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

Above-Normal Rainfall Likely Over The 2020 Wet Season

Date of Issue: 19/5/2020

Key Messages

- ✓ Overall, the 2020 wet season is likely to be above-normal with chances greater than 40% for this to occur in most areas;
- ✓ The first three (3) months (June to August) of the wet season are likely to be wetter than usual with above-normal rainfall totals expected across all of Trinidad and Tobago;
- ✓ June to August is likely to get a slight increase in the frequency of wet days, 7-day wet spells and moderate and heavy rainfall days;
- ✓ The second three (3) months (September to November) is favoured to be as wet as usual with near-normal rainfall totals likely in most areas, except southwest Trinidad and all of Tobago where above-normal rainfall is likely;
- ✓ The temperature outlook for the wet season strongly indicates above-normal temperatures are likely with warmer than average maximum day and minimum night temperatures expected. The risk for hot days and short-duration hot-spells is elevated for the August to October period.

Likely Impacts

An outlook with increased chances for wetter than average conditions suggests:

- ✓ Elevated flooding risk in general, but more so for flood-prone areas;
- ✓ Localized heavy rainfall and prolonged wet spells will increase flash-flooding potential in high-risk/flood-prone areas and within watersheds with narrow valleys and steep hill-sides;
- ✓ Increase in surface water ponding which can promote mosquito breeding and spikes in vector borne diseases;
- ✓ Higher than usual temperatures during the peak of the heat season can lead to excessive heat which can amplify existing health conditions in vulnerable persons.

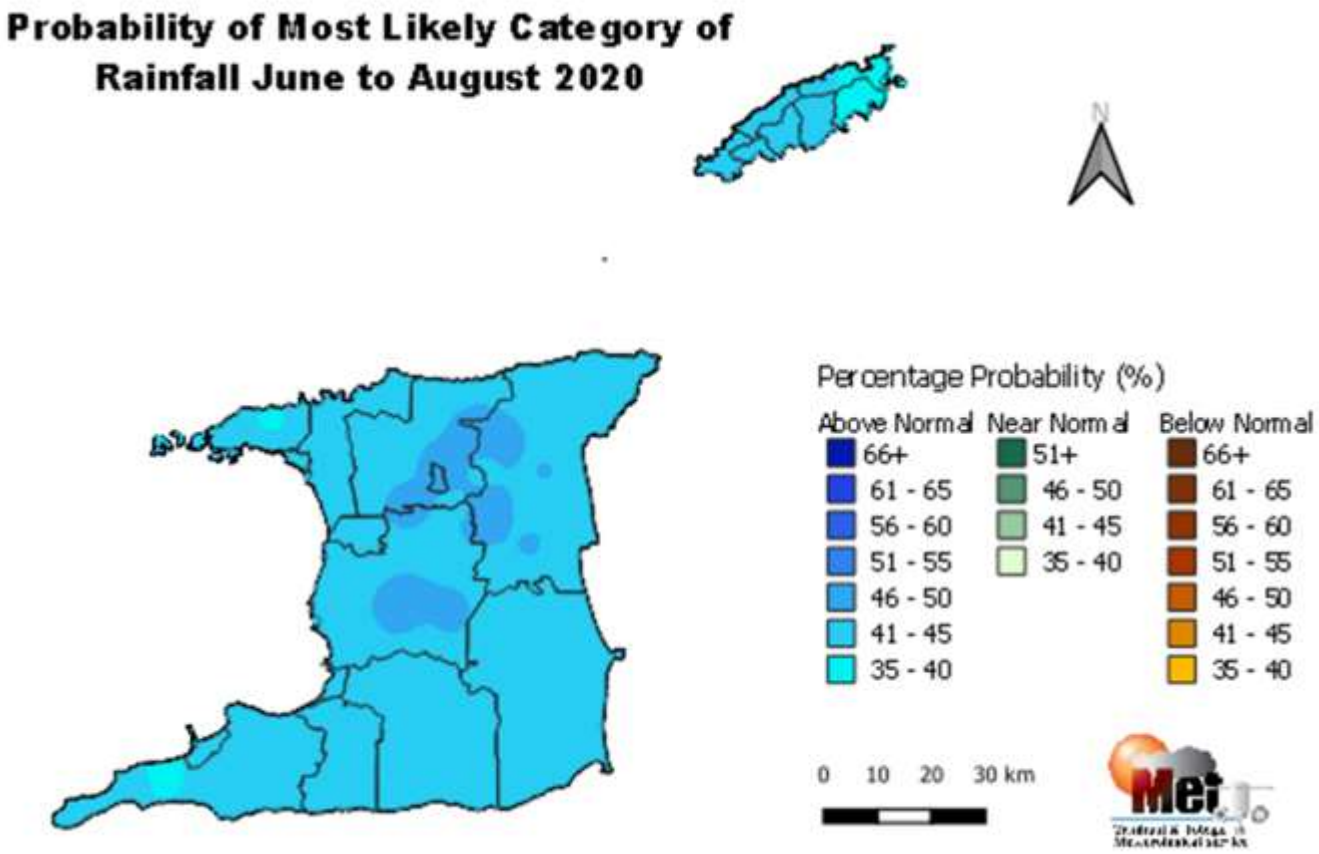

Figure 1: Category of rainfall likely for June to August 2020 (JJA) with the highest chance of occurrence expressed as probabilities and colour coded on the map. Blues indicate that it is more likely for above-normal rainfall to occur than for below-normal or near-normal. Browns indicate it is more likely 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 JJA period rainfall totals during the historical period used to produce the outlook.

- A wetter than usual start to the wet season is expected with June rainfall totals likely to be in the above-normal category for all areas;
- The early wet season months of June to August (JJA) are likely to be wetter than average for all of Trinidad and Tobago with higher chances in northeastern and central areas of Trinidad (see figure 1;
- The rainfall outlook for JJA indicates a strong chance (mostly 40–50% chance) for above-normal rainfall totals across all areas of the country **(high confidence);**
- The risk of flooding is elevated for the period June to August.

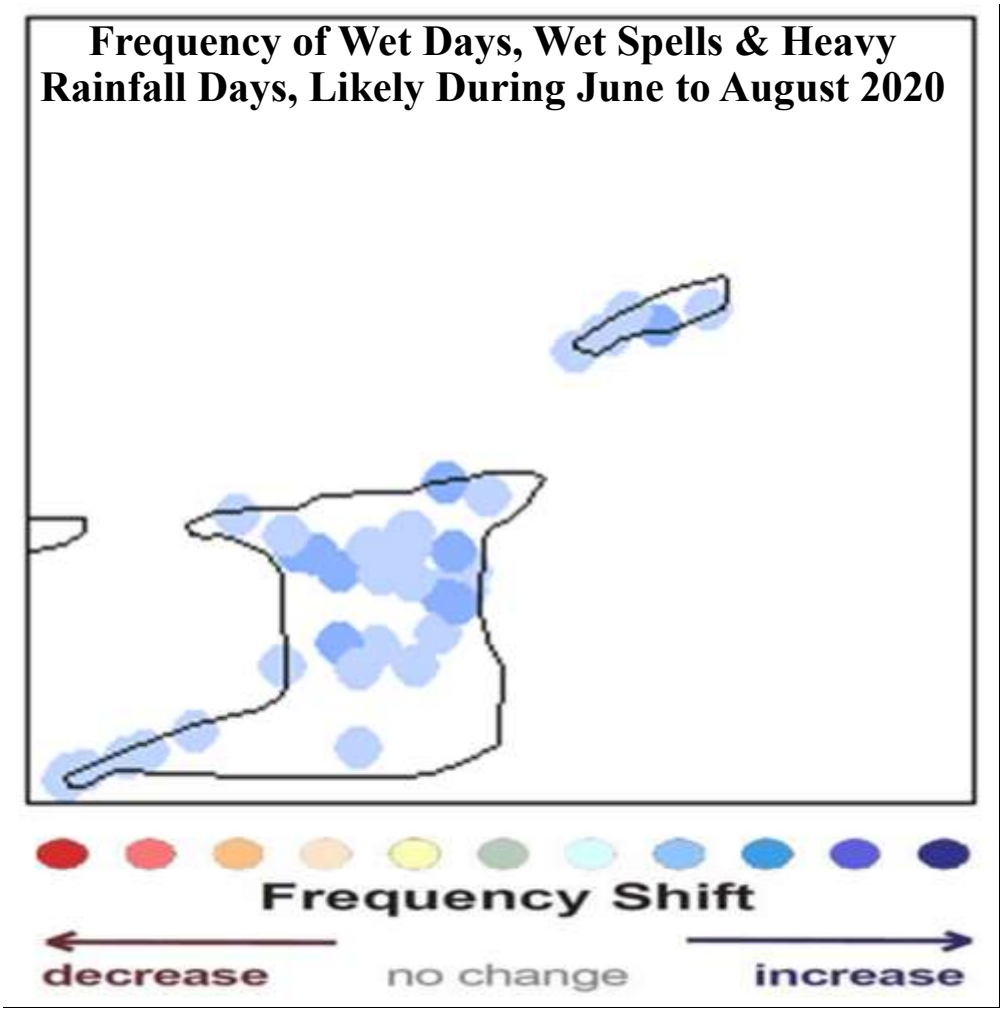

Figure 2: Shows how the frequency of wet days and 7-day wet spells is likely to depart from the average historical June to August pattern, from comparison between the average and JJA 2020 forecast wetness.

- The flooding impacts during the wet season usually result from frequent wet days, prolonged wet spells and heavy rainfall days;

- Usually during June to August the country gets about 43 to 50 wet days (days with rainfall greater than 1.0 mm) out of the 92 days and 3 to 6, 7-day wet spells, with 1 to 3 of these ending up very wet and 1 being an extremely wet spell;

- June to August 2020 is expected to produce a slight increase in both the number of wet days and 7-day wet spells, with 1 to 2 wet spells likely to be very wet and 1 spell likely to be extremely wet (top 1% of historical wettest JJA 7-day wet spells);

- There is a 75% chance for 9-10 days with rainfall greater than or equal to 25 mm and a 65% chance for up to 2 days with rainfall greater than or equal to 50 mm during JJA 2020.

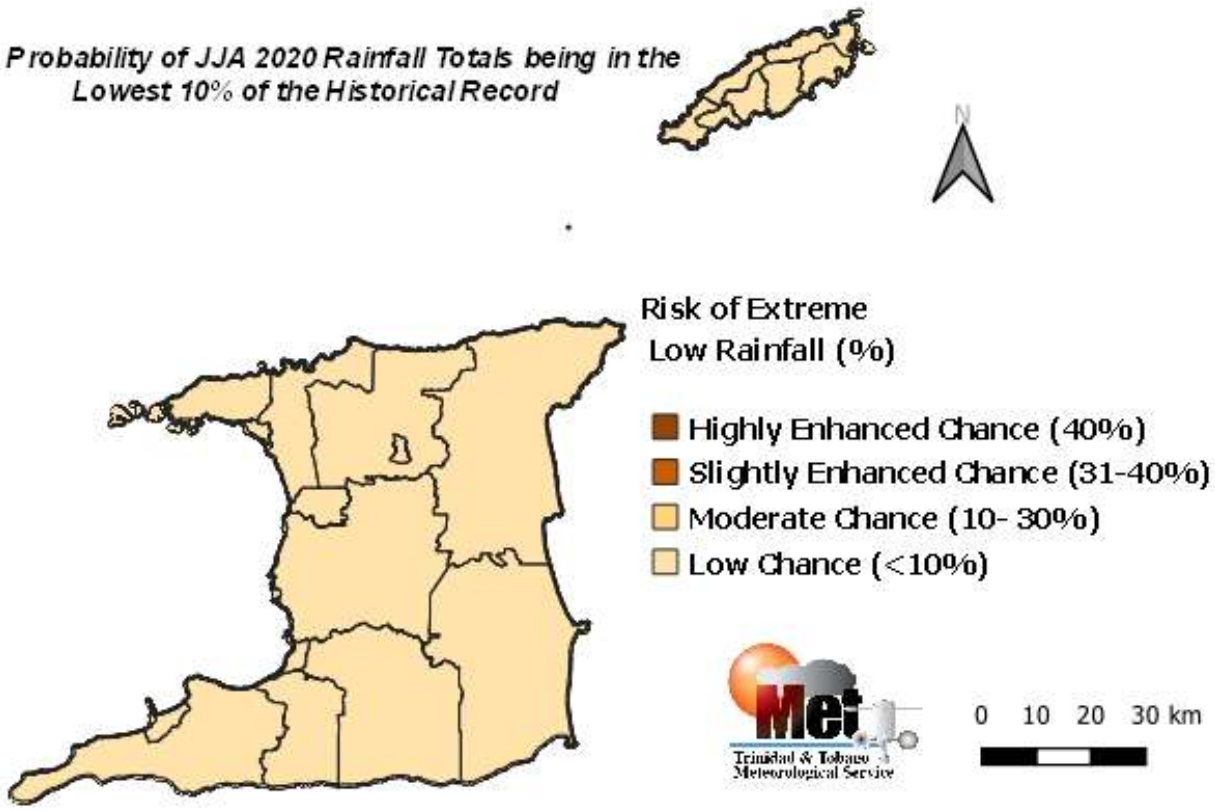

Figure 3: The map shows the chances for extremely dry conditions over the next three months, June to August 2020. Extremely dry conditions refer to the lowest 10% of June to August seasonal total rainfall amounts in the historical record.

- The ongoing drying trend is expected to ease during JJA;
- The chance for the June to August 2020 to be extremely dry is very low, less than 6% chance **(high confidence).**

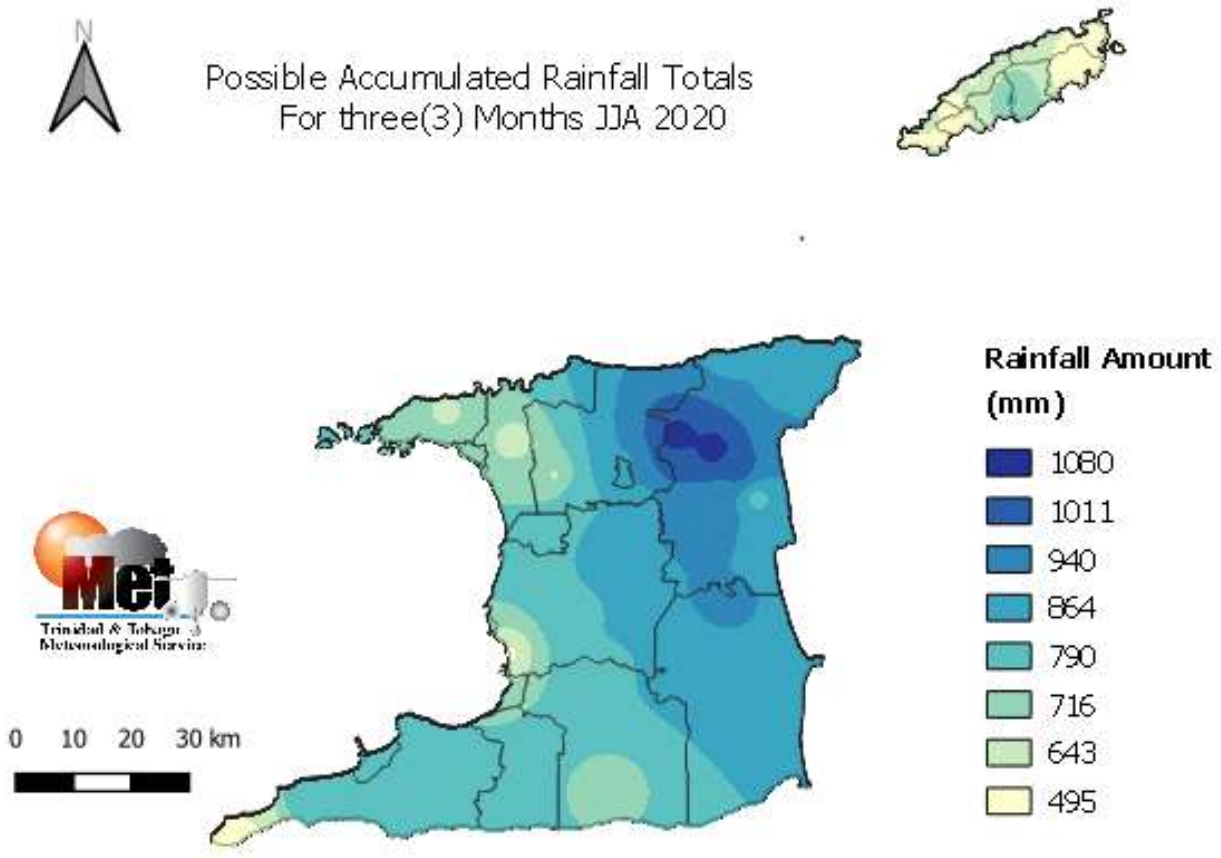

Figure 4: Possible accumulated rainfall totals with the highest chance of occurring during June to August 2020.

- Trinidad and Tobago typically receives its highest accumulated rainfall amounts during June to August. This is likely to continue in 2020;

- With the forecast for above-average rainfall (i.e. rainfall in excess of 125% of average), most of Trinidad and Tobago is likely to receive rainfall in excess of 650.0mm over the three months June to August 2020;

- Areas in northeast Trinidad are likely to receive the highest rainfall totals (near 1100.0mm), while a few areas in southwest and northwest Trinidad, as well as southwest and northeast Tobago are likely to receive the lowest rainfall totals (near 500.0mm).

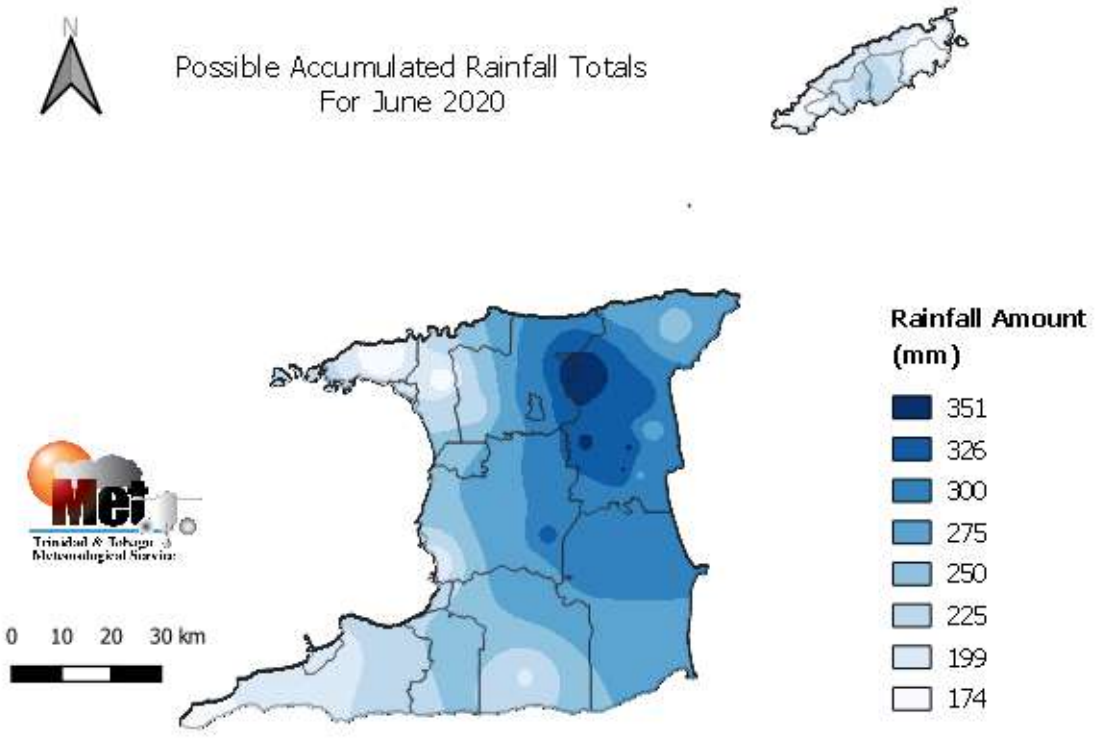

Figure 5: Possible rainfall totals with the highest chance of occurring during June 2020.

- June 2020 rainfall totals are likely to range from as low as 174.0 mm in some areas in southwest and northwest Trinidad to near 350.0 mm in a few areas in the northeast;

- In Tobago, areas in the southwest and northeast are likely to receive the lowest totals.

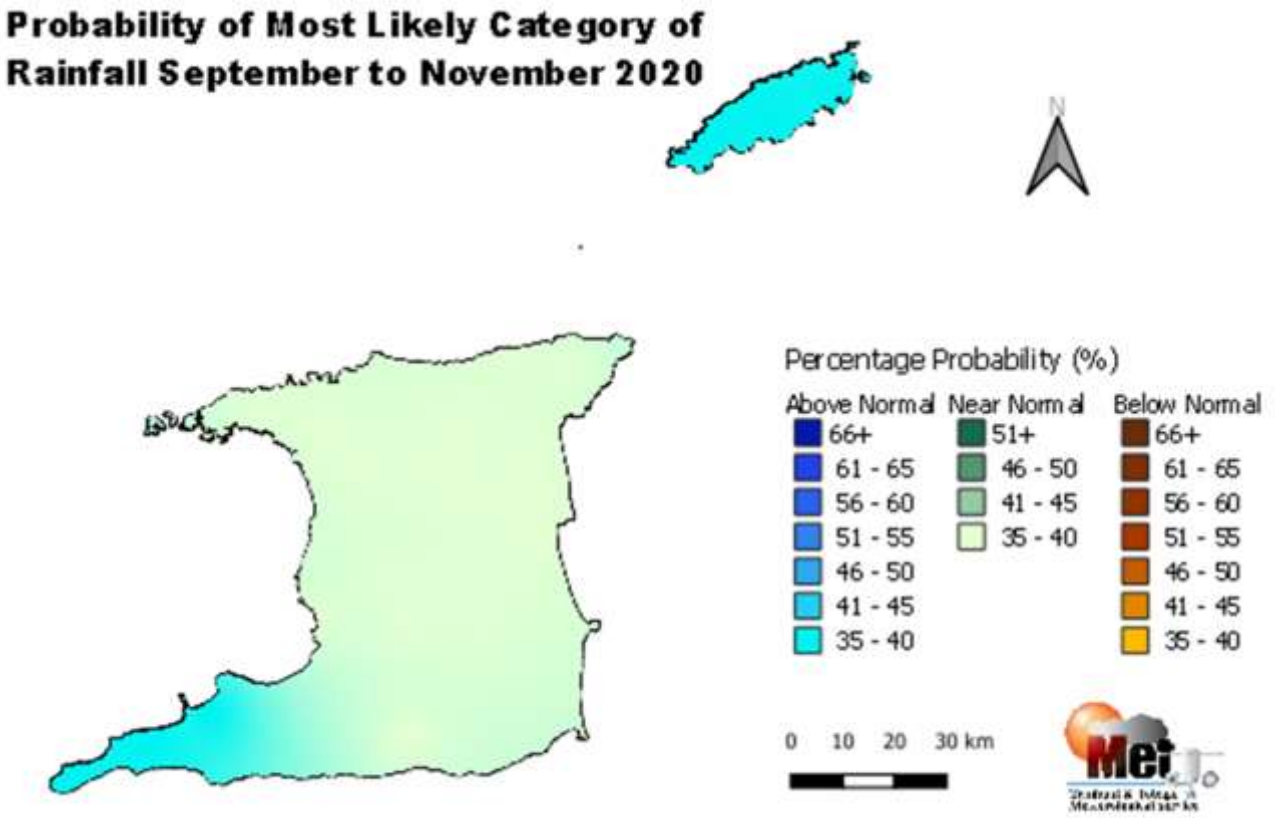

Figure 6: Category of rainfall most likely for September to November 2020 (SON) with the highest chance of occurrence expressed as probabilities and colour coded on the map. Blues indicate that it is more likely for above-normal rainfall to occur than for below-normal or near-normal. Browns indicate 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.

- ✓ September to November 2020 (SON) is expected to be as wet as usual in most areas with near-normal rainfall totals as the most likely category, except for southwestern Trinidad and all of Tobago, where above normal rainfall is favoured;
- ✓ Near-normal rainfall for this time of the year is a substantial amount of rainfall;
- ✓ The risk of flooding will still be elevated.

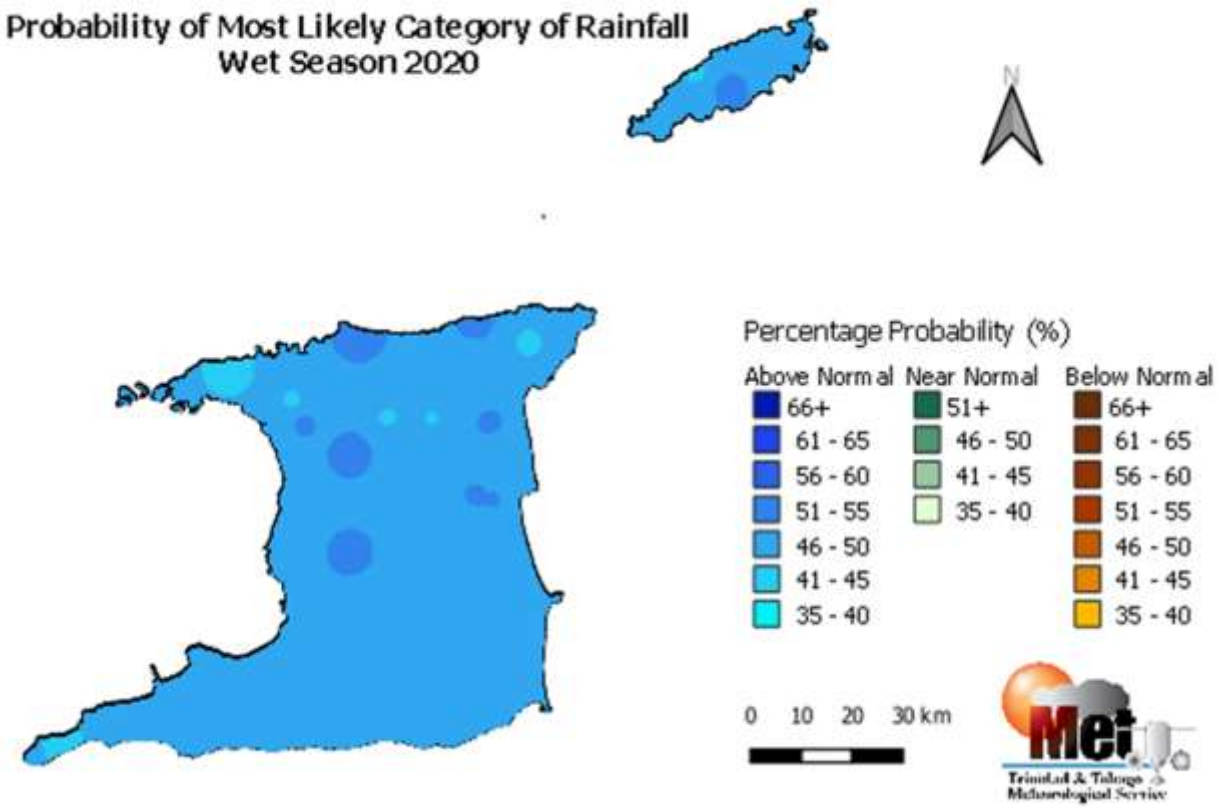

Figure 7: Category of rainfall most likely for the 2020 wet season with the highest chance of occurrence expressed as probabilities and colour coded on the map. Blues indicate that it is more likely for above-normal rainfall to occur than for below-normal or near-normal. Browns indicate it is more likely 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 wet season rainfall totals during the historical period used to produce the outlook.

Overall, the wet season months of June to December are likely to be wetter than average for all of Trinidad and Tobago with above-normal rainfall totals expected.;

The country is likely to receive very high rainfall totals, as a normal wet season typically has high rainfall totals and therefore a large amount of rainfall is needed to exceed near-normal totals;

This means there will likely be an increased number of weather events to contend with, as the season is likely to bring frequent unsettled conditions.

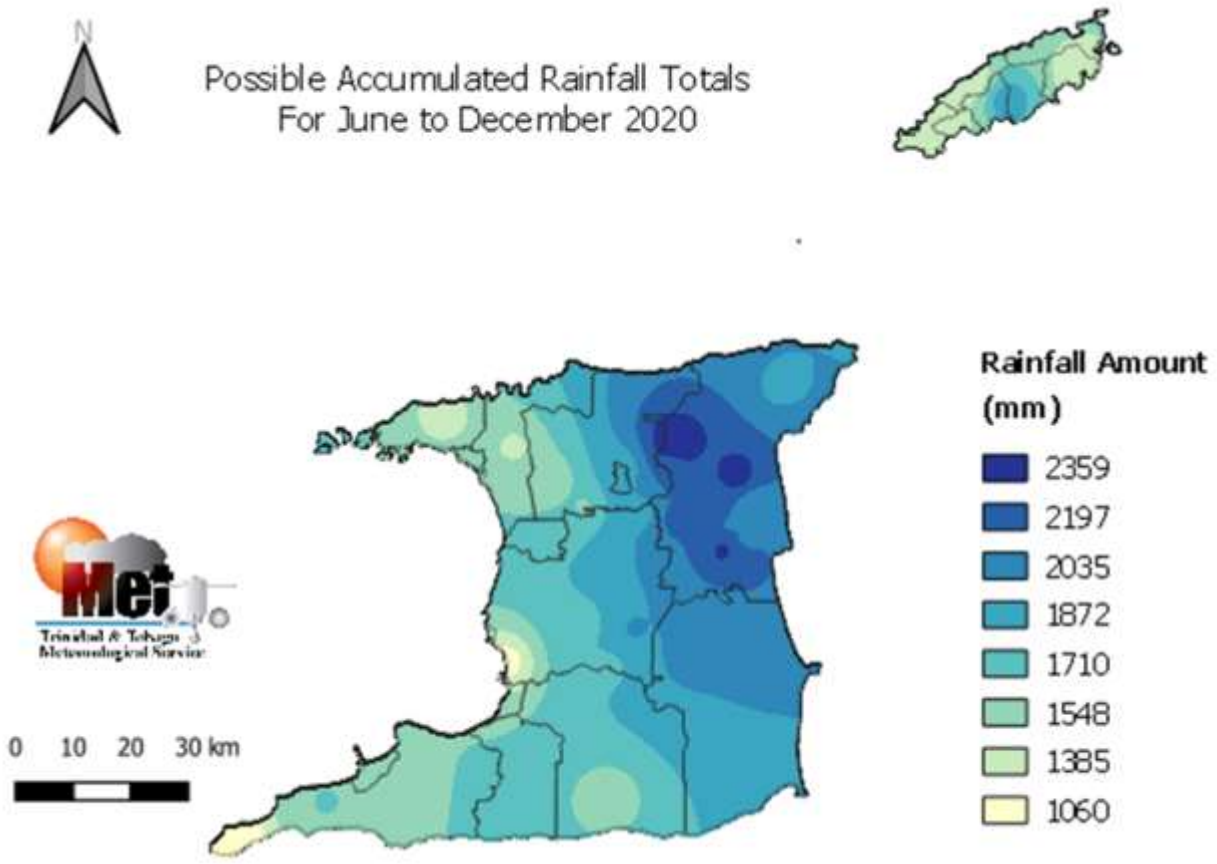

Figure 8: Possible rainfall totals with the highest chance of occurring during the 2020 wet season.

Possible wet season rainfall totals with the highest chance of occuring are likely to range between 1060.0 mm in a few areas on the west coast of Trinidad to near 2360.0 mm in some of the typically wettest areas of the country, such as Sangre Grande and environs.

Temperature Outlook:

- ✓ The temperature outlook for the 2020 wet-season tilts quite strongly towards above-normal temperatures, with warmer than average day and night temperatures likely;
- ✓ There is a 75% chance for warmer than usual maximum daytime temperatures and nighttime minimum temperatures, especially during June to October 2020;
- ✓ There is also an elevated chance for an increase in the frequency of hot-days and short-duration hot-spells during August to October (ASO) 2020, with the risk being highest in September;
- ✓ Usually, the peak of the local heat-season and the riskiest period for hot-days and hot-spells is during ASO. A hot-day is day when the maximum temperature equals or exceeds 34^0C in Trinidad and 32^oC in Tobago. A short-duration hot-spell is 3 or more consecutive hot days.

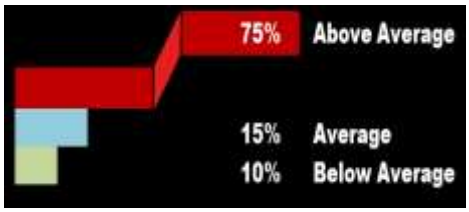

Figure 9: The map shows the colour-coded category (below-normal, above-normal, and near-normal) of maximum and maximum temperatures that is most likely to occur across Trinidad and Tobago for the wet-season of 2020. The colour-coded bar-graph with the numbers to the right gives the likelihood for each forecast category to occur.

Likely Implications

- An enhanced likelihood for above-normal rainfall during the 2020 wet season suggests increased chances for flooding and increased flood-risks in flood-prone areas;
- Localized moderate to heavy rainfall days and prolonged wet spells during JJA could trigger flash-flooding in high-risk/flood-prone areas and within watersheds with narrow valleys and steep hill-sides;
- Expect an increase in recharge rates, surface water flows and river levels;
- Possible increased turbidity and degraded water quality on heavy rainfall days;
- More reliable rains for agriculture but the excess rainfall can lead to waterlogging of agricultural fields;
- 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, and longer travelling times, which may require earlier commute start-times;
- An increase in surface water ponding can promote mosquito breeding, which can lead to higher risks for spikes in vector borne diseases;
- Higher than usual and extreme temperatures can lead to relatively excessive heat for Trinidad and Tobago during the peak of the local heat season, which can amplify existing health conditions in vulnerable persons and worsen chronic health conditions in others;
- Should JJA get above-normal rainfall, soils are likely to become highly saturated, river levels are also likely to become high; and hence, the enhanced likelihood for near-normal rainfall during September to November will maintain the risk for flash floods, while increasing the risk for riverine floods.

Suggested Sectorial Early Action To Reduce Possible Negative Impacts!

General Public

- ✓ Closely monitor the Trinidad and Tobago Meteorological Service weather forecasts;
- ✓ Strengthen community coordination with disaster management personnel;
- ✓ Prepare contingency plans for an event;
- ✓ Persons living in flood risk areas should start their flood planning and preparedness efforts;
- ✓ Purchase emergency supplies and pack a grab and go-bag with clothes and essentials and have these on standby;
- ✓ Get acquainted with your flood prone areas, shelter locations and become sand-bag ready;
- ✓ Develop an evacuation plan that outlines the safety of family members and pets;
- ✓ Update contact information for the local disaster officials and other emergency services.

Drainage

- ✓ Ramp-up de-silting and cleaning of drainage systems, water channels, outlets and river mouths;
- ✓ Pay attention to areas of rock fall which may be indicative of potential future landslides.

Disaster Risk Management Sector

- ✓ Put in place the necessary measures to ensure communities are sensitized;
- ✓ Start preparedness for the expected increase in rainfall and the associated negative impacts;
- ✓ Review contingency plans and early warning information dissemination channels;
- ✓ Revisit and review emergency plans and communication strategies;
- ✓ Refresh media training and distribute appropriate advice on the outlook through the media.

Water and Energy sector

- ✓ Update flood action plans and continue water conservation awareness messaging;
- ✓ Revisit contingency plans and ramp-up de-silting of major rivers and reservoirs;
- ✓ Remove dry branches, trees and tree-overhang near electrical power wires, especially in landslip prone areas.

Health Sector

- ✓ Revisit contingency plans to manage possible spikes in vector-borne diseases;
- ✓ Improve the usage of early excessive heat climate outlook information in plan of action.

Agriculture & Food Security Sector

- ✓ Raise awareness on agriculture pest and disease control measures;
- ✓ Revisit flood action plans.

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

Climatic Influencers and Context of the Outlook

- ✓ ENSO-neutral conditions currently exist across the equatorial Pacific Ocean. During April 2020, positive sea surface temperature (SST) anomalies weakened across the ENSO monitoring area, and are now near zero;
- ✓ Most of the key models and the consensus outlook favour ENSO-neutral during June to August with further cooling which will lead to a reasonable chance for La Niña-like conditions to develop during August to October, but this is not guaranteed;
- ✓ La Niña or ENSO-neutral-cold conditions during the local wet season tend to tilt the odds in favour of enhanced rainfall occurrence in Trinidad and Tobago;
- ✓ Sea surface temperatures (SST) in waters in relatively close proximity to Trinidad and Tobago and within the area controlling the Atlantic Meridional Mode (AMM) are warmer than the long-term average; with SST anomalies relatively large in magnitude for this time of the year;
- ✓ The AMM is known to impact changes in the location and intensity of the Inter-Tropical Convergence Zone which favours rainfall in Trinidad and Tobago;
- ✓ Since April, the North Atlantic Oscillation (NAO) moved between its positive and negative phases but has been negative since May. A negative NAO tends to aid warmer than usual SSTs in the waters, in and around Trinidad and Tobago;
- ✓ The Madden Julian Oscillation (MJO), is the key climate influencer for suppression or enhancement of rainfall at the sub-monthly scale, and is expected to play an active role in influencing rainfall occurrence during the first two weeks of June.

The outlook is based on seasonal climate models output and known seasonal climate influencers. The outlook is in reasonable agreement with several of global climate models; and reflects the influence of warmer than average SSTs in waters around T&T and declining ENSO-neutral warm conditions.