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

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

Wetter than usual conditions most likely for Trinidad during the 3 months ending November
Drier than usual to near average conditions for Tobago

Key Messages

- ✓ The rainfall outlook for September to November (SON) shows that September is most likely to be wetter than average for all of Trinidad and Tobago (**high confidence)**;
- ✓ When taken together, SON is likely to be wetter than average for most of Trinidad and near to below average for Tobago (**high confidence)**;
- ✓ Most of Trinidad experienced a wetter than average August. An outlook with increased chances for continuation of wetter than usual conditions over the next three months suggests increased potential for flooding;
- ✓ Most of Tobago experienced drier than usual conditions during June, July and August. An outlook for near to below average rainfall in the coming three months, suggests improvement in rainfall deficit are less likely to occur during the period;
- ✓ October and November typically have increased frequency in prolonged rainfall that can lead to flooding, while September and October are part of the peak of the hurricane season;
- ✓ The outlook indicates an increase in the number of excessively wet days **(Medium confidence**);
- ✓ Days and nights are likely to be warmer than average during SON, with September, the peak of the second local heat season, very likely to produce the warmest days ;
- ✓ 70-80% chance that there will be at least 7 hot-spell days from September to November 2018, i.e. days when the temperature exceeds 33.9^{o}C in Trinidad and 32.2 ^{o}C in Tobago.

Likely Impacts

- ✓ Flooding potential associated with heavy rainfall days is enhanced for flood prone areas;
- ✓ Wetter than usual conditions are likely to reduce water stress in areas where this exists. Drier than usual conditions are likely to worsen existing water stress conditions;
- ✓ Increased potential for heat stress in the vulnerable population and small livestock during September and October, especially in areas with drier than usual conditions. Cooling needs will be greater in most areas.
- ✓ Existing surface wetness is likely to become enhanced. This increases landslip and landslide potential in areas so prone.

Date of Issue: 29/08/2018

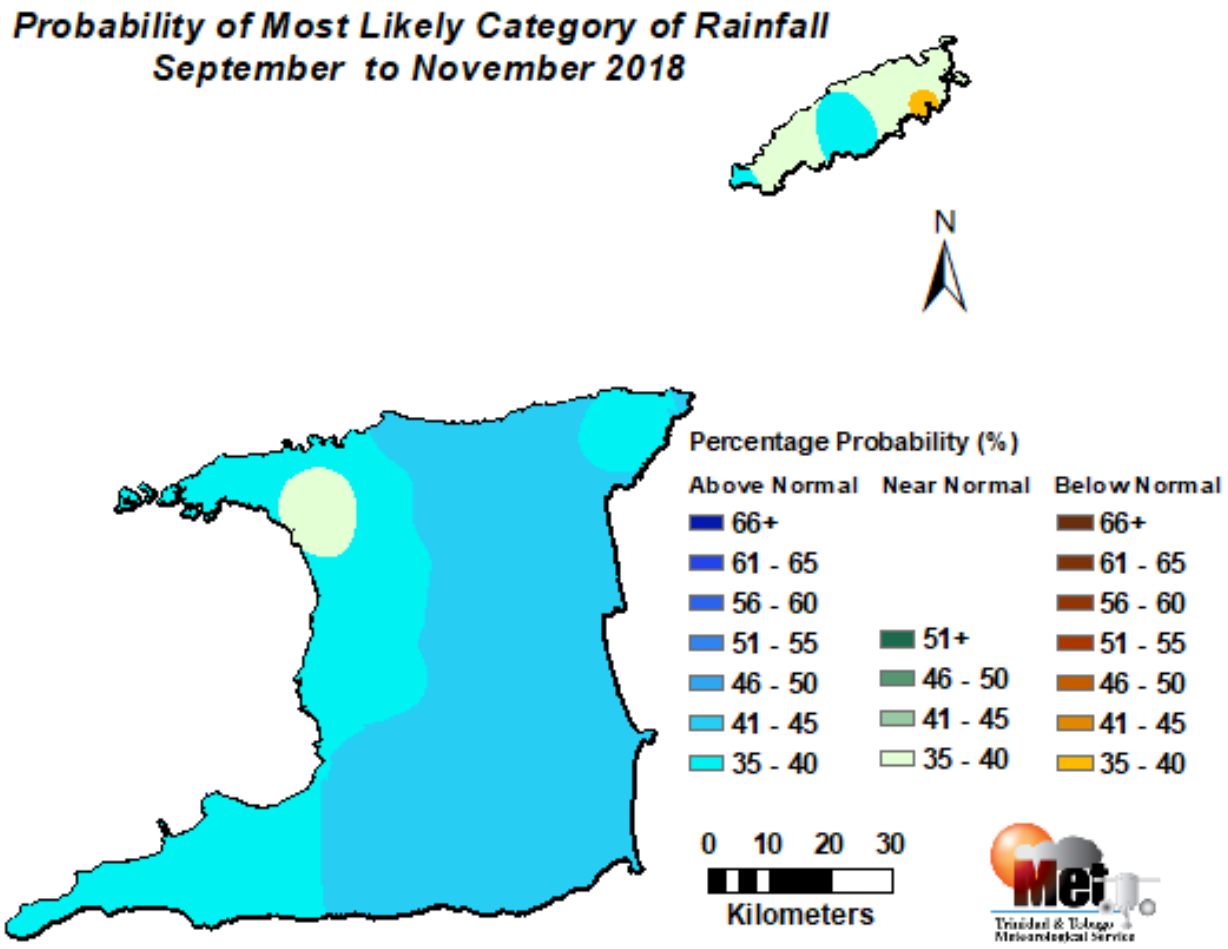

Figure 2: Category of rainfall likely for September to November (SON) 2018 with the highest chance of occurrence expressed as probabilities and colour coded on the map. Blues indicate that it is more likely for above normal rainfall to occur than for below normal or near normal. Browns indicate it is 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 SON period rainfall totals during the historical period used to produce the outlook.

- ✓ The rainfall outlook for September to November in Trinidad indicates accumulated rainfall totals are most likely to be in the above normal category when compared with the chance for near- or below-normal**.** Chances for this to occur are greater than 40% for all of Trinidad**.** Tobago has the most likely chance for near normal to below normal accumulated rainfall totals **(high confidence).**

- ✓ This means areas in Trinidad are likely to receive rainfall totals that are greater than 125% of their long term average over SON, while areas in Tobago are likely to receive totals that are less than 125% of their long term average. For instance, at Piarco, this means a SON rainfall total in excess of 637 mm and at Crown Point between 408mm and 608mm.

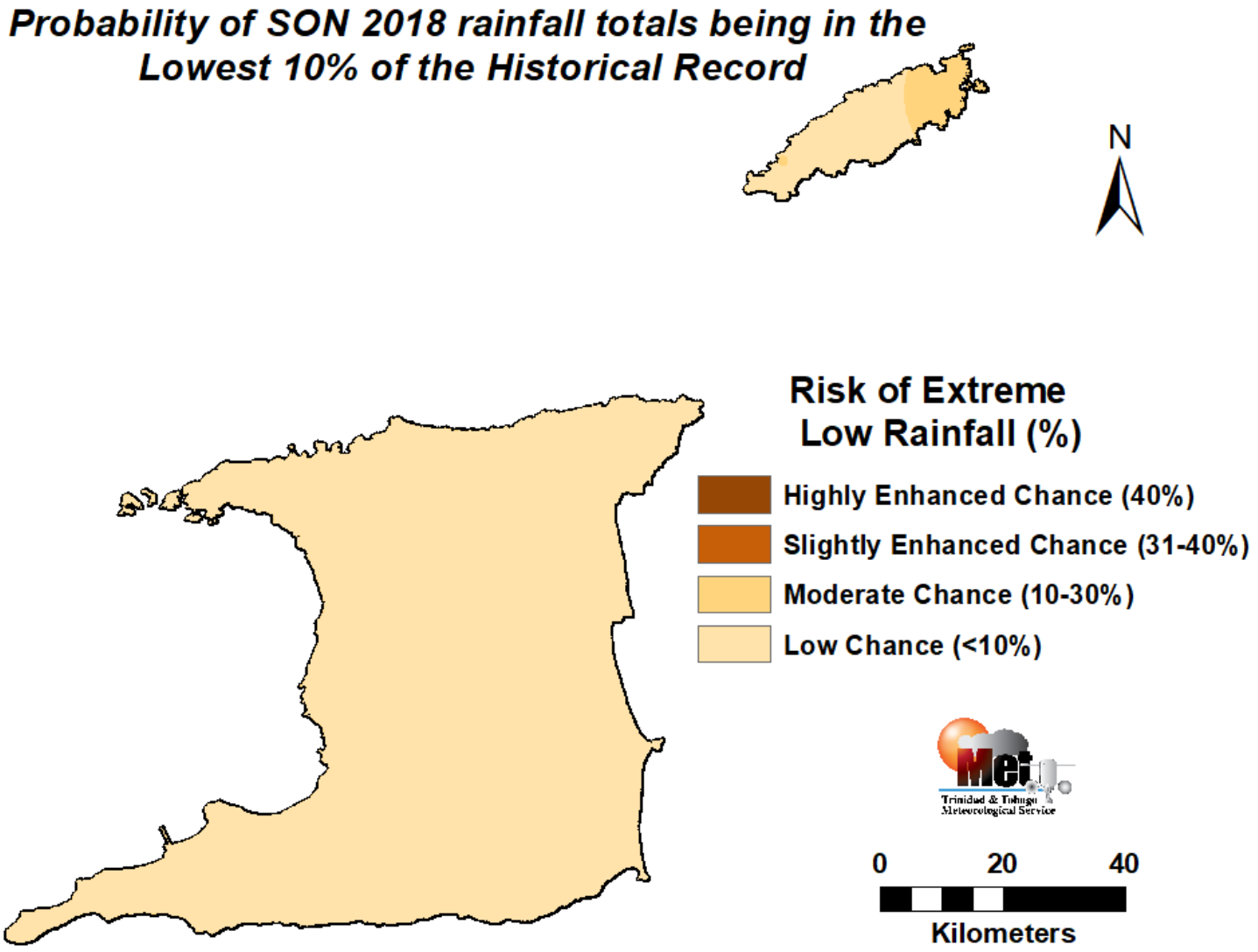

Figure 3: The map shows the chances for extremely dry conditions over the three months ending November. Extreme refers to the lowest 10% of September to November accumulated rainfall in the historical record.

- ✓ The chance for the SON period to be extremely dry is low **(high confidence);**
- ✓ The outlook indicates a 10-20% chance for at least one 10-day dry spell, during SON, i.e. ten consecutive days with no measurable rainfall.

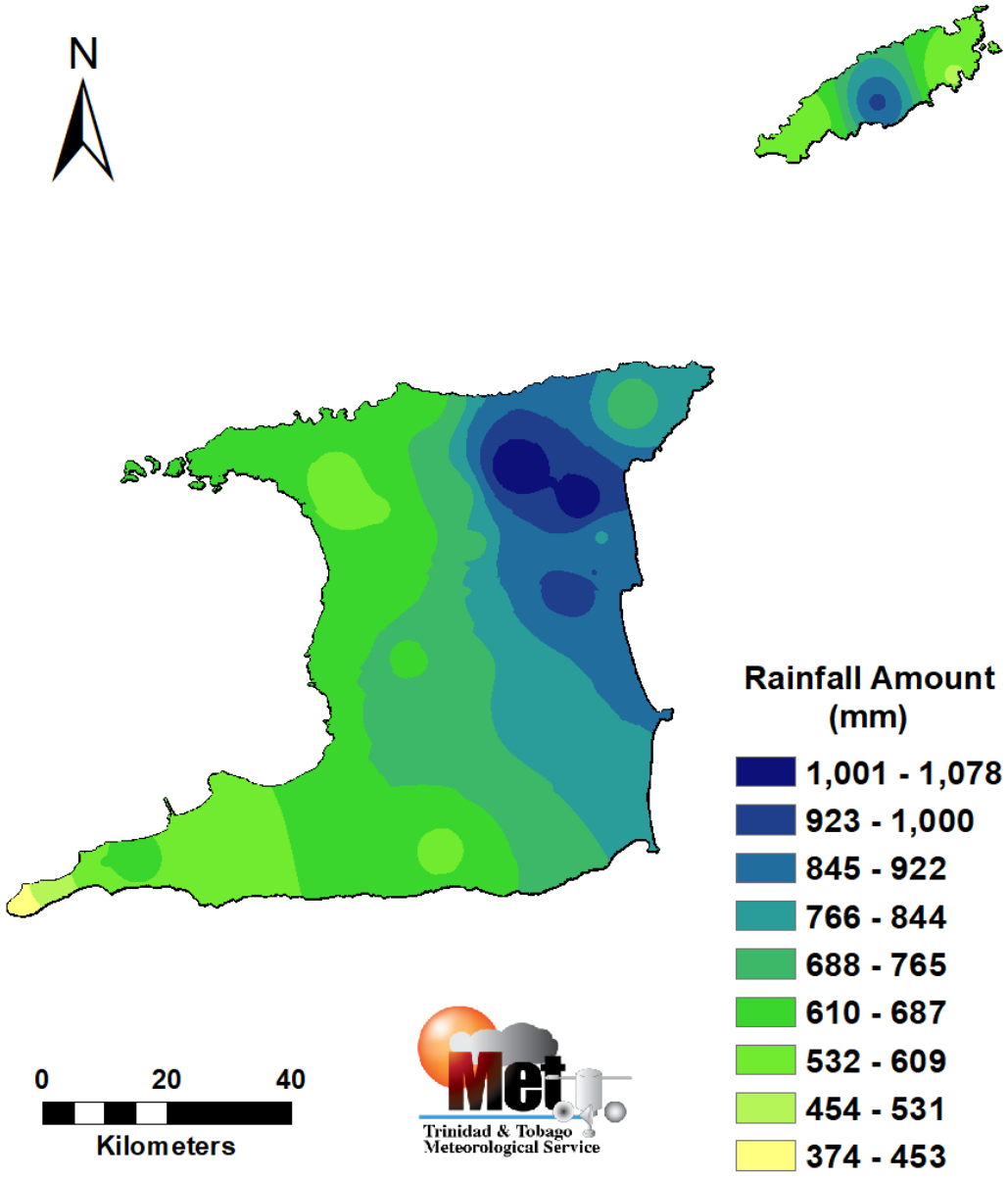

Figure 4: Possible accumulated rainfall totals with the highest chance of occurring during September to November 2018.

Areas in northeast Trinidad, near Sangre Grande and environs are likely to receive the largest rainfall accumulated totals of approximately 1067.0mm, while areas near Cedros and Icacos in the southwest are likely to receive the least amount.

North-eastern Tobago in areas near Mount Saint George is favoured to receive the highest accumulated rainfall totals, while the smallest totals are likely in vicinity of Canaan and Bon Accord.

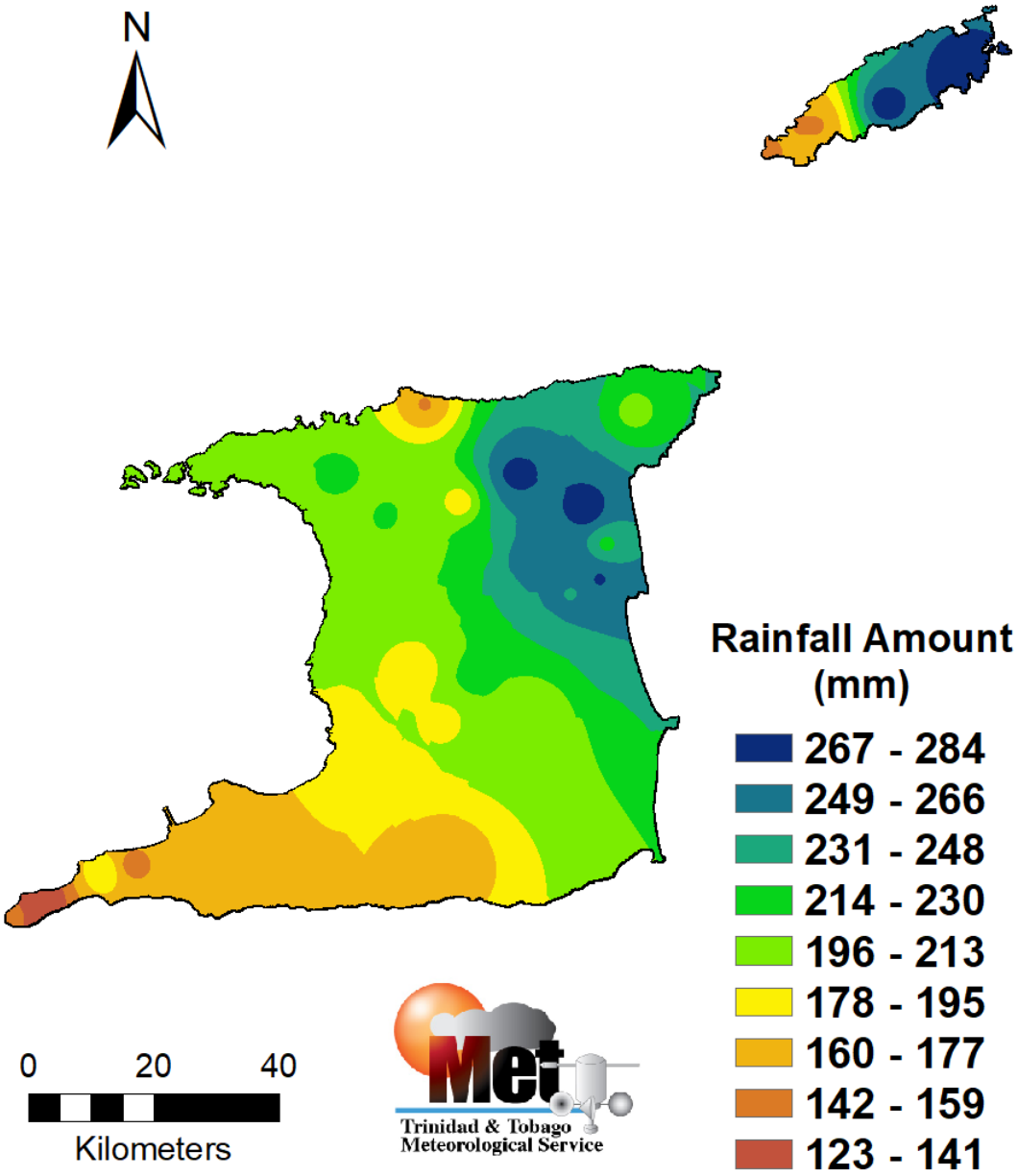

Figure 5: Possible rainfall totals with the highest chance of occurring during September 2018.

September is likely to be wetter than usual with a greater than 40% for rainfall totals in the above average category **(high confidence)**.

Possible rainfall totals range between 123.0 mm and 224.0 mm across the islands.

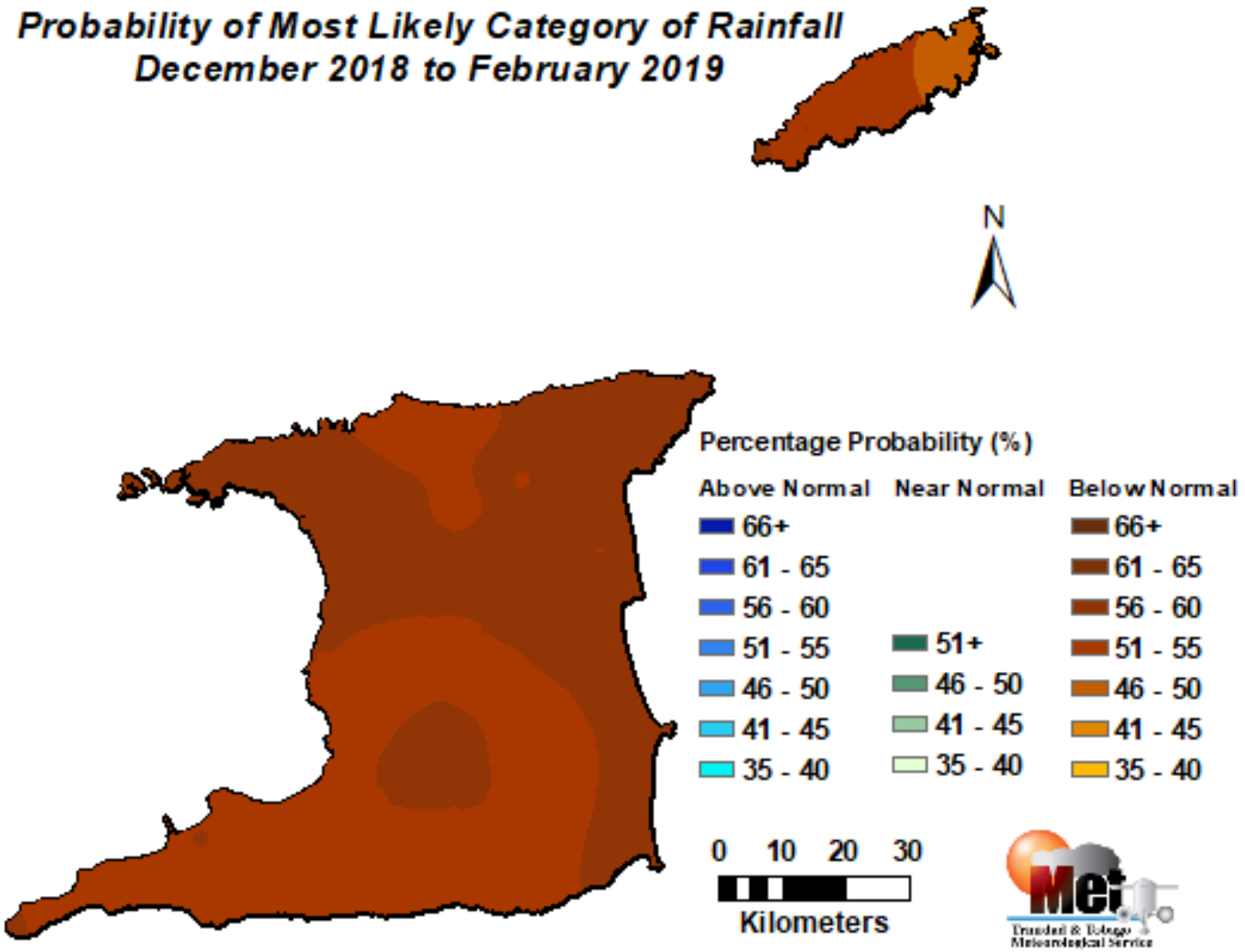

Figure 6: Category of rainfall most likely for December 2018 to February 2019 (DJF) with the highest chance of occurrence expressed as probabilities and colour coded on the map. Blues indicate that it is more likely for above normal rainfall to occur than for below normal or near normal. Browns indicate 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 DJF period rainfall totals during the historical period used to produce the outlook.

- ✓ December 2018 to February 2019 (DJF) has enhanced chances for a drier than usual start to the dry season with greater than 50 % chance for accumulated rainfall totals to be in the below normal category, across both islands (**moderate confidence**);

  This suggests increased chances for the development of dry-spell/drought-like conditions during the 2019 dry season.

Temperature Outlook:

- ✓ In most years, September to October is the second heat season in Trinidad and Tobago, with September often the hottest month;
- ✓ Warmer than average daily temperatures are likely during September to October;
- ✓ There is a greater than 70% chance for September to November days and nights to be warmer than average with September and October days and nights likely to be the warmest;
- ✓ There is a 70-80% chance for at least 7 hot days from September to November 2018, i.e. days when the temperature exceeds 33.9^{o}C in Trinidad and 32.2 ^{o}C in Tobago.

Likely Implications

- ✓ Warmer than average temperatures can aid more intense showers, which will increase the risk for flash floods on hot days, especially in the cities and built-up areas;
- ✓ Risk of flash and riverine flooding, landslips and landslides on heavy rainfall days and prolonged wet spells, remains relatively high;
- ✓ Increase in recharge rates at water reservoirs associated with wetter than usual conditions. Slower than usual recharge rates at water reservoirs in areas with drier than usual conditions.
- ✓ Increase in surface water ponding can promote mosquito breeding, leading to higher risk for spikes in vector borne diseases;
- ✓ 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;
- ✓ Excessive heat on hot spell days could lead to increased heat stress in the vulnerable population and small livestock, until October.

How Should You Respond? **Don't be vulnerable. Be sensible! Act now and prepare for heavy rainfall, flood, high-wind, hot spells and spikes in dengue cases.**

Drainage

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

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.

Disaster Risk Management Sector

- ✓ Sensitize communities on the forecast and its negative impacts;
- ✓ Revisit early warning information dissemination channels;
- ✓ Alert communities and citizens in flood and landslide prone areas to act early.

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 DJF.

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 from 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.

Climatic Influencers and Context of the Outlook

- ✓ Waters in, and around Trinidad and Tobago have warmed during July to August but remain cooler than average, with negative sea surface temperatures (SSTs)departures in most areas. Warming is forecasted to persist during September to November. This is likely to enhance local rainfall occurrence in Trinidad and Tobago and tilt the odds towards above average.

- ✓ El Niño–Southern Oscillation (ENSO)-neutral conditions (neither El Niño nor La Niña) continue to exist but expert opinion, observations and model outlooks place a 60% chance of El Niño developing during September to November 2018 and increases it to approximately 70% during December 2018 to February 2019.

- ✓ ENSO-neutral conditions usually have limited control on local rainfall. However, oftentimes when El Niño is present, Trinidad and Tobago experience below average rainfall during December to February 2018 with warmer than usual days and nights.

- ✓ The North Atlantic Oscillation (NAO) remained in its positive phase during July and August but is likely to transition to its negative phase during September. A positive NAO tends to aid in cooling SSTs in waters around Trinidad and Tobago, while a negative phase tends to aid rainfall.

- ✓ 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 September.

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 waters in and around Trinidad and Tobago are likely to dominate. The current outlook reflects this.