

Major Hurricane Fiona

Briefing Package #3

September 22nd, 2022
7:00 am

Briefing produced as guidance for emergency management officials.

Hazard Risk Assessment Page

Brief Summary

Hurricane Fiona remains a strong hurricane this morning and is set to make landfall in Nova Scotia as an extremely powerful post-tropical storm producing heavy rain, severe winds and coastal flooding.

Duration

14 to 24 hours

Confidence Level

High	
Moderate	X
Low	

Onset Timing




South Shore: Late Friday into Saturday

Annapolis Valley: Late Friday into Saturday

Central Nova Scotia: Late Friday into Saturday

Eastern Nova Scotia: Friday afternoon

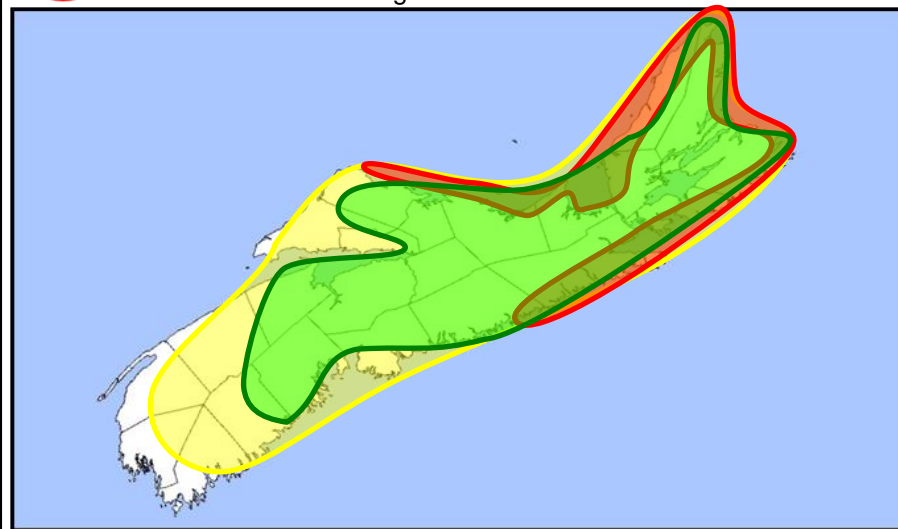
Areas to Monitor

-  Very strong winds, damaging winds likely in some areas
-  Heavy rainfall with extreme rainfall rates
-  Strong potential for coastal flooding and infrastructure damage

Impacts

Similar storms in the past have caused:

- Widespread broken/uprooted trees, damage to structures
- Widespread, prolonged utility outages
- Significant/major coastal flooding, infrastructure damage
- Rivers overflowing, flash flooding/road washouts
- Event cancellations, travel disruptions



This page is an experimental summary page. Confidence level is subjective and refers to the overall confidence in the weather scenario based on its complexity and model performance. Low and moderate-confidence storms should be given a wider margin of error. The map highlights regions of higher probability of occurrence of certain hazards but these hazards could extend beyond the highlighted areas depicted on the map. Impacts are based on documented occurrences that have resulted from storms with similar extent and severity of hazards.

Synopsis

Fiona is still a category 4 hurricane this morning and is located about 2000 km southwest of Halifax. Meanwhile the previously-mentioned trough of low pressure that will play a key role in this whole weather scenario is located across the eastern U.S. this morning and is already producing pockets of heavy rain. The trough will move into the Maritimes later today and will cross Nova Scotia on Friday as Fiona continues its northward trek. These two features will begin to interact on Friday with the result being a very intense post-tropical storm Fiona once it arrives. Track forecasts from the various computer models overnight continue to suggest the storm will make landfall somewhere in eastern mainland NS or Cape Breton. Given the increase in storm size as a result of the transition to post-tropical, this storm should affect all areas of the province in some fashion but the worst impacts are still expected in eastern and central areas. Model guidance for storm intensity continues to suggest some extreme values for rainfall, wind and storm surge making the likelihood of this being a historic weather event almost unavoidable at this stage. Timing for the worst conditions will be from late Friday night to Saturday evening. The following are some updated thoughts on specific hazards:

Rainfall: Rain from the trough will reach western Nova Scotia this evening and spread to all areas on Friday. By later on Friday the trough will begin to draw more moisture from the hurricane so there could be brief heavier showers developing on Friday during the day in eastern Nova Scotia. Heaviest rain not expected until Friday night. Still looking at peak rainfall amounts in the 100 to 150 mm range in central and eastern NS with locally approaching 200 mm still possible.

Wind: Winds will increase over eastern Nova Scotia Friday evening before spreading to much of the province. Strongest winds based on the current track should be in eastern and central parts of the province with coastal gusts possibly exceeding 140 km/h overnight Friday to Saturday morning and remaining strong Saturday during the day.

Coastal Flooding:

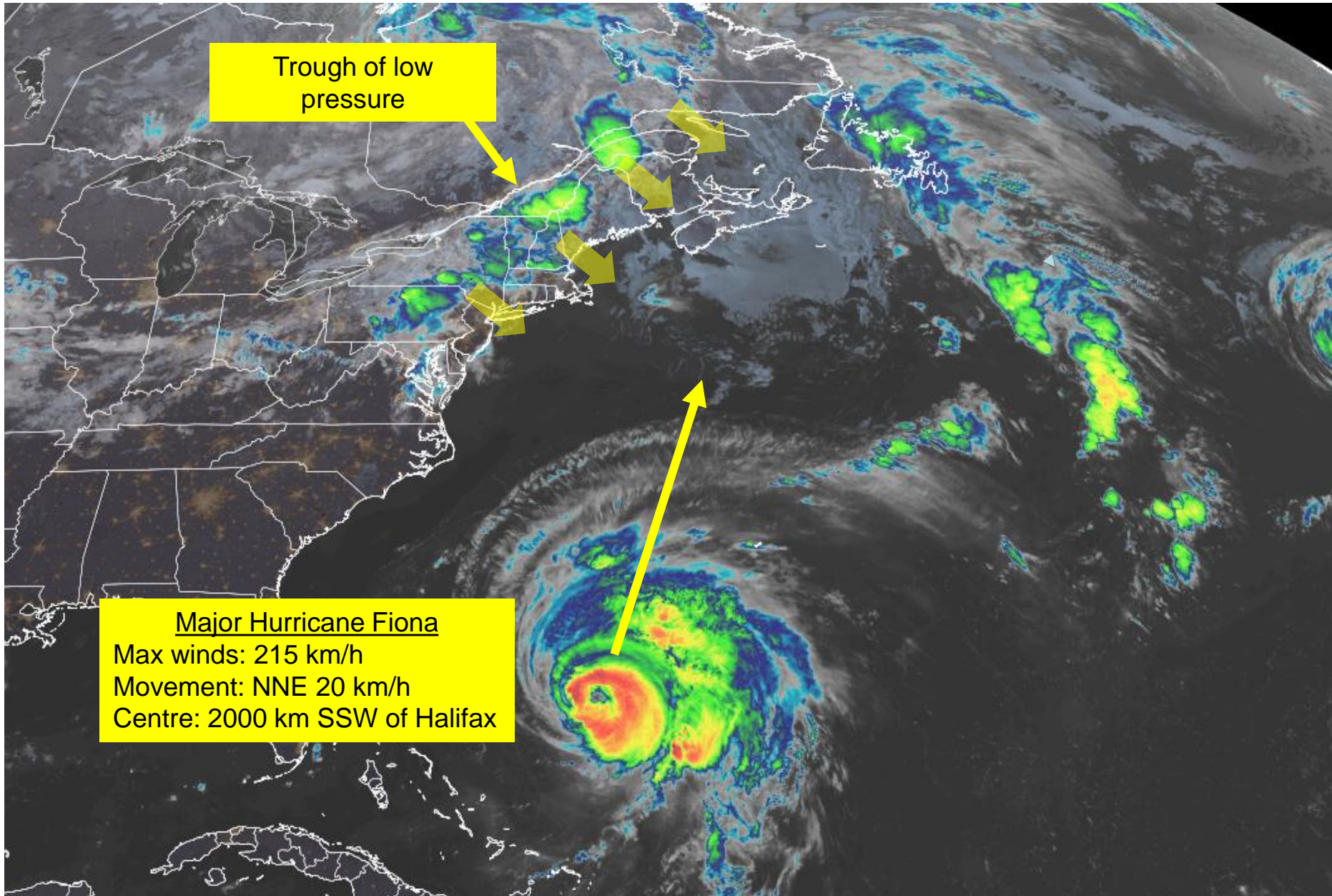
The combination of large waves, strong winds and potentially record low pressure will result in a significant storm surge. Based on the current track, the areas most at risk at this stage would be eastern parts of the Atlantic Coast overnight Friday to Saturday along with Cape Breton and the entire North Shore Saturday morning.

A Special Weather Statement remains in effect and warnings may go out as early as this morning:

https://weather.gc.ca/warnings/index_e.html?prov=ns

Hurricane Information Statement: https://weather.gc.ca/hurricane/statements_e.html

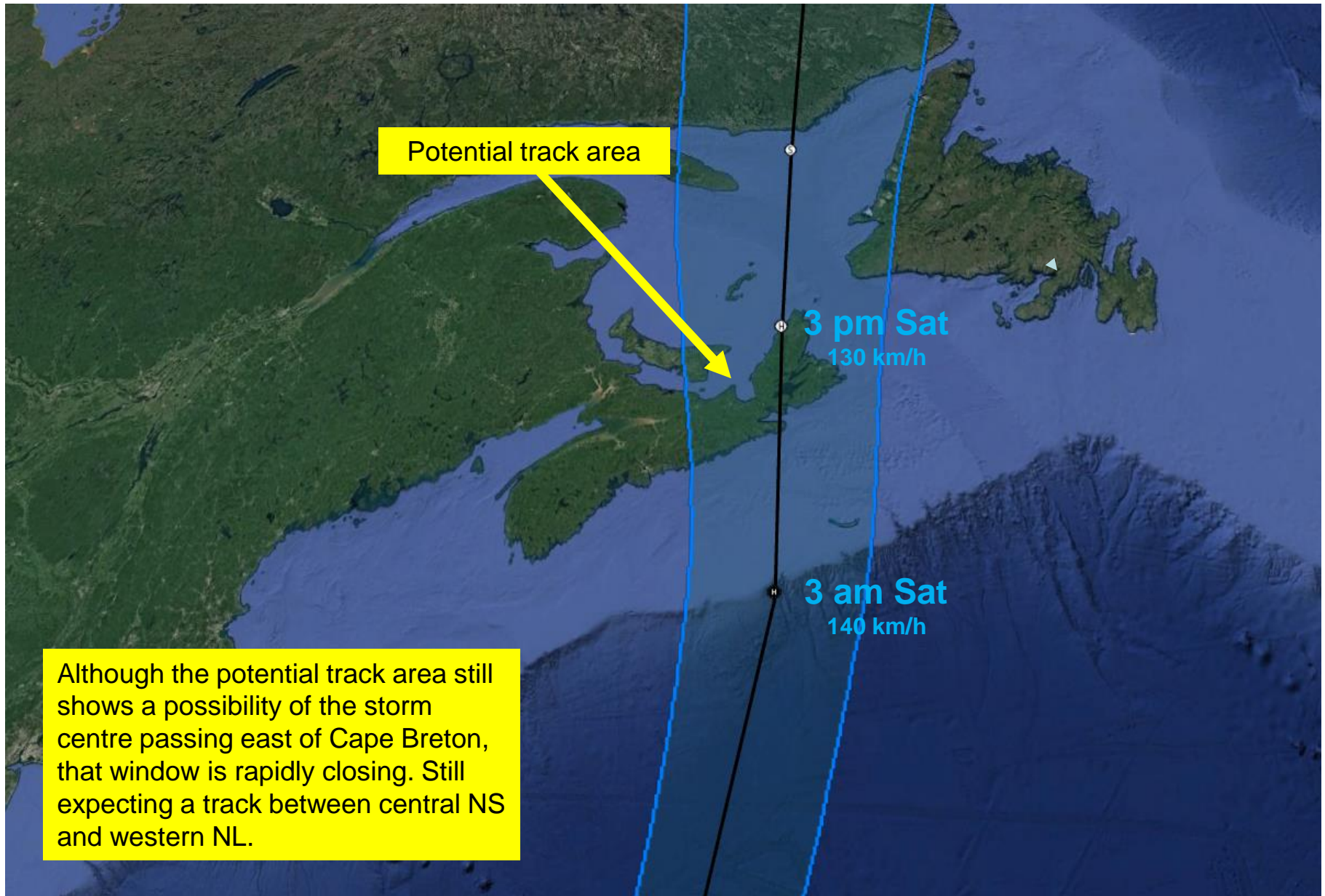
Current Situation as of 7 am



Trough of low pressure

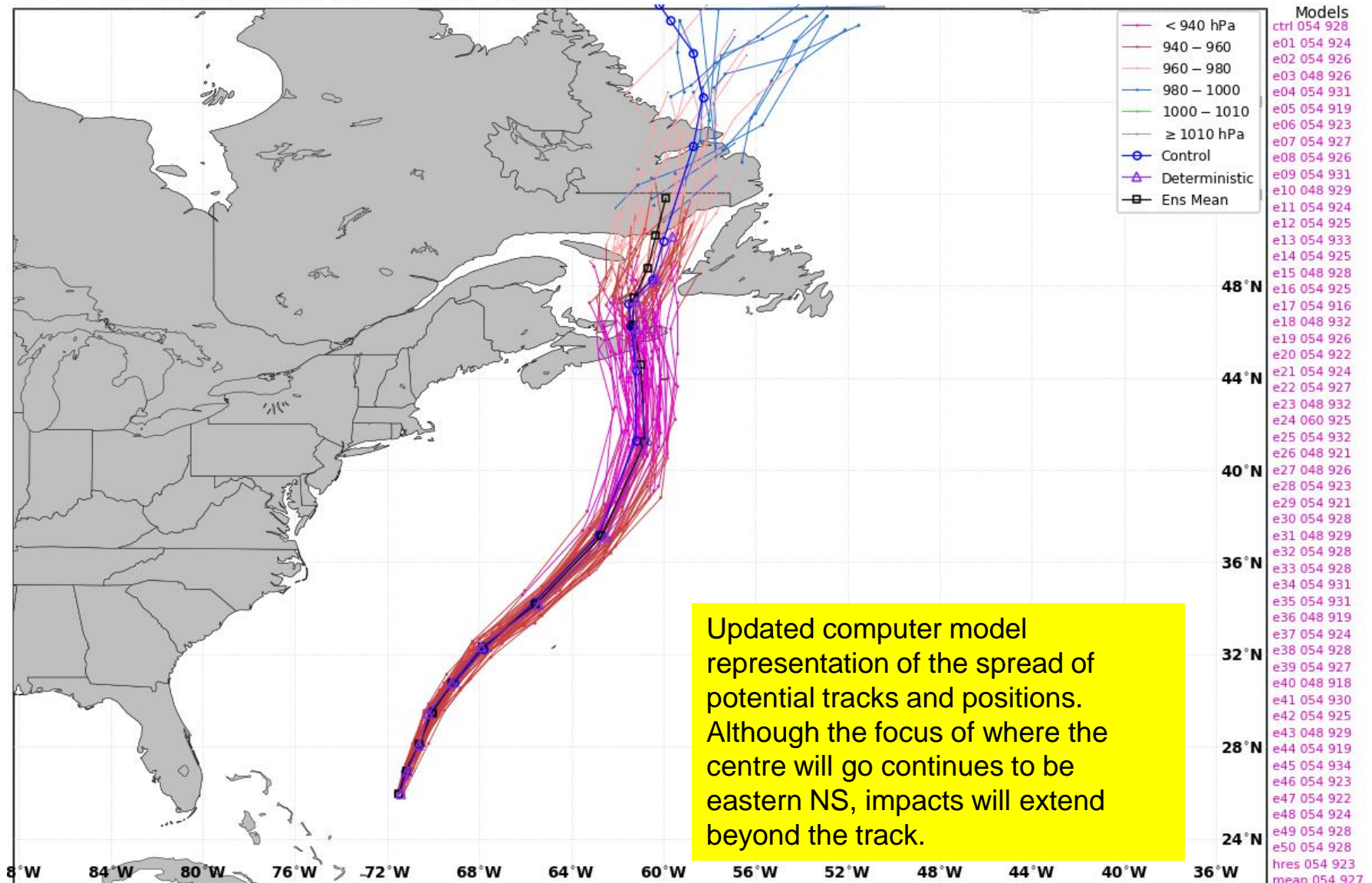
Major Hurricane Fiona
Max winds: 215 km/h
Movement: NNE 20 km/h
Centre: 2000 km SSW of Halifax

Official Track Forecast



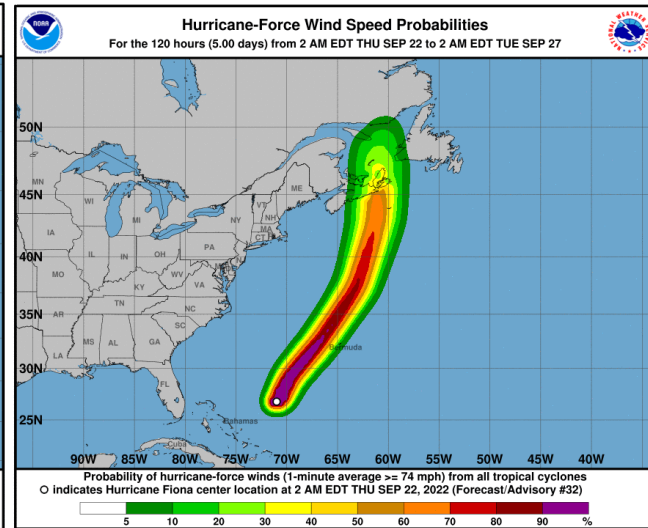
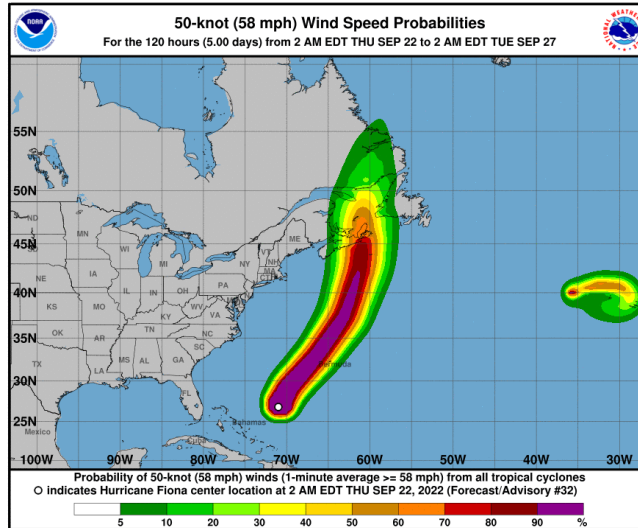
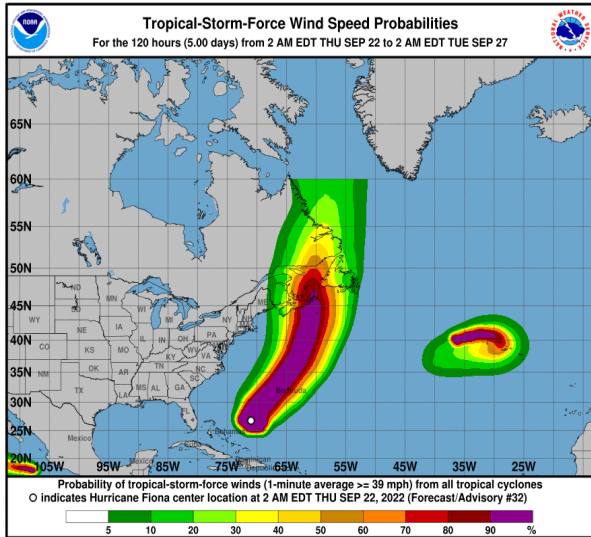
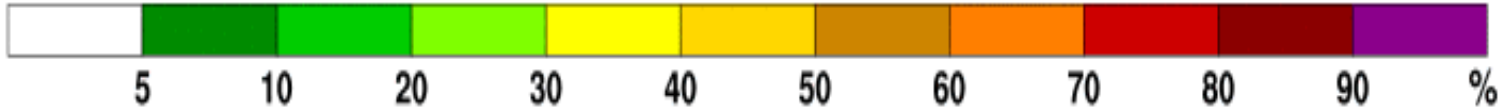
Computer model forecast track scenarios

ECMWF Model Guidance Init 00z Thu 22 Sep 2022 • Fiona/07L



Updated computer model representation of the spread of potential tracks and positions. Although the focus of where the centre will go continues to be eastern NS, impacts will extend beyond the track.

Wind Probability Maps

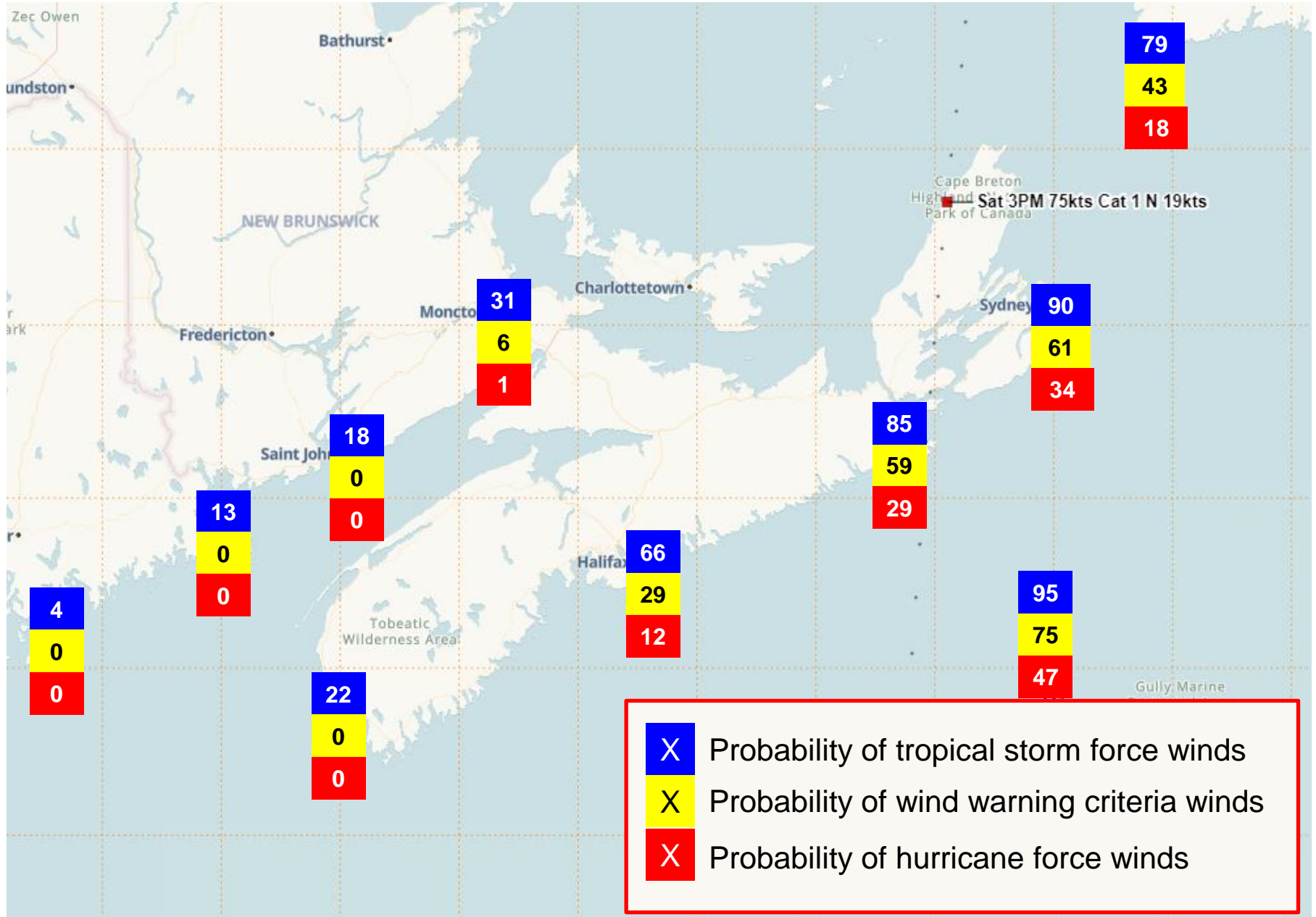


Probability of tropical storm force winds by Saturday night

Probability of wind warning criteria winds by Saturday night

Probability of hurricane force winds by Saturday night

Wind Probability Summary

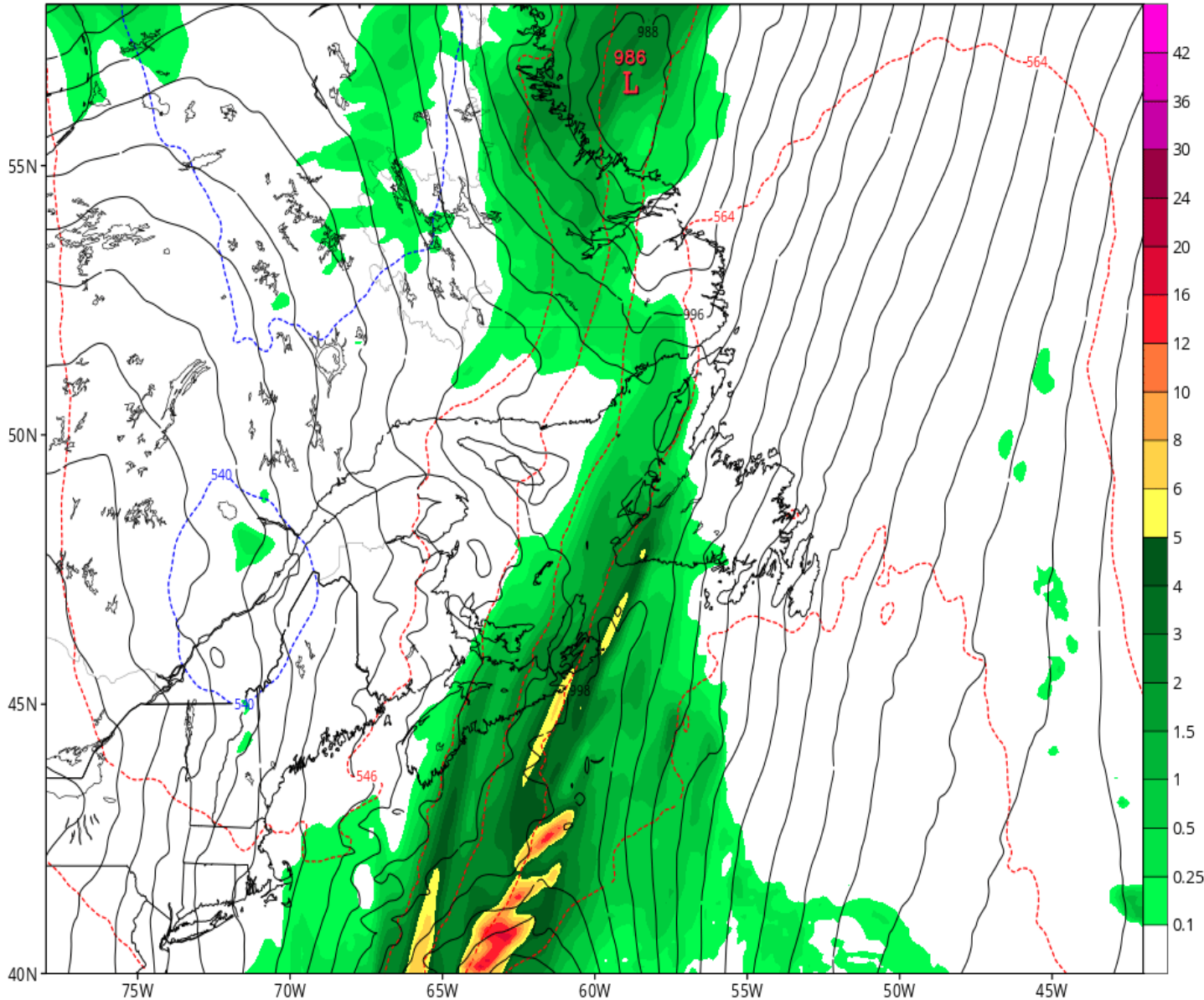


Model depiction for 3 pm Friday

GFS 6-hour Averaged Precip Rate (mm/hr), MSLP (hPa) & 1000-500mb Thickness (dam)

Init: 00z Sep 22 2022 Forecast Hour: [42] valid at 18z Fri, Sep 23 2022

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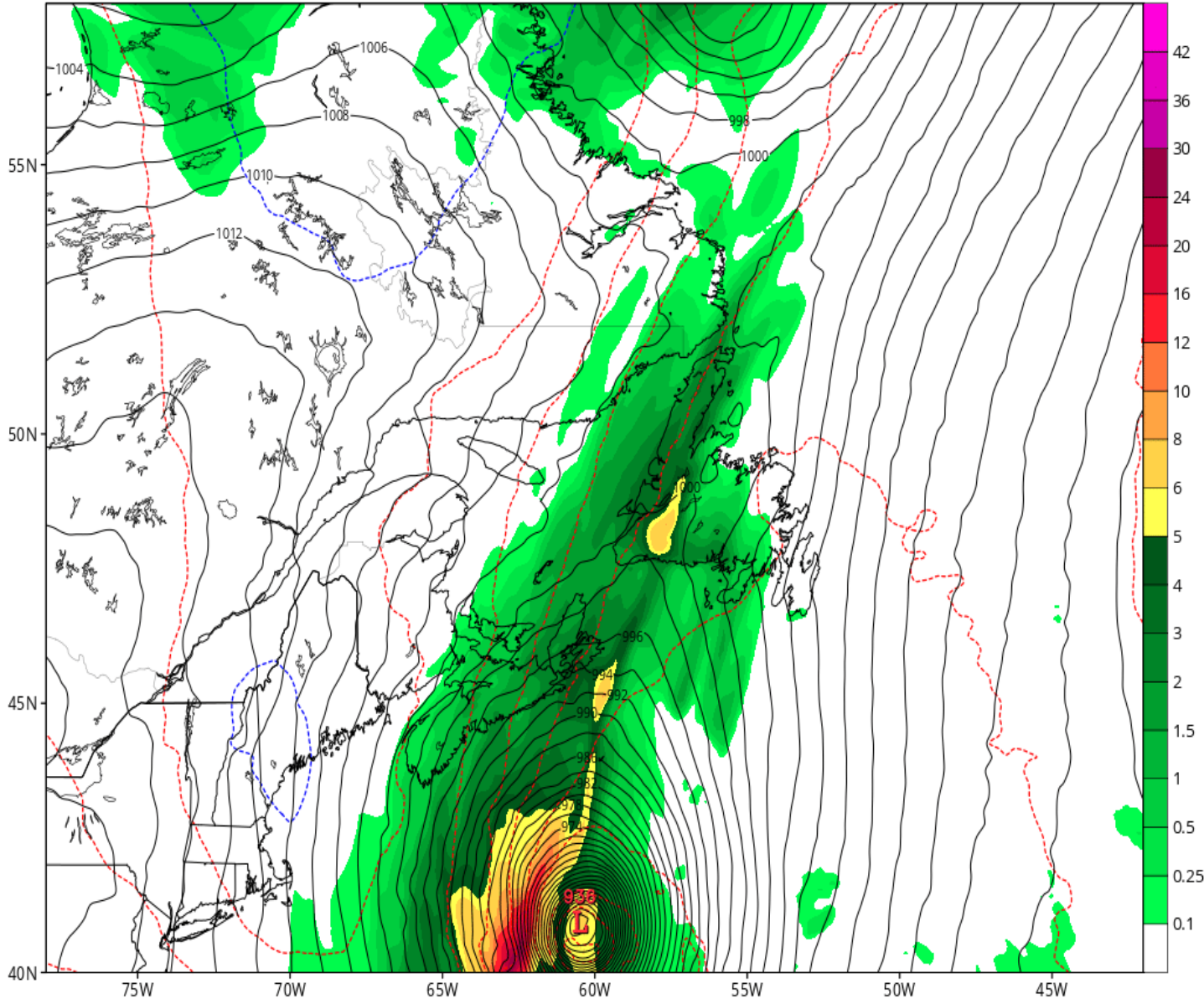
Moisture from Fiona feeding into the trough centered over eastern NS.

Model depiction for 9 pm Friday

GFS 6-hour Averaged Precip Rate (mm/hr), MSLP (hPa) & 1000-500mb Thickness (dam)

Init: 00z Sep 22 2022 Forecast Hour: [48] valid at 00z Sat, Sep 24 2022

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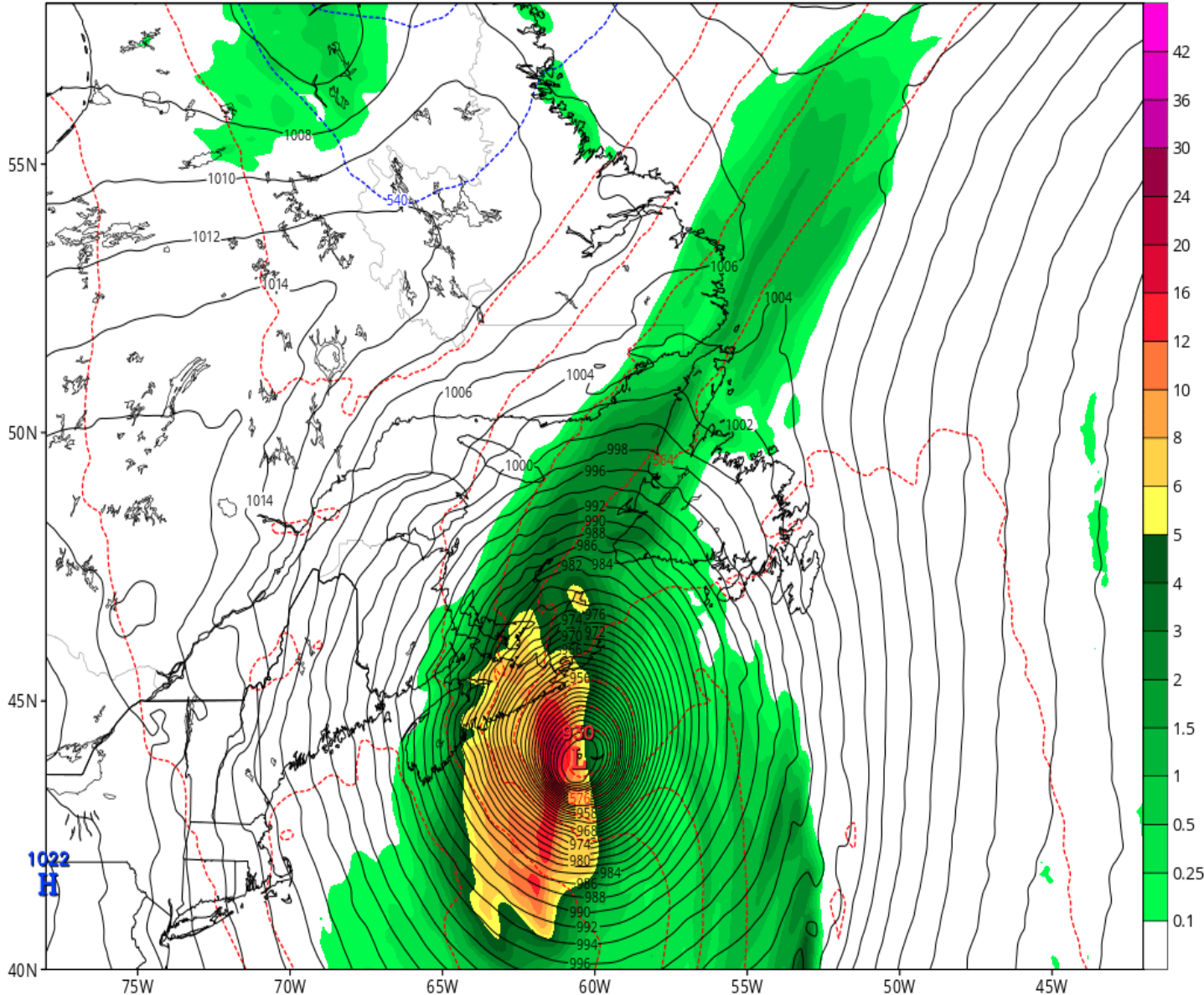
Moisture from Fiona continues to feed into the trough as the tropical cyclone gets closer. Winds increasing.

Model depiction for 3 am Saturday

GFS 6-hour Averaged Precip Rate (mm/hr), MSLP (hPa) & 1000-500mb Thickness (dam)

Init: 00z Sep 22 2022 Forecast Hour: [54] valid at 06z Sat, Sep 24 2022

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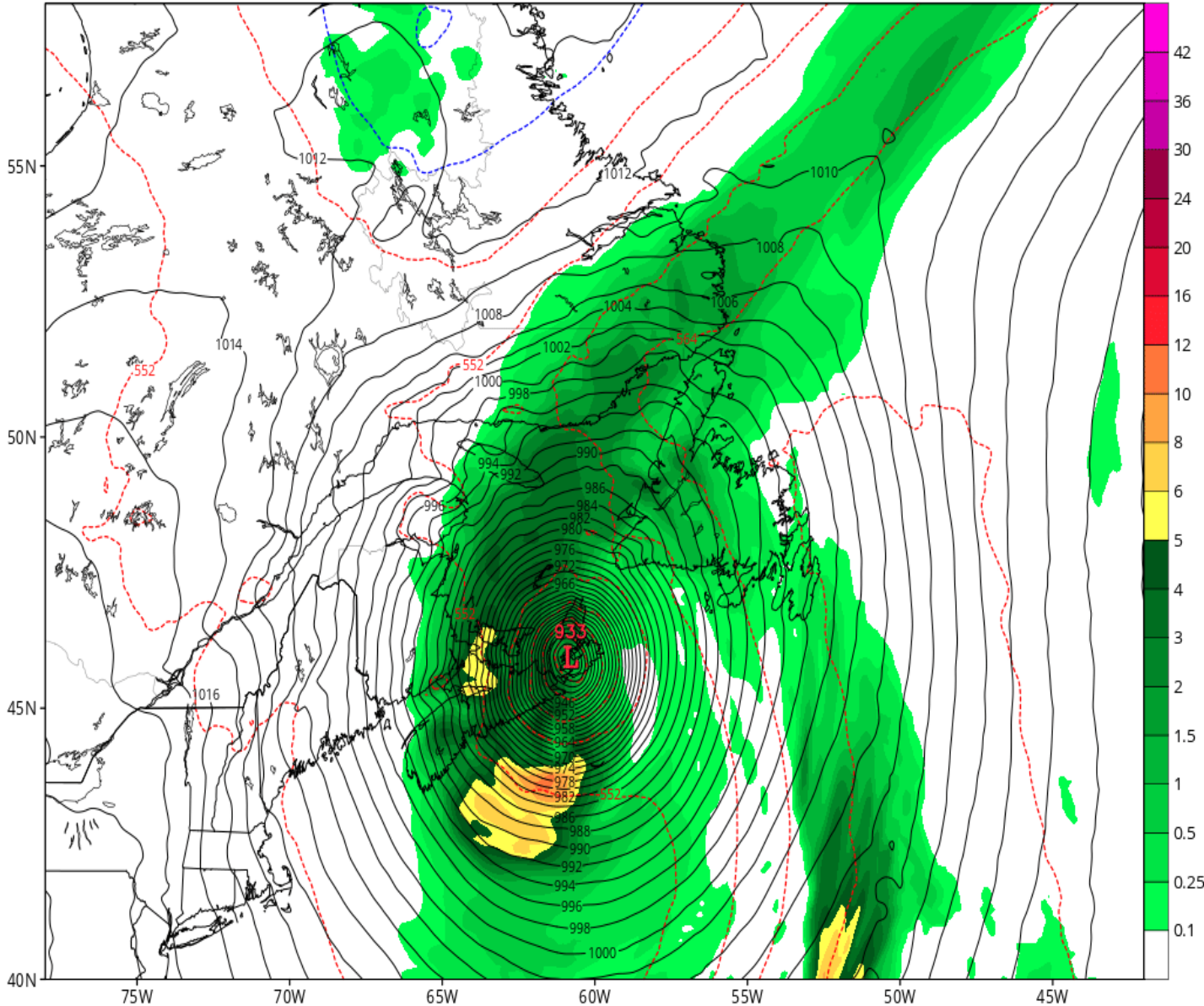
Fiona just south of NS. Extreme rain to the left of the centre. Strong and damaging winds have reached NS.

Model depiction for 9 am Saturday

GFS 6-hour Averaged Precip Rate (mm/hr), MSLP (hPa) & 1000-500mb Thickness (dam)

Init: 00z Sep 22 2022 Forecast Hour: [60] valid at 12z Sat, Sep 24 2022

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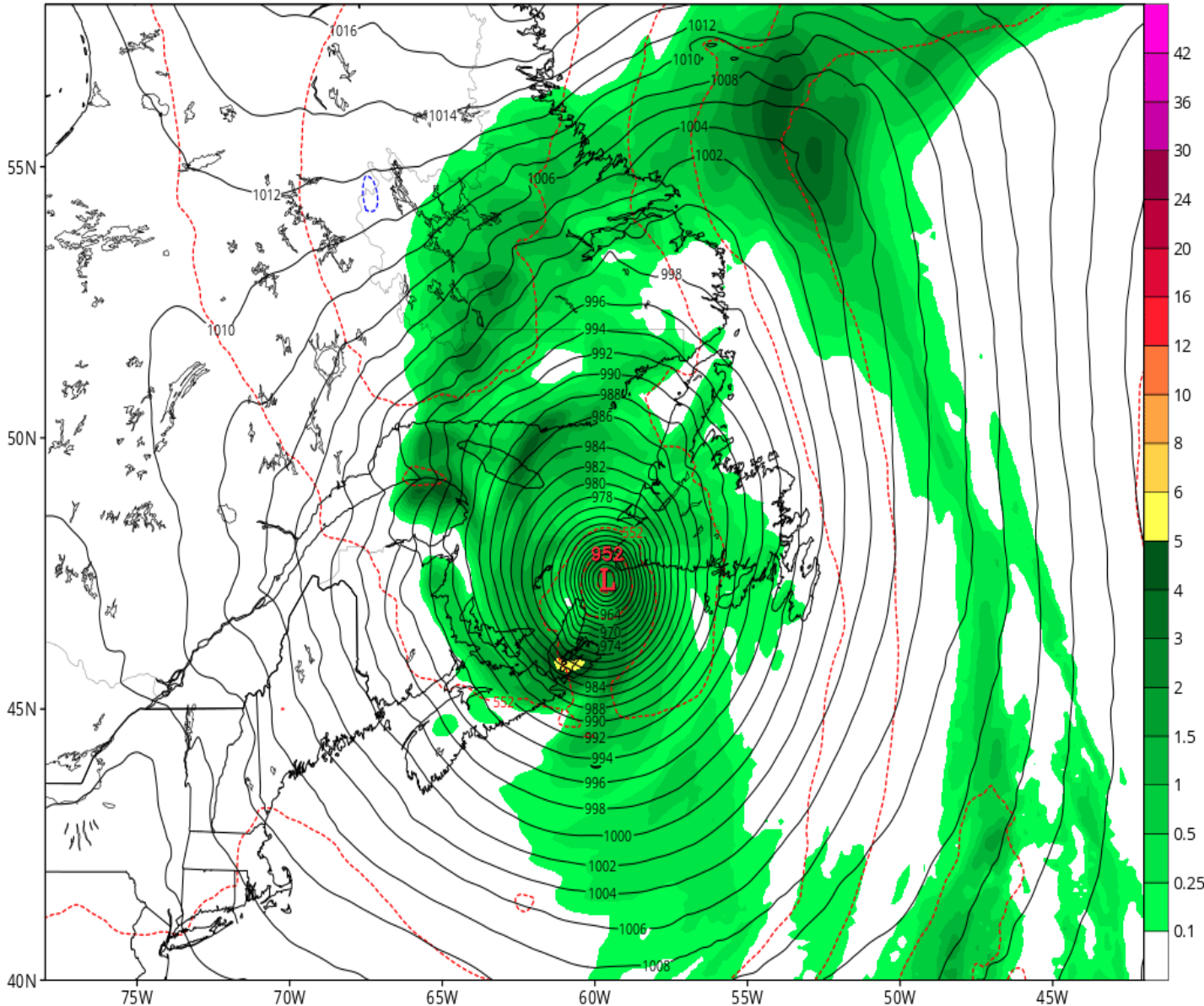
Centre has made landfall. Extreme winds across eastern and central NS.

Model depiction for 9 pm Saturday

GFS 6-hour Averaged Precip Rate (mm/hr), MSLP (hPa) & 1000-500mb Thickness (dam)

Init: 00z Sep 22 2022 Forecast Hour: [72] valid at 00z Sun, Sep 25 2022

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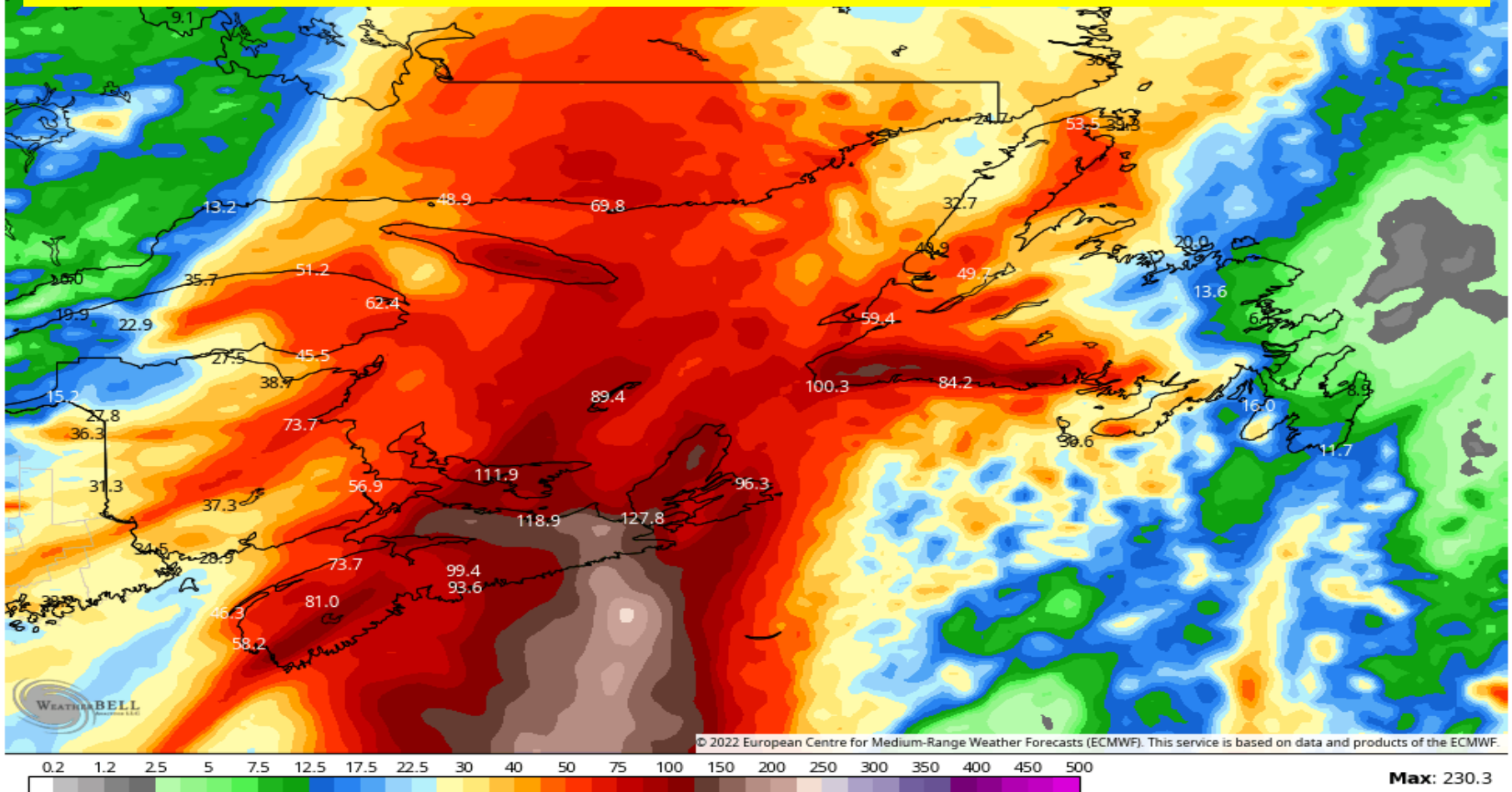
Centre of Fiona now in the Gulf of St. Lawrence or Cabot Strait. Strong winds remain in eastern NS. Gradually improving in the west.

Total Model Rainfall by Saturday Afternoon (mm)

ECMWF 0.1° Init 00z 22 Sep 2022 • Total Precipitation (mm)

Hour: 72 • Valid: 00z Sun 25 Sep 2022

This represents total rainfall by Saturday evening. This is the same model presented yesterday and by comparison rainfall amounts are a little less. Other models have also diminished amounts as well but overall what was mentioned yesterday of 100 to 150 mm in eastern and central NS with local amounts possibly approaching 200 mm still looks reasonable.

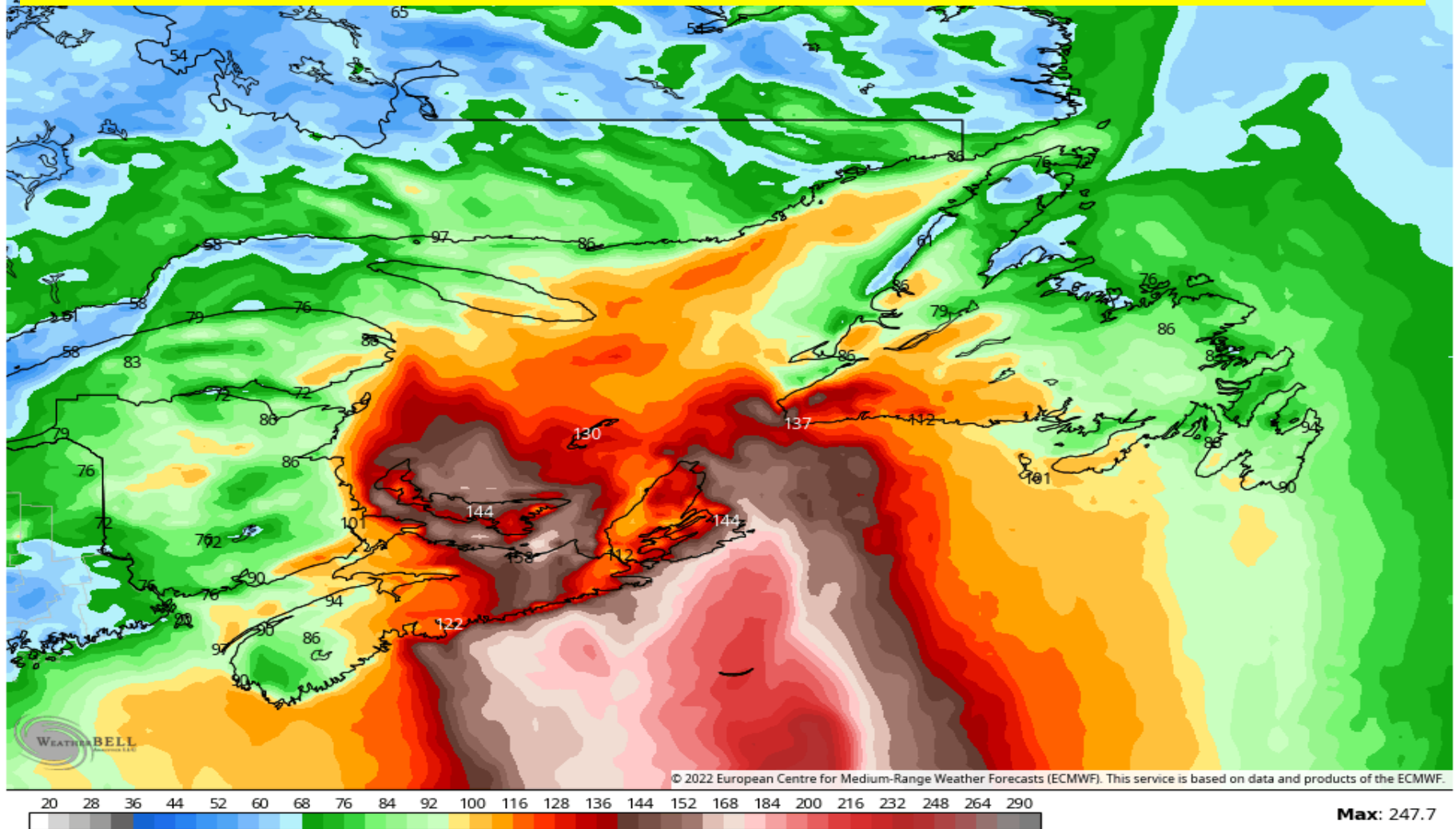


Peak Wind Gusts by Saturday Evening (km/h)

ECMWF 0.1° Init 00z 22 Sep 2022 • Accum. Max 10m Wind Gust (km/hr)

Hour: 72 • Valid: 00z Sun 25 Sep 2022

This map represents peak wind gusts by Saturday evening. Again the focus for the strongest winds seems to be in central and eastern NS. A key point here is that there will be very strong winds on BOTH sides of this storm, not just the right side of the track as in many post-tropical storms.



Coastal Flooding Risk

This is an updated map representing relative risk for coastal flooding. In some areas predicted peak water levels have diminished while they have increased in other areas, all mostly due to timing as opposed to surge magnitude. Saturday morning high tide seems to be the critical timeframe.

