

= Typhoon Noul (2015) =

Typhoon Noul , known in the Philippines as Typhoon Dodong , was a relatively small but powerful tropical cyclone that affected several areas but caused minor damage . The sixth named storm and third typhoon of the annual typhoon season , Noul formed as a tropical depression over the eastern Caroline Islands on May 2 , 2015 . It moved generally to the west and west @-@ northwest , gradually intensifying into a tropical storm and later typhoon . On May 9 , Noul began rapid deepening as it developed a well @-@ defined eye . Early the next day , the Japan Meteorological Agency (JMA) estimated peak 10 minute sustained winds of 205 km / h (125 mph) , while the American @-@ based Joint Typhoon Warning Center (JTWC) estimated peak 1 minute winds of 260 km / h (160 mph) , equivalent to Category 5 on the Saffir ? Simpson hurricane wind scale . Noul struck northeastern Luzon in the Philippines at that intensity and greatly weakened . After passing east of Taiwan , the typhoon accelerated to the northeast and weakened due to unfavorable conditions . On May 12 , Noul became extratropical south of Japan , and the remnants continued to the northeast for several days , dissipating on May 16 .

The typhoon first affected Yap State in the Federated States of Micronesia , bringing 296 mm (11 @.@ 65 in) of rainfall and causing about US \$ 100 @,@ 000 in damage . Noul forced 3 @,@ 803 people to evacuate in the Philippines and stranded thousands others due to travel cancellations . Two people died while preparing for the storm . Its effects were limited to two provinces , amounting to ? 16 @.@ 3 million (US \$ 362 @,@ 000) in damage . Later , heavy rainfall in Taiwan helped ease water restrictions . The storm caused heavy crop damage in the Miyako District of Okinawa , totaling ¥ 2 @.@ 8 billion (US \$ 23 @.@ 2 million) .

= = Meteorological history = =

The origins of Noul were related to a strong westerly wind burst that also led to the formation of later Typhoon Dolphin . By April 30 , 2015 , an area of convection , or thunderstorms , persisted and pulsed about 230 km (145 mi) west @-@ southwest of Chuuk State within the Federated States of Micronesia (FSM) . The system had a broad circulation amid an environment favorable for tropical cyclogenesis , including low to moderate wind shear . The circulation slowly consolidated , developing improved outflow and increasingly organized convection . At 06 : 00 UTC on May 2 , the Japan Meteorological Agency (JMA) designated the system as a tropical depression about 850 km (525 mi) west @-@ southwest of Chuuk . At 00 : 00 UTC the next day , the Joint Typhoon Warning Center (JTWC) classified the system as Tropical Depression 06W .

The nascent tropical cyclone moved northwestward through a weakness in the subtropical ridge . Aided by decreasing wind shear and warm sea surface temperatures , the convection organized into a central dense overcast . At 18 : 00 UTC on May 3 , the JMA upgraded the depression to Tropical Storm Noul . The strengthening ridge turned the storm to the west toward the Philippines . On May 5 , an eye developed in the center of the storm while Noul was near Yap State , prompting the JTWC to upgrade the storm to typhoon status . At 18 : 00 UTC that day , the JMA upgraded Noul to a severe tropical storm , and later to typhoon status at 06 : 00 UTC on May 6 . The storm 's spiral rainbands became increasingly organized , although the eye initially remained cloud @-@ filled . Early on May 7 , Noul crossed 135° E into the area of responsibility of PAGASA ? the Philippines ' weather bureau ? who assigned the local name Dodong .

Due to radial outflow , low vertical wind shear , and water temperatures above 30 ° C , Noul started rapid deepening on May 9 while approaching the Philippine island of Luzon , forming a sharply well @-@ defined 35 km (20 mi) eye embedded in a deepening symmetric core ; therefore , the JTWC upgraded it to a super typhoon late on the same day . At 00 : 00 UTC on May 10 , the JMA estimated peak 10 minute sustained winds of 205 km / h (125 mph) . At the same time , the JTWC estimated peak 1 minute sustained winds of 260 km / h (160 mph) , equivalent to Category 5 on the Saffir ? Simpson hurricane wind scale . As the typhoon neared the northeast tip of Luzon , satellite imagery showed rapid deterioration of the storm 's core structure and warming of the cloud tops . According to PAGASA , at around 08 : 45 UTC on May 10 , Noul made landfall in the

Philippines at Pananapan Point in Santa Ana , Cagayan . However , the JMA and JTWC tracks do not show landfall , but instead show the center staying offshore . After its closest approach to Luzon , the storm 's structure continued to deteriorate , becoming elongated and less organized due to increasing wind shear and land interaction . By late on May 10 , the eye largely disappeared from satellite imagery as Noul turned northward over water , steered around the subtropical ridge . A large residual eye persisted in the center of the waning convection , although stronger wind shear increasingly disrupted the storm 's structure . An approaching trough steered Noul to the northeast , bringing it east of Taiwan on May 11 . By early on May 12 , the storm had become increasingly elongated as dry air became entrained in the center , with the structure resembling a " comma " -shape , according to the JTWC . The agency downgraded it to a tropical storm at 00 : 00 UTC that day as the storm accelerated through Amami ?shima . Six hours later , the storm became extratropical off the southern coast of Japan .

The extratropical remnants of Noul continued to the northeast . Around 12 : 00 UTC on May 12 , the storm passed through the Kant? region of southeastern Japan . The center quickly moved back over water and passed just east of Hokkaido on May 13 . Noul slowed its forward motion while remaining south of the Kuril Islands and Russia 's Kamchatka Peninsula . At 06 : 00 UTC on May 16 , the remnants of Noul dissipated near the international date line , after being absorbed by another large extratropical storm .

= = Preparations and impact = =

= = = Federated States of Micronesia = = =

Ahead of the storm 's arrival , typhoon warnings were issued for Yap State in the Federated States of Micronesia (FSM) . In its formative stages , Noul caused minor damage to Fais Island and Ulithi Atoll . On the island of Yap , the typhoon produced gusts to 116 km / h (72 mph) and 296 mm (11 @. @ 65 in) of rainfall . Damage on the island was estimated at US \$ 100 @, @ 000 . The storm delayed a supply ship to outlying islands of the state that were previously affected by Typhoon Maysak a month prior .

= = = Philippines = = =

Typhoon Noul , known as Typhoon Dodong within the country , entered the Philippine area of Responsibility on May 7 . In response to the storm , PAGASA raised warning signal 4 , the highest level , for northeastern Cagayan as well as the offshore Batanes and Babuyan Islands . Neighboring provinces had lower warning signals . A total of 3 @, @ 803 people evacuated their homes in Cagayan and Isabela to 27 storm shelters ; families returned home by late on May 10 after the storm moved ashore without causing much damage . Flights and ferry routes were canceled , stranding 10 @, @ 000 people . The Philippine Army deployed 18 soldiers to assist in storm preparations , utilizing boats and helicopters . Fishermen were advised not to go out to sea east of Luzon . People were also evacuated from the vicinity of Mount Bulusan after rains from Noul threatened to cause lahars and mudslides from ash of a recent eruption . They were allowed to return after Noul recurved to the north and the threat did not materialize . Two people in Cagayan died due to electrocution while attempting to fix their roofs ahead of the storm .

Upon striking the Philippines , the typhoon produced high winds and heavy rainfall to Luzon . Noul knocked down trees and damaged houses , resulting in power outages to seven communities ; the power was restored within one day . The storm 's rains were beneficial to local farmers after an extended dry spell . In Santa Ana where the storm moved ashore , the storm caused minor damage to seven schools . Across Cagayan , the storm damaged ? 2 @. @ 7 million (US \$ 60 @, @ 000) worth of corn and rice crops , as well as minor damage to fisheries . There was minor infrastructure damage in neighboring Ilocos Norte . Overall , Noul caused ? 16 @. @ 3 million (US \$ 362 @, @ 000) in damage .

= = = Elsewhere = = =

In Taiwan , domestic flights from mainland Taiwan to the outlying Green Island and Orchid Island were canceled for May 10 . Also in the outlying islands , schools and offices were closed in anticipation of the storm , while boats sought shelter at harbors . Heavy rains from the storm 's outer bands and a frontal system brought much needed rain to areas of northern Taiwan suffering from a severe drought . A total of 93 mm (3 @. @ 7 in) of rain fell at the Shihmen Dam , amounting to an increase of approximately 7 million tonnes of water in the reservoir , and bringing it to 30 @. @ 5 % capacity . Several major cities were able to lift water rationing as a result . Rainfall amounted to 69 mm (2 @. @ 7 in) at the Baoshan Reservoir , 60 @. @ 5 mm (2 @. @ 38 in) at the Mingte Reservoir , and 52 @. @ 5 mm (2 @. @ 07 in) at the Feistui Reservoir .

On May 11 , Noul impacted the Ryukyu Islands of Japan as a weakening typhoon . The Yaeyama Islands experienced unexpectedly strong winds , with Ishigaki measuring its highest sustained winds during May on record at 104 km / h (65 mph) ; records there began in 1897 . To the east , sustained winds of 131 km / h (81 mph) and gusts to 172 km / h (107 mph) were observed on Shimoji @- @ shima . Across Okinawa , the storm 's high winds and waves damaged crops , accounting for ¥ 2 @. @ 8 billion (US \$ 23 @. @ 2 million) in crop damage . Most of the crop damage occurred in the Miyako District , where the storm also caused power outages . On Tokunoshima island , the storm damaged 13 houses and injured six people . The typhoon also caused 47 flights to be canceled , stranding 4 @, @ 300 people . Noul dropped heavy rainfall across Japan that set daily May records , including 143 mm (5 @. @ 6 in) on Ishigaki Island . Rainfall also spread into the main islands of Japan , reaching 180 mm (7 @. @ 1 in) in the T?kai region . One person in Kyoto sustained significant injuries after falling amid high winds . The storm also delayed oil shipments from Japan 's oil refineries .

The remnants of Noul , in conjunction with later Typhoon Dolphin , shifted the broader weather pattern to bring record warmth to Alaska , making the temperatures warmer than that of Washington , D.C ..