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ANNOUNCEMENTS

As expected during the rainy season, rainfall quantities increased across the Caribbean. However, below normal rainfall was still experienced over much of the region, with those countries experiencing normal rainfall in September still not making up for the deficits of previous months. With below normal rainfall being forecasted for much of the Caribbean (except in the northwest) into March 2016, concerns continue for low water availability for later in 2015 and into the dry season of 2016, with a high possibility of an early end to the current wet season. Drought warnings are recommended for some parts of the Caribbean, except the northwest and the Guianas, until the end of the 2015.

REGIONAL OVERVIEW ON WEATHER AND CLIMATE FOR SEPTEMBER 2015

Normal to below normal rainfall was experienced over the eastern Caribbean and Guyana for the month. Trinidad was exceptionally dry; Tobago, Barbados, St. Vincent and St. Lucia normal; Grenada moderately dry; Dominica severely dry; Antigua slightly dry; and Guyana ranging from moderately dry in the west to normal in the north and east. Central Jamaica was normal while the western areas were slight to moderately dry and the eastern slight to extremely dry. Conditions in Belize ranged from moderately dry in the south to normal in the east, south and north.

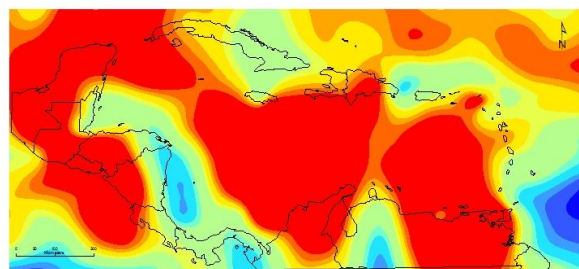


Figure 1. SPI for the Caribbean for September 2015. More information on the SPI can be viewed at <http://rcc.cimh.edu.bb/climate-monitoring/spi-monitor/>.

Most annual cropping takes place over a period of about three months. For the three month period

July to September, normal to below normal conditions dominated the islands of the eastern Caribbean. Trinidad was extreme to moderately dry from west to east; Tobago normal; Grenada severely dry; Barbados exceptionally dry; St. Vincent and St. Lucia moderately dry; Dominica moderate to severely dry; and Antigua extremely dry. Conditions in Guyana ranged from exceptionally wet in the north to moderately wet in the south and east. Central areas of Jamaica were normal, and ranged to exceptionally dry in the east and south and extremely dry in the west. Conditions in Belize ranged from moderately dry in the south to exceptionally dry in the north.

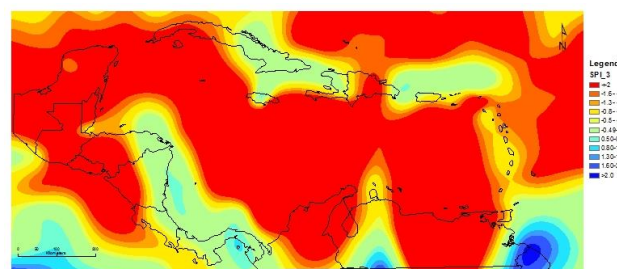


Figure 2. SPI for the Caribbean for July to September 2015. More information on the SPI can be viewed at <http://rcc.cimh.edu.bb/climate-monitoring/spi-monitor/>.

Increases in rainfall were experienced across the region, as expected. However the great deficits accumulated over the earlier months of the year were not erased in most of the Caribbean. All this is despite September spawning the naming of four

tropical cyclones (Grace, Henri, Ida, Joaquin) and Tropical Depression 9.

NATIONAL OVERVIEWS

Antigua and Barbuda

September had the highest maximum temperature, 34.6 °C, on record dating back to 1971. This temperature is also now the second highest ever recorded at the V. C. Bird International Airport (VCBIA). Meanwhile, the mean temperature, 28.0°C, was near normal. Additionally, the absolute minimum temperature was 22.5 °C. The month broke the monthly below normal rainfall trend since the year started. On average, the island received near normal rainfall, 94.0 mm. Clearly, the month's rainfall had virtually no impact on the drought, which remains at severe levels. July-September is now the second driest on record, dating back to 1928. At (VCBIA), the number of wet days (≥ 1 mm) and heavy rainfall days (≥ 10 mm) were below and near normal respectively. The maximum 24-hour total recorded was 26.9 mm.

Drought conditions persist across the island, with the water authority stating that 92% of the country's potable water coming from desalination and 8% from ground water. Surface catchments remain dry or below extraction levels. The island's potable water deficit remains at 0.5 to 2.5 million gallons per day and increasing. In order to narrow the gap, the government has purchased a desalination plant that is expected to come online by early December. Farmers are in the process of preparing their fields for planting but are being cautious with planting as they are hoping for more consistent rainfall. The drought is also seriously impacting livestock farmers. Food for their animals is going scarce; hence, the Ministry of Agriculture is seeking approval from the government to import animal feed from Argentina.

Belize

September 1st was a warm and mostly dry day. Showers and thunderstorms were generally isolated. This trend continued for another two days. On the 4th, there was an increase in low-level moisture over the area. As a result, the country experienced some showers and thunderstorms. This decreased the

following day, but the south continued to experience some showers and thunderstorms that same night. This was the trend for the next six days. Daytime temperatures were high and accompanied by isolated showers or thunderstorms. Showers and thunderstorms were experienced in the south of the country at night.

The 11th, 12th, and 13th were warm, with isolated shower activity. There was more shower activity on the 14th to 16th, but mostly in the south. The following two days were warm with isolated shower activity. Moisture levels, and shower and thunderstorm activity increased on the 19th across the country. This continued through to the 22nd.

The following day, a trough of low pressure developed over the southwest Caribbean and moved over Belize. This further supported showers and thunderstorms across the country, but more so over coastal areas. This continued through to the 26th. Showers moved from south to north of the country - the path of the trough. On the 26th, the trough moved into the Gulf of Mexico, carrying much of the moisture from over Belize. From the twenty-sixth to the end of the month, only isolated showers or thunderstorms were observed around the country.

Rainfall data obtained shows the normal pattern of rainfall, increasing from north to south. Amounts ranged from 106mm in the north to 404mm in the south. Generally speaking, this indicates below average rainfall for the month at key stations across the country.

Dominica

The month of September was normal to moderately dry across the island of Dominica. Tropical Storm Grace from the 10th to 11th and tropical waves contributed to the month's rainfall.

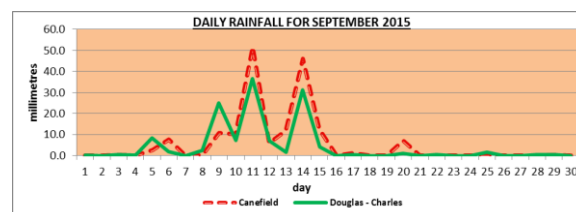


Figure 3 Daily rainfall at Canefield and Douglas-Charles Airports, Dominica during September 2015.

At Canefield Airport, a total of 168.6mm of rainfall was recorded for the month. This total represents about two thirds of the monthly mean. There were 11 rainfall days for the month with the longest dry spell of 10 days occurring during the last dekad of the month. The mean air temperature of 29.1°C remained above average by 0.4°C. The maximum daily temperature recorded was 34.3°C on the 9th and the minimum 21.8°C on the 12th. The average wind direction was south south westerly at 7km/hr. The highest gust recorded was 41km/hr on the 7th.

At Douglas-Charles Airport, a total of 130.8mm of rainfall was recorded for September. This total represents about 41% of the monthly mean. There were 12 rainfall days with 4 consecutive dry days at the beginning of the month and 13 during the last half of the month. The air temperature averaged 29.0°C, and this is 0.4°C above the mean. The maximum temperature recorded was 32.6°C on the 4th and the minimum was 22.6°C on the 12th. The average wind direction was east south easterly at 11km/hr. The highest wind gust recorded was 48km/hr on the 14th.

The most affected areas during tropical storm Erika were the Central, West and South regions. A month later, farmers are still recovering from significant damage to farm access roads and property and are in the process of clearing debris, cleaning and planting. Road bypasses have been completed in heavily farmed areas such as Belles and Carholme. There was significant erosion of top soil in affected areas, making the land unsuitable for planting while poor water quality resulted in chicken mortality. Heavy silted rivers and streams also caused flash floods during the early part of the month, further damaging feeder roads. Farmers are also faced with the issue of praedial larceny.

Few wet days were observed during the latter part of the month, which limited crop establishment and production and rainwater harvesting. However, vegetables and root crops, passion fruit and avocados were harvested during the month.

Grenada

Below normal rainfall was recorded for the sixth consecutive month here at MBIA. A total of 86.4mm of rainfall was measured for the month, which was

64.5% of the 30-year average (LTA) and 44.7% of September 2014's 193.5mm rainfall. A tropical wave on the 7th produced 17.2mm of rainfall. On the 13th, a low level trough coupled with the ITCZ enhanced by a divergent environment aloft, heightened unstable conditions and produced showery activity resulting in 13.7mm, while on the 22nd, localized conditions due to daytime heating and lifting created deep convective activity resulting in 25.3mm. Apart from these three significant 24hour rainfall totals, there were seventeen (17) other days with little or no rainfall.

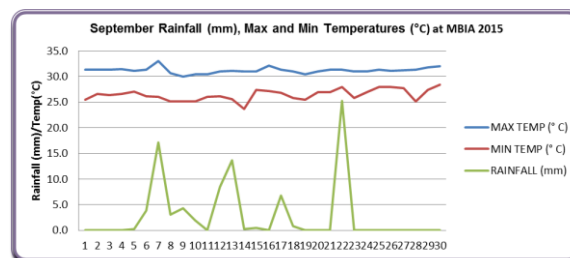


Figure 4 Daily maximum and minimum temperature, along with daily rainfall during September 2015 at Maurice Bishop International Airport, Grenada.

Mean daily temperatures for September 2015 were 0.9°C higher than September 2014 reaching a mean of 28.8°C, while the mean maximum and minimum temperatures were 31.2 °C and 26.4°C respectively. This means that the minimum mean of 26.4°C is the highest on record. The highest maximum temperature was 33.0°C recorded on the 7th compared with 32.3 °C for 2014 and 32.5 °C for the LTA (Long Term Average). The lowest minimum temperature of 23.7 °C was recorded on the 14th compared with 21.9 °C for 2014 and 22.9°C for the LTA.

Wind speeds of 18.5 to 27.8 km/hr and greater were generated for most of the month and was generally from the east to east south east most of the time. Although no marine advisory was issued for the month, the seas were generally slight to moderate, being a bit more on the moderate side. Fishermen were able to venture out to sea and had catches in dolphin, king fish and tuna especially on the east coast.

Even though rainfall amounts fell significantly when compared with the LTA, the farming community still did well as a result of irrigation applied earlier on

during the year. Hence crop production continued to be good in melons, plantains, soursops, pumpkins, okra, avocados, herbs, papaya, squash and peppers.

Guyana

Region #7 recorded the highest average rainfall of 161.9mm, with 11 rain days, whereas Region #9, recorded the lowest of 17.3mm, with 1 rain day. In Region #6 Onverwagt recorded the highest 24-hour rainfall total of 140.0mm on the 13th. Most stations in Guyana recorded values below their long-term averages for the month.

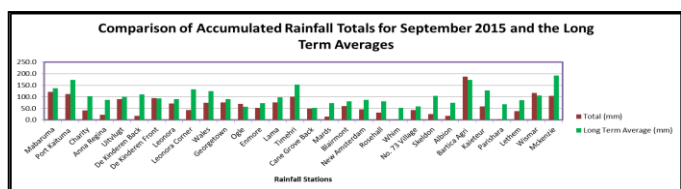


Figure 5 September 2015 rainfall compared with the long-term average for select stations in Guyana.

The highest mean maximum temperature was recorded at Mabaruma Region #1 with 35.0°C, while Lethem Region #9 recorded the highest daily maximum temperature of 36.6°C on the 21st, also the lowest daily maximum of 29.0°C on the 19th. Ogle Region #4 recorded the highest mean minimum temperature of 25.5°C. Georgetown recorded the lowest mean maximum temperature of 31.5°C; and Timehri the lowest mean minimum temperature of 21.8°C and the lowest daily minimum temperature of 20.0°C on the 24th.

Across the country, dry conditions were experienced for the month of September. There, however, were no reports of significant effects of the weather on Agricultural production

St. Lucia

September was another month of below average rainfall in Saint Lucia. At Hewanorra Airport the rainfall amount was 27.5mm less than the average and at George Charles Airport it was 68 mm. The rainfall was also very poorly distributed with more than half the rainfall occurring during the second week of the month. There were 9 rainy days at Hewanorra, while George Charles recorded 10 rainy days.

October is one of the wettest months in Saint Lucia and is also an active month of the Hurricane Season. It is usual to have frequent heavy showers and thunderstorms during the month. However, this year the rainfall totals for October may be low because of the ongoing El Niño event. The mean rainfall for October is 182.4mm at Hewanorra and 257.3mm at George Charles. On average there are 20 rainy days and rainfall is mainly produced by mid to upper level troughs, tropical waves and tropical cyclones.

Table 1 September 2015 monthly averages at Hewanorra Airport, St. Lucia.

Cloud Cover (oktas)	Wind Dir (° from N)	Wind Speed (kt)	Air Temp. (°C)	Rainfall Mean (mm)	Rainfall Total (mm)
4	90	11	28.8	181.8	154.3
RH (%)	Max Temp (°C)	Min Temp (°C)	Daily Sunshine (Hrs)	Daily Evap (mm)	Soil Temp (°C)
78	31.8	26.2	9.6	8.1	28.9

Table 2 September 2015 monthly averages at George Charles Airport, St. Lucia.

Cloud Cover (oktas)	Wind Dir (° from N)	Wind Speed (kt)	Air Temp. (°C)	Rainfall Mean (mm)	Rainfall Total (mm)
4	100	06	29.4	216.1	147.3
RH (%)	Max Temp (°C)	Min Temp (°C)	Daily Sunshine (Hrs)	Daily Evap (mm)	Soil Temp (°C)
76	32.1	25.1			

St. Vincent and the Grenadines

From the 9th to the 11th of September there was 71.5mm of rainfall at the E. T Joshua Airport. Thereafter, on the 12th, 55.3mm (the highest 24-hour rainfall for the month) of rainfall was recorded, with the driving instability continuing up to the 14th. Thunderstorms were reported during the month on a few occasions from different parts of the country, but the rainfall total at the E. T. Joshua Airport for the month was 211.1mm, as compared with September's rainfall average of 243.9 mm rainfall. There were 4 fewer rainy days than the month's average of 18. Maximum gusts in the Arnos Vale area were recorded on the 11th at 57km/hr.

Rainfall was not evenly distributed; the first dekad (ten-day period) recorded 41% of total rainfall, the

second 55.9%, and the third 3.1%. There were 14 rainy days.

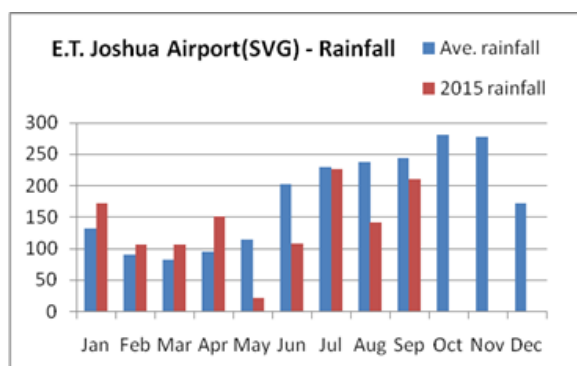


Figure 6 Average monthly rainfall along with the monthly 2015 totals to date, at E.T Joshua.

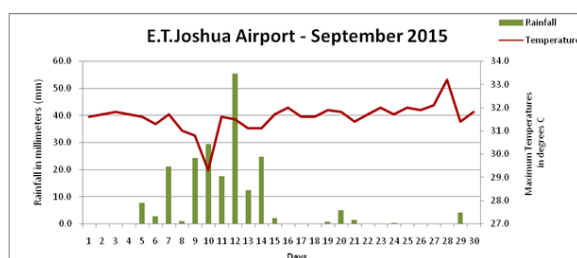


Figure 7 September daily rainfall and mean temperature for September 2015 at the E. T. Joshua Airport, St. Vincent and the Grenadines.

Trinidad and Tobago

The rainfall total for September 2015 at Piarcó, Trinidad was 72.6mm or 38.5% of the 1981-2010 average. At Crown Point, rainfall total was 126.1 mm or 81.3% of the 1981-2010 average.

During the first Dekad of September there was scanty to moderate daily rainfall over Trinidad with the 1st, 7th and 9th experiencing moderate rainfall. While in Tobago, scanty to heavy daily rainfall occurred with the 7th and 9th experiencing heavy rainfall. Maximum temperature for the dekad peaked at 34.6⁰C at Piarcó, and at 32.1⁰C at Crown Point.

The second dekad of September recorded scanty to heavy daily rainfall over Trinidad and Tobago with most days experiencing 1-10mm. Heavy rainfall was experienced on the 17th in Trinidad and on the 16th in Tobago. Rainfall total for the dekad was 45.6mm at Piarcó and 32.5mm at Crown Point. Maximum temperatures during the dekad peaked at 34.4⁰C at Piarcó and at 32.0⁰C at Crown Point.

During the third dekad, rainfall was unfavourable for rain-fed agriculture in Trinidad with little to no rainfall experienced over Trinidad. In Tobago the situation was better when heavy rainfall occurred on the 24th. Maximum temperatures during the dekad peaked at 34.4⁰C at Piarcó and at 32.0⁰C at Crown Point.

The second half of the first dekad produced significant rainfall for rainfed agriculture and water harvesting in Tobago. The water surplus continued into the second dekad, which would have decreased heat and water stress in Tobago. The water deficit experienced during the third dekad in Trinidad would have increased heat and water stress, while in Tobago these conditions would have continued to be more favourable.

REGIONAL OVERVIEW ON SEASONAL CLIMATE FORECASTS

The **El Niño** remains strong and is likely to strengthen even further. The El Niño event is highly likely to last beyond March 2016. It is highly likely that the rainy season will continue to produce less than normal rainfall with higher temperatures south of 20°N. However, in the northwest Caribbean in the vicinity of The Bahamas and Cuba, the likelihood for above normal rainfall through March 2016 becomes increasingly likely.

Caribbean Sea Surface Temperatures (SST) are up to 1°C above-average in the Caribbean, and expected to increase toward the southeast. **The Trade Winds** are below average but hardly predictable at this time. Upper level winds are strong and likely to depress convective, and therefore rainfall, development.

October 2015 to March 2016

The Bahamas and Cuba are highly likely to experience normal to above normal rainfall during October to December. However, most of the Caribbean from the Guianas to the Leeward Islands in the east to Belize in the west is more likely to experience normal to below normal rainfall, with greatest confidence for below normal rainfall over Guyana and the ABC islands. There is uncertainty of

what will happen with the rainfall over northern Hispaniola for this three month period.

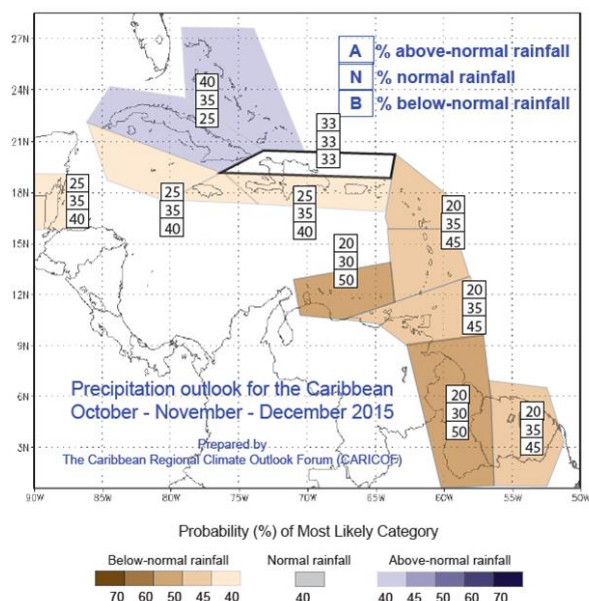


Figure 8 The October to December 2015 rainfall forecast

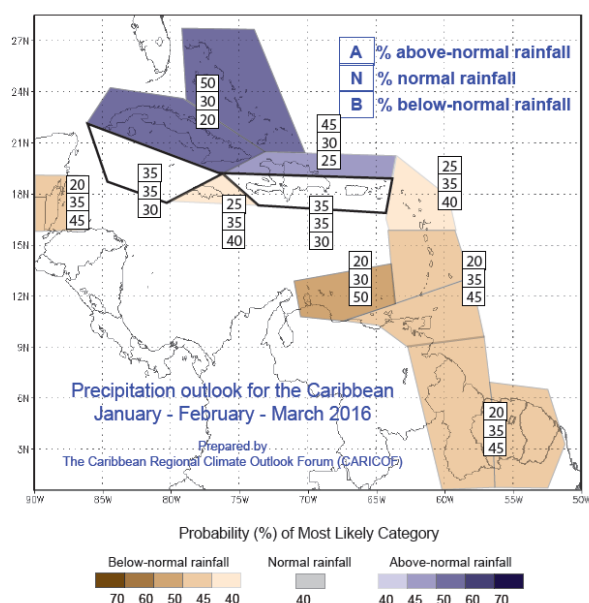


Figure 9 The January to March 2016 rainfall forecast

The trend toward normal to above normal rainfall in the northwest continues during the January to March 2016 period, and with even greater confidence for above normal rainfall, particularly over The Bahamas and Cuba, than the previous three month period. However, the eastern Caribbean, including the Leeward, Windward and ABC Islands, the Guianas, Jamaica and Belize are more likely to experience normal to below normal rainfall during this period.

There is however greater uncertainty in the remainder of the Caribbean, including Puerto Rico, southern Hispaniola, and Cayman Islands.

The remainder of the wet season is highly likely to produce less rainfall than normal, with fewer than normal tropical cyclones (and less cyclone energy) and other extreme rainfall events that would cause flooding and landslides. As we are quickly approaching the end of the wet season, plans to counter any impacts from low rainfall should be brought in place. It is still suggested that with the current El Niño being maintained and strengthening, the wet season could end earlier (as early as October/November in some parts) than normal; with a normal to below normal 2016 dry season being likely (particularly until March). All this implies that water reserves approaching the end of 2015 into 2016 could be worryingly low. Conditions will, as usual, be monitored throughout the coming months, with a recommendation that some parts of the Caribbean, particularly in the Windward and Leeward islands, Cayman Islands and northern and eastern Belize, be placed under warning to mobilise resources in preparation for any inevitability.

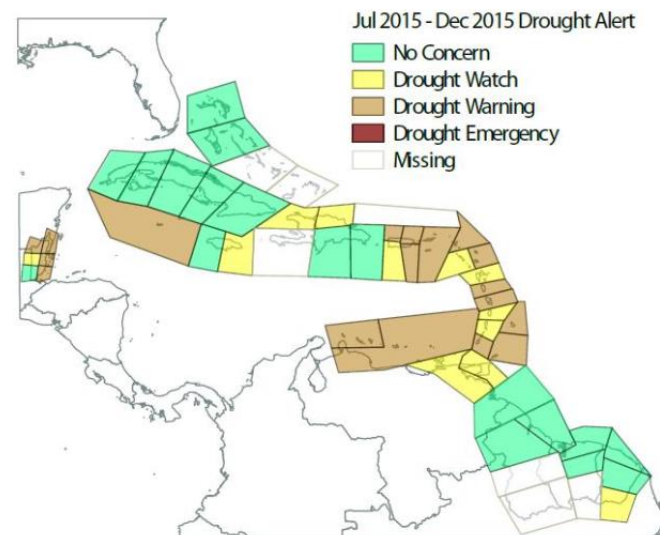


Figure 10 Drought Alert map (based on the SPI forecast) for the end of December 2015, based on actual and forecasted rainfall for the period July to December 2015.

Forecast Implications for Agriculture

Rainfall increased to more like or close to wet season conditions across much of the Caribbean, during September. However, this has not made up for the deficit accumulated from since early in 2015. This being the case, and with an early end to the wet season still being likely, apart from in the northwest Caribbean, it is highly likely that this deficit will not be reversed before the end of the 2016 dry season or at least before March 2016. This can have significant implications for agriculture, whether rainfed or irrigated. Some irrigation sources are already well below normal and will likely worsen during the dry season. This would particularly apply to the eastern Caribbean and parts of Jamaica and Belize. This may less apply to the northern parts of the Guianas, as these areas approach one of their two annual wet seasons. However there may be some concerns in the Guianas in early 2016 once this wet season ends and goes into the first dry season of 2016. Those with irrigation sources may soon want to consider the area of their farms that may reasonably be satisfied by these depleted sources, or whether more drought tolerant varieties/species are worthwhile.

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