= Typhoon Krovanh ( 2003 ) =

Typhoon Krovanh , known in the Philippines as Typhoon Niña , was a moderate tropical cyclone that caused a swath of damage stretching from the Philippines to Vietnam in August 2003 . The fifteenth named storm and sixth typhoon in the western Pacific that year , Krovanh originated from a tropical disturbance within the monsoon trough on August 13 . Despite rather favorable conditions , the initial tropical depression did not intensify significantly and degenerated into a remnant low on August 18 . However , these remnants were able to reorganize and the system was reclassified as a tropical cyclone a day later . Intensification was rather rapid upon the storm 's reformation ? the depression reached tropical storm status on August 20 and then typhoon intensity two days later . Shortly after , Krovanh made landfall on Luzon at peak intensity with winds of 120 km / h ( 75 mph ) . The typhoon emerged into the South China Sea as a much weaker tropical storm , though it was able to restrengthen over warm waters . Once again at typhoon intensity , Krovanh clipped Haiyan before moving over the Leizhou Peninsula on its way to a final landfall near C?m Ph? , Vietnam on August 25 . Quick weakening due to land interaction occurred as Krovanh moved across northern Vietnam , where the storm met its demise the following day .

Krovanh first struck the Philippines , resulting in heavy rainfall and displacing approximately 1 @,@ 000 families . The flooding caused severe damage and killed one person . Krovanh 's effects were much more severe in China . In Hong Kong , eleven people were injured and isolated flooding occurred as a result of the typhoon 's outer rainbands . However , Guangdong Province , Hainan Province , and Guangxi were the Chinese regions most extensively impacted . The typhoon brought record wind gusts into Guangxi . In those three regions combined , 13 @,@ 000 homes were estimated to have collapsed and a large swath of farmland was damaged . Two people were killed in China and economic losses approximated at ¥ 2 @.@ 1 billion ( US $ 253 million ) . Due to its positioning and track , of all areas in Vietnam only the country 's more northern regions were impacted by Krovanh . Flash flooding occurred in those regions , and 1 @,@ 000 homes were flattened . One person was killed and five others were injured in Vietnam . Overall , the typhoon was responsible for the deaths of four persons .

= = Meteorological history = =

The origin of Typhoon Krovanh can be traced back to an area of persistent convection well east of Chuuk State on August 13 . Over the course of the day the disturbance gradually consolidated within favorable atmospheric conditions , and at 1800 UTC that day the Japan Meteorological Agency ( JMA ) assessed the system to have organized sufficiently to be classified as a tropical depression . Shower activity was suppressed by a nearby upper @-@ level low for much of the storm 's early existence ; however , at 0600 UTC on August 15 , the system was classified by the Joint Typhoon Warning Center ( JTWC ) as a tropical depression . The depression tracked northwestward under the influence of a nearby ridge . Strengthening and development of the tropical cyclone was very minimal over the next few days , and on August 18 , both tracking agencies discontinued monitoring the system due to the lack of an identifiable low @-@ level circulation center .

Redevelopment of the disturbance was a possibility following its degeneration , and on August 19 , convection once again increased , prompting the JTWC to resume monitoring the system as a tropical depression at 0900 UTC , with the JMA following suit nine hours later . Due to slight wind shear , the depression 's circulation center remained slightly displaced from the stronger convection . At 0600 UTC on August 20 , the JTWC determined that the disturbance had intensified to reach tropical storm status . Upon the 1200 UTC upgrade to such an intensity by the JMA , the tropical cyclone was assigned the name Krovanh . Subsequently following reclassification , Krovanh began to quickly intensify as it tracked in a somewhat southwest bearing . By August 21 , the tropical storm had begun to develop a banding eye feature . At 0600 UTC that day , the JMA upgraded Krovanh to severe tropical storm intensity , whilst the JTWC indicated that the storm intensified into a typhoon . On August 22 , the JMA reassessed Krovanh as a typhoon and determined that the storm had

reached its peak intensity with winds of 120 km / h ( 75 mph ) . Meanwhile , the JTWC analyzed the storm to have peaked with one @-@ minute sustained winds of 165 km / h ( 105 mph ) ; this was followed by the storm making landfall on Luzon , just north of Palanan , Isabela , at 1115 UTC later that day .

Land interaction during Krovanh 's passage of Luzon significantly weakened the cyclone , and upon the system 's reemergence into the South China Sea by 2000 UTC on August 22 , Krovanh was classified as only a tropical storm by the JMA . Redevelopment was rather rapid following emergence , and just four hours later the storm was redesignated as a severe tropical storm . On August 24 , the storm began to develop tight banding and reformed its prior banding eye feature , which later organized into a well defined eye . Later that day Krovanh clipped the northeastern coast of Hainan before crossing the Leizhou Peninsula on August 25 . During this time , the JMA upgraded Krovanh back to typhoon intensity and indicated that the storm was reaching a secondary peak in strength . The JTWC indicated a similar development as the typhoon traversed the Gulf of Tonkin . However , according to the JMA , Krovanh waned into a severe tropical storm shortly before the storm made its final landfall on C?m Ph? , Vietnam at approximately 1500 UTC on August 25 . Over land , Krovanh deteriorated rapidly , and both agencies ceased monitoring the system on August 26 while it was well northwest of Hanoi .

= = Preparations and impact = =

= = = China = = =

As Krovanh was approaching the Philippines , Taiwan 's Central Weather Bureau cautioned the residents of the island against strong winds and warning ships in the Bashi Channel . After the typhoon entered the South China Sea , sea warnings were issued for areas offshore Hainan . Additional warnings were issued and expanded as Krovanh moved closer to the Chinese coast . In preparation for the storm , shipping routes across the Qiongzhou Strait were suspended , while security measures for river dykes and reservoirs were strengthened in both Hainan and Guangdong . In Hong Kong , the Hong Kong Observatory issued a Standby Signal No. 1 on August 23 , which was upgraded to a Strong Wind Signal No. 3 at around noon the following day . All warning signals in Hong Kong were discontinued on August 25 . In Guangzhou , 15 flights were cancelled in anticipation of Krovanh , stranding 500 passengers .

In Hong Kong , Krovanh 's outer rainbands brought squally weather , coupled with strong winds . Rainfall in the Hong Kong area peaked at 232 mm ( 9 @.@ 13 in ) on High Island , Hong Kong , much of which occurred on August 25 . Other rainfall totals of at least 70 mm ( 2 @.@ 75 in ) were measured over a majority of the country . Gusts peaked at 144 km / h ( 89 mph ) on Cheung Chau . The strong winds and gusts uprooted trees and caused scaffolding at an estate to collapse . In the province , 11 people were injured due to effects from Krovanh . A ferry service and four bus routes were temporarily suspended following the storm .

Guangdong and Hainan provinces , as well as Guangxi , were the regions of China most heavily impacted by Krovanh . In Zhanjiang , Guangdong , two people were killed . Economic losses from western Guangdong alone amounted to ¥ 1 @.@ 2 billion ( US $ 144 million ) . In Hainan , heavy rainfall was reported , peaking at 394 mm ( 15 @.@ 51 in ) in Jinjiang . Roughly 1 @,@ 700 homes collapsed and 16 reservoirs were contaminated and destroyed . Widespread power outages occurred , impacting several neighborhoods . Strong winds also toppled coconut palms . Direct economic losses in the province totaled ¥ 683 million ( US $ 82 million ) . Beihai City was the city most severely affected in Guangxi . Beginning on August 25 , the entire population of Beihai temporarily suffered a water shortage . In the city alone , losses reached ¥ 988 million ( US $ 119 million ) . In Weizhou Island , a weather station reported a wind gust of 190 km / h ( 119 mph ) ; this would be the strongest wind gust reported in Guangxi since 1982 . Overall , a total of 13 @,@ 000 residences collapsed and 140 @,@ 000 ha ( 350 @,@ 000 acres ) of farmland were impacted across China . The total economic loss was in excess of ¥ 2 @.@ 1 billion ( US $ 253 million ) .

= = = Elsewhere = = =

Striking Luzon in the Philippines on August 22 , Krovanh brought heavy precipitation . Rainfall in the Philippines peaked at 342 mm ( 13 @.@ 46 in ) in Dagupan . Other high rainfall totals included 263 mm ( 10 @.@ 35 in ) in Baguio and 203 mm ( 7 @.@ 99 in ) in Iba , Zambales . The flooding rains displaced 1000 families on the archipelago and killed a girl . Although full damage reports were never released , damages were estimated at ? 4 @.@ 3 million ( US $ 73 @,@ 000 ) and of " severe extent " .

Typhoon Krovanh was the strongest tropical cyclone to affect Vietnam in 2003 . One person was killed in Móng Cái after their house collapsed . Hundreds of other homes were unroofed and traffic was halted . Trees were also uprooted and power outages resulted from strong winds , particularly in Qu?ng Ninh Province . Heavy rains triggered flash flooding in northern Vietnam . Five additional persons were injured by flying debris . About 1 @,@ 000 homes in Vietnam were flattened by the storm .