

= Typhoon Kujira (2003) =

Typhoon Kujira , known in the Philippines as Typhoon Amang , was an extremely long @-@ lived tropical cyclone that lasted for 16 days affected the island nations of Micronesia , Taiwan , and Japan in April 2003 , as well as the earliest typhoon in a calendar year to ever make landfall on the latter . Forming from a broad area of disturbed weather as a tropical depression on April 9 well removed from any landmasses , Kujira quickly intensified in its early stages , and was upgraded to a tropical storm just two days after cyclogenesis . Strengthening slowed afterwards , though the storm attained typhoon intensity on April 14 . Intensification continued and late on April 15 , Kujira reached its peak intensity with winds of 165 km / h (105 mph) and a minimum barometric pressure of 930 mbar (hPa ; 27 @. @ 46 inHg) . Following peak intensity , Kujira would begin to track northwest and oscillate in strength , cresting an additional two times in intensity . On April 21 , the typhoon was downgraded to tropical storm intensity and began to track erratically for several days east of Taiwan . However , on April 24 , Kujira would resume a northward track and begin to weaken , and on April 24 was downgraded to tropical depression strength as it made landfall on Kyushu . Following landfall Kujira transitioned into an extratropical cyclone and continued to persist before these extratropical remnants crossed the International Dateline towards the end of April 2003 .

Shortly after developing , Kujira caused two fatalities in Pohnpei in addition to minor agricultural and infrastructure damage ; similar effects were felt in Guam . Several days later , the typhoon prompted cyclone warnings and other precautionary measures in the Philippines after forecasts indicated the potential for strong winds and rain . However , effects on the island chain associated with the storm remained minimal . The typhoon also prompted warning products in Taiwan , making it the first April typhoon since 1978 to cause such a feat . Unlike in the Philippines , however , Kujira would bring significant rainfall to Taiwan . Effects from the typhoon were most significant in Japan , particularly in the Ryukyu Islands . Strong winds , rain , and waves caused US \$ 230 @, @ 000 (¥ 27 @. @ 8 million) in agricultural damage on Ishigaki Island . One person was killed due to injuries resulting from the waves . In Kyushu , heavy rainfall , peaking at 196 mm (7 @. @ 7 in) in ?ita Prefecture , was reported . Overall , despite its distance away from land and weak intensity at the time of its sole landfall , Kujira resulted in three fatalities .

= = Meteorological history = =

The systems that would develop into Typhoon Kujira began as a broad area of convection on April 6 centered south of Pohnpei and near the equator . At the time , the area of disturbed weather exhibited multiple circulation centers , and thus the system remained generally disorganized . On April 8 , however , the convection began to consolidate towards a common center within an area of low wind shear . As such , both the Japan Meteorological Agency (JMA) and Joint Typhoon Warning Center (JTWC) classified the storm system as a tropical depression at 0000 UTC on April 9 . For much of the cyclone 's early existence , the low @-@ level circulation center remained east of the primary convection cell as it tracked northward . Nonetheless , the JTWC upgraded the depression to tropical storm intensity just six hours after cyclogenesis , while the JMA continued to classify the system as a tropical depression .

Intensification was more gradual following April 9 . At 0000 UTC on April 11 , the JMA upgraded the system to tropical storm intensity , thus identifying it with the name Kujira . At roughly the same time , Kujira began to curve towards a westward track due to a high pressure area to the north . Concurrently the ambient wind shear abated and the storm further consolidated , allowing for more quicker strengthening . Throughout the following day , Kujira developed a banding eye feature that would later consolidate into a distinct circular eye ; this was reflected with an upgrade to typhoon status by both the JTWC and JMA at 1800 UTC on April 12 and 0000 UTC on April 14 , respectively . On April 14 , a shortwave trough caused Kujira to track slightly more northwestward . Marked intensification continued , and late on April 15 , the JTWC upgraded the typhoon to super typhoon intensity , the first of the year , while Kujira was located 400 km (250 mi) north @-@ northwest of Yap State . At roughly the same time Kujira reached its peak intensity with winds of 165 km / h (105

mph) . Estimated 1 @-@ minute sustained winds at that time were 250 km / h (155 mph) , equivalent to that of a Category 4 hurricane on the Saffir ? Simpson wind scale . Following peak intensity , Kujira continued to track westward as it entered the area of responsibility of the Philippine Atmospheric , Geophysical and Astronomical Services Administration (PAGASA) at 1200 UTC on April 16 , and as such the name Amang was assigned to the typhoon by the agency .

On April 17 , the tropical cyclone began to track slightly southwestward and encountered an area of dry air and enhanced wind shear , thus temporarily weakening Kujira . Despite the prolonged effects from these inhibitors , the typhoon restrengthened to a secondary peak intensity the following day . Though the JTWC indicated a significant increase in maximum sustained winds , the intensification was only reflected by the JMA with a slight drop in barometric pressure . Over the next two days Kujira would begin to track more northward due to a weakness in the nearby subtropical ridge and oscillate in strength due to an eyewall replacement cycle ; a tertiary peak in strength occurred on April 20 before subsequent weakening . This trend continued , and at 1800 UTC on April 21 , both the JMA and JTWC downgraded Kujira to tropical storm status . Following the system 's downgrade , Kujira became quasi @-@ stationary due to the presence of two nearby high pressure areas , and its motion became erratic . Despite hostile atmospheric conditions , the tropical storm remained intact with persistent , deep convection and organized rainbands . Late on April 23 , however , the cyclone began to drift towards the north as it made its closest approach to Taiwan . Throughout the following day , Kujira would continue to accelerate towards the northeast and weaken at the same time . At 1200 UTC on April 24 , PAGASA ceased issuing advisories on the storm as it had exited the agency 's area of responsibility . At 0300 UTC the next day , the JMA downgraded the storm to tropical depression intensity while the JTWC ceased monitoring of the system three hours later . At roughly the same time , Kujira made landfall near Ushibuka , Kumamoto at the same intensity . Weakening continued , and the JMA would continue to classify the system as a tropical depression until 1200 UTC on April 25 , when it transitioned into an extratropical cyclone . The JMA would continue to track the extratropical remnants of Kujira until they crossed the International Dateline on April 30 .

= = Preparations and impact = =

Shortly after forming , Kujira tracked near Pohnpei , resulting in heavy rainfall across the island , peaking at 250 mm (10 in) . Despite the typhoon 's far distance from the island , two people were killed ? one died after being crushed by a prostrated tree , while the other was killed offshore for unknown reasons . It also caused minor damage to buildings and crops on the island . The outer rainbands of the typhoon would later bring gale @-@ force winds and heavy precipitation as it passed well south of Guam . Afterwards , the storm remained well removed from landmasses for a period of time . On April 18 , however , PAGASA issued a public storm warning signal No. 1 for Catanduanes in the Philippines due to the likelihood for gusty winds and rainfall . As Kujira neared the archipelago , the No. 1 warning was expanded to include the Babuyan Islands while a No. 2 warning was introduced for the Batanes Islands in northern Philippines . In preparation for the typhoon , the National Disaster Coordinating Council readied regional disaster coordinating councils and contingency plans while the Armed Forces of the Philippines prepared for any potential emergency situation . The Philippine Coast Guard patrolled Filipino waters throughout Kujira 's close passage in order to redirect ships away from the typhoon . Though the typhoon had also threatened to cancel the biennial San Fernando Race , the concurrent SARS outbreak which had impacted the Philippines ultimately resulted in its cancelling . Eventually any effects in the Philippines remained minimal .

As Kujira began to track towards Taiwan , the Taiwanese government issued land- and sea @-@ based warnings in advance of the storm . The local weather bureau specifically alerted vessels off the southern and southeastern coasts of the island . Continued strengthening of Kujira prompted the Central Weather Bureau to issue medium typhoon warnings for several portions of Taiwan , though these warnings were downgraded to light typhoon status following the subsequent weakening of the typhoon on April 22 . This made Kujira the first April typhoon to prompt the issuance of any cyclone

@-@ related warnings in Taiwan since 1978 . Impacts on the island were expected to be limited to rainfall , though the forecasted precipitation was also expected to lessen ongoing drought conditions . However , mudslides were also a potential impact from the typhoon . The National Fire Administration and Taiwan Power Company developed a contingency plan for the typhoon and had also undertaken other precautionary measures . Airports on Orchid Island and Green Island were closed . The resultant rainfall from Kujira 's outer rainbands would be some of the most significant for the island in several months .

Effects from Kujira in Japan were of the greatest extent as opposed to other regions . Several flights were cancelled due to poor visibility in Ehime Prefecture as a result of cloudy conditions onset by the nearby typhoon , and roughly 1 @, @ 800 passengers were affected by these cancellations . Similar flight delays and cancellations also occurred in K?chi Prefecture . As Kujira approached Japan , the storm brought rough seas to the Ryukyu Islands , where wave heights of 2 @. @ 5 m (8 @. @ 2 ft) were recorded . In Okinawa , a women was swept away by the wave action . Though she was later rescued and transported to a nearby hospital , she later died of resulting injuries . Further south , on Ishigaki Island , intense rainfall and near @-@ record high wind gusts were reported . These combined effects caused US \$ 230 @, @ 000 (￥ 27 @. @ 8 million) in agricultural damage spread out over an area of 190 ha (460 acres) . However , the heaviest rainfall associated with Kujira in Japan were on Kyushu . There , precipitation peaked at 196 mm (7 @. @ 7 in) in Shakadake , ?ita Prefecture . Five other locations , all of which were on Kyushu , reported rainfall totals in excess of 125 mm (4 @. @ 9 in) . Upon its final landfall near Ushibuka , Kumamoto , Kujira became the earliest typhoon in any given calendar year to make landfall in Japan .