= 2005 ? 06 South @-@ West Indian Ocean cyclone season =

The 2005 ? 06 South @-@ West Indian Ocean cyclone season was the fifth least @-@ active on record . The Météo @-@ France office on the island of Réunion tracked 13 tropical disturbances , of which six intensified into a moderate tropical storm . Three of these systems proceeded to attain tropical cyclone status ? reaching 10 minute maximum sustained winds of at least 120 km / h (75 mph) . The American @-@ based Joint Typhoon Warning Center also tracked eight storms in the basin . Activity was below normal due to a powerful Walker circulation , which increased convection over the neighboring Australian basin , but suppressed activity in the western Indian Ocean . As a result , most of the storms developed near or entered from the Australian basin , crossing 90 ° E to enter the South @-@ West Indian Ocean .

A series of four short @-@ lived systems occurred from September to November in the northeastern portion of the basin . These were followed by the first named storm ? Alvin ? which was renamed after it crossed from the Australian region as Tropical Cyclone Bertie in late November . After another short @-@ lived disturbance in late December , there was a tropical disturbance in the Mozambique Channel in January that killed 26 people when it brought heavy rainfall to Mozambique . Later in the month , Tropical Cyclone Boloetse took an erratic track across Madagascar , killing six people when it brushed the island 's southwest coast . In February , there was a small , short @-@ lived unnamed tropical storm that presented difficulties to warning agencies in determining its structure . Intense Tropical Cyclone Carina was the strongest system of the season , attaining peak 10 minute winds of 205 km / h (125 mph) in the open waters of the eastern portion of the basin . Sprawling Tropical Storm Diwa brought six months ' worth of rainfall to the drought @-@ ridden island of Réunion , reaching 2 @,@ 943 mm (115 @.@ 9 in) in the mountainous peaks . The rains led to flooding and landslides that killed 10 people directly or indirectly . Two of the deaths occurred when a saturated cliff collapsed onto a coastal road . The final storm , Elia , dissipated on April 17 after previously entering from the Australian basin .

= = Seasonal summary = =

Météo @-@ France 's meteorological office in Réunion (MFR) ? the official Regional Specialized Meteorological Center for the South @-@ West Indian Ocean ? tracked and named all tropical cyclones from the east coast of Africa to 90 ° E , and south of the equator . The Joint Typhoon Warning Center (JTWC) , which is a joint United States Navy ? United States Air Force task force that issues tropical cyclone warnings for the region , also issued advisories for storms during the season .

There were 13 tropical disturbances in the season that were monitored by the MFR . Since the agency began operations in the early 1990s , this season had the second @-@ least number of disturbances that received warning , only behind the 2000 ? 01 season . Since the advent of satellite imagery in 1967 , this season was the fifth least @-@ active in terms of storm days and the number of cyclones . There were six systems that attained the intensity of a moderate tropical storm , which has 10 minute sustained winds of at least 65 km / h (40 mph) , below the average of nine . There were 30 days in which a moderate tropical storm was active , less than the average of 48 . Three tropical storms attained tropical cyclone status , or 10 minute winds of at least 120 km / h (75 mph) , and there were 10 days in which these systems were active ; this is half the average of 20 days , continuing the trend since the 2000 ? 01 season of fewer stronger systems . The season was very similar to the 1998 ? 99 season ; both had late starts for the first named storm , drought conditions over much of the basin , and low activity . The third named storm , Carina , did not occur until late February , which at the time was the latest such date since naming began in 1960 .

In general , storms in the season formed in the basin 's periphery or north of the Mascarene Islands . No systems developed in the Mozambique Channel , an unusual occurrence . The overall lack of activity was due to a strong Walker circulation over Indonesia , which increased convection over the Australian region , but suppressed convection over the Indian Ocean . The Intertropical Convergence Zone ? typically a major contributor to tropical cyclogenesis ? was rarely active .

Conditions became generally more favorable in February and March , when four of the six tropical storms occurred . The general lack of thunderstorms over the basin caused drought @-@ like conditions . Pierrefonds Airport on Réunion recorded just 18 mm (0 @.@ 71 in) of rainfall from November to January , a record minimum . The island also recorded its third @-@ highest average atmospheric pressure from November to April .

= = Storms = =

= = = Intense Tropical Cyclone Bertie @-@ Alvin = = =

In the middle of November , a westerly wind burst produced an area of convection southwest of Sumatra , which spawned a circulation at 2º S on November 16 . Two days later , the BoM classified the system as a tropical low to the north of the Cocos Islands . The low moved southwestward , quickly intensifying , prompting the BoM to name it Bertie . The storm moved southwestward and intensified due to favorable water temperatures and atmospheric conditions , reaching winds of 185 km / h (115 mph) on November 22 while just east of 90º E. The track shifted nearly due south , and the eye moved along the dividing line between the Australian and south @-@ west Indian Ocean basins . Early on November 24 , the cyclone crossed 90º E and was renamed Alvin ; at the time , the system was beginning to weaken due to cooler waters from upwelling and increased wind shear .

The MFR estimated peak 10 minute winds of 175 km / h (110 mph) within the basin , making it an intense tropical cyclone ; it was the third consecutive year in which there was a November storm of such intensity . The JTWC , which designated Alvin as Tropical Cyclone 03S , estimated 1 minute winds of 195 km / h (120 mph) . A building ridge to the south turned the storm to the west @-@ northwest . By November 25 , the increased wind shear had exposed the circulation from the convection , indicative of rapid weakening , and on that day Alvin was downgraded below tropical cyclone status . On the next day , the storm weakened to tropical depression status after nearly all of the convection was gone , prompting the JTWC to cease issuing advisories . The residual circulation remained well @-@ defined with only temporary increases in convection . The MFR stopped issuing warnings on December 3 , after Alvin had passed south of Diego Garcia , although the circulation continued westward and was still visible north of Madagascar on December 10 .

= = = Tropical Disturbance 07 = = =

The Intertropical Convergence Zone (ITCZ) produced an area of convection northeast of Madagascar on December 29 , which had an association circulation . On January 1 , the system moved across northern Madagascar and subsequently entered the Mozambique Channel . It continued quickly to the southwest , passing north of Europa Island , and was classified as Tropical Disturbance 7 late on January 3 . It continued intensifying and organizing until moving ashore Mozambique near Vilankulo , and the system nearly attained tropical depression stage . The system followed the country 's coastline , bending southward toward the capital Maputo . On January 7 , the disturbance moved offshore , but the system soon moved back overland and dissipated later that day over Swaziland . The system brought heavy rainfall to Inhambane Province , reaching 162 mm (6 @.@ 4 in) in Inhambane . The rains resulted in flooding but also alleviated drought conditions in Mozambique . The rains also caused the Mutamba River to exceed its banks in Inhambane , flooding roads up to a meter (3 @.@ 3 ft) deep and halting traffic . Across Mozambique , 26 people died due to the floods .

= = = Tropical Cyclone Boloetse = = =

A pulse in the monsoon spawned an area of convection from the Seychelles westward . A circulation was evident by January 20 , signalling its formation as a tropical disturbance . Poor inflow

from the trade winds prevented any initial organization as the system tracked southeastward . A ridge steered the disturbance to the southwest on January 23 , bringing it just southeast of Tromelin Island . With light wind shear , the system developed a small area of convection over a well @-@ defined circulation . Early on January 25 , the MFR upgraded the disturbance to a tropical depression , and the JTWC classified it as Tropical Cyclone 09S . Later that day , the MFR upgraded it to a moderate tropical storm , giving it the name Boloetse . After a brief period of strengthening , the storm weakened due to increased shear and diurnal cooling . The track shifted to the south @-@ southwest , paralleling Madagascar to the east . Steered between ridges to the east and west , Boloetse stalled and turned to the west @-@ northwest . Late on January 27 , the MFR downgraded the storm to a tropical depression , and late the next day , the circulation struck eastern Madagascar just north of Mananjary . The circulation had been weak during the approach to land , although there was a large increase in convection at the time of landfall .

The circulation became difficult to locate over land , and the JTWC briefly halted issuing advisories on January 29 . On the next day , the circulation emerged westward into the Mozambique Channel , where low wind shear and good outflow allowed for restrengthening . By late on January 31 , the system had reorganized into a moderate tropical storm . On the next day , the JTWC reissued advisories on Boloetse as the storm was just 170 km (105 mi) east of the Mozambique coast . Weak steering from the ridge to the southeast caused the storm to meander in the area of favorable conditions . By late on February 2 , Boloetse attain tropical cyclone status , developing an eye in the center of the organizing convection . An approaching trough caused the storm to accelerate southeastward , bringing it northeast of Europa Island . Late on February 3 , the JTWC estimated peak 1 minute winds of 185 km / h (115 mph) , while the MFR estimated 10 minute winds of 155 km / h (100 mph) . An eyewall replacement cycle and increased wind shear caused Boloetse to weaken , and on February 4 , the cyclone passed within 20 km (12 mi) of southwestern Madagascar . The storm accelerated and weakened , transitioning into an extratropical cyclone on February 5 . The remnant system was absorbed by the approaching trough two days later .

Along much of its path , the storm dropped heavy rainfall . The formative stages of Boloetse spread rainfall to Mauritius , where Vacoas recorded 175 mm (6 @.@ 9 in) of rainfall over 24 hours . In eastern Madagascar , the storm dropped 133 mm (5 @.@ 2 in) in Mahanoro over 18 hours . The storm deluged coastal Mozambique with over 100 mm (4 in) of rainfall , causing river levels to increase in Inhambane Province . Europa Island recorded 136 mm (5 @.@ 4 in) of rainfall over just six hours . The cyclone still maintained much of its intensity during its final approach to southwestern Madagascar , bringing estimated wind gusts of 200 km / h (125 mph) to the coast . Toliara recorded wind gusts of 145 km / h (90 mph) . In addition , heavy rainfall flooded two villages . Boloetse killed six people across southern Madagascar , while leaving 6 @,@ 500 people homeless .

= = = Severe Tropical Storm 09 = = =

On February 15 , a broad low pressure area developed east of Madagascar . Over the next few days , the system dropped heavy rainfall to the Mascarene Islands . St. Brandon recorded 229 mm (9 @.@ 0 in) of rainfall over 24 hours , and Plaisance Airport on Mauritius recorded 177 mm (7 @.@ 0 in) of rainfall in 48 hours . The heaviest precipitation occurred on Réunion in a short amount of time , with 1 @-@ in @-@ 50 year rainfall rates . A station in the capital Saint @-@ Denis recorded 376 mm (14 @.@ 8 in) in just three hours , and over 48 hours , Le Brûlé recorded 1 @,@ 274 mm (50 @.@ 2 in) of precipitation . A weak low pressure area began organizing within the trough on February 17 , organizing enough to be classified as Tropical Disturbance 09 the next day just off the eastern coast of Madagascar . A small system , it developed a concentrated area of convection just 200 km (125 mi) in diameter , which followed a powerful hot tower that spurred development . The structure rapidly organized , and by February 19 , there was an eye @-@ like feature in the center of the thunderstorms . At 18 : 00 UTC that day , the JTWC classified it as Tropical Cyclone 12S , and the MFR upgraded it to a moderate tropical storm . Forecasters initially assessed the structure as akin to a mesoscale convective vortex , which is a small and short @-@

lived system , and there was also uncertainty whether the winds were at the surface . As a result , there was a disagreement between the MFR , which estimated peak 10 minute winds of 95 km / h (60 mph) , and the Meteorological Service of Mauritius , which assessed a much weaker storm . The latter agency is responsible for officially naming systems , and as a result , the severe tropical storm was unnamed .

Moving southeastward in the flow of the trough , the small storm began weakening on February 20 due to strong northwesterly wind shear , which caused the convection to dwindle over the circulation . That day , the storm passed just 80 km (50 mi) north of Mauritius , by which time the center was exposed and the intensity had dropped to tropical depression status . It turned back to the northwest , steered by the low @-@ level trade winds and following its previous path . Late on February 20 , the JTWC discontinued advisories , and three days later , the circulation dissipated off the east coast of Madagascar .

= = = Intense Tropical Cyclone Carina = = =

An active phase of the Madden ? Julian oscillation increased convection across the northeastern periphery of the basin , and the ITCZ produced a distinct low pressure area on February 21 to the east of Diego Garcia . The convective structure organized , aided by good outflow and moderate but lessening wind shear . A ridge to its southeast steered the nascent system slowly to the southwest into an area of increasingly favorable conditions . On February 22 , the system was classified as Tropical Disturbance 10 . The next day , the Mauritius Meteorological Service named the disturbance Carina while it was still an intensifying system . Also on February 23 , the JTWC initiated warnings on the storm as Tropical Cyclone 14S . On the next day , the MFR upgraded Carina to a moderate tropical storm . The storm stalled on February 25 due to weakness in the ridge , and on the same day , the JTWC upgraded the storm to the equivalent of hurricane status with 1 minute winds of 120 km / h (75 mph) . By that time , an eye had developed within the center of increasingly organized convection , and the MFR upgraded Carina to tropical cyclone status on February 26 .

Continued favorable conditions , including minimal wind shear and powerful outflow , allowed Carina to intensify further while progressing slowly southwestward . Late on February 27 , the MFR upgraded the storm to an intense tropical cyclone , and the eye reached a diameter of 70 km (45 mi) . Based on the storm 's presentation on satellite imagery , the MFR estimated peak 10 minute winds of 205 km / h (125 mph) on February 28 . On the same day , the JTWC estimated peak 1 minute winds of 240 km / h (150 mph) . Unfavorable conditions ? cooler waters and stronger wind shear ? caused Carina 's structure to rapidly degrade after the peak intensity . By March 2 , the storm weakened below tropical cyclone status , and soon after the circulation became exposed from the convection , prompting the JTWC to discontinue advisories . Carina stalled that day when it reached a reached a col between two ridges ; as a result , the track shifted to the northeast and later northwest due to the building influence of the ridge to the southeast . Environmental conditions prevented significant convection to regenerate , and the circulation of Carina turned westward across the Indian Ocean without redevelopment . It turned back to the southwest , passing near St. Brandon on March 10 . The MFR stopped tracking Carina on the next day , and the circulation dissipated on March 13 to the southeast of Madagascar .

= = = Severe Tropical Storm Diwa = = =

In the beginning of March , the monsoon was active to the northeast of Madagascar , the first time during the season that such active convection persisted northeast of the island . The broad system had two foci of low pressure ; one was located northeast of Madagascar near St. Brandon , and the other was to its south closer to Réunion . The structure resembled a monsoon depression , but as the two low pressure areas consolidated , they became more distinct . On March 2 , the system that would become Diwa originated out of the southern low , and both systems continued to interact until Diwa absorbed the other disturbance . The wind field was large and asymmetrical , ranging 2 @,@

000 km (1 @,@ 245 mi) in diameter , and there was little convection near the centers . Despite the lack of organization , the Meteorological Service of Mauritius named the system Tropical Storm Diwa on March 3 due to the threat to the Mascarene Islands , as well as the presence of gale @-@ force winds . The structure slowly evolved into that of a tropical cyclone as the convection concentrated . On March 4 , Diwa passed northwest of Réunion , still disorganized with much of the convection to the south . That day , the JTWC initiated advisories on the system as Tropical Cyclone 16S . The storm continued slowly to the southwest at first , until it turned to the southeast on March 6 while rounding the ridge . Despite accelerating into an area of cooler waters , Diwa 's structure became much more like a tropical cyclone on March 8 . The MFR estimated peak 10 minute winds of 110 km / h (70 mph) , making it a severe tropical storm , and the JTWC estimated peak 1 minute winds of 100 km / h (65 mph) . Diwa quickly transitioned into an extratropical cyclone as it interacted with a cold front to the south , completing the transition by March 9 . The circulation gradually lost its definition , dissipating on March 11 .

The formative stages of Diwa brought heavy rainfall , reaching 193 mm (7 @.@ 6 in) over 48 hours , to St. Brandon , as well as gale @-@ force winds , with gusts to 120 km / h (75 mph) . Along Mauritius , winds reached 126 km / h (78 mph) , along with 495 mm (19 @.@ 5 in) of rainfall at a station in the southeastern portion of the island . Gale @-@ force winds affected Réunion for nearly three days , due to the storm 's lopsided structure , and gusts peaked at 194 km / h (121 mph) along the coast . Diwa dropped the equivalent of six months ' worth of rainfall , peaking at 2 @,@ 943 mm (115 @.@ 9 in) at Grand @-@ Îlet over four days , which approached the record totals set by Cyclone Hyacinthe in 1980 . The volcanic peak Commerson 's Crater recorded 1 @,@ 474 mm (58 @.@ 0 in) over 24 hours , while coastal areas just 15 km (9 mi) away recorded 188 mm (7 @.@ 4 in) of rainfall over the same time . The storm caused power outages on the island , and three people died due to using a generator inside their home during the storm . One person drowned during the floods , and four people drowned in residual flooding accidents on the island in the weeks after the storm . The floods wrecked several homes during river flooding and caused several landslides , some of which occurred two weeks after the storm due to saturated grounds . On March 24 , a cliff collapsed onto a coastal road , killing two people and severely injuring two others ; the road was reopened three months later . In addition to the damaging effects , the rainfall also alleviated drought conditions .

= = = Moderate Tropical Storm Elia = = =

At the end of March , an active phase of the Madden @-@ Julian oscillation caused an increase in convection over the northeastern portion of the basin . A low pressure area formed on April 1 in the neighboring Australian basin , although the system soon after moved northwestward to cross 90º E. The low meandered for several days , unable to intensify much due to insufficient moisture in the region . On April 6 , the MFR designated the system as Tropical Disturbance 13 , although the agency discontinued advisories on the next day . On April 7 , the low crossed back into the Australian basin , only to turn to the southwest on April 10 , steered by a ridge to the southeast . During this time , the system passed about 185 km (115 mi) northwest of the Cocos Islands . On April 12 , the JTWC designated the system as Tropical Cyclone 12S . On the same day , the system intensified into a tropical depression , after the convective structure improved amid favoring conditions .

Early on April 13 , the depression crossed 90º E into the south @-@ west Indian Ocean . By that time , the system had good outflow to the south , although lack of moisture prevented significant development . Late on April 13 , the MFR upgraded the system to Moderate Tropical Storm Elia , assessing peak 10 minute winds of 75 km / h (45 mph) . The JTWC meanwhile estimated 1 minute winds of 95 km / h (55 mph) . Increasing wind shear and cooler waters resulted in diminished intensity of the convection , causing Elia to weaken . The MFR downgraded the storm to tropical depression status on April 15 after the circulation became exposed . On the same day , the JTWC discontinued advisories . The circulation dissipated on April 17 , signaling the end of the season .

= = = Other storms = = =

The first four disturbances in the season developed in the northeastern portion of the basin in association with a near @-@ equatorial trough , but failed to develop due to wind shear .

At the beginning of September 2005 , the ITCZ was active in the northeastern portion of the basin , accompanied by a small circulation and scattered convection . Located in the presence of strong wind shear , the circulation was exposed from the convection , a sign of unfavorable conditions . However , warm waters fueled an increase in convection , and the MFR classified the system as Tropical Disturbance 1 on September 5 . That day , the JTWC issued a TCFA , but continued shear caused weakening as the disturbance tracked southeastward . By September 8 , the MFR had discontinued advisories on the system , after the circulation had become exposed . After turning to the west @-@ northwest , the circulation began dissipating on September 12 .

The second disturbance was first classified by the MFR on October 12 about 1 @,@ 575 km (980 mi) east of Diego Garcia . The system had enough of a circulation and associated convection , and proceeded southwestward for its duration . After the convection consolidated more and developed curved rainbands , the MFR upgraded the system to a 55 km / h (35 mph) tropical depression on October 14 . This period of organization occurred during a brief decrease in wind shear . At 12 : 00 UTC on October 14 , the JTWC classified the system as Tropical Cyclone 01S , estimating peak 1 minute winds of 75 km / h (45 mph) . Increasingly unfavorable conditions caused the convection to diminish . Late on October 15 , both the JTWC and MFR discontinued advisories due to the increasing disorganization of the disturbance . The circulation remained well @-@ organized but devoid of convection , and the MFR last monitored the center on October 21 .

Tropical Depression Three formed on November 6 while east @-@ southeast of Diego Garcia ; it moved generally southward , reaching peak winds of 55 km / h (35 mph) before dissipating on November 8 . Simultaneous to the depression was Tropical Depression Four , which entered the basin on November 7 from the Australian region , and was also classified by the JTWC as Tropical Cyclone 02S with winds of 65 km / h (40 mph) . The depression was weakening at the time , and both the JTWC and MFR discontinued advisories on November 8 .

On December 21 , the BoM began monitoring a tropical low in the western portion of the Australian basin , which had moved eastward from the south @-@ west Indian Ocean basin . The system moved southwestward and later to the southwest , once again crossing 90º E and causing the MFR to designate it Tropical Depression 6 . At the time , the circulation was partially exposed from the convection , although it organized over the next day . This spurred the JTWC to designate it as Tropical Cyclone 04S on December 24 with winds of 65 km / h (40 mph) . As with other systems in the season , strong shear caused the system to weaken ; the JTWC discontinued advisories on December 25 , and the MFR followed suit the next day . However , the system continued to the southwest , reorganizing enough on December 27 for the MFR to reissue advisories . Shear again weakened the convection , and the MFR discontinued advisories again on December 29 while the system was a short distance west @-@ northwest of Rodrigues .

Tropical Disturbance 12 briefly was classified by the MFR on March 4 , located 620 km (385 mi) north of the developing Tropical Storm Diwa . The disturbance moved quickly to the southeast around Diwa 's circulation , and was ultimately absorbed by the larger storm .

= = Storm names = =

A tropical disturbance is named when it reaches moderate tropical storm strength . If a tropical disturbance reaches moderate tropical storm status west of 55 ° E , then the Sub @-@ regional Tropical Cyclone Advisory Centre in Madagascar assigns the appropriate name to the storm . If a tropical disturbance reaches moderate tropical storm status between 55 ° E and 90 ° E , then the Sub @-@ regional Tropical Cyclone Advisory Centre in Mauritius assigns the appropriate name to the storm . A new annual list is used every year so no names are retired .