

2024 Wet Season & Hurricane Season Outlooks



Trinidad and Tobago Meteorological Service

Produced by Kaidar Kissoon, Meteorologist 1, Acting Climatologist.

Presented by Ean Wallace, Meteorologist 1.

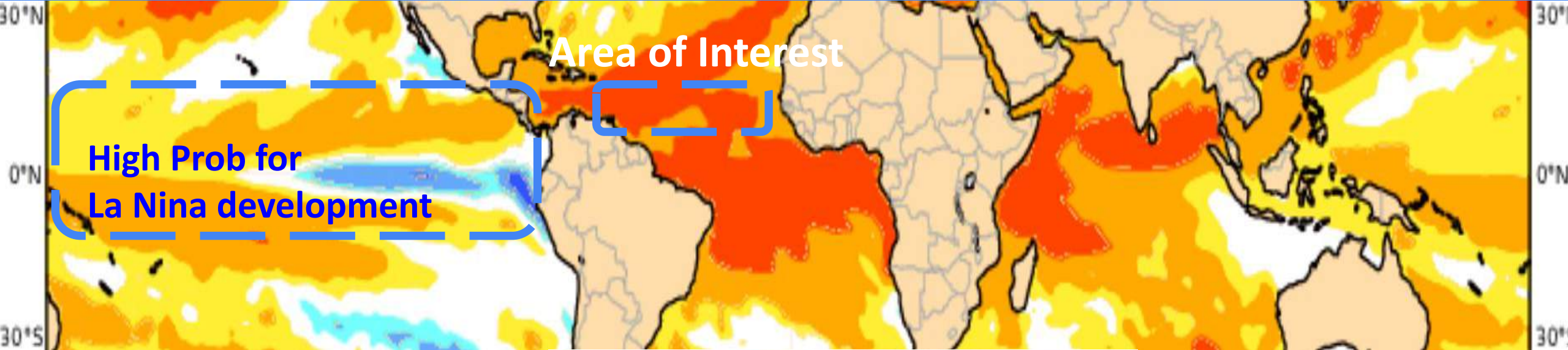
2024 Wet Season & Hurricane Season Outlooks



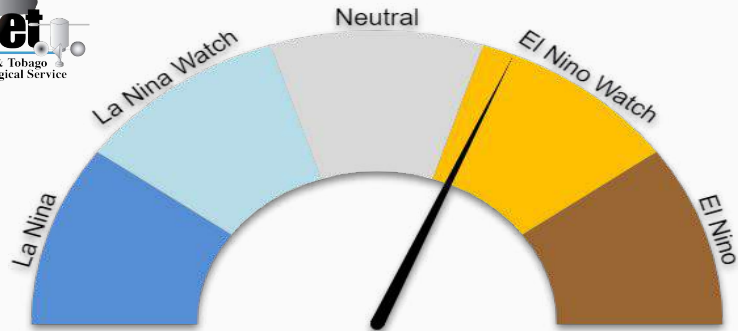
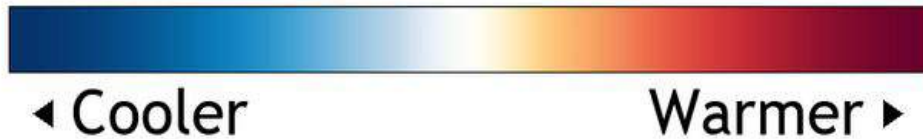
State of Key Local Climate Influencers

1. El Niño-Southern Oscillation (El Niño/La Niña)
2. Sea Surface Temperatures east of T&T
3. Atlantic Meridional Mode (north/south sea-surface temperature gradient)

May 2024: Cooler Eastern Pacific, Record Warm Atlantic



**Ocean Temperature Departure
May 2024**



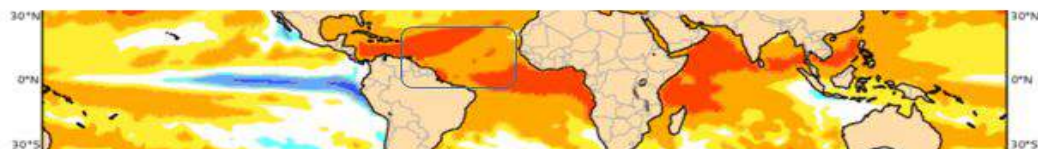
Canonical Correlation Analysis (CCA), model inputs:

1. El Niño-Southern Oscillation (ENSO): Weakened El Nino, High Probability for La Nina development in Central & Eastern Tropical Pacific Ocean.
2. SSTs in Area of Interest, including that portion of the North Atlantic Warm Pool, east and southeast of Trinidad.
3. Atlantic Meridional Mode SSTs gradient between North and South Atlantic Oceans

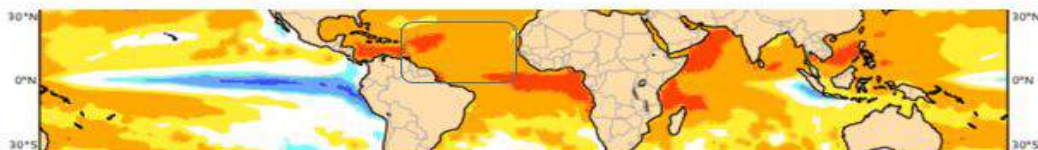
June - September 2024: Tropical Atlantic To Remain Relatively Warm

Projected Sea Surface Temperature Anomalies from June to September 2024

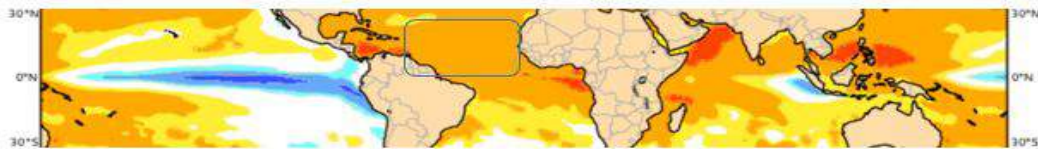
June 2024



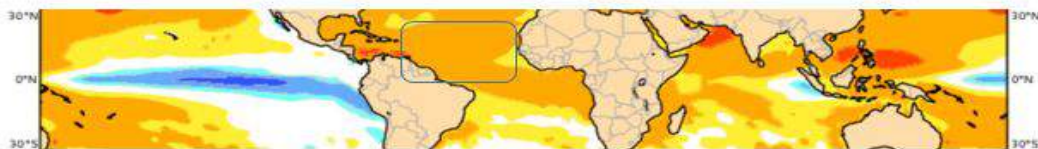
July 2024



August 2024

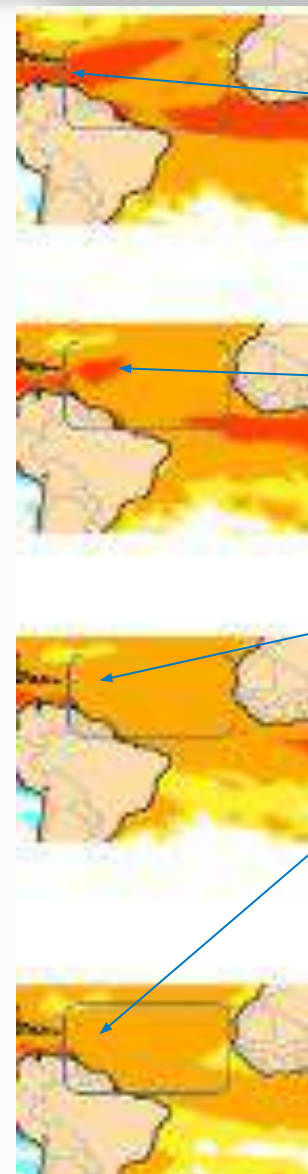
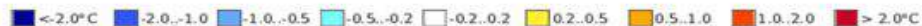


September 2024



C3S multi-system seasonal forecast
Mean forecast SST anomaly

ECMWF/Met Office/Météo-France/CMCC/DWD/NCEP/JMA/ECCC



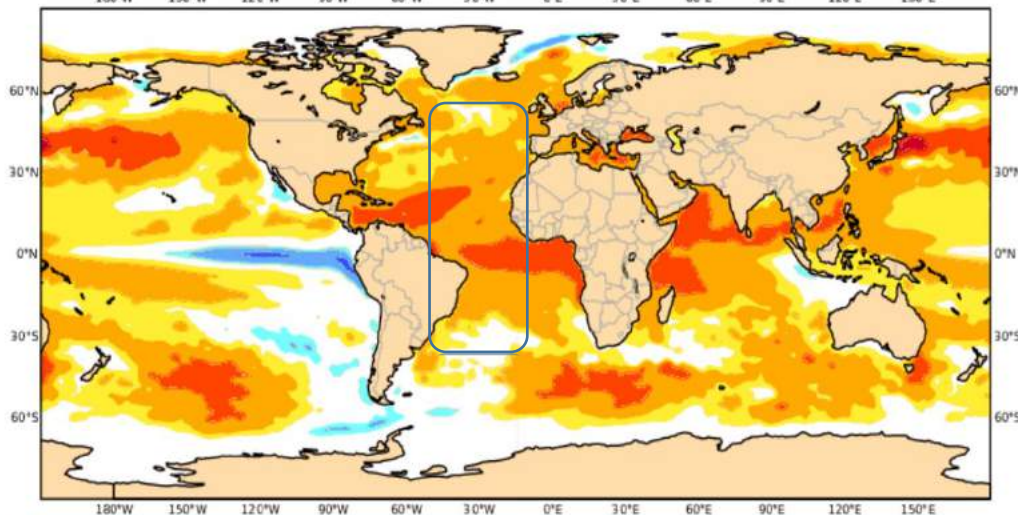
Large area of
high SST
anomalies

Gradually
reducing areas
of high SST
anomalies from
July to
September.

Sea Surface Temperatures To Remain Above Average!

Atlantic Meridional Mode Likely to be Positive June to September 2024

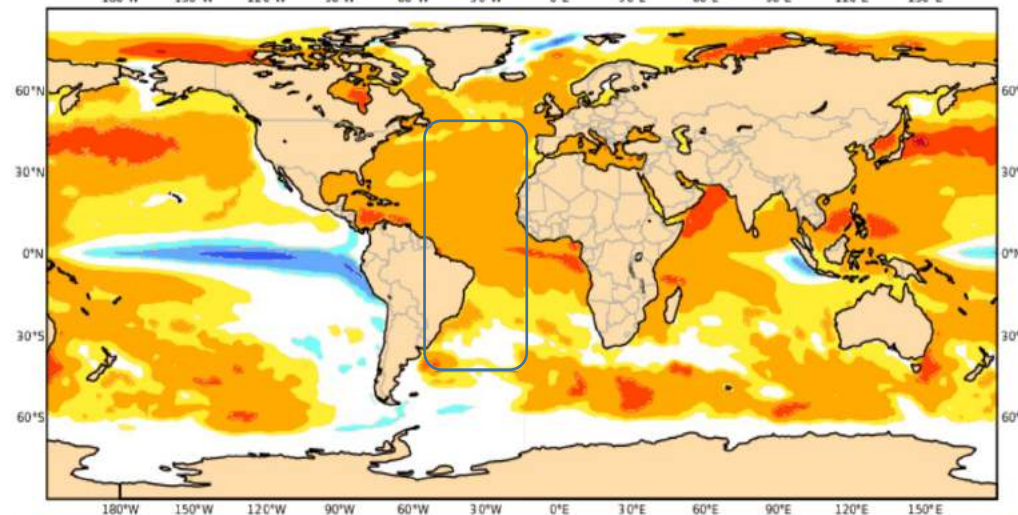
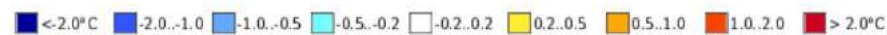
C3S multi-system seasonal forecast ECMWF/Met Office/Météo-France/CMCC/DWD/NCEP/JMA/ECCC
 Mean forecast SST anomaly MJJ 2024
 Nominal forecast start: 01/04/24
 Variance-standardized mean



PROGRAMME OF THE EUROPEAN UNION




C3S multi-system seasonal forecast ECMWF/Met Office/Météo-France/CMCC/DWD/NCEP/JMA/ECCC
 Mean forecast SST anomaly JAS 2024
 Nominal forecast start: 01/04/24
 Variance-standardized mean



PROGRAMME OF THE EUROPEAN UNION



North Atlantic Hurricane Basin



Tropical cyclone activity is not expected
during the next 48 hours.

12:53 pm EST
Fri Apr 16 2021

<https://www.nhc.noaa.gov/>

100W

90W

80W

70W

60W

50W

40W

30W

20W

5N

1N

2N

3N

Forecast for 2024 Hurricane Activity

Colorado State University (<https://tropical.colostate.edu/forecasting.html>)

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Forecast Parameters	CSU Forecast for 2024*	Average for 1991-2020
Named Storms	23	14.4
Named Storm Days	115	69.4
Hurricanes	11	7.2
Hurricane Days	45	27.0
Major Hurricanes	5	3.2
Major Hurricane Days	13	7.4
Accumulated Cyclone Energy (ACE)+	210	123
ACE West of 60 degrees longitude	125	73

*CSU released its first seasonal forecast for 2024 on Thursday, April 4.

+A measure of a named storm's potential for wind and storm surge destruction defined as the sum of the square of a named storm's maximum wind speed (in 10^4 knots²) for each 6-hour period of its existence.

ATLANTIC HURRICANE SEASON FORECAST

2024

Exclusive AccuWeather Forecast

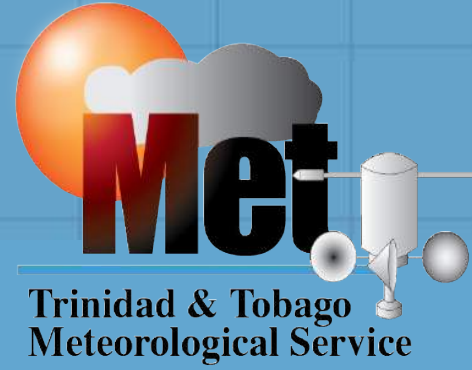
	Named Storms	Hurricanes	Major Hurricanes	Accumulated Cyclone Energy (ACE)	Direct U.S. Impacts
Forecast 2024	20-25	8-12	4-7	175-225	4-6
Previous Year 2023	19	7	3	145.6	4
30-Year Historical Average 1990-2020	14	7	3	123	4

(<https://www.accuweather.com/en/hurricane/explosive-atlantic-hurricane-season-predicted-for-2024-accuweather-experts-warn/1633944>)

2024 Hurricane Season Forecast

TTMS Area of Interest

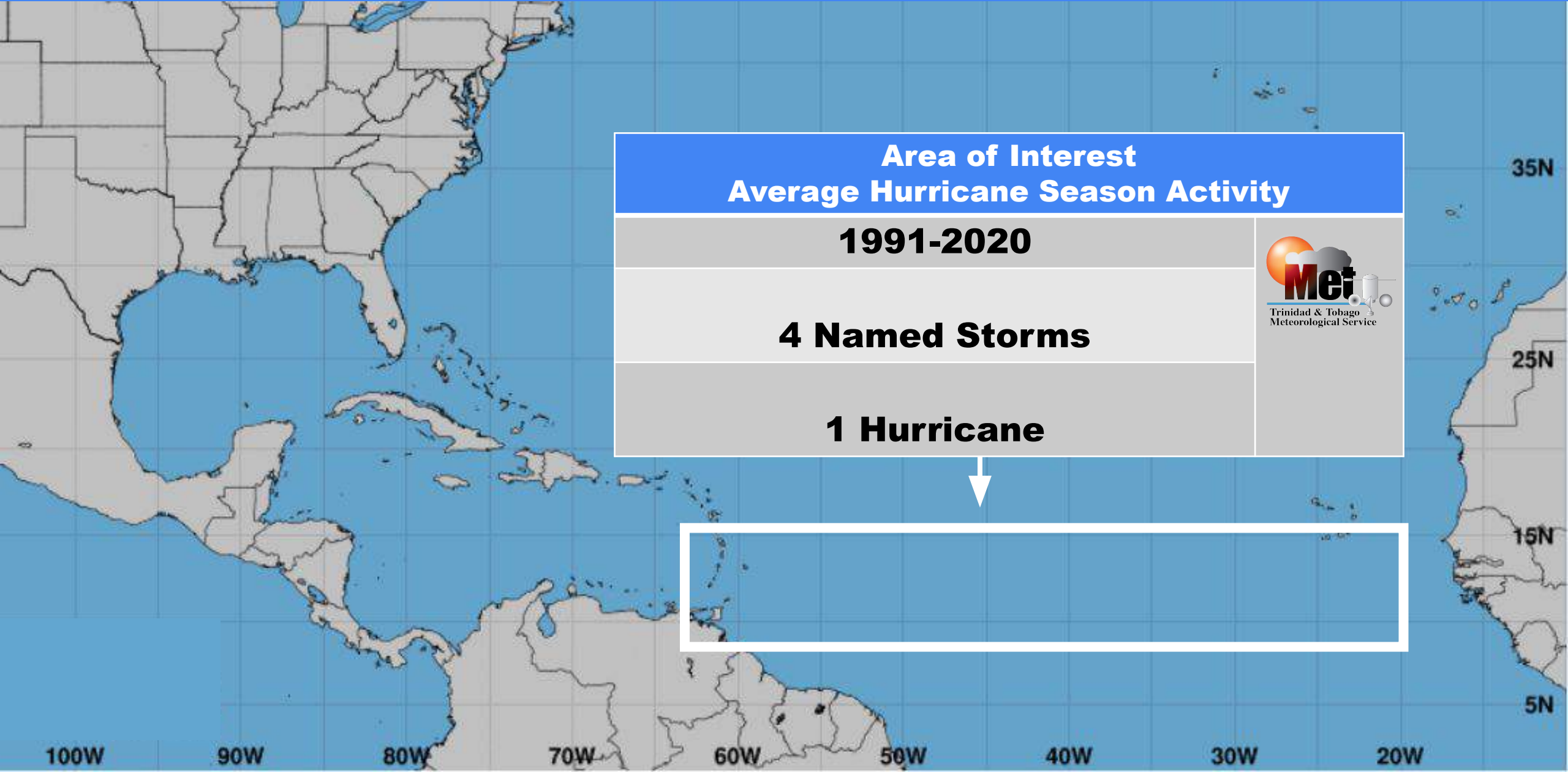




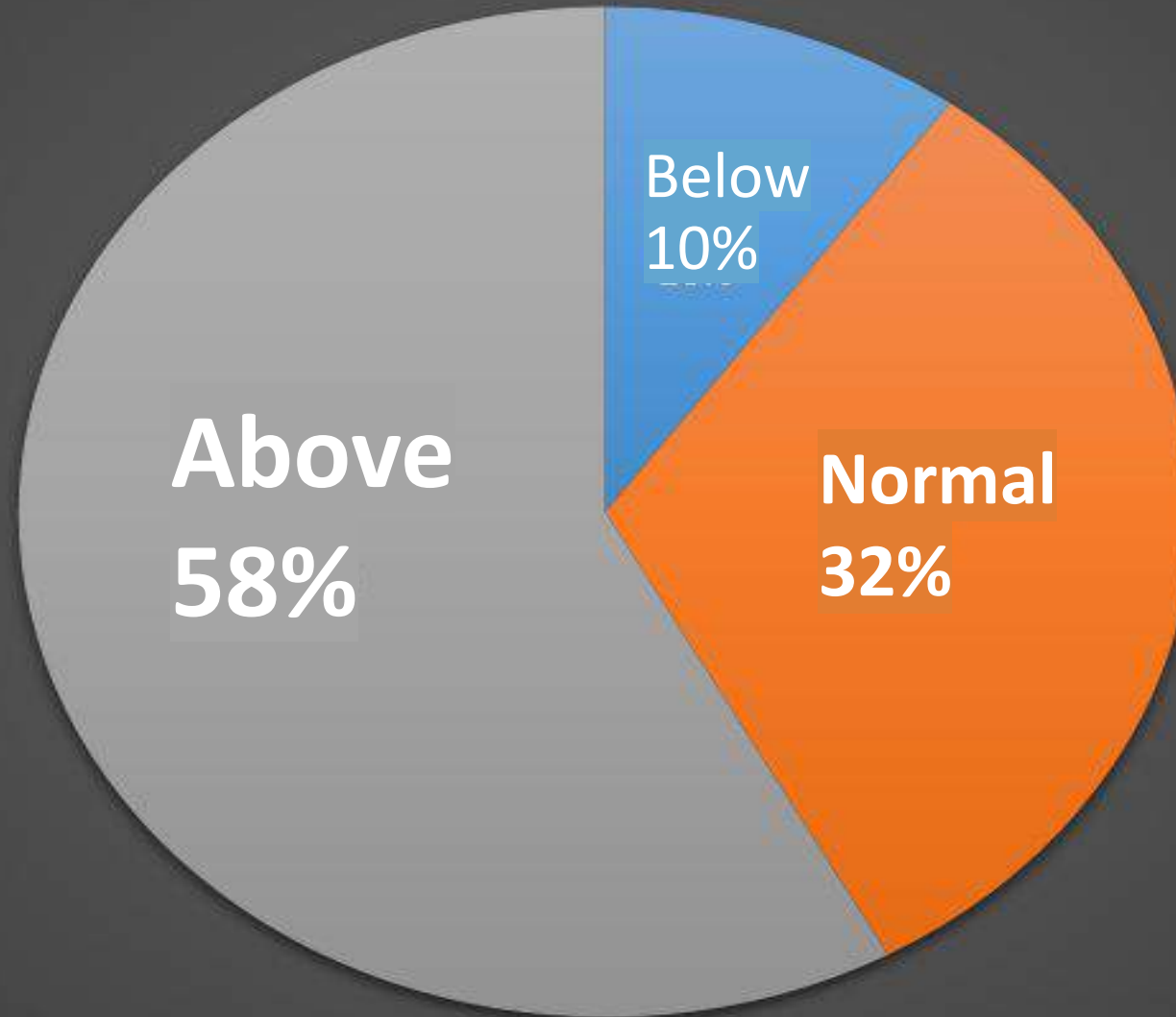
TTMS Area of Interest



Average Hurricane Season Activity In Area of Interest



2024 Hurricane Season Forecast in Area of Interest to Trinidad and Tobago



■ Below Normal ■ Normal ■ Above Normal



2024 Hurricane Season Forecast

Area of Interest to T&T

2024
Forecast

1991-2020
Average

MOST LIKELY NUMBER OF NAMED STORMS

6

4

LIKELY NUMBER OF NAMED STORMS

3-8

4

MOST LIKELY NUMBER OF HURRICANES

3

1

LIKELY NUMBER OF HURRICANES

1-4

1

Key Points

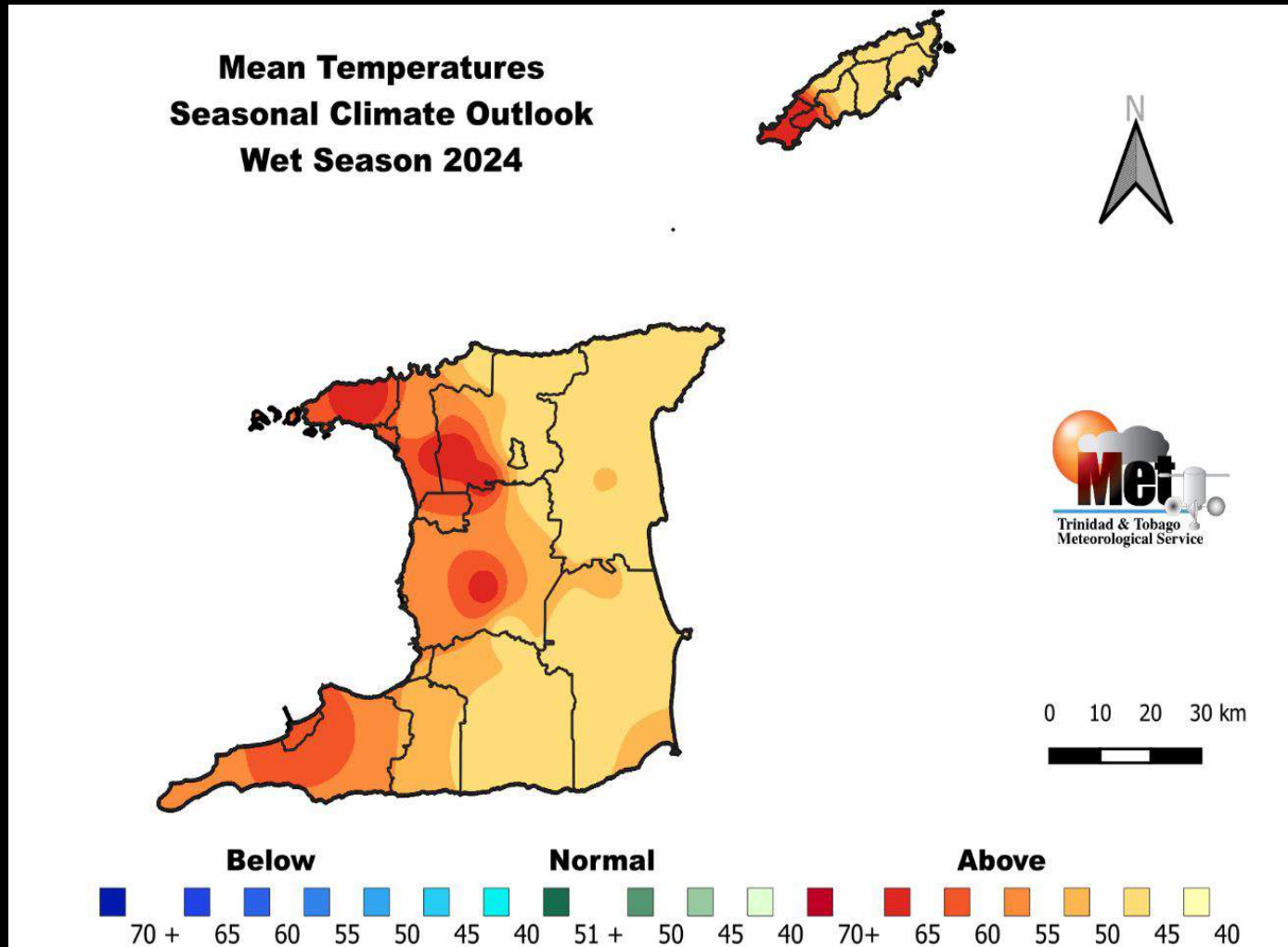
- The region faces another potentially very active hurricane season in the area of interest.**
- Heightened tropical storm activity is more likely during the peak of the season from August to October, but most likely in August and September.**
- Any tropical cyclone forming in Area of Interest has the potential to threaten Trinidad and Tobago, and the rest of the eastern Caribbean.**
- A season only needs one tropical storm or hurricane to cause devastation in Trinidad and Tobago, for it to be an active season. Citizens should increase preparation.**



2024 Wet Season Outlook

Produced by Kaidar Kissoon, Meteorologist 1, Acting Climatologist.
Presented by Ean Wallace, Meteorologist 1.

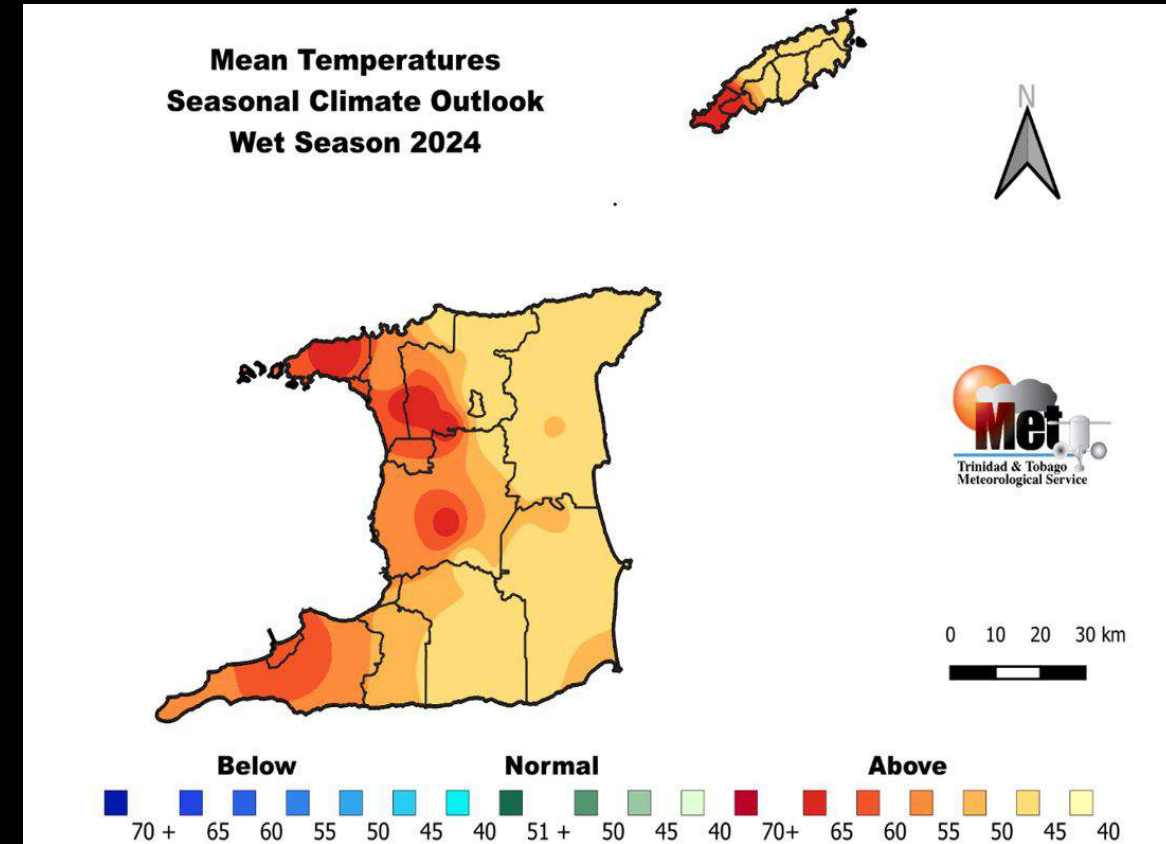
2024 Wet Season Temperature Outlook



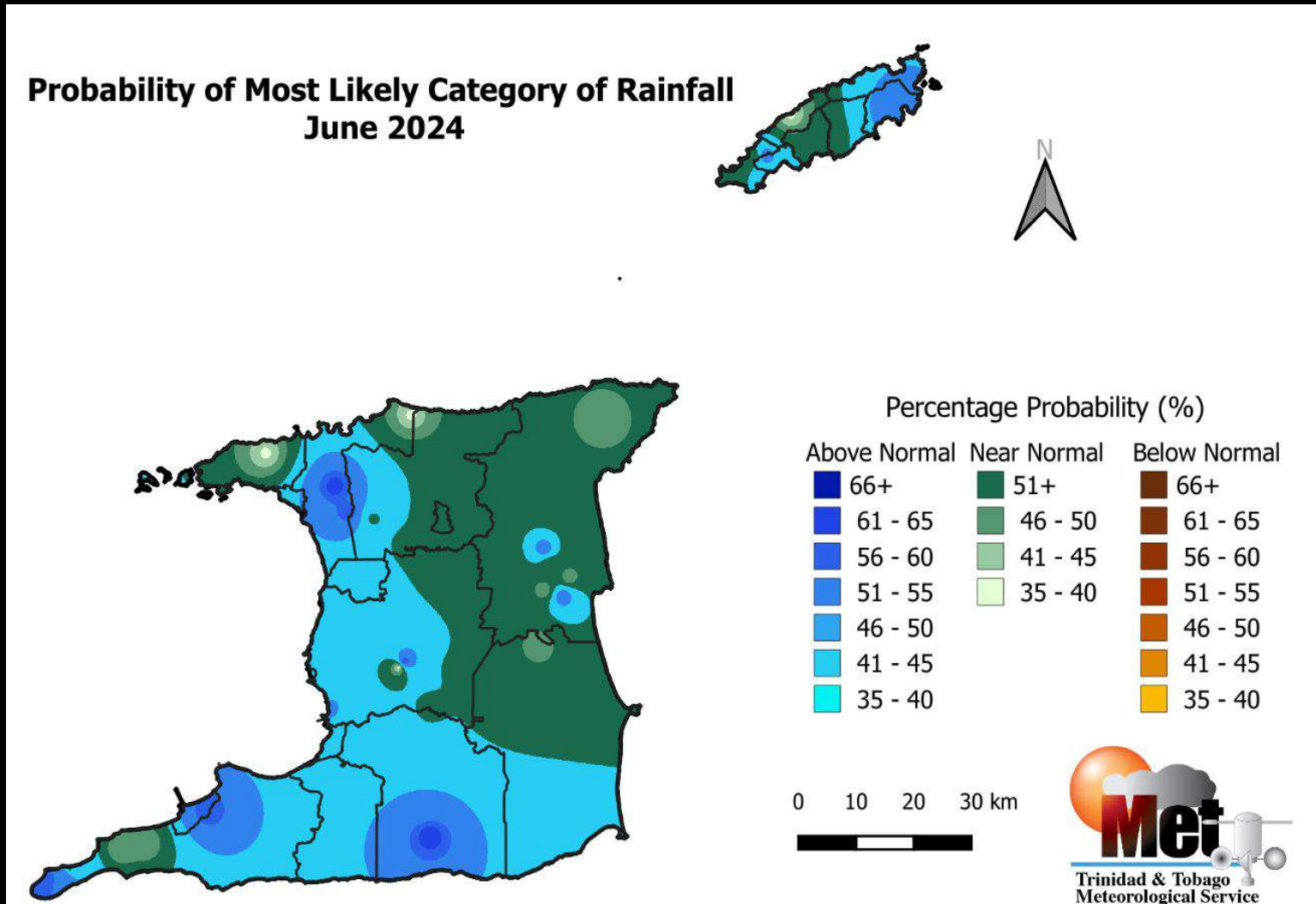
- ☐ **Mostly above-average temperatures likely across both islands**
- ☐ **There is a 40% to 65% chance for above-normal maximum and minimum temperatures mostly favoured for the western parts of Trinidad and south west Tobago**
- ☐ **Cities and urban areas have the highest chance for warmer than average temperatures**

Wet Season Excessive Heat Outlook

- ❑ **Maximum temperatures are likely to reach and exceed 34.0°C.**
- ❑ **High chance for hot days & heat surges to develop during August to October.**
- ❑ **Elevated chances for short-duration hot spells (temp => 34.0°C on 5 or more consecutive days).**
- ❑ **Risks peak in late August & early October.**
- ❑ **Maximum temperatures can reach or exceed 35.0°C in cities and urban areas on hot days.**



Rainfall Outlook: June 2024

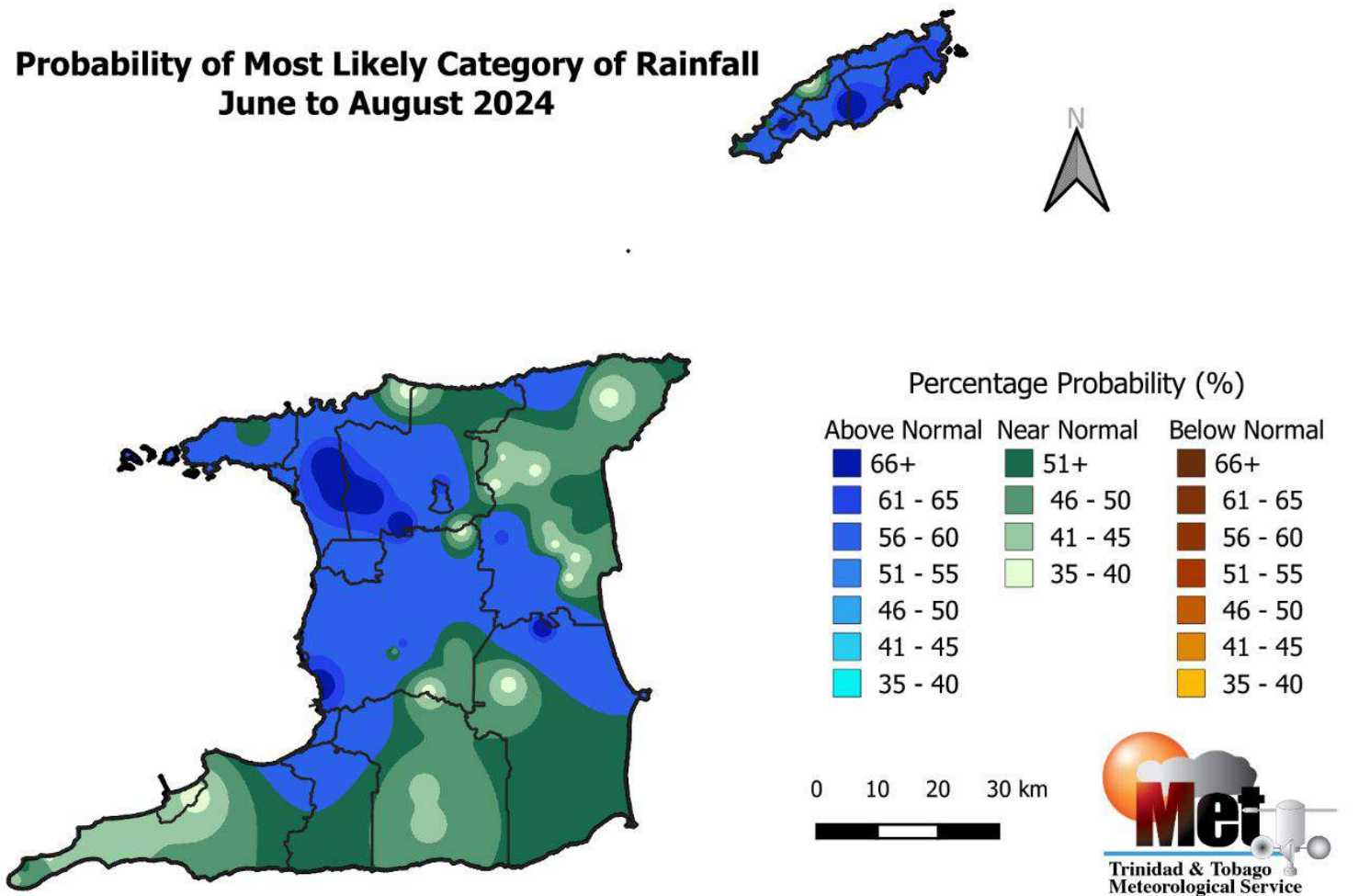


☐ **Mostly wetter than usual in Trinidad and Tobago**

☐ **42% to 63% chance for western areas of Trinidad and eastern Tobago to be wetter than usual.**

Rainfall Outlook: First half of Wet Season June to August 2024

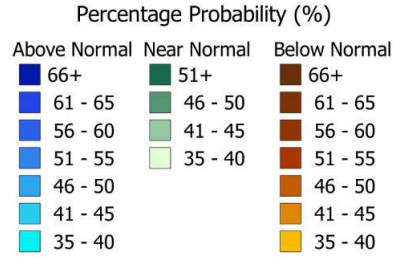
Probability of Most Likely Category of Rainfall
June to August 2024



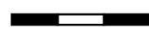
- ❑ **First half of the wet season, June-July-August is likely to be near normal to above normal.**
- ❑ **Wetter-than-usual conditions are expected in western Trinidad and most of Tobago.**

Rolling 3-month Periods

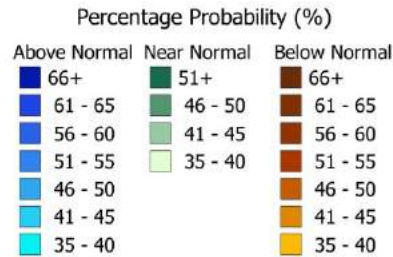
Probability of Most Likely Category of Rainfall
June to August 2024



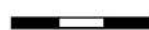
0 10 20 30 km



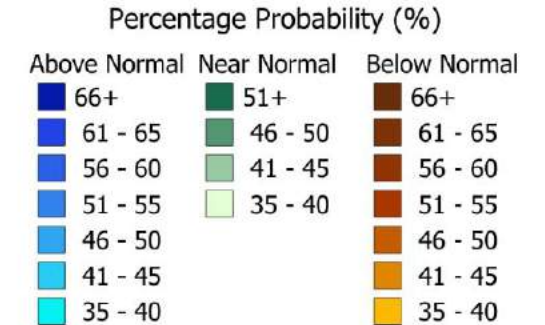
Probability of Most Likely Category of Rainfall
August to October 2024



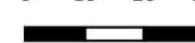
0 10 20 30 km



Probability of Most Likely Category of Rainfall
September to November 2024

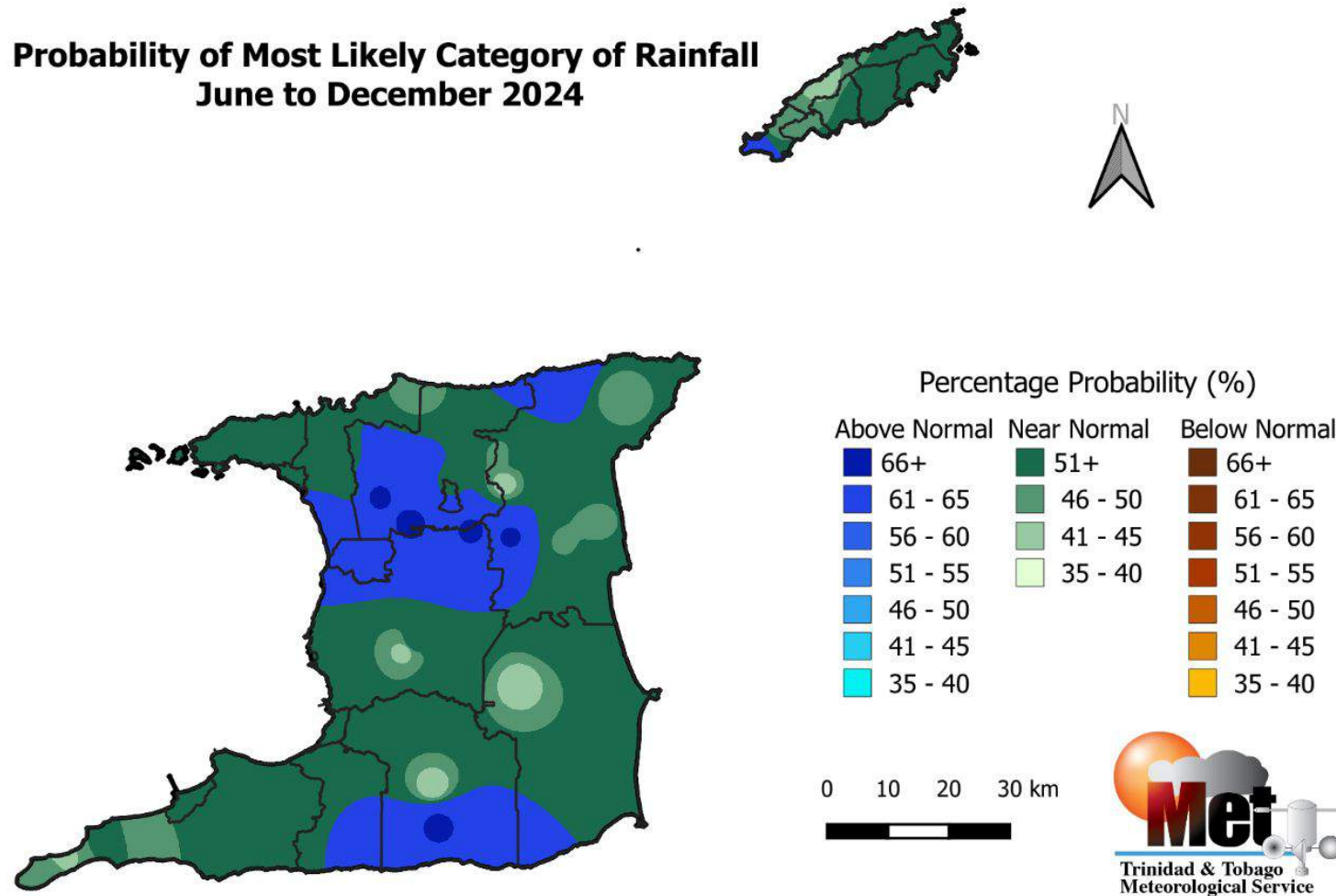


0 10 20 30 km



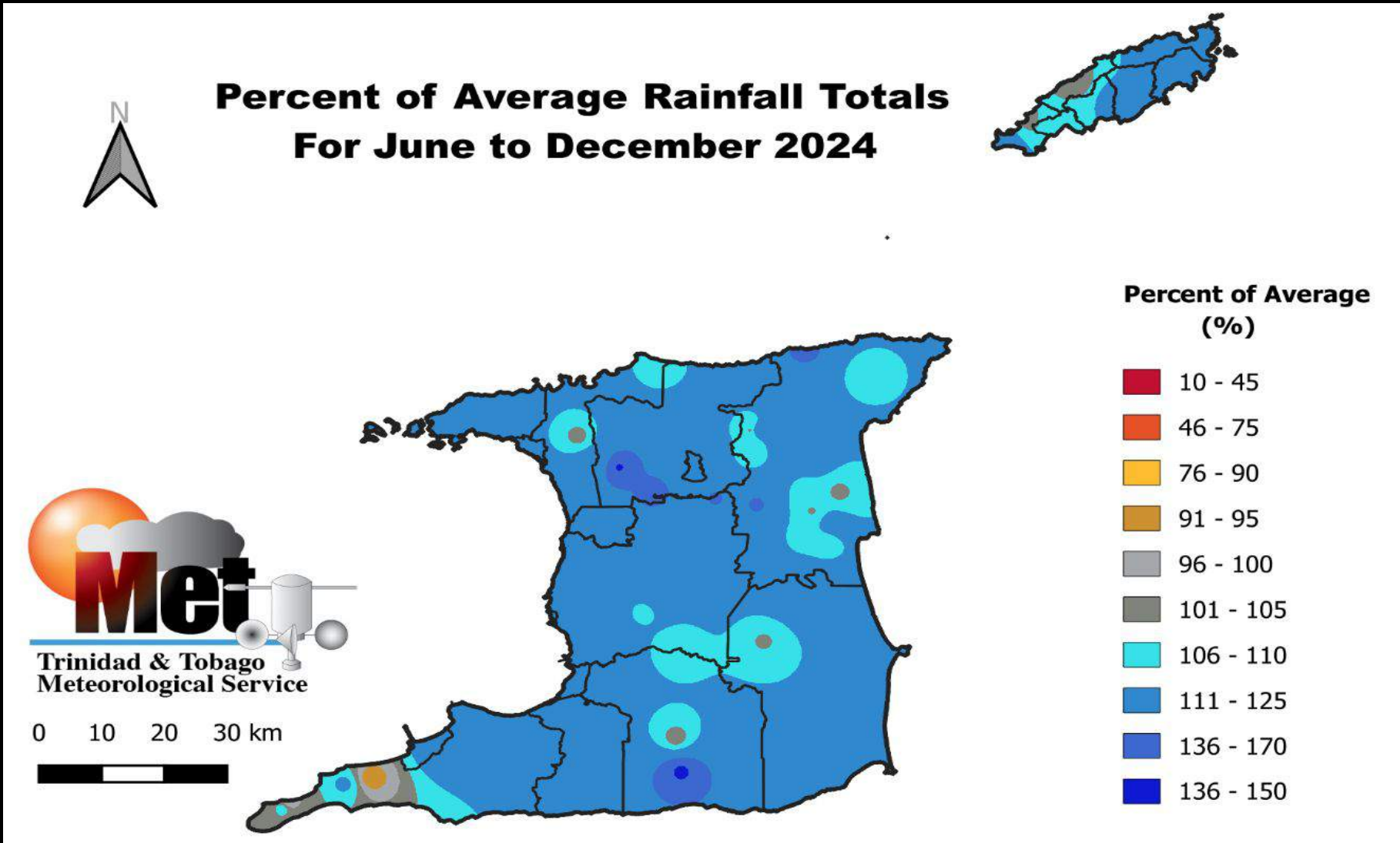
Entire Wet Season Rainfall Outlook

Probability of Most Likely Category of Rainfall
June to December 2024

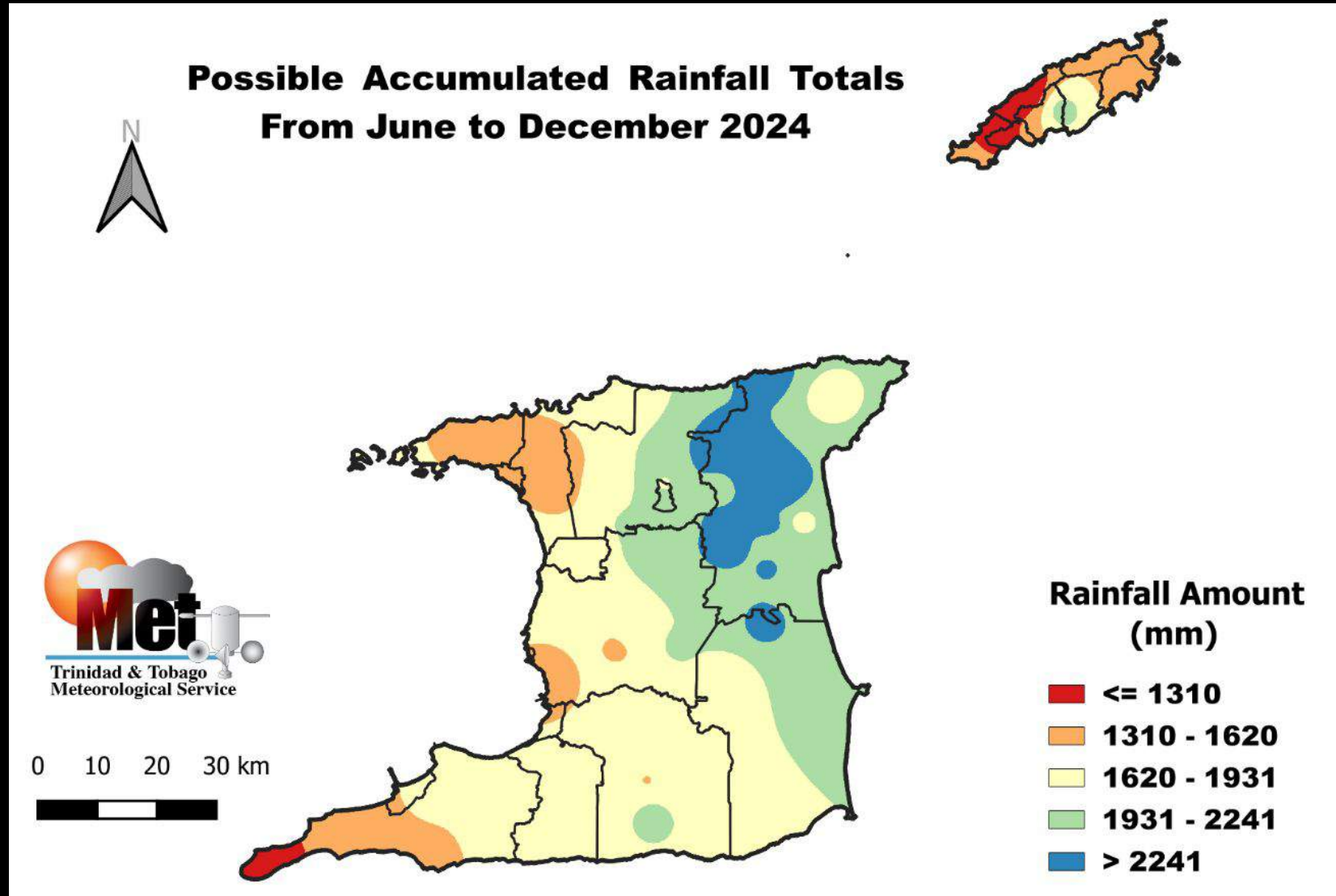


Near-normal to above-normal rainfall is most likely for the 2024 Wet Season.

**How much of the Long Term (LT) average rainfall totals are we likely to get?
Answer: Near- Normal (75%-125%) of the (LT) average.**



What volumes of rainfall are possible over the entire wet season (June to December 2024)?



Flood Indicators

Monthly Rainfall Exceeding 250 mm

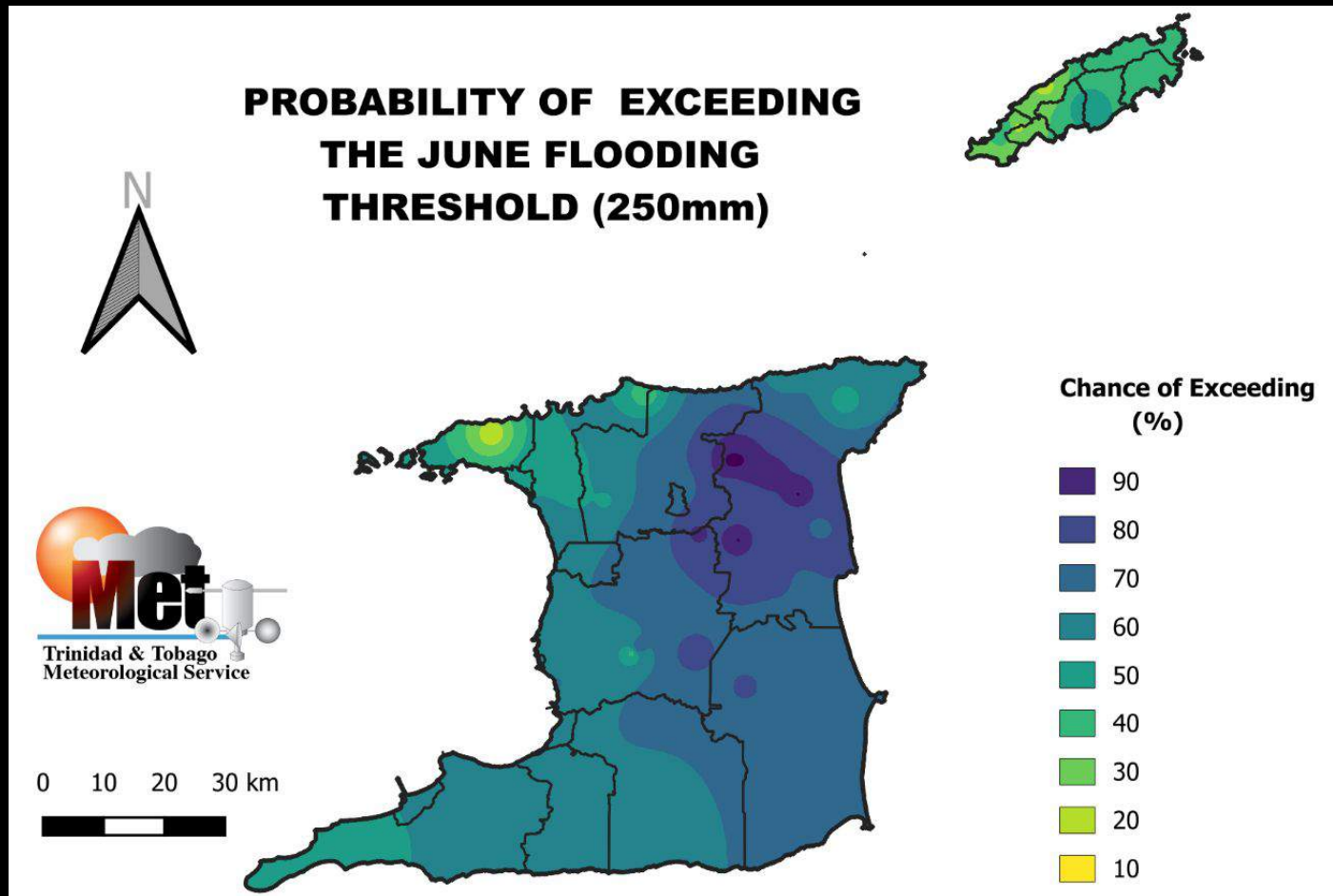
24-hour Rainfall Exceeding 25 mm

5-day Wet Spells

3-day Wet Spells

Flood Indicator :

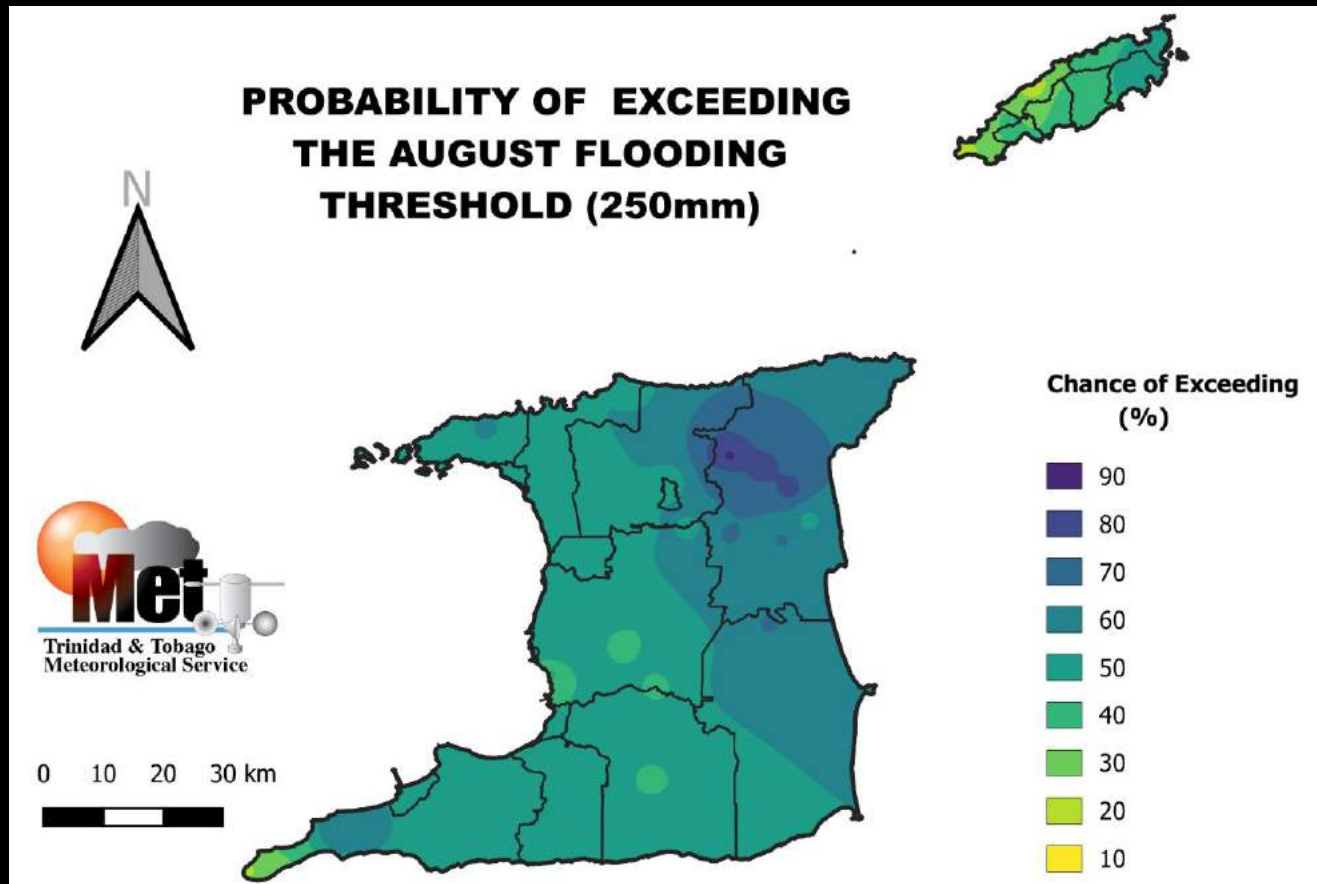
What is the probability of exceeding 250 mm in June 2024?



- There is a 13% to 93% chance of rainfall exceeding 250 mm during June 2024.

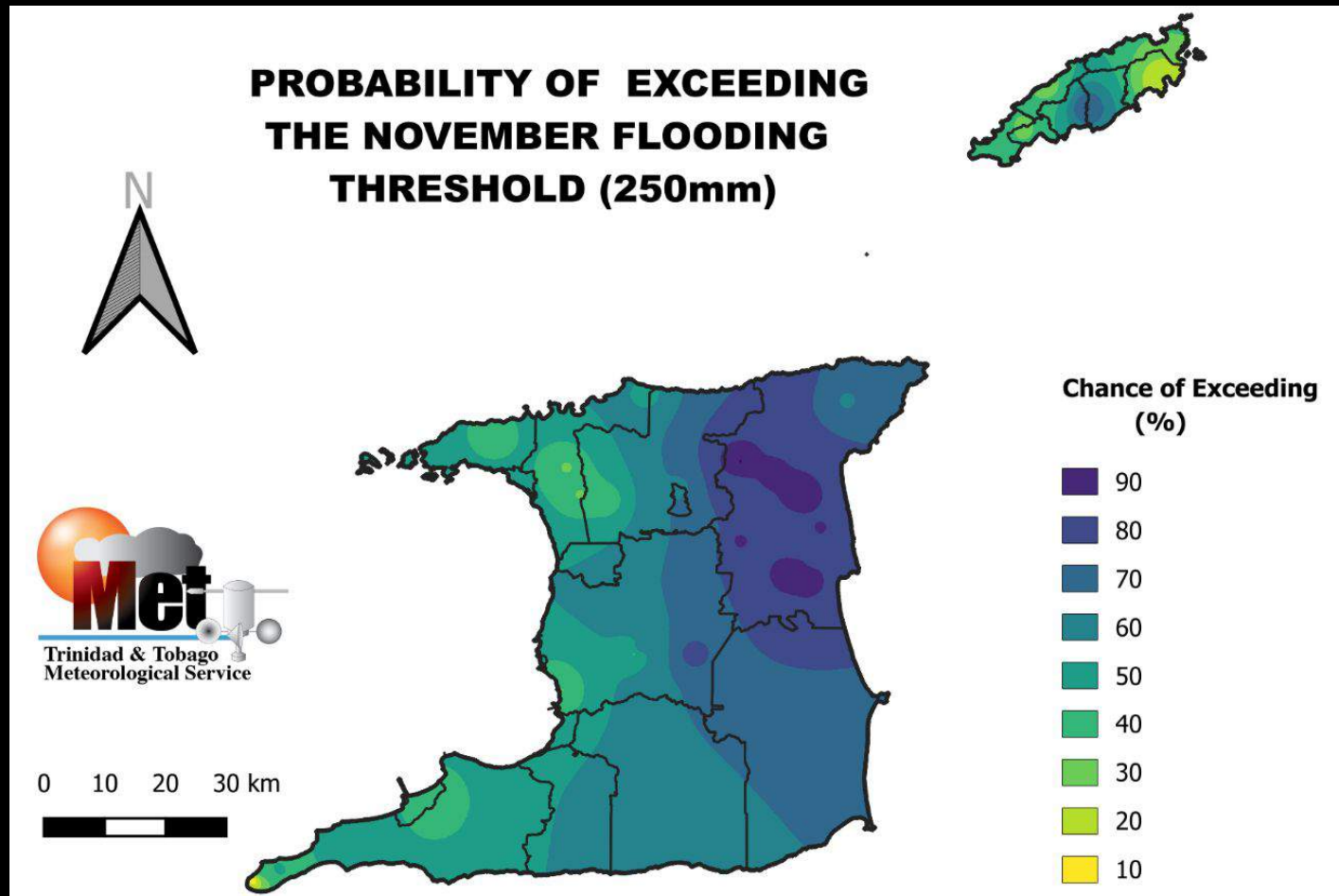
Flood Indicator :

What is the probability of exceeding 250 mm in August 2024?



- There is a 10% to 82% chance of rainfall exceeding 250 mm during August 2024.

Flood Indicator: What is the probability of exceeding 250 mm in November 2024?



- 7% to 90% chance exists for November's rainfall to exceed 250 mm

Excessive Rainfall Days Outlook

There is a 52% chance of above normal number of heavy rainfall days ($\geq 25.0\text{mm}$)

Country likely to receive 11- 22 heavy rainfall days over the entire 2024 wet season

Normal= 16 days

52%

There is a 43% chance of above-normal extremely heavy rainfall days ($\geq 50.0\text{mm}$)

Country likely to receive 2-6 extremely heavy rainfall days

At least 5 days are likely to produce 75.0 mm or more

Normal = 4

43%

Three and Five Wet Days Outlook

There is 53% chance of above-normal number for 3 consecutive days with rainfall ≥ 10.0 mm

Expected = 5

Normal (1991-2020) = 4

The 2024 wet season is likely to have 49 wet days (≥ 10.0 mm) normal = 47.

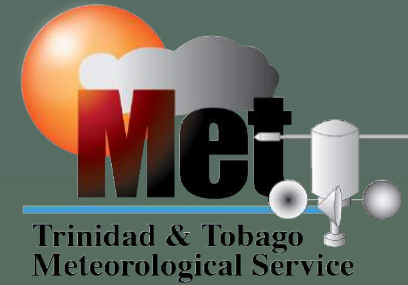
53%

There is 73% chance of normal number for 5 consecutive days with rainfall ≥ 10.0 mm

Expected = 1

Normal (1991-2020) = 1

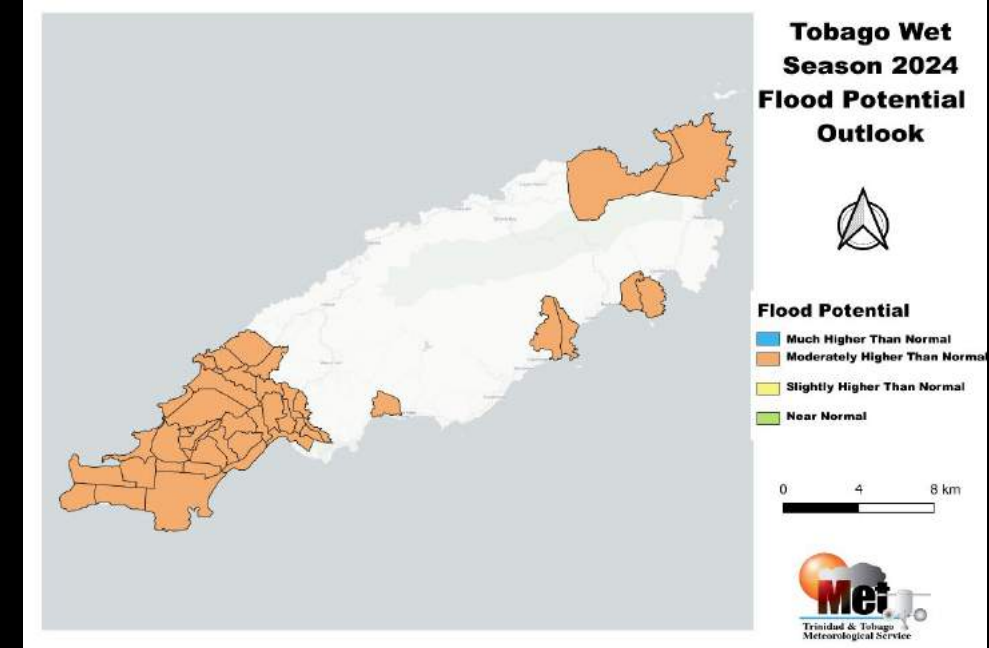
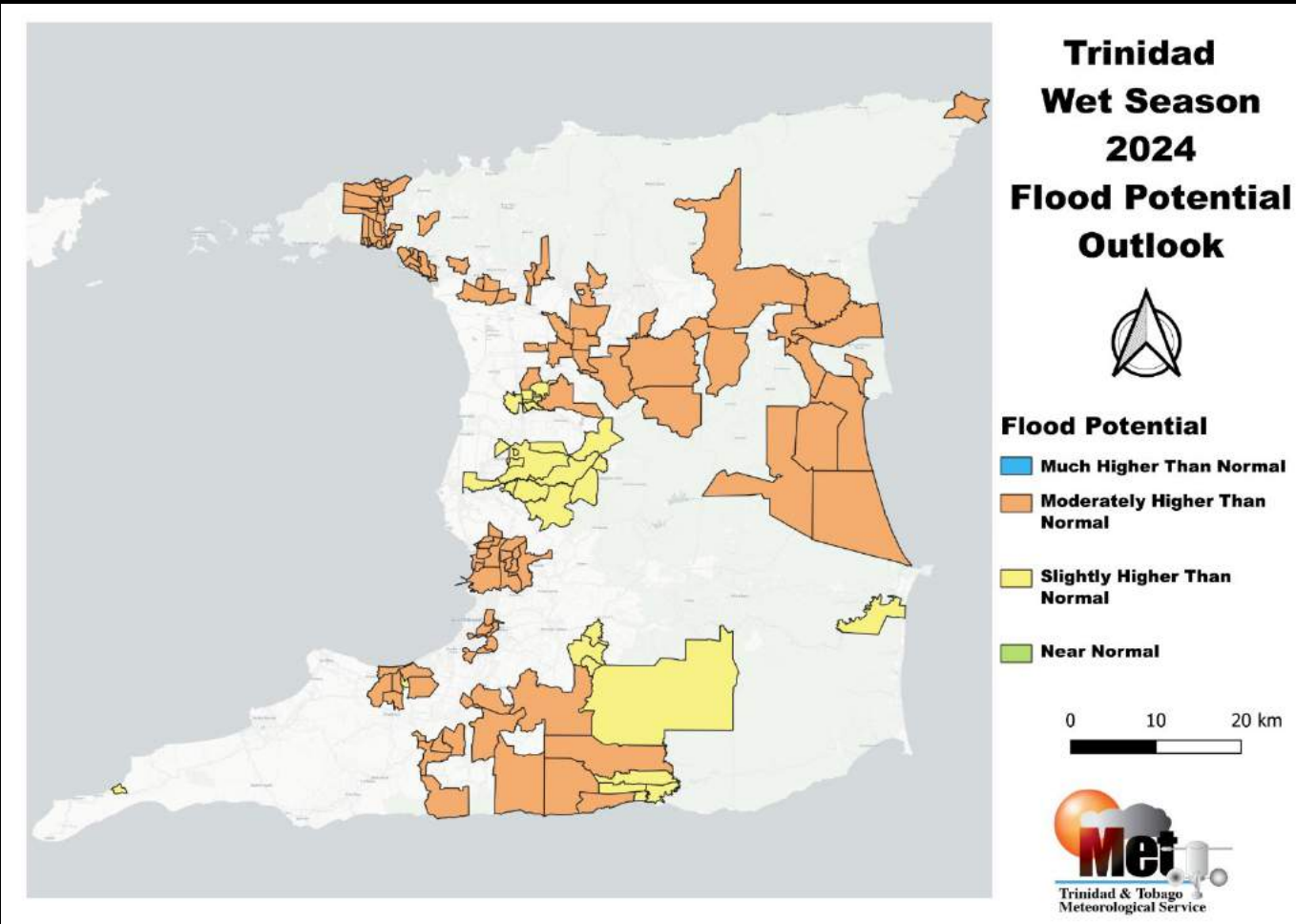
73%



2024 Flood Risk Potential

Produced by Kaidar Kissoon, Meteorologist 1, Acting Climatologist.
Presented by Ean Wallace, Meteorologist 1.

2024 Wet Season Flood Risk Potential Outlook



- ❑ Flood Risk exists nationwide.
- ❑ Flood potential is moderately higher than normal across other well-known flood-prone areas in northeast, northwest, and southern Trinidad, and Tobago.
- ❑ Central west and southeast Trinidad have slightly higher than normal flood potential.

Key Take Away Messages



In general a mostly near-normal 2024 Wet Season is likely.



Flood potential is moderately higher for well-known and slightly higher for emerging flood prone areas.



Citizens are urged to accelerate preparations from now.



Disaster preparedness, flood alleviating agencies and emergency responders must use the available time to ramp-up preparations for the rainy season.



THANK YOU!

METEOROLOGICAL SERVICES DIVISION

357-365 Golden Grove Road, Piarcó

TELEPHONE NOS.: (868)

669-5465/3964

WEBSITE: www.metoffice.gov.tt

EMAIL: DirMetTT@metoffice.gov.tt

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