= Typhoon Soudelor (2003) =

Typhoon Soudelor , known in the Philippines as Typhoon Egay , was a powerful typhoon that underwent rapid deepening east of Taiwan in the 2003 Pacific typhoon season . It was the sixth named storm by the Japan Meteorological Agency (JMA) of the season , as well as the third typhoon . It formed on June 12 from a disturbance in the monsoon trough , located east of the Philippines . The system moved generally to the northwest after its genesis , gradually intensifying into a tropical storm . While offshore the Philippines , Soudelor dropped heavy rainfall that caused flooding and left thousands homeless . The storm caused $ 2 @.@ 46 million in damage , and 12 deaths .

After affecting the Philippines , Soudelor moved into an area of low wind shear and with favorable outflow . It became a typhoon on June 17 , and quickly developed an eye while rapidly intensifying . The storm struck the Japanese island of Iriomote @-@ jima , where wind gusts reached 204 km / h (127 mph) . It also affected Taiwan , where floods covered highways and caused mudslides . Early on June 18 , Soudelor reached peak 10 ? minute sustained winds of 150 km / h (90 mph) . Subsequently , an increase in shear and the passage of a trough weakened the typhoon and caused it to turn to the northeast . Soudelor weakened to a tropical storm on June 19 , and subsequently it passed between Japan and South Korea . It became an extratropical cyclone that day , dissipating on June 24 . In Japan , the storm caused widespread power outages , although damage was minimal , and there were 21 injuries . In South Korea , there was $ 12 @.@ 1 million in damage and two deaths .

= = Meteorological history = =

The origins of Soudelor were from a tropical disturbance that persisted a short distance northwest of Pohnpei on June 7 . By two days later , it had a large area of convection , and it moved generally westward . Late on June 9 , the Joint Typhoon Warning Center (JTWC) issued a tropical cyclone formation alert (TCFA) , although the system initially failed to develop due to wind shear in the region . The thunderstorms decreased over the increasingly exposed circulation . On June 11 , the shear decreased , and convection became better organized . The JTWC initiated warnings on Tropical Depression 07W late that day , and at 0000 UTC on June 12 , the Japan Meteorological Agency (JMA) also remarked that a tropical depression had formed to the northeast of Palau .

After forming , the depression tracked generally westward due to a subtropical ridge to the north . Around that time , it was still located within the monsoon trough , and it interacted with another circulation to its east @-@ southeast , causing a motion to the west @-@ northwest . As it moved away from the other circulation , the depression was able to intensify , and the wind shear decreased . On June 13 the JMA upgraded the depression to Tropical Storm Soudelor to the east of Samar Island in the Philippines . That day , the Philippine Atmospheric , Geophysical and Astronomical Services Administration PAGASA initiated advisories and gave it the local name " Egay " . Upon becoming a tropical storm , Soudelor developed rainbands to the north and south , although it could not intensify significantly due to a tropical upper tropospheric trough to the east . A mid @-@ latitude trough to the north weakened the ridge , which allowed Soudelor to turn more to the northwest off the northeast coast of the Philippines . The circulation became exposed from the deepest convection , and around that time the storm was located about 160 km (100 mi) east of Samar Island . Thunderstorms gradually increased , and the outflow improved . Late on June 16 , the JTWC upgraded Soudelor to a typhoon , and the next day the JMA followed suit when the storm was located southeast of Taiwan .

Around the time that Soudelor became a typhoon , it began moving toward the north , influenced by an approaching trough , and it passed about 95 km (60 mi) northeast of Luzon . A ragged eye developed early on June 17 , which quickly became better organized . With its outflow enhanced by the approaching trough , Soudelor rapidly intensified to the east of Taiwan . The typhoon struck the Japanese island of Iriomote @-@ jima at around 2030 UTC on June 17 . At 0600 UTC on June 18 , the JTWC estimated peak 1 ? minute winds of 215 km / h (135 mph) . At the same time , JMA

estimated peak 10 ? minute winds of 150 km / h (90 mph) when it was located west of Okinawa . While at its maximum strength , Soudelor had a circular eye 33 km (21 mi) in diameter . It turned to the north @-@ northeast , maintaining its peak winds for about 12 hours before increased shear from the westerlies caused weakening . The eye quickly dissipated , and the system began transitioning into an extratropical cyclone . Early on June 19 , the JMA downgraded Soudelor below typhoon status , and the storm later crossed between Japan and South Korea into the Sea of Japan . At 1500 UTC that day , the JMA declared the storm as extratropical while it was near the Oki Islands ; the JTWC followed suit three hours later . The extratropical remnants of Soudelor continued to the northeast , crossing northern Japan on June 20 . The storm slowed and turned to the east , dissipating on June 24 .

= = Preparations = =

By June 16 , PAGASA raised storm signal number 3 for Batanes and the provinces of Cagayan and Isabela ; storm signal number 2 for all or portions of nine provinces and for Polillo Island ; and storm signal number 1 was raised for portions of four provinces . The signals refer to the potential for winds , from lowest to highest representing weakest to strongest winds ; number 3 refers to the potential for winds of 100 to 185 km / h (62 to 115 mph) within 18 hours .

On June 16 , the Central Weather Bureau issued sea and land warnings in Taiwan as Soudelor was anticipated to produce torrential rains , gale @-@ force winds , and rough seas . All fishermen in the area were urged to return to port before the onset of the typhoon . As the typhoon tracked near Taiwan , the Japan Meteorological Agency began advising residents in Okinawa to closely monitor the storm . One of the major airlines in Japan , All Nippon Airways , cancelled 66 domestic flights the same day , stranding an estimated 6 @,@ 000 people . During the storm , 257 domestic flights were canceled , and train and ferry service was canceled . In Nagasaki Prefecture , 732 schools were closed during the storm . Hundreds of people voluntarily evacuated in Japan .

On June 17 , the Korean Meteorological Agency issued rain warnings for Jeju Island and coastal areas of South Korea . They also urged residents to take all precautions for the storm . The Korea Airports Corporation reported that 111 flights to southern areas of the country were cancelled due to the typhoon .

= = Impact and aftermath = =

While Soudelor was moving to the northwest off the east coast of the Philippines , it dropped heavy rainfall , including 300 mm (12 in) in 24 hours in Catarman , Northern Samar . Rainfall in six hours reached 118 mm (4 @.@ 6 in) at Virac Airport . The rains caused flooding throughout the Philippines , which left thousands of people homeless . Throughout the country , the storm damaged 157 houses and destroyed 94 . Soudelor also left crop damage . An estimated 45 @,@ 400 people were affected by Soudelor . Overall damage was estimated at ? 131 million (2003 Philippine pesos , $ 2 @.@ 46 million 2003 USD) . There were 12 deaths , with two missing , as well as two people injured .

In Taiwan , Soudelor dropped heavy rainfall that resulted in flooding and landslides . One of the mudslides covered a 10 km (6 @.@ 2 mi) section of the Yenhsi Highway between Hsitou and Luku . Road crews were quickly dispatched to the area but had to suspend cleanup efforts due to continuing impacts from Soudelor . Dozens of tour buses carrying tourists who were being evacuated from the mountains were blocked several times by mudslides covering roads . The Sungshan Airport in Taipei was shut down during the morning of June 19 due to unsettled weather produced by the typhoon . The Feitsui Dam increased by 2 @.@ 5 m (8 @.@ 2 ft) due to the storm 's rainfall , raising it to near peak capacity .

For eight hours , the Japanese island of Iriomote @-@ jima reported gale @-@ force winds , except for during the eye passage of Soudelor . The island reported sustained winds of 108 km / h (67 mph) , with gusts to 204 km / h (127 mph) . On Ishigaki Island , the storm caused ¥ 77 @.@ 9 million (2003 JPY , $ 655 @,@ 000 2003 USD) in agriculture damage , mostly from high waves .

Soudelor dropped heavy rainfall throughout Japan , peaking at 497 mm (19 @.@ 6 in) in Kagoshima Prefecture ; most of the precipitation fell in about 24 hours . A North Korean cargo ship was stranded off the northwest coast of Japan after being refused entry into the Japanese port of Toyama . During the storm , about 10 @,@ 000 houses lost power , including 3 @,@ 400 houses in Okinawa Prefecture . Damage was minor , with only 26 damaged houses , varying from blown off roof tiles to shattered windows . Soudelor injured 21 people in the country , mostly due to falling objects . There were at least 22 landslides nationwide . Four bridges along the Yoshino River were flooded during the storm .

In South Korea , Soudelor dropped about 500 mm (20 in) of rainfall at Hallasan in Jeju Province in South Korea . The storm also caused 4 m (13 ft) seas . Typhoon Soudelor killed two people in South Korea and caused $ 12 @.@ 1 million in damages .