= Tropical Storm Linfa ( 2003 ) =

Severe Tropical Storm Linfa , known in the Philippines as Tropical Storm Chedeng , brought deadly flooding to areas of the Philippines and Japan in May and June 2003 . The fifth named storm within the northwestern Pacific that year , Linfa developed as a tropical depression just off the western coast of Luzon on May 25 . The disturbance quickly intensified to reach tropical storm intensity a few hours after cyclogenesis . However , intensification leveled off as Linfa executed a small clockwise loop before a subsequent landfall on Luzon on May 27 . Due to land interaction the storm temporarily weakened and decoupled before reforming in the Philippine Sea . Afterwards Linfa began reintensifying and reached its peak intensity on May 29 with maximum sustained winds of 100 km / h ( 65 mph ) and a barometric pressure of 980 mbar ( hPa ; 28 @.@ 94 inHg ) . Following its peak the tropical storm began to deteriorate and transitioned into an extratropical cyclone on May 30 ; these extratropical remnants continued to track northward through Japan before dissipating in the Sea of Okhotsk on June 4 .

The erratic and slow movement of Linfa off the western Philippines was the catalyst for extreme rainfall and flooding , killing 41 persons in the archipelago . Precipitation peaked at 723 mm ( 28 @.@ 5 in ) near Dagupan . Rising floodwaters resulted in numerous mudslides and the temporary shutdown of government offices . In addition , strong winds caused widespread power outages . Overall damage from Linfa in the Philippines amounted to ? 192 @.@ 3 million ( US $ 3 @.@ 65 million ) . The floods also displaced 8 @,@ 367 people in 1 @,@ 686 families and destroyed 178 homes . Linfa and its extratropical remnants later brought torrential rainfall and widespread flooding to Japan , particularly southwestern regions . Rainfall there peaked at 727 mm ( 28 @.@ 62 in ) . Flood damage was worst in K?chi and Tokushima Prefectures , where several buildings were destroyed by floodwater . Other locations in Japan experienced considerable agricultural damage as well as numerous landslides . Overall , Linfa caused roughly $ 28 @.@ 2 million in damage , much of which occurred in Japan , though the entirety of deaths associated with the cyclone took place in the Philippines .

= = Meteorological history = =

In late @-@ May an area of disturbed weather began to persist roughly 650 km ( 400 mi ) west of Manila , Philippines in the South China Sea . Late on May 23 , the Joint Typhoon Warning Center ( JTWC ) began to monitor the area for potential signs of tropical cyclogenesis . Over the next few days the disturbance began to consolidate towards a common low pressure center , resulting in a burst in convective activity . At 0000 UTC on May 25 , the JTWC classified the resulting system as a tropical depression west of Luzon ; six hours later both the Japan Meteorological Agency ( JMA ) and the Philippine Atmospheric , Geophysical and Astronomical Services Administration ( PAGASA ) began to monitor the newly formed tropical cyclone , though the latter classified it as a tropical storm . During these initial stages of development the tropical cyclone slowly intensified as it slowly tracked in a clockwise loop throughout the course of the day . At 1800 UTC , the JTWC upgraded the depression to tropical storm status while the JMA followed suit six hours later , thus designating the cyclone with the name Linfa .

In response to a strengthening ridge to the south , Linfa began tracking eastward . Despite its proximity to land , the tropical storm 's slow forward motion allowed for additional strengthening , and according to the JMA , Linfa reached an initial peak intensity with maximum sustained winds of 90 km / h ( 50 mph ) at 0000 UTC on May 27 , just within the threshold of severe tropical storm status . Concurrently the cyclone made landfall near Dagupan , Luzon . Upon landfall , Linfa began to weaken as it crossed Luzon before emerging into the Pacific as a minimal tropical storm late that day . However , as a result of land interaction the initial surface circulation center of Linfa greatly weakened and was overtaken by a newly formed low @-@ level circulation center on May 28 , resulting in the storm 's position to shift well northeastward . This was the primary basis on which the JTWC downgraded Linfa to tropical depression status early on May 28 , though the JMA continued to analyze the system as a weak tropical storm . Afterwards , as the cyclone began to track

northeastward , the new circulation center became more organized , resulting in the JTWC reclassifying Linfa as a tropical storm at 0600 UTC the following day . Gradual strengthening followed , and at 1800 UTC that day Linfa reached peak intensity with winds of 100 km / h ( 65 mph ) and a minimum barometric pressure of 980 mbar ( hPa ; 28 @.@ 94 inHg ) south of Okinawa . Subsequently the system began to take a more northward course and undergo extratropical transition , which was completed at 0000 UTC on May 30 . Though by this time most tropical cyclone monitoring agencies ceased the monitoring of these extratropical remnants by this time , the JMA continued to track them as they made landfall near Uwajima , Ehime at 0800 UTC the following day . Linfa 's remnants then paralleled the western coast of Japan before dissipating on June 4 well into the Sea of Okhotsk .

= = Impact and aftermath = =

= = = Philippines = = =

Linfa 's slow movement off the western coast of Luzon , followed by its eventual landfall , allowed for copious amounts of rain to occur in areas of the Philippines , leading to widespread flooding . Prior to landfall , waves generated by Linfa offshore hampered search and rescue operations following the collision of the MV San Nicholas and SuperFerry 12 ships on May 25 . Over land , precipitation amounts officially peaked at a station in Dagupan , near the tropical storm 's point of landfall . There , 723 mm ( 28 @.@ 5 in ) of rainfall was observed , including 629 mm ( 24 @.@ 8 in ) of rain in a 12 ? hour period . The second highest precipitation total from a station operated by the World Meteorological Organization observed 364 mm ( 14 @.@ 3 in ) of rain in Baguio . These rainfall totals were further enhanced by the concurrent southwesterly monsoon . The resulting floods forced then @-@ President of the Philippines Gloria Macapagal @-@ Arroyo to order the temporary shutdown of government offices and mobilize city officials to aid in clearing threatened areas of people . In addition , commuter bus operations were forced to cease .

The first documented fatality associated with the storm occurred in Taytay , Rizal , after heavy rains on May 27 triggered a mudslide that killed an infant and injured three other people . That same day the rains resulted in thick traffic jams in Manila . Strong winds in the capital city also toppled billboards and electric posts . Floodwaters forced over 600 families to evacuate in Valenzuela , a suburb located northwest of Manila . Similarly strong winds in Pangasinan caused widespread power outage to much of the province . Areas in the central parts of the province experienced their worst flooding conditions in at least 60 years . Two ferries capsized off of Minalabac , Camarines Sur , killing six people . Sixty @-@ seven others were rescued in the search and rescue operation that followed the incident . Overall , Linfa killed 41 people in the Philippines due to flooding . Damage associated with the tropical storm included ? 66 million ( US $ 1 @.@ 25 million ) to agriculture and livestock , ? 83 @.@ 4 million ( US $ 1 @.@ 58 million ) to fisheries , and ? 42 @.@ 9 million ( US $ 800 @,@ 000 ) to infrastructure , equating to a total of ? 192 @.@ 3 million ( US $ 3 @.@ 65 million ) in damage in the Philippines . Nationwide , 8 @,@ 367 persons in roughly 1 @,@ 686 families evacuated into 44 evacuation centers at the height of the storm . The floods destroyed 178 homes and damaged an additional 2 @,@ 040 .

In the immediate aftermath of the storm and associated flooding , the Department of Agriculture readied for the distribution of 3 million bangus fry , 250 @,@ 000 tilapia fry , and 315 bags of rice seeds to affected regions . Furthermore , the National Food Authority allocated 200 sacks of rice to Pangasinan . The National Disaster Risk Reduction and Management Council assisted in relief operations by allocating ? 10 million ( US $ 200 @,@ 000 ) and 800 bags of rice for such efforts . In addition , one of eight regional Filipino health offices distributed roughly ? 600 @,@ 000 ( US $ 10 @,@ 000 ) worth of various medicines to Dagupan and Urdaneta , Pangasinan . According to the National Disaster Coordinating Council , ? 15 @.@ 7 million ( US $ 300 @,@ 000 ) worth in relief operations was allocated .

= = = Japan = = =

After tracking eastward across the Philippines , Linfa reorganized and curved northeastward toward Japan . The Japan Meteorological Agency anticipated heavy precipitation and strong winds in the island nation 's southwestern regions . The agency also warned residents in low @-@ lying areas of potential flooding . The JMA indicated the heightened possibility of landslides in the T?hoku region due to a recent earthquake in the area . Due to the forecasted impacts and track , as many as 102 domestic flights were cancelled in a single day , particularly those associated with southwestern Japan . In addition , five ferry services were cancelled . Upon making landfall on Shikoku , Linfa became the first tropical cyclone since 1965 to strike Japan during May , as well as the third earliest tropical cyclone to make landfall on any of Japan 's four main islands since standardized records began in 1951 .

Throughout Linfa 's passage of Japan , the storm brought heavy rainfall across a wide swath of the country , resulting in extensive and damaging flooding . Damage was primarily concentrated on Kyushu Island . Precipitation peaked at 727 mm ( 28 @.@ 62 in ) at a station in Nakagoya , Miyazaki Prefecture . However , a station in Owase , Mie observed 497 mm ( 19 @.@ 56 in ) of rain in 24 hours , greater than any other location for that period of time . Despite making landfall on Ehime Prefecture , Linfa did not cause as much damage there relative to other provinces , particularly those bordering Ehime . Nonetheless , nearly 300 homes lost power during the storm there . Linfa 's worst impacts occurred in K?chi Prefecture , where severe flooding inundated several buildings and triggered numerous landslides . Damage there totaled ¥ 1 @.@ 28 billion ( US $ 10 @.@ 7 million ) . Similar effects took place in Tokushima Prefecture , in addition to widespread evacuations from impacted areas . Damage accrued by Linfa in Tokushima Prefecture reached ¥ 1 @.@ 22 billion ( US $ 10 @.@ 3 million ) . Located near the coast , high seas generated by Linfa were reported in Wakayama Prefecture , resulting in cancellations of offshore activities and transportation . However , much of the damage in Wakayama Prefecture was caused by torrential precipitation , damaging roads in seven locations , amounting to ¥ 197 @.@ 45 million ( US $ 1 @.@ 65 million ) . Severe flooding in Mie Prefecture resulted from heavy , prolonged rainfall , which peaked prefecture @-@ wide at 497 mm ( 19 @.@ 57 in ) in Owase . Precipitation in Mie caused widespread power outages . As many as 65 buildings were flooded , and approximately 87 ha ( 215 ac ) of arable land was inundated by rainwater . In addition to surface inundation , the rains caused twenty landslides , blocking roads the traffic and suspending some rail operations . Power outages were also widespread in Hy?go Prefecture , including a localized outage stripping electricity from 900 homes in the Kita @-@ ku ward in Kobe ; similar impacts occurred in Osaka Prefecture . Rising floodwater in Kanagawa Prefecture engulfed the first floors of several office buildings and residences . The rain also deluged roads in Yokohama , Fujisawa , Chigasaki and Odawara .

On Nishino @-@ shima Island in Honshu 's Shimane Prefecture , precipitation caused the deterioration of surface sediments , resulting in landslides that damaged several buildings . Agricultural damage totaled to ¥ 660 @,@ 000 ( US $ 5 @,@ 500 ) , and three flights were cancelled at Oki Airport . Multiple landslides occurred in Miyagi Prefecture . In Kesennuma , the rains triggered a rockfall , prompting evacuations and damaging a home . A second rockfall incident occurred on June 2 , destroying several buildings . Residents of Ogachi and Ishinomaki were ordered to evacuate due to the threat of additional rockfalls and landslides , . In both Hino and Kurayoshi , Tottori , heavy rain caused damage to roads and farmland erosion . The precipitation also caused a river to flow over its banks , flooding adjacent land . Damage in Tottori Prefecture amounted to ¥ 890 million ( US $ 75 @,@ 000 ) . Significant damage occurred in ?ita Prefecture , where heavy rains caused landslides and suspended rail operations . Most of the damage in ?ita Prefecture was done to crops , particularly vegetables , and totaled ¥ 27 @.@ 37 million ( US $ 230 @,@ 000 ) . Damage to sweet potato and tobacco crops alone in Kagoshima Prefecture reached ¥ 21 million ( US $ 180 @,@ 000 ) , while damage to agricultural infrastructure totaled ¥ 2 million ( US $ 16 @,@ 800 ) . Damage to tobacco crops in Miyazaki Prefecture were estimated even higher at ¥ 50 @.@ 57 million ( US $ 420 @,@ 000 ) . In Nagasaki Prefecture , the rains also damaged forests , with damage estimated at ¥ 23 million ( US $ 190 @,@ 000 ) ; other agricultural damage was

estimated at ¥ 60 million ( US $ 500 @,@ 000 ) . Voluntary evacuation procedures took place in Fukue , Nagasaki due to the threat of building collapse .

Despite transitioning into an extratropical cyclone during its passage of Japan , Linfa still maintained strong winds , which caused heavy damage to susceptible structures . The highest wind associated with Linfa in Japan was clocked at 119 km / h ( 74 mph ) in Murotomisaki , K?chi Prefecture . Operations on the T?hoku Main Line were delayed as a result of strong winds onset by Linfa . Wind gusts as high as 55 km / h ( 35 mph ) in Nakatsugawa in Tochigi Prefecture caused the complete destruction of at least five buildings and damaged several others , resulting in ¥ $ 760 @,@ 000 ( US $ 6 @,@ 400 ) in damage . More considerable damage occurred in Shiga Prefecture , where strong winds caused damage to greenhouses and nearby crops , accruing ¥ 36 @.@ 75 million ( US $ 308 @,@ 700 ) in damage . In addition , two people were injured after winds threw a section of plywood into the car they were occupying .