

## = Tropical Storm Delfina =

Severe Tropical Storm Delfina was a damaging tropical cyclone that affected southeastern Africa in January 2003 . The fourth named storm of the 2002 ? 03 South @-@ West Indian Ocean cyclone season , Delfina formed off the northwest coast of Madagascar on December 30 , 2002 . It quickly intensified while moving westward , becoming a strong tropical storm before hitting northeastern Mozambique on December 31 . Delfina weakened while moving inland , and it was no longer classifiable as a tropical cyclone by January 1 , 2003 . However , its remnants moved across the country and into Malawi , later looping around and crossing back over Mozambique ; the remnants of Delfina were last observed on January 9 .

In both Mozambique and Malawi , Delfina dropped heavy rainfall that caused flooding . In the former country , over 18 @,@ 000 houses were severely damaged or destroyed , leaving thousands homeless . The storm damaged roads and bridges , which disrupted relief efforts in the aftermath , and floods destroyed widespread areas of crops in the midst of an ongoing food shortage . Lingering flooding caused an outbreak of cholera and malaria in Mozambique , and 47 people were killed by Delfina . In Malawi , flooding was not widespread , although the storm destroyed about 3 @,@ 600 houses and killed eight people . Only two months after the storm struck , however , Cyclone Japhet left damage and deaths in many of the same areas that Delfina affected .

## = Meteorological history =

At 1100 UTC on December 30 , 2002 , the Joint Typhoon Warning Center ( JTWC ) noted in its Significant Tropical Weather Outlook that an area of convection persisted in the Mozambique Channel off the northwest coast of Madagascar . The system had a weak circulation , located in an area of minimal wind shear . At 1200 UTC that day , Météo @-@ France classified the system as the sixth zone of disturbed weather of the season . It quickly developed , organizing into Tropical Disturbance 6 at 1800 UTC on December 30 . At around the same time , the JTWC initiated advisories on Tropical Cyclone 08S . The convection became better organized , developing outflow and rainbands . With a ridge to the south , the storm tracked in a generally westward direction toward Mozambique . At 0600 UTC on December 31 , MFR upgraded the system to Tropical Depression 6 , and six hours later the agency upgraded it to Tropical Storm Delfina .

While approaching the Mozambique coastline , Delfina quickly intensified , developing an eye feature and reaching maximum 1 @-@ minute sustained winds of 100 km / h ( 65 mph ) . At 1800 UTC on December 31 , MFR estimated peak 10 @-@ minute sustained winds of 95 km / h ( 60 mph ) . At about 2130 UTC , Delfina made landfall near Angoche in eastern Mozambique . It rapidly weakened while moving inland , and MFR discontinued advisories early on January 1 , 2003 . Delfina entered Malawi on January 2 , where dry air affected the storm . The remnants turned to the northeast , drifting into Mozambique and later turning to the south . On January 6 , it crossed over its track and emerged into the Mozambique Channel . When the remnants reached the Mozambique Channel , they were reclassified as Tropical Disturbance 07 , which moved southward over waters . It re @-@ intensified into a tropical storm on January 8 before weakening the next day , becoming extratropical . The remnants persisted for several days , dissipating on January 14 .

## = Impact and aftermath =

Upon striking Mozambique , Delfina produced strong winds and heavy rains , particularly in the northern portion of the country . A station in Nampula reported 281 mm ( 11 @. @ 1 in ) in a 48 ? hour period . Delfina washed out roads and bridges in Nampula and Zambezia provinces , which isolated towns and disrupted the transportation network . A train derailed due to effects from the storm , which cut rail travel between northern Mozambique and neighboring Malawi . The cyclone destroyed or severely damaged over 18 @,@ 000 houses , which directly affected about 133 @,@ 000 people , mostly in Nampula where 22 @,@ 000 people were displaced . Floods along the Ligonha River forced 1 @,@ 800 people to leave their homes . In Nampula and Zambezia , Delfina

damaged four health facilities and 376 schools . The storm caused a power outage in Nampula for several days , and in Monapo , there were water shortages after the storm . The cyclone destroyed over 2 @, @ 000 ha ( 4 @, @ 900 acres ) of beans and cassava crops and knocked down thousands of cashew trees , in areas already affected by food shortages due to drought conditions . Overall , Delfina resulted in \$ 3 @. @ 5 million in damage ( 2003 USD ) , and caused 47 deaths in the country , at least 19 due to flooding .

After Delfina moved through Mozambique , the local Red Cross chapter provided shelter , water , and relief items to the affected residents . Residual flooding in northern Mozambique , compounded with lack of drinking water , caused a cholera outbreak that affected at least 400 people . By January 27 , 12 people had died from the disease . Flooding also caused a malaria outbreak that killed 45 people in the country . Government officials deployed food to the affected areas by airplane and by road , after workers repaired damaged bridges . Residents in Mozambique gradually recovered from storm damage in the weeks after it struck . Only two months after the storm struck , however , Cyclone Japhet left damage and deaths in many of the same areas .

In neighboring Malawi , the storm 's remnants caused flooding in seven provinces , although it was not widespread . Delfina damaged roads , and destroyed one rail bridge in Balaka District . The storm destroyed about 3 @, @ 600 houses ; which forced about 30 @, @ 000 people to leave their homes . The floods affected 57 @, @ 000 properties , damaging 23 @, @ 500 ha ( 58 @, @ 000 acres ) in the midst of a food shortage . Delfina killed eight people in Malawi , prompting President Bakili Muluzi to declare the country as a disaster area on January 11 . After the storm , the Red Cross provided blankets and food for the affected residents . The damaged rail line that initially prevented relief supplies from entering the country was repaired in early February .