

## = Hurricane Martha =

Hurricane Martha has been the only known tropical cyclone to make landfall in Panama . The eighteenth named storm and twelfth hurricane of the 1969 Atlantic hurricane season , Martha developed in the southwestern Caribbean Sea on November 21 . Initially , the storm developed with sustained winds of 50 mph ( 85 km / h ) , skipping tropical depression status . It remained stationary and quickly intensified into a hurricane . Martha attained maximum sustained winds of 90 mph ( 150 km / h ) on November 22 . Subsequently , Martha weakened and drifted southward . On November 24 , Martha made landfall in Veraguas Province , Panama , as a strong tropical storm . The system weakened to a tropical depression and dissipated over land on November 25 .

Because the storm weakened prior to landfall , strong winds were not expected or reported in the impacted countries . In Panama , more than 13 inches ( 330 mm ) of precipitation may have fallen in some areas . Agricultural land was flooded in Almirante , Bocas del Toro and streets became inundated in low @-@ lying areas of Puerto Armuelles , Chiriquí . The storm also brought significant rains to Costa Rica . Flooding and mudslides isolated most of the capital city of San José . Numerous streets were inundated in Golfito . Damage in Costa Rica reached \$ 30 million ( 1969 USD ) and 5 deaths were reported .

## = Meteorological history =

Winds aloft in the vicinity of San Andrés , Colombia and the Panama Canal Zone indicated that a low @-@ level circulation developed in the southwestern Caribbean Sea on November 20 . According to the Best Track , Tropical Storm Martha formed at 1200 UTC on November 21 , with an initial wind speed of 50 mph ( 85 km / h ) . Thus , Martha skipped tropical depression status . Centered about 100 miles ( 160 km ) northeast of Bocas Town , Bocas del Toro , the storm remained stationary for 24 hours after tropical cyclogenesis . Martha immediately began deepening , becoming a hurricane at 0000 UTC on November 22 . Operationally , the National Hurricane Center initiated advisories at 0300 UTC and erroneously indicated that it was a tropical depression and noted that conditions did not favor significant intensification . Later on November 22 , a reconnaissance flight indicated Martha deepened to a compact hurricane , and the tropical cyclone attained a maximum sustained wind speed of 90 mph ( 150 km / h ) . Reconnaissance aircraft measured a minimum barometric pressure of 980 mbar ( 29 inHg ) , though it was later corrected to 979 mbar ( 28 @.@ 92 inHg ) in the post @-@ season analysis .

The eye feature was about 46 miles ( 74 km ) wide and it was described as poorly organized , although convection was increasing . After reaching peak intensity , Martha began drifting due south and slowly weakened . At 1200 UTC on November 23 , the tropical cyclone diminished to a tropical storm , after winds decreased to 70 mph ( 110 km / h ) and a reconnaissance flight recorded an increased barometric pressure of 999 mbar ( 29 @.@ 5 inHg ) . The storm maintained that intensity , and shortly before 1800 UTC on November 24 , Martha made landfall in rural Veraguas Province , Panama , about 10 miles ( 16 km ) east of the mouth of the Calovebora River . Operationally , winds were thought to be only 50 mph ( 85 km / h ) when the storm moved inland . Martha was the only tropical cyclone on record to make landfall in Panama , although it is possible that other Panama tropical cyclones were not detected . The storm rapidly weakened inland , deteriorating to tropical depression status early on November 25 , twelve hours before dissipating over southern Ngöbe @-@ Buglé Comarca .

## = Preparations and impact =

Residents were warned to anticipate tides 5 feet ( 1 @.@ 5 m ) above normal near the expected point of landfall . Later , the forecast was decreased to 3 feet ( 0 @.@ 9 m ) above normal and pertained to tides in the Mosquitoes Gulf and Chiriqui Lagoon . Since Martha was a relatively weak tropical cyclone , flash floods were emphasized as the greatest threat . The National Hurricane Center stated that rainfall could exceed 10 inches ( 254 mm ) . Additionally , Arnold Sugg of National

Hurricane Center warned residents of gale force winds and heavy precipitation , advising people living between Bluefields , Nicaragua and Almirante , Bocas del Toro , Panama to take precautions .

In Panama , the storm dropped at least 13 inches ( 330 mm ) of precipitation , especially in the western portions of the country . As a result , at least half of agricultural land in Almirante , Bocas del Toro , was flooded , causing extensive crop damage . In Puerto Armuelles , Chiriquí , persistent rainfall led to street flooding and inundated other areas . Similar conditions were reported in Golfito , Costa Rica . The effects of Martha resulted in five deaths , all of which occurred in Costa Rica . The nation incurred flooding from heavy rainfall , which caused significant destruction . The capital city of San José received flooding . In all , damages were estimated near \$ 30 million ( 1969 USD ) .