

= 1989 Pacific hurricane season =

The 1989 Pacific hurricane season was a really active Pacific hurricane season that produced a lot of tropical cyclones near Mexico and Baja California . It officially started on May 15 , 1989 in the eastern Pacific , and June 1 , 1989 in the central Pacific , and lasted until November 30 , 1989 . These dates conventionally delimit the period of each year when most tropical cyclones form in the northeastern Pacific Ocean . A total of 17 storms and 9 hurricanes formed , which was near long @-@ term averages . Four hurricanes reached major hurricane status (Category 3 or higher) on the Saffir @-@ Simpson Hurricane Scale .

Notable storms include Hurricanes Cosme , Kiko , and Raymond . Cosme crossed over Mexico and killed 30 people . Hurricane Kiko made landfall on the Gulf of California side of the Baja California Peninsula . Hurricane Raymond was the strongest storm of the season , but weakened significantly before landfall .

= = Seasonal summary = =

Overall , the season continued the general trend in the 1980s of near to above @-@ average seasons in the East Pacific . Seventeen cyclones formed . Eight peaked at tropical storm strength . Nine systems became hurricanes , of which four were major hurricanes at Category 3 intensity or higher on the Saffir @-@ Simpson Hurricane Scale . On August 28 , three systems were active , one of a few times when there has been three tropical cyclones active simultaneously (Kiko , Lorena , and Manuel) in the east Pacific (west of 140 ° W) . Despite the activity this season , no named storms formed in October . This was the second consecutive season this happened .

= = Storms = =

= = = Tropical Storm Winona = = =

During the second week of January , an upper @-@ level trough located east of Hawaii created an area of divergence to its southeast , allowing an area of low pressure to develop alongside deep convection . Initially , the system was hampered by wind shear as it moved west @-@ northwestward to the south of Hawaii ; however , by January 11 , the system was able to maintain convection over its center and was classified as a tropical depression . On January 13 , it was estimated in post @-@ storm analysis to have become a tropical storm at an unprecedented 20 @. @ 7 ° N 170 @. @ 5 ° W ? / 20 @. @ 7 ; -170.5 . Meteorologists at the time struggled to forecast the storm as climatological forecast guidance (modeling based off previous cyclones) , was not available due to the uniqueness of Winona . On January 15 , the system crossed the International Dateline and entered the Western Pacific basin .

As a tropical depression , Winona brought heavy rains to portions of Hawaii , triggering flash flooding on a few islands . No damage resulted from the floods . After becoming a tropical storm , the system brushed Wake Island , bringing gusty winds and moderate rainfall . Several days later , the storm passed near the Mariana Islands and Guam , bringing tropical storm @-@ force wind gusts and heavy rainfall . Minor damage resulted from Winona but there was no loss of life . Operationally , this system was not classified a tropical storm until January 16 , thus it was not warned upon by the Central Pacific Hurricane Center during its early stages .

= = = Tropical Storm Adolph = = =

The first storm of the season developed out of a weak area of low pressure situated about 570 mi (925 km) south @-@ southwest of Acapulco , Mexico . Tracking towards the west , the circulation briefly dissipated on May 30 , before redeveloping the following day into Tropical Depression One @-@ E. A ridge of high pressure north of the system steered it towards the west @-@ northwest .

By 0600 UTC on June 1 , the National Hurricane Center (NHC) upgraded the depression to a tropical storm and gave it the name Adolph . Adolph continued to strengthen until early on June 2 , at which time it reached its peak intensity with winds of 65 mph (100 km / h) and a minimum pressure of 994 mbar (hPa) . Shortly after peaking , cool , dry air became entrained in the circulation , preventing further intensification . Early on June 3 , Adolph weakened slightly due to unfavorable conditions . Later that day , Adolph briefly re-intensified . On June 4 , strong wind shear displaced convection associated with the storm to the west of the center of circulation ; this resulted in Adolph weakening to a tropical depression by 1800 UTC that day , and Adolph persisted until June 5 at which time it dissipated .

=== Hurricane Barbara ===

On June 10 , an area of disturbed weather was located several hundred miles southwest of Acapulco , Mexico , and the system slowed to a westward drift . After gradually becoming better organized , the NHC estimated that the wave spawned Tropical Depression Two E around 1800 UTC on June 15 . Initially , the depression towards the northwest before a ridge of high pressure situated over Mexico caused the storm to turn towards the west-northwest . Based on improving satellite presentation , the NHC upgraded the depression to Tropical Storm Barbara . With favorable conditions , Barbara continued to intensify , attaining hurricane status roughly 24 hours after being named . Six hours later , the storm reached its peak intensity with winds of 80 mph (130 km / h) . Satellite images early on June 18 showed that cool , dry air was becoming entrained into the northern inflow of the storm and Barbara was nearing cooler waters . These factors led to the storm weakening below hurricane intensity by 0000 UTC on June 19 . Wind shear at this time also began to increase , displacing all convection associated with the storm to the northeast of the center . By June 20 , the former hurricane was further downgraded to a tropical depression . The NHC issued their final advisory on the system early on June 21 ; however , the remnants of the storm persisted until June 27 .

=== Hurricane Cosme ===

On June 18 a tropical disturbance formed several hundred miles off the coast of Mexico . Ships in the vicinity of the storm , in addition to satellite images , indicated that the disturbance had developed into Tropical Depression Three E around 1800 UTC . Remaining nearly stationary , the depression gradually strengthened into a tropical storm by June 20 , receiving the name Cosme at that time . Early on June 21 , Cosme began to track towards the north and intensify . Around 1200 UTC , Cosme strengthened into a Category 1 hurricane on the Saffir-Simpson Hurricane Scale . Several hours later , Cosme reached its peak intensity . Late on June 21 , the center of the hurricane made landfall on the Mexican coast , just east of Acapulco with winds of 80 mph (130 km / h) . The low associated with the former hurricane was last identified near Brownsville , Texas .

Cosme brought heavy rains , which killed at least 30 people due to drowning . Many adobe homes were destroyed , but a specific cost of damage is not known . The highest rainfall recorded in relation to Cosme was 16 inches (410 mm) in Yautepec San Bartolo , Mexico .

=== Tropical Depression Four E ===

The fourth tropical cyclone of the season formed as a well-organized depression on July 9 . Deep convection associated with the system indicated that intensification into a tropical storm was possible . The system track generally westward in response to high pressure system to the north . On July 10 , the depression quickly became disorganized , with only a small area of convection around the center remaining by midday . Although the depression was nearly at tropical storm intensity , the NHC held off on upgrading it due to its proximity to Tropical Depression Five E. However , the system failed to intensify . By July 11 , the depression entered the Central Pacific hurricane center 's area of responsibility . Tracking generally northwest , the system slowly

weakened before dissipating on July 14 to the south of Hawaii .

== Tropical Depression Five @-@ E ==

On July 10 , a tropical depression formed far from land . Upon formation , there was uncertainty of the location of center . Shortly thereafter , the system became sheared and further intensification was no longer anticipated . On July 11 , the low @-@ level center became displaced from the deep convection. the next day , the center was relocated , and moved to the west . While the NHC noted the possibility of intensification , the depression was forecasted to dissipate in 36 hours . It failed to intensify , and moved into the Central Pacific on July 14 . The fast @-@ moving tropical depression dissipated two days later . The remnants of the depression passed far to the south of Hawaii , thus there was no damage .

== Hurricane Dalilia ==

On July 9 , a defined low pressure system formed south of Baja California and increased convective activity led to the NHC classifying it Tropical Depression Six @-@ E on July 11 . About 24 hours later , the depression intensified into Tropical Storm Dalilia . By July 13 , Dalilia had intensified into a minimal hurricane as it tracked generally toward the northwest . Two days later , the storm took a nearly due west track , which it maintained until July 19 . Although the storm tracked near cool waters , a well @-@ developed outflow allowed it to maintain hurricane @-@ intensity . Shortly before crossing into the Central Pacific basin , the storm reached its peak intensity with winds of 90 mph (150 km / h) and a central pressure of 977 mbar (hPa ; 28 @.@ 85 inHg) . After crossing 140 ° W , Dalilia weakened to a minimal hurricane . The storm maintained this intensity until July 19 , at which time the system slowed and turned northwest . The following day , the weakening tropical storm brushed the Hawaiian Islands to the south , eventually curving away from the island chain on July 21 . Later that day , Dalilia further weakened to a tropical depression , with the Central Pacific Hurricane Center issuing their final advisory at that time . The remnants of the former hurricane continued to track northwest .

While tracking near the Hawaiian islands , Dalilia produced waves up to 20 ft (6 @.@ 1 m) along south @-@ facing coastlines . Along the coasts of Ka 'u and South Kona , winds gusted up to 45 mph (75 km / h) ; the winds caused minor damage Along the southeast slopes of Mauna Loa , heavy rains caused minor flooding which forced transit officials to shut down several roads . Localized areas received rainfall in excess of 10 in (250 mm) .

== Tropical Depression Seven @-@ E ==

On July 16 , an area of disturbed weather located 900 mi (1 @, @ 400 km) organized into a tropical depression . Upon formation , the NHC did not anticipate significant intensification due to its close distance to both cooler waters and Hurricane Dalilia . The next day , however , the center became difficult to locate and the system was no longer forecast to intensify . By the night , only minimal deep convection remained . The depression soon moved into cold water and as such the system was expected to dissipate within 24 hours . It dissipated the next day . The remnants of this system contributed to a surge in the monsoon trough that led to the formation of Tropical Storm Erick . This system never impacted land , and thus no damage or deaths were reported .

== Tropical Storm Erick ==

On July 16 , there was a surge in convection in the monsoon trough . The most concentrated area soon separated from the trough and by July 19 , satellite imagery indicated an area of deep convection that was located nearly 1 @, @ 237 mi (1 @, @ 991 km) away from Mexico . Early that day , the system was upgraded to a tropical depression . Upon becoming a tropical cyclone , only slight intensification was anticipated . The system intensified to a tropical storm 24 hours after

forming . Erick soon moved into cooler waters . This quickly weakened the cyclone and was downgraded to a tropical depression on July 20 . It dissipated the next day , without ever impacting any land masses .

== Tropical Storm Flossie ==

Flossie originated from a tropical wave that entered the Pacific Ocean on July 20 . The system began to show signs of organization two days later . Continuing to organize , the system was upgraded Tropical Depression Nine @-@ E on July 23 . Despite being located over warm waters , only gradual intensification was anticipated . It strengthened into Tropical Storm Flossie the next day . Shortly thereafter the upgraded , convection began to diminish . The cyclone then drifted northwest . The upper @-@ level environment rapidly changed , and the cyclones convection became disorganized . The convection separated from the center of circulation . The cluster of convection developed a new center of circulation on July 24 . The original center drifted away from Flossie for 12 hours before dissipating . The new center , which was still a tropical storm , drifted northwest . Flossie then encountered an unfavorable environment , and weakened into a depression on July 25 . Flossie continued drifting to the northwest until dissipating July 28 , while just off the coast of the Baja California Peninsula . Despite its close distance to Mexico , no damage or deaths was reported .

== Hurricane Gil ==

Gil formed from an area of disturbed weather located near the Mexico ? Guatemala border developed a circulation in the Gulf of Tehuantepec and then dissipated . On July 30 , the disturbance redeveloped a circulation and then convection . It paralleled the coast of Mexico and headed in a northwesterly direction . The low continued to organize , and was upgraded into a tropical depression . Initially , there was some uncertainty in the storm's future path , and there was a possibility of the system recurving towards the coast . It strengthened into a tropical storm on July 31 . The system continued to become better organized , with further intensification foretasted because the low was located over very warm waters ; and was upgraded into a hurricane that same day . Shortly thereafter , the cyclone developed an eye . Gil was a hurricane for only about 30 hours , and it began to encounter dry air . By the August 1 , Gill had lost hurricane intensity . It was downgraded to a tropical depression the next day . The cyclone dissipated on August 5 .

The outer bands of Gil produced significant amounts of rainfall over coastal areas of Mexico , with satellites estimating areas of rainfall in excess of 5 in (130 mm) . The heavy rains may have triggered deadly flooding and landslides ; however , no reports from Mexican officials have been received to confirm this . However , officials reported 4 @. @ 8 in (120 mm) of rain in a 12 @-@ hour period .

== Hurricane Ismael ==

A tropical wave crossed Central America on July 11 , and then became an area of low pressure . While located off the coast of Mexico it became better organized on August 14 . This was enough to warrant an upgrade to Tropical Depression Eleven @-@ E. This system slowly became better organized , but northerly wind shear prevented rapid intensification . Initially , this system was slow to intensify . After strengthening into Tropical Storm Ismael , it closely paralleled the coast of Mexico , Ismael turned to the west . It would maintain that generally westerly direction for the rest of its long path across the Pacific Ocean . The system steadily intensified , and by August 16 , Ismael had developed a fair outflow . It reached hurricane strength later that day . Continuing to intensify , the hurricane reached Category 2 intensity . However , the system was not expected to intensify further due to cool sea surface temperatures . However , Ismael managed to reach Category 3 status . It then reached a peak intensity of 120 mph (195 km / h) and a peak pressure of 955 millibars . Shortly after its peak , Ismael underwent fluctuations in strength . On August 21 , Ismael passed

over cooler waters . In addition , the storm encountered strong wind shear . The hostile environment continued to take its toll on Ismael , and it weakened to a tropical storm on August 23 . Ismael dissipated not long after weakening to a depression on August 25 . The remains of Ismael , which was only a swirl of clouds , dissipated near Hawaii .

Between August 15 and 17 , the outer bands of Ismael produced heavy rains along coastal areas of Mexico between Acapulco and Manzanillo , Colima . At least three people were killed by flooding triggered by the storm ; however , no structural damage was reported . Despite the rainfall , there were no reports of flooding . The remnants of the hurricane passed near , but did not pose a threat Hawaii .

= = = Tropical Storm Henriette = = =

On August 12 , a tropical wave formed in the Pacific Ocean. it steadily organized into the twelfth tropical depression of the season early on August 14 . It slowly strengthened and was named Henriette after strengthening into a tropical storm . After peaking with winds of 50 mph (85 km / h) and a peak pressure of 1 @, @ 000 mbar (30 inHg) on August 15 , wind shear immediately began to weaken the tropical cyclone . On August 16 , after becoming devoid of any convection , it was downgraded into tropical depression status on August 16 . Henriette degenerated into a remnant low on August 17 . The low persisted for a few more days until completely dissipating .

= = = Tropical Storm Juliette = = =

A surge in convection in the monsoon trough caused by nearby Hurricane Ismael interacted with a tropical wave to form the thirteenth tropical depression of the season on August 21 . Due to the small distance of 621 miles (999 km) between the cyclones , the depression followed Ismael . Despite strong wind shear caused by Ismael , the depression strengthened into Tropical Storm Juliette on August 22 as a strong burst of convection occurred . After Ismael dissipated , steering currents collapsed , and Juliette moved over cool waters in the open ocean for several days . In addition , strong wind shear took toll on the system . The low had completely dissipated during the evening of August 25 . Juliette never impacted land .

= = = Hurricane Kiko = = =

On August 25 , the seasons fourteenth tropical depression formed off the coast of Sonora , Mexico from a Mesoscale Convective System . A small cyclone , the system rapidly intensified over the warm waters of the Gulf of California , becoming Tropical Storm Kiko hours after forming and a hurricane 12 hours later . The fast rate of strengthening continued until August 27 , at which time Kiko peaked in intensity as a strong Category 3 hurricane with winds of 120 mph (195 km / h) and a minimum pressure of 955 mbar (hPa ; 28 @. @ 2 inHg) . Slight weakening occurred before the storm made landfall near Punta Arena , Mexico , becoming one of the strongest storms to make landfall in Mexico since reliable records began in 1949 . The hurricane quickly weakened as it moved over the Baja Peninsula , being downgraded to a tropical depression before emerging into the Pacific Ocean on August 28 . The following day , the remnants of Kiko were absorbed by the nearby Hurricane Lorena .

Although Kiko was a major hurricane upon landfall , little damage resulted from the storm . However , 20 homes were destroyed and numerous highways were flooded by torrential rains .

= = = Hurricane Lorena = = =

In the Atlantic , a tropical wave spawned Tropical Depression Six . Twenty four hours later , wind shear degenerated the depression back into a wave . The wave continued westward , and in the southern Caribbean Sea , split in two on August 21 . The southern part crossed Central America and emerged into the Pacific Ocean . Banding and convection steadily organized , and Tropical

Depression Fifteen @-@ E formed on August 27 . It strengthened into Tropical Storm Lorena the next day . At this time , three systems were active and in close proximity . Lorena and a weakening Kiko started a Fujiwhara interaction . Lorena eventually became the dominate system , and absorbed the remnants of Kiko on August 29 . Moving slowly out to sea , Lorena reached minimal hurricane strength on the September 1 as the convection became more concentrated . Lorena was a hurricane for less than a day . It weakened quickly to a depression on September 3 . The cyclone was devoid of convection by September 7 , and was thus declared a remnant low . The system never affected land .

= = = Tropical Storm Manuel = = =

An area of thunderstorms organized into a tropical depression on August 28 . The next day , convection increased near the center , and was respectively upgraded into a tropical storm . Manuel gradually strengthened , reaching a peak of 45 mph (75 km / h) . Manuel approached to within 578 mi (930 km) of Lorena . Due to its proximity to the storm , Manuel lost its center circulation on August 31 . The storms only impact on land was light rainfall near Manzanillo , Colima . No reports of death or damage were reported .

= = = Tropical Storm Narda = = =

On September 2 , a tropical wave began showing sings of organization , and on September 3 , it organized into a tropical depression . Upon becoming a tropical cyclone , Narda was located over warm sea surface temperatures . Moving rapidly , to the west @-@ northwest , Narda strengthened into a tropical storm . Strong wind shear prevented significant intensification beyond minimal tropical storm strength , with winds peaking at 50 mph (75 km / h) . Initially , Narda managed to produce brief burst of convection . By September 7 , however , Narda was devoid of convection , and was respectively downgraded to a tropical depression . It never impacted land .

= = = Hurricane Octave = = =

At low latitude in the Atlantic , Tropical Depression Nine formed from a tropical wave on August 28 . The depression degenerated the next day due to strong wind shear . The wave continued drifting westward , and entered the Pacific Ocean on the September 2 . It slowly developed , and organized into Tropical Depression Eighteen @-@ E on September 8 . The cyclone turned northwestward , and strengthened into Tropical Storm Octave on September 10 . After strengthening into a hurricane the next day , Octave started deepening . After peaking as a Category 4 on September 13 with 135 mph (217 km / h) winds , Octave moved into a region of cooler waters and strong shear . Octave weakened to a storm at midday on September 14 and a depression 32 hours later . The depression hooked to the east , and dissipated on September 18 near Guadalupe Island . The remnants eventually turned to the north before dissipating .

While Octave had no significant effects on land as a hurricane , its remnants did move into California . In the Sacramento Valley , the town of Redding recorded 2 @. @ 21 in (56 mm) of rain in a 12 hour span .

= = = Tropical Storm Priscilla = = =

Tropical Depression Nineteen @-@ E organized from an area of low pressure on September 21 . Upon being upgraded , the depression was anticipated to slowly strengthen , becoming a strong tropical storm in three days . Moving northwestward , it was named Priscilla the next day . Continuing to intensify , it reached its peak intensity of 65 mph (100 km / h) . Due to its close proximity to the cooler waters , Priscilla began weakening almost immediately thereafter . The cyclone weakened into a tropical depression on September 24 and dissipated the next day .

Although Priscilla did not directly impact land as a tropical cyclone , the remnant moisture enhanced

a non @-@ tropical low off the California coastline , resulting in heavy rainfall along the Pacific coast of the United States . In southern California , the system also resulted in hot and humid weather , with some areas reaching up to 108 ° F (42 ° C) .

== Tropical Depression Twenty @-@ E ==

On September 24 , Tropical Depression Twenty @-@ E formed southwest of Guatemala . Although convection increased , significant development was not anticipated due to its proximity to land . It was also forecasted to make landfall in 36 hours . A small cyclone , its close distance to Hurricane Raymond hindered development . Moving very little , the winds soon diminished . The depression dissipated on September 27 . When the depression was anticipated to make landfall in Mexico . As such , the NHC noted the possibility of heavy rains especially over the higher elevations . However , no impact was reported from the tropical cyclone .

== Hurricane Raymond ==

Tropical Depression Twenty One @-@ E formed from part of the same tropical wave that had earlier spawned Hurricane Hugo . Moving slowly to the west @-@ northwest , it accelerated to the northwest in response to a trough and strengthened into the seventeenth named storm of the season on September 26 . Raymond turned to the west again and entered a favourable environment . Raymond eventually peaked as a Category 4 hurricane and the strongest storm of the season on October 1 . A trough over Mexico destroyed the ridge that was steering Raymond and recurved the cyclone to the northeast . The hurricane accelerated into a less favorable environment , and slowly weakened as its forward speed increased to 23 mph (37 km / h) . Raymond made landfall as a tropical storm on October 4 . Northern Mexico 's mountains disrupted Raymond 's circulation , and dissipated over New Mexico on October 5 after passing over that state and Arizona as a depression .

Since Raymond had significantly weakened prior to its first landfall , only minor impacts were recorded in Mexico . The highest rainfall was recorded in Nogales at 4 @.@ 72 in (120 mm) . In the city , the swollen Santa Cruz River destroyed a heavily traveled bridge , known as the Calle Obregon , and destroyed a store which was situated on the banks of the river . Mexican officials estimated damages at \$ 250 @, @ 000 (1989 USD , \$ 477 thousand 2016 USD) . The remnants of the storm tracked into the Southwest United States and further into the Central United States before dissipating . Rainfall in excess of 3 in (76 mm) fell in parts of southern Arizona ; the highest total was recorded in Independence , Kansas at 3 @.@ 91 in (99 mm) . One person was killed in a mobile home which was destroyed by high winds . Flash flooding triggered by Raymond caused an estimated \$ 1 @.@ 5 million (1989 USD , \$ 2 @.@ 86 million 2016 USD) in damages in Arizona .

== Tropical Depression Twenty Two @-@ E ==

On October 3 , a tropical depression formed 475 mi (764 km) south of Mexico from an area of disturbed weather that had become better organized . Upon becoming a tropical cyclone , the cyclone was located in a favorable environment . As such , it was forecasted to reach a peak intensity of 70 mph (110 km / h) to be named " Sonia " . Later that day , convection increased , but the NHC did not upgrade the system into a tropical storm . However , increased wind shear quickly caused the system to become exposed . After drifting westbound , it did not become a tropical storm and dissipated on October 4 . However , it regenerated on October 7 as deep convection had developed near the center for about 12 hours . Upon regenerating , it was forecasted to intensify into a strong tropical storm as it was expected to turn to the north . Shortly thereafter , the system became less organized ; it dissipated again the next day . The depression never threatened land .

== Tropical Depression Twenty Three @-@ E ==

On October 15 , Tropical Depression 23E developed about 550 mi (890 km) to the southwest of Mexico City , within an area of warm water and diminishing wind shear and as a result was expected to slowly intensify further . However , during October 16 , all of the deep convection associated with 23E dissipated , before the National Hurricane Center issued its final advisory during the next day .

= = = Tropical Depression Twenty Four @-@ E = = =

On October 18 , the NHC began issuing advisories on Tropical Depression Twenty Four @-@ E. Although the depression was located within an area of high wind shear , convection had managed to partially develop around the center of circulation . A ship nearby the system reported sustained winds of 40 mph (65 km / h) ; however , the winds were not considered to be representative of the actual intensity of the depression . Further intensification was not expected as the depression tracked in a northward direction Shortly after the first advisory was issued , convection rapidly dissipated , leaving an exposed low pressure area , devoid of shower and thunderstorm activity . The system was forecast to dissipate within 36 hours due to high shear . Late on October 18 , the forward motion of the depression abruptly changed towards the west . The final advisory on Tropical Depression Twenty Four @-@ E was issued during the afternoon of October 19 as the system remained devoid of convection ; redevelopment of the system was not anticipated due to unfavorable conditions .

= = Storm names = =

The following names were used for named storms that formed in the eastern Pacific in 1989 . Since no names were retired , no new names were replaced for the 1995 season . However , the name Dalilia was later changed to Dalila through a misspelling of the name . The changed spelling has remained in use since 1995 . Names that were not assigned are marked in gray .

= = = Central Pacific = = =

Starting in the early 1980s , the Central Pacific Hurricane Center assigned names to tropical storms that formed between the 180 ° to 140 ° W. Names for the basin are taken off a single list due to the low frequency of storms in the area . Had a tropical storm formed in the Central Pacific during 1989 , it would have received the name Aka . The first six names on the list that could have been used are listed below .

= = Seasonal effects = =