= Meteorological history of Cyclone Leon ? Eline =

Cyclone Leon ? Eline in February 2000 was the third @-@ longest tracked tropical cyclone in the South @-@ West Indian Ocean . On February 1 , a tropical low originated within the monsoon trough to the south of Indonesia , and would eventually become Tropical Cyclone Leon in the Australian basin . Moving westward , the storm fluctuated in strength due to changes in the atmosphere , mostly increasing and decreasing wind shear . After crossing 90 ° E , the Météo @-@ France office in Réunion (MFR) began tracking the system as Tropical Storm Eline on February 8 . The storm continued across the Indian Ocean and intensified greatly as it approached the east coast of Madagascar . Late on February 17 , Eline made landfall near Mahanoro , with 10 ? minute winds of 165 km / h (105 mph) . The storm rapidly weakened over land , but restrengthened in the Mozambique Channel to reach peak 10 ? minute winds of 185 km / h (115 mph) . On February 22 , Eline made landfall about 80 km (50 mi) south of Beira , Mozambique near peak intensity and quickly weakened over land . The well @-@ defined circulation moved across southern Africa , finally dissipating over eastern Namibia on February 29 .

Eline was unusual in its track after striking Madagascar . Most storms in the Mozambique Channel turn to the south , ultimately missing land ; however , upon landfall , Eline became one of 5 % of recorded cyclones to strike southern Africa . In addition , favorable conditions allowed the storm to maintain its identity over land . Overall , Cyclone Leon ? Eline traveled over 11 @,@ 000 km (6 @,@ 800 mi) during its 29 ? day duration .

= = Origins = =

The origins of Leon ? Eline were from a low pressure area that developed within the monsoon trough on February 1 in the eastern Indian Ocean , about 250 km (155 mi) south of the Indonesian island of Bali . The low formed due to a surge of energy within the monsoon that had crossed the equator from the northwest . Associated convection , or thunderstorms , was initially sparse . Over the subsequent few days the system tracked west @-@ southwestward without much development , moving around a large ridge over northwestern Australia . There was initially moderate wind shear in the region . However , a developing anticyclone allowed the convection to persist over the center and develop outflow . At 22 : 00 UTC on February 3 , the Perth Tropical Cyclone Warning Center (PTCWC) upgraded the tropical low to a Category 1 on the Australian tropical cyclone scale , estimating 10 ? minute sustained winds of 65 km / h (40 mph) . At 04 : 00 UTC the next day , the PTCWC named the storm Tropical Cyclone Leon . On the same day at 03 : 00 UTC , the Joint Typhoon Warning Center (JTWC) began issuing advisories on the storm as Tropical Cyclone 11S . Around that time , the storm was located about 215 km (130 mi) south @-@ southeast of Christmas Island .

After becoming a named storm , Leon turned more to the west @-@ southwest , due to a trough weakening the ridge to the south . The storm developed increased convective banding , aided by decreasing wind shear , and quickly intensified . Early on February 5 , the PTCWC upgraded Leon to a Category 3 on the Australian scale , estimating 10 ? minute winds of 120 km / h (75 mph) . At 22 : 00 UTC that day , the agency estimated an initial peak of 140 km / h (85 mph) . On February 6 , the cyclone developed an eye in the center of the convection that was only visible on Special sensor microwave / imager , not on satellite imagery . On the same day , the JTWC upgraded Leon to the equivalent of a minimal hurricane , estimating 1 ? minute winds of 140 km / h (85 mph) . A trough passing to the south increased wind shear , causing the storm to weaken . Around that time , Leon passed about 510 km (315 mi) south of the Cocos Islands , while turning more to the west after the ridge strengthened to the south . By February 8 , the circulation was exposed from the rapidly dwindling thunderstorms . At 18 : 00 UTC that day , Leon crossed 90 ° E into the south @-@ west Indian Ocean , and as result was renamed Eline by the Mauritius Meteorological Service . By that time , Météo @-@ France (MFR) estimated 10 ? minute winds of 65 km / h (40 mph) .

= = Strengthening and first landfall = =

Over the subsequent few days , wind shear caused the convection to wax and wane over Eline 's center , limiting the thunderstorms to the southern periphery . The track shifted more to the west @-@ northwest . On February 11 , Eline had weakened into a minimal tropical storm according to the MFR , about 1110 km (690 mi) south of Diego Garcia , and the JTWC operationally downgraded it to a tropical depression . Later that day , however , a decrease in shear allowed thunderstorms to refire . On February 13 , a weakness in the ridge caused the storm to turn back to the west @-@ southwest . Moving back beneath an anticyclone , conditions became more favorable for strengthening , allowing outflow and a central dense overcast to form , with the beginnings of an eye feature . Eline quickly intensified into a severe tropical storm late on February 13 . At 00 : 00 UTC the next day , the JTWC upgraded Eline to the equivalent of a minimal hurricane with 1 ? minute winds of 120 km / h (75 mph) . The MFR held off upgrading the storm , due to a passing trough increasing wind shear again . On February 14 , Eline passed about 85 km (55 mi) south of St. Brandon , and shortly thereafter resumed its strengthening after the shear dropped . Later that day , the storm bypassed Mauritius about 180 km (110 mi) to the northwest , with the small structure sparing the island from the strongest winds . Early on February 16 , Eline attained tropical cyclone status , with 10 ? minute winds of 120 km / h (75 mph) , while passing about 160 km (100 mi) northwest of Réunion . This was nine days after it had weakened to tropical storm status the first time .

After becoming a tropical cyclone , Eline was still encountering wind shear and dry air . Despite these factors , the eye became better defined and the storm intensified , aided by favoring upper @-@ level conditions . The cyclone turned more to the west toward Madagascar , despite a weakness in the ridge to the south . While approaching the country , Eline quickly intensified , reaching 10 ? minute winds of 165 km / h (105 mph) by 18 : 00 UTC on February 17 . Around that time , the cyclone made landfall on eastern Madagascar near Mahanoro . Eline rapidly weakened over land while moving to the west @-@ southwest , and the JTWC downgraded the storm to tropical depression status within 18 hours of moving ashore .

= = Mozambique Channel and final landfall = =

After crossing Madagascar for 26 hours , Eline emerged into the Mozambique Channel near Belo , still maintaining good outflow . With warm waters and a favorable upper level environment , the depression quickly re @-@ intensified as convection increased . At 12 : 00 UTC on February 19 , Eline re @-@ attained moderate tropical storm status . While in the central Mozambique Channel , Eline passed about 35 km (20 mi) north of Europa Island , which recorded a barometric pressure of 992 mbar (29 @.@ 3 inHg) . Shortly thereafter , the storm turned more to the west @-@ northwest due to a strengthening ridge to the south . A brief increase in wind shear delayed the strengthening trend , but Eline resumed intensifying on February 21 while slowly approaching southeastern Africa . Over a 24 ? hour period , the pressure dropped by 45 mbar (1 @.@ 3 inHg) , indicative of rapid deepening . During that time , the convection organized into an intense eyewall around a well @-@ defined 60 km (35 mi) eye . Eline had re @-@ attained tropical cyclone at 12 : 00 UTC on February 21 , and by 18 hours later reached intense tropical cyclone status . The MFR estimated peak 10 ? minute winds of 185 km / h (115 mph) ; in contrast , the JTWC estimated peak 1 ? minute winds of 215 km / h (130 mph) , the equivalent of a Category 4 on the Saffir @-@ Simpson hurricane scale . While at peak intensity , Eline made landfall about 80 km (50 mi) south of Beira , Mozambique , where a pressure of 989 mbar (29 @.@ 2 inHg) was recorded . Gusts at landfall were estimated at 260 km / h (160 mph) .

Although the winds rapidly decreased after landfall , the storm maintained a well @-@ defined structure as it crossed from Mozambique into Zimbabwe late on February 22 . Weakening to tropical depression status , Eline crossed Zimbabwe and maintained its circulation , entering Botswana on February 24 . Three days later , the center drifted into eastern Namibia and turned to the south , dissipating on February 29 . After the circulation dissipated , the residual system merged with a heat low and an approaching cold front .

= = Statistics = =

Throughout its duration , Leon @-@ Eline lasted 29 days , a record longevity for a storm in the southern Indian Ocean . The track was over 11 @,@ 000 km (6 @,@ 800 mi) , or about 25 % of the Earth 's circumference . However , Eline was in the south @-@ west Indian Ocean for 21 days , which is the third most on record . It was behind Cyclone Alibera in 1989 and Cyclone Georgette in 1968 , the latter of which lasted 24 days in the basin . The MFR noted that Eline was the strongest cyclone to strike the nation in several decades . The storm was uncommon in its landfall on mainland Africa ; only 5 % of storms in the basin do so , and most that cross or form in the Mozambique Channel turn to the south . Eline was unusual in maintaining its identity so far inland , aided by increased moisture and enhanced upper @-@ level environmental conditions over southern Africa . The storm 's long track brought heavy rainfall across Madagascar and southern Africa , causing additional widespread flooding .