CCRIF SPC
The Caribbean Catastrophe Risk Insurance Facility

Tropical Cyclone Melissa (AAL132025)

Wind and Storm Surge

Final Event Briefing

Jamaica

06 November 2025

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1 SUMMARY

Tropical Cyclone Melissa is the thirteenth named cyclone and the fifth hurricane of the 2025 Atlantic Hurricane Season. From 25 to 27 October, Tropical Cyclone Melissa moved very slowly westward, passing nearly parallel to the southern coast of Jamaica at a minimum distance of about 110 mi (180 km). During this period, Melissa intensified rapidly, strengthening from a tropical storm to a Category 5 hurricane in less than two days. The first tropical-storm-force winds reached the eastern tip of Jamaica on 25 October and gradually spread across the southeastern, southern, and southwestern coasts between 26 and 27 October as the hurricane shifted westward. By 28 October, Melissa further strengthened and turned north-northeastward, approaching Jamaica. By 1200 UTC, the entire island was experiencing tropical-storm-force winds, with hurricane-force conditions affecting parts of the southern and southwestern regions before and during landfall, which occurred near New Hope, Westmoreland around 1700 UTC. As Melissa crossed western Jamaica, hurricane-force winds extended into the central and northern parishes before gradually subsiding as the hurricane moved away toward Cuba early on 29 October.

The final runs of the CCRIF tropical cyclone loss model for wind and storm surge produced government losses for Jamaica. The government losses for Jamaica are above the Attachment Point of the Tropical Cyclone policy and therefore a payout of US$ 70,803,832 is due.

The Localized Damage Index (LDI) component of the TC SPHERA model did not identify this event as a localized event[1] for Jamaica. Therefore, no payout is due under the LDI endorsement of the Tropical Cyclone policy for Jamaica.

This event briefing is designed to review the modelled losses due to wind and storm surge calculated by CCRIF's tropical cyclone model for affected CCRIF member countries. This review is analyzed with respect to members' Tropical Cyclone policies. The Bahamas was the only other CCRIF member country for which the CCRIF loss model for wind and storm surge produced government losses due to Tropical Cyclone Melissa at the time of writing this report, and a report specific to The Bahamas will be issued according to CCRIF's event reporting protocol. A separate report on other CCRIF member countries affected by wind and storm surge, with respect to their Tropical Cyclone policies or rainfall impacts on affected CCRIF member countries will be issued if applicable.

2 INTRODUCTION

On 21 October 2025 at 1500 UTC, a tropical cyclone formed over the central Caribbean Sea, about 300 mi (480 km) south of Port-au-Prince, Haiti, and was named Melissa. Over the following three days, Melissa remained a tropical storm, fluctuating slightly in intensity. Despite very warm sea surface temperatures that could have supported rapid intensification, its strengthening was limited

[1] The LDI policy endorsement provides coverage for intense events that do not cause very large losses at a national scale but severely affect a relatively small part of a country. It is activated based on a Localized Index (LI), which compares the mean damage ratio computed for the most damaged areas and the mean damage ratio computed in the whole country. For an event to be covered by this endorsement the following conditions must be met:

- the TC local mean damage ratio computed for the local exposure must be greater than 1%
- the TC global mean damage ratio computed for the whole country must be greater than 0.06%.

by moderate vertical wind shear. During this initial phase, Melissa moved generally northwestward at a very slow forward speed, varying between 1 mph (2 km/h) and 3 mph (6 km/h), due to the competing influence of two ridges positioned to the south and north of the system.

On 25 October, Melissa began to intensify rapidly as the vertical wind shear gradually decreased. By 0600 UTC, Melissa was nearing hurricane strength, with maximum sustained winds of 70 mph (110 km/h) and a minimum central pressure of 986 mb. The storm's centre was located at latitude 16.3° N and longitude 74.9° W, about 170 mi (275 km) southeast of Kingston, Jamaica (Figure 1a). Satellite imagery (Figure 2a) showed a large burst of deep convection enveloping the storm's centre, although the most active convective region remained displaced to the east due to residual westerly shear. Wind analysis maps (Figure 3a) indicated that tropical-storm-force winds wrapped around the low-level circulation, with the strongest winds located on the northwestern side. At this stage, tropical-storm-force winds began affecting the eastern edge of Jamaica.

Over the next twelve hours, Melissa continued moving very slowly west-northwestward while gradually intensifying. It was upgraded to a Category 1 hurricane at 1800 UTC, when its centre was located at 16.6° N, 75.2° W, about 145 mi (230 km) southeast of Kingston. Tropical-storm-force winds persisted along Jamaica's eastern coastline.

During the next fifteen hours, Melissa underwent rapid intensification as wind shear weakened further. It became a Category 4 hurricane on 26 October at 0900 UTC, with maximum sustained winds estimated at 140 mph (220 km/h) and a minimum central pressure of 944 mb. Satellite imagery indicated the formation of a clear eye, surrounded by well-organized convective rainbands (Figure 2b). During this period, Melissa continued moving slowly westward, steered by a ridge to its north. Wind analysis maps showed that tropical-storm-force winds progressively spread from the eastern to the southeastern coast of Jamaica, affecting Kingston between 0300 UTC and 0600 UTC on 26 October (Figure 3b). Hurricane-force winds remained confined within 15–25 mi (30–35 km) of the centre, well offshore (Figure 3b).

Over the next 24 hours, Melissa maintained a slow westward track while gradually strengthening, reaching Category 5 intensity on 27 October at 0900 UTC. At this time, the hurricane passed nearly parallel to the southern coast of Jamaica, at a distance of about 110 mi (180 km). Satellite images indicated a well-defined 11-mi (18-km) wide eye surrounded by a compact ring of deep convection (Figure 2c). Despite Melissa's intensity, hurricane-force winds remained confined within 25–30 mi (35–45 km) of the centre, still offshore (Figure 3c). However, tropical-storm-force winds affected the southern coast of Jamaica, shifting from the southeast to the southwest as the storm moved westward (Figure 3c). During certain periods—specifically around 26 October at 1500 UTC and between 26 October at 2100 UTC and 27 October at 0600 UTC—the area of Jamaica impacted by these winds expanded inland due to fluctuations in the wind field (Figure 3c). Similar conditions persisted along Jamaica's southwestern coast thorough the rest of the day, with Melissa maintaining a very slow forward speed while parallel to the shoreline. Maximum sustained winds increased to 175 mph (280 km/h), and the minimum central pressure dropped to 901 mb.

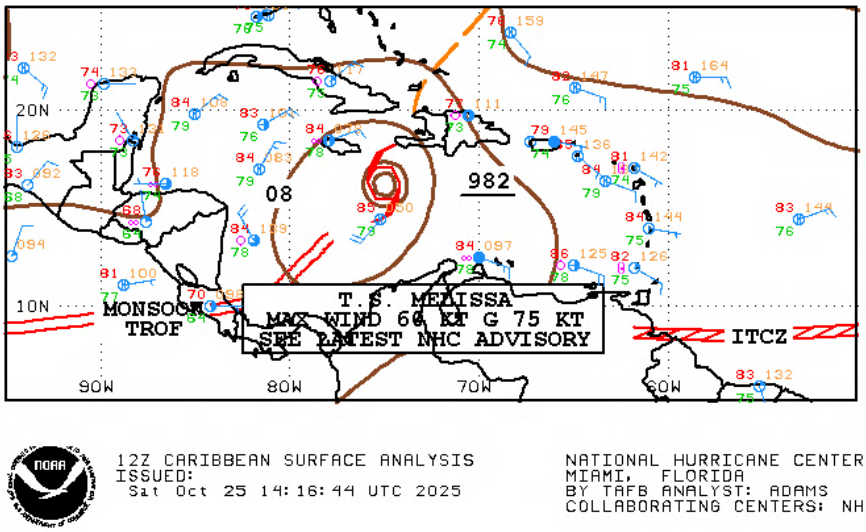
In the early hours of 28 October, Melissa began turning north-northeastward and accelerating, influenced by an amplifying trough over the southeastern United States (Figure 1b). This change in steering flow directed the hurricane's core toward Jamaica. At 0900 UTC, the centre was sited at latitude 17.2° N and longitude 78.3° W, about 60 mi (96 km) from the island's closest point.

Satellite imagery showed that Melissa's convective core further enlarged and intensified compared to the previous day (Figure 2d). As the distance decreased, tropical-storm-force winds began affecting western and central Jamaica (Figure 3d). By 1200 UTC, the entire island was experiencing these winds, while hurricane-force winds reached the coast of Saint Elizabeth parish (Figure 3e). Over the following five hours, hurricane-force winds expanded inland, and at 1700 UTC, Melissa made landfall in southwestern Jamaica near New Hope, in the parish of Westmoreland, with estimated maximum sustained winds of 185 mph (295 km/h) and a minimum central pressure of 892 mb. Hurricane-force winds extended across central and western Jamaica—except for the far western edge—and persisted for about four hours as Melissa crossed the island (Figure 3f).

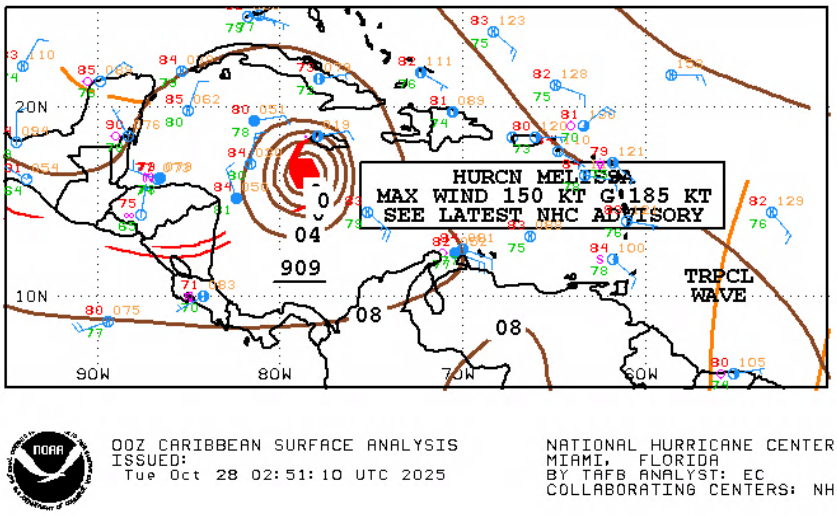
Interaction with the mountainous terrain of western Jamaica caused some weakening, with the eye partially dissipating and cloud tops warming (Figure 2e). However, upon emerging off Jamaica's northwestern coast, Melissa remained a Category 5 hurricane, with maximum sustained winds of 145 mph (230 km/h). At that time, hurricane-force winds affected northern Jamaica, particularly the parishes of Saint James, Trelawny, and Saint Ann.

By 0000 UTC on 29 October, Melissa was located at 18.8° N, 77.2° W, about 50 mi (80 km) north-northeast of Montego Bay. Despite the interaction with inland areas, the satellite imagery indicated that Melissa's eye re-developed and surrounding convection re-organized rapidly (Figure 2f). Hurricane-force winds still impacted the northern coastal areas of Trelawny, Saint Ann, and Saint Mary, while tropical-storm-force winds persisted across the entire island (Figure 3g). By 0300 UTC, as Melissa continued moving north-northeastward toward Cuba, hurricane-force winds ceased along Jamaica's northern coast, although tropical-storm-force winds lingered. Increasing forward speed (10 mph, 17 km/h) and further weakening caused these winds to diminish over most of Jamaica by 0600 UTC, remaining only along the northern and eastern coasts (Figure 3h). Finally, by 0900 UTC, Melissa's winds had fully moved away from Jamaica, as the hurricane made landfall over southeastern Cuba.

After crossing Cuba, Melissa weakened but still emerged as a Category 3 hurricane. On 30 October, it passed over The Bahamas, accelerating northeastward toward Bermuda.



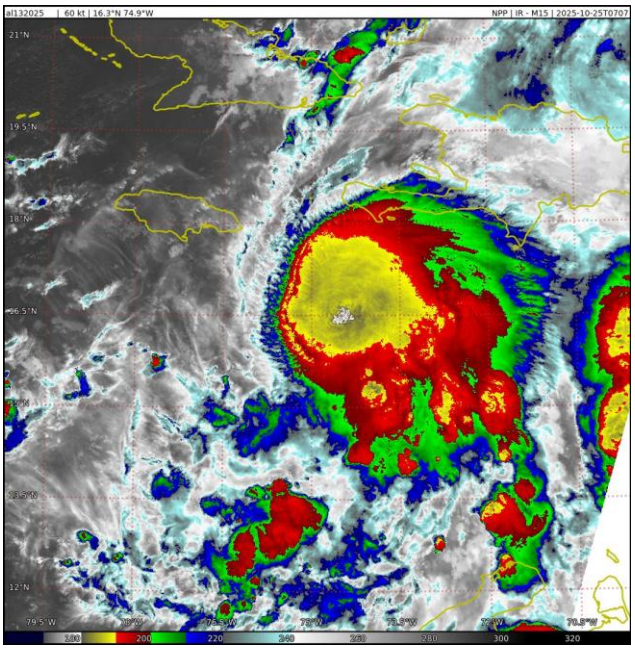
a) 25 October at 1200UTC



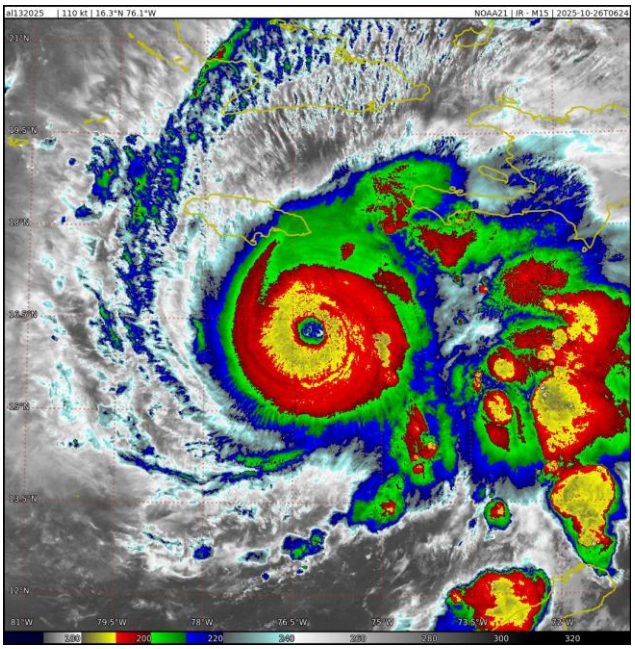
b) 28 October at 0000UTC

Figure 1 Surface analysis over the Caribbean area on 25 and 28 October at different times as indicated in the labels. Source: US National Hurricane centre[2]

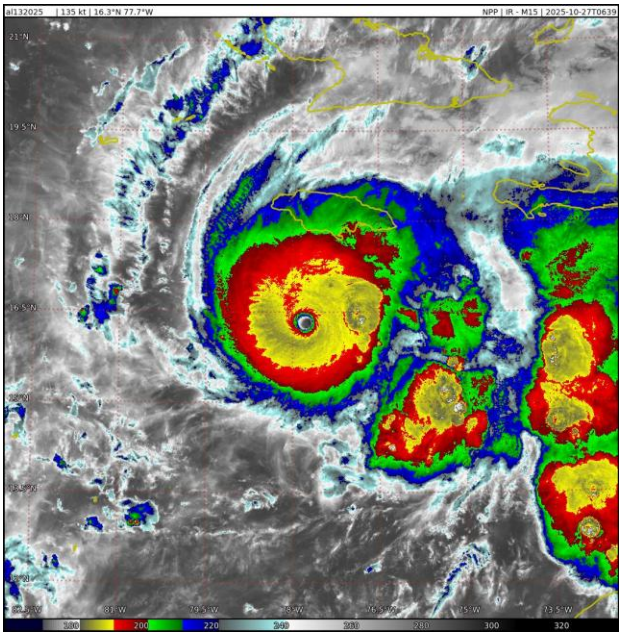
[2] National Oceanic and Atmospheric Administration - FTP, National Hurricane centre, review date: 25 and 28 October 2025, available at: *https://www.nhc.noaa.gov/tafb/CAR_12Z.gif* , *https://www.nhc.noaa.gov/tafb/CAR_00Z.gif*



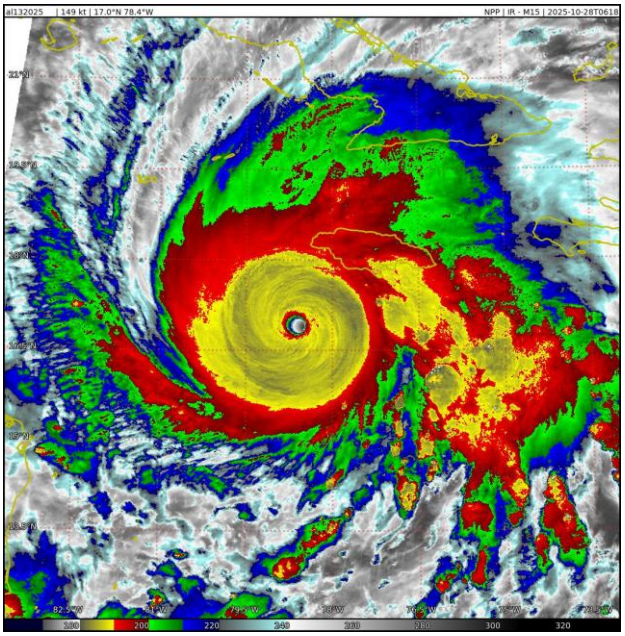
a) 25 October at 0700UTC



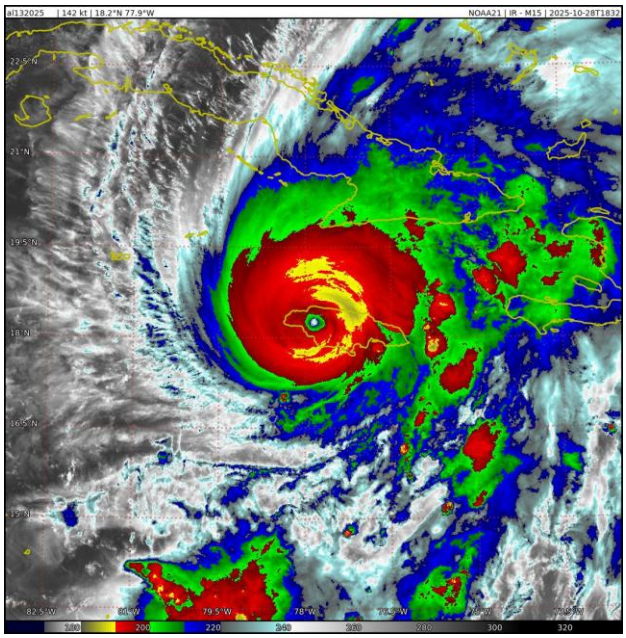
b) 26 October at 0624UTC



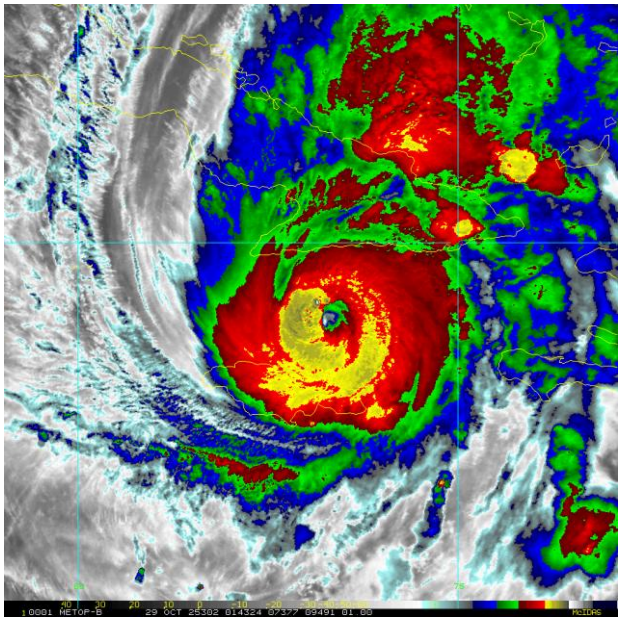
c) 27 October at 0639UTC



d) 28 October at 0618UTC



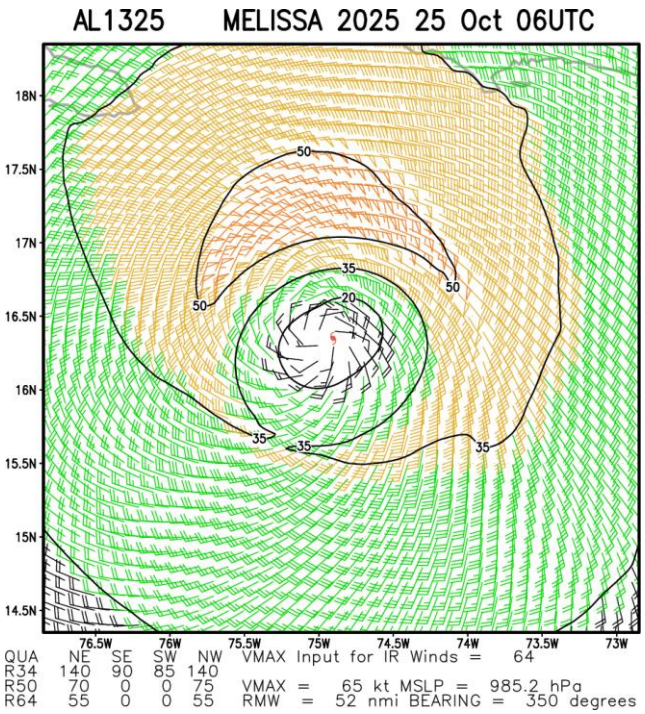
e) 28 October at 1832UTC



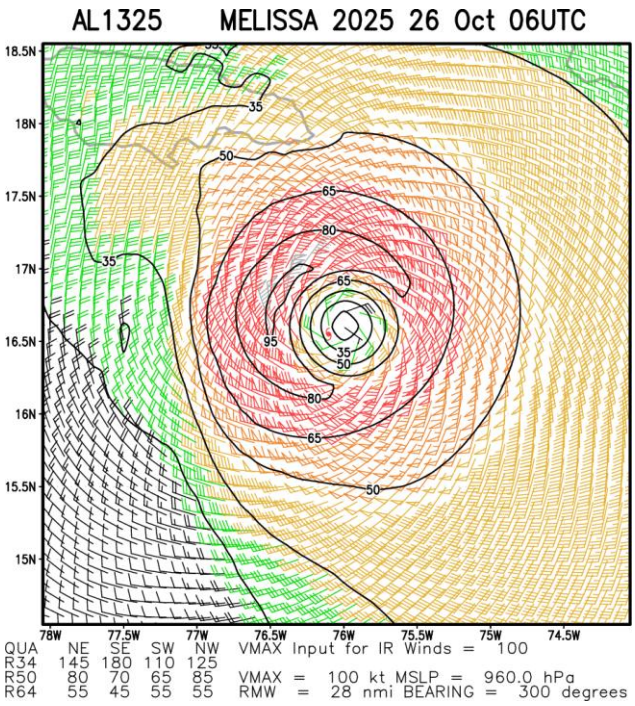
f) 29 October at 0143UTC

Figure 2 Satellite imagery from 25 to 29 October, 2025 at different times as indicated by the labels from the thermal infrared channel enhanced with colour. Blue/green colours represent high altitude clouds (top cloud temperature between -50°C and -70°C), while the red/yellow colours represent very high altitude clouds (top cloud lower than -70°C). High altitude clouds indicate strong convection associated with intense precipitation. Source: NOAA, National Environmental Satellite, Data and Information Service[3].

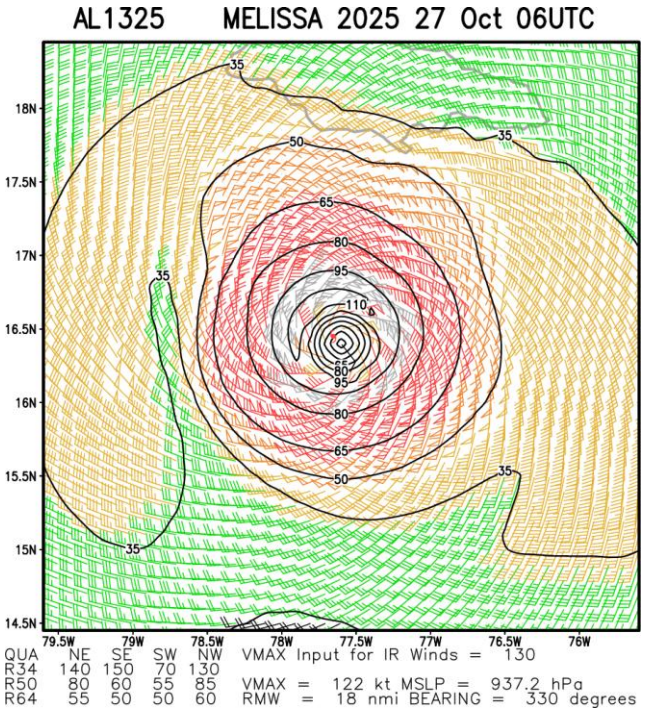
[3] RAMSDIS Online Archive, NOAA Satellite and Information Service, available at: al132025



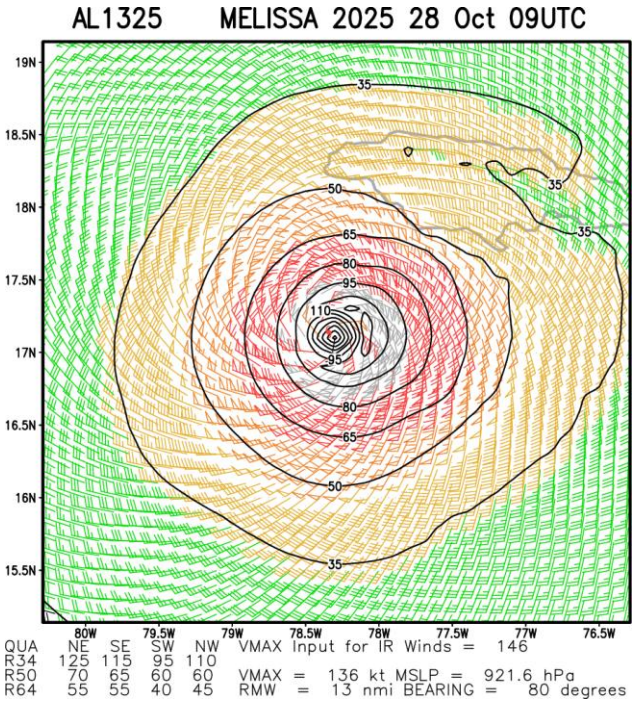
a) 25 October at 0600UTC



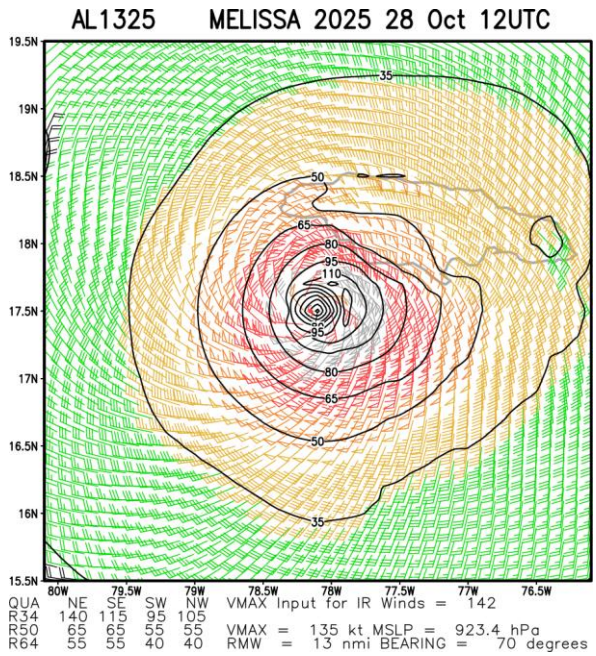
b) 26 October at 0600UTC



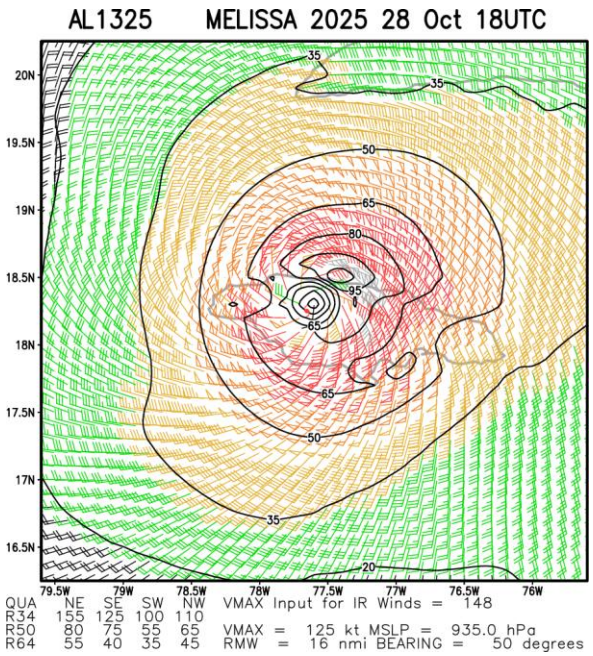
c) 27 October at 0600UTC



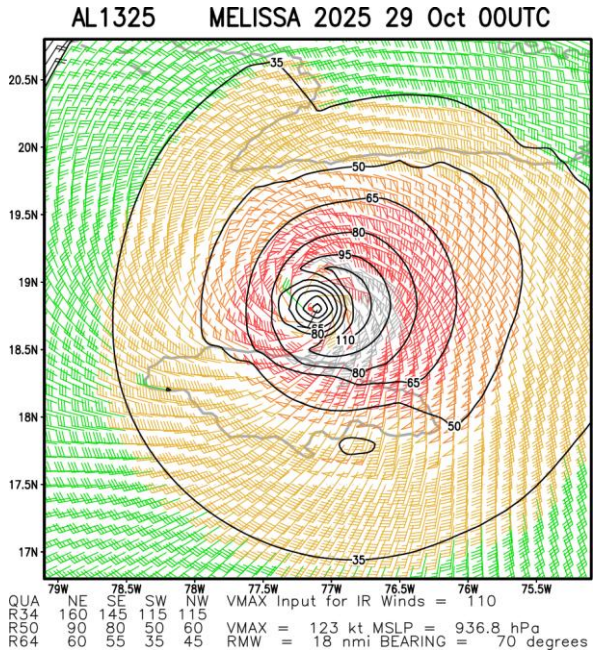
d) 28 October at 0900UTC



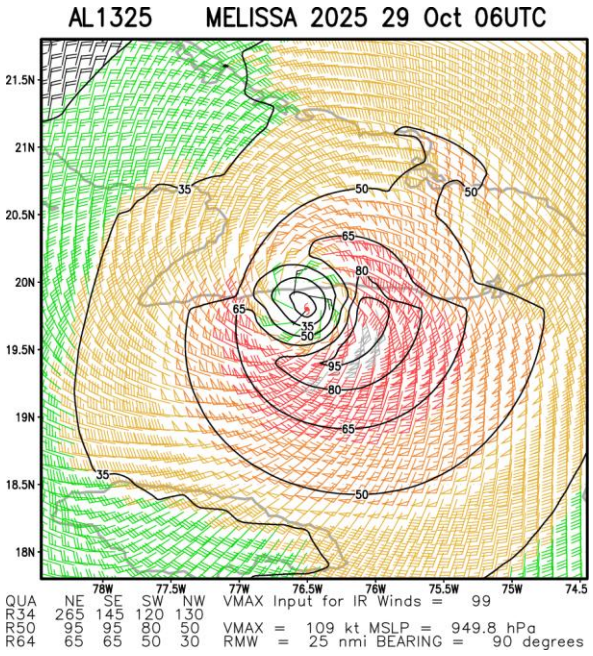
e) 28 October at 1200UTC



f) 28 October at 1800UTC



g) 29 October at 0000UTC



h) 29 October at 0600UTC

Figure 3 Multi-platform satellite based tropical cyclone surface wind analysis estimated from 25 to 29 October, 2025 at different times as indicated by the labels. Contouring indicates wind intensity at 20 kn (23 mph, 37 km/h), at 35 kn (40 mph, 65 km/h), 50 kn (57mph, 93 km/h), 65 kn (74mph, 120km/h) and 80 kn (92mph, 148km/h). Source: NOAA, National Environmental Satellite, Data and Information Service[4]

[4] RAMSDIS Online Archive, NOAA Satellite and Information Service, available at: al132025

3 CCRIF SPC MODEL OUTPUTS

A CCRIF System for Probabilistic Hazard Evaluation and Risk Assessment (SPHERA) report is issued for any tropical cyclone affecting at least one member country with winds greater than 39 mph (62.7 km/h). Several countries were affected by Tropical Cyclone Melissa. For Jamaica, Melissa qualified as a Triggering event[5].

The wind footprint is one of the outputs from CCRIF´s model. Figure 4 shows the wind footprint for the regions around the Greater Antilles affected by Tropical Cyclone Melissa.

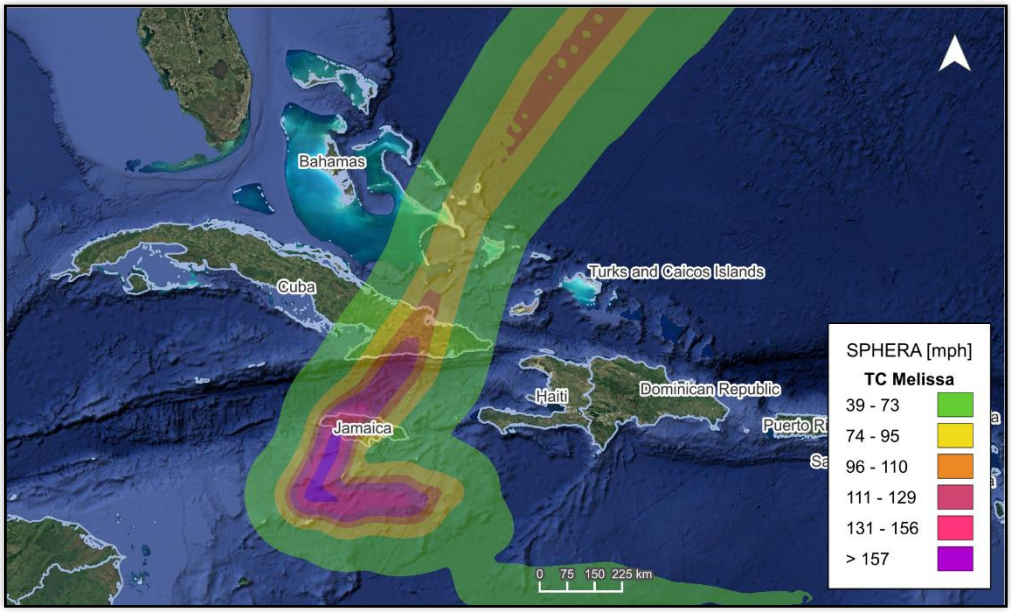


Figure 4 Map showing the wind field associated with Tropical Cyclone Melissa around the Greater Antilles. Source: NHC & CCRIF/SPHERA

4 IMPACTS

At the time of writing this report, the available information on damage in Jamaica due to Hurricane Melissa is shown below.

Storm surges rose as high as four meters (13 feet) above ground level along the southern coastline, compounding the destruction. The slow-moving storm exposed southern, central, and northern parishes to continuous wind and rain for two days before landfall, triggering landslides especially in Saint Thomas and Portland and resulting in catastrophic and life-threatening flash floods[6].

The human toll has been severe, with authorities confirming between 28 and 32 deaths and dozens more still missing as search and rescue operations continue[7]. Reports indicated 13 injuries, but

[5] Any Tropical Cyclone event which produces a modelled loss sufficiently high to trigger a payout under the CCRIF policy conditions as in force on the date of the event in one or more policyholder countries.

[6] Emergency Appeal Jamaica | Hurricane Melissa (MDRJM005)

[7] IOM Caribbean: Hurricane Melissa SITUATION REPORT: 03 November 2025

further casualties are expected to emerge as assessments progress. More than 1.5 to 1.6 million people (over half of Jamaica's population) have been affected by extensive damage to housing and prolonged outages of power and water. At the height of the emergency, approximately 25,000 individuals sought refuge in emergency shelters, although many have since left due to limited resources. As of early November, more than 7,000 people remain displaced in 430 active shelters across the country[8].

Infrastructure across Jamaica has been severely impacted. Over 130 major roads were blocked by debris and landslides, isolating communities and complicating relief efforts. The power grid suffered widespread failures, leaving more than 450,000 people without electricity, especially in the western and southern regions[8]. Communications were disrupted island-wide, and many homes were either destroyed or sustained serious damage. Health facilities have been particularly hard hit: Black River Hospital was destroyed, and other hospitals, including Savanna-la-Mar, Cornwall Regional, Falmouth, and Noel Holmes, suffered significant roof and structural damage. These health centers are now overstretched and reliant on generators amid critical fuel shortages, while water scarcity continues to hinder service delivery. Schools and other basic services have also been seriously affected[7].

Figure 5 An aerial view of Black River, Jamaica, Thursday, Oct. 30, 2025 (AP Photo-Matias Delacroix) [9]

The health sector faces mounting challenges, with food stocks in some hospitals projected to last only three to five days, and a heightened risk of respiratory, vector-borne, food-borne, and water-borne diseases due to compromised water supplies, electricity outages, displacement, and disrupted health interventions. Mental health needs are rising, particularly among children and health workers, as the crisis continues[7].

[8] Jamaica PAHO/WHO; 2025 Hurricane Melissa Situation Report #7 2 November 2025

[9] Photos show Hurricane Melissa's impact on the Caribbean | AP News

Agriculture and livelihoods have suffered extensive losses, with widespread flooding destroying crops and threatening food security. The World Food Programme estimates that between 98,000 and 359,000 people may require food assistance in the aftermath of the storm.

The most severely affected parishes include Saint Elizabeth, Manchester, Clarendon, Saint Catherine, Saint Andrew, Kingston, Saint Ann, Westmoreland, Trelawny, and Saint Mary. The Jamaican government declared a national disaster; National and international agencies, including PAHO, IOM, the Red Cross, and UN partners, have mobilized relief supplies and are conducting rapid needs assessments to support the government's response and early recovery[8].

Figure 6 An aerial view of Black River, Jamaica, Thursday, Oct. 30, 2025 (AP Photo-Matias Delacroix) [10]

The CCRIF Board, Management, and Team, extend our heartfelt condolences to the people of Jamaica on the loss of life and losses to communities.

5 TRIGGER POTENTIAL

The final runs of the CCRIF tropical cyclone loss model for wind and storm surge produced government losses for Jamaica, which are above the attachment point of the Tropical Cyclone policy and therefore a payout of US$70,803,832 under the policy is due.

For additional information, please contact CCRIF SPC at: pr@ccrif.org

[10] Photos show Hurricane Melissa's impact on the Caribbean | AP News