

= Cyclone Sina =

Severe Tropical Cyclone Sina was the only named tropical cyclone to develop within the South Pacific basin during the 1990 ? 91 season . The system was first noted as a shallow depression within the South Pacific Convergence Zone to the west of Wallis Island . Over the next three days the system moved towards the west @-@ northwest , before it was named Sina during November 24 , after it had developed into a tropical cyclone . Over the next couple of days the system intensified further and developed an eye feature as it erratically moved towards Fiji . Sina subsequently peaked in intensity during November 26 , before the system passed through the Fijian Islands over the next two days as it started to gradually weaken . Sina subsequently passed just to the north of Tongatapu in Tonga during November 29 , before it passed about 160 km ( 100 mi ) to the south of Niue and near the Southern Cook Islands during the next day . The system subsequently rapidly weakened and became an extratropical cyclone during December 1 , before they were absorbed by an advancing trough of low pressure near 50 ° S on December 4 .

The cyclone caused no deaths and over \$ 18 @. @ 5 million in damages , as it affected Fiji , Tonga , Niue and the Southern Cook Islands . Ahead of the system affecting Fiji , hundreds of people were evacuated from Fiji 's outer island resorts to hotels on the mainland . High winds and heavy rain forced the closure of several local airports and the main Nadi International Airport . As Sina moved through the archipelago , the system destroyed or damaged houses and other building structures , while bringing down electric and telephone lines and uprooting trees . The system also washed away a railway bridge on Vanua Levu that was used to take sugar cane to Labasa 's mills , leaving growers no choice but to go through the village of Korowiri . However , the workers refused to go into their fields unless they had police protection to go through the village , after Methodists from the local church attacked a group of growers for working on Sundays in defiance of Fiji 's Sunday Observance Decree . Within Tonga only minor damage to weak structures , trees , banana plantations , electric and telephone lines was recorded . Within both Niue and the Southern Cook Islands only minor damage to crops and structures was reported .

= = Meteorological history = =

On November 20 , the Fiji Meteorological Service 's Nadi tropical cyclone warning center ( TCWC Nadi ) started to monitor a shallow tropical depression that had developed within the South Pacific Convergence Zone to the west of Wallis Island . Over the next two days the system moved towards the west @-@ northwest and the Fijian dependency of Rotuma , before the depression 's chances of developing further became good during November 23 , as upper outflow over the system became established . The United States Joint Typhoon Warning Center ( JTWC ) subsequently initiated advisories and classified the depression as Tropical Cyclone 03P at 1200 UTC the next day , after atmospheric convection surrounding the system organized further . Later that day at 19 : 10 UTC , TCWC Nadi named the system Sina after the depression had developed into a category 1 tropical cyclone on the Australian tropical cyclone intensity scale , while it was located about 425 km ( 265 mi ) to the northwest of Rotuma . During November 25 , the cyclone continued to intensify and developed an eye as it moved erratically towards the west @-@ southwest and performed a small clockwise loop . Early on November 26 , TCWC Nadi reported that Sina had become a category 3 severe tropical cyclone . At around this time the JTWC reported that Sina had become equivalent to a category one hurricane on the Saffir @-@ Simpson hurricane wind scale ( SSHWS ) .

During that day , Sina 's eye became very distinct on satellite imagery . As the system intensified and came under the influence of a changeable upper level steering flow which resulted in Sina moving erratically towards the southeast and Fiji . Later that day TCWC Nadi reported that the system had peaked as a category 3 severe tropical cyclone , with 10 @-@ minute sustained windspeeds of 140 km / h ( 85 mph ) . The JTWC subsequently reported early the next day that Sina had peaked with 1 @-@ minute sustained windspeeds of 230 km / h ( 145 mph ) , which made it equivalent to a category 4 hurricane on the SSHWS . During that day , Sina remained at its peak intensity as it moved towards the east @-@ southeast and started to be observed on the Nadi radar

. Later that day , as the system started to gradually weaken , it passed about 40 km ( 25 mi ) to the south of Viti Levu before it passed over the island groups of Vatulele and Moala and the Southern Lau Islands during November 28 . During that day the system moved across the 180th meridian , which prompted the JTWC issue their final warning on Sina and pass the responsibility for warning the United States Government to the Naval Western Oceanography Center .

Early on November 29 , Sina weakened into a category two tropical cyclone on the Australian scale just before it passed to the north of Tongatapu in Tonga . During that day , as the system moved eastwards towards the Southern Cook Islands and gradually weakened further , the NWOC issued their final advisory on Sina while estimating that it was equivalent to a category one hurricane on the SSHWS . Early on November 30 , the system passed about 160 km ( 100 mi ) to the south of Niue , before it recurved sharply towards the south @-@ southeast later that day as it approached the Southern Cook Islands . The system subsequently started to rapidly weaken under the influence of strong vertical wind shear and cooler sea surface temperatures . TCWC Nadi subsequently passed the primary warning responsibility for Sina to TCWC Wellington as it crossed 25 ° S , who quickly reported that the system had lost its tropical characteristics and had become an extratropical depression . Over the next couple of days Sina 's extratropical remnants maintained a south @-@ eastward track , before it was absorbed by an advancing trough of low pressure near 50 ° S on December 4 .

= = Preparations , impact and aftermath = =

Cyclone Sina affected Fiji , Tonga , Niue and the Southern Cook Islands and was responsible for damages totaling over \$ 18 @. @ 5 million . The system had initially appeared to threaten the Solomon Islands and Vanuatu as it performed a small clockwise loop and moved erratically towards the west @-@ southwest during November 25 . After this usage of the name , Sina was retired from the tropical cyclone naming lists .

= = = Fiji = = =

Late on November 25 , TCWC Nadi issued a tropical cyclone alert for Fiji , while the system was located about 665 km ( 415 mi ) to the northwest of the country . During the next day , a gale force wind warning was issued for the western half of Viti Levu , the Yasawa and Mamanuca island groups , which was later upgraded to a storm warning while a gale warning was also issued for the rest of Viti Levu . These storm warnings were briefly dropped early on November 27 , when the storm appeared to be moving away from the country , but as Sina came within range of the Nadi radar , it became apparent that southern Fiji would be directly hit by the system . As a result , hurricane warnings were issued for Vatulele , Kadavu and smaller nearby islands , while storm warnings were re @-@ issued for the western half of Viti Levu and the Mamanuca island group . Over the next day as the cyclone approached , hurricane , storm and gale warnings were revised to cover various islands within the Koro and Southern Lau island groups , before all warnings were cancelled on November 28 , as Sina moved away from Fiji .

Ahead of Sina affecting the Fijian islands , from November 27 until November 29 , with wind gusts of up to 175 km / h ( 110 mph ) , hundreds of people were evacuated from Fiji 's outer island resorts to hotels on the mainland . As the cyclone affected Fiji high winds and heavy rain forced the closure of several local airports and the Nadi International Airport for around 20 hours . As the cyclone moved towards the east @-@ southeast between November 27 ? 28 , it passed near to or over the south @-@ western coast of Viti Levu , Vatulele , Bequa , Northern Kadavu and various islands within the Moala and Southern Lau island groups and caused some coastal erosion . As it moved through the archipelago , the system destroyed or damaged houses and other building structures , while bringing down electric and telephone lines and uprooting trees . The system also severely affected crops and vegetation including sugar cane and pine forests , however the extent of the damage was limited by the fact that many of the crops had already been harvested .

On December 7 , the Australian Government via the international development bureau and Air

Pacific provided emergency shelter materials , including tarpaulins , plastic sheeting and rope , after an appeal for international assistance was made by the Fijian government . After the cyclone damaged resorts were quickly repaired , while the Fijian government launched an international advertisement campaign for the islands with discounted airfares . Overall Sina caused over \$ F26 million ( \$ US18.5 million ) worth of damage to the Fijian islands , with most of the damage accounted for by losses to agriculture , sugar cane , and pine forests . After Cyclone Sina had washed away a railway bridge on Vanua Levu that was used to take sugar cane to Labasa 's mills , growers had no choice but to go through the village of Korowiri . However , the workers refused to go into their fields unless they had police protection to go through the village , after Methodists from the local church attacked a group of growers for working on Sundays in defiance of Fiji 's Sunday Observance Decree . As a result , sugar cane that had been damaged by Sina was left rotting in Fiji 's fields until the Fiji Sugar Corporation ordered that a temporary bridge be built to bypass the village .

= = = Tonga = = =

Late on November 27 , as Sina affected the Fijian island of Viti Levu , TCWC Nadi issued a tropical cyclone alert for the Tongatapu , Haʻapai and Vavaʻu groups of islands . During the next day the tropical cyclone alert for Vavaʻu was cancelled , while gale and storm force wind warnings were issued for Haʻapai and the Tongatapu islands . The system subsequently moved in between the Tongatapu and Haʻapai groups of islands where sustained windspeeds of up to 96 km / h ( 60 mph ) and wind gusts of up to 139 km / h ( 86 mph ) were recorded at the Nukuʻalofa weather station . Parts of the Tongan capital city Nukuʻalofa were left without power , after electric lines were brought down , while several homes were partially damaged after the roofs lost their iron . Overall only minor damage to weak structures , trees , banana plantations , electric and telephone lines was recorded within the island nation .

= = = Other island nations = = =

During November 29 , TCWC Nadi issued strong wind warnings for Niue as the island experienced marginal gale force winds from the system , as it passed about 185 km ( 115 mi ) to the south of the island . High seas salt spray and waves caused some damage to crops and the island 's wharf . They also washed away two temporary roads that were installed after Cyclone Ofa had affected the island earlier in the year .

Early on November 30 , as the system moved towards the east @-@ southeast , TCWC Nadi issued a gale warning for the Cook Islands of Rarotonga and Mangaia , while issuing strong wind warnings and tropical cyclone alerts for the rest of the Southern Islands . The warnings were subsequently maintained until later that day , as Sina spared the Cook Islands its major effects and re @-@ curved sharply towards the south @-@ southeast . Only minor damage to shallow rooted crops and weak structures was reported , after high seas and gale force winds buffeted the northern side of Rarotonga .