	Trinidad & Tobago Meteorological Service	**Rainfall and Temperature Outlook for Trinidad and Tobago, November 2018 to January 2019**

Key Words: below-normal ("less than usual"), near-normal ("usual") or above-normal ("More than usual")

Wetter Than Usual November, Near to Below Normal November to January (NDJ)
Risk of Flooding and Landslides Remains High For November and December

Date of Issue: 31/10/2018

Key Messages

- ✓ The month of November in the past has produced high impact flooding events;
- ✓ Historically, November is known for producing the secondary peak rainfall totals in Trinidad and peak rainfall totals in Tobago;
- ✓ The rainfall outlook for November is for all of Trinidad and Tobago to be wetter than usual with above normal rainfall totals, as most likely (**high confidence**);
- ✓ The rainfall outlook for November to January (NDJ) indicates large parts of Trinidad and Tobago are likely to receive near normal rainfall while other parts are likely to be drier than average (**medium confidence)**;
- ✓ The potential for flooding during November and December remains high;
- ✓ Most of Tobago experienced drier than usual conditions during June, July, August and September but above average rainfall during October. An outlook for near average rainfall in the coming three months suggests improvement in rainfall deficit is likely;
- ✓ The outlook indicates the usual number of excessively wet days **(Medium confidence**);
- ✓ Days and nights are likely to be warmer than average during NDJ but temperatures are not likely to be excessively uncomfortable;
- ✓ Drier than usual February to April 2019 is likely due the potential development of El Niño.

Likely Impacts

- ✓ Elevated surface wetness from recent excessive rainfall are likely to be maintained or enhanced;
- ✓ Current surface wetness, high water storage levels and stream flows increase the risk of flooding and landslides on heavy rainfall days in flood and landslide prone areas;
- ✓ Enhanced risks for vector borne and other diseases such as dengue;
- ✓ Warm, wet and humid conditions promote rapid multiplication of some agricultural pests, diseases and fungal growth;
- ✓ Reduced risks for heat stress in the vulnerable population and small livestock.

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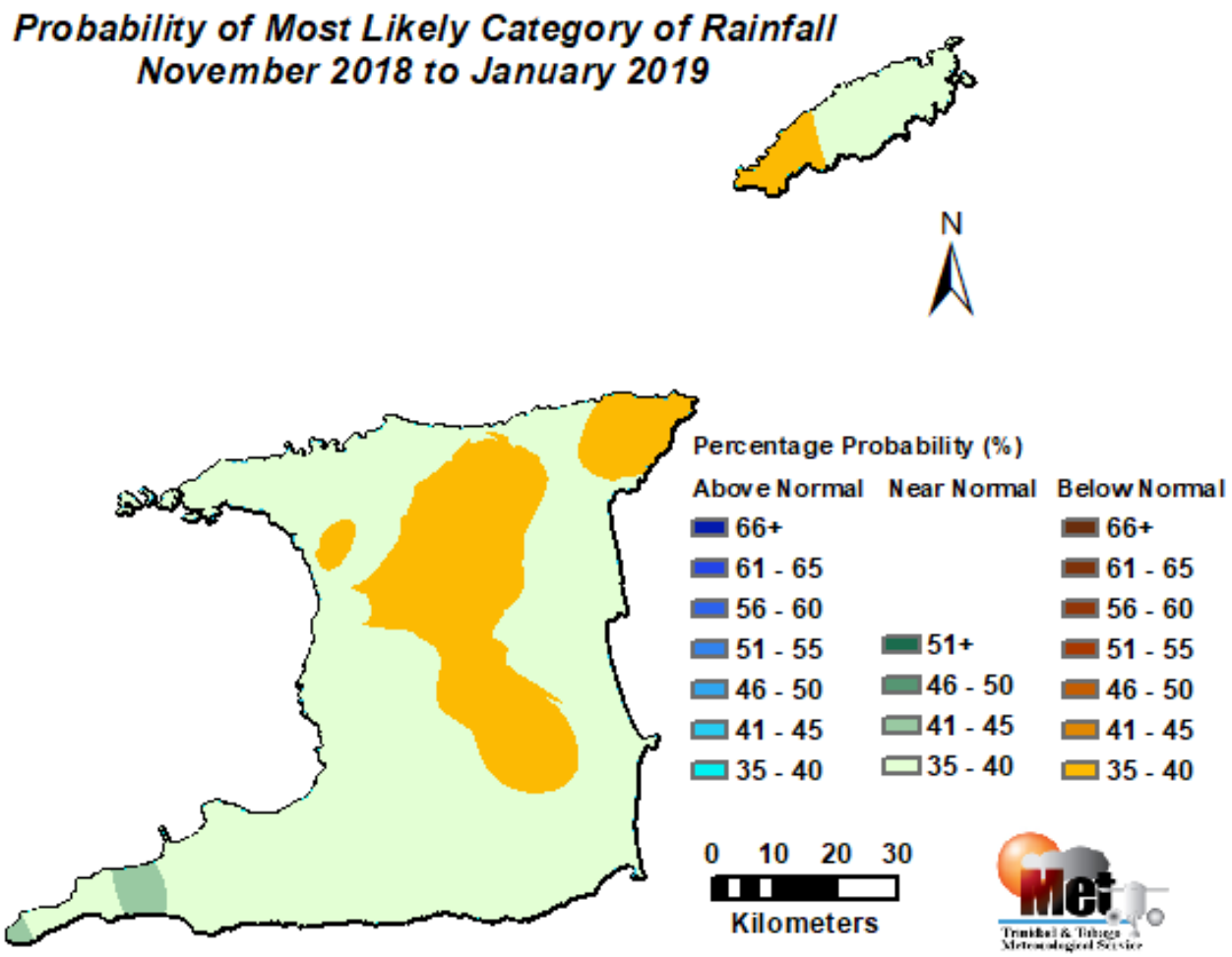

Figure 2: Category of rainfall likely for November to January 2018-2019 (NDJ) with the highest chance of occurrence expressed as probabilities and colour coded on the map. Blues indicate that it is more likely for above normal rainfall to occur than for below normal or near normal. Browns indicate it is more likely for below normal rainfall, while greens indicate it is more likely for near normal rainfall. Normal is defined by the rainfall that was observed in middle one-third of the NDJ period rainfall totals during the historical period used to produce the outlook.

- ✓ The November to January 2018-2019 rainfall outlook shows there are stronger indications for either drier than usual or as wet as usual conditions over the country. In particular some areas in north, northeast and central Trinidad and southwest Tobago are likely to be below normal while large areas in Trinidad are likely to experience near normal rainfall **(Medium confidence) ;**
- ✓ Near normal rainfall totals mean areas are likely to receive rainfall totals between 75% and 125% of their long term average for the NDJ period while below average mean less than 75% of average. For instance, at Piarco, near normal rainfall for NDJ rainfall totals is typically between 353.5mm and 589.1mm and at Crown Point between 309.0mm and 515.0mm.

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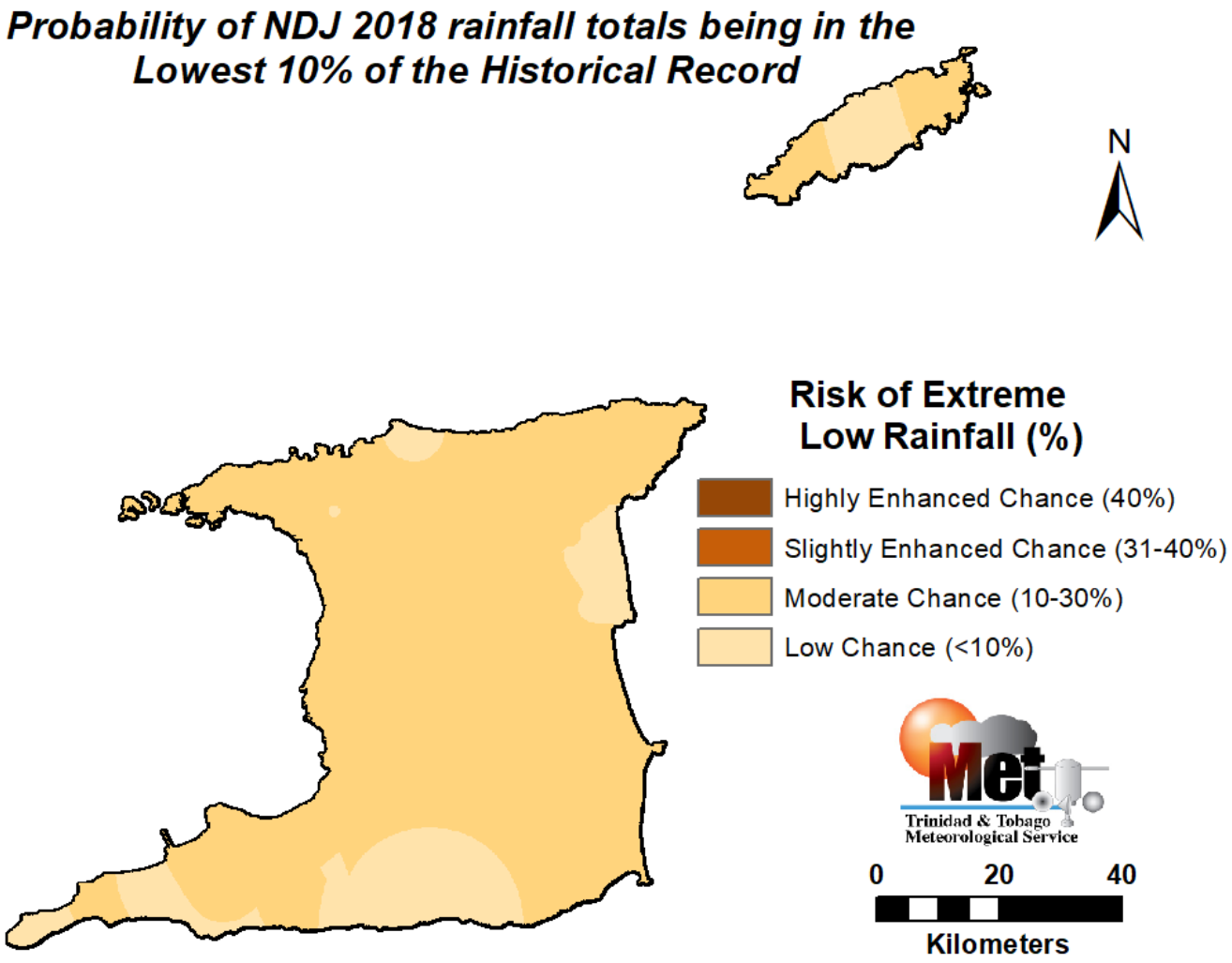

Figure 3: The map shows the chances for extremely dry conditions over the three months ending January 2019. Extreme refers to the lowest 10% of November to January accumulated rainfall in the historical record.

- ✓ The chance for the NDJ period to be extremely dry is low to moderate **(medium confidence);**
- ✓ The outlook indicates a 20% chance for at least one 7-day dry spell during NDJ, i.e. seven consecutive days with no measurable rainfall.

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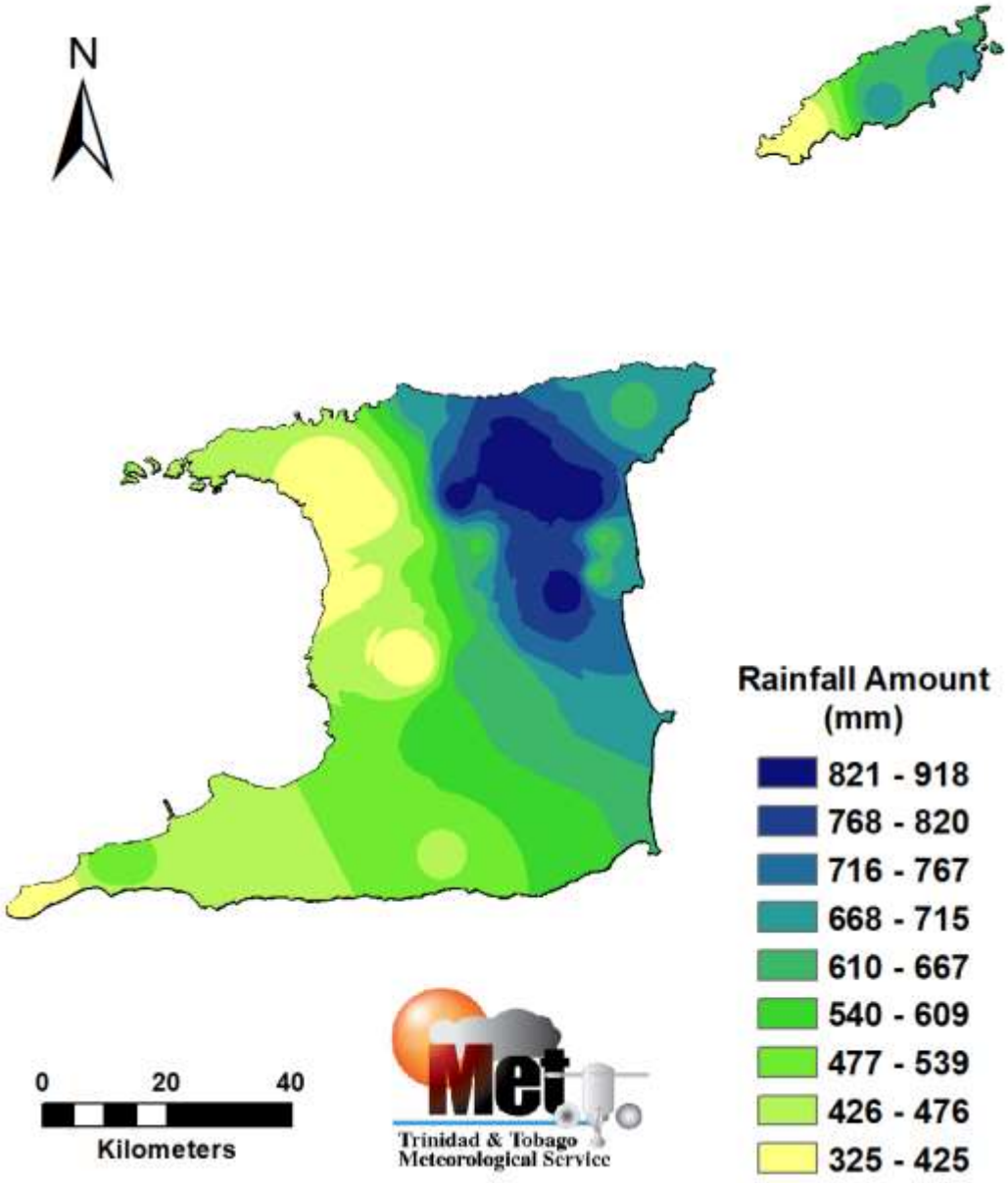

Figure 4: Possible accumulated rainfall totals with the highest chance of occurring during November 2018 to January 2019.

Areas in northeast Trinidad, near Sangre Grande, Valencia, North Oropouche and environs are likely to receive the largest rainfall accumulated totals close to 920.0mm, while areas near Chatham, Cedros and Icacos in the southwest are likely to receive the least rainfall totals, close to 330.0mm.

North-eastern Tobago is favoured to receive the highest accumulated rainfall totals, while the smallest totals are likely in vicinity of Mount Irvine, Bon Accord, and Crown Point.

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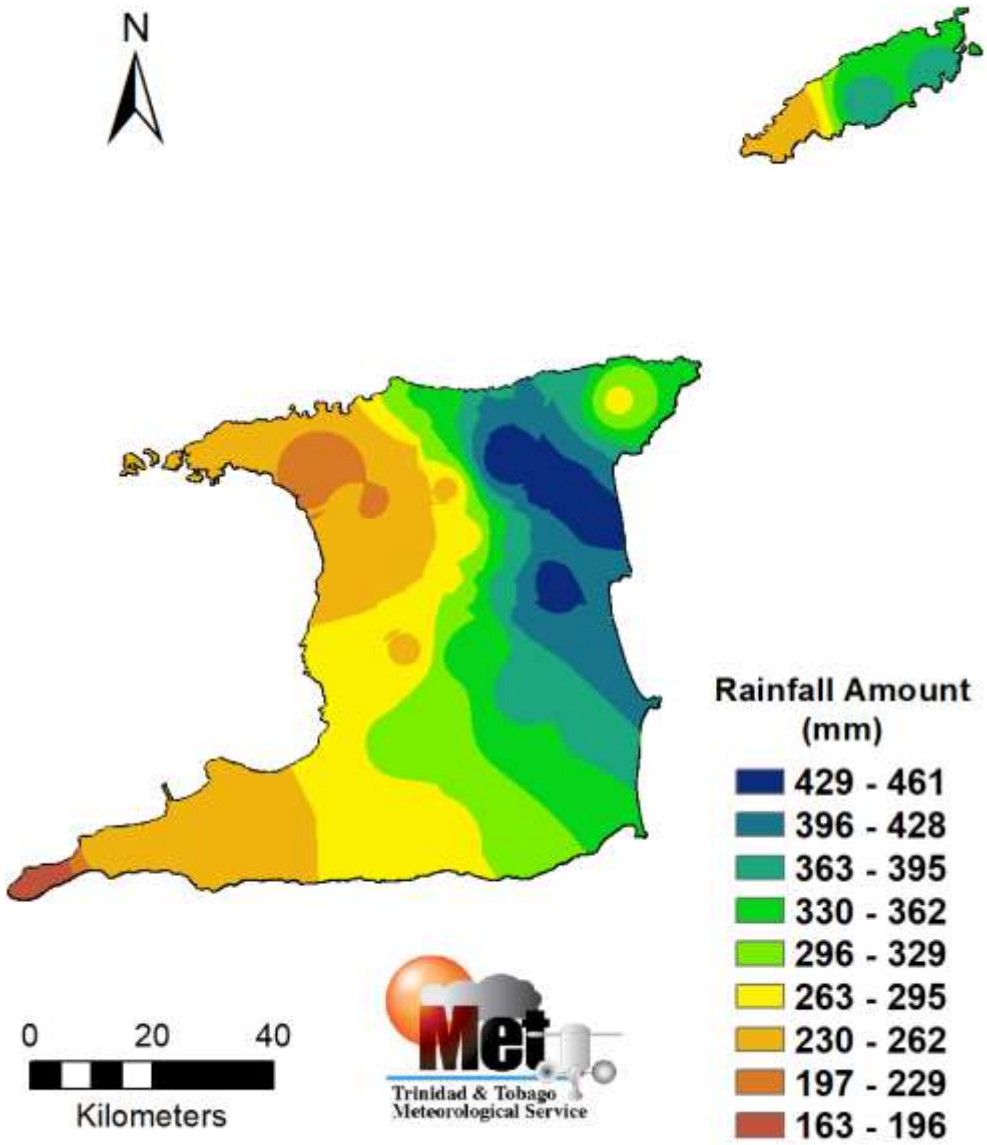

Figure 5: Possible rainfall totals with the highest chance of occurring during November 2018.

November is likely to be wetter than usual with a greater than 40% chance in most areas for rainfall totals in the above normal category **(high confidence)**;

Possible rainfall totals range from 160.0mm to 465.0 mm across the twin island Republic;

The outlook indicates a 60% chance for at least one 7-day wet spell during NDJ, i.e. seven consecutive days with measurable rainfall.

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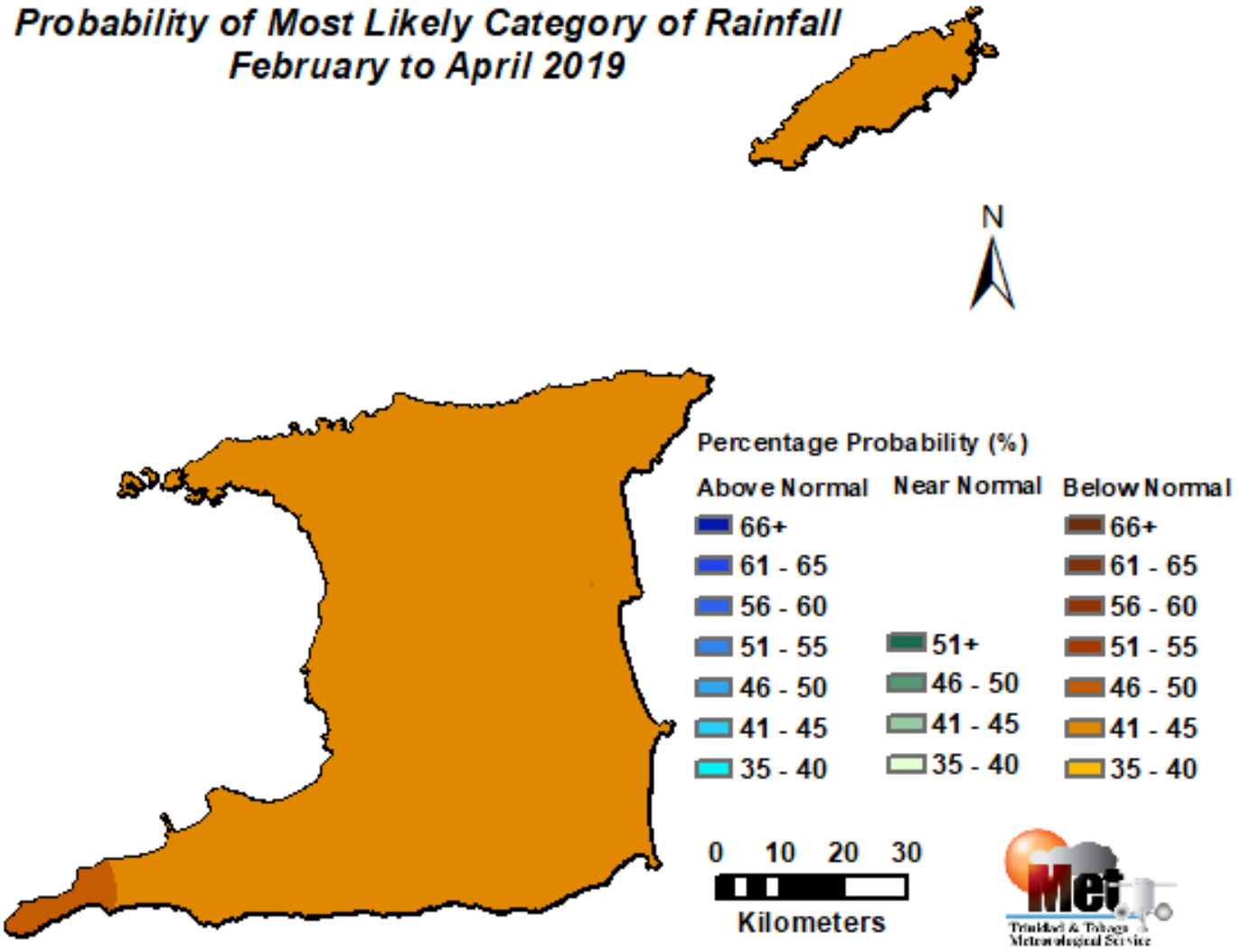

Figure 6: Category of rainfall most likely for February to April 2019 (FMA) with the highest chance of occurrence expressed as probabilities and colour coded on the map. Blues indicate that it is more likely for above normal rainfall to occur than for below normal or near normal. Browns indicate it is more likely for below normal rainfall; while greens indicate it is more likely for near normal rainfall. Normal is defined by the rainfall that was observed in middle one-third of the FMA period rainfall totals during the historical period used to produce the outlook.

- ✓ The outlook for February to April indicates the period is likely to be drier than average with greater than 40 % chance for accumulated rainfall totals in the below normal category (**moderate confidence**);

  This suggests increased chances for the development of dry-spell/drought-like conditions during the 2019 dry season, especially given the strong indications for El Niño to be present.

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Temperature Outlook:

- ✓ Warmer than average daytime temperatures are likely for November to January across most of Trinidad and Tobago;
- ✓ Nights are also likely to be warmer than average, particularly during November. A few relatively cool nights are likely during late December and January;
- ✓ Chances for warmer than average day and night temperatures range between 65% and 75%;
- ✓ Although warmer than average conditions are in the forecast, uncomfortably high temperatures are not likely during the period.

Likely Implications

- ✓ Soils are likely to remain ground-soaked and saturated. Water storage levels and stream flows are likely to remain high in areas where recent rains were highest.
- ✓ Given the existing and forecasted conditions, the potential for flash and riverine flooding, landslips and landslides during heavy rainfall days and prolonged wet spells, remains high;
- ✓ Increase in surface water ponding can promote mosquito breeding, which can lead to higher risks for spikes in vector borne diseases such as dengue;
- ✓ Wetter conditions are also usually associated with an increase in flies, and flies are known to carry and spread diseases such as Gastroenteritis and Salmonella infection;
- ✓ Increased rainfall, mixed with warm and humid conditions tend to promote rapid multiplication of some agricultural pests, diseases and fungal growth;
- ✓ Increased rainfall could lead to reduced traffic flows, disruptions in localized travel, longer travelling times and increased disruption of outdoor activities.

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Sectorial Early Action That Can Be Taken To Reduce Possible Disaster Effects!

Disaster Risk Management Sector

- ✓ Sensitize/alert communities and citizens on the forecast, its negative impacts and to act early;
- ✓ Consider who may be most affected by the rainfall forecast of above- or below-average rainfall;
- ✓ Review your contingency plans and update as necessary;
- ✓ Revisit early warning information dissemination channels.

Drainage

- ✓ Continue de-silting and cleaning of drainage systems, water channels, outlets and river mouths;
- ✓ Clean and clear choked surface drains to allow fast drainage and to reduce flash flooding.

Waste Management Sector

- ✓ Continue efforts to prevent waste from entering drains and water courses in order to reduce flooding;
- ✓ Implement anti-litter activities to raise awareness on the impacts of poor solid waste management.

Health Sector

- ✓ Clear bushes, open drainage systems, fumigate in and around residences;
- ✓ Revisit contingency plans to manage spike in vector-borne disease incidences.

Agriculture & Food Security Sector

- ✓ Put in place disease control measures; ready pumps for clearing waterlogged drainage;
- ✓ Clear or clean poorly maintained and choked surface drains to prevent waterlogging;
- ✓ Initiate contingency planning for the likely drier than usual start to the upcoming dry season.

Water and Energy sector

- ✓ Conduct routine de-silting of reservoirs and riverine flooding channels;
- ✓ Remove dry branches, trees and overhang near electrical wires, especially in landslip prone areas;
- ✓ Harvest excess rainfall now and revisit contingency plans for drier than usual JFM.

General Public

- ✓ Continue proper preparation especially for persons in at risk areas. Stock up on emergency supplies for 3-7 days;
- ✓ Clean drains and canals; conserve, store and manage water in a safe and adequate manner;
- ✓ Take measures to lessen impacts of flooding. Be sand-bag ready;

Be vigilant and visit the Met. Service website at www.metoffice.gov.tt regularly to keep up to date with local weather changes and follow us on social media.

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Climatic Influencers and Context of the Outlook

- ✓ Waters in, and around Trinidad and Tobago cooled during September but remained warmer than average, with positive sea surface temperatures (SSTs) departures in most areas. Further cooling is forecasted during NDJ but SSTs are predicted to remain in the near to above average category.

- ✓ During the last three weeks, SSTs in the equatorial Pacific Ocean continued to warm and were above average at El Niño levels, but El Niño has not been declared because not all the atmospheric variables are in place; hence El Niño-Southern Oscillation (ENSO)-neutral conditions (neither El Niño nor La Niña) is maintained.

- ✓ Current observations and model outlooks show increased chance (70-75%) for El Niño to develop during the November to January period, with a more than good chance for declaration of El Niño early in the period.

- ✓ When a trend towards El Niño or El Niño is present, Trinidad and Tobago show a strong tendency to experience above average rainfall in November, and below average rainfall and warmer days during December to April.

- ✓ After being in its positive phase since April, the North Atlantic Oscillation (NAO) moved from positive to negative phase during October and is likely to persist in its negative phase for most of November. A negative NAO tends to aid in warming SSTs in waters around Trinidad and Tobago, which tends to aid rainfall occurrence.

- ✓ The Madden Julian Oscillation (MJO) is the main climate driver usually influencing fluctuation in the local weather on the sub-seasonal scale (weekly to monthly timescales). The MJO is likely to be in a favourable phase to influence local rainfall during the first two and half weeks of November.

The precipitation and temperature outlook is based on statistical and dynamical seasonal climate models output and known seasonal climate influencers. Multiple competing climatic factors are at play but given the heightened chance for El Niño, its signal dominates the current outlook.

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