NATIONAL HURRICANE CENTER TROPICAL CYCLONE REPORT

HURRICANE MELISSA

(AL132025)

21–31 October 2025

Larry A. Kelly, José Álamo[1], and Aidan D. Mahoney
National Hurricane Center
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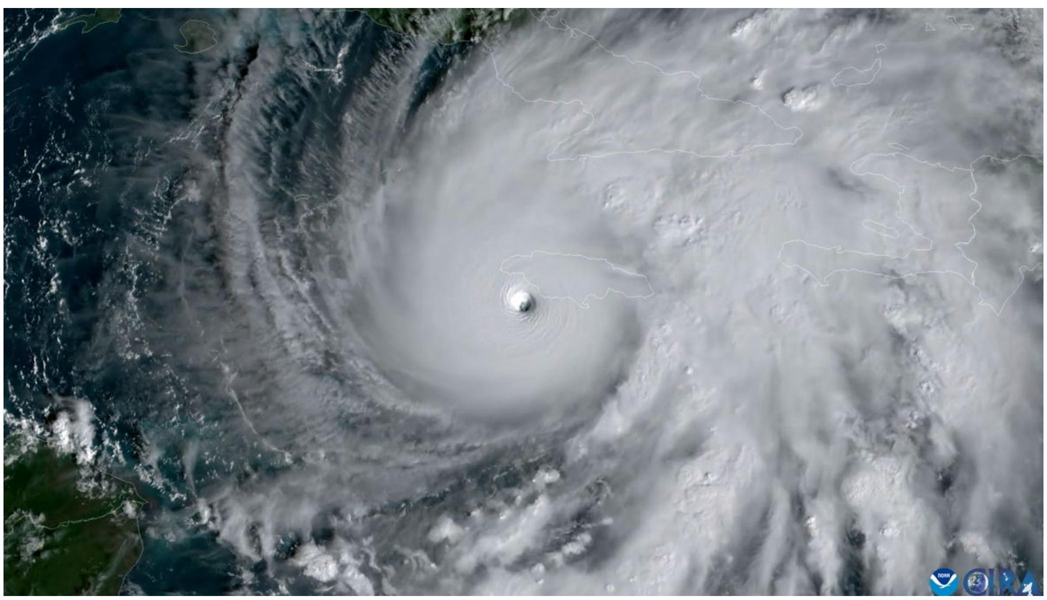

GOES-EAST GEOCOLOR IMAGE OF HURRICANE MELISSA NEAR LANDFALL IN JAMAICA AT 1400 UTC 28 OCTOBER 2026. IMAGE COURTESY OF NOAA/CIRA/CSU.

Melissa, one of the strongest hurricanes on record in the Atlantic basin, reached category 5 intensity (on the Saffir-Simpson Hurricane Wind Scale) with a minimum central pressure of 892 mb and brought catastrophic wind and storm surge impacts to portions of western Jamaica. Melissa's slow motion also produced heavy rainfall and catastrophic flood impacts across portions of the Greater Antilles. As of this writing, Melissa is responsible for 95 fatalities.

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[1] NOAA/NWS/NCEP Weather Prediction Center, College Park, MD

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Hurricane Melissa

21–31 OCTOBER 2025

SYNOPTIC HISTORY

The origin of Melissa can be traced back to a convectively active tropical wave that emerged from the west coast of Africa on 13 October and moved quickly westward across the tropical Atlantic at 15–18 kt during the next several days. The disturbance's forward motion slowed as it moved across the Lesser Antilles, the Virgin Islands, and Puerto Rico on 19–20 October, and during this time the system generated a large area of showers and thunderstorms accompanied by gusty winds and heavy rainfall. The convective organization of the wave gradually improved on 20 October, and satellite-derived wind data that day indicated that the system was already producing tropical-storm-force winds, although it lacked a well-defined low-level center. Despite the presence of moderate westerly vertical wind shear, the system continued to generate deep convection, and a closed, well-defined low-level circulation developed by 0600 UTC 21 October, marking the formation of Tropical Storm Melissa about 275 n mi south of Port-au-Prince, Haiti. The system was producing maximum sustained winds of 40 kt at the time of genesis. The "best track" chart of Melissa's path is given in Figs. 1a and 1b, with the wind and pressure histories shown in Figs. 2 and 3, respectively. The best track positions and intensities are listed in Table 1[2].

Between 22–24 October, Melissa remained within a region of weak steering flow between a mid-level ridge to the north and a trough over the western Caribbean Sea, which caused the storm to meander slowly northwestward. Persistent moderate southwesterly vertical wind shear displaced most of the convection to the east of the low-level center, limiting intensification. Late on 24 October and into the following day, the shear began to relax and Melissa became better organized with a more vertically aligned circulation. A central dense overcast developed and deep convection wrapped around the center, which supported further intensification through the next morning, and Melissa became a hurricane by 1800 UTC 25 October when it was centered about 150 n mi south of Jamaica. During this period, the tropical cyclone made a slow but sharp cyclonic turn, initially moving eastward on 24 October, but then turning northward and then westward by 25 October as a narrow mid-level ridge built to the north of the system.

Rapid intensification ensued as Melissa moved over very warm waters with high oceanic heat content. Microwave imagery showed that the inner core became better organized with an eyewall evident by late on 25 October. Aircraft reconnaissance data confirmed these observations, showing a quick drop in central pressure, increasing flight-level winds, and a contracting radius of maximum winds. By 0600 UTC 26 October, the cyclone had intensified 45 kt in 24 h to become a major hurricane. Melissa's intensification continued with a distinct 10-n-mi-wide eye becoming evident, and the hurricane reached an intensity of 120 kt (category 4

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[2] A digital record of the complete best track, including wind radii, can be found on line at ftp://ftp.nhc.noaa.gov/atcf. Data for the current year's storms are located in the *btk* directory, while previous years' data are located in the *archive* directory.

on the Saffir-Simpson Hurricane Wind Scale) by 1800 UTC that day when it was located south of Jamaica. Additional strengthening occurred while Melissa continued moving slowly westward, and aircraft reconnaissance data indicated that the hurricane reached category 5 intensity by 1200 UTC 27 October when it was located about 120 n mi southwest of Kingston, Jamaica.

The ridge that steered Melissa slowly westward began to weaken as a trough moved across the Gulf of America and approached the western Caribbean Sea late on 27 October. This pattern caused Melissa to turn sharply north-northeastward. While land-based radar data from Jamaica showed signs of an eyewall replacement cycle (Fig. 4), the double eyewall structure was transient on radar, and aircraft data never showed the formation of an outer wind maximum. Satellite images in Figure 5 show the intensification as the system traversed south of Jamaica. On the morning of 28 October, the eye diameter had grown slightly to about 15 n mi with multiple mesovortices noted, and Geostationary Lightning Mapper (GLM) satellite data revealed an immense amount of lightning occurring in the eyewall at a rate of 600 flashes per 30 minutes (Fig. 6). Aircraft reconnaissance data showed that Melissa was still strengthening as it neared Jamaica and by 1200 UTC 28 October, Melissa reached an estimated peak intensity of 165 kt, making it one of the strongest hurricanes on record in the Atlantic basin. Dropsonde data from an Air Force Reserve Hurricane Hunter aircraft indicated that the pressure had fallen to 892 mb. At the time of its peak intensity, Melissa was located about 40 n mi south-southwest of New Hope, Jamaica.

In the last few hours before landfall, the core of the hurricane began to interact with southwestern Jamaica, which caused the satellite presentation to degrade. The once clear eye started to fill, and cloud tops warmed on infrared satellite imagery. Melissa made landfall as an estimated 160-kt category 5 hurricane near New Hope, Jamaica, around 1725 UTC 28 October. With this intensity, Melissa is the strongest hurricane on record to make landfall in Jamaica and is tied for the strongest hurricane (in terms of maximum sustained wind speed) to make landfall in the Atlantic basin (with Dorian [2019] in the Bahamas and the Labor Day Hurricane [1935] in the Florida Keys). As the center of Melissa moved north-northeastward over the mountainous terrain of western Jamaica, the hurricane weakened and emerged off the northern coast of the island as a category 3 hurricane around 2100 UTC 28 October.

Melissa moved north-northeastward between Jamaica and Cuba with an increasing forward speed between the approaching trough to the west and a ridge to the east. Although the inner core briefly showed signs of reorganization, Melissa’s faster forward motion and limited time over water between Jamaica and Cuba resulted in little change in intensity before the hurricane made landfall near the city of Chivirico, Santiago de Cuba, at 0720 UTC 29 October with an estimated intensity of 100 kt (category 3) and an estimated central pressure of 954 mb. Melissa’s center emerged off the north coast of Cuba around 1300 UTC 29 October as a category 1 hurricane with an estimated intensity of 80 kt.

Once over the southwestern Atlantic, Melissa accelerated northeastward toward the southeastern Bahamas. Increasing wind shear combined with the storm’s faster forward motion disrupted Melissa’s structure, with NOAA Tail Doppler Radar (TDR) data indicating increasing tilt between the low- and mid-level centers. As a result, the strongest winds and heaviest rainfall were displaced to the north and east of the low-level center. The hurricane’s outer wind field also began to expand around this time. Melissa made its first landfall in the Bahamas on Long Island at 2215 UTC 29 October with an intensity of 80 kt. The storm made a second landfall at 0200 UTC 30 October on San Salvador Island at the same intensity. During the morning of 30 October, a burst of deep convection caused the hurricane to briefly re-intensify. Satellite imagery showed the eye becoming better defined while aircraft reconnaissance data indicated Melissa reached an intensity of 90 kt around 1200 UTC 30 October when it was located about 260 n mi north of the southeastern Bahamas.

As the hurricane moved across the western Atlantic, its forward speed increased to nearly 40 kt. Vertical wind shear also increased and the system moved over cooler sea-surface temperatures, which caused gradual weakening of the peak winds as the wind field continued to expand. Melissa's center passed about 120 n mi west-northwest of Bermuda early on 31 October, bringing strong tropical-storm-force sustained winds and hurricane-force wind gusts to that island.

Melissa quickly lost tropical characteristics while traveling over much cooler waters north of Bermuda and became an extratropical cyclone by 1200 UTC 31 October about 350 n mi north-northeast of Bermuda. The swiftly moving extratropical cyclone then opened up into a trough of low pressure by 1200 UTC 1 November while it passed southeast of Newfoundland. The remnants of Melissa merged with a larger baroclinic trough over the North Atlantic about a day later.

METEOROLOGICAL STATISTICS

Observations in Melissa (Figs. 2 and 3) include subjective satellite-based Dvorak technique intensity estimates from the Tropical Analysis and Forecast Branch (TAFB) and the Satellite Analysis Branch (SAB), objective Advanced Dvorak Technique (ADT) estimates and Satellite Consensus (SATCON) estimates from the Cooperative Institute for Meteorological Satellite Studies/University of Wisconsin-Madison. Observations also include flight-level and dropwindsonde observations from 19 flights of the 53rd Weather Reconnaissance Squadron of the U.S. Air Force Reserve Command and from 15 flights of the NOAA Hurricane Hunters, which includes one research mission of the G-IV jet (Figs. 7a and 7b). Data and imagery from NOAA polar-orbiting satellites including the Advanced Microwave Sounding Unit (AMSU), the NASA Global Precipitation Mission (GPM), the European Space Agency's Advanced Scatterometer (ASCAT), the Defense Meteorological Satellite Program (DMSP) satellites, and the Time-Resolved Observations of Precipitation structure and storm Intensity with a Constellation of Smallsats (TROPICS) satellites, among others, were also useful in constructing the best track of Melissa.

Ship reports with winds of tropical storm force associated with Melissa are given in Table 2, and selected surface observations from buoys and land-based stations are given in Table 3.

Winds and Pressure

Melissa's estimated peak intensity of 165 kt and minimum central pressure of 892 mb at 1200 UTC 28 October are based primarily on data collected by Air Force Reserve and NOAA Hurricane Hunter aircraft. The satellite presentation of Melissa peaked in the hours leading up to 1200 UTC 28 October when the storm was located about 40 n mi south-southwest of the southwestern coast of Jamaica. However, both the Air Force Reserve C-130J and NOAA P-3 aircraft were unable to fully sample all quadrants of the storm's circulation, including the northeast quadrant where the strongest winds were likely occurring. During these missions, the maximum 10-second average flight-level wind was 173 kt measured by the NOAA P-3 aircraft at 700 mb at 1351 UTC 28 October in the southern eyewall, which supports a surface wind estimate of 156 kt using the standard flight-level reduction. The NOAA aircraft also deployed an eyewall dropsonde that recorded a mean wind of 188 kt in the lowest 150 m of the atmosphere which corresponds to an estimated surface wind of 157 kt. The dropsonde also measured a mean boundary layer wind of 192 kt in the lowest 500 m that reduces to a 154 kt surface wind. AiDT and ADT objective satellite intensity estimates peaked at 174 and 185 kt, respectively, and SATCON estimates peaked at 174 kt around 1210 UTC that day. Based on a blend of the satellite estimates, flight-level wind and dropsonde data, and the fact that the area of strongest winds was likely not sampled by reconnaissance aircraft, Melissa's peak intensity is estimated to be 165 kt at 1200 UTC 28 October. It should be noted that NHC best track intensity estimates typically have an uncertainty of around ±10%.

The dropsonde that measured a mean wind of 188 kt in the lowest 150 m, recorded an instantaneous peak wind of 219 kt (representative of a wind gust) at an altitude of 906 mb, which is the strongest wind ever recorded by a dropsonde in a tropical cyclone (Fig. 8).

Additional data collected by the NOAA reconnaissance aircraft includes Tail Doppler Radar (TDR) and experimental Rain Ocean Atmosphere Radar System (ROARS) that were not explicitly used in determining the peak intensity of Melissa. These data provide additional context regarding the extreme winds observed in the storm. The ROARS instrument sampled an instantaneous wind of 241 kt, along with a cluster of 1-second winds near 194 kt at approximately 500 m in the southern eyewall around 1352 UTC. However, these values represent instantaneous winds and do not correspond to a 1-minute sustained surface wind. TDR data collected by the P-3 aircraft indicated peak winds exceeding 170 kt at approximately 500–1000 ft (150–300 m) above the surface (Figs. 9a and 9b). However, there are currently no standards for reducing those winds to obtain a 10-m (surface) wind estimate. Collectively, these observations provide valuable insight into the upper bounds of wind speeds that can occur within the eyewall of a category 5 hurricane.

The minimum central pressure of 892 mb at 1200 UTC 28 October is based on a dropsonde released by the Air Force Reserve aircraft that reported a pressure of 893 mb with a surface wind of 13 kt around 1324 UTC 28 October (Fig. 10).

Jamaica

There were no reconnaissance aircraft data available in the few hours before Melissa's landfall in Jamaica. The hurricane's intensity at landfall near New Hope in Westmoreland Parish is estimated at 160 kt, slightly below the estimated peak intensity based on the earlier aircraft reconnaissance data and the degraded satellite presentation as the circulation began to interact with the terrain of Jamaica. The highest wind gust reported in Jamaica was 114 kt at the New

Hope Primary School at 1600 UTC 28 October before the sensor tower failed (Fig. 11). Melissa made landfall in an area of Jamaica with limited wind observing stations. Therefore, no reporting stations measured sustained hurricane-force winds within the area impacted by the eyewall. Aircraft reconnaissance data and dropsonde observations indicated the potential for extremely strong wind gusts which likely occurred over parts of western Jamaica, especially in areas of high terrain.

The estimated minimum pressure of 897 mb at landfall in Jamaica is based on aircraft reconnaissance data collected before landfall, observations from the New Hope Primary School site, and data recorded by Josh Morgerman (iCyclone) in Crawford, Jamaica. The New Hope Primary School reported an instantaneous pressure of 913.5 mb at 1700 UTC about 25 minutes before landfall about 2 n mi from the landfall location. Data from the sensor in Crawford (iCyclone), located approximately 5 n mi east of the estimated landfall location, recorded a minimum pressure of 926 mb just inside the southeastern edge of the eye at 1720 UTC (Fig. 12). Both Air Force Reserve and NOAA Hurricane Hunter aircraft data indicated an approximate 35-40 mb pressure difference between the center and the radius of maximum winds (RMW) in the eyewall over a distance of roughly 5-8 n mi during the final mission before landfall. Using a blend of these data and the fact that Melissa is estimated to have weakened slightly before landfall, the estimated minimum pressure at landfall in Jamaica is 897 mb.

In post-analysis, it is estimated that Melissa's landfall occurred slightly later (1725 UTC) than the operational estimate of 1700 UTC. This assessment is based on a post-analysis of radar data from Pilón, Cuba (not shown), and Grand Cayman (not shown), parallax corrections applied to GOES-19 1-minute high-resolution satellite imagery, and available surface observations. The last radar image available from Jamaica, provided by the Meteorological Service of Jamaica in post-analysis (Fig. 13) at 1653 UTC, shows the center of Hurricane Melissa still offshore.

Much of central and western Jamaica experienced hurricane-force winds, with notable gusts in Trelawny, St. James Parish, and St. Ann Parish, including peak values near Hampden (105 kt) and Bamboo (90 kt). Eastern portions of the island, including Kingston, experienced sustained tropical-storm-force winds with occasional hurricane-force gusts, with the strongest gust reported near Woodford (69 kt) in St. Andrew Parish. An estimate of the wind swath over the island is provided in Figure 14.

Cuba

Direct observations of surface winds and pressure near the landfall location in Cuba were limited. Melissa's maximum sustained winds at landfall in the province of Santiago de Cuba are estimated to have been 100 kt, with a corresponding estimated minimum central pressure of 954 mb. These estimates are based on earlier limited aircraft reconnaissance data and satellite intensity estimates. The Air Force Reserve Hurricane Hunter mission prior to landfall in Cuba sampled the eyewall at 0443 UTC and found a maximum 700-mb flight-level wind of 106 kt. Applying the standard reduction factor from that altitude yields an estimated surface wind of roughly 95 kt. However, UW-CIMSS ADT, SATCON analyses, and subjective Dvorak classifications yielded higher estimates than the aircraft measurements. A blend of these satellite techniques and the in-situ aircraft observations supports a landfall intensity estimate of 100 kt. The landfall pressure estimate is based on a blend of the Knaff-Zehr-Courtney (KZC) pressure wind relationship, and an earlier Air Force Reserve dropsonde which recorded a minimum pressure of 952 mb at 0453 UTC 29 October.

After landfall, the hurricane passed directly over the town of Contramaestre. As the eyewall approached that location, a local weather station registered a wind gust of 101 kt. The eye passed directly over that location between 0845 and 0856 UTC when the station recorded calm conditions with a pressure of 967.7 mb. The highest reported sustained wind, 70 kt, and wind gust, 118 kt, in Cuba were recorded at an elevated station Gran Piedra, in the province of Santiago de Cuba.

Bahamas

Melissa made two landfalls in the southeastern Bahamas. The first occurred on Long Island near Buckley's Settlement at 2215 UTC 29 October, with the second landfall on San Salvador Island at 0200 UTC 30 October. The estimated intensity at both landfalls is 80 kt based primarily on aircraft reconnaissance data that found maximum 700-mb flight-level winds of 97 kt and a lower-than-standard adjustment factor, based on the cyclone's broadening structure. The strongest winds recorded in the Bahamas were east of the center in Pitts Town on Crooked Island, where sustained hurricane-force winds of 66 kt and a gust to 77 kt were measured. Based on satellite data, the center of Melissa moved directly over the Weather Underground site IBUCKL60 located near Buckley's Settlement, which recorded a minimum pressure of 966 mb. It is noted that this site had an estimated 6-mb low bias prior to and after Melissa's passage as compared to nearby sites and model data. Accounting for that bias, data from that site is in good agreement with a dropsonde released from an Air Force Reserve aircraft, which reported a pressure of 971 mb with a surface wind of 8 kt around 2341 UTC 29 October.

Records

Melissa set a variety of meteorological records for Atlantic and global tropical cyclones.

Atlantic Basin

- 165-kt peak maximum sustained winds (tied for 1st with Allen [1980])
- 160-kt maximum sustained winds at landfall in Jamaica tied for strongest landfall (Labor Day [1935]), Dorian [2019])
- 892 mb minimum central pressure (Tied with Labor Day [892mb, 1935] for 3rd lowest behind Wilma [882mb, 2005], and Gilbert [888 mb, 1988])
- 897 mb minimum central pressure at landfall in Jamaica is the 2nd lowest landfall pressure behind Labor Day (892 mb, 1935)

Global

- Highest instantaneous wind measured by dropsonde 219 kt (Previous record Super Typhoon Megi [209 kt, 2010])

Storm Surge[3]

Melissa produced a devastating storm surge along the southwestern coast of Jamaica, as evidenced from damage documented by ground-based photographs (Fig. 15) and aerial imagery collected by NOAA's National Geodetic Survey using NOAA aircraft. The imagery highlights significant structural damage, displaced vessels, and debris lines along the immediate coast. However, no water level gauge observations were available in Jamaica, and no high-water marks have been collected at the time of this report, making it difficult to quantify peak water levels. To address this gap, a storm surge hindcast (not shown) was used to supplement the limited observational record. Maximum storm surge heights are estimated to have reached 7 to 11 ft above normally dry ground (AGL), primarily east of Melissa's landfall location, within the area of Crawford and Black River. The storm surge was accompanied by large and destructive waves along the immediate coastline. Elsewhere along the Jamaican coast, storm surge inundation was largely confined to coves and bays, including along the north coast of Jamaica near Montego Bay and Falmouth where water levels are estimated to have reached between 2 and 4 ft AGL, respectively.

Cuba's eastern provinces of Santiago de Cuba and Guantanamo and the southeastern islands of the Bahamas also experienced significant storm surge and wave impacts from Melissa. Figure 16 shows structural damage from storm surge and wave action in Guama, Santiago de Cuba. Unfortunately, no storm surge measurements were available for these areas.

Rainfall and Flooding

Hurricane Melissa produced several days of heavy rainfall and widespread flooding across portions of the Greater Antilles. Rainfall began while the system was still a tropical wave moving through the Lesser Antilles, Puerto Rico, and the U.S. Virgin Islands, and later as it affected Hispaniola, Jamaica, eastern Cuba, and parts of the Bahamas as a tropical cyclone. The extended duration of the event led to compounding hydrologic impacts.

The most extreme storm-total rainfall occurred across southern Hispaniola, where localized accumulations exceeded over 35 inches (900 mm) in parts of southern Haiti. Rainfall totals surpassed over 27 inches (700 mm) in southwestern portions of the Dominican Republic. In Jamaica, storm-total rainfall locally exceeded over 32 inches (800 mm) over the interior highlands. Elsewhere, repeated outer rainbands produced around 8 to 15 inches of rainfall across eastern Cuba and surrounding areas, contributing to significant flash and river flooding and landslides in mountainous terrain.

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[3] Several terms are used to describe water levels due to a storm. **Storm surge** is defined as the abnormal rise of water generated by a storm, over and above the predicted astronomical tide, and is expressed in terms of height above normal tide levels. Because storm surge represents the deviation from normal water levels, it is not referenced to a vertical datum. **Storm tide** is defined as the water level due to the combination of storm surge and the astronomical tide, and is expressed in terms of height above a vertical datum, i.e. the North American Vertical Datum of 1988 (NAVD88) or Mean Lower Low Water (MLLW). **Inundation** is the total water level that occurs on normally dry ground as a result of the storm tide, and is expressed in terms of height above ground level. At the coast, normally dry land is roughly defined as areas higher than the normal high tide line, or Mean Higher High Water (MHHW).

Jamaica

The heaviest rainfall associated with Melissa occurred along and to the east of the track of the center, where the island's topography enhanced precipitation. Many stations reported storm-total rainfall of 8 to 15 inches (~200 to 370 mm), with locally higher amounts in the interior and higher terrain that exceeded 24 inches (~600 mm). The highest reported storm total was 32.17 inches (817.1 mm) at Knock Patrick (Manchester Parish). Other notable totals included 26.31 inches (668.2 mm) at Dam Head (St. Catherine Parish) and 25.47 inches (647 mm) at Ingleside (Manchester Parish).

Due to the prolonged heavy rainfall, rivers and streams overflowed their banks, resulting in freshwater flooding in flood-prone communities and across multiple river basins. Flooding impacts were especially notable in areas connected to the Black River basin, where accumulated runoff from upstream locations contributed to elevated water levels and inundation in downstream locations. In Montego Bay, rivers overflowed their banks as they were not able to drain quick enough due to the impacts from heavy rainfall.

Cuba

Storm-total rainfall across eastern Cuba was substantial, with many stations across Santiago de Cuba, Granma, and adjacent provinces reporting totals of 12 to 19 inches (~300–470 mm) with numerous locations exceeding 20 inches (500 mm). Localized maxima surpassed 24 inches (600 mm), with the highest reported storm total reaching 26.38 inches (670 mm) at Vega Murcia, followed by 24.21 inches (615 mm) at El Sitio.

The heavy rainfall resulted in significant river rises and flash flooding, particularly in areas of steep terrain and downstream of drainage basins. Communities in low-lying areas saw rapid rises in water. The most significant impacts were concentrated across portions of Santiago de Cuba and Granma. Flooding was also reported along the Río Cauto basin and its tributaries.

Haiti

Haiti experienced the highest rainfall totals associated with Melissa, with the most significant impacts concentrated across the southern peninsula. Repeated rainbands affected the same areas over multiple days, which increased runoff into rivers and ravines. Official rainfall observations from the Unité Hydrométéorologique d'Haïti indicate storm-total accumulations of 8 to 20 inches (200 to 500 mm) across the Sud, Grand'Anse, Sud Est, and Nippes departments, with narrow corridors exceeding 28 inches (700 mm) where repeated rainbands persisted. The highest reported storm total was 36.77 inches (934 mm) at Camp Perrin (Sud Department). Other notable maxima included 35.16 inches (893 mm) at Saint Louis du Sud, 33.72 inches (856.5 mm) at Annette (Grand'Anse), and 32.90 inches (835.6 mm) at Vieux Bourg d'Aquin.

National situation reports documented widespread freshwater flooding along the Voldrogue, Grande Anse, Dame Marie, and Roseaux rivers in Grand'Anse; the Pascale, Grande Rivière, and Tibakadé rivers in Nippes; the Bioche, Moreau, and Ti Penn rivers in Sud Est; the ravine du Sud and rivière de Cavaillon in the Sud Department; and the Léogâne, Courjolle, La Digue, Grise, and Boucassin rivers in the Ouest Department. Elevated water levels were also reported along the fleuve de l'Artibonite.

Dominican Republic

Heavy rainfall affected portions of the Dominican Republic for several days as rainbands repeatedly affected areas along and south of the Cordillera Central and into the Greater Santo Domingo region. Orographic enhancement along the southern slopes of the Cordillera Central contributed to locally higher totals and sharp gradients over relatively short distances. Rainfall observations from the Instituto Dominicano de Meteorología (INDOMET) (Fig. 17) indicate that storm-total rainfall commonly ranged from approximately 8 to 15 inches (~200 to 360 mm) at many locations. Significant totals were recorded in the metropolitan area, including 19.98 inches (507.4 mm) at Centro de los Héroes (EMA) and 17.84 inches (453.1 mm) at Santo Domingo Este. The highest reported storm total was 29.02 inches (737.2 mm) at Polo (Barahona Province).

As multiple days of rainfall persisted, rivers, streams, and drainage channels steadily rose, leading to significant freshwater flooding in numerous areas, particularly within southward-draining basins descending from the Cordillera Central into more populated lowlands. The most pronounced impacts occurred in areas influenced by the Río Mahomita and in downstream communities within the Valdesia and Nizao river systems.

Bahamas & Turks and Caicos Islands

Melissa's faster forward motion limited the rainfall accumulations across the Bahamas. There were limited Bahamian rainfall reports available but the highest totals were 6.17 inches (157 mm) near George Town and 7.78 inches (198 mm) in Cockburn Town.

Lesser Antilles, Puerto Rico & U.S. Virgin Islands

The system moved through the southern and central Lesser Antilles as a strong tropical wave during 18–20 October, with rainfall lingering over St. Lucia into the 22nd. Locally heavy rainfall was reported across portions of the island chain, particularly in Trinidad and Tobago, St. Vincent and the Grenadines, and St. Lucia. Specific rainfall totals from these locations are not available as of this writing.

Outer rainbands associated with Melissa affected Puerto Rico and the U.S. Virgin Islands between 20 and 25 October. Gauge-adjusted Multi-Radar Multi-Sensor System (MRMS) radar estimates from the National Weather Service in San Juan indicated storm-total rainfall generally 2 to 6 inches (50–150 mm) across much of Puerto Rico, with the highest accumulations focused along the southern slopes of the Cordillera Central and portions of the southeastern interior. The maximum radar-adjusted storm total in Puerto Rico was 9.58 inches (243 mm) at Mulas, Patillas. Rainfall across northern Puerto Rico, Vieques, Culebra, and the U.S. Virgin Islands generally remained below 2 inches (~50 mm) (Fig. 18). Localized freshwater flooding was reported in low-lying areas.

Casualty and Damage Statistics

As of this writing, Melissa is known to be responsible for at least 95 fatalities[4]. A breakdown of the number of direct and indirect deaths is not known, however, many of these deaths are likely to be directly attributed to the cyclone's winds, rains, and storm surge. A breakdown of the deaths by country includes:

Country	Known Fatalities
Jamaica	45
Haiti	43
Dominican Republic	4
Cuba	1
Elsewhere	2
Total	95

Jamaica

Areas of southwestern Jamaica that experienced the inner core of Melissa included St. Elizabeth, St. James, Trelawny, Westmoreland, Hanover, and Manchester parishes, where structural damage was extreme and widespread. Extreme winds destroyed virtually all wooden structures, stripped roofs from most buildings, and even caused severe damage to concrete construction. Vegetation suffered extreme damage not only near the coast but in mountainous areas across the entirety of western Jamaica as the eyewall passed over the island. Trees in that area were completely defoliated, and in several locations the force of the wind was sufficient to strip bark from trunks and scour paint from walls and buildings. In coastal towns such as New Hope, Crawford, and Black River, the impact was especially severe, and nearly all roofs were blown off homes in that area, making them uninhabitable. Public services and critical infrastructure were severely compromised. Several hospitals sustained serious structural damage, particularly in the western and southern parishes, and some became non-operational, significantly curtailing the island's capacity to provide urgent care and medical services.

In the wake of the storm's passage, vast areas of Jamaica were inundated by freshwater flooding. In many low-lying or flood-prone parishes over the southern and western portions of the island, entire communities were submerged. Landslides and flash flooding destabilized the terrain, making hillsides unsafe and causing major disruption to mobility and access. Roads, bridges, and transportation networks were flooded, washed out or blocked by landslides and debris, making many areas inaccessible. Slope failures and debris flows impacted the Blue

[4] Deaths occurring as a direct result of the forces of the tropical cyclone are referred to as "direct" deaths. These would include those persons who drowned in storm surge, rough seas, rip currents, and freshwater floods. Direct deaths also include casualties resulting from lightning and wind-related events (e.g., collapsing structures). Deaths occurring from such factors as heart attacks, house fires, electrocutions from downed power lines, vehicle accidents on wet roads, etc., are considered "indirect" deaths.

Mountains and several western/interior parishes, with major flooding affecting St. Elizabeth, Manchester and surrounding areas. Communication networks were heavily disrupted, and power outages affected a substantial portion of the population.

Beyond housing and infrastructure, the economic and agricultural sectors suffered deep losses. According to statements by Jamaica's Minister of Agriculture, Fisheries and Mining, roughly 41,390 hectares of farmland were affected. Over 70,000 farmers, including those relying on vegetable, vine, and other crops suffered losses, with key crops such as tomatoes, lettuce, carrots, peppers, melons, and cantaloupe taking a major hit. The coffee sector sustained damage to about 40 percent of trees with a 45 percent loss of production estimated at a value of $833.8 million. The livestock sector also had heavy losses with more than 1.25 million animals perishing, including poultry, small ruminants, and cattle. Fisheries and aquaculture facilities, fish farms, and related infrastructure also sustained heavy damage, impacting both local food supply and incomes.

As of 19 November 2025, the estimated physical damage to buildings, housing, infrastructure, and agriculture across Jamaica was $8.8 billion USD based on estimates from the World Bank Country Director for the Caribbean. The damage estimate represents 41 percent of Jamaica's 2024 gross domestic product. The scale of destruction has been estimated as among the worst ever recorded for Jamaica. Infrastructure damage, collapsed homes, ruined hospitals, disrupted roads, flooding and power outages combined to generate a nationwide humanitarian crisis with recovery and relief operations still ongoing as of this writing.

Government officials in Jamaica reported that Melissa caused 45 fatalities. The southwest parish of St. Elizabeth recorded the highest number of storm-related deaths, with 18 fatalities, followed by Westmoreland, which reported 15 deaths. A detailed breakdown of the causes of the fatalities is not available, therefore it is unclear how many of the reported fatalities were the result of direct effects of the hurricane and how many were associated with indirect causes.

As waters receded, public health risks emerged due to stagnant, contaminated floodwaters that disrupted sanitation systems and created conditions favorable for the outbreak of waterborne diseases. In the weeks following the hurricane, the government confirmed an outbreak of Leptospirosis (a bacterial infection spread through water or contaminated soil) with confirmed and suspected cases tied to exposure during cleanup and recovery operations. Jamaica declared a health emergency, with multiple fatalities attributed to the outbreak. The number of deaths related to these outbreaks is unknown as of this writing, and the fatalities that occurred due to Leptospirosis are not included in the casualty table above.

Haiti

Melissa caused devastating impacts across Haiti due to prolonged heavy rainfall and widespread flooding. Tens of thousands of residents were forced to leave their homes, many sheltering in schools and public buildings. Thousands of homes were damaged, or destroyed, while roads and bridges were washed out, isolating several areas and hindering relief operations. Flooding also disrupted health facilities and damaged drinking water and sanitation systems, heightening the risk of waterborne diseases. Agricultural losses were extensive, with crops and irrigation systems damaged, further threatening food security in already vulnerable regions.

The government of Haiti reported at least 43 deaths with others still missing. One of the hardest hit communities was in the southwestern coastal town of Petit-Goave, where 25 of those deaths occurred. Details on the causes of these fatalities are not known as of this writing.

Dominican Republic

Heavy rainfall from Melissa caused widespread flooding and infrastructure impacts across several provinces in the Dominican Republic. Official situation reports documented freshwater flooding associated with rising rivers, streams, and drainage channels, particularly across southern and southwestern provinces. Nationwide, 823 homes were flooded, 21 were partially affected, and 2 were destroyed. Flooding also disrupted water services, with 29 aqueducts rendered completely out of service, affecting approximately 250,000 users. Localized impacts included fallen trees and road obstructions in Barahona and Bharuch, but no injuries were reported. In San José de Ocoa, overflowing streams and ravines flooded multiple homes, displaced residents in several neighborhoods, and temporarily obstructed roadways. In Peravia, flooding of the Cañada 30 de Mayo stream resulted in 16 homes being inundated. Various media outlets reported four fatalities associated with Hurricane Melissa, including a 71-year-old man who was swept into a ravine and drowned.

Cuba

Melissa brought heavy rainfall and flooding, a damaging storm surge, and destructive winds to portions of eastern Cuba. These were some of same areas that were impacted by heavy rainfall and flooding caused by the disturbance that became Hurricane Imelda[5] about one month prior. Melissa caused considerable damage, flooding and catastrophic landslides across eastern Cuba. Streets were covered in debris, with uprooted trees, roofs off houses and flooding of entire towns, with over 900,000 homes damaged or destroyed. Storm surge in Guama caused major structural damage. The region lost much of its power and communication services. In Santiago de Cuba province, housing damage was particularly severe, with 95,000 homes affected, 2,300 total collapses, and 6,000 complete roof failures. An oil refinery in Santiago de Cuba was damaged as well as hospitals and medical facilities. The Antonio Maceo Airport was damaged and took a few weeks to reopen. Damage estimates in agriculture reached 158,000 hectares, and hundreds of heads of cattle were lost. Landslides and river overflow, especially along the Cauto River basin, caused prolonged isolation of multiple communities.

At the U.S. Naval Base in Guantanamo Bay, there were several downed trees and homes considered uninhabitable due to damage. There was also some water damage due to flooded roadways, and power and water services were disrupted for about a day.

At the time of this report, one death from river flooding has been reported via media outlets.

Bahamas

Melissa began to impact the southeastern Bahamas on 29 October, bringing hurricane-force winds, heavy rainfall and flooding to primarily the southeastern portions of the island chain.

[5] Reinhart, Brad J. “Tropical Cyclone Report: Hurricane Imelda.” National Oceanic and Atmospheric Administration / National Weather Service / National Hurricane Center, 27 Jan. 2026, https://www.nhc.noaa.gov/data/tcr/AL092025_Imelda.pdf

Throughout that area, trees were uprooted, with several utility poles knocked down leading to power outages. The strong winds caused damage to roofs across many of the islands. When the system made landfall on Long Island, heavy rainfall and storm surge flooding caused the Deadman's Cay airport to become flooded. Several roads were impassable due to debris and flooded roadways. The power station on Long Island was severely damaged. On San Salvador Island, where Melissa made a second landfall, there were 18 downed power poles, and the island was left without power and with poor communication services.

Bermuda

Across Bermuda, the hurricane's impacts were generally minor, consisting mainly of scattered debris, downed power lines, and several utility poles downed due to strong winds. This led to power outages across portions of the island. There were no reported casualties associated with Melissa in Bermuda.

Elsewhere

The Turks & Caicos Islands experienced outer rainbands with gusty winds and heavy showers, but there were no reports of damage.

In Puerto Rico, outer rainbands of the incipient disturbance of Melissa produced gusty winds with some power lines downed and tree damage reported in Yauco, Penuelas, Bayamon, and Cabo Rojo. Emergency management officials reported flooding in the Maria Antonia area of Guanica as well as Calle San Thomas in Ponce. Floodwaters covered multiple roadways, but no structural damage was reported.

During recovery efforts from Melissa, a small plane bound for a relief mission in Jamaica crashed in Coral Springs, Florida, on 10 November shortly after taking off from Fort Lauderdale Executive Airport, killing two occupants on board. These 2 fatalities are considered indirect deaths associated with Melissa.

Forecast and Warning Critique

Genesis

The potential for tropical cyclone development was first highlighted in the Global Tropical Hazards Outlook by the NOAA Climate Prediction Center on 30 September in the week three period (Fig. 19). The potential development area was expanded eastward in the week two outlook to the central and western Caribbean Sea on 7 October.

During the 7-day period covered by NHC's Tropical Weather Outlook (TWO), the genesis of Melissa was predicted, though with less than desirable lead time (Table 4). The wave from which Melissa developed was introduced in the TWO 108 h prior to genesis with a low chance of formation for the 7-day period. The 7-day probabilities were raised to the medium and high categories 54 h and 36 h before genesis, respectively. A low probability of formation was indicated in the 2-day period in two separate periods prior to genesis. The first was at 0000 UTC 17 October, about 102 h before formation, and persisted for 18 h. Non-zero probabilities were re-introduced in the 2-day outlook with a low development probability at 1800 UTC 18 October, approximately 60 h prior to genesis. The 2-day probabilities were raised to the medium and high categories 18 h and 12 h before genesis, respectively. The location of Melissa's genesis was well forecast (Fig. 20), with all of the Graphical Tropical Weather Outlook formation areas accurately capturing the development location of the cyclone in the central Caribbean Sea.

Track Forecast

A verification of NHC official track forecasts for Melissa is given in Table 5a. Official track forecast errors were much lower than the mean official errors for the previous 5-yr period for all forecast times. A homogeneous comparison of the official track errors with selected guidance models is given in Table 5b and Figures 21a and 21b. The early track forecasts were complex with a pronounced bifurcation of the track models. When Melissa first developed, the future track seemed dependent on the tropical cyclone's structure and just how fast the system would become vertically aligned and intensify. As depicted in Figure 22, the stronger and more vertically deep solutions (like the GFS) showed a track more toward the north and east, moving the system quickly into a weakness in the subtropical ridge over Hispaniola. Meanwhile, the ECMWF and Google DeepMind models maintained an initially weaker, sheared system, with a slower, meandering motion in the Caribbean Sea, and showed the system drifting farther west before significant strengthening occurred. The NHC forecasts discounted the more northern solutions and more closely followed guidance that depicted the slower motion over the central Caribbean Sea. These forecasts were quite accurate, as the NHC track forecast issued four days before landfall correctly showed Melissa striking western Jamaica with a forecast error of just 11 n mi at 96 h, far below the typical error for a 4-day forecast (Fig. 23). Overall NHC track forecasts were highly skillful, with skill exceeding 80 percent relative to climatology-persistence (OCD5) beyond 48 h (Fig. 24). The official forecast outperformed nearly all available model guidance at all forecast lead times. The exception was the Google DeepMind ensemble mean (GDMI) which performed remarkably well at all time periods and was considerably more skillful than most of the other track guidance. The NHC OFCL forecasts were comparable to GDMI through 96 h, but performed slightly better than GDMI at 120 h.

The track forecast skill was notable for a category 5 hurricane, and the NHC track forecasts had lower mean errors compared to a majority of other cases for the RI periods of these hurricanes (Fig. 25). Melissa's forecast was much more skillful compared to NHC's skill average from 2020-2024 (Fig. 26).

Intensity Forecast

A verification of NHC official intensity forecasts (OFCL) for Melissa is given in Table 6a. Although OFCL intensity forecast errors were higher than the mean official errors for the previous 5-yr period at all forecast times, the NHC forecasts were quite skillful (Fig. 27) as OCD5 (climatology and persistence) errors were up to 6 times greater than the long-term mean, indicating that the intensity forecasts for Melissa were very difficult. A homogeneous comparison of the official intensity errors with selected guidance models is given in Table 6b and Figures 28a and 28b. NHC intensity forecasts had lower mean errors than all of the guidance models through 96 h, and only a few of the hurricane regional models and IVCN beat the NHC forecast at 120 h. An analysis of the distribution of 1–3-day forecast intensity errors of systems that rapidly intensity into Category 5 hurricanes indicates that OFCL intensity errors for Melissa were among the lowest on record. Melissa's forecasts during the RI period exhibited a much lower negative bias relative to the full distribution of RI periods for Category 5 hurricanes (Fig. 29). Figure 30 shows NHC intensity forecast performance during RI as compared to the intensity guidance.

As Melissa meandered south of Jamaica, the cyclone underwent a pronounced period of RI on 25–26 October while traversing very warm waters (30-31°C) with high oceanic heat content around 125-150 kJ/cm^2. At the same time, vertical wind shear decreased to around 10 kt, allowing the storm's vortex to become vertically aligned, as observed by TDR data. Nearly all statistical RI guidance consistently indicated significant strengthening, and regional hurricane models, including HAFS-A and HAFS-B, also depicted substantial intensification. The Google DeepMind model (GDMI) performed very well in forecasting both intensity and RI. By early on 24 October, all GDMI members indicated that Melissa would become a major hurricane, with uncertainty more on the timing of rapid intensification rather than whether it would occur. The GDMI guidance in conjunction with NWS regional hurricane models (HAFS-A, HAFS-B, HWRF, and HMON) increased forecaster confidence in predicting RI at unusually long lead times. NHC forecasts called for Melissa to rapidly strengthen and reach major hurricane status, noting the potential for even higher intensity prior to interaction with Jamaica or eastern Cuba.

The NHC intensity forecasts beginning on 22 October were particularly noteworthy since they explicitly indicated rapid intensification (RI) between days 3 and 4 of the forecast period. This signal became even more significant in the 1500 UTC 24 October advisory, issued roughly four days before landfall, when Melissa was still only a 40-kt tropical storm. At that time, NHC forecast not only strengthening to a strong Category 4 hurricane, but also a track near or directly over western Jamaica. Subsequent forecasts provided nearly three days of advance notice prior to landfall that Melissa would make landfall as a powerful Category 5 hurricane, marking the first time NHC had ever predicted a storm to reach Category 5 strength from that low of an initial intensity (80 kt - Category 1). As shown in Figure 26, forecast skill for Melissa's intensity forecasts substantially exceeded the preceding five-year mean (2020–24), and the NHC forecasts had more skill than all intensity guidance through 96 h.

When compared with the three most recent prior Category 5 landfalling hurricanes within NHC's area of responsibility—Michael (2018), Dorian (2019), and Otis (2023)—the forecasts for Melissa stand out for their superior depiction of peak intensity at landfall (Fig. 31).

Rainfall Forecast

Melissa's rainfall forecast proved particularly challenging due to its slow, meandering motion and evolving structure. The storm's sluggish progression allowed rainbands to train over the same areas for extended periods, with heavy rainfall beginning well before the closest approach of the center and continuing afterward, significantly lengthening the duration of impacts. At the same time, global model guidance exhibited substantial cross- and along-track spread, leading to large differences in the placement of the heaviest rainfall and noticeable cycle-to-cycle shifts in forecast maxima, which complicated messaging to regional partners.

Most of the severe flooding occurred within outer rainbands well removed from the center rather than within the inner core. A deep moisture plume interacting with steep terrain over

Hispaniola and eastern Cuba, particularly along the higher elevations of the Cordillera Central in the Dominican Republic, and pre-existing boundaries focused low-level convergence into narrow corridors of intense orographic rainfall that models struggled to resolve. Because rainfall and flooding impacts accumulated over more than a week, standard short-range QPF products did not fully convey the cumulative storm-total threat. As a result, the rainfall forecast period was extended from the typical three days to four days to better capture the higher-confidence, prolonged rainfall impacts associated with Melissa.

Jamaica

Rainfall predictions across Jamaica were more challenging as uncertainty was greater regarding the exact track. Early rainfall forecasts depicted the axis of maximum rainfall over central to eastern Jamaica, with forecast totals locally exceeding 20 to 30 inches (500–750 mm) with isolated higher amounts under scenarios in which the storm remained near or just south of the island during its slow-moving westward phase (Fig. 32). As it became more apparent that the storm would track slightly farther south and west, the forecast was updated to shift the axis of heaviest rainfall toward the central and western portions of Jamaica (Fig. 33). Verification showed that observed rainfall totals over eastern Jamaica were generally lower than early forecast maxima, with many locations receiving on the order of 6 to 14 inches (150–350 mm). In contrast, central and western portions of Jamaica experienced higher accumulations, with a few stations reporting totals exceeding 24 inches (600 mm) and localized maxima near 32 inches (800 mm).

Haiti & Dominican Republic

Early rainfall forecasts for Haiti and the Dominican Republic consistently highlighted the potential for widespread heavy rainfall totals of 8 to 12 inches (200–300 mm) across southern Hispaniola, with locally higher extreme amounts possible. As Melissa strengthened and slowed markedly during 23–25 October, forecast rainfall totals were steadily increased in subsequent forecasts to account for the prolonged duration of impacts. This led to substantially higher forecast maxima of 20 to 30 inches (500–750 mm) for portions of southwestern Haiti and 15 to 20 inches (400–500 mm) across southern portions of the Dominican Republic. Observed rainfall ultimately reached or exceeded the upper end of the forecast range across parts of southern Hispaniola.

Cuba

The rainfall forecast for eastern and southern Cuba remained fairly steady throughout the forecast period, forecasting 16 to 20 inches (400–500 mm) with isolated higher amounts over the provinces of Granma, Santiago de Cuba and Guantánamo. The area with the forecasted maximum rainfall shifted slightly westward as Melissa's forecast track shifted westward. Other areas in Cuba, mainly north and east of the peak forecast area, over the province of Holguín had a rainfall forecast generally between 8 to 16 inches (200–400 mm). The rainfall forecast for eastern Cuba verified fairly well, correctly identifying the southern and southeastern provinces as the most likely to receive higher rainfall totals.

Tropical Cyclone Wind Watches and Warnings

Tropical cyclone wind watches and warnings associated with Melissa are given in Table 7. The lead times associated with Tropical Storm Watches and Warnings and Hurricane Watches and Warnings for Haiti and Jamaica were unusually long due to Melissa's slow motion, forecast uncertainty, and the track's proximity to those islands, as small changes in the short-term forward speed and track had the potential to bring strong winds to those islands significantly sooner than shown in NHC's deterministic forecast. For Jamaica, a Tropical Storm Watch was issued roughly seven days before landfall, followed by a Tropical Storm Warning and Hurricane Watch about five days before direct wind impacts began. A Hurricane Warning was issued for Jamaica about three days before landfall. For Haiti, a Hurricane Watch was issued seven days prior to the storm's closest approach, with a Tropical Storm Warning issued five days beforehand. These extended watch and warning periods reflected both the uncertainty in Melissa's track and the early impacts from its outer rainbands well before the core of the system neared the islands or made landfall.

IMPACT-BASED DECISION SUPPORT SERVICES (IDSS) AND PUBLIC COMMUNICATION

Media and Social Media Summary

Although Melissa did not pose a direct threat to the United States, the storm generated substantial interest from U.S. and international media outlets. NHC staff conducted 41 interviews in English and 12 in Spanish. The attention on Melissa grew as it went through rapid intensification and became the 4th major hurricane of the season. There were numerous web and print stories published in both English and Spanish.

Social media coverage for this event included five short videos (reels) posted on NHC social media platforms. The first reel, released on 21 October, highlighted the pre-genesis disturbance in the Caribbean. The second reel followed the next day, coinciding with the system's development into a tropical storm. The most widely viewed reel was posted on 25 October, three days before landfall, and garnered 710,000 views across Facebook, Instagram, YouTube and X as Melissa became a major hurricane. Altogether, the reels reached a combined total of 2.5 million views. NHC hosted 12 livestreams during the period from 21–30 October, and these live broadcasts accumulated 584,000 views.

Communication with Emergency Management Summary

As the tropical cyclone Regional Specialized Meteorological Center (RSMC) for the World Meteorological Organization Regional Association IV, NHC supported national meteorological agencies in the affected areas and coordinated forecast and hazard information along with tropical storm and hurricane watches and warnings throughout the region. NHC provided several briefings to national and international governmental agencies supporting key decision makers within the region. The NHC's Tropical Analysis and Forecast Branch provided 18 impact-based decision support briefings to the U.S. Coast Guard Southeast District from 21–30 October.

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Table 1. Best track for Hurricane Melissa, 21–31 October 2025.

Date/Time (UTC)	Latitude (°N)	Longitude (°W)	Pressure (mb)	Wind Speed (kt)	Stage
21 / 0600	14.0	70.0	1003	40	tropical storm
21 / 1200	14.0	71.4	1003	45	"
21 / 1800	14.0	72.4	1003	45	"
22 / 0000	14.1	73.3	1003	45	"
22 / 0600	14.2	73.5	1002	45	"
22 / 1200	14.3	73.7	1002	45	"
22 / 1800	14.3	74.1	1002	45	"
23 / 0000	14.3	74.5	1002	45	"
23 / 0600	14.7	74.8	1003	40	"
23 / 1200	15.2	75.0	1003	40	"
23 / 1800	15.5	75.3	1002	40	"
24 / 0000	15.7	75.5	1002	40	"
24 / 0600	15.8	75.3	1002	40	"
24 / 1200	15.9	75.1	1000	45	"
24 / 1800	15.9	74.8	997	50	"
25 / 0000	16.1	74.7	993	55	"
25 / 0600	16.3	74.7	986	60	"
25 / 1200	16.4	74.9	984	60	"
25 / 1800	16.4	75.3	976	75	hurricane
26 / 0000	16.4	75.7	971	90	"
26 / 0600	16.3	76.0	958	105	"
26 / 1200	16.3	76.4	952	115	"
26 / 1800	16.3	76.9	944	120	"
27 / 0000	16.3	77.3	934	125	"
27 / 0600	16.3	77.7	923	135	"
27 / 1200	16.3	78.0	912	145	"
27 / 1800	16.4	78.3	906	155	"
28 / 0000	16.5	78.6	909	155	"
28 / 0600	16.9	78.4	900	155	"

Date/Time (UTC)	Latitude (°N)	Longitude (°W)	Pressure (mb)	Wind Speed (kt)	Stage
28 / 1200	17.5	78.1	892	165	"
28 / 1725	18.1	78.0	897	160	"
28 / 1800	18.2	78.0	910	145	"
29 / 0000	18.8	77.1	953	105	"
29 / 0600	19.7	76.4	952	105	"
29 / 0720	20.0	76.2	954	100	"
29 / 1200	20.9	75.8	968	85	"
29 / 1800	22.1	75.4	972	80	"
29 / 2215	23.1	75.0	972	80	"
30 / 0000	23.5	74.8	970	80	"
30 / 0200	24.0	74.5	970	80	"
30 / 0600	25.0	73.8	968	85	"
30 / 1200	26.7	72.7	965	90	"
30 / 1800	28.9	70.9	967	85	"
31 / 0000	31.3	68.7	970	80	"
31 / 0600	34.5	65.5	972	75	"
31 / 1200	37.7	62.1	972	75	extratropical
31 / 1800	40.6	58.9	972	70	"
01 / 0000	43.7	56.0	971	70	"
01 / 0600	46.6	51.3	968	65	"
01 / 1200					dissipated
28 / 1200	17.5	78.1	892	165	maximum wind and minimum pressure
28 / 1725	18.1	78.0	897	160	Landfall near New Hope, Jamaica
29 / 0720	20.0	76.2	954	100	Landfall near Chivirico, Cuba
29 / 2215	23.1	75.0	972	80	Landfall on Long Island, Bahamas
30 / 0200	24.0	74.5	970	80	Landfall on San Salvador Island, Bahamas

Table 2. Selected ship reports with winds of at least 34 kt for Hurricane Melissa, 21–31 October 2025.

Date/Time (UTC)	Ship call sign	Latitude (°N)	Longitude (°W)	Wind dir/ speed (kt)	Pressure (mb)
21 / 1157	C6XS7	14.2	70.8	070 / 68 (65m)	1003.0
24 / 1500	GDQMGE	17.5	81.1	050 / 43	1006.6
26 / 0400	5UEVFZ	17.9	82.6	030 / 45	1008.9
31 / 0200	V7DM2	33.6	73.1	270 / 40	1004.4
31 / 0500	V7DM2	32.7	73.0	260 / 37	1007.5
31 / 1600	V7A608	39.8	69.2	270 / 36	992.0
31 / 1223	VCPK	45.9	62.9	070 / 38	-
31 / 1623	VCPK	45.9	62.1	100 / 41	-
31 / 1700	VCPK	45.8	61.7	110 / 40	-
31 / 1723	VCPK	45.9	61.8	100 / 36	-
31 / 1753	VCPK	45.8	61.7	110 / 40	-
31 / 1924	VCPK	45.7	61.4	120 / 36	-

Table 3. Selected surface observations for Hurricane Melissa, 21-31 October 2025.

Location	Minimum Sea Level Pressure		Maximum Surface Wind Speed			Storm surge (ft)[c]	Storm tide (ft)[d]	Estimated Inundation (ft)[e]	Total rain (in)
	Date/ time (UTC)	Press. (mb)	Date/ time (UTC)[a]	Sustained (kt)[b]	Gust (kt)				
JAMAICA									
International Civil Aviation Organization (ICAO) Sites									
Sangster International Airport, Montego Bay (MKJS) (18.50N, 77.91W) *no data after 28/1000	28/1000	998.0	28/0800	40	56				
Norman Manley International Airport, Kingston (MKJP) (17.94N, 76.77W)	28/2100	995.9	28/1900	41	50				
Automated Weather Stations (AWS)									
Clarendon Parish									
Clarendon College	28/2100	990.2	28/2100	22 (2 m)	50				9.83
Crofts Hill									17.43
Edwin Allen	28/2100	985.2	29/0300	9 (2 m)	29				11.33
Kemps Hill High (17.84N, 77.28W)	28/1900	992.2	28/1900	25 (10 m)	54				11.80
Kendal									7.07
Mason River (18.20N, 77.26W)	28/2100	984.1	28/2000	25 (10 m)	68				13.16
M.R Rada (17.98N, 77.25W)	28/2100	982.5	28/2100	17 (2 m)	49				13.49
May Pen	28/2000	991.7	28/1300	21 (10 m)	49				11.10
Mitchell Town (17.81N, 77.20W)	28/2000	994.1	28/1900	27 (10 m)	52				11.02
Mony Musk (17.81N, 77.25W)	28/1900	993.6	28/2000	24 (10 m)	49				11.13
Mt Airy	28/2000	987.5	28/2000	31 (10 m)	67				20.88
Mt Liberty	28/2000	987.5	28/2100	16 (2 m)	53				13.90
Mt Peto									16.07
Rocky Point (17.78N, 77.26W)	28/2000	993.2	28/2000	30 (10 m)	57				9.02
Salt River (17.83N, 77.18W)	28/2000	994.8	28/2100	20 (10 m)	45				11.97
Vernamfield (17.89N, 77.31W)	28/1900	990.8	28/1800	18 (2 m)	45				11.35
Hanover Parish									
Esher Primary	28/1900	986.1	28/1900	49 (10 m)	73				5.45

Location	Minimum Sea Level Pressure		Maximum Surface Wind Speed			Storm surge (ft)[c]	Storm tide (ft)[d]	Estimated Inundation (ft)[e]	Total rain (in)
	Date/ time (UTC)	Press. (mb)	Date/ time (UTC)[a]	Sustained (kt)[b]	Gust (kt)				
Green Island (18.38N, 78.27W)	28/1900	985.2	28/2000	38 (10 m)	72				5.75
Rhodes Hall (18.37N, 78.30W)	28/1800	986	28/1900	20 (2 m)	43				5.11
Kingston & St. Andrew Parish									
Jacks Hill (18.05N, 76.76W)	28/2000	993.4	28/0600	20 (2 m)	49				7.87
Jacra	28/2300	997.3	29/0200	20 (2 m)	41				10.35
Mavis Bank (18.03N, 76.65W)	28/2300	993.6	28/1400	10 (2 m)	37				22.32
Mona Reservoir (18.01N, 76.76W)	28/2000	998	28/1800	30 (10 m)	57				6.44
NMIA (17.93N, 76.78W)	28/2100	996	28/0900	37 (10 m)	51				8.48
UWI			28/2125	27 (10 m)	55				10.84
Woodford (18.07N, 76.75W)	28/2000	993.7	28/1800	37 (10 m)	69				7.35
Manchester Parish									
Devon Pri (17.89N, 77.50W)	28/2000	975.4	28/1800	28 (2 m)	54				16.70
Cross Keys (18.38N, 78.27W)	28/1900	988.8	28/1500	31 (10 m)	64				16.66
Grove Place (18.12N, 77.52W)	28/2000	982	28/1800	38 (10 m)	74				
Ingleside									25.47
Knock Patrick (WRA)									32.17
Marshall Pen Sutton (18.06N, 77.53W)	28/2000	982.8	28/1900	8 (2 m)	32				18.94
Siri			28/2210	39 (10 m)	55				24.78
Portland Parish									
Bybrook									21.11
Happy Grove (18.01N, 76.27W)			29/0400	17 (10 m)	46				7.62
Shirley Castle (18.15N, 76.61W)	29/0000	990	29/0100	12 (2 m)	40				13.90
St. Mary Parish									
Fort George (18.23N, 76.77W)	29/0000	990.7	28/2200	17 (10 m)	57				
Halifax Farm	28/2300	986	28/2100	25 (10 m)	62				15.92
St. Thomas Parish									
Hordley Estate	28/2100	996	29/0300	13 (10 m)	30				7.22

Location	Minimum Sea Level Pressure		Maximum Surface Wind Speed			Storm surge (ft)[c]	Storm tide (ft)[d]	Estimated Inundation (ft)[e]	Total rain (in)
	Date/ time (UTC)	Press. (mb)	Date/ time (UTC)[a]	Sustained (kt)[b]	Gust (kt)				
Serge Island (17.95N, 76.48W)	28/2300	998	28/2100	15 (10 m)	45				11.75
Yallahs (17.88N, 76.59W)	28/2000	998	28/2000	27 (10 m)	46				10.37
St. Ann Parish									
Aabuthnott Gallimore HS	28/2100	979.3	28/2100	37 (10 m)	72				15.65
Colgate	28/2200	974.7	28/2300	11 (2 m)	36				12.30
Bamboo (18.40N, 77.28W)	28/2200	972.5	28/2300	45 (10 m)	90				4.43*
Dunns River	28/2300	979.4	28/2300	28 (10 m)	57				10.28
Nine Miles									14.00
Minards (18.41N, 77.38W)	28/2200	965.9	28/2200	44 (2 m)	85				10.66
Moneague (18.26N, 77.11W)	28/2300	986.5	29/0000	32 (10 m)	63				13.09
St. Catherine Parish									
Amity Hall	28/2100	993.5	28/2100	17 (2 m)	37				9.84
Bois Content									18.01
Bybrook									14.22
Colbeck	28/2000	991.9	28/2100	16 (2 m)	36				10.80
Dam Head									26.31
Innswood (17.98N, 77.00W)	28/1800	996.1	28/1000	20 (10 m)	44				7.63
Greater Portmore (17.93N, 76.90W)	28/2000	994.2	28/1000	31 (10 m)	51				8.84
New Works Farm									13.31
Tulloch Estate (18.11N, 76.98W)	28/2300	991.9	28/2300	25 (? m)	51				11.05
Twickenham Park (18.00N, 76.94W)	28/2200	995.7	28/1800	19 (10 m)	42				7.65
Windsor Farm	28/2100	992.7	28/2100	22 (2 m)	42				9.07
Worthy Park (18.14N, 77.15W)	28/2200	989.0	28/2200	24 (10 m)	55				15.33
St. Elizabeth Parish									
Appleton Estate (18.17N, 77.72W)	28/2000	964.6	28/1800	40 (10 m)	96				
Beacon Irrigation	28/1600	978.3	28/1600	48 (2 m)	77				6.99*
Comma Pen (17.92N, 77.59W)	28/1700	984.9	28/1600	21 (2 m)	50				

Location	Minimum Sea Level Pressure		Maximum Surface Wind Speed			Storm surge (ft)[c]	Storm tide (ft)[d]	Estimated Inundation (ft)[e]	Total rain (in)
	Date/ time (UTC)	Press. (mb)	Date/ time (UTC)[a]	Sustained (kt)[b]	Gust (kt)				
Crawford (iCyclone) (18.04N, 77.91W)	28/1720	926.0							
Lewisville High	28/1800	925.5	28/1600	30 (10 m)	97				10.45
Mayfield All Age (17.88N, 77.67W)	28/1500	980.2	28/1500	42 (2 m)	70				16.69
Mountainside Primary School (17.98N, 77.75W)	28/1700	974.8	28/1700	56 (10 m)	90				20.01
Newcombe Valley Primary (17.92N, 77.76W)	28/1500	972.5	28/1500	54 (10 m)	93				
Santa Cruz (18.04N, 77.70W)	28/1800	980	28/1700	30 (2 m)	60				
St. James Parish									
Kempshot (18.40N, 77.87W)	28/2000	950.7	28/2000	23 (2 m)	70				15.67
Sangster International Airport (18.50N, 77.92W)	28/1520	992.9	28/1250	45 (10 m)	64				
Trelawny Parish									
Braco (18.47N, 77.49W)	28/2200	958.7	28/2300	16 (2 m)	48				
Hampden (18.44N, 77.75W)	28/2000	958	28/2000	57 (10 m)	105				
Lowe River (18.31N, 77.52W)	28/2100	976	28/2100	28 (2 m)	72				16.18
Orange Valley (18.47N, 77.73W)	28/2100	960.2	28/2000	44 (10 m)	88				9.29
Sawyers (18.38N, 77.49W)	28/2100	966.7	28/2300	16 (2 m)	45				9.80
Westmoreland Parish									
Frome (18.29N, 78.15W)	28/1800	975.0	28/1800	43 (? m)	88				
New Hope Primary (18.09N, 77.97W)	28/1700	913.5	28/1600	47 (10 m)	114				
Negril Point L/H									6.11
Retreat									7.03
Sav RADA	28/1800	971	28/1800	56 (2 m)	93				12.17
CUBA									
International Civil Aviation Organization (ICAO) Sites									
Aeropuerto Internacional Antonio Maceo y Grajales, Santiago de Cuba (MUCU) (19.99N, 75.84W) *No data after 28/2350			28/2250	23	39				

Location	Minimum Sea Level Pressure		Maximum Surface Wind Speed			Storm surge (ft)[c]	Storm tide (ft)[d]	Estimated Inundation (ft)[e]	Total rain (in)
	Date/ time (UTC)	Press. (mb)	Date/ time (UTC)[a]	Sustained (kt)[b]	Gust (kt)				
Leeward Point Field, Guantanamo Bay (MUGM) (19.99N, 75.84W) *Data gap 29/0751-2151	29/0751	996.5	29/0751	51	65				6.50
Surface Observations Reported by Instituto de Meteorología de Cuba (INSMET)									
Santiago de Cuba									
Contramaestre (78363)	29/0900	967.7	29/0230	59 (10-min)	101				14.71
Universidad de Santiago de Cuba (78364)	29/0900	992.4							11.42
Gran Piedra (78366)			29/0150	70 (10-min)	118				13.20
Vega Murcia									26.38
El Sitio									24.21
Aguada									23.03
Belleza									22.71
Mata Indio									22.67
Duaba									21.90
Los Negros									21.50
San Fermin									20.59
Las Porzas									20.35
Pr Gilbert									20.08
La Estrella									19.72
Loudes									19.70
Las Coloradas									19.53
Correo Baire									18.72
Trucucu									18.24
El Frances									18.16
Seboruco									17.95
Holguín									
La Jíquima (78362)	29/0850	982.3	29/0930	43 (10-min)	59				9.09
Cabo Lucrecia (78365)	29/1430	980.0							5.59
Guaro (78370)	29/1200	983.4	29/1145	62 (10-min)	68				10.84
Holguín (78372)	29/1250	971.6							12.48
Velasco (78378)									9.84
Granma									

Location	Minimum Sea Level Pressure		Maximum Surface Wind Speed			Storm surge (ft)[c]	Storm tide (ft)[d]	Estimated Inundation (ft)[e]	Total rain (in)
	Date/ time (UTC)	Press. (mb)	Date/ time (UTC)[a]	Sustained (kt)[b]	Gust (kt)				
Cabo Cruz (78360)	29/0200	997.9	29/0242	38 (10-min)	58				2.70
Manzanillo (78359)	29/0600	996	29/0500	41 (10-min)	50				3.61
Jucarito (78361)	29/0900	999.0	29/0200	47 (10-min)	68				4.04
Veguitas (78377)	29/0900	990.3	29/0500	32 (10-min)	51				7.43
Estacion de aforo El Platano (Guisa)									20.08
Santa Rita									19.94
Chargo Redondo (Jiguani)									19.31
Guantánamo									
Punta de Maisí (78369)	29/0830	999.8	29/1457	53 (10-min)	62				2.40
Jamal (78356)	29/1100	995.7							4.98
El Valle de Caujerí (78319)	29/0500	977.8							6.71
Palenque de Yateras (78334)	29/0900	992.4							6.22
Guantánamo (78368)	29/0200	992.4	29/0230	41 (10-min)	52				7.20
Las Tunas									
Las Tunas (78357)	29/0900	996.1	29/0945	38 (10-min)	46				6.14
Puerto Padre (78358)	29/0950	996.0	29/0410	49 (10-min)	58				5.67
BERMUDA									
International Civil Aviation Organization (ICAO) Sites									
L. F. Wade International Airport (TXKF) (32.36N, 64.68W)	31/0355	996.9	31/0355	43	60				
Surface Stations									
National Museum of Bermuda (NMB) (32.33N, 64.83W)	31/0332	991.9	31/0345	68 (46 m)	86				
AviMet 30 End of TXKF Runway 30 (32.36N, 64.67W)	31/0340	995.8	31/0422	54	70				0.05
AviMet 12 End of TXKF Runway 12 (32.37N, 64.69W)	31/0417	995.4	31/0343	47	62				
ESSO Pier (32.37N, 64.70W)	31/0336	996.3	31/0730	37 (4.6 m)	55				
MAROPS (32.38N, 64.68W)	31/0340	997	31/0340	66 (88 m)	85				

Location	Minimum Sea Level Pressure		Maximum Surface Wind Speed			Storm surge (ft)[c]	Storm tide (ft)[d]	Estimated Inundation (ft)[e]	Total rain (in)
	Date/ time (UTC)	Press. (mb)	Date/ time (UTC)[a]	Sustained (kt)[b]	Gust (kt)				
HAITI									
International Civil Aviation Organization (ICAO) Sites									
Toussaint Louverture International Airport, Port-au-Prince (MTPP) (18.58N, 72.29W)	28/2200	1005.8	25/2200	25	36				
Surface Observations Reported by Unité HydroMétéorologique d'Haïti (U.H.M)									
Sud									
Camp Perrin									36.77
Saint Louis de Sud									35.16
Vieux Bourg D'Aquin									32.90
Chantal									31.51
Saint Jean du Sud									31.33
Port Salut									30.41
Le Pretre									28.79
Arniquet									28.57
Torbeck									28.54
Fond des Blancs									28.52
Marceline									28.26
Maniche									27.54
Zanglais d'Aquin									24.19
Clonard									23.73
La Biche									23.02
Grand Anse									
Annette									33.72
Sud Est									
Bainet									28.88
Nippes									
Fond Tortue									27.67
Fond des Negres									27.05
DOMINICAN REPUBLIC									
Surface Observations Reported by Instituto de Dominicano de Meteorología (INDOMET)									
Barahona									
Polo									29.02

Location	Minimum Sea Level Pressure		Maximum Surface Wind Speed			Storm surge (ft)[c]	Storm tide (ft)[d]	Estimated Inundation (ft)[e]	Total rain (in)
	Date/ time (UTC)	Press. (mb)	Date/ time (UTC)[a]	Sustained (kt)[b]	Gust (kt)				
ARPT. Maria Montez									13.11
Enriquillo									12.52
Cabral									12.37
Distrito Nacional									
Centro de Los Heroes (EMA)									19.98
Los Prados (EMA)									17.33
Los Cacicazgos (EMA)									17.28
Prolongacion 27 de Febrero (EMA)									15.50
Ensanche Paraiso									15.20
Cerros de Arroyo Hondo (EMA)									14.30
Jardin Bontanico Nacional									14.20
Bella Vista (EMA)									13.34
Santo Domingo									
Santo Doming Este									17.84
ARPT. La Isabela									15.20
San Cristobal									
San Antonio (EMA)									17.19
Parque Industrial Itabo (EMA)									15.39
San Cristobal									13.89
Pedernales									
Oviedo									14.15
Peravia									
Escondido									11.61
Bani (EMA)									11.34
THE BAHAMAS									
Public/Other									
Sea Horse Shores #83, Pitts Town (IPITTSTO2) (22.83N, 74.34W)	29/2224	980.7	29/2029	66	77				
Indian Hole Point, Long Island (ILONGI16) (23.36N, 75.15W)	29/2319	968.8	30/0009	45	61				
Buckley's 242, Buckley's Settlement (IBUCKL60) (23.16N, 75.09W)	29/2243	966.5	29/2054	35	44				

Location	Minimum Sea Level Pressure		Maximum Surface Wind Speed			Storm surge (ft)[c]	Storm tide (ft)[d]	Estimated Inundation (ft)[e]	Total rain (in)
	Date/ time (UTC)	Press. (mb)	Date/ time (UTC)[a]	Sustained (kt)[b]	Gust (kt)				
George Town, San Salvador Island									6.17
Cockburn Town 9.7NE (BHS-SS-7) (24.11N, 74.45W)									7.78
MARINE OBSERVATIONS									
Buoys									
44011 Georges Bank (NOAA/NDBC) (41.09N, 66.55N)	31/0940	990.9	01/0030	37	48				
44137 East Scotia Slope (Environment Canada) (42.26N, 62.03N)	01/0400	993.1	01/0300	37					
44139 Banquereau Banks (Environment Canada) (44.24N, 57.10N)	01/0300	986.6	01/0300	35					
44150 La Have Bank (Environment Canada) (42.50N, 64.02N)	01/0600	991.5	01/0300	39					

[a] Date/time is for sustained wind when both sustained and gust are listed.
[b] Except as noted, sustained wind averaging periods for C-MAN and land-based reports are 2 min; buoy averaging periods are 8 min. **For Jamaica AWS Stations, the sustained wind is an average over one hour. Anemometer height is 10 m unless otherwise noted.**
[c] Storm surge is water height above normal astronomical tide level.
[d] For most locations, storm tide is water height above the North American Vertical Datum of 1988 (NAVD88). Storm tide is water height above Mean Lower Low Water (MLLW) for NOS stations in Puerto Rico, the U.S. Virgin Islands, and Barbados.
[e] Estimated inundation is the maximum height of water above ground.

Table 4. Number of hours in advance of formation of Melissa associated with the first NHC Tropical Weather Outlook forecast in the indicated likelihood category. Note that the timings for the "Low" category do not include forecasts of a 0% chance of genesis. Parentheses indicate the time before genesis that category was introduced a second time.

	Hours Before Genesis	
	48-Hour Outlook	**168-Hour Outlook**
Low (<40%)	102 (60)	108
Medium (40%-60%)	18	54
High (>60%)	12	36

Table 5a. NHC official (OFCL) and climatology-persistence skill baseline (OCD5) track forecast errors (n mi) for Hurricane Melissa, 21–31 October 2025. Mean errors for the previous 5-yr period are shown for comparison. Official errors that are smaller than the 5-yr means are shown in boldface type.

	Forecast Period (h)							
	12	24	36	48	60	72	96	120
OFCL	**19.9**	**28.7**	**36.2**	**40.3**	**50.9**	**62.5**	**66.2**	**87.7**
OCD5	44.9	99.0	162.4	233.8	305.3	373.9	429.7	434.5
Forecasts	38	36	34	32	30	28	24	20
OFCL (2020-24)	23.0	34.3	45.8	58.7	73.5	89.8	128.7	185.4
OCD5 (2020-24)	45.1	95.7	150.9	203.1	252.7	295.4	366.2	426.6

Table 5b. Homogeneous comparison of selected track forecast guidance models (in n mi) for Hurricane Melissa, 21–31 October 2025. Errors smaller than the NHC official forecast are shown in boldface type. The number of official forecasts shown here will generally be smaller than that shown in Table 5a due to the homogeneity requirement.

Model ID	Forecast Period (h)							
	12	24	36	48	60	72	96	120
OFCL	19.9	28.7	36.2	40.3	50.9	62.5	66.2	87.7
OCD5	44.9	99.0	162.4	233.8	305.3	373.9	429.7	434.5
GFSI	27.9	47.0	68.2	97.5	139.2	185.9	309.2	472.4
HWFI	24.3	38.2	57.3	80.0	114.3	155.9	263.4	435.8
HMNI	24.5	38.5	54.4	70.0	98.9	133.4	206.4	296.8
HFAI	25.8	38.9	50.5	59.1	74.7	94.5	111.4	145.9
HFBI	28.4	40.8	52.4	61.7	79.3	94.9	118.3	156.0
EMXI	21.5	36.7	53.5	66.1	82.1	91.6	88.1	140.2
CMCI	28.9	46.9	64.0	78.8	102.5	129.9	163.1	184.3
CTCI	27.6	43.9	61.3	75.1	96.0	119.7	160.4	218.7
TVCA	22.0	32.0	44.6	55.5	76.0	97.2	128.3	179.3
TVCX	21.1	31.9	45.2	56.2	75.7	95.1	123.1	168.5
GFEX	21.6	32.6	47.5	60.9	83.7	109.1	156.2	229.6
TVDG	21.4	33.1	47.1	58.1	78.7	101.2	138.7	200.1
HCCA	**19.5**	29.6	38.1	43.4	59.1	78.3	95.2	124.9
FSSE	22.9	36.2	49.1	59.9	72.8	98.9	158.9	243.6
AEMI	21.7	33.3	45.7	57.2	79.2	105.4	146.9	167.9
TABS	50.1	91.7	127.1	147.9	166.2	207.2	329.2	456.7
TABM	29.0	47.8	73.5	101.9	141.0	184.9	320.8	524.5
TABD	28.4	60.4	103.1	147.2	198.6	259.6	411.2	610.5
GDMI	**16.8**	**21.6**	**29.7**	**32.6**	**37.4**	**43.4**	**63.4**	113.2
Forecasts	38	36	34	32	30	28	24	20

Table 6a. NHC official (OFCL) and climatology-persistence skill baseline (OCD5) intensity forecast errors (kt) for Hurricane Melissa, 21–31 October 2025. Mean errors for the previous 5-yr period are shown for comparison. Official errors that are smaller than the 5-yr means are shown in boldface type.

	Forecast Period (h)							
	12	24	36	48	60	72	96	120
OFCL	6.7	9.3	9.9	11.1	11.3	12.5	17.5	26.5
OCD5	10.8	17.9	27.2	31.6	39.2	45.8	56.5	70.5
Forecasts	38	36	34	32	30	28	24	20
OFCL (2020-24)	5.1	7.3	8.6	10.0	10.5	10.9	12.4	13.6
OCD5 (2020-24)	6.8	10.6	13.8	16.5	17.9	19.2	21.4	19.9

Table 6b. Homogeneous comparison of selected intensity forecast guidance models (in kt) for Hurricane Melissa, 21–31 October 2025. Errors smaller than the NHC official forecast are shown in boldface type. The number of official forecasts shown here will generally be smaller than that shown in Table 6a due to the homogeneity requirement.

Model ID	Forecast Period (h)							
	12	24	36	48	60	72	96	120
OFCL	6.7	9.3	9.9	11.1	11.3	12.5	17.5	26.5
OCD5	10.8	17.9	27.2	31.6	39.2	45.8	56.5	70.5
HWFI	8.7	13.2	21.0	25.2	24.5	22.6	23.5	35.0
HMNI	8.4	14.0	20.2	27.3	32.2	31.9	28.9	**22.5**
HFAI	7.9	10.2	12.5	14.0	18.0	21.2	22.4	**22.5**
HFBI	9.0	11.2	13.6	16.0	19.7	23.3	24.0	**21.1**
DSHP	10.0	14.2	17.3	22.7	26.6	30.1	33.0	34.8
LGEM	10.2	15.2	19.1	22.8	25.1	29.6	33.9	38.0
ICON	8.4	12.3	17.4	22.3	25.0	26.4	26.5	29.2
IVCN	8.3	11.6	16.0	19.8	23.0	24.2	25.0	**26.3**
IVDR	8.1	11.6	16.3	20.2	23.0	24.3	25.4	27.5
CTCI	8.6	13.8	21.2	28.5	33.9	37.2	46.7	46.9
GFSI	10.2	16.5	24.7	31.4	34.8	38.9	46.2	52.5
EMXI	10.9	18.2	24.8	31.1	34.7	34.7	35.5	41.2
HCCA	9.0	11.1	15.3	18.3	22.1	24.3	24.1	26.6
FSSE	8.2	10.0	13.6	17.9	20.6	22.9	23.2	26.6
GDMI	7.5	9.9	13.4	14.8	14.6	16.4	20.4	31.4
Forecasts	38	36	34	32	30	28	24	20

Table 7. Watch and warning summary for Hurricane Melissa, 21–31 October 2025.

Date/Time (UTC)	Action	Location
21/ 1500	Tropical Storm Watch issued	Jamaica
21/ 1500	Hurricane Watch issued	Dominican Republic/Haiti Border westward to Port-Au-Prince, Haiti
23/ 1200	Tropical Storm Watch upgraded To Tropical Storm Warning	Jamaica
23/ 1200	Hurricane Watch issued	Jamaica
23/ 1800	Tropical Storm Warning issued	Dominican Republic/Haiti Border westward to Port-Au-Prince, Haiti
25/ 0300	Hurricane Watch upgraded to Hurricane Warning	Jamaica
25/ 2100	Hurricane Watch Issued	Cuban Provinces Granma, Santiago de Cuba, Guantanamo, and Holguin.
26/ 2100	Hurricane Watch upgraded to Hurricane Warning	Cuban Provinces Granma, Santiago de Cuba, Guantanamo, and Holguin.
26/ 2100	Tropical Storm Warning issued	Cuban province of Las Tunas
27/ 0300	Tropical Storm Warning issued	Port-Au-Prince, Haiti northward to Dominican Republic/Haiti Border
27/ 0300	Hurricane Watch discontinued	Haiti
27/ 0900	Hurricane Watch issued	Central and Southeastern Bahamas
27/ 0900	Hurricane Watch issued	Turks & Caicos Islands
27/ 2100	Hurricane Watch upgraded to Hurricane Warning	Central and Southeastern Bahamas
27/ 2100	Tropical Storm Warning issued	Turks & Caicos Islands
28/ 1500	Tropical Storm Warning issued	Cuban Province of Camaguey
28/ 1500	Tropical Storm Warning upgraded to Hurricane Warning	Cuban Province of Las Tunas
28/ 1500	Hurricane Watch discontinued	Turks & Caicos Islands
28/ 2100	Hurricane Watch issued	Bermuda
29/ 0300	Hurricane Warning changed to Tropical Storm Warning	Jamaica
29/ 1200	Tropical Storm Warning discontinued	Jamaica

Date/Time (UTC)	Action	Location
29/ 1500	Hurricane Watch upgraded to Hurricane Warning	Bermuda
29/ 2100	Tropical Storm Warning discontinued	All of Cuba
29/ 2100	Tropical Storm Warning discontinued	All of Haiti
29/ 2100	Hurricane Warning discontinued	All of Cuba
30/ 0900	Tropical Storm Warning discontinued	Turks & Caicos Islands
30/ 0900	Hurricane Warning discontinued	All of Bahamas
31/ 0900	Hurricane Warning discontinued	Bermuda

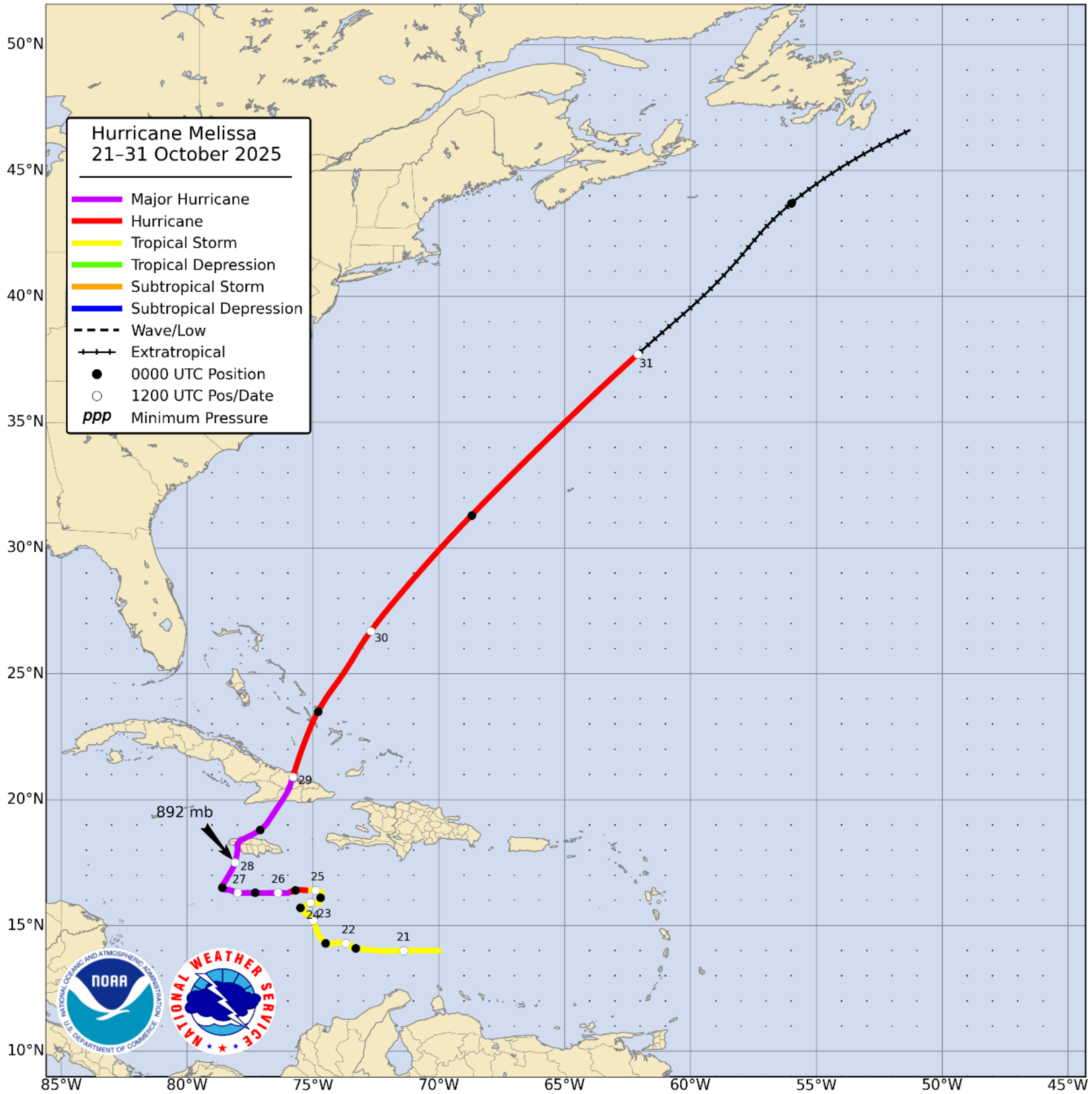


Figure 1a. Best track positions for Hurricane Melissa, 21–31 October 2025. The track during the extratropical stage is partially based on analyses from the NOAA Ocean Prediction Center.

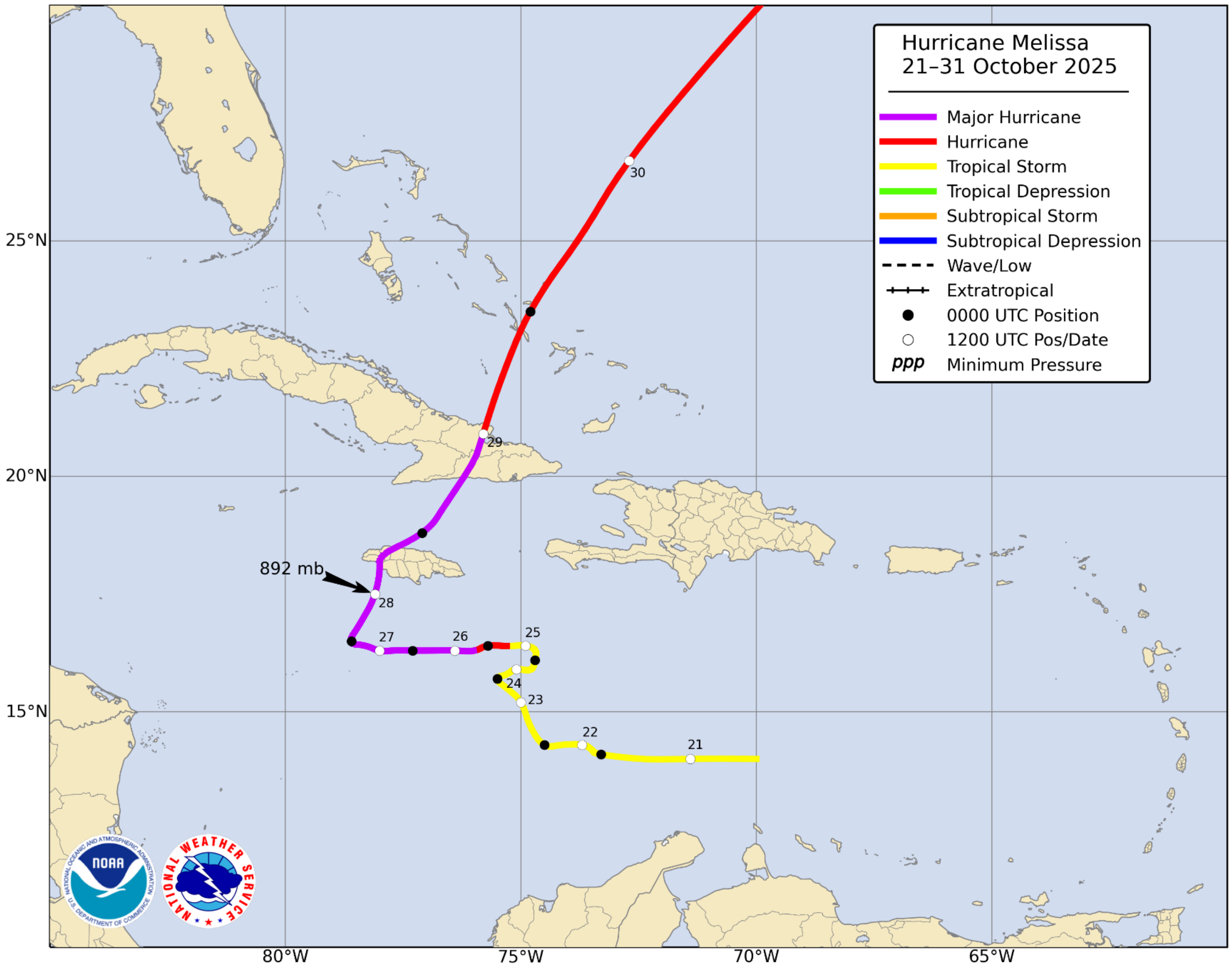


Figure 1b. Best track positions for Hurricane Melissa, 21–31 October 2025. Zoomed in view of the Caribbean.

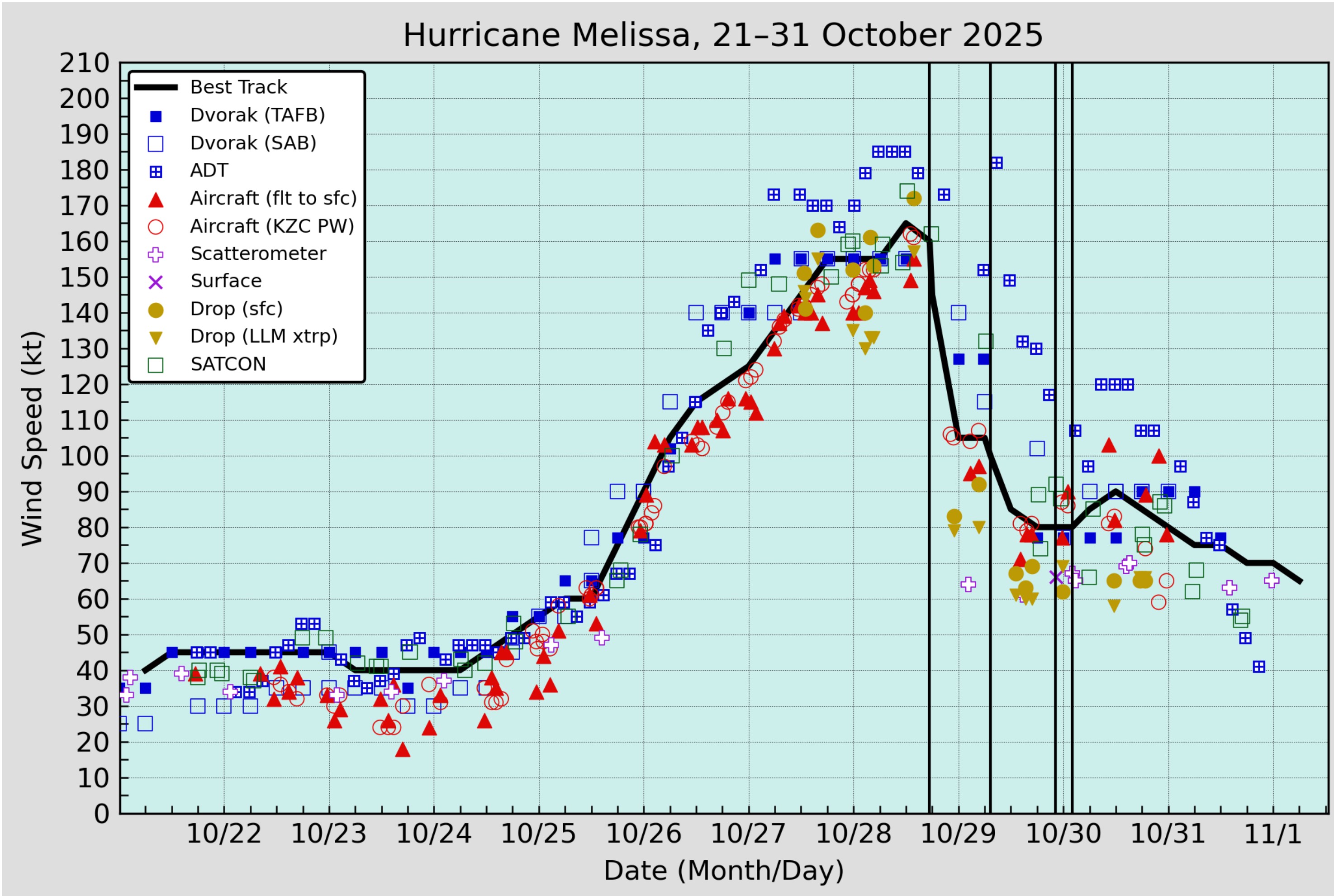


Figure 2. Selected wind observations and best track maximum sustained surface wind speed curve for Hurricane Melissa, 21–31 October 2025. Aircraft observations have been adjusted for elevation using 90%, 80%, and 75% adjustment factors for observations from 700 mb, 850 mb, and 925 mb, respectively. Dropwindsonde observations include actual 10 m winds (sfc), as well as surface estimates derived from the mean wind over the lowest 150 m of the wind sounding (LLM). Advanced Dvorak Technique estimates represent the Current Intensity at the nominal observation time. SATCON intensity estimates are from the Cooperative Institute for Meteorological Satellite Studies. Dashed vertical lines correspond to 0000 UTC, and solid vertical lines correspond to landfalls.

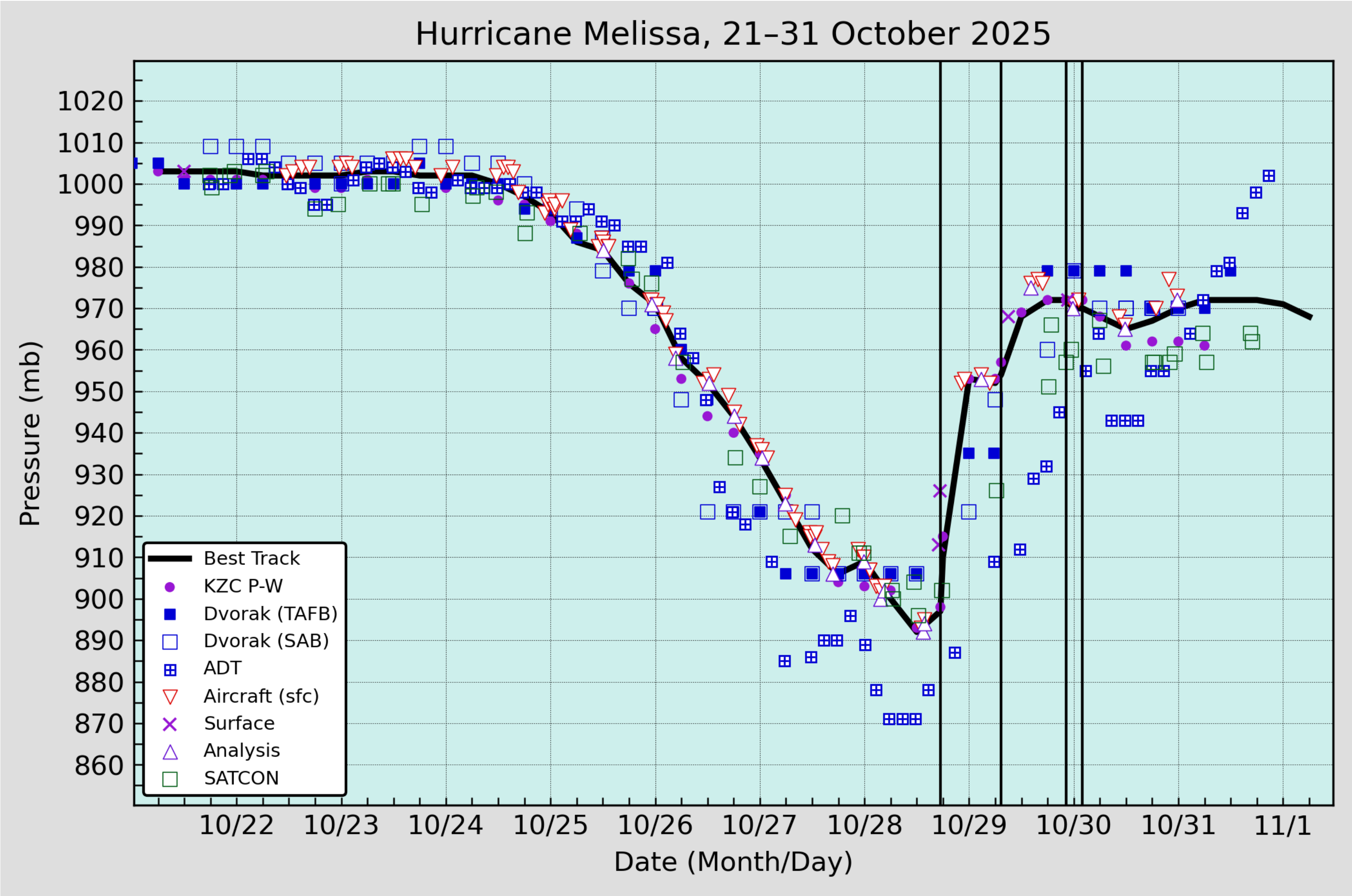


Figure 3. Selected pressure observations and best track minimum central pressure curve for Hurricane Melissa, 21–31 October 2025. Advanced Dvorak Technique estimates represent the Current Intensity at the nominal observation time. SATCON intensity estimates are from the Cooperative Institute for Meteorological Satellite Studies. KZC P-W refers to pressure estimates derived using the Knaff-Zehr-Courtney pressure-wind relationship. Dashed vertical lines correspond to 0000 UTC, and solid vertical lines correspond to landfalls.

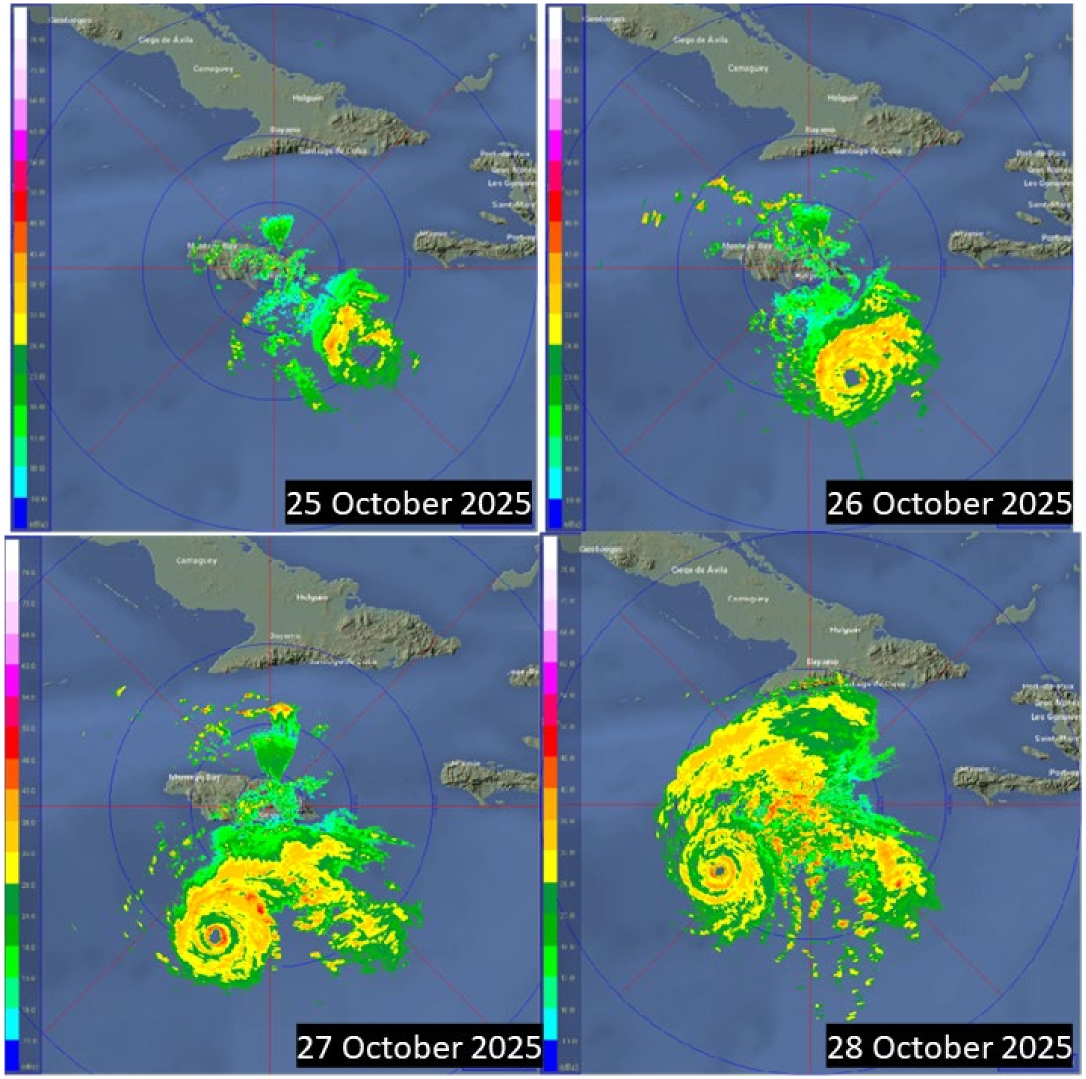


Figure 4. Radar images courtesy of Meteorological Services of Jamaica of Hurricane Melissa showing storm from25-28 October tracking south of the island. In the bottom left, early on 27 October the double eyewall feature was noted but never resulted in an eyewall replacement cycle.

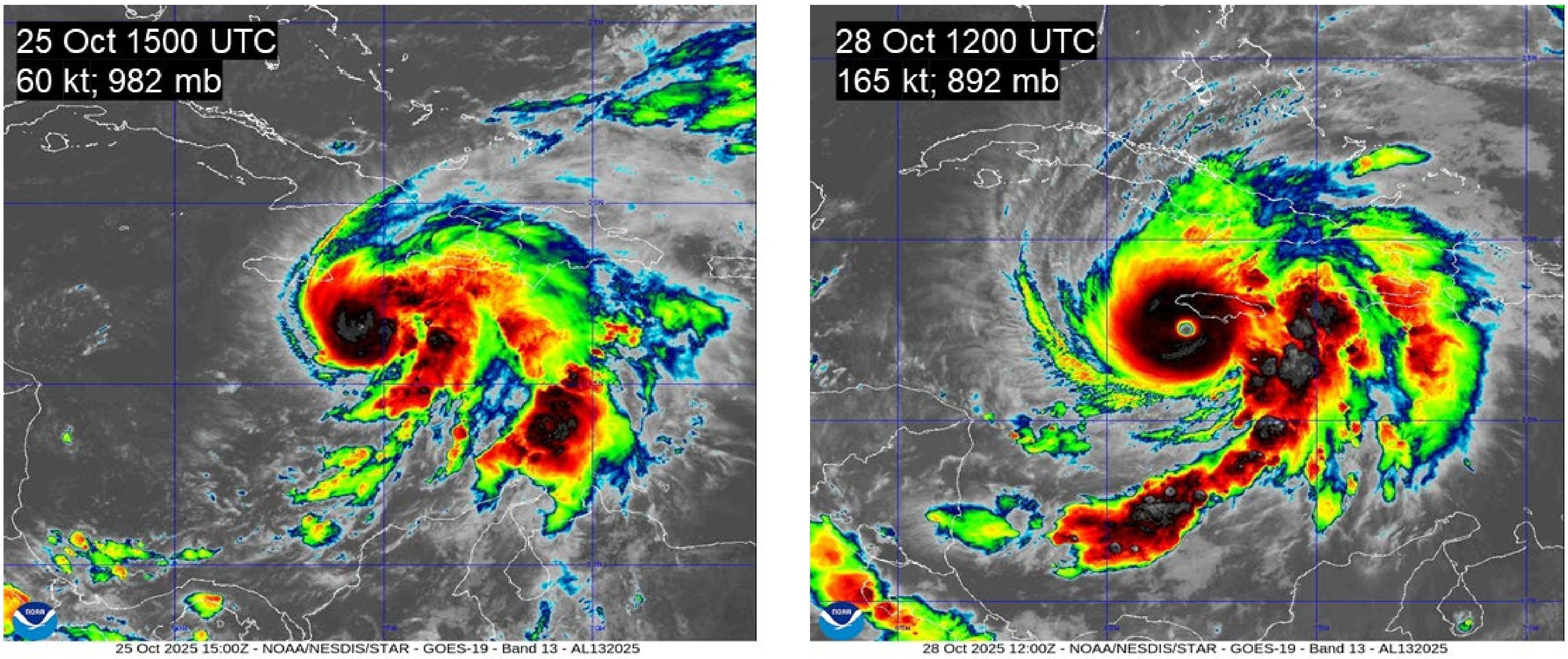


Figure 5. GOES-19 infrared satellite images showing the rapid intensification of Hurricane Melissa from 25 October (left) - 28 October (right). A 105-kt increase in winds and a 90-mb decrease in central pressure was noted in roughly a 3-day timeframe. Images courtesy of NOAA/NESDIS/STAR.

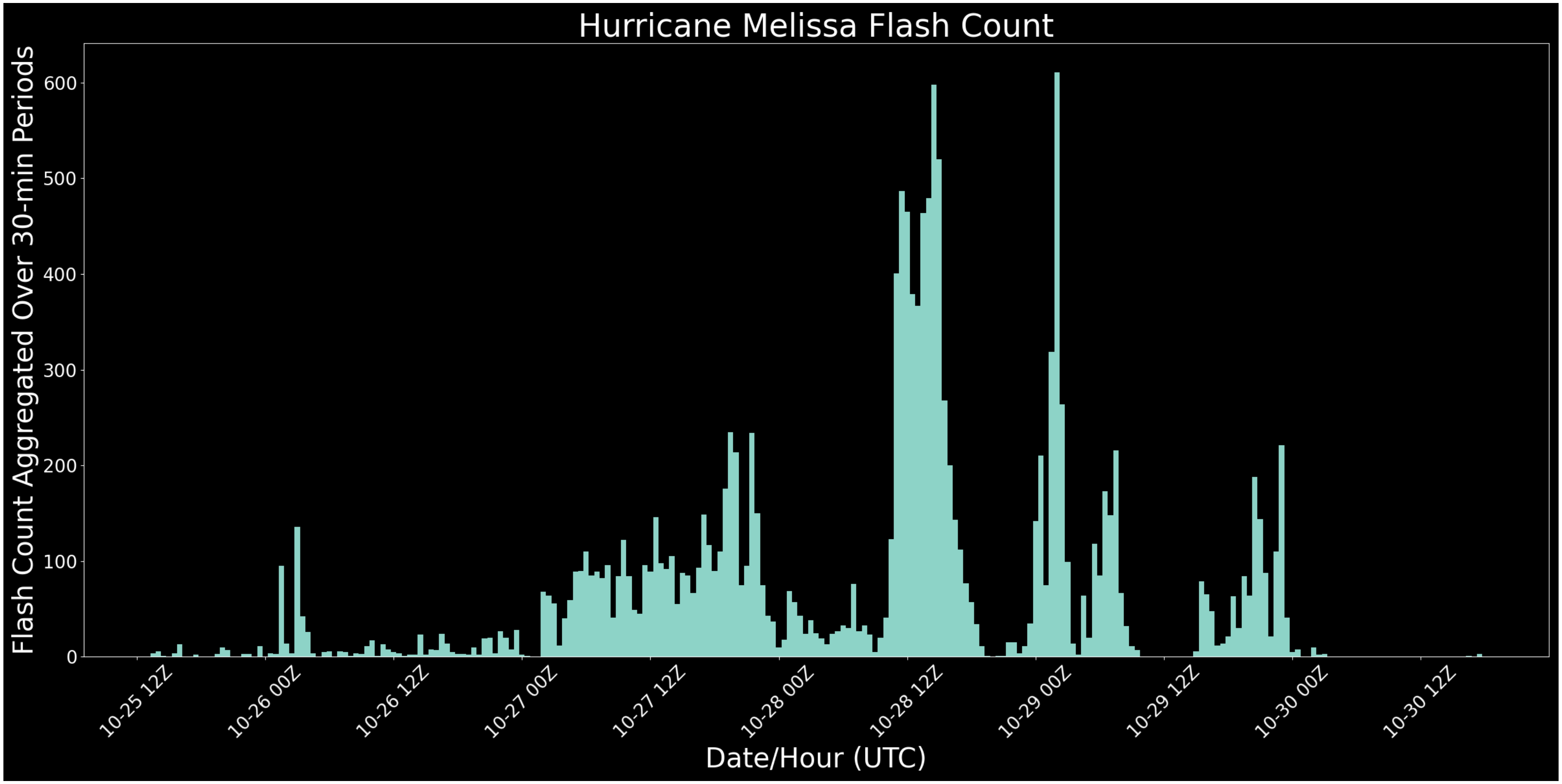


Figure 6. Goes-East Geostationary Lightning Mapper (GLM) flash count aggregated over 30-min periods for Hurricane Melissa, 25–30 October 2025. Image courtesy Dr. Patrick Duran, NASA Marshall Space Flight Center, Short-Term Prediction Research and Transition Center. Note the peak in GLM flash counts centered around 1200 UTC 28 October when Melissa reached its peak intensity. A second peak in flash counts is noted about 0000 UTC 29 October when Melissa approached eastern Cuba.

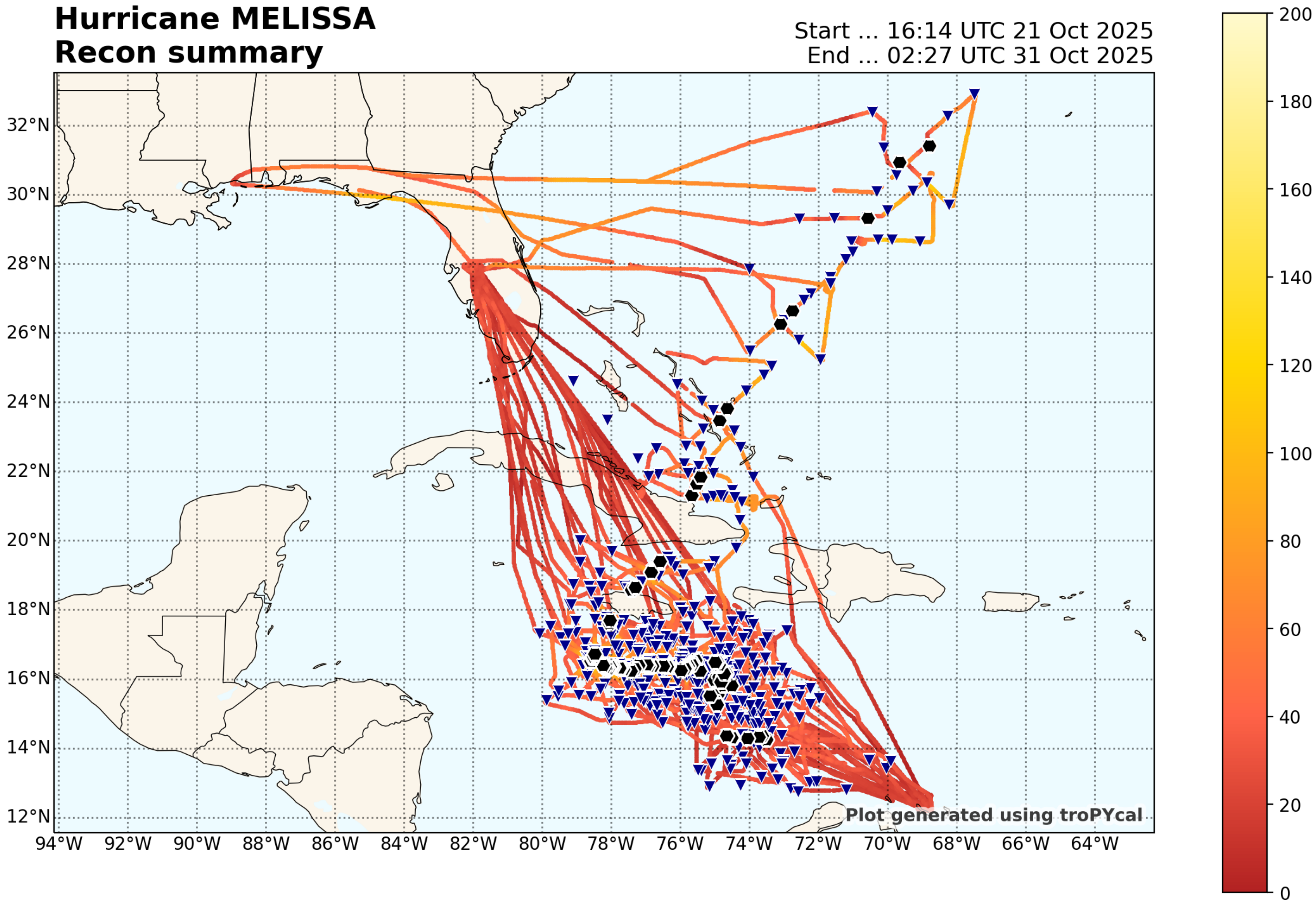


Figure 7a. Air Force Reserve and NOAA Hurricane Hunter aircraft flight tracks (red) from all reconnaissance missions into Melissa. The black markers denote center fixes, and the blue triangles indicate dropsonde locations. The color coding of the flight tracks is based on the observed flight-level wind speed with the color legend to the right of the map representing the color associated with the various wind speeds in knots.

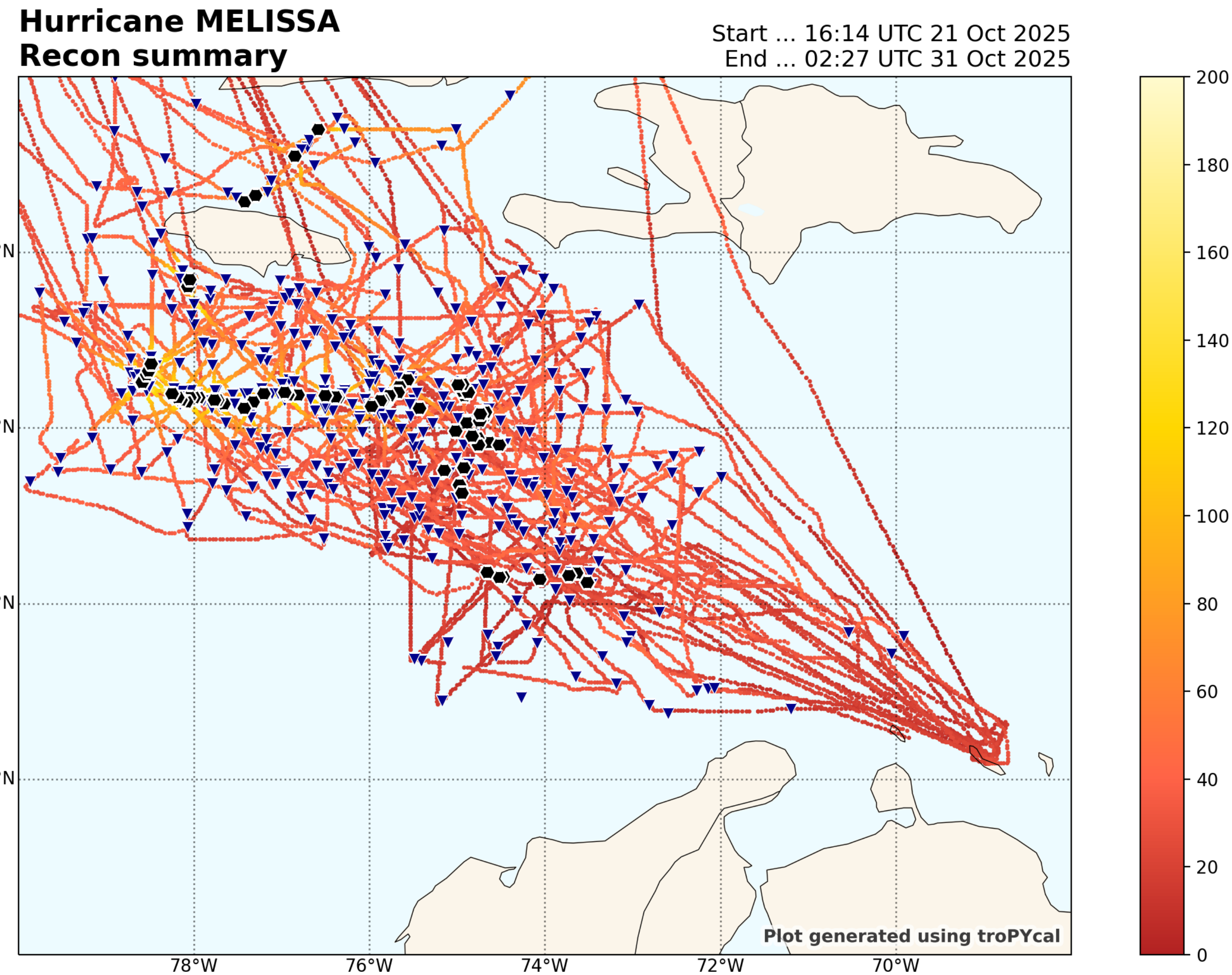
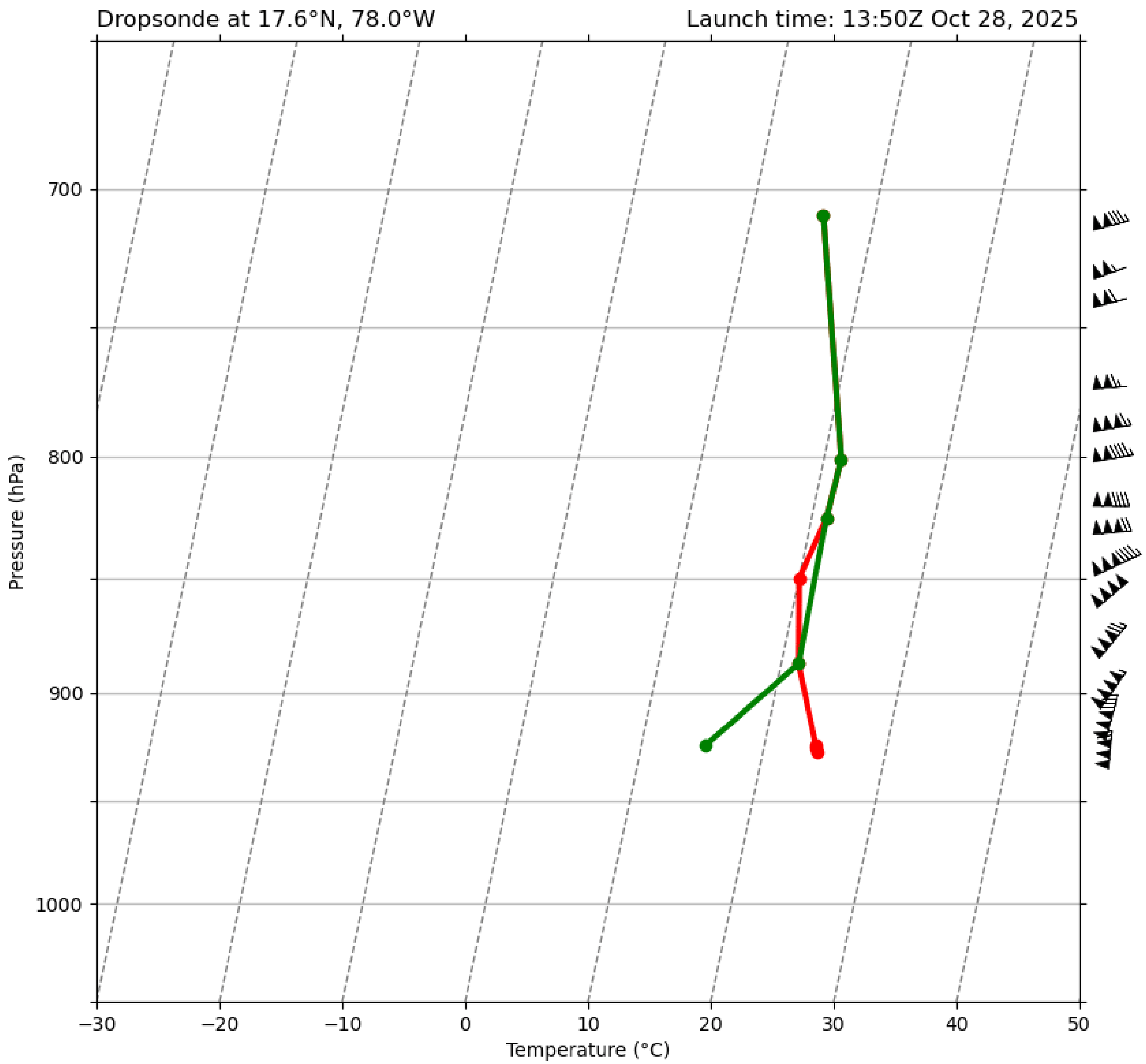


Figure 7b. Air Force Reserve and NOAA Hurricane Hunter aircraft flight tracks (red) from reconnaissance missions into Melissa zoomed in to show more detail of flights in the Caribbean Sea. The black markers denote center fixes, and the blue triangles indicate dropsonde locations. The color coding of the flight tracks is based on the observed flight-level wind speed with the color legend to the right of the map representing the color associated with the various wind speeds in knots.



Level	Height	Temp	RH	Wind
850 mb	755 m	20.0 °C	N/A	WSW at 187 kt
925 mb	20 m	24.2 °C	N/A	S at 174 kt
927 mb	0 m	24.4 °C	N/A	S at 172 kt

Table 1. Mandatory Level Data

Level	Wind
906 mb	SSW at 219 kt
907 mb	SSW at 214 kt
911 mb	SSW at 215 kt
912 mb	SSW at 206 kt
914 mb	SSW at 189 kt
915 mb	SSW at 189 kt
916 mb	SSW at 203 kt
917 mb	S at 189 kt
918 mb	S at 195 kt
919 mb	S at 187 kt
921 mb	S at 185 kt
922 mb	S at 179 kt
924 mb	S at 171 kt
925 mb	S at 174 kt
927 mb (surface)	S at 172 kt

Table 2. Significant Wind Data Below 700 mb

Drop Location in Storm: S Eyewall

Mean Wind in Lowest 500 m: SSW at 192 kt

Mean Wind in Lowest 150 m: SSW at 188 kt

Max Wind in Sounding: N/A

Figure 8. Image of record-breaking dropsonde released by NOAA Hurricane Hunters at 1350 UTC 28 October. Image courtesy Dr. Levi Cowan.

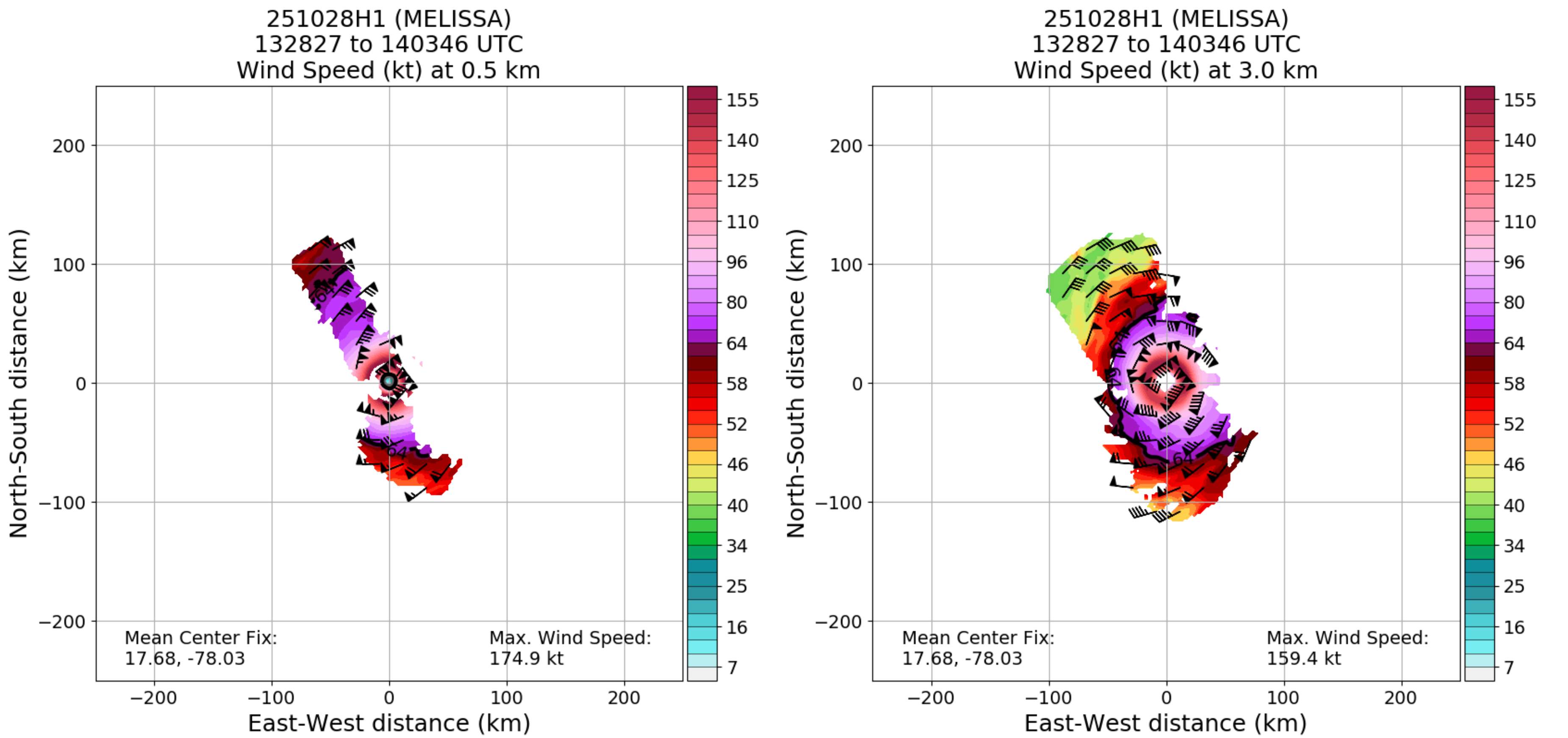


Figure 9a. NOAA Aircraft Tail Doppler Radar (TDR) pass at an elevation of 0.5 km (left) and 3.0 km (right) from 28 October. Note: The maximum wind speed exceeds the scale. Image courtesy NOAA/AOML/HRD.

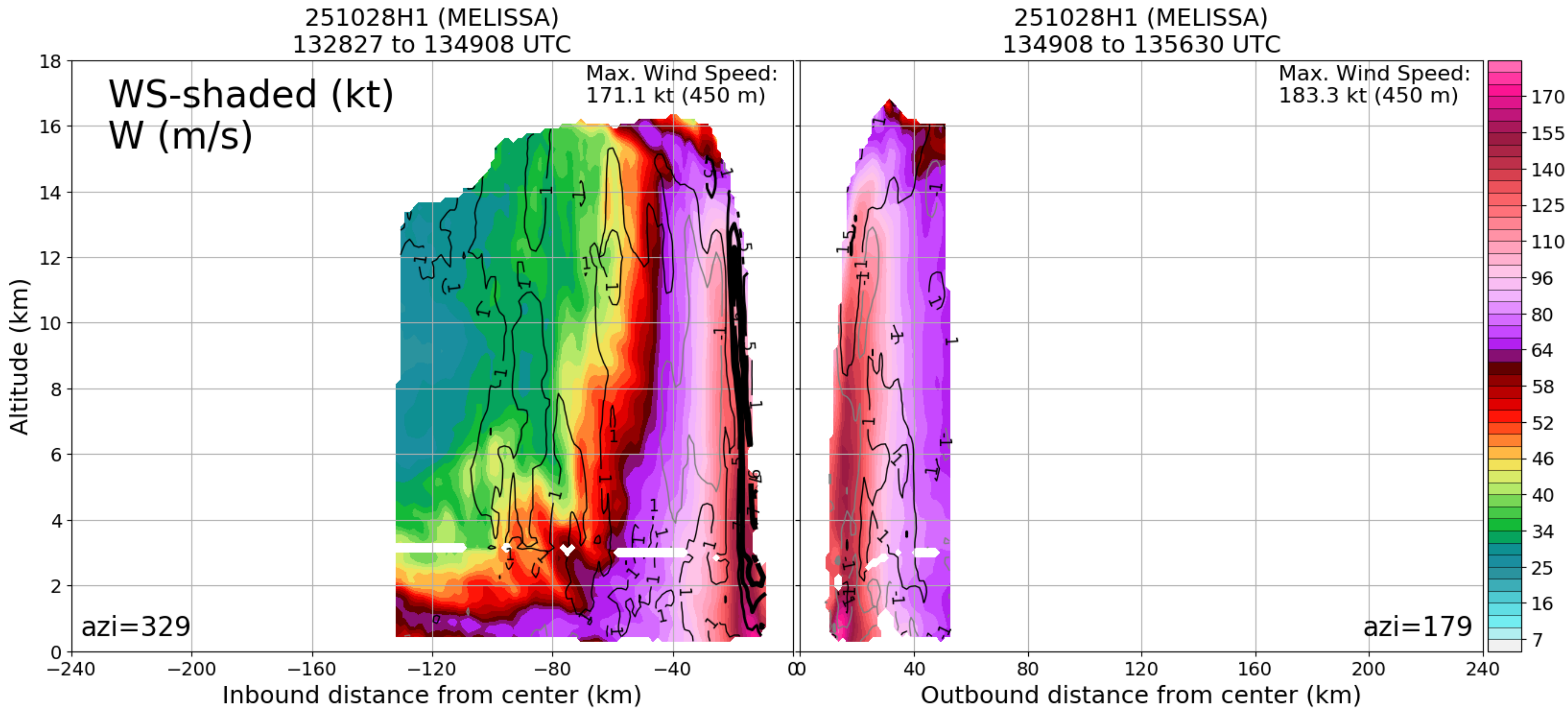
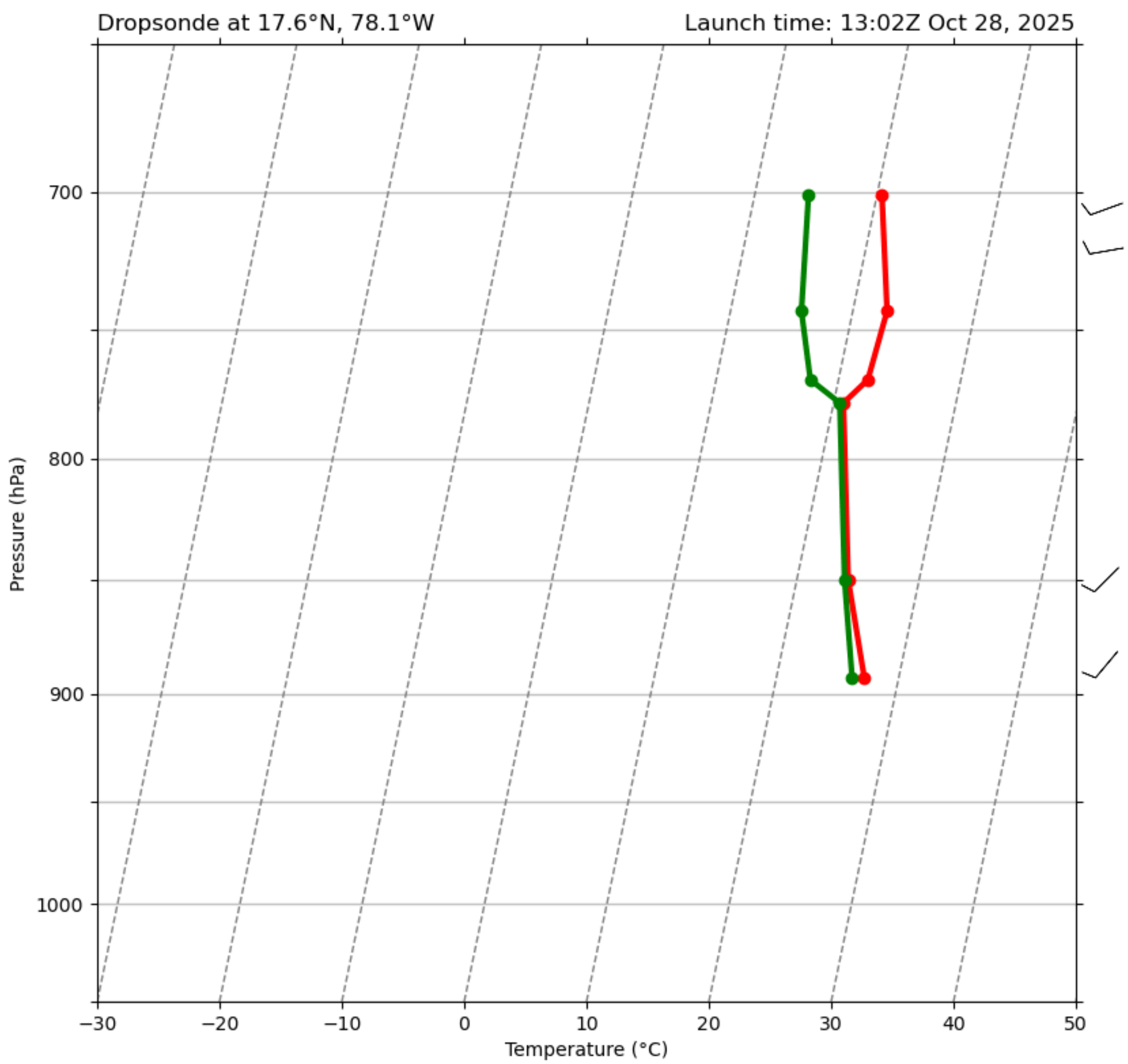


Figure 9b. Profile of the winds from the NOAA P-3 Aircraft Tail Doppler Radar (TDR) on 28 October. Image courtesy Dr. Lisa Bucci (NHC) and Dr. Paul Reasor (NOAA/HRD).



Level	Height	Temp	RH	Wind
700 mb	3137 m	N/A	N/A	N/A
850 mb	1439 m	24.2 °C	98%	SW at 10 kt
893 mb	0 m	27.2 °C	94%	SSW at 13 kt

Table 1. Mandatory Level Data

Level	Wind
706 mb	WSW at 11 kt
721 mb	W at 12 kt
850 mb	SW at 10 kt
859 mb	SSW at 11 kt
887 mb	SW at 12 kt
893 mb (surface)	SSW at 13 kt

Table 2. Significant Wind Data Below 700 mb

Drop Location in Storm: Eye

Mean Wind in Lowest 500 m: SW at 11 kt

Mean Wind in Lowest 150 m: SW at 12 kt

Max Wind in Sounding: N/A

Figure 10. Image of center dropsonde released by Air Force Reserve Hurricane Hunters at 1302 UTC 28 October. Image courtesy Dr. Levi Cowan.

Figure 11. Before and after images of New Hope Primary School Sensor, which recorded a pressure of 913.5 mb at 1700 UTC 28 October. Image courtesy of Meteorological Services of Jamaica.

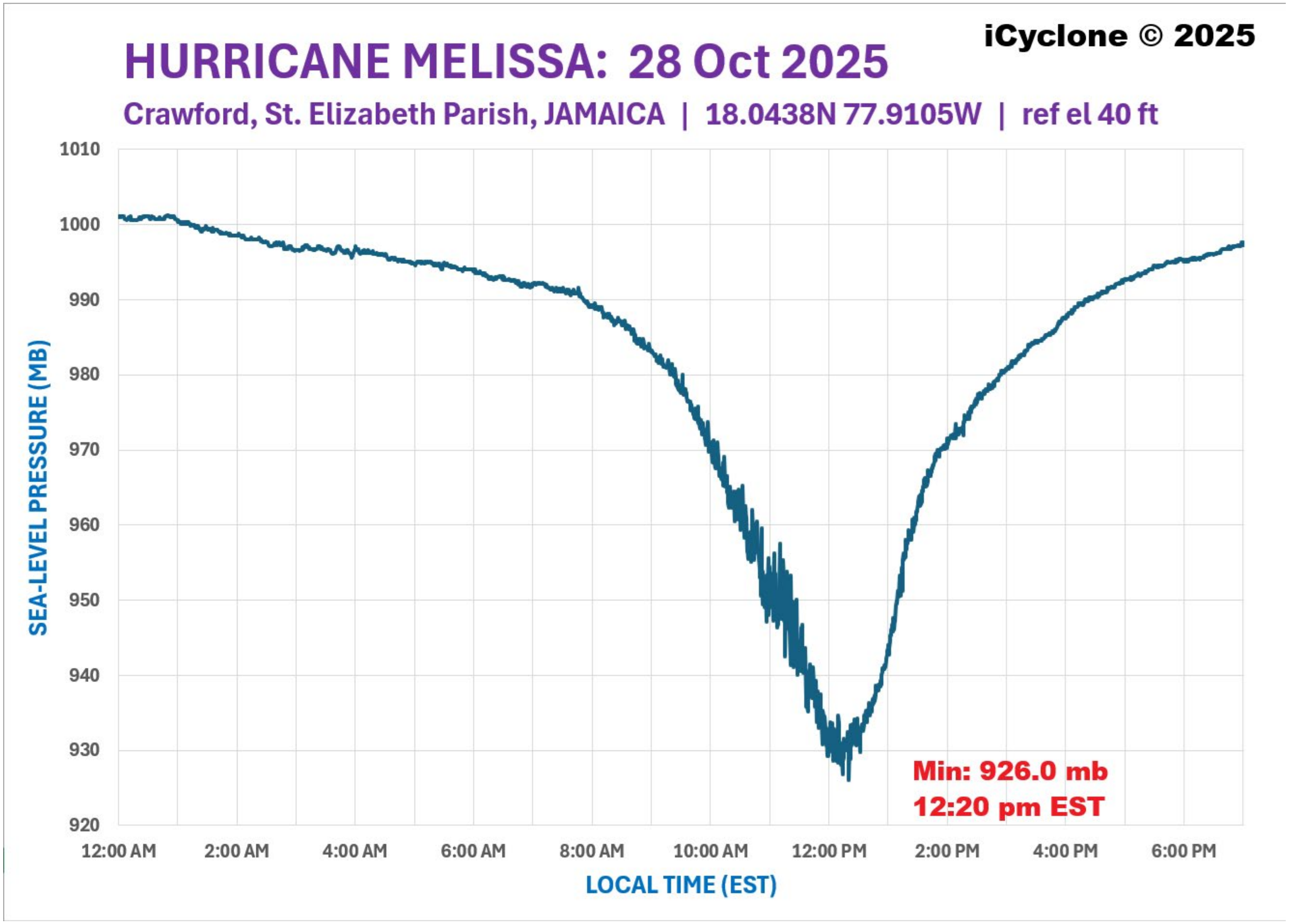


Figure 12. Pressure measurements from Crawford, Jamaica. Data and Image courtesy of Josh Morgerman – iCyclone.

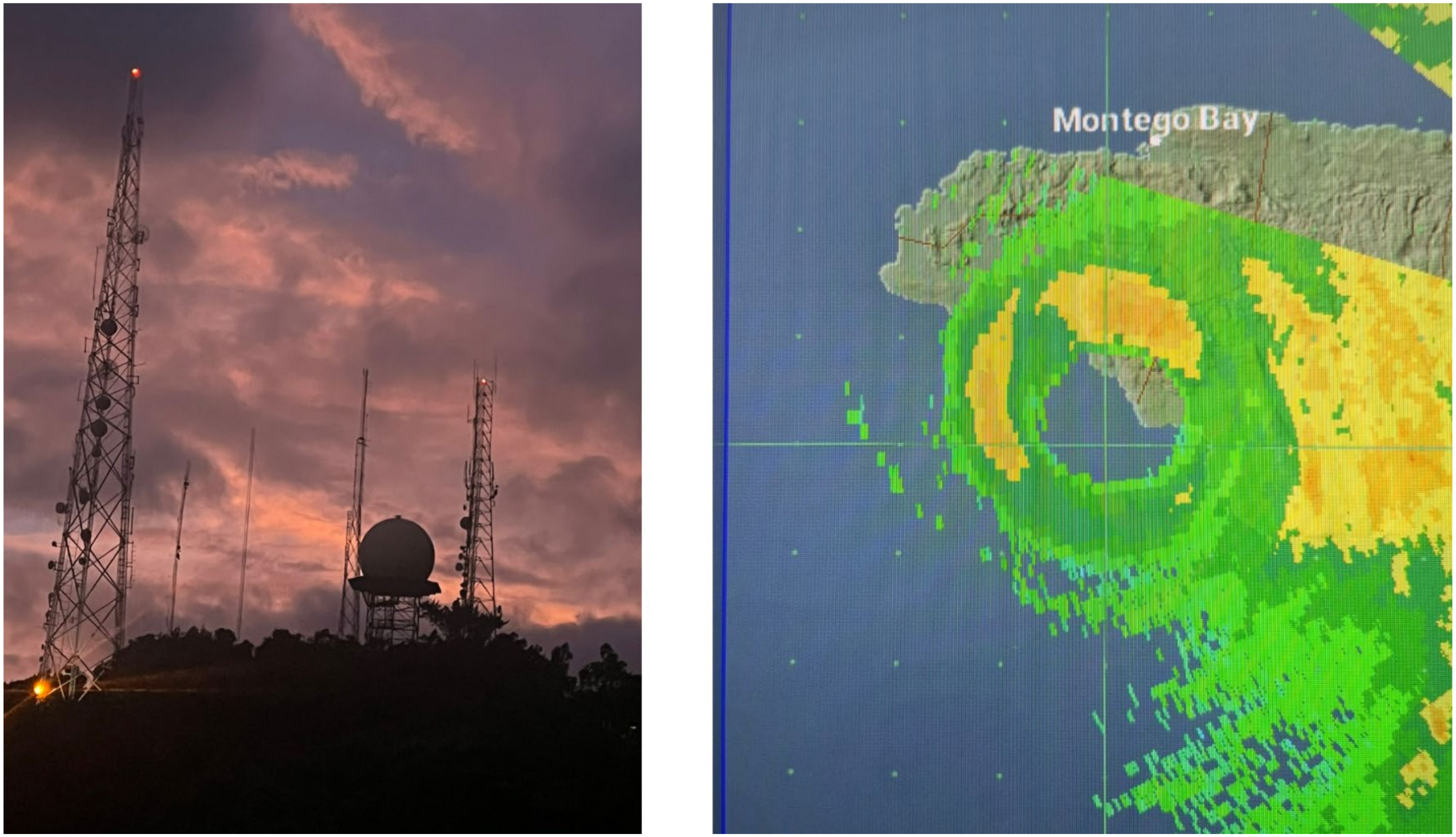


Figure 13. Image of the Jamaica Radar located in Kingston, Jamaica (left). The last radar image (right) of Hurricane Melissa prior to landfall at 1653 UTC 28 October. Images courtesy of Meteorological Services of Jamaica.

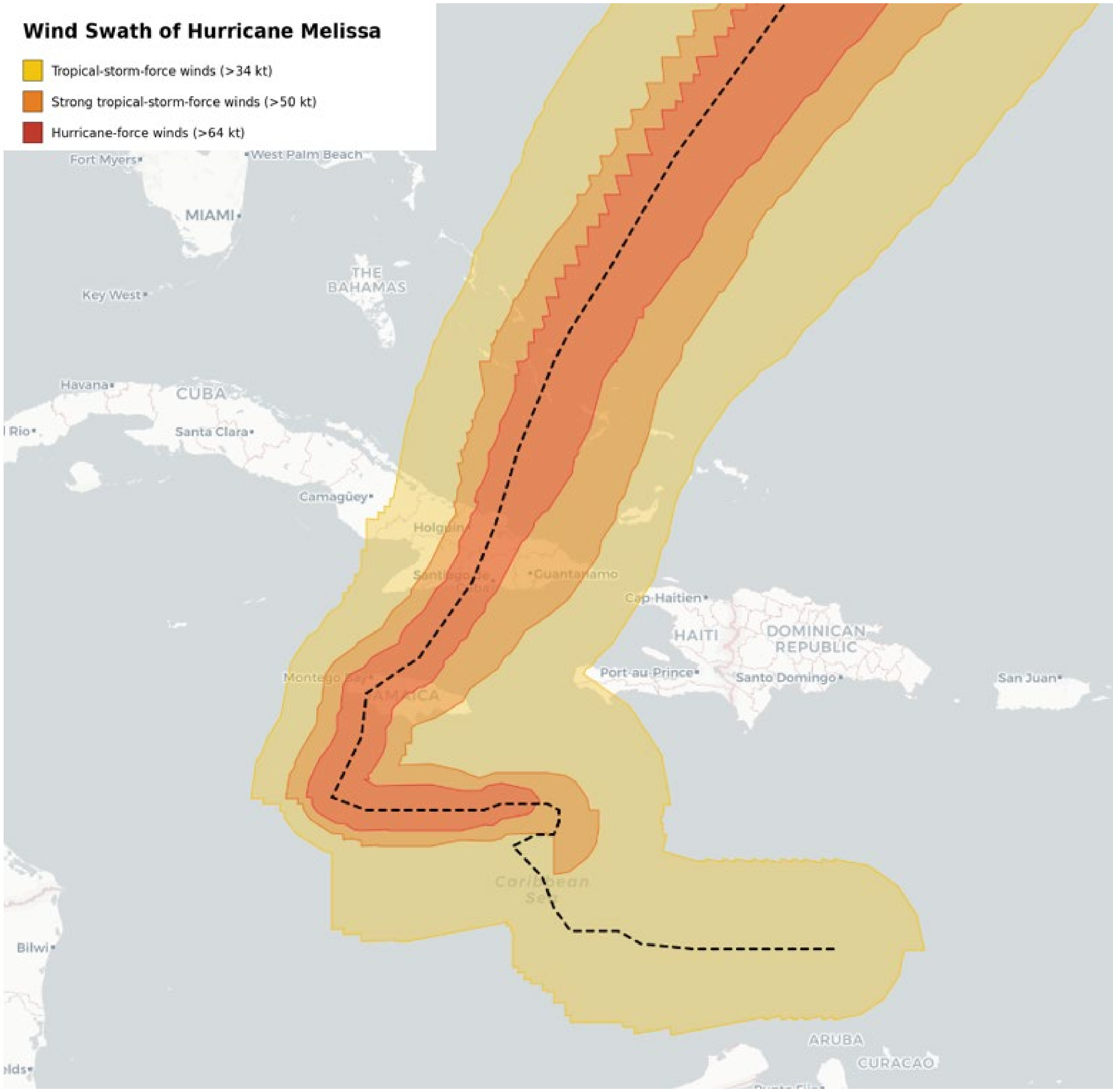
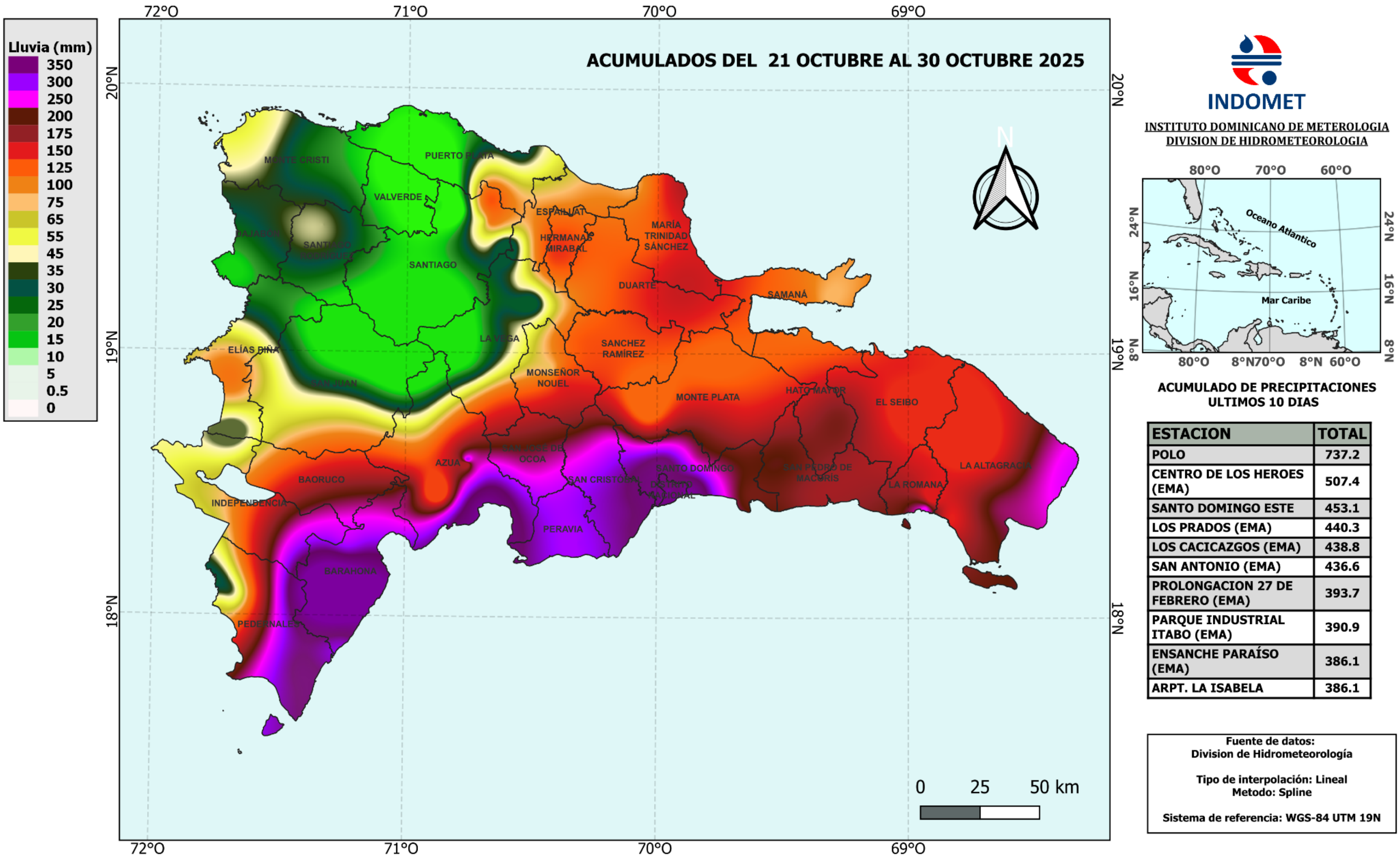


Figure 14. Approximate wind radii swath and best track (dotted-line) for Hurricane Melissa, 21–31 October 2025 in the Caribbean and southwestern Atlantic.

Figure 15. Aerial [overflight] imagery collected by NOAA's National Geodetic Survey following the landfall of Hurricane Melissa and corresponding ground-based damage photographs from the perspective of Galleon Beach and Black River. (a) NOAA imagery of Galleon Beach while (b) shows a ground-based image [credit: Josh Morgerman, iCyclone] from that same location looking east over Crawford Cove. (c) NOAA imagery of Black River while (d) shows an aerial drone image of the same location [credit: Christopher Burgess, CEAC Solutions Company]. The yellow 'X' in the overflight imagery is used as a reference point for the adjacent ground-based photographs. The imagery highlights the storm surge damage resulting from Hurricane Melissa's landfall.

Figure 16. Photos taken from Guama, Cuba about 11 n mi east of Melissa’s official landfall location. Imagery shows major structural damage and debris along the immediate coast from the combination of storm surge and waves. Credit: Instituto de Meteorología de Cuba (INSMET).



ESTACION	TOTAL
POLO	737.2
CENTRO DE LOS HEROES (EMA)	507.4
SANTO DOMINGO ESTE	453.1
LOS PRADOS (EMA)	440.3
LOS CACICAZGOS (EMA)	438.8
SAN ANTONIO (EMA)	436.6
PROLONGACION 27 DE FEBRERO (EMA)	393.7
PARQUE INDUSTRIAL ITABO (EMA)	390.9
ENSANCHE PARAÍSO (EMA)	386.1
ARPT. LA ISABELA	386.1

Figure 17. Dominican Republic rainfall totals from Hurricane Melissa from 21–30 October 2025. Image provided by Instituto Domincano de Meterologia Division de Hidrometeorologia (INDOMET).

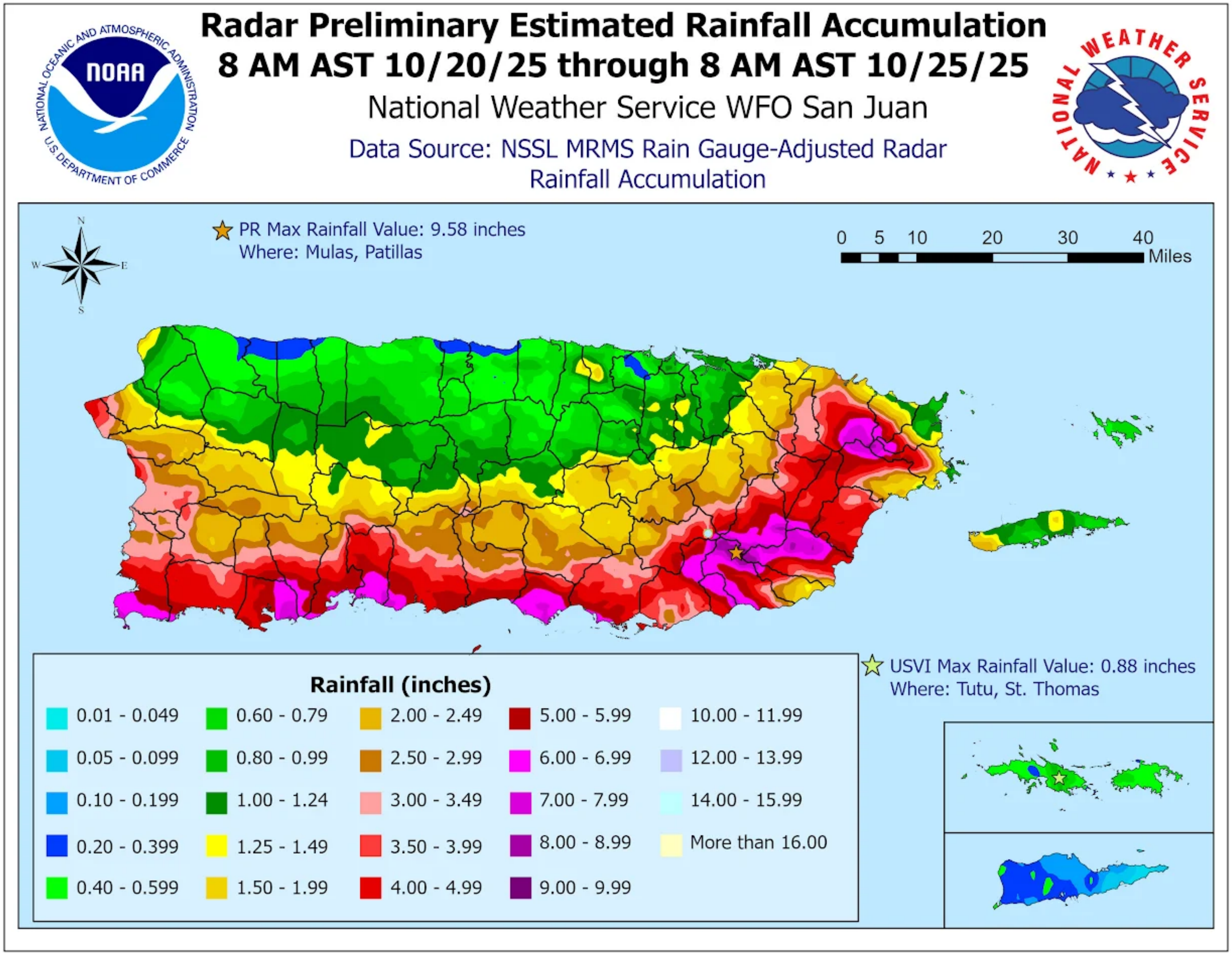


Figure 18. Radar estimated rainfall accumulations for Puerto Rico and USVI from 20–25 October. Data courtesy of NSSL.

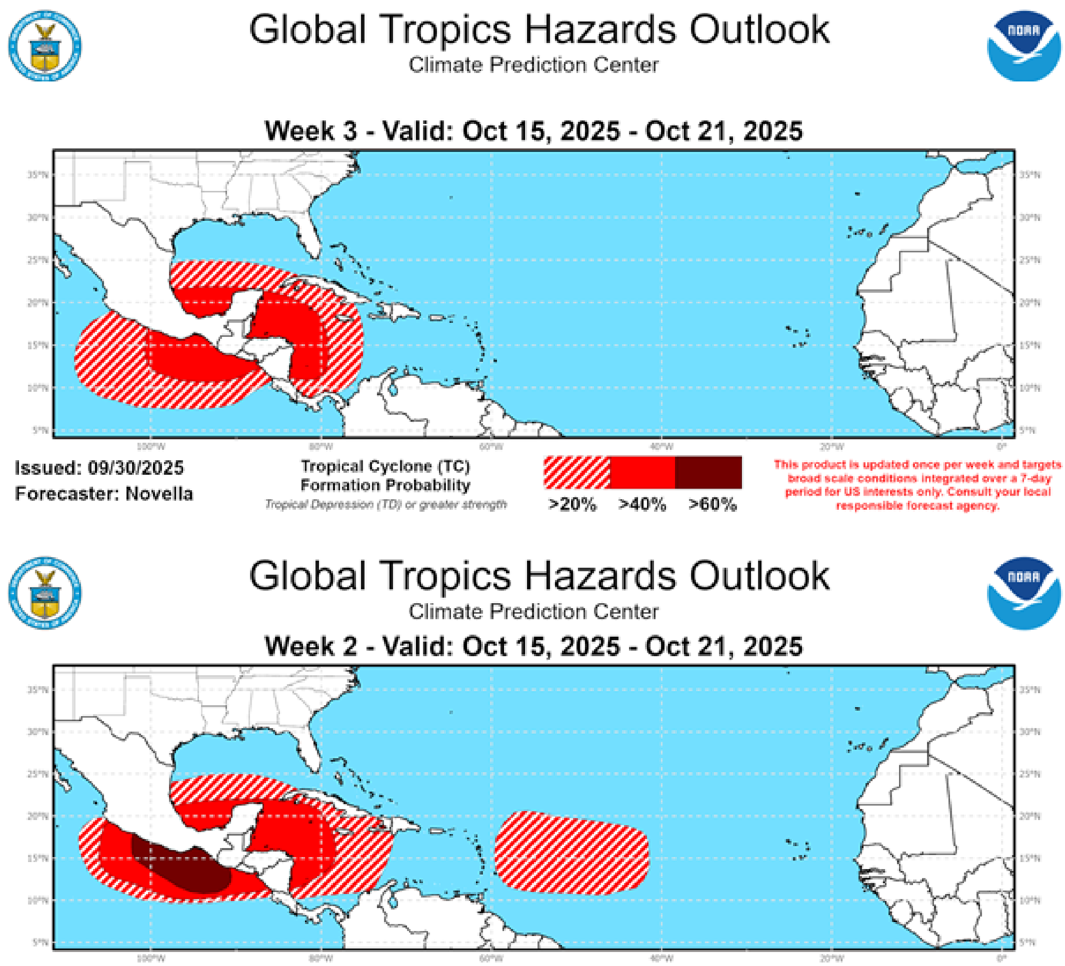


Figure 19. The NOAA Global Tropics Hazards Outlook for regions where tropical cyclogenesis was favored for the area where Melissa formed on 21 October is shown in the Week-3 (top) issued on 30 September and Week-2 (bottom) issued on 7 October. Favored areas for tropical cyclone development are shown in red. Images provided by the NOAA Climate Prediction Center.

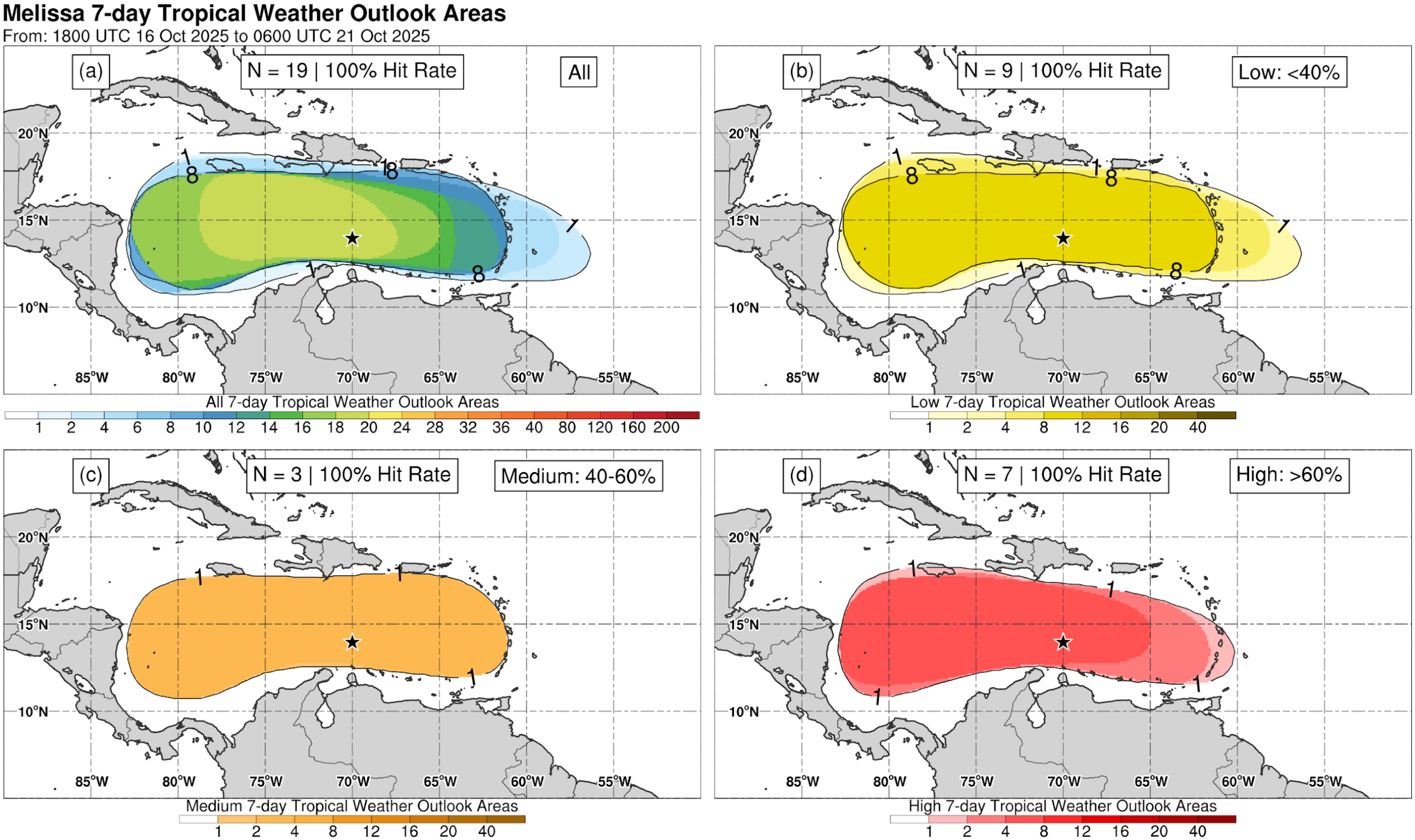


Figure 20. Composites of 7-day tropical cyclone genesis areas depicted in NHC's Tropical Weather Outlooks prior to the formation of Hurricane Melissa for (a) all probabilistic genesis categories, (b) the low (<40%) category, (c) medium (40–60%) category, and (d) high (>60%) category. The location of genesis is indicated by the black star.

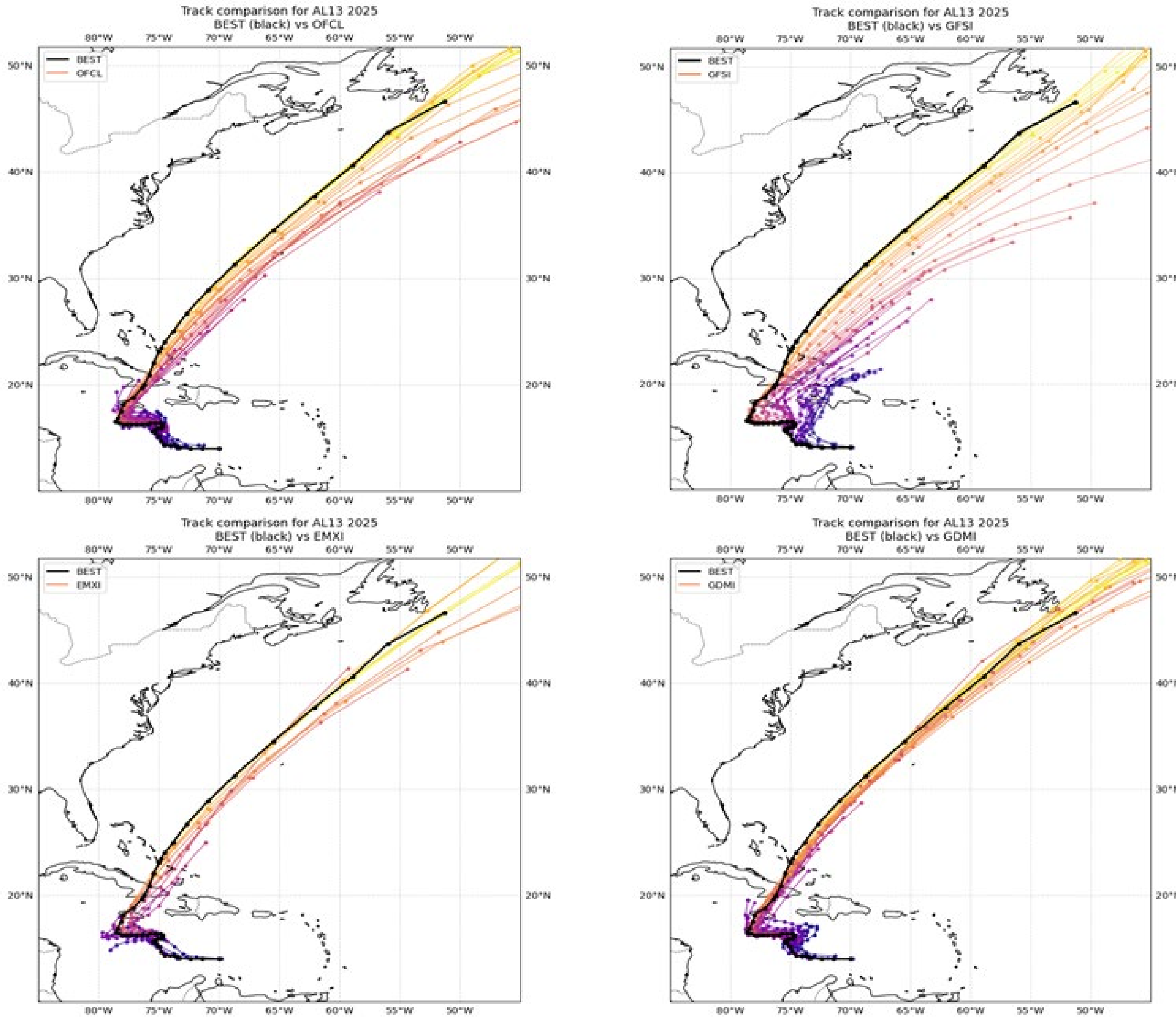


Figure 21a. Full track comparison for selected models OFCL(top left), GFSI (top right), EMXI (bottom left) GDMI (bottom right) vs best track for Hurricane Melissa, 21–31 October 2025. The best track is given by the thick black solid line with positions given at 6 h interval.

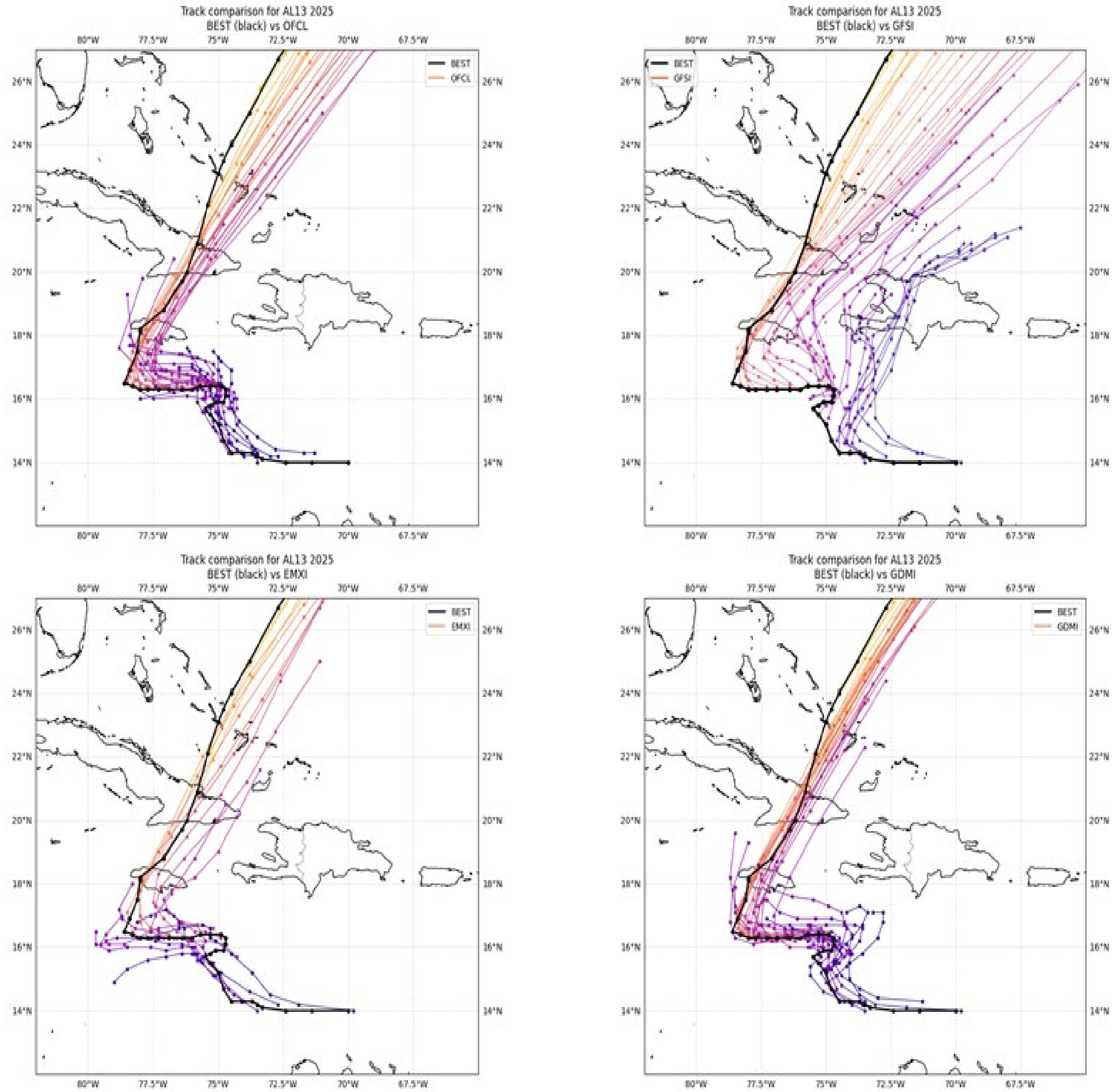


Figure 21b. Track comparison zoomed into the Caribbean for selected models OFCL (top left), GFSI (top right), EMXI (bottom left) GDMI (bottom right) vs. best track for Hurricane Melissa, 21–31 October 2025. The best track is given by the thick black solid line with positions given at 6 h interval.

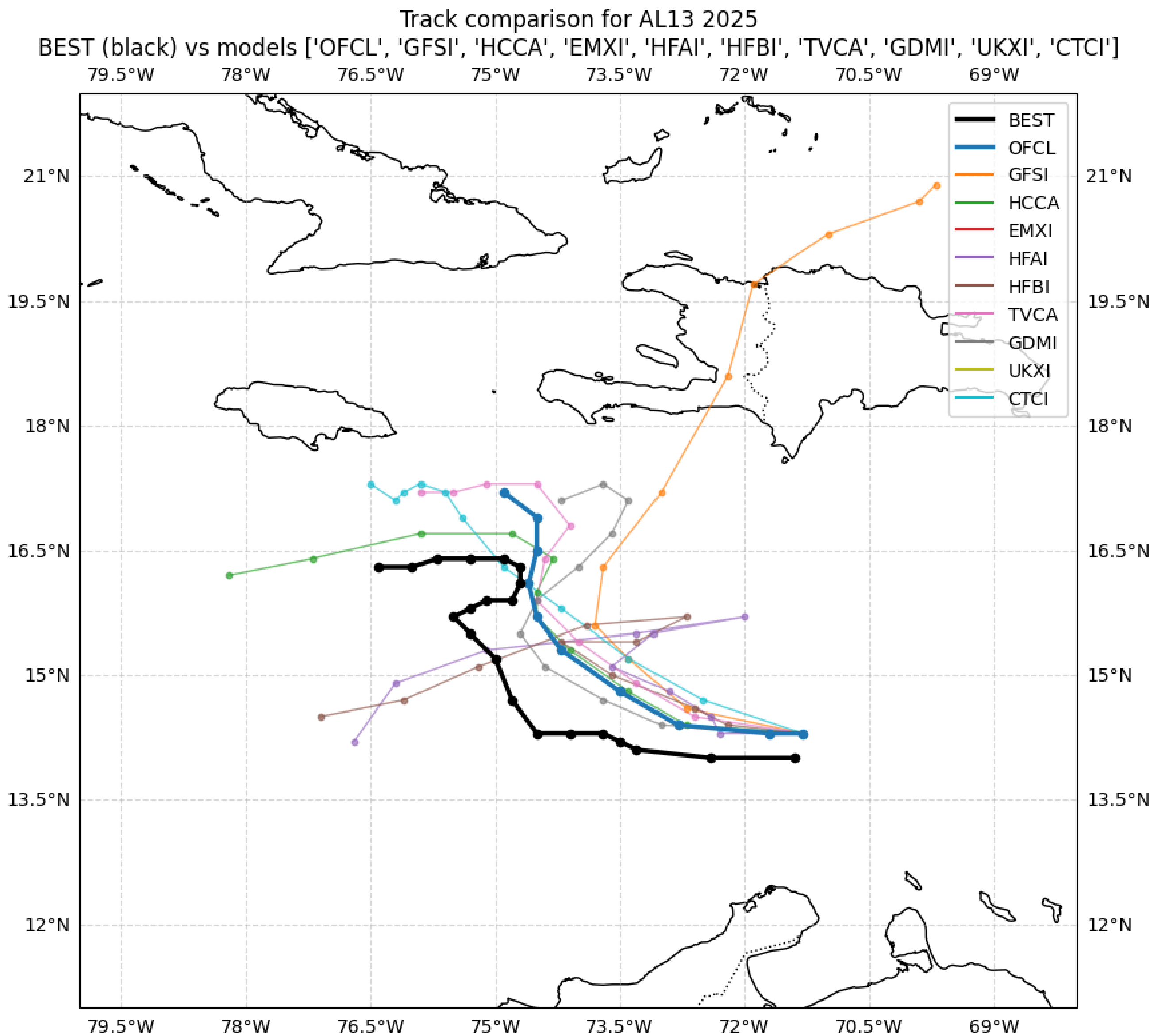
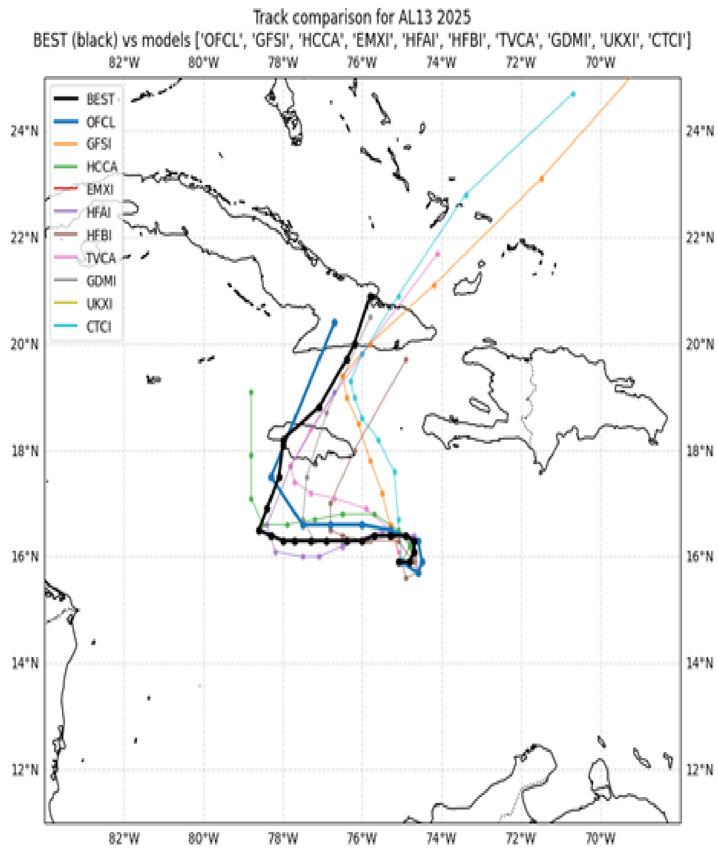


Figure 22. Track guidance at 1200 UTC 21 October for the first NHC official forecast (navy blue bold line) for Melissa. The best track through 1200 UTC 26 October in shown by the black bold line.



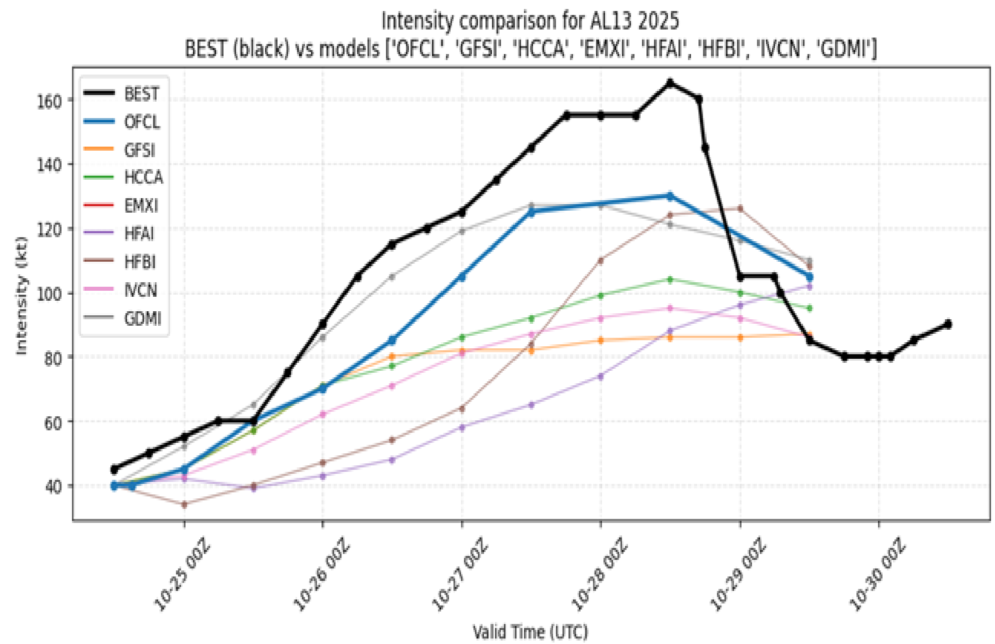


Figure 23. Track (left) and Intensity (right) guidance at 1200 UTC 24 October, about 4 days prior to landfall in Jamaica. The NHC forecast is the navy-blue bold line and the best track (left) and Melissa's intensity (right) through 1200 UTC 29 October is shown by the black bold line.

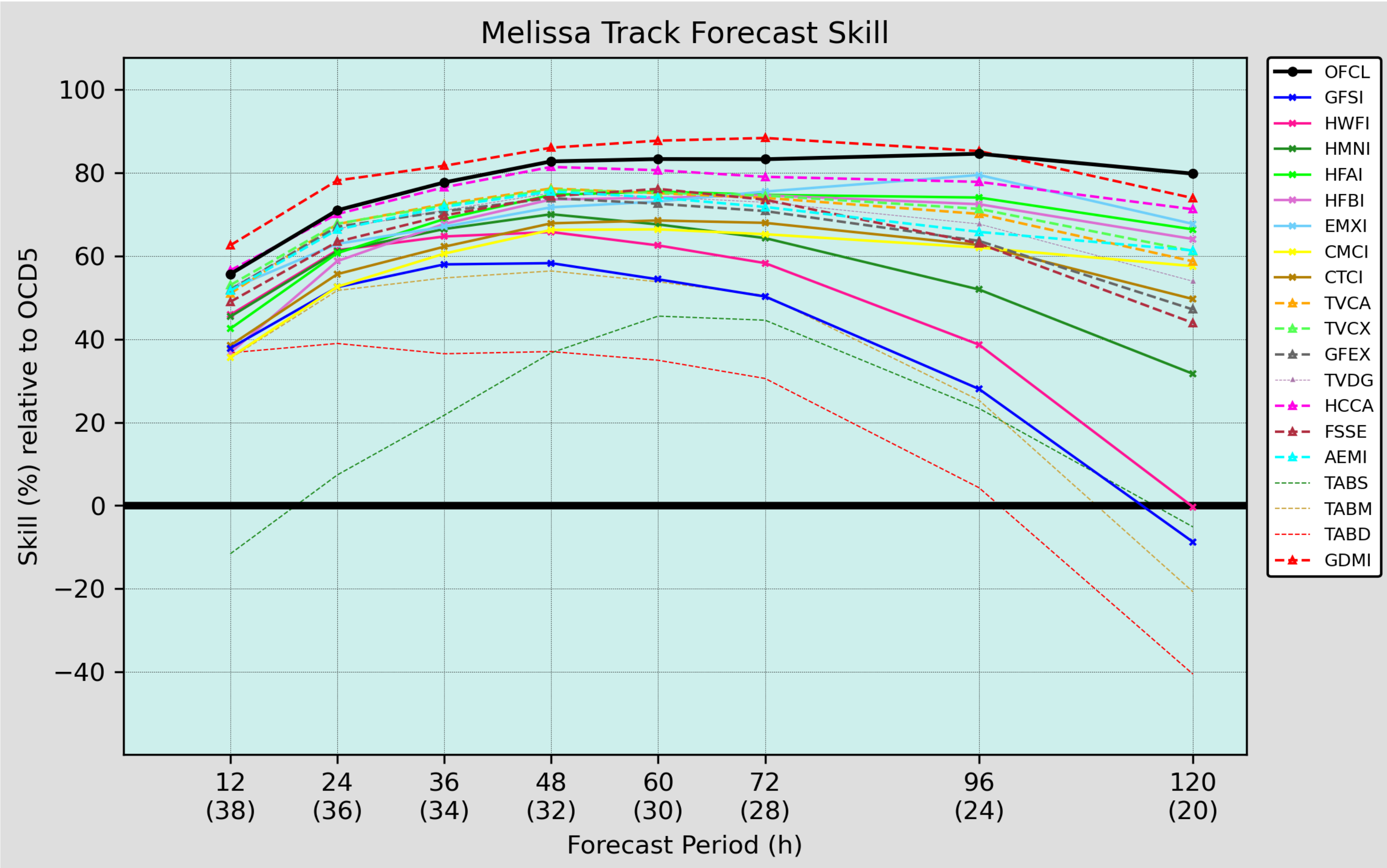


Figure 24. Official forecast and selected model forecast track skill relative to OCD5 for Hurricane Melissa, 21–31 October 2025.

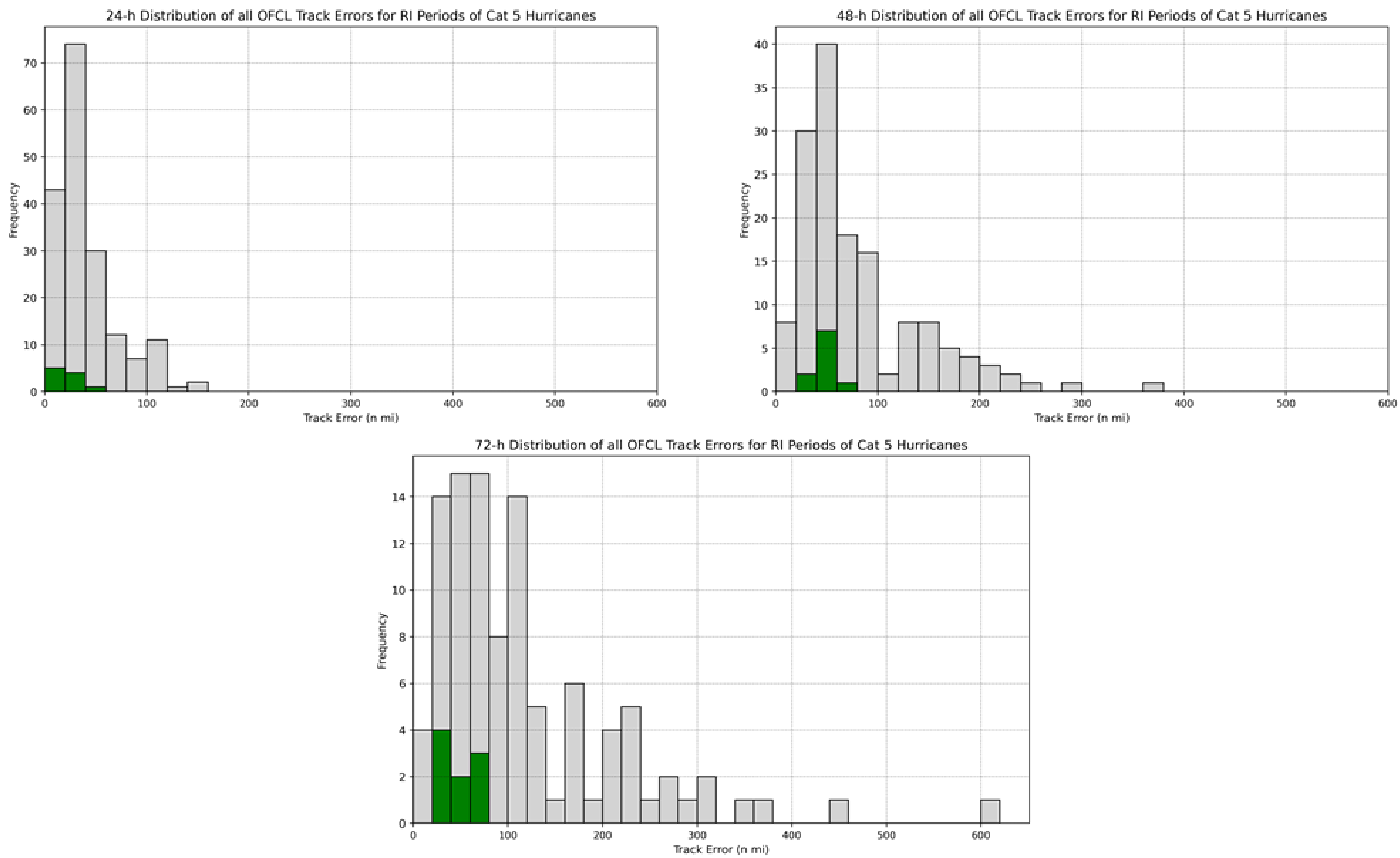


Figure 25. Official NHC forecast track for rapid intensification periods, 24h (top left), 48h (top right), 72h (bottom) of Category 5 Hurricanes (1970-2025). Hurricane Melissa forecasts are plotted in green.

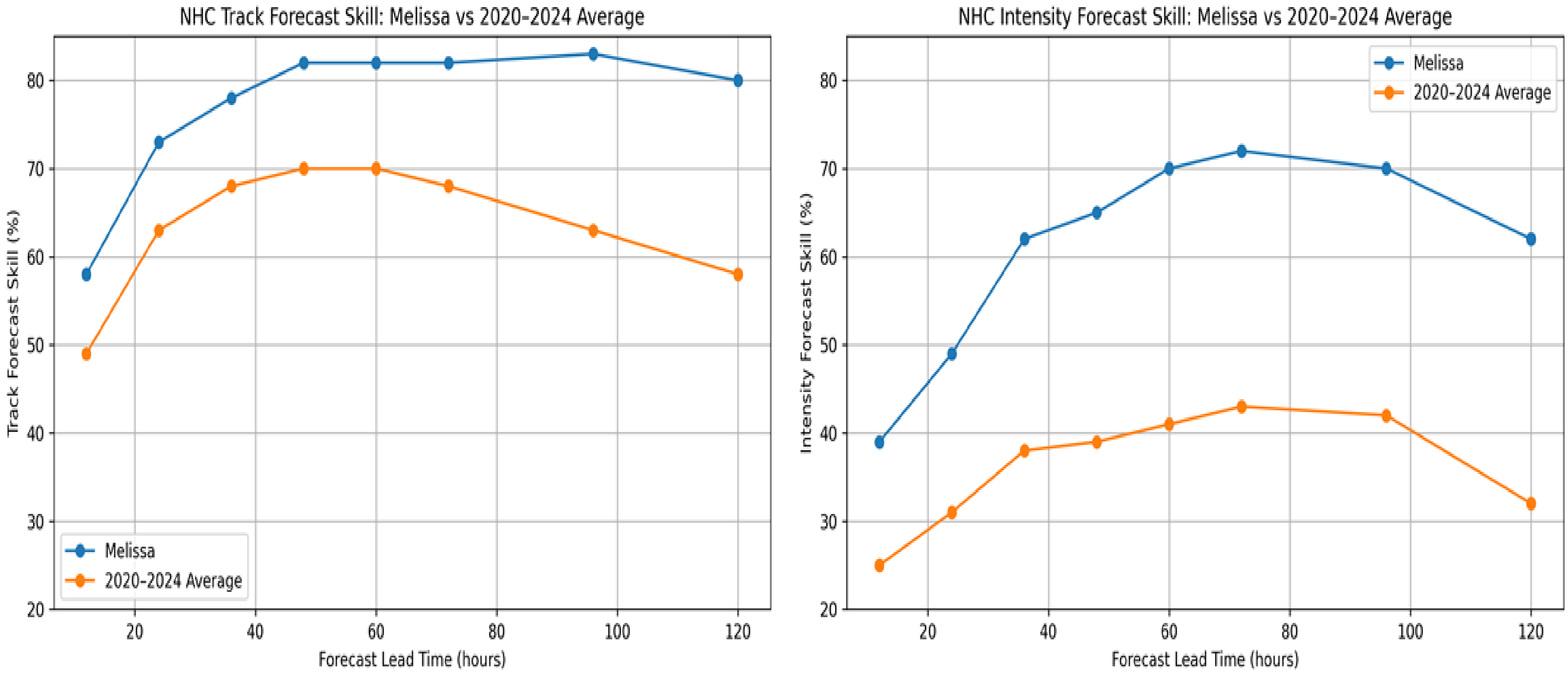


Figure 26. Official NHC forecast track skill (left) and intensity skill (right) vs 5-yr Atlantic basin average (2020-24) for Hurricane Melissa, 21–31 October 2025.

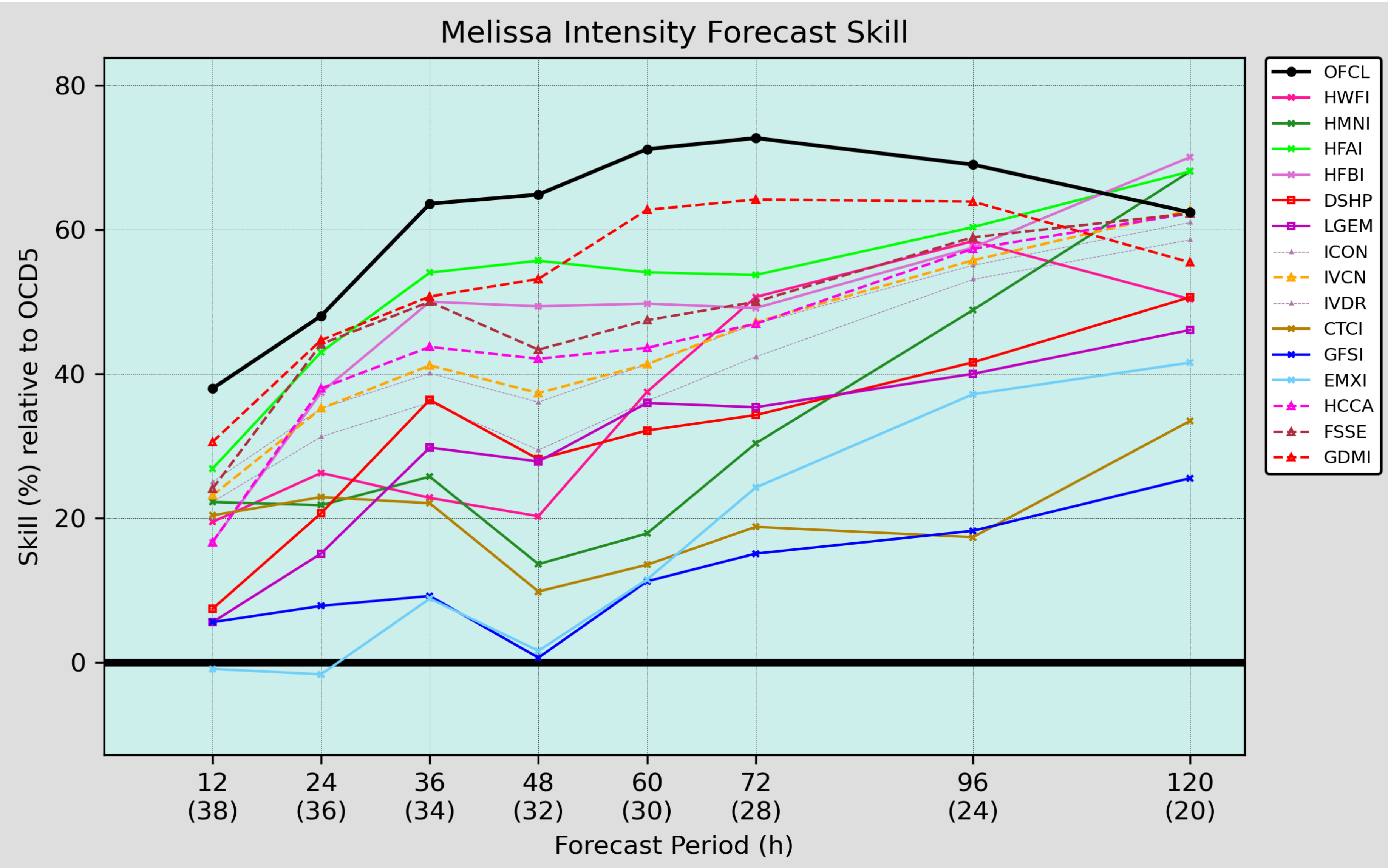


Figure 27. Official forecast and selected model forecast intensity skill relative to OCD5 for Hurricane Melissa, 21–31 October 2025.

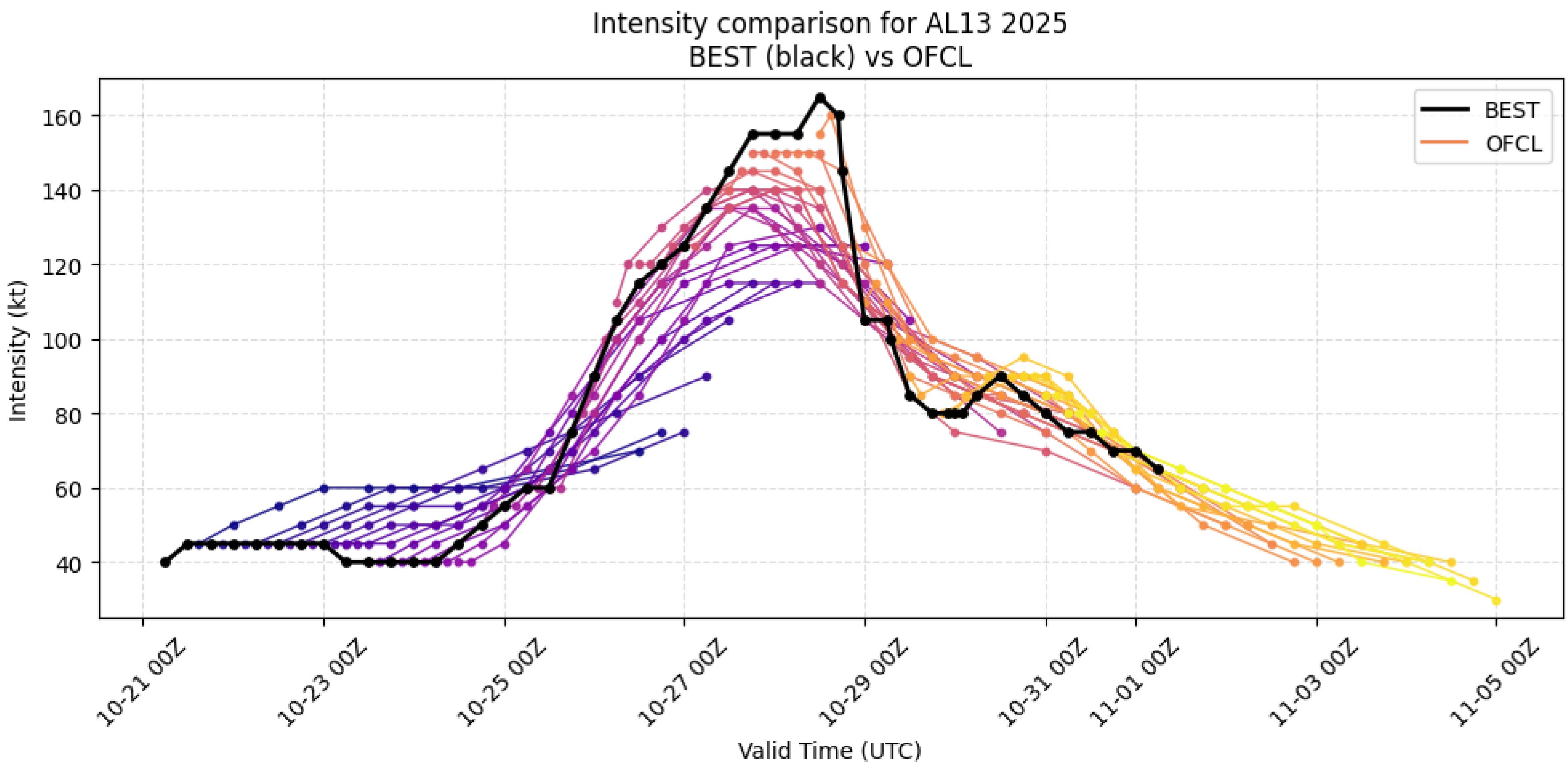


Figure 28a. Official NHC intensity forecasts (OFCL) vs best track intensity for Hurricane Melissa, 21–31 October 2025.

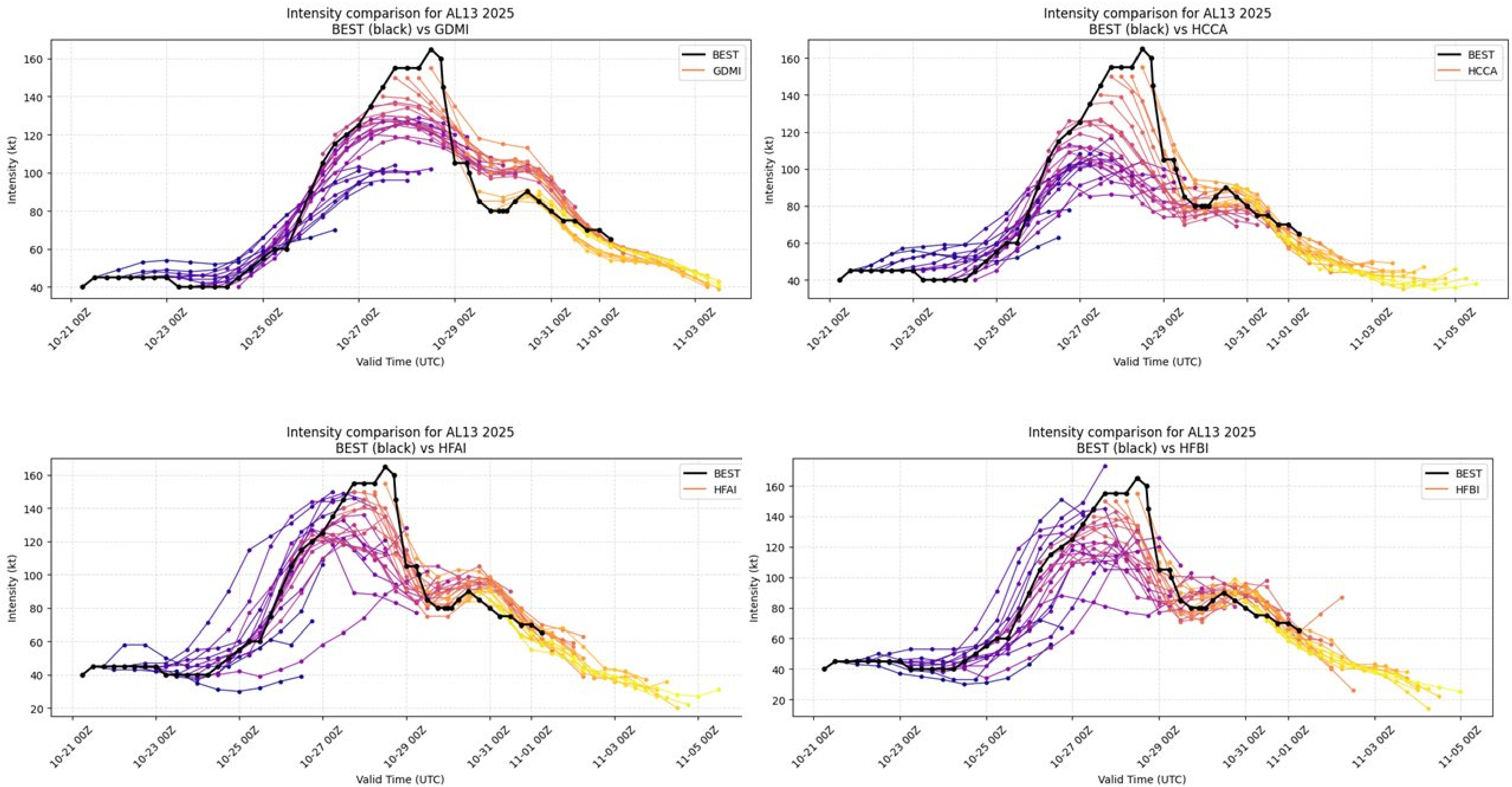


Figure 28b. Model intensity forecast GDMI (top left), HCCA (top right), HFAI (bottom left), HFBI (bottom right) vs. best track for Hurricane Melissa, 21–31 October 2025.

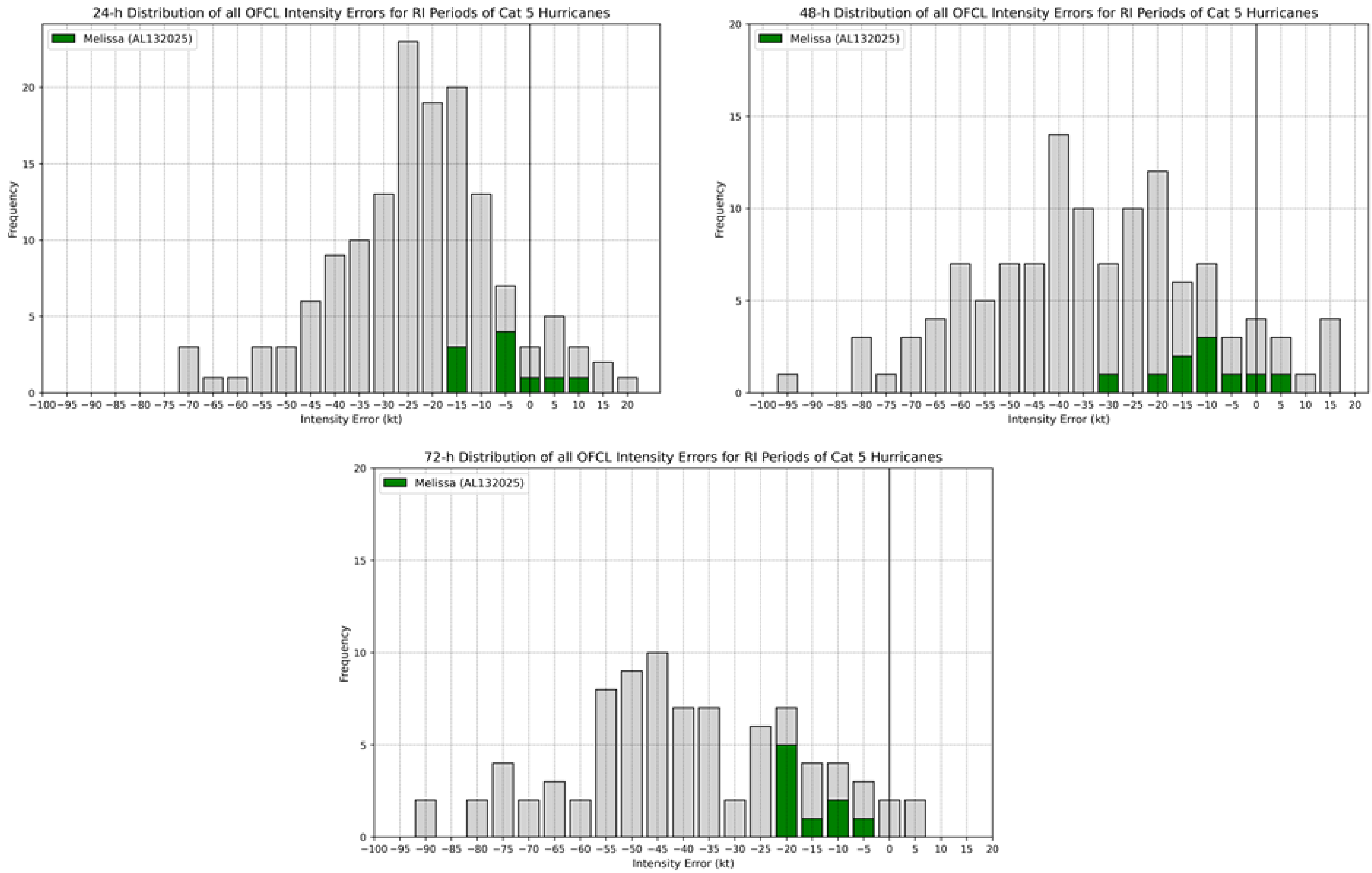


Figure 29. Official NHC forecast intensity for rapid intensification periods, 24h (top left), 48h (top right), 72h (bottom) of Category 5 Hurricanes (1990-2025). Hurricane Melissa forecasts are plotted in green.

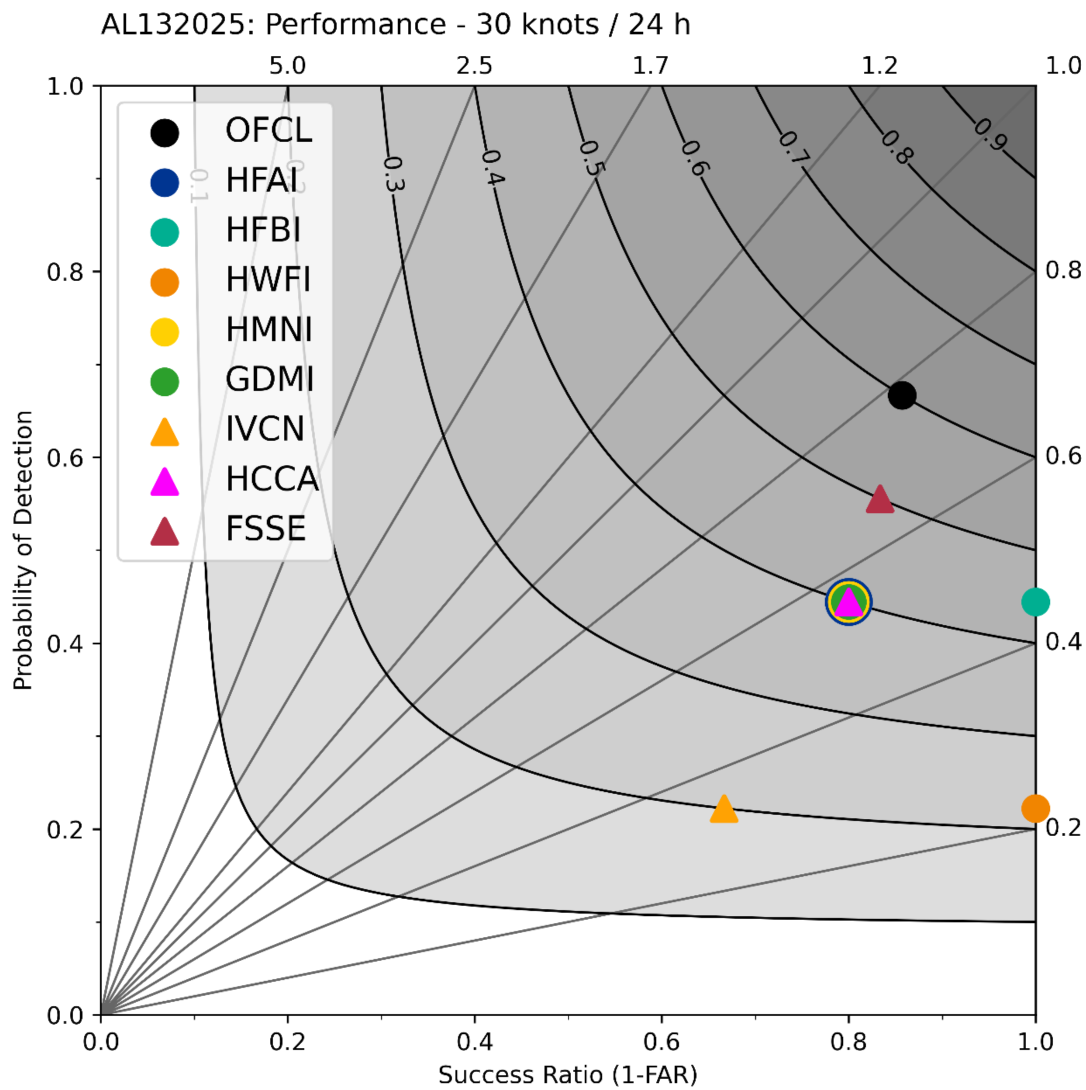


Figure 30. Roebber performance diagram of NHC official forecast (OFCL) and intensity models of rapid intensification for Melissa (30 kt/35 mph within a 24-hour period). Probability of detection is given by the ratio of hits to the total number of times the events occurred. False Alarm Ratio (FAR) is given by the ratio of false alarms to the total number of forecast events. Image created by Jon Martinez NOAA/CIRA.

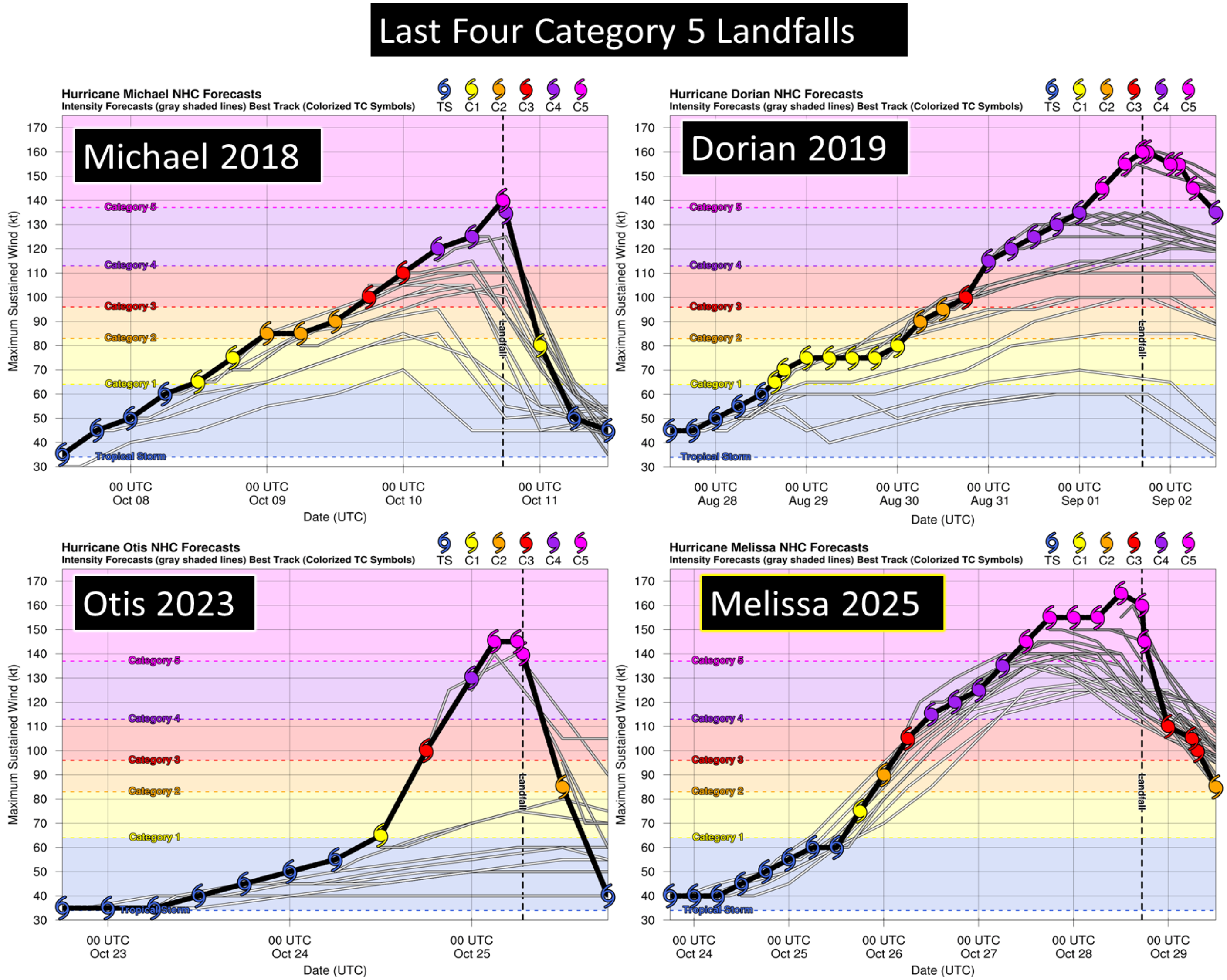


Figure 31. Comparison of NHC intensity forecasts (grey line) for the four most recent Category 5 hurricane landfalls. The final best track for each tropical cyclone is provided by the thick black line. Image created by Dr. Philippe Papin (NHC).

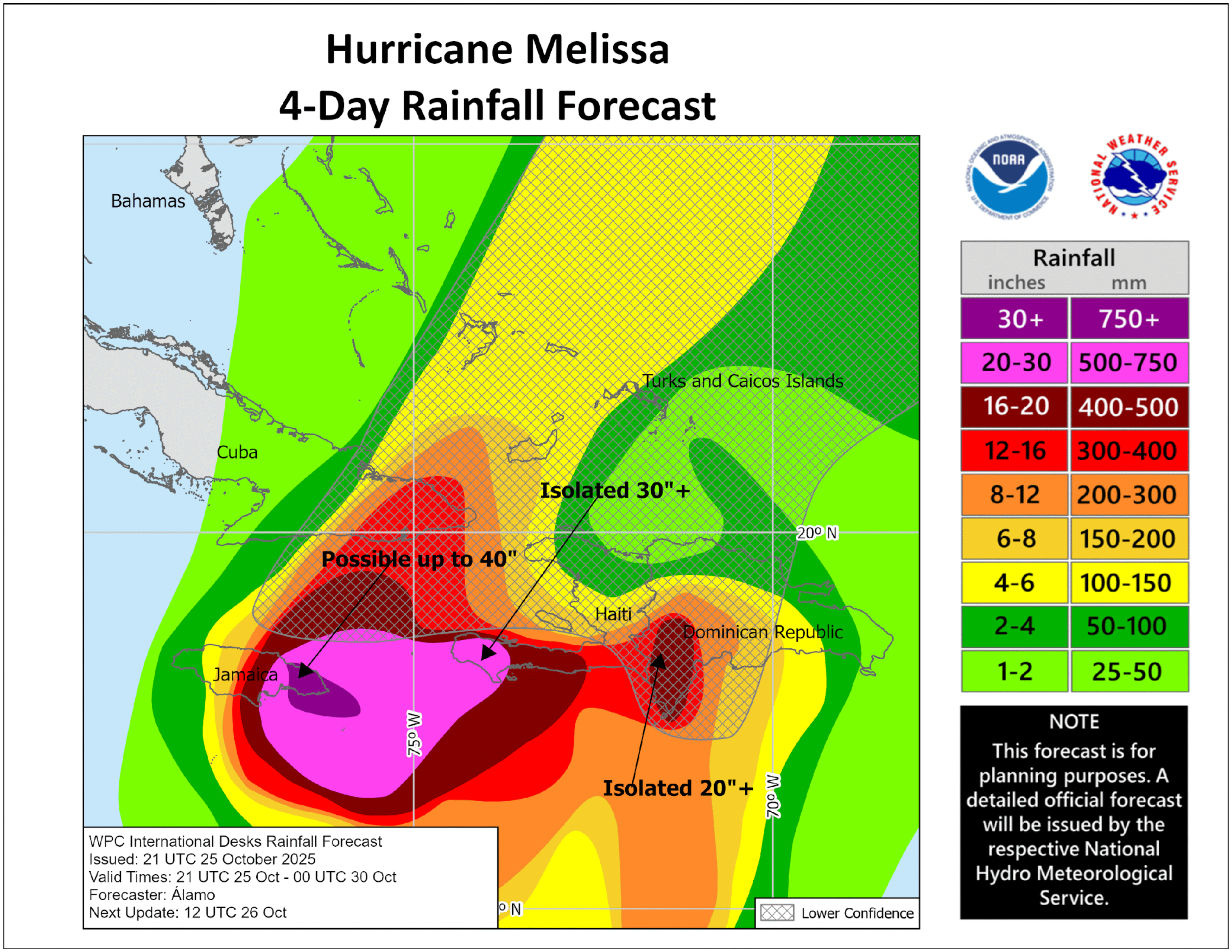


Figure 32. WPC International rainfall forecast issued 2100 UTC 25 October 2025. Note the forecast for extreme rainfall totals across portions of southern Hispaniola and maximum totals in eastern Jamaica.

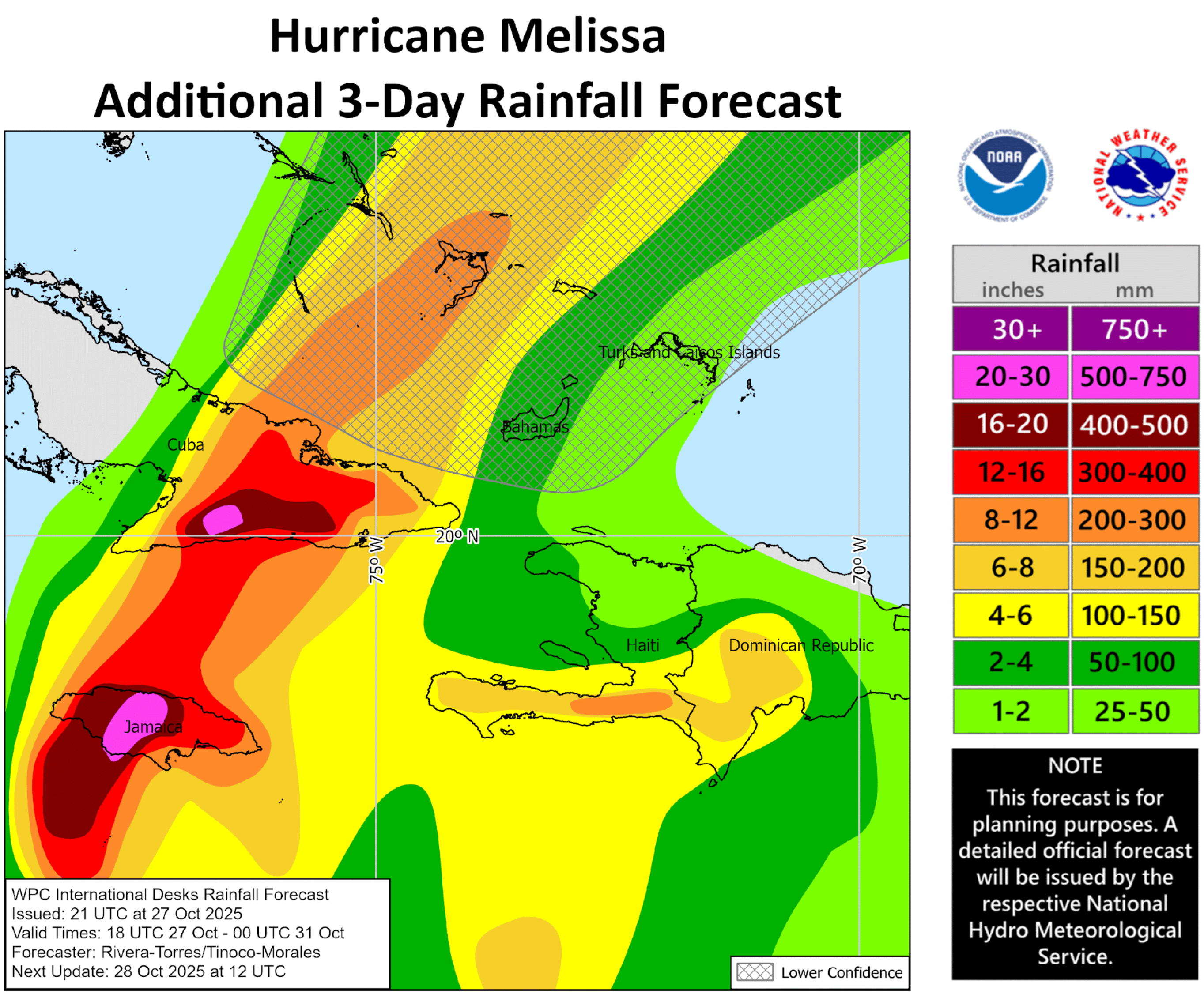


Figure 33. WPC International rainfall forecast issued 2100 UTC 27 October 2025. The heavy rainfall forecast was shifted west due to the track of Hurricane Melissa staying farther south and west than originally forecast, causing less extreme rainfall totals along eastern portions of Jamaica.

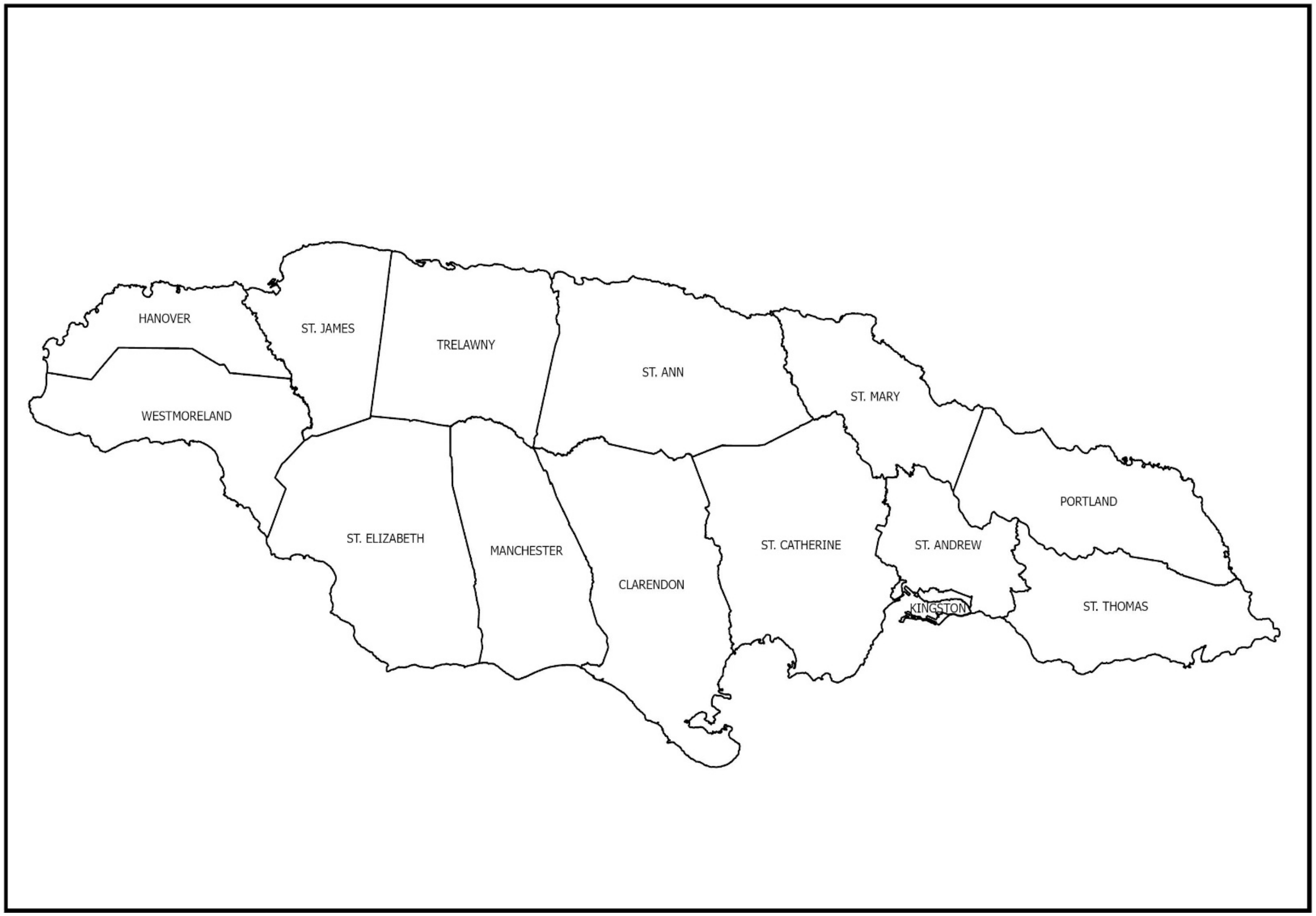


Figure 34. Map of Jamaica showing Parishes. Image courtesy of The Statistical Institute of Jamaica.

Figure 35. NOAA overflight imagery of damage in portions of Jamaica. Images courtesy of NOAA's National Geodetic Survey.

Figure 36. Post-Hurricane Melissa images showing catastrophic damage in Crawford, Jamaica. Images courtesy of Josh Morgerman – iCyclone.

Figure 37. Post-Hurricane Melissa images showing catastrophic damage in Crawford-Galleon Beach, Jamaica. Images courtesy of Josh Morgerman – iCyclone.

Figure 38. Before (left) and after (right) images of Hurricane Melissa damage in Crawford, Jamaica. Images courtesy of Josh Morgerman – iCyclone.

Figure 39. Post-Hurricane Melissa images showing catastrophic damage in Black River, Jamaica. Images courtesy of Josh Morgerman – iCyclone.

Figure 40. Post-Hurricane Melissa drone imagery showing catastrophic damage in Black River, Jamaica. Images courtesy of Christopher Burgess, CEAC Solutions Company.

Figure 41. Catastrophic damage in White House, Jamaica after Hurricane Melissa. Images courtesy of Josh Morgerman – iCyclone.

Figure 42. A drone view shows streets covered with mud on 29 October, after Hurricane Melissa passed the Catherine Hall community in Montego Bay, Jamaica. Image courtesy Sandra Stojanovic/Reuters.

Figure 43. View of part of Santiago de Cuba city after the passage of Hurricane Melissa on 29 October causing damage and flooding to homes and streets in Santiago de Cuba province. Image courtesy of Luis Alejandro Pirez, AFP Via Getty Images.