



NATIONAL HURRICANE CENTER TROPICAL CYCLONE REPORT

POTENTIAL TROPICAL CYCLONE TWENTY-TWO

(AL222023)

16–18 November 2023

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GOES-16 GEOCOLOR IMAGE OF POTENTIAL TROPICAL CYCLONE TWENTY-TWO IN THE CARIBBEAN SEA AT 1320 UTC 17 NOVEMBER 2023. IMAGE COURTESY OF NOAA/NESDIS/STAR.

Potential Tropical Cyclone Twenty-Two was a disturbance in the Caribbean Sea that failed to develop into a tropical cyclone. Moisture from this disturbance and an approaching upper-level trough, produced heavy rainfall and flooding across portions of Jamaica, Hispaniola and extreme eastern Cuba, which resulted in 24 fatalities on Hispaniola during 18–19 November.



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SUMMARY

On 16 November 2023, the National Hurricane Center in coordination with the governments of Cuba, Jamaica, Haiti, the Bahamas, and the Turks and Caicos Islands, invoked the option to commence advisories and issue tropical storm watches for a disturbance over the western Caribbean Sea. At the time of initiating advisories at 2100 UTC 16 November, the disturbance was assessed to have a 70% chance of formation into a tropical cyclone in the next 48 h. The system was predicted to track toward Jamaica over the next 24 to 36 h while strengthening into a tropical storm, and then potentially bring tropical storm conditions to eastern Cuba, Haiti, the southeastern Bahamas, and the Turks and Caicos Islands. Tropical storm watches were issued for the aforementioned locations at that time.

Satellite images late on 16 November showed a large area of disorganized convection displaced to the east of a broad area of low pressure, caused by moderate to strong southwesterly vertical wind shear ahead of a potent upper-level trough approaching from the west. The system changed little in organization early on 17 November. As the upper-level trough approached the disturbance later that day and into early on 18 November, the convection associated with disturbance became even less organized due to southwesterly wind shear that continued to strengthen with time. Two low-level invest missions were performed by the 53rd Weather Reconnaissance Squadron – one late on 16 November and one late on the 17th. Neither mission found evidence that the system had a well-defined center. The strongest flight-level and SFMR winds from both flights support surface winds of about 30 kt.

The probability of tropical cyclone formation was decreased to the medium category in the Tropical Weather Outlook at 0600 UTC on 17 November, and to the low category at 2100 UTC that day while the disturbance was located near Jamaica. NHC issued the final advisory at 0300 UTC on 18 November. By that time, it had become clear that the system would not become a tropical cyclone and that it would not produce winds of tropical storm force. In the final advisory, NHC emphasized that heavy rains were likely to continue producing flash flooding and mudslides across portions of Hispaniola through 19 November. This was the first system in which the NOAA Weather Prediction Center publicly issued an experimental international rainfall graphic (Fig. 2). The graphic was available on the National Hurricane Center website, and it highlighted the potential for heavy rainfall over Jamaica, eastern Cuba, and Hispaniola.

A track of the disturbance, which follows the area of lowest pressure and greatest turning in the low-level wind field associated with the broad low along the trough, is listed in Table 1 and

illustrated in Figure 1. Tropical storm watches associated with the disturbance are provided in Table 2.

The peak intensity of 30 kt and the minimum pressure of 1004 mb are based on surface observations, scatterometer data, and flight-level and SFMR data from the aforementioned low-level invest flights. There were no ship reports of winds of tropical storm force associated with Potential Tropical Cyclone Twenty-Two.

Heavy rainfall associated with the disturbance as well as moisture from the approaching upper-level trough fell across portions of Jamaica, eastern Cuba, and Hispaniola. Norman Manley International Airport in Kingston recorded 12.42 inches (315.4 mm) of rain during the 48-h period from 16–18 November. A rain gauge located within the Arroyo Hondo Viejo neighborhood of Santo Domingo, Dominican Republic, measured 16.97 inches (431 mm) of rain during the 24-h period ending on 18 November and 19.00 inches (482.5 mm) during the 4-day period of 16–19 November. Figure 3 shows the rainfall amounts that fell over the Dominican Republic during that 4-day period.

CASUALTY AND DAMAGE STATISTICS

According to media sources, flooding and mudslides from heavy rainfall led to the deaths of at least 24 people in Hispaniola during the weekend of 18–19 November. These rains can be attributed to a combination of moisture from Potential Tropical Cyclone Twenty-Two (and its remnants) as well as moisture from the approaching upper-level trough.

In the Dominican Republic, 21 deaths were reported on 18–19 November, at least 18 of which occurred in the capital city of Santo Domingo. At least 9 people died when a retaining wall along a highway in Santo Domingo collapsed, crushing several vehicles. One death was reported after flooding from the Arroyo Santa swept away vehicles in the city of Higüey in La Altagracia province. The Dominican Republic Emergency Operations Center performed more than 2,500 rescues from 17–19 November. Flooding and landslides damaged several bridges and roads. More than 2,600 houses were damaged with 17 destroyed. Damage to water infrastructure interrupted the drinking water supply to approximately 2 million people.

In Haiti, at least 3 deaths were reported. In Jamaica, 24,000 customers lost power as heavy rains downed trees, severed powerlines and caused landslides. Twenty-four people were rescued from flooded areas of St. Thomas, Jamaica.



Table 1. Best track for Potential Tropical Cyclone Twenty-Two, 16–18 November 2023.

Date/Time (UTC)	Latitude (°N)	Longitude (°W)	Pressure (mb)	Wind Speed (kt)	Stage
16 / 1800	15.0	81.7	1005	30	disturbance
17 / 0000	15.6	81.4	1004	30	"
17 / 0600	16.3	80.8	1004	30	"
17 / 1200	17.1	79.8	1004	30	"
17 / 1800	18.0	78.5	1004	30	"
18 / 0000	19.2	77.2	1006	30	"
18 / 0600					dissipated
17 / 0000	15.6	81.4	1004	30	minimum pressure & maximum wind



Table 2. Watch and warning summary for Potential Tropical Cyclone Twenty-Two, 16–18 November 2023.

Date/Time (UTC)	Action	Location
16 / 2100	Tropical Storm Watch issued	Jamaica; Haiti; Cuban provinces of Guantanamo, Santiago de Cuba, Holguin, Granma, and Las Tunas; Southeastern Bahamas and Turks & Caicos Islands
17 / 2100	Tropical Storm Watch Discontinued	Jamaica
18 / 0000	Tropical Storm Watch Discontinued	Cuba, Bahamas, Turks & Caicos Islands
18 / 0300	Tropical Storm Watch Discontinued	Haiti

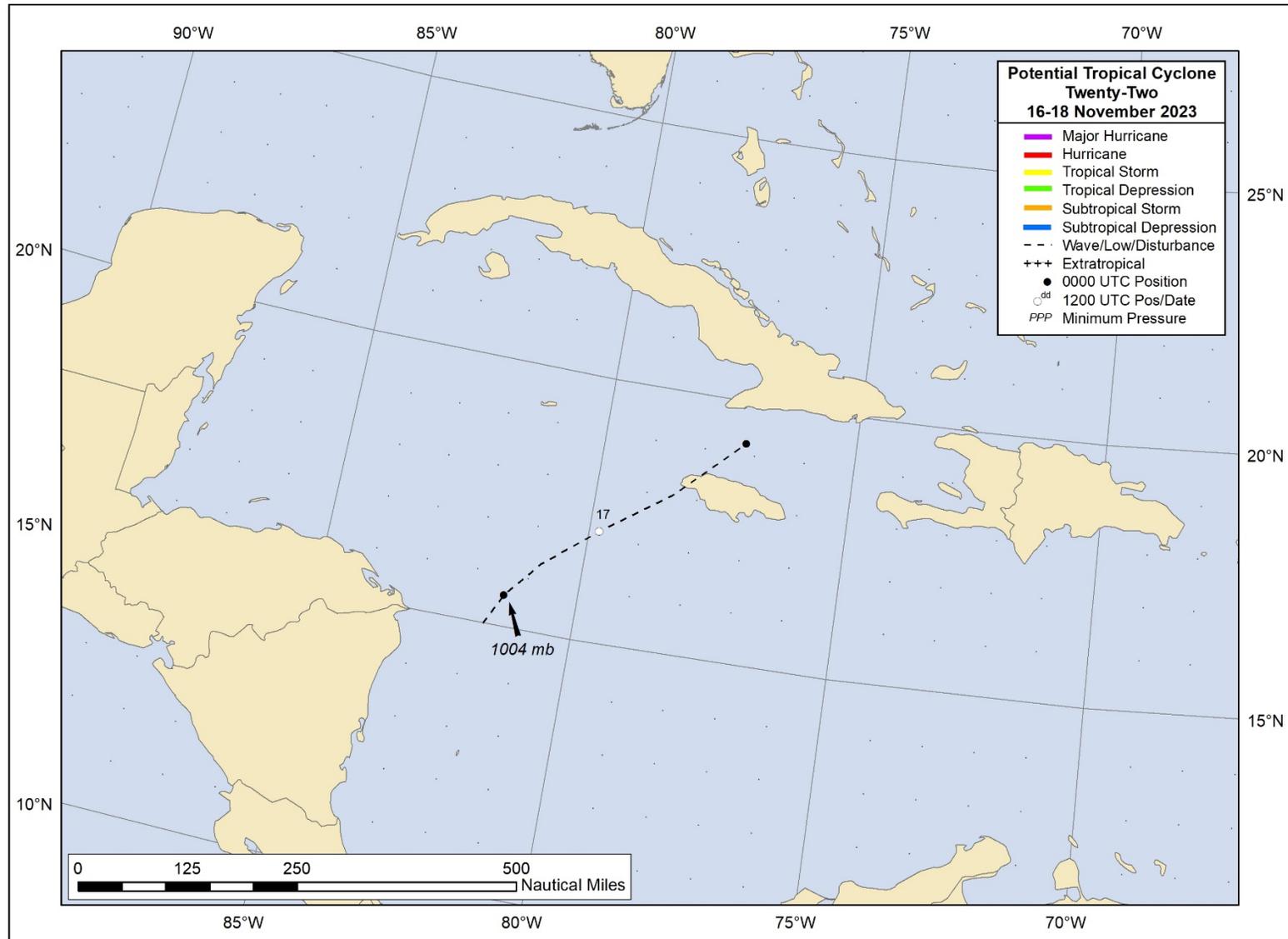


Figure 1. Best track positions for Potential Tropical Cyclone Twenty-Two, 16–18 November 2023.

Total Rainfall with Potential Tropical Cyclone Twenty-Two (Experimental)

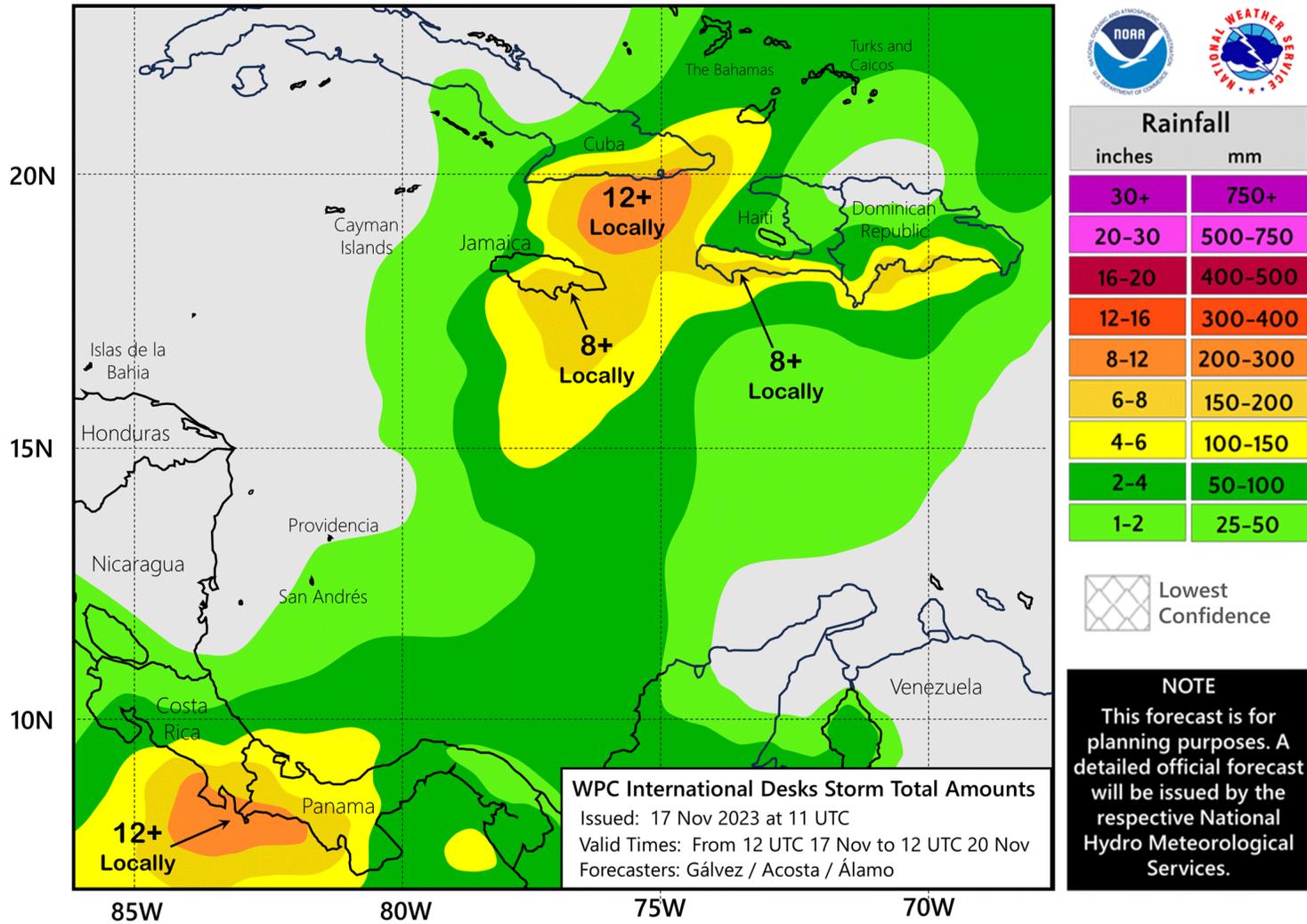


Figure 2. The first experimental international rainfall graphic to be publicly issued by the NOAA Weather Prediction Center. The graphic shows the forecast rainfall totals over the 3-day period from 17–20 November.

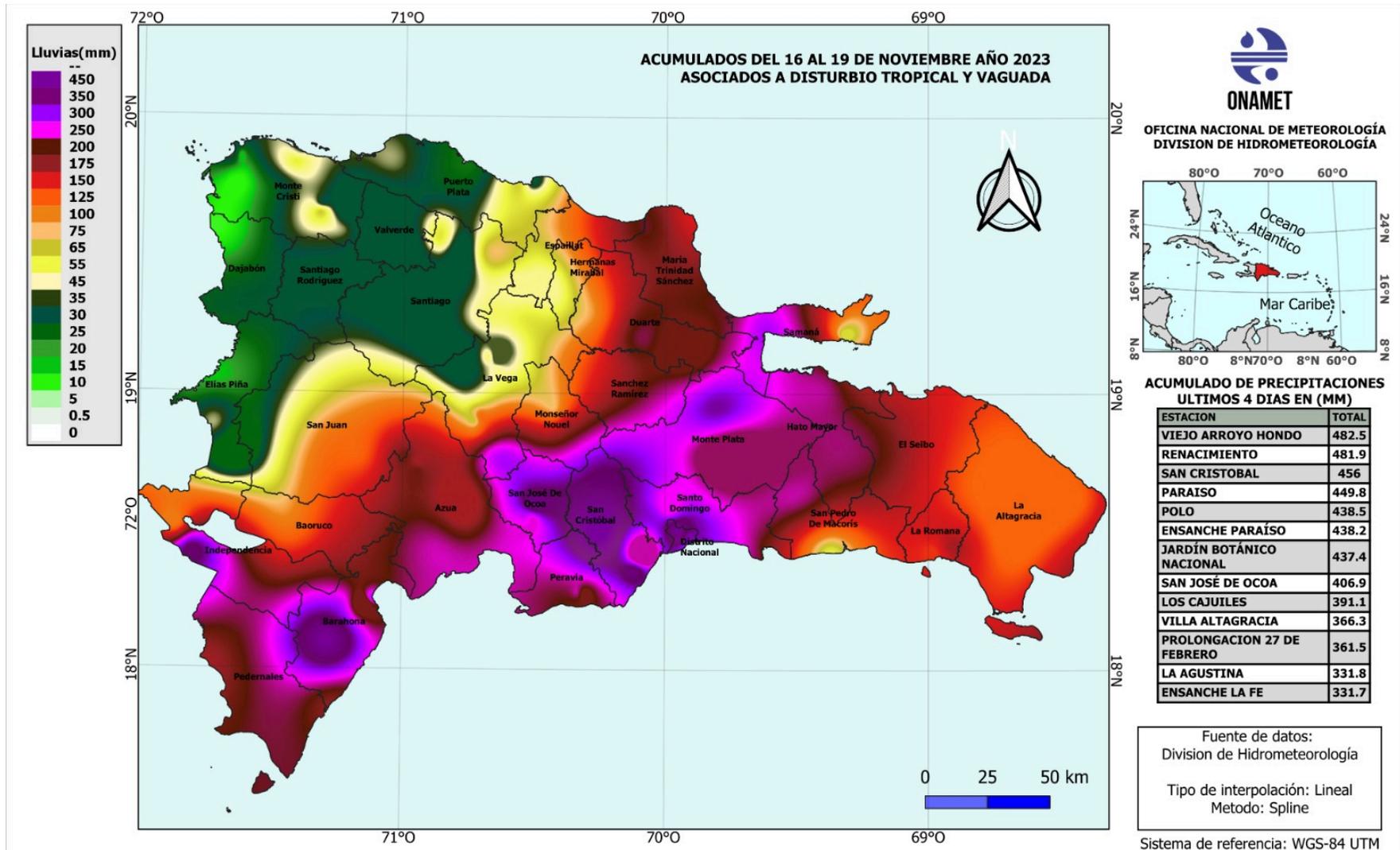


Figure 3. Rainfall map provided by the Meteorological Service of the Dominican Republic for the period 16–19 November 2023.