= Typhoon Pat (1985) =

Typhoon Pat , known in the Philippines as Typhoon Luming , was a powerful typhoon that struck Japan during the summer of 1985 . Pat is also one of three storms in the Western Pacific which interacted with each other . Originating from a monsoon trough towards the end of August , Pat first formed on August 24 several hundred miles east of the Philippines . It gradually intensified , and two days later , Pat was upgraded into a tropical storm . The cyclone initially moved east @-@ northeast while continuing to deepen . However , Pat leveled off in intensity on August 27 . After turning northwest , Pat attained typhoon intensity on August 28 . Pat accelerated towards the north , and reached its peak intensity of 80 mph (130 km / h) on August 30 . The next day , the storm crossed the southern Japanese islands and entered the Sea of Japan . Gradually weakening , Pat transitioned into an extratropical cyclone later on August 31 . Early the next day , the storm moved ashore along northeastern Japan . The system dissipated on September 2 after reentering the Pacific Ocean . A total of 23 perished due to Typhoon Pat and 12 others were rendered as missing . Additionally , 79 people were injured . Furthermore , 38 houses in Japan were demolished , 110 were damaged , and over 2 @,@ 000 were flooded . More than 160 @,@ 000 homes lost power . A total of 165 flights were cancelled .

= = Meteorological history = =

Typhoon Pat originated from an active monsoon trough located east of the Philippines in the last two weeks of August . Forming around the time as Typhoon Odessa and Tropical Storm Ruby , an area of enhanced convection was first noted towards the end of August . At 0600 UTC on August 24 , the Japan Meteorological Agency (JMA) started watching the system . Fifteen hours later , the Joint Typhoon Warning Center (JTWC) followed suit . At this time , the system was located within a favorable environment . The JTWC issued a Tropical Cyclone Formation Alert (TCFA) on the afternoon of August 25 . Early the next day , the JMA upgraded the disturbance into Tropical Storm Pat . Later on August 26 , a Hurricane Hunter aircraft reported winds of 70 km / h (45 mph) and a pressure of 999 mbar (29 @.@ 5 inHg) , but did not locate a surface circulation . That afternoon , the TCFA was re @-@ issued . Following additional Hurricane Hunter reports , which noted evidence of a surface circulation , the JTWC declared the system Tropical Storm Pat .

Initially poorly organized , Pat headed east @-@ northeast , south of a subtropical ridge . At 0600 UTC on August 27 , the JMA increased the intensity of the storm to 95 km / h (60 mph) . Meanwhile , the JTWC anticipated the storm to move east @-@ northeast and separate from the monsoon trough before turning west @-@ northwest under a weakening ridge . Instead , Pat drifted northeast , but remained situated within the monsoon trough . As such , the JTWC revised their forecast , and now expected the storm to move northwest due to the presence of an eastward moving trough situated over Mongolia . Meanwhile , the JMA increased the intensity of Pat to 105 km / h (65 mph) early on August 28 . Several hours later , both the JTWC and the JMA upgraded Pat to a typhoon . According to the JMA , the storm leveled off intensity for about a day . By midday on August 29 , some tropical cyclone forecast models began to show Pat emerging into the Sea of Japan west of the ridge . However , this theory was not supported by the JTWC as they believed that the ridge was too narrow to be picked up a trough . That same day , the JTWC increased the intensity to 160 km / h (99 mph) , equivalent to a Category 2 cyclone on the United States @-@ based Saffir @-@ Simpson Hurricane Wind Scale . The next day , the agency finally revised its forecast and predicted the storm to enter the sea . Around this time , the JTWC estimated that Pat attained peak intensity , with winds of 170 km / h (105 mph) . During the evening of August 30 , the JMA reported that Pat reached its peak intensity of 135 km / h (85 mph) and a pressure of 955 mbar (28 @.@ 2 inHg) . By this time , the ridge was gone , though a trough was now located near South Korea .

Shortly after its peak , Pat moved ashore along the southern tip Kyushu on August 31 . Overland , Pat began to weaken , and early the next day , the JMA downgraded Pat to a severe tropical storm . Meanwhile , Pat began to interact with Odessa , as the systems were approximately 500 km (310

mi) apart . As Odessa moved east @-@ northeast , Pat accelerated towards the north , and then emerged into the Sea of Japan later on August 31 . That evening , the JTWC downgraded Pat into a tropical storm . At 2100 UTC that day , the JTWC noted that Pat had transitioned into an extratropical cyclone . By this time , all the convection activity was restricted to the northeast quadrant of the system . Early on September 1 , Pat made landfall in Hokkaido along northeastern Japan . At that time , the JMA estimated winds of 110 km / h (70 mph) . At midday , the JTWC stopped watching the system , although the JMA continued to do so until 1800 UTC on September 2 .

= = Preparations , impact and aftermath = =

While crossing Japan , a peak rainfall total of 374 mm (14 @.@ 7 in) was recorded in Ebino , including 271 mm (10 @.@ 7 in) in a day . A peak hourly storm total of 107 mm (4 @.@ 2 in) was measured at Gokaharadake on Nagasaki . Pat was responsible for strong winds , including a 69 km / h (43 mph) wind speed in Yakushima . The island of Kyushu sustained the worst affects from the typhoon . Twenty @-@ three people were killed by the typhoon while 12 others were listed as missing . A 61 @-@ year @-@ old man who died when knocked over by a street sign in Izumi . A 35 @-@ year @-@ old woman was crushed to death in Kagoshima when her home was demolished . A total of 179 people were injured due to Pat , including 23 on Honshu and 156 on Kyushu . In Aomori , a tent fell on 400 people attending a sporting event , injuring 18 . In the nearby Yamagata prefecture , a signboard at a school ground fell due to strong winds , injuring four students . Nearby , in the Kumamoto prefecture , one man was struck and killed by a flying tin plate , another was swept out to sea , and a man died when a ladder fell on him . Elsewhere , twelve fisherman perished at sea , seven of whom were not confirmed dead until September 2 .

A total of 38 houses in Japan were destroyed , 110 were damaged , and more than 2 @,@ 000 were flooded . Landslides were observed at 56 locations . Power was lost to 160 @,@ 000 families . A total of 165 flights were cancelled , delaying 15 @,@ 000 passengers . A total of 160 trains were cancelled . Two bullet train lines experienced delays in Kyushu ; ferry and air service were also delayed there . Offshore , ten fishing boats sunk , including one Japanese cargo ship . An additional 12 ships were rendered as missing . Ninety @-@ five other boats took refuge in North Korea , though 59 left on September 2 to return to Japan .