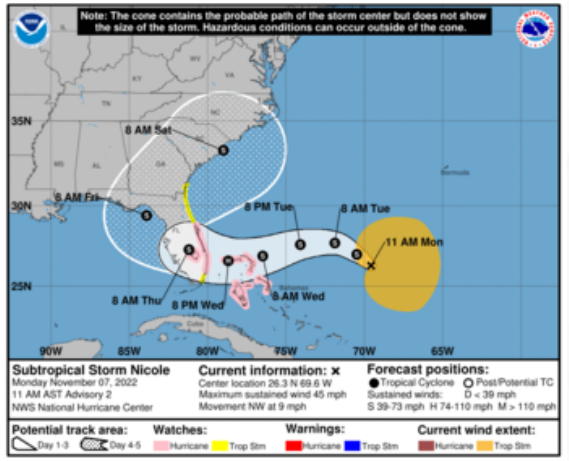
### Key Messages for Subtropical Storm Nicole
**Advisory 2: 11:00 AM AST Mon Nov 07, 2022**

1. Hurricane conditions are possible across portions of the northwestern Bahamas and southeast to east-central Florida beginning Wednesday, where a Hurricane Watch has been issued. Tropical storm conditions are possible in the Tropical Storm Watch areas in Florida and Georgia beginning Wednesday.

2. A dangerous storm surge is possible across portions of the northwestern Bahamas, much of the east coast of Florida and portions of coastal Georgia. A Storm Surge Watch has been issued for most of the east coast of Florida and portions of coastal Georgia.

3. Do not focus on the exact track of Nicole since it is expected to be a large storm with hazards extending well to the north of the center, and outside of the cone, and affect much of the Florida peninsula and portions of the southeast U.S.

4. Nicole will produce heavy rainfall by Wednesday night and Thursday across the Florida Peninsula. Flash and urban flooding will be possible across portions of the Florida Peninsula along with river rises on portions of the St. Johns River.

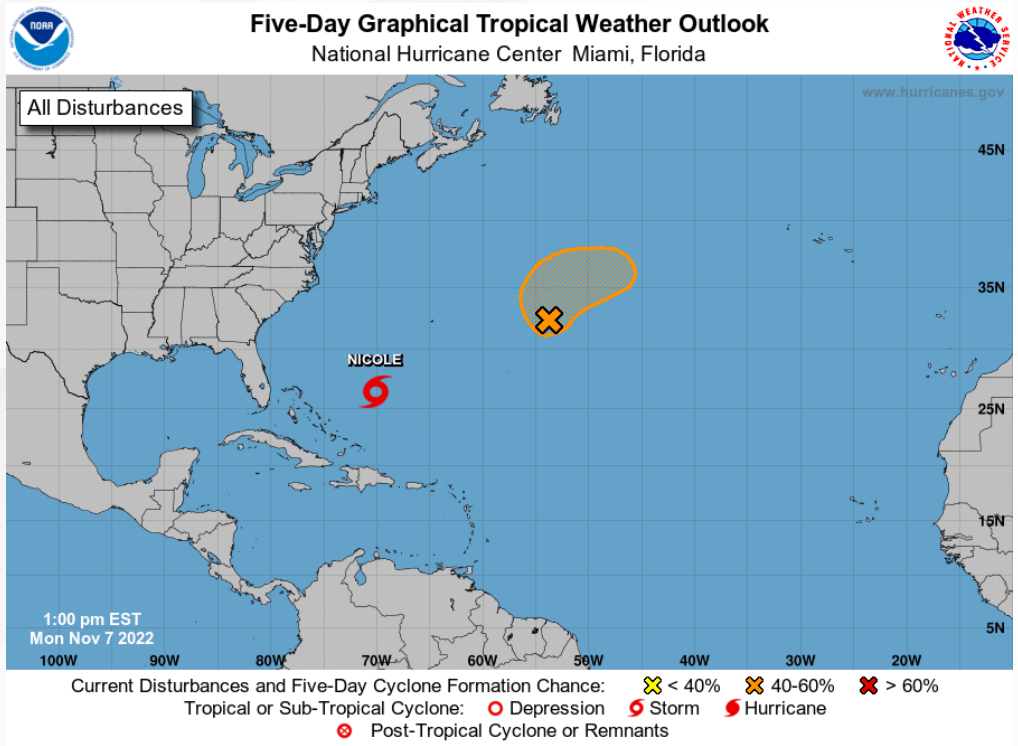


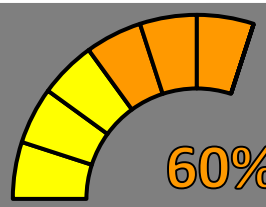


**For more information go to hurricanes.gov**

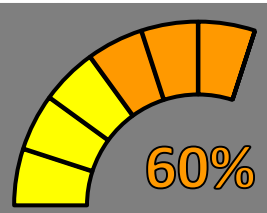
# Tropical Weather Outlook

## Invest 97L-Central Subtropical Low (LINK)




48 Hour Formation




5 Day Formation

A well-defined area of low pressure located about 650 miles east of Bermuda continues to produce gale-force winds, but the associated shower and thunderstorm activity remains displaced to the east of the low's center due to strong upper-level winds. These conditions are expected to remain unfavorable for development through tonight, but upper-level winds could briefly become more favorable on Tuesday, and a short-lived tropical storm could still form as the system begins to move northward and then northeastward at about 10 mph. The low is then forecast to merge with a cold front by the middle part of this week, ending the chances of tropical development. *This system poses no threat to Florida.*

# Summary

**Invest 97L (Central Subtropical Low):**

- A well-defined area of low pressure located 650 miles east of Bermuda is producing showers and thunderstorms displaced east of its center.
- If shower activity continues and develops closer to the center, a tropical storm could form over the next few days.
- By mid-week, the system is forecast to merge with a strong cold front.

**Subtropical Storm Nicole:**

- Invest 98L was upgraded to Subtropical Storm Nicole at 4am EST Monday.
- Nicole is located 615 miles east of West Palm Beach, Florida, and moving northwest near 9mph.
- A turn toward the west or west-southwest is forecast to begin by Tuesday night and that motion should continue through early Thursday. On the forecast track, the center of Nicole will move over the northwestern Bahamas on Wednesday and approach the east coast of Florida Wednesday night.
- Maximum sustained winds are near 45 mph with higher gusts. Gradual strengthening is forecast during the next few days, and Nicole is forecast to be at or near hurricane intensity by Wednesday or Wednesday night while it is moving near or over the northwestern Bahamas and approaching Florida. Gradual weakening is expected after landfall.

**Florida Outlook:**

- Nicole poses a risk for significant coastal flooding, strong winds, storm surge, heavy rain and isolated tornadoes along much of the Florida east coast.
- Due to the large wind field of Nicole, strong wind gusts may be felt across the entire Florida Peninsula and Florida Big Bend.
- Elevated tides, ocean swells, and strong winds will push water upstream through the St. Johns, leading to coastal flooding along the river.
- Deteriorating beach conditions can be expected across the east coast as a result of elevated tides and wave heights of 6-14’.
- A Hurricane Watch has been issued for 6 Florida East Coast counties, with Tropical Storm Watches in effect for 11 additional eastern Peninsula counties. Tropical Storm and Hurricane conditions could begin on Wednesday.
- A Storm Surge Watch in effect for the entire Florid East Coast north of Hallandale Beach where peak surge values of 3-5’ are possible.

# Tropical Update

**FOUO – For Government Official Use Only**


Created by:

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State Meteorological Support Unit

Florida Division of Emergency Management


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