

= Cyclone Nancy =

Cyclone Nancy (RSMC Nadi designation : 09F , JTWC designation : 18P) was the second in a series of four severe tropical cyclones to impact the Cook Islands during February 2005 . Forming out of an area of low pressure on February 10 , Nancy quickly organized into a small , but intense , cyclone . By February 14 , the storm explosively intensified into a Category 4 severe tropical cyclone with winds peaking at 175 km / h (110 mph 10 @-@ minute winds) and a minimum barometric pressure of 935 hPa (mbar) . Over the following day , increasing wind shear rapidly weakened the cyclone and by February 17 , it transitioned into an extratropical cyclone shortly before being absorbed by Cyclone Olaf .

Already impacted by Cyclone Meena in early February , the Cook Islands sustained significant damage from Cyclone Nancy . Several homes were damaged and destroyed throughout the islands . Downed trees and power lines blocked roads and cut power and minor flooding was reported along coastal areas . Following the impact of the storm , the World Meteorological Organization retired the name Nancy in May 2006 and replaced it with the name Nat .

= = Meteorological history = =

Cyclone Nancy originated out of a broad area of low pressure within a monsoonal trough northeast of Samoa on February 10 . Initially , the system was nearly stationary within an area of weak steering currents , low wind shear and high sea surface temperatures , exceeding 30 ° C (86 ° F) . On February 11 , a trough briefly increased shear over the system and its nearby twin , the precursor to Cyclone Olaf . By 0600 UTC on February 12 , the system 's outflow improved and a small area of deep convection , known as the central dense overcast , developed over the center of circulation . Later that day , the Regional Specialized Meteorological Centre (RSMC) in Nadi , Fiji upgraded the system to a Category 1 cyclone and gave it the name Nancy while it was located about 485 km (300 mi) east @-@ northeast of Pago Pago , American Samoa . By this time , the Joint Typhoon Warning Center (JTWC) had also begun issuing advisories on the storm , designating it as Tropical Cyclone 18P .

The storm had undertaken a slow northeast motion early on February 13 before turning southeast in response to a mid @-@ level ridge located northeast of the cyclone . Convective banding features developed close to the center of circulation as the storm began to undergo explosive intensification . Around 1200 UTC , the storm attained Severe Tropical Cyclone status as winds reached 120 km / h (75 mph 10 @-@ minute winds) and a small , irregularly shaped , eye began to develop . The JTWC , however , assessed Nancy to have been substantially weaker until 0000 UTC on February 14 , at which time they reported a 95 km / h (60 mph) increase in winds , attaining minimal Category 3 status on the Saffir ? Simpson Hurricane Scale .

By 1200 UTC on February 14 , Nancy attained its peak intensity with winds of 175 km / h (110 mph 10 @-@ minute winds) and a barometric pressure of 935 hPa (mbar) . Shortly after , the JTWC assessed Nancy to have peaked with winds of 230 km / h (145 mph 1 @-@ minute winds) . Increasing forward motion to the southeast and increasing wind shear caused Nancy to weaken . Early on February 15 , the storm passed directly over Manuae . Continued weakening took place as a trough approached from the southwest . By February 16 , Nancy weakened below hurricane intensity and turned to the southwest as it began to undergo a Fujiwhara interaction with Cyclone Olaf to the north .

Strong shear associated with the outflow of Cyclone Olaf caused all convection associated with Nancy to be displaced to the southwest on February 16 . Early on February 17 , Nancy transitioned into an extratropical cyclone as it entered the area of responsibility of the Tropical cyclone warning centre (TCWC) in Wellington , New Zealand . Shortly after , the low was absorbed into the larger circulation of Olaf . However , TCWC Wellington continued to monitor Nancy as a separate system until 1200 UTC on February 18 .

= = Differences among warning centers = =

The Regional Specialized Meteorological Center in Nadi , Fiji uses 10 @-@ minute sustained winds for its tropical cyclone tracking information , while the Joint Typhoon Warning Center uses 1 @-@ minute sustained winds . The conversion factor between the two is 1 @.@ 14 . RSMC Nadi 's peak intensity for Nancy was 175 km / h (110 mph) 10 @-@ minute sustained , or 205 km / h (125 mph) 1 @-@ minute sustained . The JTWC 's peak intensity for Nancy was 230 km / h (145 mph) 1 @-@ minute sustained , or 205 km / h (125 mph) 10 @-@ minute sustained .

= = Preparations = =

Upon being named Nancy on February 13 , a gale warning was put in place for American Samoa . Later that day , four additional countries were placed under watches and warnings . A gale watch was declared for Samoa and strong wind warnings were raised in Tuvalu , Tokelau and the Cook Islands . On February 14 , a tropical cyclone alert was declared for the southern Cook Islands . Additionally , Niue was placed under a strong wind warning . Later that day , Wallis and Futuna were placed under a strong wind warning . On February 15 , a hurricane warning was issued for the southern Cook Islands as Nancy tracked through the archipelago .

Already impacted by Cyclone Meena just a week prior , residents in the Cook Islands heeded warnings and evacuated to emergency shelters . Coastal areas where seawalls had been damaged or destroyed by Meena were of particular interest to warning centers and urged all people in the vicinity of them to evacuate to a nearby shelter . On Aitutake , all preparations were completed by February 15 . Tourists were relocated from hotels to one of six shelters set up throughout the island . An estimated 100 people reportedly evacuated to shelters out of the 2 @,@ 000 that live on the island . Radio broadcasts urging people to move to shelters were broadcast all day and the local cyclone center had all staff on standby . Eight shelters were opened on Rarotonga by this time . All residents were evacuated from low @-@ lying areas as large swells were anticipated to inundate those areas . Schools throughout the Cook Islands were closed prior to the cyclone and would remain closed for several more days . Many of the south Pacific islands were in a " critically dangerous situation " due to the quick succession of cyclones .

= = Impact and aftermath = =

Cyclone Nancy caused substantial damage throughout the Cook Islands . On Atiu , all communication to the island was cut as power lines were downed throughout the island . Winds on the island gusted up to 241 km / h (150 mph) . Four homes were destroyed on the island and at least 80 trees were downed , blocking all roads . Several homes had their roofs blown off , coconut trees were downed , road were covered in debris and heavy rains fell throughout all the islands . Numerous trees were downed across Manuae and Mauke by the storm 's high winds . Four homes were destroyed on Mauke . Three homes were destroyed on Mitiaro and trees blocked all roads on the island .

On Rarotonga , several bridges were damaged by high waves produced by the cyclone . Schools , churches , and restaurants were damaged by wind gusts up to 150 km / h (93 mph) throughout the island . Fifteen temporarily shelters constructed after Cyclone Meena were also destroyed . Damages caused by the storm to the Avana Marina Condominiums forced the owners to close them until mid @-@ April to allow for reconstruction and renovation . The highest winds were recorded in the southern portions of the island chain , with a wind gust of 259 km / h (161 mph) being recorded on Mangaia . Up to 100 % of the seasonal crop harvest was lost due to Cyclone Nancy .

In the wake of all four cyclones , the Cook Islands requested international assistance . Funding to repair damages from the storms reached \$ 7 @.@ 87 million . The Red Cross provided relief items , such as blankets and lanterns worth \$ 35 @,@ 200 ; the Pacific Forum provided food , fuel , and logistical support worth \$ 32 @,@ 000 ; the Government of China donated \$ 19 @,@ 200 in post @-@ disaster funds ; \$ 32 @,@ 000 in funding was provided by the United Nations Development Programme ; contributions from the Australian Agency for International Development and the New

Zealand Agency for International Development amounted to \$ 862 @, @ 570 , consisting of fuel , shelter , relief items , and disaster funds ; the Government of Australia provided \$ 128 @, @ 000 wort of fuel and equipment ; lastly , the Government of France deployed military teams with recovery supplies and tents . The European Union also supplied £ 200 @, @ 000 (\$ 280 @, @ 000) in relief funds .

Since Nancy caused substantial damage throughout the Cook Islands , the name was retired from " Naming List A " for the South Pacific basin and was replaced with Nat . The three other cyclones that impacted the region , Meena , Olaf and Percy , were also retired and replaced by Mal , Olof and Pita respectively .