

= Cyclone Manou =

Tropical Cyclone Manou was a relatively rare May tropical cyclone that affected southeastern Madagascar . The final named storm of the 2002 ? 03 South @-@ West Indian Ocean cyclone season , Manou formed on May 2 to the southwest of Diego Garcia . It moved generally to the southwest for much of its duration , steered by a ridge to the southeast . Manou affected Saint Brandon and Mauritius with gusty winds . After an initial strengthening phase , the storm weakened but later re @-@ intensified as it approached Madagascar . Manou developed a well @-@ defined eye and reached peak winds only 19 km ( 12 mi ) from the eastern Madagascar coastline . For about 12 hours , the cyclone stalled before turning to the south and weakening . Manou became extratropical on May 10 and dissipated three days later .

Damage in Madagascar was heaviest near Vatomandry , where 85 % of buildings were destroyed and 23 people were killed . Manou destroyed about 24 @, @ 500 houses nationwide , leaving 114 @, @ 480 people homeless . The storm destroyed large areas of crops and disrupted transportation , including damaging the road between Vatomandry and Brickaville . Manou injured 85 and killed 89 people throughout Madagascar .

= = Meteorological history = =

In late April , an area of convection persisted southwest of Diego Garcia in the southern Indian Ocean . The system had a low @-@ level circulation and pulsating thunderstorm activity . Located in an area of weak to moderate wind shear , the convection gradually organized while developing outflow . On May 2 , a secondary area of convection , also with an accompanying circulation , formed to the northwest , and also showed signs of development . That day , the original disturbance organized enough for Météo @-@ France ( MFR ) to designate it Tropical Disturbance 16 at 1200 UTC . The Joint Typhoon Warning Center ( JTWC ) issued tropical cyclone formation alerts for both systems within a 14 ? hour period , and upgraded the original system to Tropical Cyclone 18S on May 3 about 980 km ( 610 mi ) northeast of Mauritius . Due to the disturbance to the northwest , as well as a building ridge to the northeast , the system continued to the southwest . On May 4 , MFR upgraded the disturbance to a tropical depression and later Tropical Storm Manou .

According to the JTWC , the storm quickly reached 1 @-@ minute sustained winds of 85 km / h ( 50 mph ) . The secondary disturbance to the west weakened while approaching the storm . Manou also weakened due to ongoing shear , and the windspeeds dropped as the circulation became exposed from the convection . On May 6 , the storm re @-@ intensified and the thunderstorms redeveloped while passing north of Mauritius and Réunion . On May 8 while approaching Madagascar , Manou developed an eye , and as a result , MFR upgraded it to tropical cyclone status , with 10 @-@ minute winds of 120 km / h ( 75 mph ) . The JTWC also upgraded the storm to the equivalent of a minimal hurricane . After becoming a tropical cyclone , Manou intensified further , although its forward motion slowed significantly . MFR estimated peak 10 @-@ minute winds of 155 km / h ( 95 mph ) on May 8 , and JTWC estimated peak 1 @-@ minute winds of 140 km / h ( 85 mph ) , with gusts to 165 km / h ( 105 mph ) . This made Manou a rare May tropical cyclone in the basin ; only four other storms that formed in the south @-@ west Indian Ocean in May reached winds of over 140 km / h ( 85 mph ) since satellite coverage began , most recently Cyclone Kesiny in the previous year .

While maintaining its peak intensity and an eye 44 km ( 28 mi ) in diameter , Manou reached a position only 19 km ( 12 mi ) from the eastern Madagascar coastline . At that time , gale force winds extended over 150 km ( 90 mi ) from the center , and MFR estimated a minimum barometric pressure of 950 mbar ( 28 inHg ) . For about 12 hours , Manou drifted off the eastern coast of Madagascar before turning to the south , moving around a ridge to its east . Land interaction and drier air weakened the eye , and on May 9 the cyclone weakened to tropical storm status . The next day Manou weakened to a tropical depression , and the JTWC issued its last advisory . MFR continued tracking the storm until it dissipated on May 13 .

= = Impact and aftermath = =

Early in its duration , Manou passed just north of Saint Brandon . There , sustained winds reached 74 mph ( 46 mph ) , with gusts to 109 km / h ( 68 mph ) . On Mauritius , the storm produced gusty winds across much of the island , peaking at 107 km / h ( 67 mph ) .

Before affecting Madagascar , officials in the country advised residents to evacuate to shelters , although the storm was not expected to be as severe as it was . When Manou stalled just offshore eastern Madagascar , it produced gusts as strong as 211 km / h ( 131 mph ) in Vatomandry . The same city reported 227 mm ( 8 @. @ 9 in ) of rainfall in a 15 ? hour period . Damage was heaviest in Vatomandry , where 85 % of buildings were destroyed , although the broader region also experienced severe damage and was largely isolated from the rest of the country . In Vatomandry , Manou severely damaged the main hospital , several schools , and the prison . The storm disrupted power and water networks . Strong winds blowing salt spray destroyed the coffee and cloves crops , and rice crops were also damaged , after 80 % of rice fields were flooded in Brickaville and Andevoranto . In those two towns , an official estimated that 95 % of houses were wrecked . The road between Vatomandry and Brickaville was washed out or otherwise blocked by landslides , and the village of Ilaka was isolated after the storm wrecked a bridge . Throughout Madagascar , Manou injured 85 and killed 89 people , including 23 people in Vatomandry and 2 in Brickaville . About 24 @, @ 500 houses were destroyed , leaving 114 @, @ 480 people homeless .

On May 12 , Malagasy Prime Minister Jacques Sylla issued an appeal to the international community for assistance . Due to the damage from Manou , the French Red Cross activated its office in Réunion , providing one ton of medicine . The Malagasy Red Cross had pre @- @ positioned emergency supplies earlier in the cyclone season , and after Manou struck , the agency distributed a water purification unit , medicine , and tents to the affected areas . Due to road damage , supplies had to be delivered by boat , which arrived in Vatomandry on May 13 . The delivery included 4 @, @ 500 kg ( 9 @, @ 900 lb ) of supplies . Workers quickly made repairs to power systems . The Malagasy government provided \$ 147 @, @ 000 to restore health centers in Vatomandry and Andevoranto . Japan provided \$ 80 @, @ 000 worth of supplies , including tents and jerrycans . Japan , the United States , Norway , and Germany donated about \$ 1 @. @ 27 million to Madagascar for relief . The World Food Programme initially provided 90 tons of rice , although ongoing drought conditions and storms caused the agency to continue providing food to residents in southern Madagascar for several months .