

= Hurricane Emilia (1994) =

Hurricane Emilia was , at the time , the strongest tropical cyclone on record in the central Pacific Ocean , and the first of such to be classified as a Category 5 hurricane ? the highest rating on the Saffir ? Simpson hurricane wind scale . However , hurricanes Gilma later that year and Ioke in 2006 later reached lower barometric pressures in the Central Pacific . The fifth named storm and the first of three Category 5 hurricanes of the 1994 hurricane season , Emilia developed from an area of low pressure southeast of Hawaii on July 16 . Tracking westward , the initial tropical depression intensified into a tropical storm several hours after tropical cyclogenesis . Subsequently , Emilia entered Central Pacific Ocean and moved into the area of responsibility of the Central Pacific Hurricane Center (CPHC) .

After reaching hurricane intensity the following day , the tropical cyclone began to rapidly intensify , and late on July 17 , Emilia reached its record peak intensity with maximum sustained winds of 160 mph (260 km / h) and a minimum barometric pressure of 926 mbar (hPa ; 27 @. @ 34 inHg) , rating it as a Category 5 hurricane . After slight oscillations in strength , and upper @-@ level trough forced the intense hurricane northwest on July 21 , and Emilia began to weaken thereafter . The tropical cyclone encountered an area of vertical wind shear and cool sea surface temperatures , which further weakened the system . The following day , Emilia made its closest approach to the Big Island of Hawaii , but subsequently weakened to below hurricane intensity . This weakening trend continued , and the tropical cyclone fully dissipated on July 25 . Though the hurricane per se did not make landfall , Emilia brought strong surf to the islands of Hawaii and caused gusty winds , which resulted in some property damage . Precipitation was also reported , but remained under moderate levels .

= = Meteorological history = =

On June 29 , a weak tropical wave exited the west African coast and traversed the Atlantic with no signs of organization or convective activity . Moving within the Intertropical Convergence Zone , the tropical disturbance remained inactive until July 14 , when it developed into an area of low pressure roughly 2 @, @ 110 mi (3 @, @ 400 km) east @-@ southeast of the Hawaiian Islands . A low @-@ level circulation was present , and a tropical depression is believed to have formed on July 17 due to increasing organization . Later , satellite imagery suggested that the system had intensified to Tropical Storm Emilia with 40 mph (65 km / h) sustained winds . Emilia steadily strengthened to a minimal hurricane , moving west @-@ northwest . It crossed 140 ° W and entered the Central Pacific Hurricane Center 's (CPHC) area of responsibility , which noted that Emilia was " well developed . " Emilia attained winds of 100 mph (160 km / h) , which marked the beginning of a rapid intensification period . Maximum sustained winds increased from 115 mph (185 km / h) on July 17 to 160 mph (260 km / h) late on July 19 , which was a period of 42 hours . At the time , an Air Force reconnaissance aircraft measured a minimum central pressure of 926 mbar (27 @. @ 34 inHg) and maximum winds of 160 mph (260 km / h) , hinting that the storm has reached peak intensity .

On July 20 , Emilia briefly weakened to a Category 4 hurricane , but it re @-@ intensified to Category 5 status 12 hours later during the day . Subsequently , Emilia began to weaken for the final time . An upper @-@ level trough in the westerlies caused the cyclone to turn northwest on July 21 . Emilia moved over progressively cooler waters , and vertical wind shear from the westerlies negatively impacted the hurricane . The central pressure steadily rose to 965 mbar (28 @. @ 50 inHg) , and Emilia diminished to a marginal Category 3 hurricane . On July 22 , Emilia continued to weaken , and it passed within 170 mi (270 km) of the Big Island . It was the closest approach to the islands . Later , the peak winds dropped to 75 mph (120 km / h) . Emilia gradually turned west @-@ northwest , and the circulation moved with the trade winds . Emilia weakened to a tropical depression on July 24 , and a remnant swirl of stratocumulus clouds was noted . The system dissipated on the same day .

== Preparations ==

Initially , forecasts significantly underestimated the intensification of Emilia , which was one of three tropical cyclones to attain Category 5 status in the central Pacific during the season . On July 16 , a 72 @-@ hour forecast misjudged the strengthening of Emilia by 41 m / s (92 mph) . Later , winds at 72 hours were 31 m / s (69 mph) too high when the cyclone began to weaken . Tropical cyclone forecast models consistently predicted Emilia to remain south of the Hawaiian Islands because of the upper troughs ' climatologically weak nature during the summer . This led to high confidence in the forecasts , resulting in a lack of watches or warnings . Nonetheless , a high surf advisory was issued for the south and east coasts of all islands .

== Impact and records ==

Despite the storm 's offshore nature , wells of 6 ? 10 feet (2 ? 3 @.@ 3 m) were reported near the Puna and Ka ? ? coasts . Waikiki Beach in Honolulu reported a 5 ft high (1 @.@ 5 m) surf . Surf was lower along the Kona and Kohala coasts . Winds were gusty , causing a few trees to be blown over and branches to be broken . Some minor roof damage was caused by the winds . International observatories and the Keck Telescope on the top of Mauna Kea were forced to close their domes due to the high winds . Rainfall ranged from light to moderate . The storm passed near two National Oceanic and Atmospheric Administration (NOAA) weather buoys during its passage through the state . All in all , Hurricane Emilia had mostly minor effects in the Hawaiian Islands .

Emilia is one of the most intense tropical cyclones on record in the Eastern Pacific , with a lowest pressure of 926 mbar (hPa ; 27 @.@ 34 inHg) . In the CPHC warning zone , only Gilma and Ioke of 2006 attained deeper pressures . Emilia was also a Category 5 hurricane for 18 hours , the most ever at the time in the Central Pacific . That record was broken later in the season by Hurricane John .

The storm was the subject of a disagreement between the Central Pacific Hurricane Center and the National Hurricane Center . Specifically , they debated Emilia 's peak strength in relation to the Saffir @-@ Simpson hurricane scale (SSHWS) . The CPHC reported that Emilia 's maximum winds peaked at 140 knots (260 km / h) , making it a Category 5 hurricane . However , the NHC considered Emilia to be a high @-@ end Category 4 with maximum winds of 135 knots (250 km / h) , in both its " best track " and its preliminary report . During 2008 , the NHC upgraded its " best track " to make Emilia a Category 5 , although there continues to be a discrepancy in Emilia 's duration at Category 5 intensity .