

= Typhoon Tingting =

Typhoon Tingting was a destructive tropical cyclone that produced record @-@ breaking rains in Guam . The eighth named storm of the 2004 Pacific typhoon season , Tingting originated from a tropical depression over the open waters of the western Pacific Ocean . The storm gradually intensified as it traveled northwest , becoming a typhoon on June 28 and reaching its peak the following day while passing through the Mariana Islands . After maintaining typhoon intensity for three days , a combination of dry air and cooler sea surface temperatures caused the storm to weaken as it traveled northward . On July 1 , the storm passed by the Bonin Islands , off the coast of Japan , before moving out to sea . By July 4 , Tinting had transitioned into an extratropical cyclone . The remnants were last reported by the Japan Meteorological Agency , the Regional Specialized Meteorological Center for the western Pacific basin , near the international date line on July 13 .

While passing through the Mariana Islands , Typhoon Tingting produced torrential rains which triggered flooding and numerous landslides . In Guam , 554 @.@ 99 mm (21 @.@ 85 in) of rain fell in 24 hours , breaking the daily and monthly rainfall records for June . Winds gusted up to 212 km / h (132 mph) , causing significant structural damage , amounting to \$ 6 million in losses . One fatality occurred as a result of flooding and nine others resulted from rough seas . In the Mariana Islands , 71 homes were destroyed and hundreds were damaged ; losses totaled \$ 11 @.@ 2 million . In Japan , two people were killed by rough seas .

= = Meteorological history = =

On June 24 , 2004 , an area of low pressure associated with developing convection formed about 1 @,@ 110 km (690 mi) to the east @-@ southeast of Guam . Early the next day , as the system began to intensify , the Japan Meteorological Agency (JMA) began monitoring the low pressure as a tropical depression . With low wind shear and favorable diffluence , the Joint Typhoon Warning Center (JTWC) issued a Tropical Cyclone Formation Alert for the storm at 0000 UTC , classifying it as Tropical Depression 11W twelve hours later . The depression traveled towards the northwest along the edge of a mid @-@ latitude ridge . Outer bands began developing around the system , although the ridge to its north restricted outflow . About 24 hours after the JMA designated the depression , the agency upgraded it to a tropical storm and named it Tingting , which was contributed by Hong Kong and is a fairly common pet name for young girls . At 0600 UTC on June 26 , the JTWC also classified Tingting as a tropical storm .

As Tingting tracked northwestward , it continued to develop outflow in all directions . The storm slowly intensified as it traveled towards the Mariana Islands , strengthening into a severe tropical storm early on June 27 . Later that day , a ragged eye began to form . The ridge influencing the track of Tingting moved eastward , causing the storm to begin a gradual turn towards the north At 0000 UTC on June 28 , the JTWC upgraded the storm to a minimal typhoon , the equivalent of a Category 1 hurricane on the Saffir @-@ Simpson Hurricane Scale , and the JMA followed about six hours later . Several hours later , Tingting passed through the central Mariana Islands , tracking near the small island of Sarigan , while continuing to intensify . At 0900 UTC , the typhoon reached its peak intensity with winds of 150 km / h (90 mph) according to both agencies and a minimum pressure of 955 hPa (mbar) . With low wind shear , further strengthening was anticipated as it neared the Bonin Islands . However , the typhoon began to weaken due to increasing dry air and decreasing sea surface temperatures . On June 30 , Tingting passed within 95 km (60 mi) east of Iwo Jima . Later that day , the storm 's eye dissipated as convection around the center of circulation weakened .

On July 1 , the JTWC downgraded Tingting to a tropical storm . At 1200 UTC the following day , the JMA downgraded the storm to a severe tropical storm as winds decreased below 120 km / h (75 mph 10 @-@ minute winds) . Convection associated with the storm began to diminish as Tingting began to undergo an extratropical transition . Although the storm maintained its intensity as a severe tropical storm , it was moving into increasingly unfavorable conditions and weakening was anticipated . As Tingting tracked towards the northeast into the mid @-@ latitude westerlies , it

completed its extratropical transition on July 4 . After becoming an extratropical cyclone , Tingting accelerated towards the north before abruptly stalling near the Kamchatka Peninsula . On July 6 , the extratropical remnants of Tingting were absorbed by a developing area of low pressure located to the south of the former typhoon . However , the JMA continued to monitor Tingting as a separate system as it executed a counter @-@ clockwise loop though July 10 before heading towards the international date line . The storm was last reported on July 13 to the west Aleutian Islands .

= = Differences among warning centers = =

The Japan Meteorological Agency uses 10 @-@ minute sustained winds for its tropical cyclone tracking information , while the Joint Typhoon Warning Center uses 1 @-@ minute sustained winds . JMA 's peak intensity for Tingting was 150 km / h (90 mph) 10 @-@ minute sustained , or 160 km / h (105 mph) 1 @-@ minute sustained . The JTWC 's peak intensity for Tingting was also 150 km / h (90 mph) 1 @-@ minute sustained , or 130 km / h (80 mph) 10 @-@ minute sustained . The Hong Kong Observatory also assessed Tingting to have winds of 150 km / h (90 mph) 10 @-@ minute sustained , or 160 km / h (105 mph) 1 @-@ minute sustained . However , Dr. Karl Hoarau of Cergy @-@ Pontoise University near Paris , France proposed that Tingting was stronger than officially reported . He estimated that the storm reached peak 1 @-@ minute sustained winds between 160 km / h (105 mph) and 185 km / h (115 mph) on June 28 .

= = Preparations and impact = =

Throughout its track , Tingting was responsible for 12 fatalities , 10 in the Mariana Islands and two in Japan ; it also left \$ 23 @.@ 7 million in damage behind , \$ 17 @.@ 2 million in the Mariana Islands and \$ 6 @.@ 5 million in Japan .

= = Mariana Islands = =

An estimated 300 people in Guam evacuated to emergency shelters in advance of Typhoon Tingting . Several schools throughout Guam were being used as shelters . A tropical storm warning and a flash flood warning , which were issued several hours before the typhoon warning , were kept in place for Guam until June 29 . A small craft advisory was also issued for rest of the Mariana Islands . A typhoon warning was declared for most of the islands on June 27 . The United States Air Force Base in the Mariana Islands was placed under Tropical Cyclone Condition of Readiness Four , the lowest level of readiness , as Tingting approached .

As Typhoon Tingting approached the Mariana Islands , three Chinese women drowned in rough seas produced by the storm in Saipan . On June 28 , Tingting produced strong winds throughout the region . Sustained winds on Guam reached 82 km / h (51 mph) with gusts to 106 km / h (66 mph) ; a pressure of 994 @.@ 6 hPa (mbar) was also recorded on the island . Although located closer to the center of Tingting , Rota reported lower winds than Guam ; the highest sustained wind reached 70 km / h (44 mph) with gusts of 93 km / h (58 mph) . Due to the lack of sufficient observations on Tinian , the highest sustained winds recorded were suspected to be lower than what they really were . Winds of 56 km / h (35 mph) were recorded several times with gusts to 84 km / h (52 mph) . Sustained winds on Saipan were recorded up to 100 km / h (62 mph) with gusts to 124 km / h (77 mph) ; a pressure of 984 @.@ 9 hPa (mbar) was also recorded . The highest winds during Typhoon Tingting throughout the Mariana Islands were measured on Pagan Island where 106 km / h (66 mph) sustained winds were recorded along with a gust of 212 km / h (132 mph) .

Although Tingting passed about 400 km (250 mi) to the northeast of Guam , torrential rains from a monsoonal feeder band produced record @-@ breaking rainfall . In the span of 24 hours , 554 @.@ 99 mm (21 @.@ 85 in) of rain fell on Guam , shattering both the record for highest single day rainfall and the monthly rainfall for June at 80 @.@ 26 mm (3 @.@ 16 in) and 371 @.@ 09 mm (14 @.@ 61 in) respectively . Most of the northern areas of the island received more than 510 mm (20 in) of rain but the southern areas of Guam reported much lower totals . At Anderson Air Force

Base , a total of 287 @. @ 78 mm (11 @. @ 33 in) of rain was recorded over a 30 @- @ hour span . Rota recorded much less rainfall than Guam , having 145 @. @ 28 mm (5 @. @ 72 in) during 24 hours and a storm total of 221 @. @ 99 mm (8 @. @ 75 in) . No rainfall was recorded on both Tinian and Pagan Island due to the lack of observations . On Saipan , a total of 197 @. @ 61 mm (7 @. @ 78 in) was measured .

The record @- @ breaking rainfall in Guam produced severe flooding and numerous landslides throughout the island . A total of 57 homes were destroyed and another 624 were damaged . Crop damages on the island amounted to \$ 500 @, @ 000 with most of the farmers reporting total crop losses . One person died after being swept away along a flooded road . Total property damages totaled to \$ 6 million . Most of the damage on Rota resulted from flooding and high seas . The port on the island suffered \$ 1 million in damages and crop losses amounted to \$ 500 @, @ 000 . The same day that Tingting made its closest approach to Guam , a 19 @- @ year @- @ old was swept off a reef and drowned in rough seas produced by the typhoon . On Tinian and Saipan , unlike Guam and Rota , most of the damage was a result of the winds . A total of 4 homes were destroyed and 24 others sustained major damage on Tinian while another 4 were destroyed , 81 sustained major damage , and another 101 were affected on Saipan . Schools on the two islands sustained a combined \$ 92 @, @ 737 in damages . At Saipan 's port , an oil tanker sank , spilling thousands of gallons of oil into the water .

Throughout the Saipan , 50 power lines , 20 transformers , and 6 power poles were damaged or destroyed , leaving 25 percent of the islands ' residents without power and \$ 300 @, @ 000 in damages . An estimated 90 percent of the banana trees were knocked down , contributing to the \$ 518 @, @ 000 in crop losses . Property losses on the two islands was estimated at \$ 1 @. @ 6 million . On the islands of Alamagan , Pagan , and Agrihan all private homes , a total of six , were destroyed , the food stores and crops were lost , and the water supply was contaminated . The main public facility , which was used as a storm shelter on Alamagan , sustained heavy damage . Damages from the three islands amounted to \$ 500 @, @ 000 . The following day , five people went out kayaking however , the rough seas overturned the kayaks and all five drowned . Numerous water rescues on jet skis had to be made as residents became stranded in their cars after driving into flooded roads . Damages throughout the islands amounted to \$ 11 @. @ 2 million .

= = = Japan = = =

Between June 30 and July 1 , Tingting brushed the Bonin Islands with heavy rainfall and high winds . The storm dropped 105 mm (4 @. @ 1 in) of precipitation on Chichi @- @ jima , of which 77 mm (3 in) fell in 24 hours . Chichi @- @ jima experienced the strongest winds associated with the cyclone in the Bonin Islands ; sustained winds reached 65 km / h (40 mph) and gusts peaked at 146 km / h (91 mph) . At 1500 UTC , a pressure of 959 @. @ 4 hectopascals (28 @. @ 33 inHg) was recorded on the island . The high winds produced by the storm caused power outages throughout the islands , with Chichi @- @ jima losing power for nearly two hours . No known property damage resulted from the passage of Tingting .

Throughout eastern Japan , large swells produced by Tingting caused moderate coastal damage and killed two people . In Urakawa District , Hokkaido , the local fishing industry sustained considerable damage , amounting to 20 @. @ 5 million JPY (\$ 240 @, @ 000 USD) . Moisture from the storm also enhanced rainfall in the Shizuoka Prefecture , resulting in a record daily rainfall of 368 mm (14 @. @ 5 in) in Shizuoka City on June 29 . The rains led to significant flooding and several landslides ; 921 homes were flooded and an estimated 160 @, @ 000 residences were without power at the height of the storm . Damage was estimated to be 540 million JPY (\$ 6 @. @ 3 million USD) .

= = Aftermath and retirement = =

On July 9 , the Government of the Mariana Islands requested that President George W. Bush declare a major disaster area for the commonwealth . Governor Juan N. Babauta reported that the

islands needed at least \$ 2 @. @ 5 million to repair damages from the typhoon . The cost to repair infrastructure and clean up debris on Rota totaled \$ 762 @, @ 000 . A helicopter carrying relief supplies was sent to the Pagan and Agrihan , where people had no food . The American Red Cross also provided \$ 17 @, @ 000 in assistance . The Government of Guam requested \$ 6 million in aid from the Federal Emergency Management Agency (FEMA) to repair the damages from Tingting . On July 29 , George Bush approved the request for a disaster declaration and federal aid began to be sent to the Mariana Islands and Guam . Almost a month later , the islands of Agrigan , Alamagan , and Pagan were granted public assistance . In mid @- @ August , Typhoon Chaba caused significant damage in the Mariana Islands . A bill was passed following the storm to allow up to 500 people to be hired as temporary workers on Saipan and Tinian . In mid @- @ September , a request was made by the commonwealth for \$ 10 million in natural disaster mitigation following the effects of successive typhoons in the region . The funds were to be used for cleanup efforts , aid residents struggling in the wake of the storms and help reduce unemployment .

The typhoon 's name originated from Hong Kong ; Tingting is a girls ' given name (Chinese : ?? ; Cantonese Yale : Ting @- @ ting) from the area . It was part of a series of typhoon names that are reduplicated female , like Yanyan , Shanshan and Lingling . During the 38th session (2005) of the ESCA @- @ WMO Typhoon Committee , Hong Kong requested that Tingting be removed from the lists of typhoon names . It would later replace it with Lionrock (a reference to Lion Rock) .