

= Hurricane Fernanda (1993) =

Hurricane Fernanda in 1993 was the first significant hurricane threat to Hawaii since Hurricane Iniki struck in September 1992 . The seventh named storm and fourth major hurricane of the 1993 Pacific hurricane season , Fernanda developed on August 9 off the coast of Mexico from a tropical wave . Throughout its life , it was a large system , and the hurricane reached peak winds of 145 mph (230 km / h) . After weakening slightly , Fernanda restrengthened and was expected to move across the Hawaiian Islands . Instead , the hurricane slowed its forward motion and turned away from the state , although it still produced high waves along the eastern shore of the islands . Several homes were damaged , and the surf damaged coastal roads . The storm also contributed to rainfall across the state , and minor flooding occurred in Kauai . Fernanda became extratropical on August 19 , and after turning to the northeast became absorbed by a cold front .

= = Meteorological history = =

Hurricane Fernanda origins were as a tropical wave that was first observed in the deep Atlantic Ocean on July 28 . It moved across the Atlantic and Caribbean Sea , and developed an area of thunderstorms to the south of Panama on August 4 . The system gradually organized as it continued westward , and on August 9 , it developed into Tropical Depression Seven @-@ E about 400 miles south of Manzanillo , Colima . Upon being classified , the National Hurricane Center (NHC) described the depression as " a large monsoon @-@ like system " , with abundant convection and well @-@ defined upper @-@ level outflow . With a ridge to its north , the depression tracked steadily west @-@ northwestward , and gradual strengthening was expected .

Within 12 hours of forming , the depression intensified into Tropical Storm Fernanda . Banding features increased , and outflow became well @-@ established throughout the storm . Fernanda intensified further and attained hurricane status late on August 10 . Soon after , a large eye became evident on satellite imagery , which became more distinct and organized . The hurricane subsequently underwent rapid intensification , and by August 12 , Fernanda reached peak winds of 145 mph (230 km / h) ; at that time , it was a Category 4 hurricane on the Saffir @-@ Simpson Hurricane Scale , and was located about 1070 miles (1725 km) southwest of the southern tip of the Baja California Peninsula . The peak winds were based on estimates from the Dvorak technique . After maintaining peak winds for about 18 hours , the hurricane began a slow weakening trend . By August 14 , the eye had become less distinct as the storm moved over cooler waters , while winds decreased to below major hurricane status , or Category 3 intensity . At that time , the NHC forecast Fernanda to decelerate and turn to the northwest , although the possibility of a more westward track toward Hawaii was noted .

On August 14 , the Central Pacific Hurricane Center (CPHC) took over issuing warnings on the hurricane , as Fernanda crossed 140 ° W into their area of responsibility . After maintaining a west @-@ northwest track for much of its duration , the hurricane turned more toward the west . By August 15 , the storm was expected to pass between Maui and the Big Island of Hawaii ; however , the CPHC noted uncertainty due to an approaching upper @-@ level trough , which would produce a more northerly tack . Its winds weakened to about 85 mph (140 km / h) , although late on August 15 the hurricane re @-@ intensified to winds of 105 mph (165 km / h) . By that time , it had redeveloped a large eye of 50 miles in diameter ; wind gusted to 120 mph (195 km / h) , while tropical storm force winds extended 200 miles (640 km) from the center . Hurricane Hunters flew into the hurricane to provide observational data while it was near Hawaii .

Early on August 16 , Hurricane Fernanda was expected to continue westward and bring hurricane @-@ force winds to the Big Island of Hawaii . By later in the day , however , it slowed significantly due to the approaching trough to its north . Hurricane Fernanda made its closest approach to Hawaii early on August 17 , when it was 305 miles (490 km) east @-@ northeast of the island of Hawaii . It began its definitive motion toward the northwest and began weakening due to increasing wind shear . Later on August 17 , Fernanda weakened to tropical storm strength , by which time convection was largely removed from the circulation . On August 19 , the storm transitioned into an

extratropical storm , and advisories were discontinued . The remnants of Fernanda turned to the northeast , and on August 21 an approaching cold front absorbed the circulation off the coast of Washington .

= = Impact = =

Early on August 15 , the Central Pacific Hurricane Center (CPHC) issued a tropical storm watch for the Big Island of Hawaii , meaning gale force winds were possible within 36 hours ; concurrently , a high surf advisory was put into effect for all eastward facing shorelines . By late on August 15 , the CPHC issued a hurricane watch for the entire state of Hawaii . Early the next day , the CPHC upgraded the watch to a hurricane warning for the Big Island of Hawaii , as Fernanda was expected to continue its westward track . When the hurricane slowed , its movement was uncertain , although all watches and warnings were canceled by August 17 , when Fernanda began its northwest track . Officials opened nine shelters on the Big Island , and about 200 people stayed in them until the hurricane watches were canceled . One shelter near Hilo held 80 people due to concern of the high waves . Officials on the Big Island closed and evacuated all of the beach parks on August 15 . On Molokai , 40 hikers were evacuated from a valley prone to flooding . Residents bought emergency supplies on Kauai , which had been struck by powerful Hurricane Iniki 11 months prior .

While moving slowly for a few days , Hurricane Fernanda produced high surf along the eastern shores of the Hawaiian Islands . The rough waves prompted the closure of several beaches in Maui and the Big Island . Wave heights reached 10 to 15 feet (3 to 4 @. @ 5 m) in most places , while portions of Maui experienced up to 20 foot (6 m) waves . The surf damaged coastal roads along most of the islands , and some homes were flooded . One home in Maui was moved several feet off of its foundation due to the waves . In the harbor at Hilo , one boat was damaged and another was destroyed , and in the Puna district , 12 homes were damaged . Although the hurricane remained away from the islands , moisture from Fernanda combined with an upper @-@ level trough to produce rainfall across the state . Precipitation was heaviest in Kauai , where some minor flooding was reported . After Fernanda became extratropical in the shipping lanes of the north Pacific , several vessels reported gale force winds .