



Tropical Update



11:30 AM EDT

Thursday, September 22, 2022

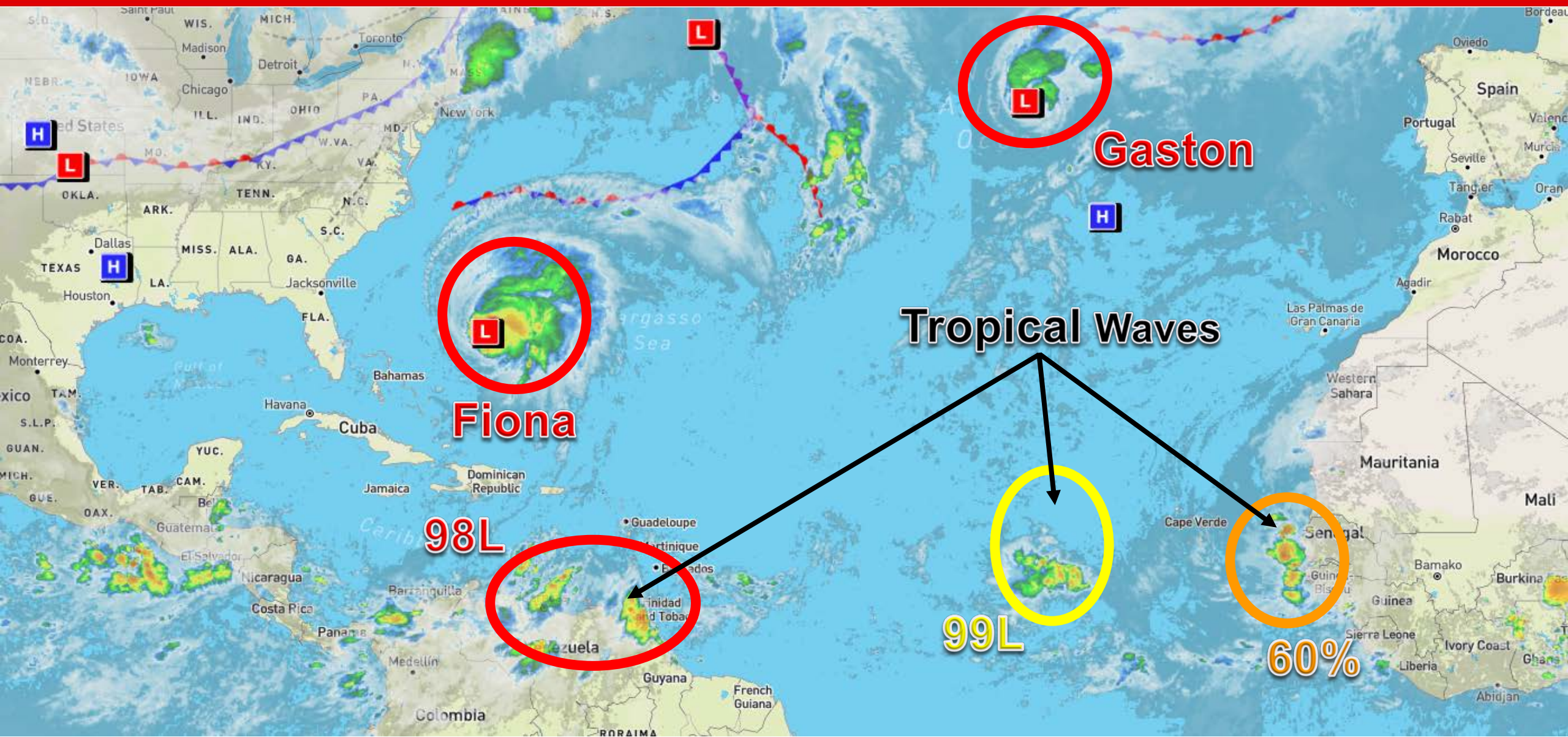
Major Hurricane Fiona, Tropical Storm Gaston, Invest 98L (90%), Western Africa Tropical Wave (60%), & Invest 99L (30%)

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

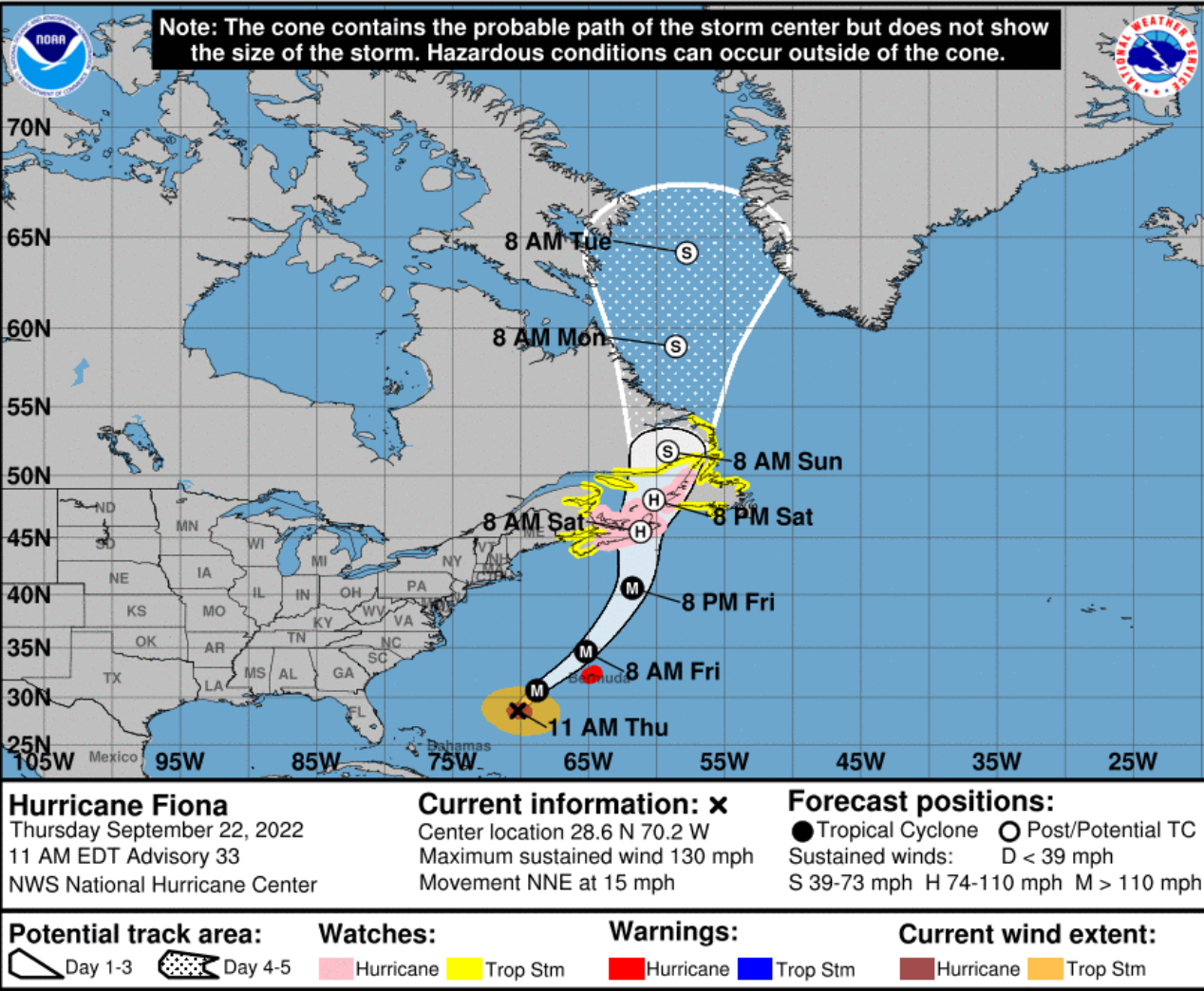
Chance of development: None Low Medium High





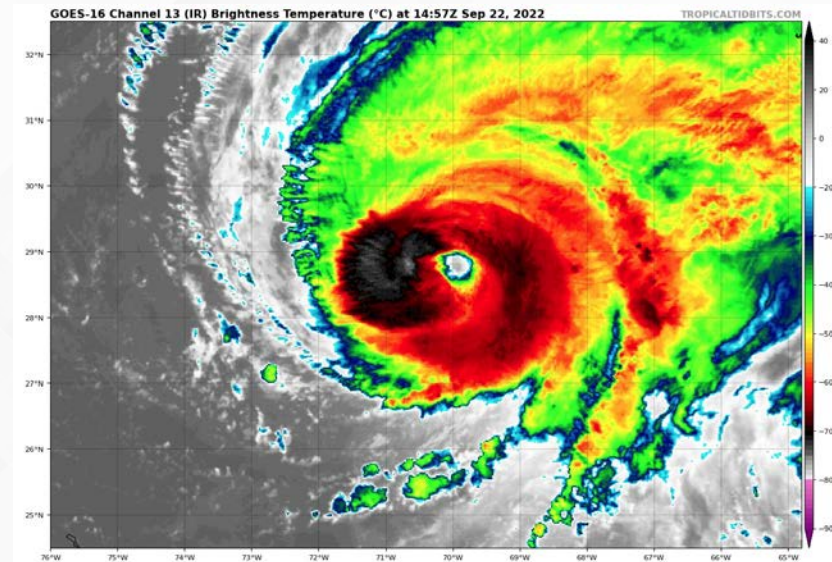
Forecast Cone & Satellite Imagery

Major Hurricane Fiona ([LINK](#))



- **Location:** 410 miles southwest of Bermuda
- **Maximum Sustained Winds:** 130 mph, Category 4
- **Current Movement:** NNE at 15 mph
- **FL Watches/Warnings:** None

A north-northeastward or northeastward motion with an increase in forward speed is expected through Friday, followed by a somewhat slower northward motion beginning on Friday night or Saturday. Fiona remains a category 4 hurricane, with little change in strength expected today. Some weakening is expected to begin tonight or Friday, and is forecast to be a large and powerful post-tropical cyclone Friday night. *Fiona poses no direct threat to Florida, but deteriorating beach and boating conditions can be expected along the East Coast through the weekend.*





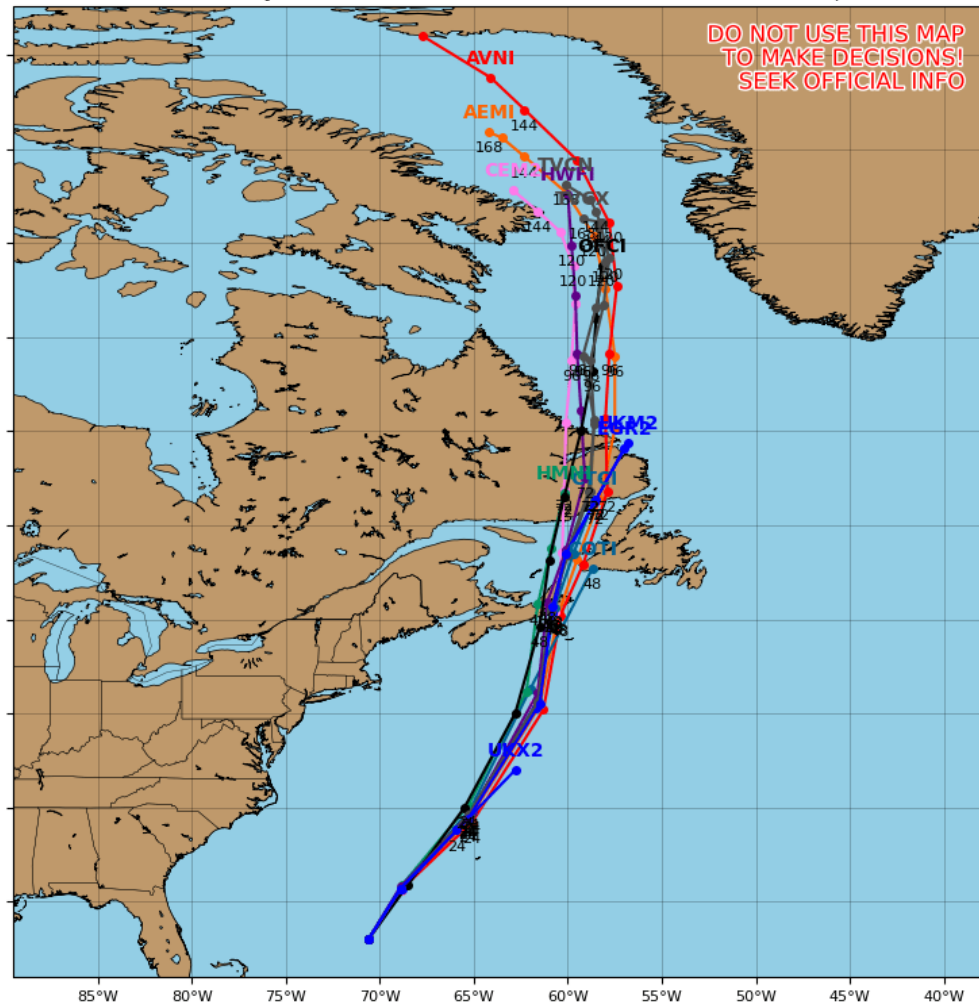
Model Forecasts – Next 5 Days

Major Hurricane Fiona

Hurricane FIONA Model Track Guidance

Initialized at 12z Sep 22 2022

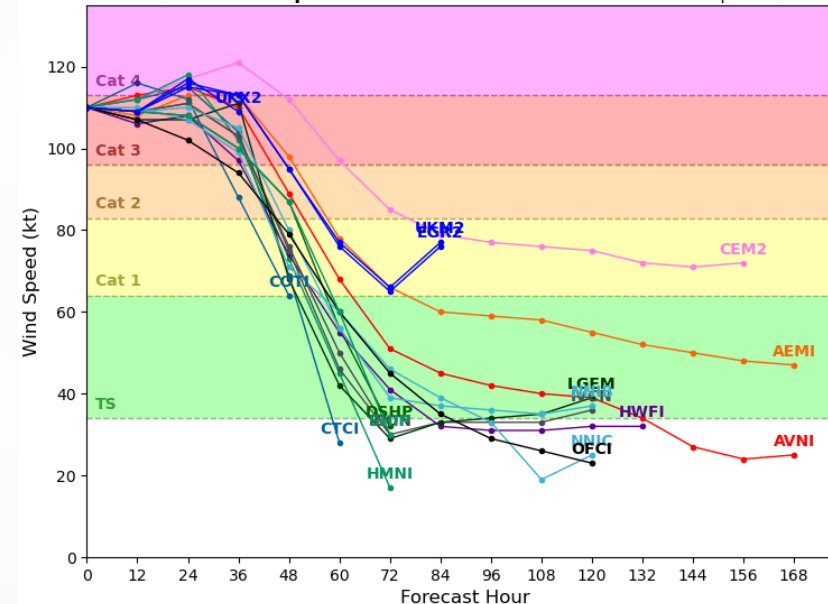
Levi Cowan - tropicaltidbits.com



Hurricane FIONA Model Intensity Guidance

Initialized at 12z Sep 22 2022

Levi Cowan - tropicaltidbits.com



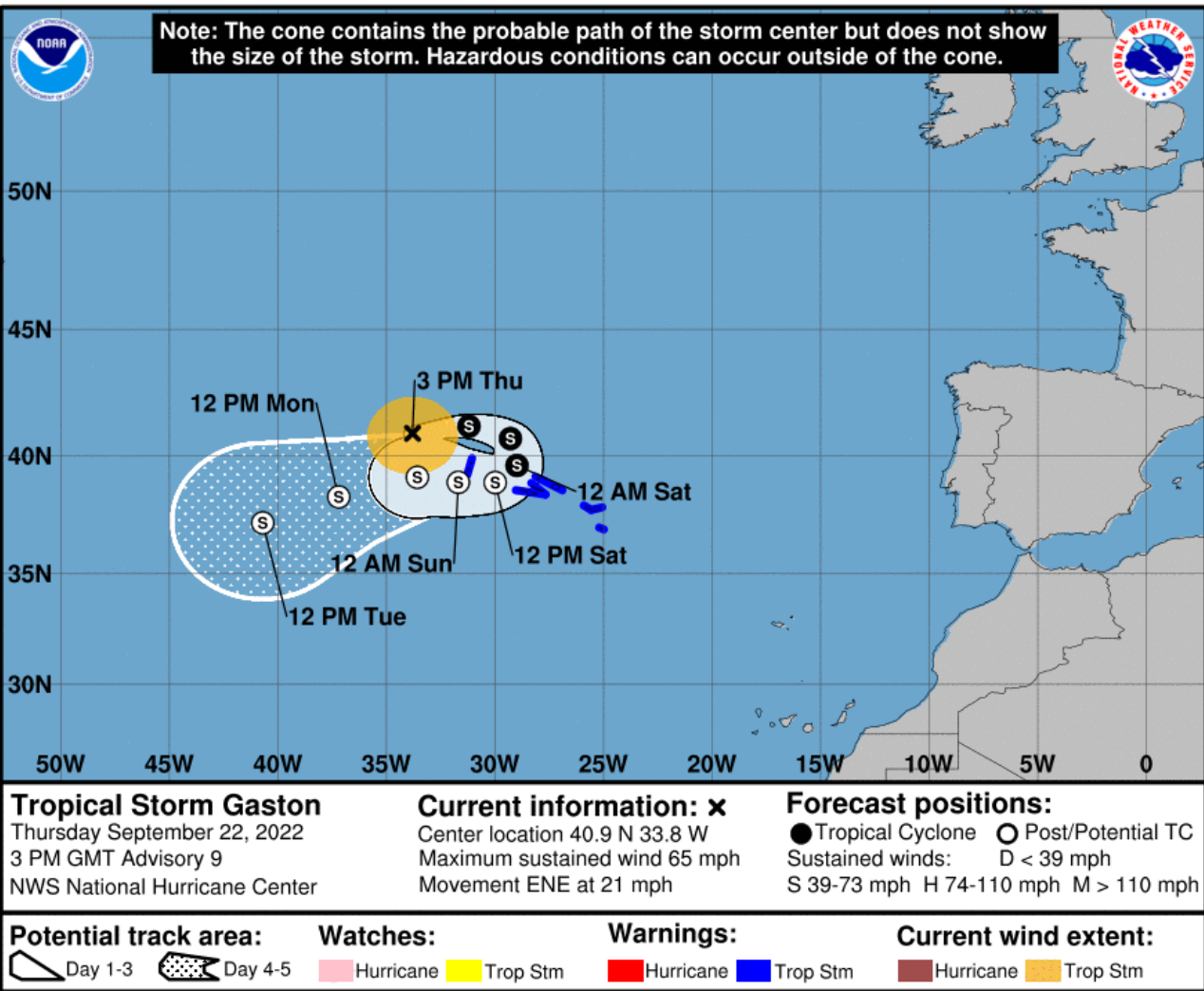
Computer models remain in good agreement that Fiona will accelerate north-northeastward over the next day or so. This powerful hurricane will then interact with an upper-level disturbance over the Northeastern U.S., steering Fiona northward toward Atlantic Canada Friday night into Saturday.

Computer models are in very good agreement that Fiona will remain a strong hurricane as the system remains over the warm waters and in an environment characterized by low wind shear. Even following its transition to an extratropical cyclone, Fiona will continue to produce hurricane-force winds during the following day or so.

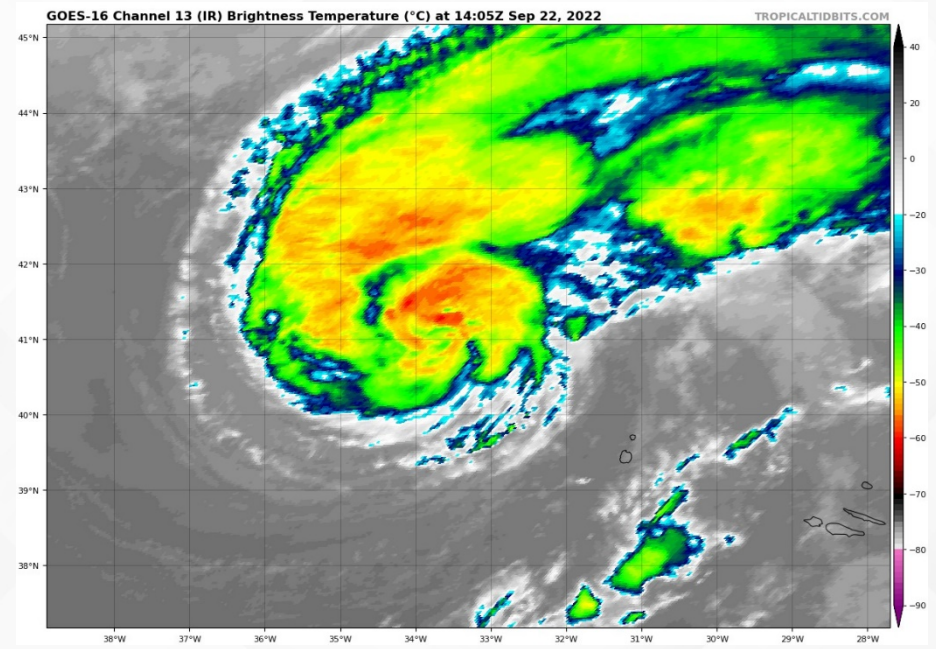


Forecast Cone and Satellite Imagery

Tropical Storm Gaston ([LINK](#))



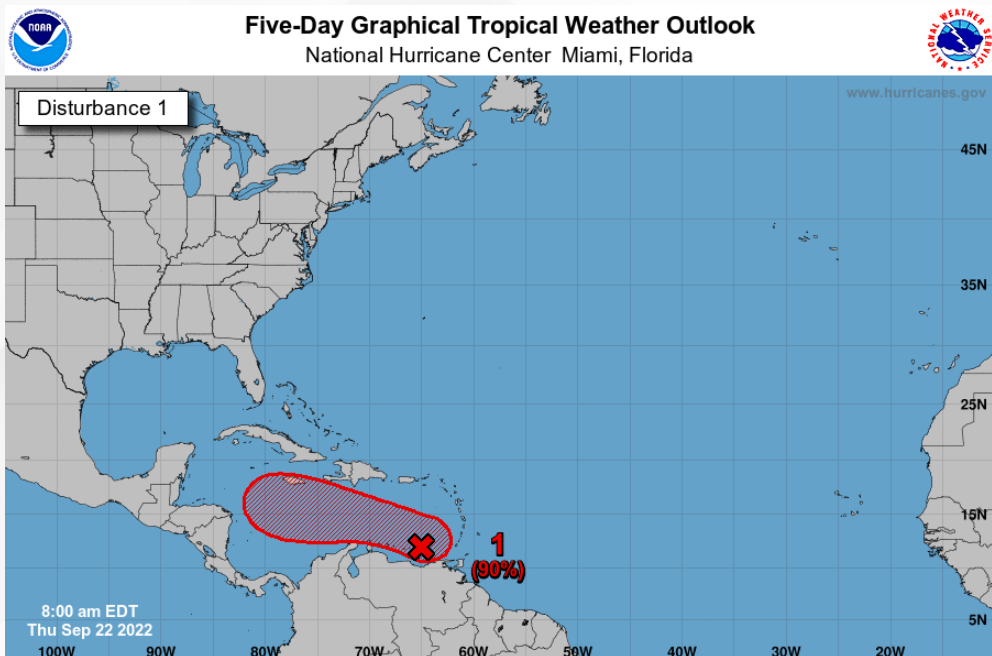
- **Location:** 315 miles west-northwest of the central Azores
 - **Maximum Sustained Winds:** 65 mph
 - **Current Movement:** ENE at 21 mph
 - **FL Watches/Warnings:** None
- A turn toward the east is expected tonight, and a slower southeast or southward motion is forecast by early Saturday. Gradual weakening is expected over the next few days. *Gaston poses no threat to Florida.*



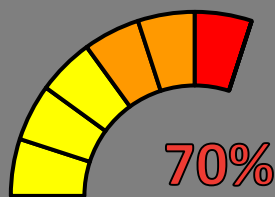


Tropical Weather Outlook

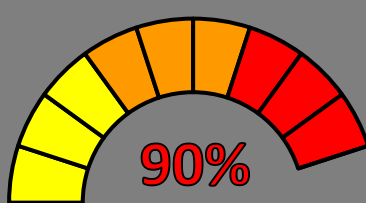
Disturbance 1 – Invest 98L ([LINK](#))



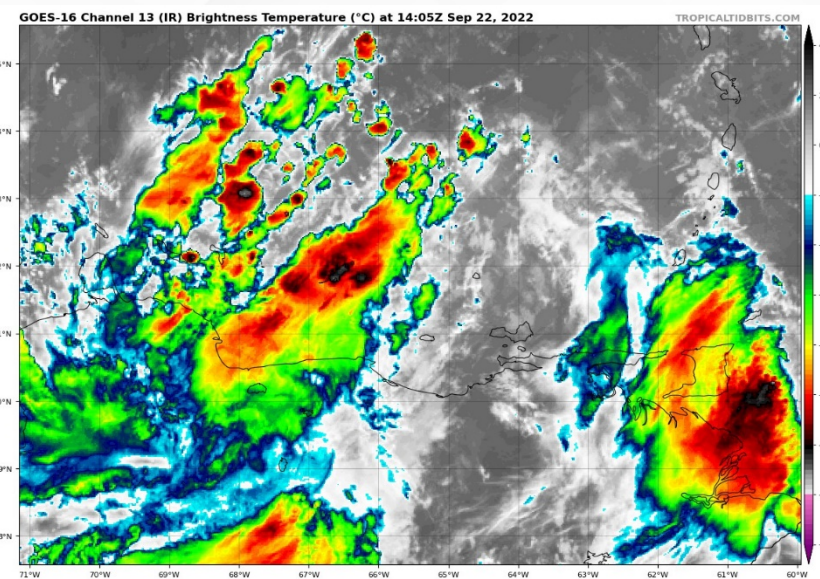
Showers and thunderstorms continue in association with a tropical wave located over the southeastern Caribbean Sea. Although upper-level winds are currently inhibiting development, the environment is forecast to become more favorable in a couple of days, and a tropical depression is likely to form at that time. Invest 98L is forecast to move west-northwestward across the eastern Caribbean Sea during the next day or two, and be over the central Caribbean Sea this weekend. *Invest 98L poses no direct threat to Florida over the next 5 days, but should continue to be monitored.*



48 Hour Formation



5 Day Formation

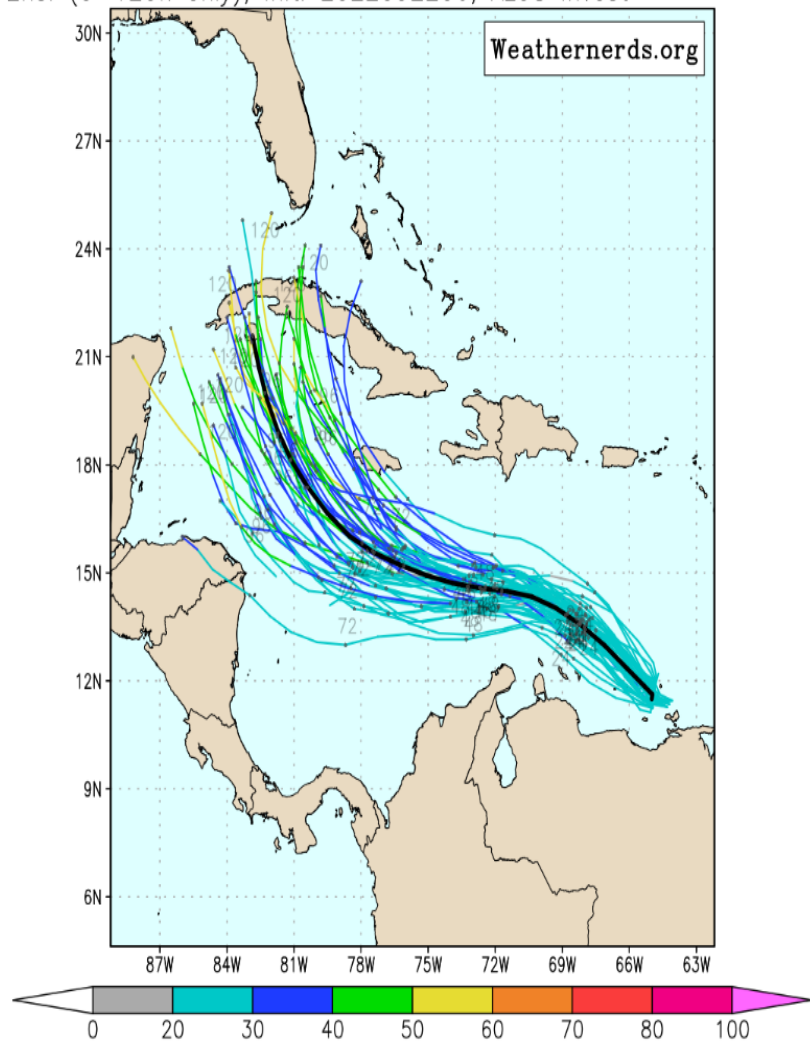




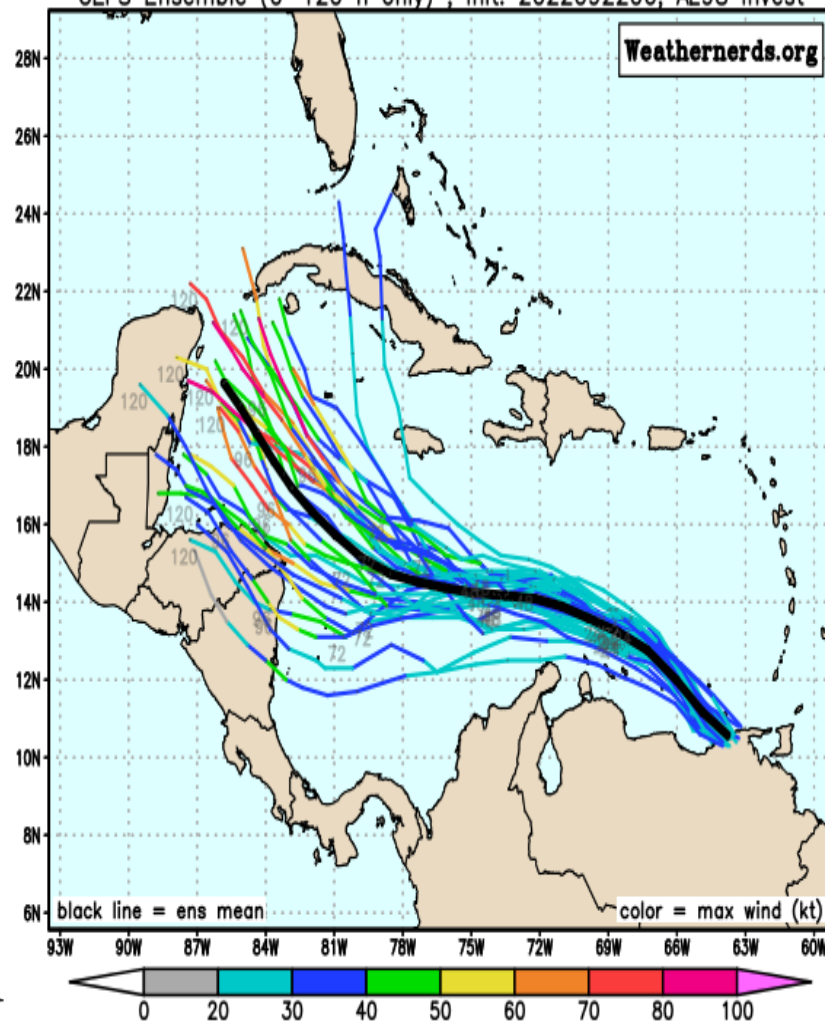
Model Forecasts – Next 5 Days

Invest 98L

ECMWF Ens. (0–120h only), init: 2022092206, AL98 Invest color = max



GEFS Ensemble (0–120 h only), init: 2022092206, AL98 Invest



Invest 98L is currently in an environment not conducive for strengthening as moderate northerly wind shear and continuous land interaction with the northern coast of Venezuela make it difficult for the system to define a center of circulation. Computer models are in decent agreement over the next 5 days that 98L will continue to organize over the Caribbean Sea as it moves generally west-northwestward. However, there is greater disagreement on the track of 98L later in the forecast period over the western Caribbean Sea, which is typical for system that have not established a closed circulation. A general west-northwestward motion with a gradual increase in intensity through the Caribbean can be expected, but there is a larger range of possibilities after about 5 days (once it reaches the central to western Caribbean) and depends on the eventual steering currents. It is possible that this system could emerge into the Gulf of Mexico or Florida Straits early to middle parts of next week. It is important to note that fluctuations across models (especially deterministic models) can be expected until Invest 98L is over water and works to become better organized.



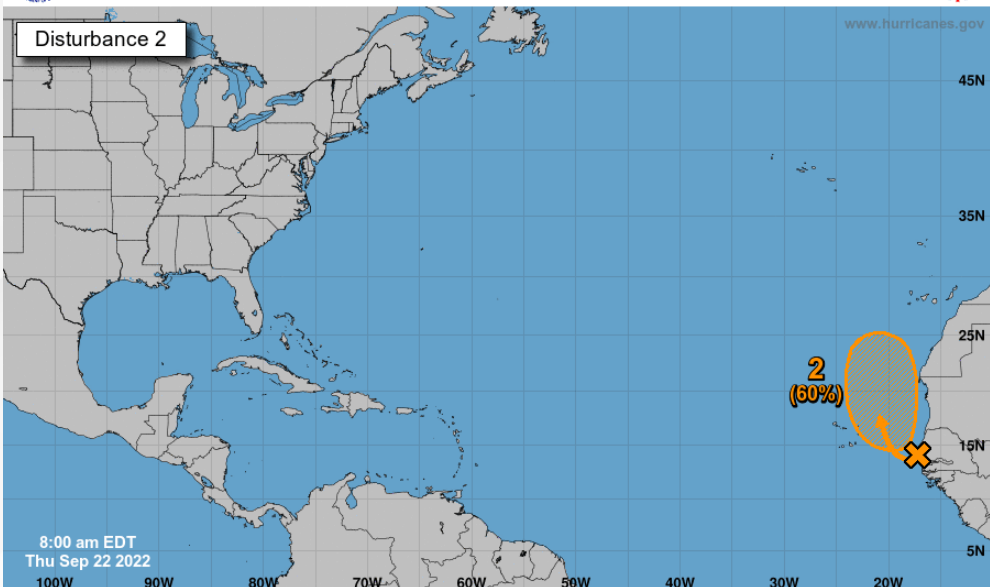
Tropical Weather Outlook

Disturbance 2 – Western Africa Tropical Wave ([LINK](#))

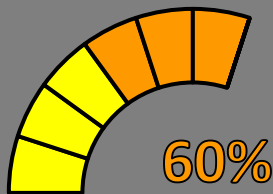


Five-Day Graphical Tropical Weather Outlook

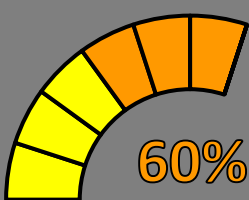
National Hurricane Center Miami, Florida



Current Disturbances and Five-Day Cyclone Formation Chance: < 40% 40-60% > 60%
Tropical or Sub-Tropical Cyclone: Depression Storm Hurricane
 Post-Tropical Cyclone or Remnants



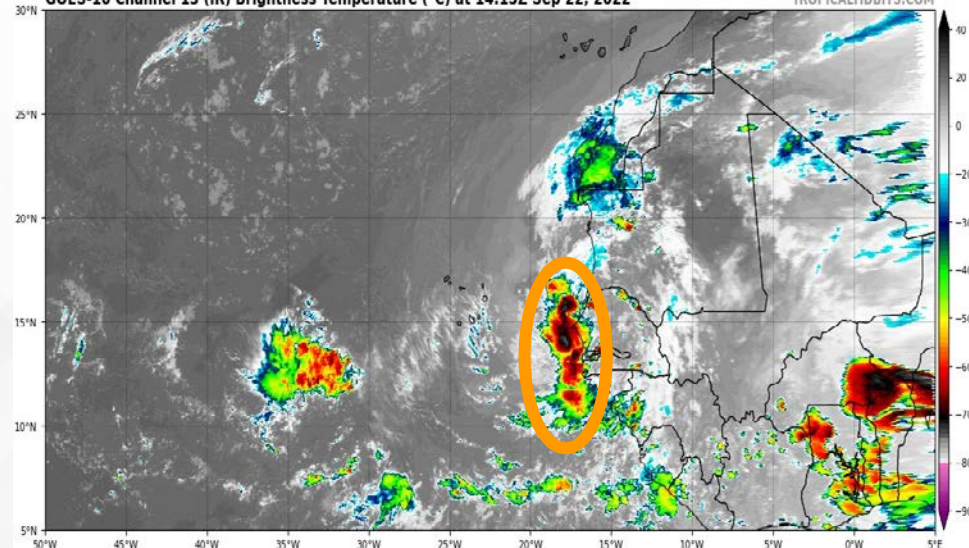
48 Hour Formation



5 Day Formation

Showers and thunderstorms, located near the west coast of Africa, are associated with a tropical wave that has emerged over the warm waters of the far eastern Atlantic. Environmental conditions are forecast to be conducive for some development, and a tropical depression could form by this weekend while the system moves slowly northward, between West Africa and the Cabo Verde Islands. *This system poses no threat to Florida.*

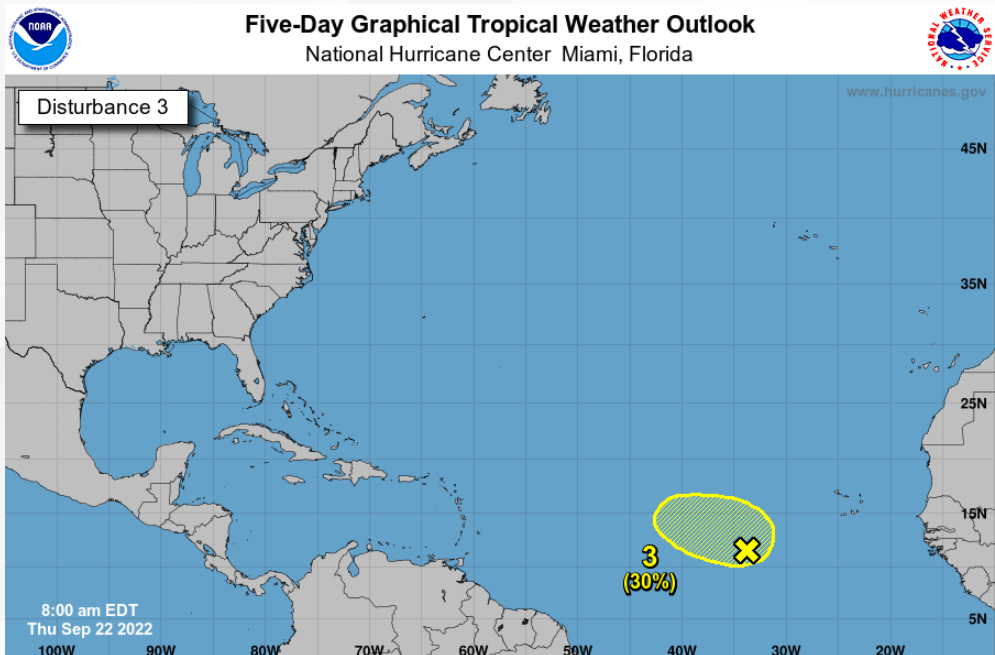
GOES-16 Channel 13 (IR) Brightness Temperature (°C) at 14:15Z Sep 22, 2022



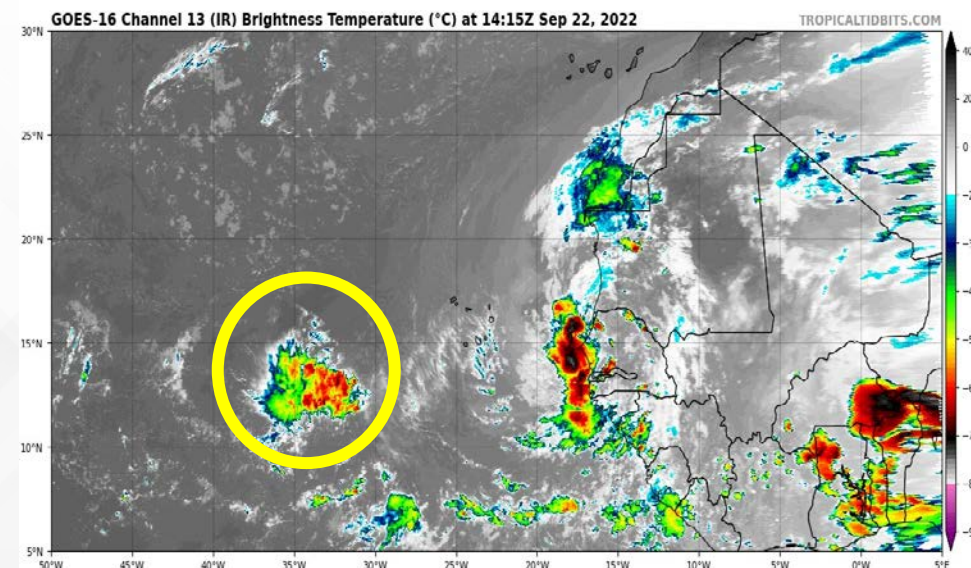


Tropical Weather Outlook

Disturbance 3 – Invest 99L ([LINK](#))



A broad area of low pressure, located several hundred miles west-southwest of the Cabo Verde Islands, continues to produce disorganized showers and thunderstorms. Despite marginal environmental conditions, some slow development of Invest 99L is possible over the next several days while it moves slowly northwestward or northward over the tropical Atlantic. *Invest 99L poses no threat to Florida.*



20%

48 Hour Formation

30%

5 Day Formation



Steering Currents

What is Moving the System?

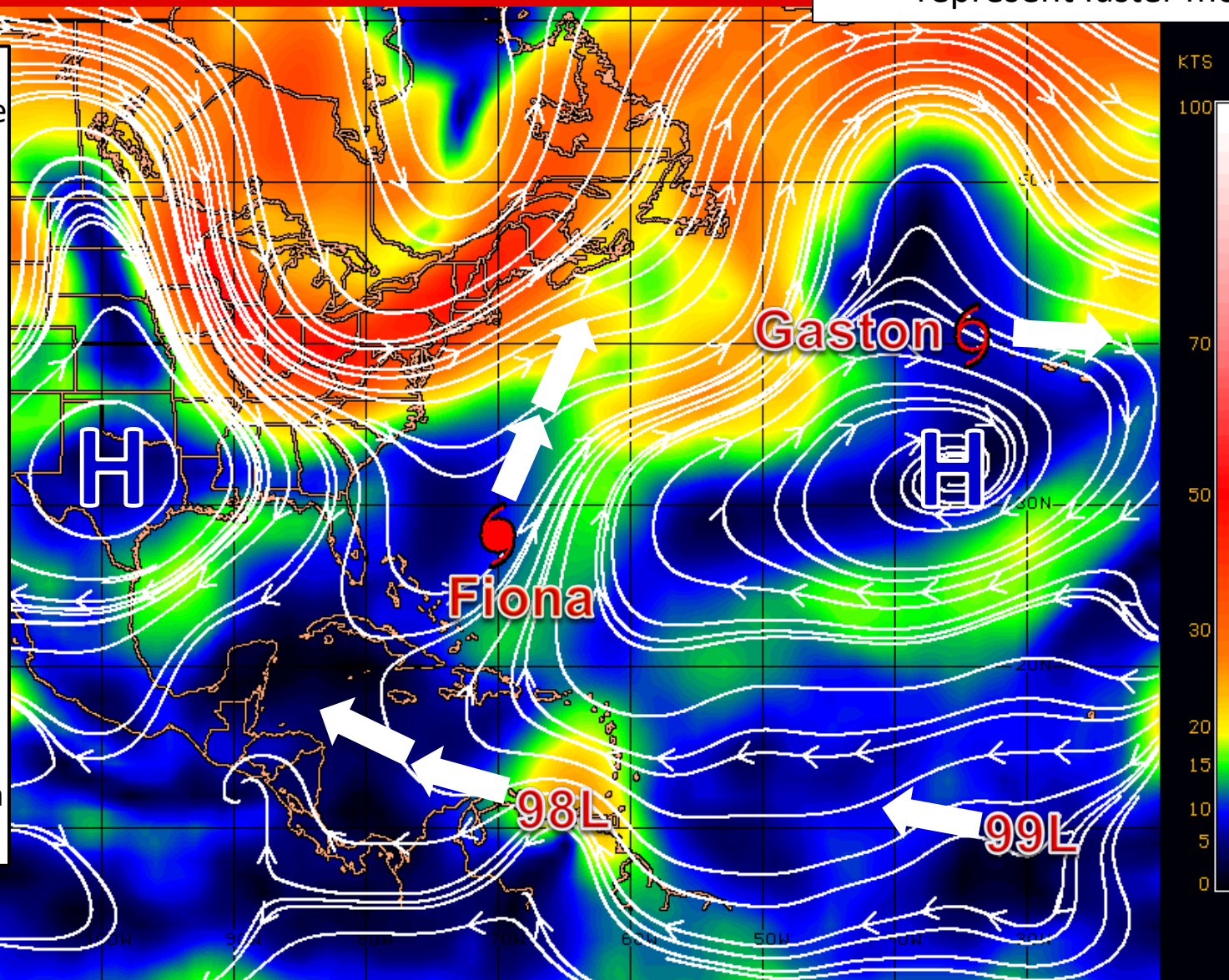
Color denotes the movement speed through the atmosphere and thin white lines denote direction. Tightly clustered white lines represent faster movement as well.

Fiona will continue to be pulled northward around the western edge of high pressure in the eastern and central Atlantic.

Invest 98L will track west-northwestward along the southern edge of high pressure currently steering Fiona.

On the northern periphery of the high pressure, Gaston will develop an easterly component of motion through today.

Invest 99L will generally move westward over the tropical Atlantic to the south of a strong area of high pressure.



Fast Moving Storm

Fast Moving Storm

Typical Moving Storm

Slow Moving Storm



Wind Shear

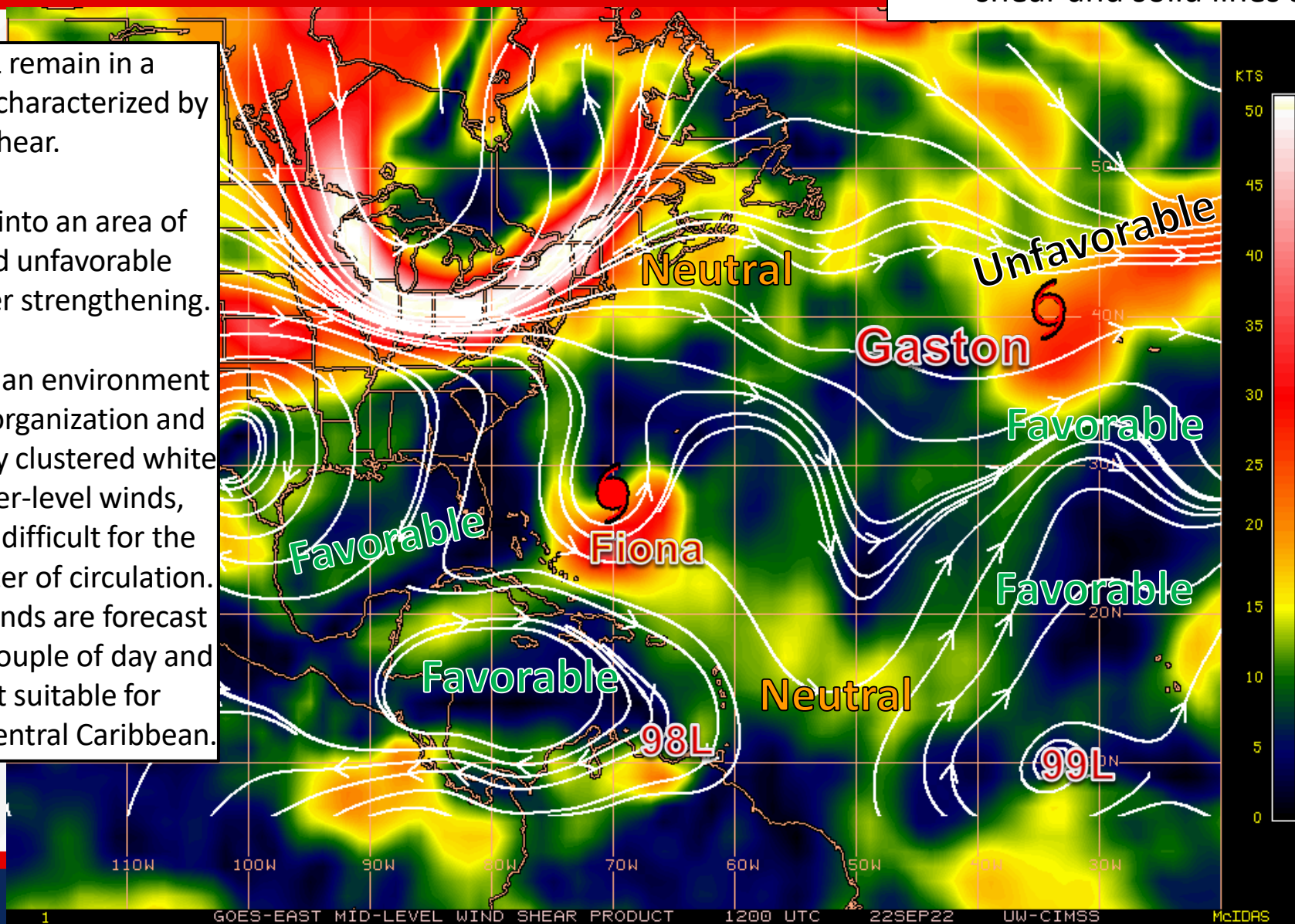
Is the environment favorable for the system?

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).

Fiona and Invest 99L remain in a favorable environment, characterized by lower wind shear.

Gaston will move east into an area of higher wind shear and unfavorable conditions for any further strengthening.

Invest 98L is currently in an environment that is unsupportive of organization and strengthening. The tightly clustered white lines depict faster upper-level winds, conditions that make it difficult for the system to develop a center of circulation. However, upper-level winds are forecast to lessen over the next couple of day and yield an environment suitable for strengthening over the central Caribbean.



HIGH Shear
(Unfavorable)

HIGH Shear
(Unfavorable)

MODERATE
Shear
(Neutral)

LOW Shear
(Favorable)



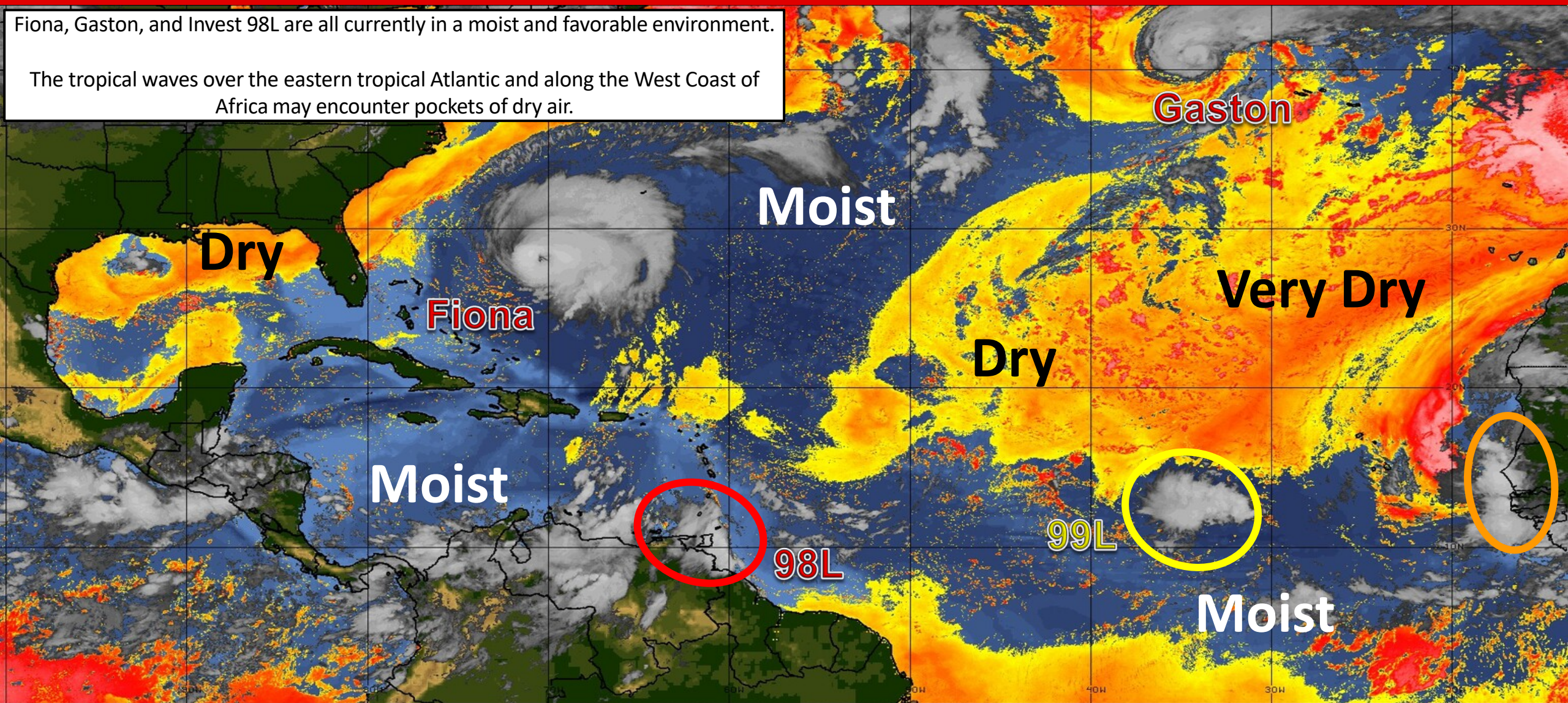
Dry Air & Saharan Dust

Is the environment favorable for the system?

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

Fiona, Gaston, and Invest 98L are all currently in a moist and favorable environment.

The tropical waves over the eastern tropical Atlantic and along the West Coast of Africa may encounter pockets of dry air.

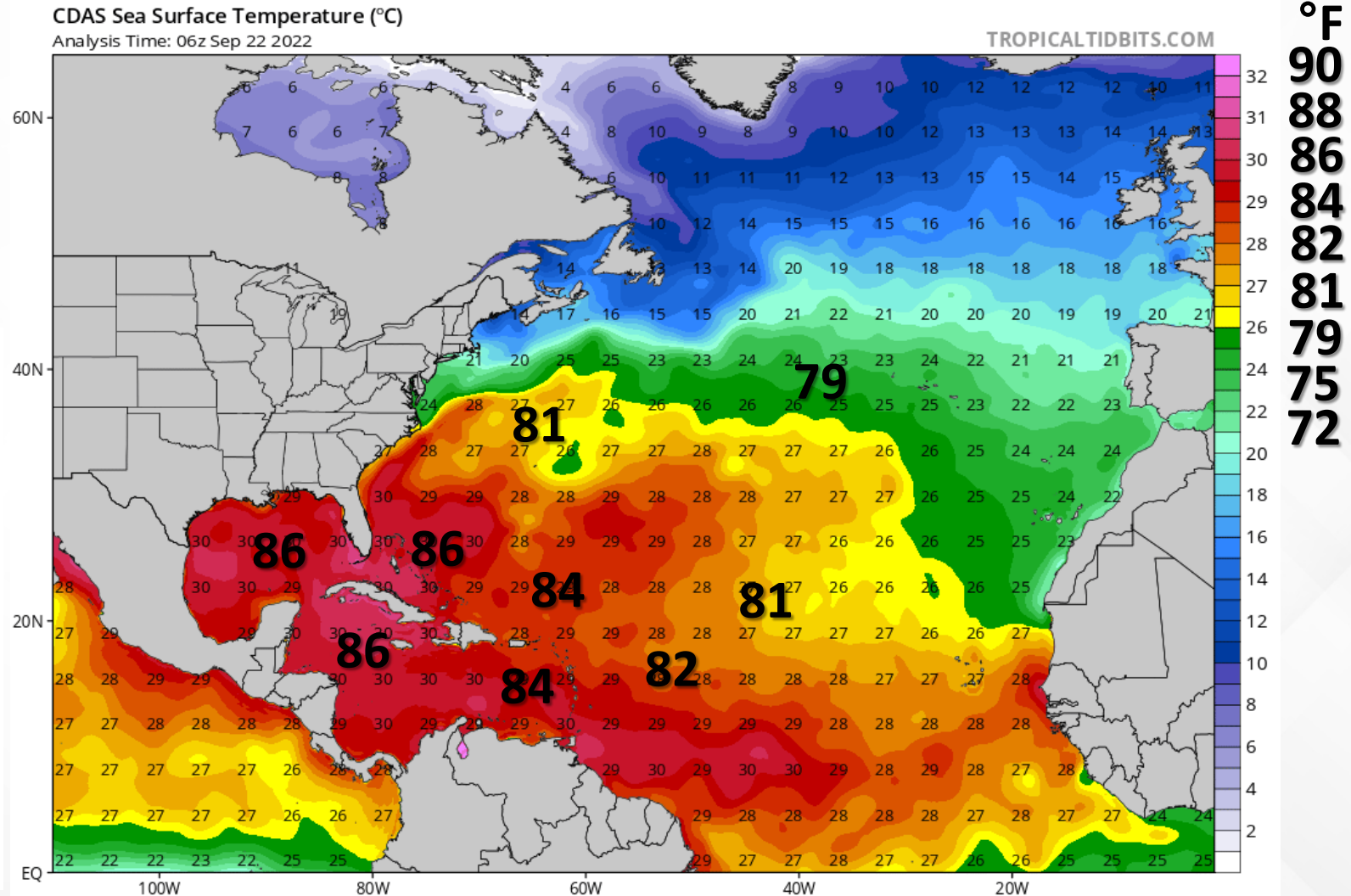




CDAS Sea Surface Temperature Anomaly ($^{\circ}\text{C}$) (based on CFSR 1981-2010 Climatology)
Analysis Time: 06z Sep 22 2022

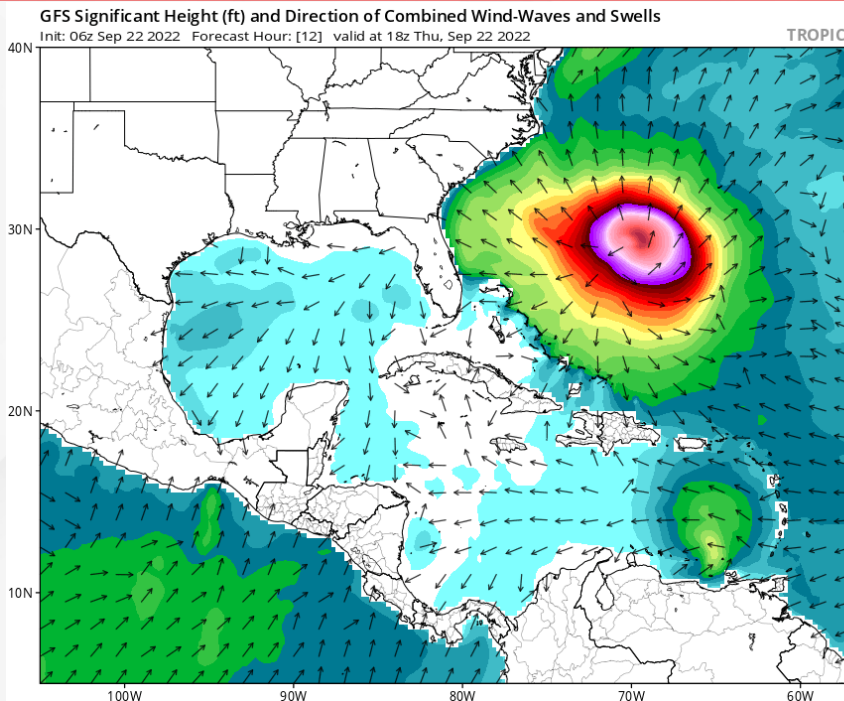


Below Normal

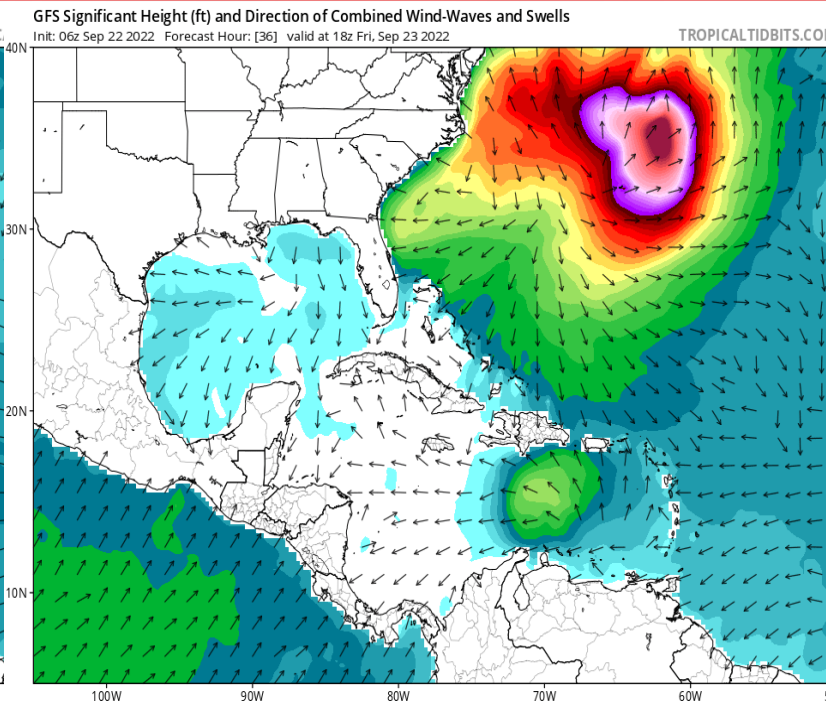




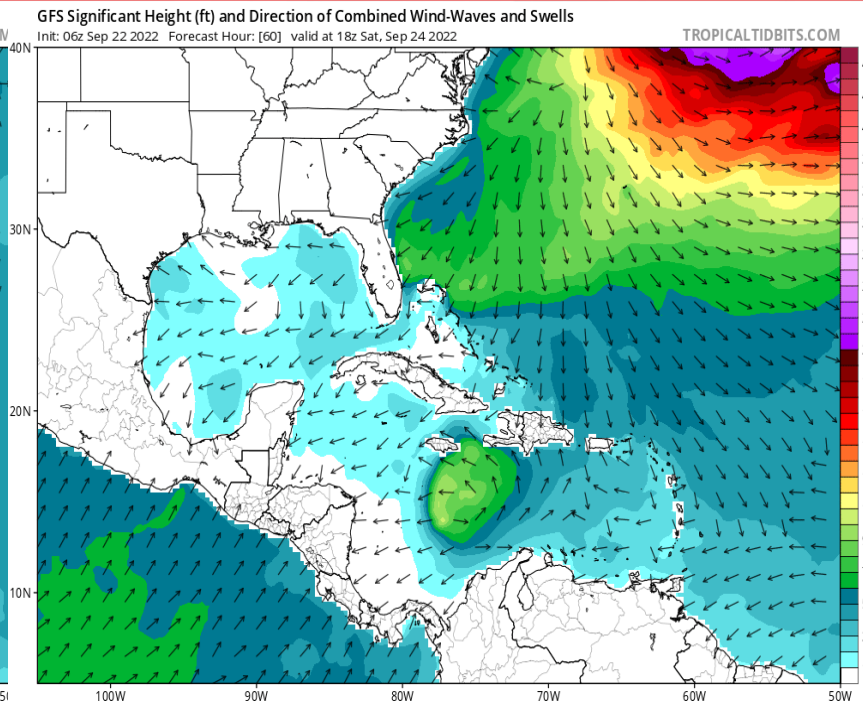
Forecast Wave Heights



This Afternoon (9/22)



Friday Afternoon (9/23)



Saturday Afternoon (9/24)

As Major Hurricane Fiona continues to move north-northeastward over the Atlantic, long-period ocean swells and **rip current risks** will increase along the Florida East Coast into the weekend. Breaking waves at the beach could be as high as 5-8' from Palm Beach northward.



Summary

Major Hurricane Fiona:

- At 11:00 AM Thursday, Fiona is located about 410 miles southwest of Bermuda and moving north-northeastward at 15 mph.
- A north-northeastward or northeastward motion with an increase in forward speed is expected through Friday, followed by a somewhat slower northward motion beginning on Friday night or Saturday.
- Maximum sustained winds are near 130 mph, and Fiona remains a category 4 hurricane. Little change in strength expected today.
- Some weakening is expected to begin tonight or Friday, and is forecast to be a large and powerful post-tropical cyclone Friday night.

Tropical Storm Gaston:

- At 11:00 AM Thursday, Gaston is located about 315 miles west of the central Azores and moving east-northeastward at 21 mph.
- A turn toward the east is expected tonight, and a slower southeast or southward motion is forecast by early Saturday.
- Maximum sustained winds are near 65 mph and gradual weakening is expected over the next few days.

Invest 98L:

- Showers and thunderstorms continue in association with a tropical wave located over the southeastern Caribbean Sea.
- Although upper-level winds are currently inhibiting development, the environment is forecast to become more favorable in a couple of days, and a tropical depression is likely to form at that time.
- Invest 98L is forecast to move west-northwestward across the eastern Caribbean Sea during the next day or two, and be over the central Caribbean Sea this weekend.

Western Africa Tropical Wave:

- Showers and thunderstorms, located near the west coast of Africa, are associated with a tropical wave that has emerged over the warm waters of the far eastern Atlantic.
- Environmental conditions are forecast to be conducive for some development, and a tropical depression could form by this weekend while the system moves slowly northward, between West Africa and the Cabo Verde Islands.

Invest 99L:

- A broad area of low pressure, located several hundred miles west-southwest of the Cabo Verde Islands, continues to produce disorganized showers and thunderstorms.
- Despite marginal environmental conditions, some slow development of Invest 99L is possible over the next several days while it moves slowly northwestward or northward over the tropical Atlantic.

Florida Outlook:

- Fiona and Gaston pose no direct threat to Florida and there are no wind or surge watches in effect for Florida.
- However, ocean swells and persistent easterly flow from Hurricane Fiona will deteriorate beach and boating conditions along Florida's East Coast into the weekend.
- Invest 98L poses no threat to Florida over the next 5 days, but should continue to be monitored as the system progresses across the eastern and central Caribbean Sea.
- The next names on the list are Hermine (*her-MEEN*) and Ian.

The next briefing packet will be issued Friday. For the latest information, please visit the [National Hurricane Center website](#).



Tropical Update



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State Meteorological Support Unit

Florida Division of Emergency Management

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