

**Wind and Rain Event  
December 18-21, 2023  
Briefing #3**

December 18<sup>th</sup>, 2023  
7:30 am

**Briefing produced as guidance for emergency management officials.**

# Hazard Risk Assessment Page

## Brief Summary

Strong storm system to affect Nova Scotia today and tonight with periods of rain, heavy at times and strong winds. Rain at times heavy to persist in the east Tuesday and into the latter part of the week.

## Onset Timing

**South Shore:** Ongoing

**Annapolis Valley:** Imminent/ongoing

**Central Nova Scotia:** This afternoon

**Eastern Nova Scotia:** Late this afternoon

## Impacts

Similar storms in the past have caused:

- Utility outages
- Travel disruptions, hazardous driving conditions
- Flooding in low-lying and poor drainage areas
- Possible shoulder and road washouts
- Overwhelmed drainage systems
- Elevated water levels at the coast, high river levels

## Duration





Wind – 5 to 10 hours  
Rain – 8 to 14 hours

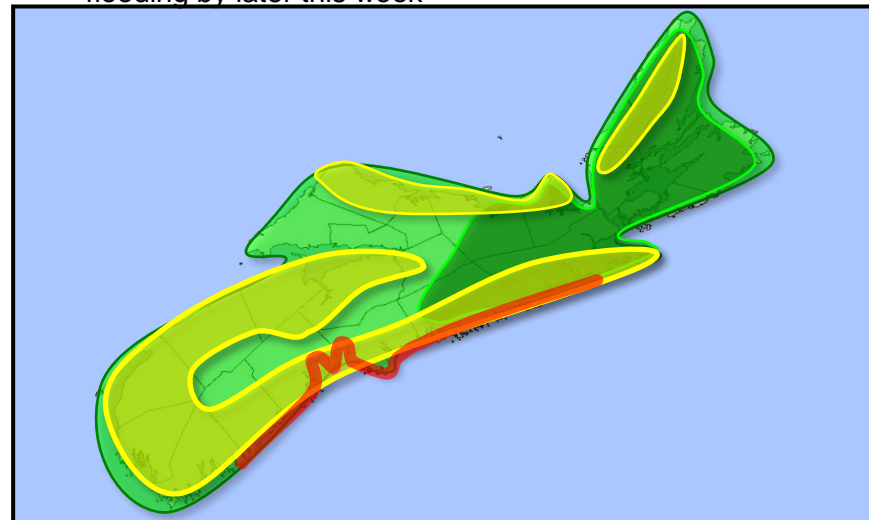
Note: Rain will continue for a longer period of time in the east

## Confidence Level

<b>High</b>	
<b>Moderate</b>	<b>X</b>
<b>Low</b>	

## Areas to Monitor

-  Areas to get periods, possibly heavy at times, today
-  Areas to get the strongest wind gusts today and tonight
-  Areas at greatest risk of getting extreme total rainfall and related flooding by later this week
-  Greatest risk of minor coastal flooding



**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/Discussion

The center of the current storm system is located off the coast of the Carolinas this morning and will rapidly track northward today, moving to lie over Quebec by this evening. Southeast winds are already gusting in the 40 to 60 km/h range in most areas of western and central Nova Scotia and this has helped push temperatures up into the double digits in many areas. Winds will continue to increase during the day and more organized rain will reach the province as the centre of the storm approaches and then passes west of us. As the storm continues to track northward into Labrador overnight, conditions will improve in the west and parts of central Nova Scotia. Meanwhile in eastern Nova Scotia, precipitation will continue as will the winds for an extended period of time, well into Tuesday before there's any considerable improvement. As mentioned in the previous package, a little break is likely to occur Tuesday night or Wednesday morning but then the precipitation swings back towards the west as the previously-mentioned secondary low develops south of the Maritimes. As this secondary low will be detached from any large-scale steering currents, its movement will be slight and somewhat erratic, making it very difficult to predict exactly where it will go. This secondary low will be responsible in keeping the precipitation over eastern Nova Scotia later Wednesday into at least Thursday allowing total precipitation for the week to add up. The exact amounts we get in eastern Nova Scotia will depend on exactly how and where this secondary low moves. Some good news is that most models now push this secondary out a little earlier than previous runs so we could be done with this by Friday instead of Saturday. High pressure would dominate our weather from that point on well into Boxing Day.

**Precipitation:** Rainfall today should be in the 25 to 50 mm range in the west and parts of central. Rain will continue into tonight and Tuesday for other parts of central into eastern Nova Scotia with amounts reaching the 50 to 100 mm range in eastern mainland Nova Scotia by Tuesday evening. Continued precipitation Wednesday into Thursday will add to the total rainfall in eastern Nova Scotia and there continues to be indications that total precipitation could reach the 150 to 200 mm range in some areas by early Friday.

**Winds:** Peak winds will occur from this morning in the west to early Tuesday in the east. Peak gusts in exposed areas and higher terrain will likely reach the 90 to 110 km/h range (with gusts possibly reaching 125 km/h locally) while elsewhere gusts in the 70 to 90 km/h range are expected. Gusty winds continue on Tuesday in the east but should not be quite as strong as today and tonight.

**Storm Surge:** Today's storm will result in a storm surge of about 1 m which combined with waves, could result in some minor coastal flooding and erosion especially along the central Atlantic Coast at high tide near midnight tonight.

This briefing package will be updated Tuesday morning.

# Key Messages, Alert Status, Post-Event Weather

## Key Messages

- Periods of heavy rain and strong winds expected to impact Nova Scotia today and tonight
- Strongest winds to occur between late morning in the west to tonight in eastern Nova Scotia
- More rain to come especially in eastern Nova Scotia Tuesday which could continue until Thursday or Friday
- Greatest hazards are the winds and associated utility outages and a high risk of flooding and infrastructure damage due to heavy and persistent rain

## Weather Alert Status

- Wind, Rainfall and Storm Surge Warnings are now in effect for various regions

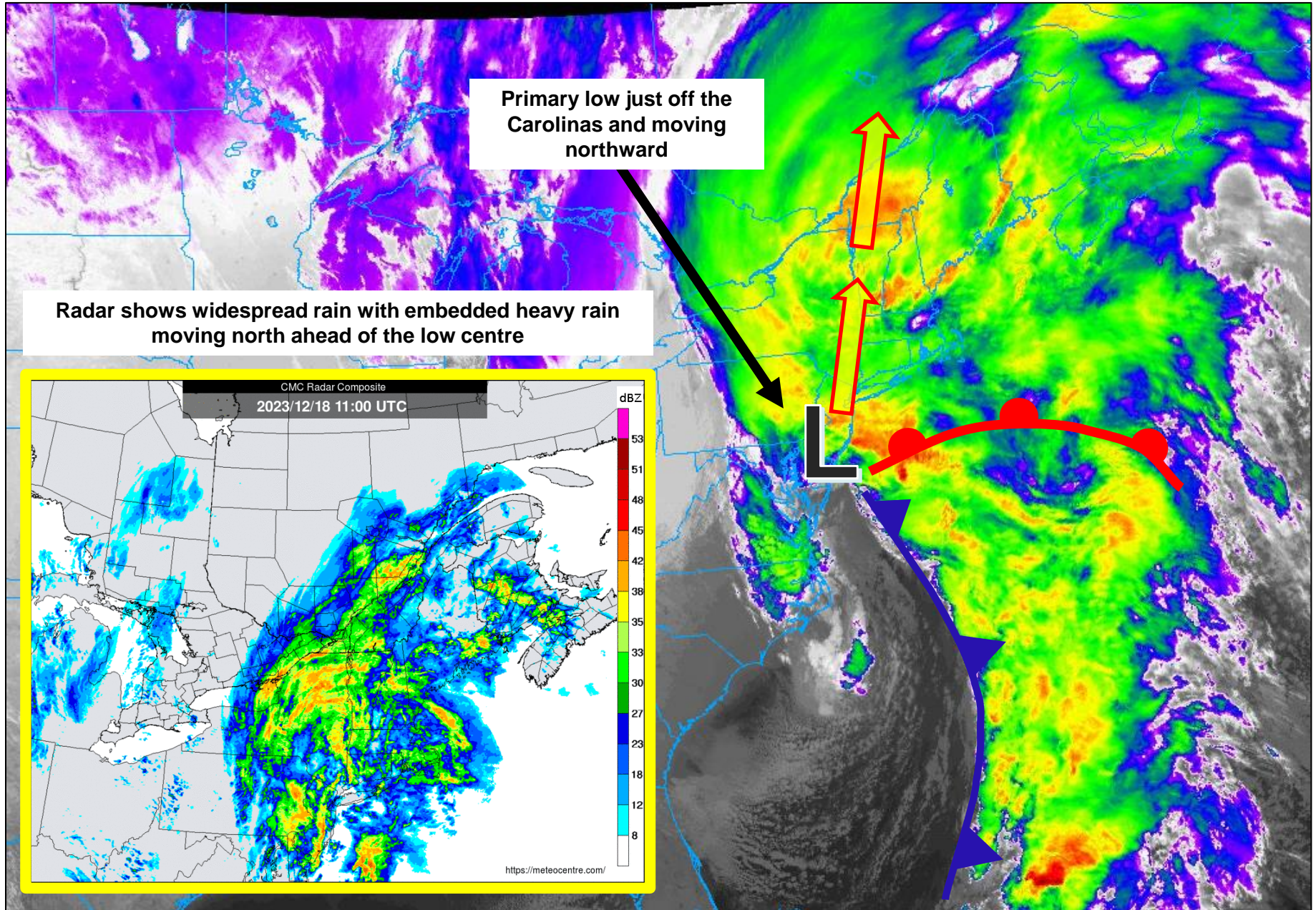
[Current Weather Alerts for NS](#)

## Post-Event Weather

- A colder air mass will move in for Friday into next weekend
- Looking at the longer range models, there does not appear to be any major weather systems affecting Nova Scotia on December 23, 24 or Christmas Day



# Current Satellite and Radar as of 7:30 am



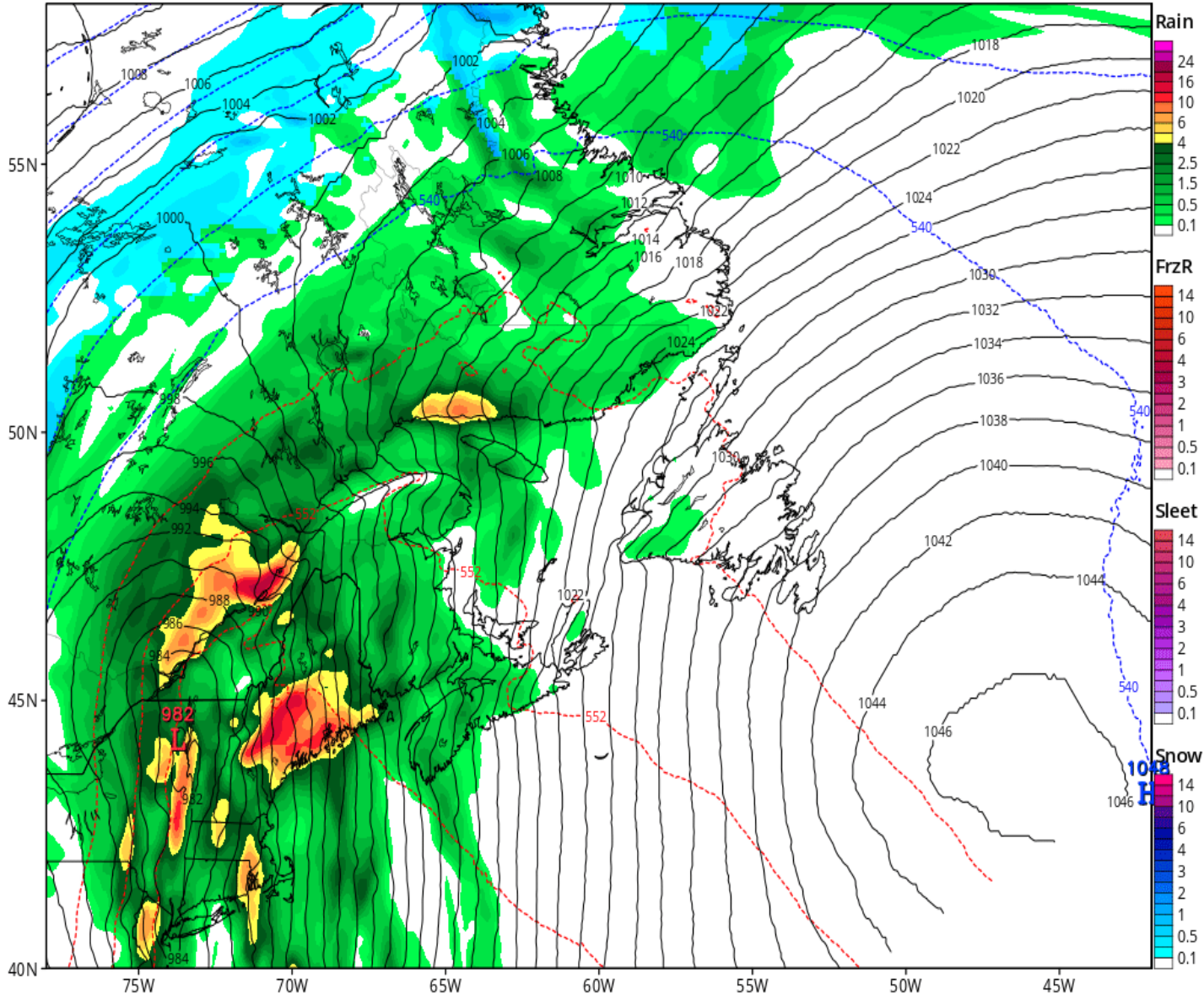


# Model depiction for noon today

RGEM 1-hour Averaged Precip Rate (mm/hr), MSLP (hPa), & 1000-500mb Thick (dam)

Init: 06z Dec 18 2023 Forecast Hour: [10] valid at 16z Mon, Dec 18 2023

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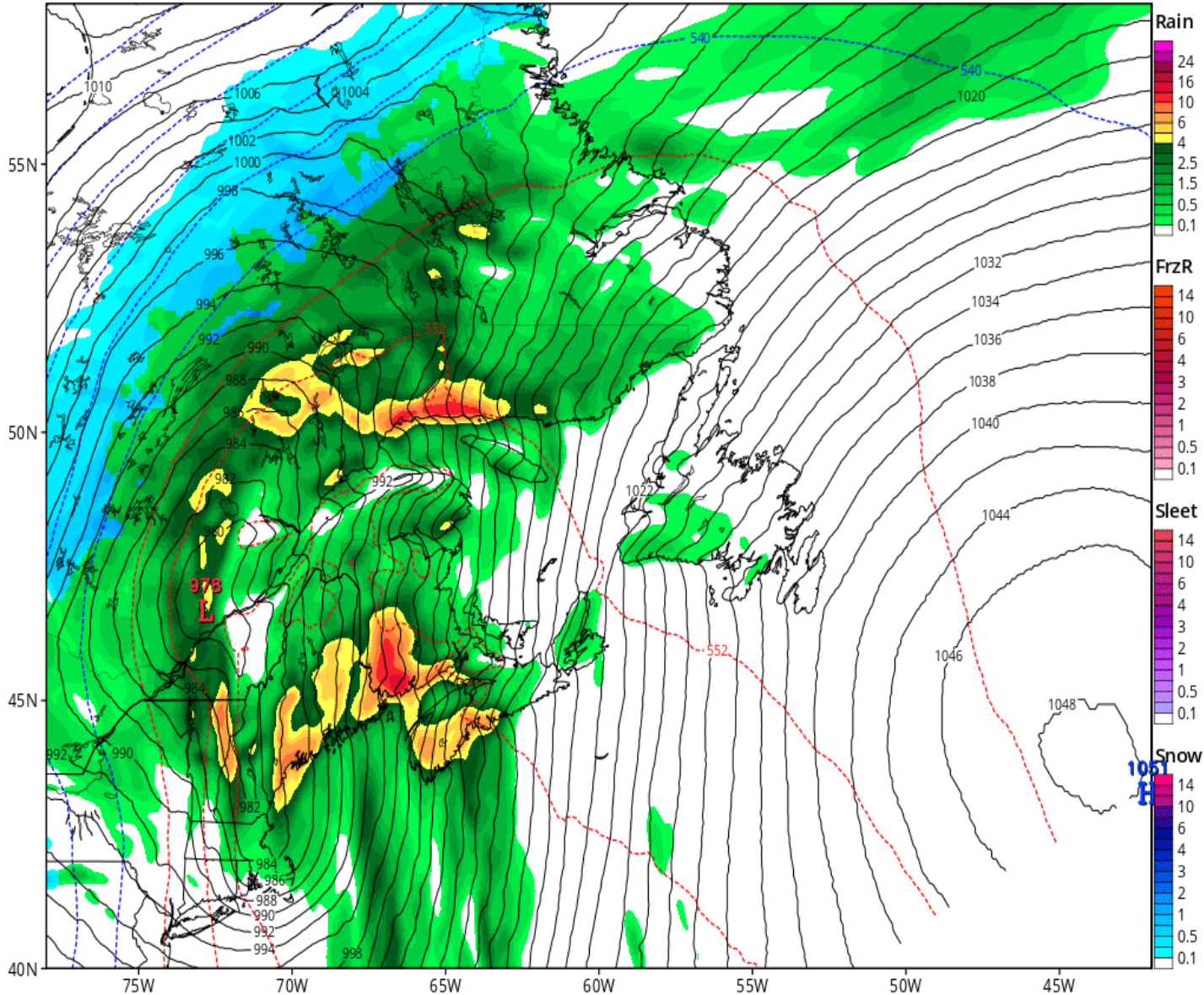
Low centre over New England. Light rain in mainland NS – Winds continue to increase out of the southeast.

# Model depiction for 6 pm this evening

RGEM 1-hour Averaged Precip Rate (mm/hr), MSLP (hPa), & 1000-500mb Thick (dam)

Init: 06z Dec 18 2023 Forecast Hour: [16] valid at 22z Mon, Dec 18 2023

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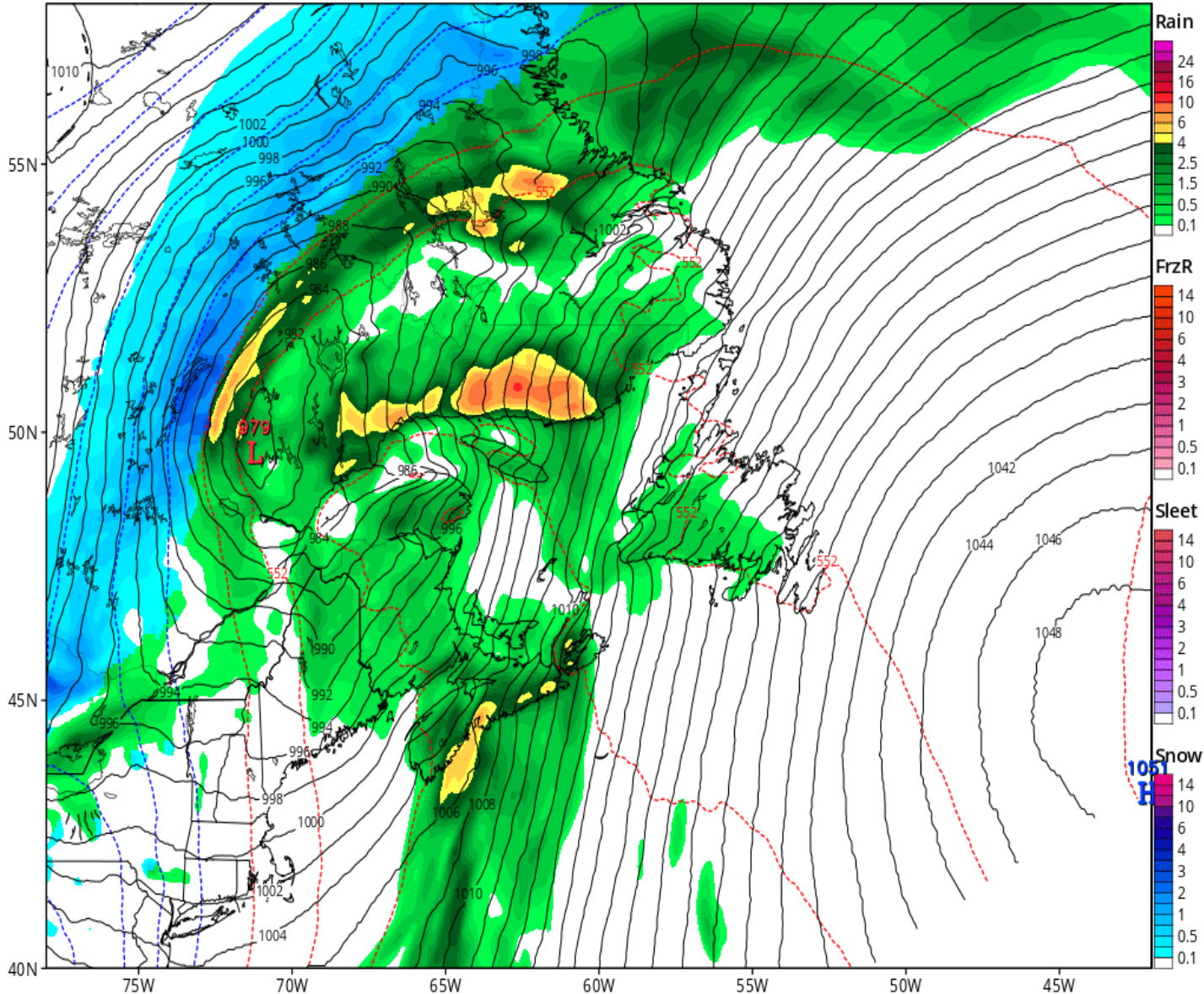
Low centre over Quebec. Periods of rain with embedded heavier rain. Strong southeast winds over NS.

# Model depiction for midnight tonight

RGEM 1-hour Averaged Precip Rate (mm/hr), MSLP (hPa), & 1000-500mb Thick (dam)

Init: 06z Dec 18 2023 Forecast Hour: [22] valid at 04z Tue, Dec 19 2023

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Periods of rain with embedded heavier showers. Winds diminishing in western NS but remain strong in parts of central and eastern NS.

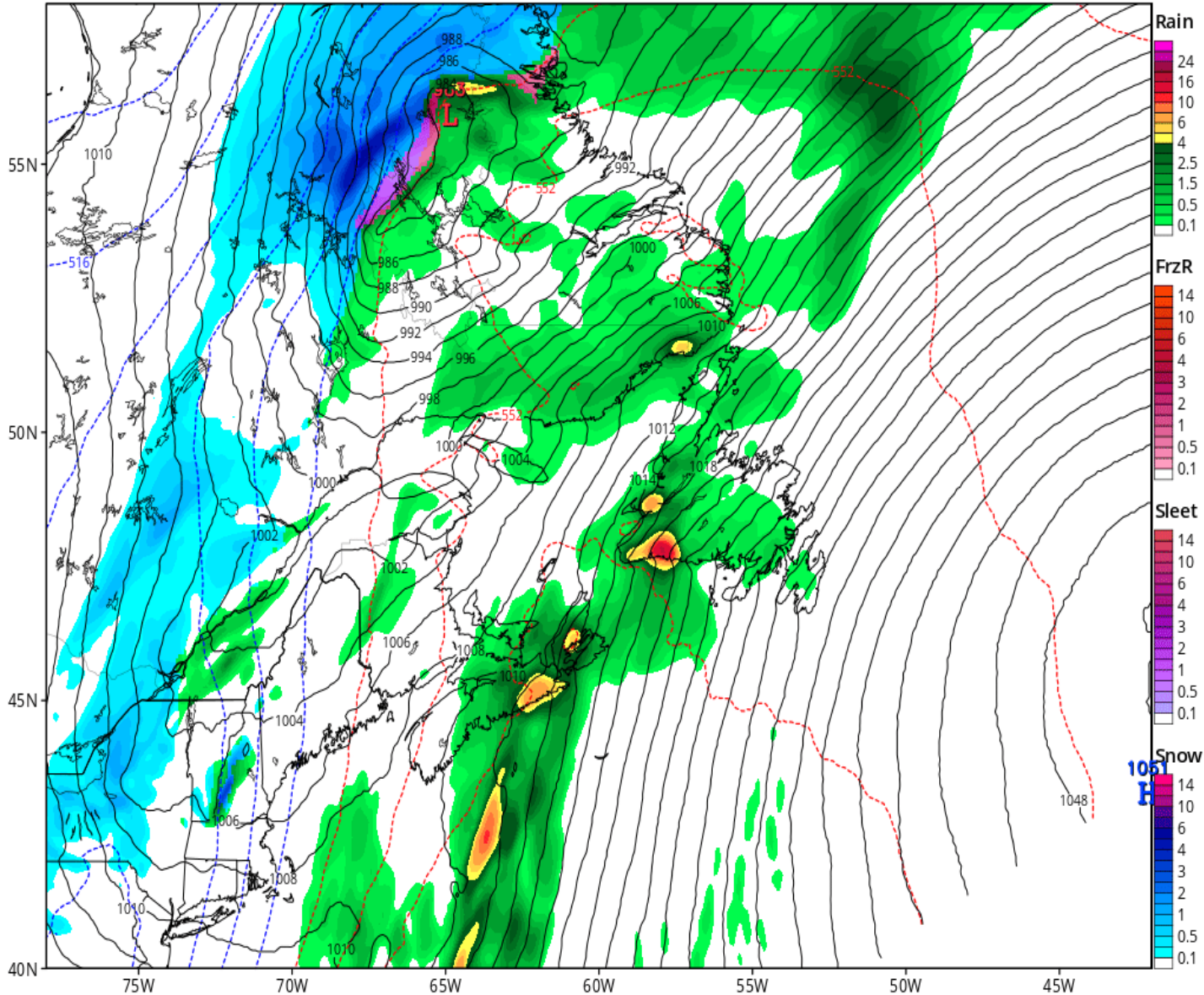


# Model depiction for 8 am Tuesday

RGEM 1-hour Averaged Precip Rate (mm/hr), MSLP (hPa), & 1000-500mb Thick (dam)

Init: 06z Dec 18 2023 Forecast Hour: [30] valid at 12z Tue, Dec 19 2023

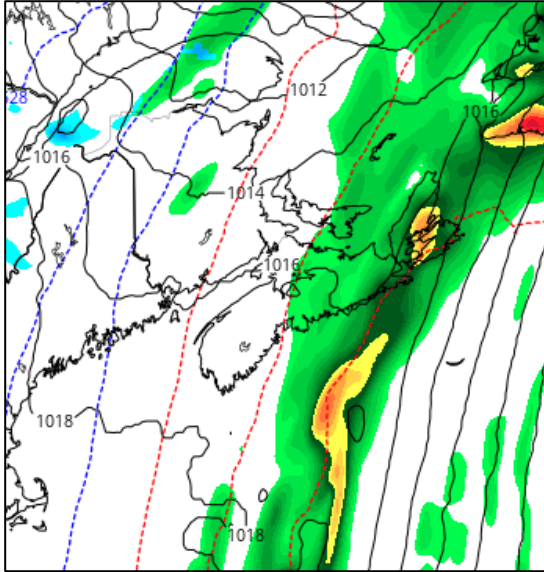
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Primary low centre now over Labrador, secondary low about to get organized to the south. Rain and gusty winds continue in eastern NS.

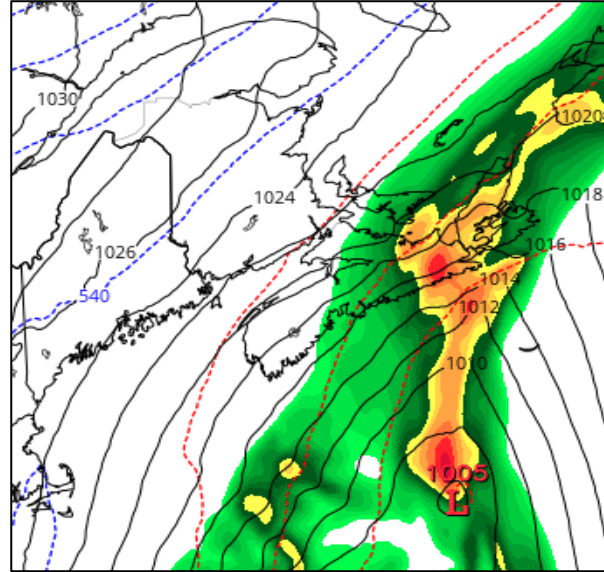
# Model depiction for later in the week

Tuesday Evening



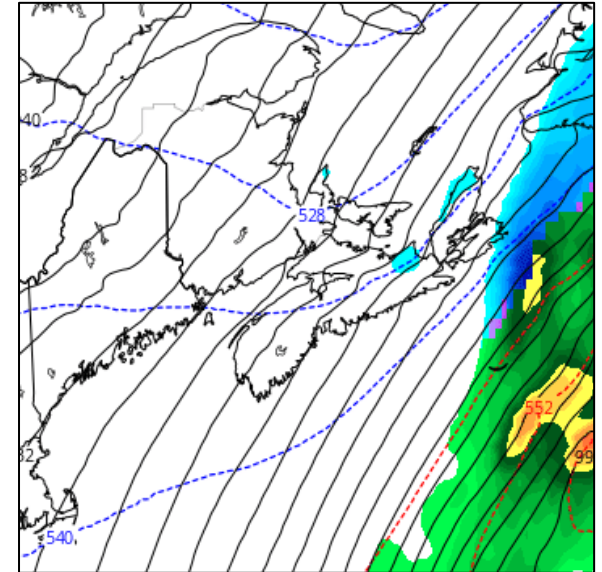
Secondary low slowly developing to the south. Rain continues in the east.

Wednesday Evening



Secondary low now intensifying a little faster. Rain, possibly heavy, in parts of eastern NS.

Thursday Evening



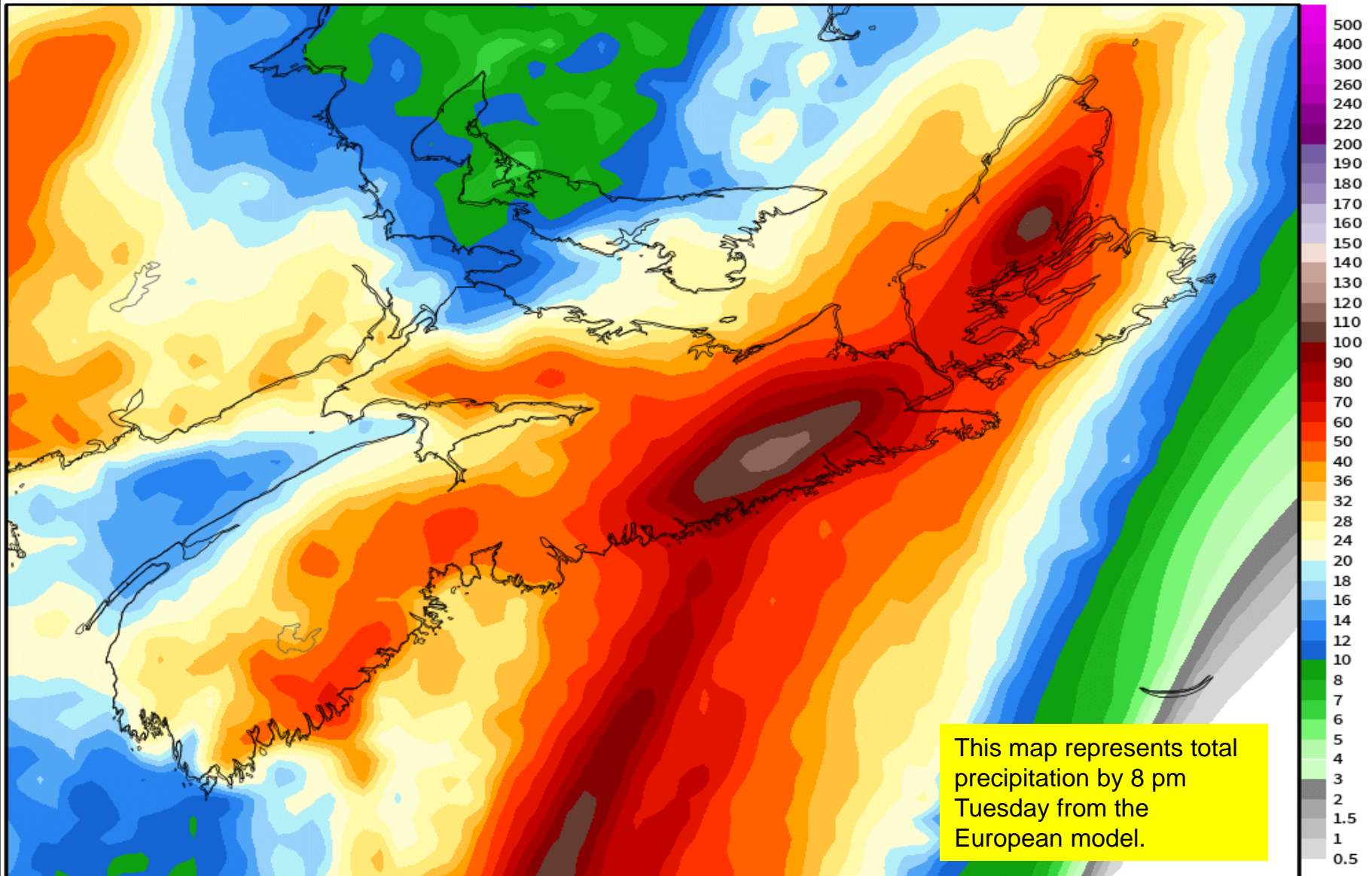
Secondary low drifting eastward. Precipitation moving out of eastern NS. By then we will have seen a progression of rain to freezing precipitation to snow before it ends.

# Total Model Precipitation by 8 pm Tuesday (mm)

ECMWF Total Precipitation [mm]

Init: 00Z18DEC2023 -- [48] hr --> Valid Wed 00Z20DEC2023

MAX: 117.1 mm





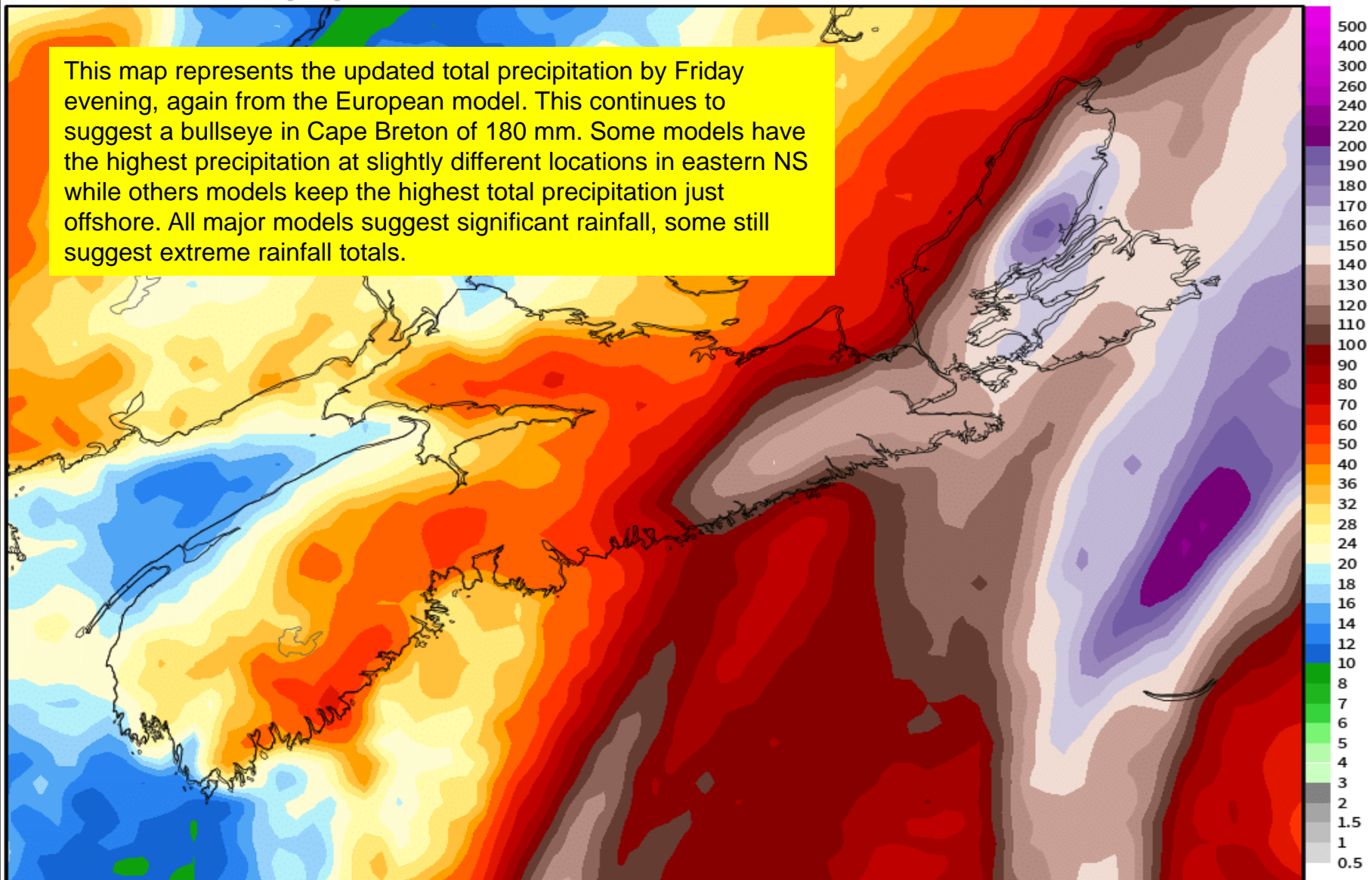
# Total Model Precipitation by 8 pm Friday (mm)

ECMWF Total Precipitation [mm]

Init: 00Z18DEC2023 -- [120] hr --> Valid Sat 00Z23DEC2023

MAX: 223.3 mm

This map represents the updated total precipitation by Friday evening, again from the European model. This continues to suggest a bullseye in Cape Breton of 180 mm. Some models have the highest precipitation at slightly different locations in eastern NS while others models keep the highest total precipitation just offshore. All major models suggest significant rainfall, some still suggest extreme rainfall totals.



# Peak Wind Gusts by 8 am Tuesday (km/h)

HRDPS 0.0225° Init 06z 18 Dec 2023 • Accum. Max 10m Wind Gust (km/hr)

Hour: 30 • Valid: 12z Tue 19 Dec 2023

This map represents peak wind gusts by Tuesday morning and covers the period of strongest winds which should be from late this morning to early Tuesday morning.

