

WTIO30 FMEE 261230

RSMC / TROPICAL CYCLONE CENTER / LA REUNION

TROPICAL CYCLONE FORECAST WARNING (SOUTH-WEST INDIAN OCEAN)

0.A WARNING NUMBER: 22/4/20222023

1.A INTENSE TROPICAL CYCLONE 4 (DARIAN)

2.A POSITION 2022/12/26 AT 1200 UTC:

WITHIN 20 NM RADIUS OF POINT 16.8 S / 84.8 E

(SIXTEEN DECIMAL EIGHT DEGREES SOUTH AND  
EIGHTY FOUR DECIMAL EIGHT DEGREES EAST)

MOVEMENT: SOUTH-SOUTH-WEST 4 KT

3.A DVORAK ANALYSIS: 5.5/6.0/D 1.0/24 H

4.A CENTRAL PRESSURE: 945 HPA

5.A MAX AVERAGE WIND SPEED (10 MN): 100 KT

RADIUS OF MAXIMUM WINDS (RMW): 33 KM

6.A EXTENSION OF WIND BY QUADRANTS (KM):

28 KT NE: 295 SE: 445 SW: 405 NW: 295

34 KT NE: 185 SE: 240 SW: 260 NW: 205

48 KT NE: 130 SE: 155 SW: 160 NW: 140

64 KT NE: 85 SE: 100 SW: 100 NW: 95

7.A FIRST CLOSED ISOBAR (PRESSURE / AVERAGE DIAM): 1009 HPA / 1200 KM

8.A VERTICAL EXTENSION OF CYCLONE CIRCULATION: DEEP

1.B FORECASTS (WINDS RADII IN KM):

12H: 2022/12/27 00 UTC: 17.5 S / 83.6 E, VENT MAX= 085 KT, TROPICAL CYCLONE

28 KT NE: 270 SE: 530 SW: 465 NW: 250

34 KT NE: 155 SE: 285 SW: 270 NW: 150

48 KT NE: 95 SE: 110 SW: 140 NW: 75

64 KT NE: 65 SE: 75 SW: 75 NW: 65

24H: 2022/12/27 12 UTC: 18.6 S / 81.6 E, VENT MAX= 075 KT, TROPICAL CYCLONE

28 KT NE: 285 SE: 510 SW: 435 NW: 220

34 KT NE: 175 SE: 285 SW: 280 NW: 140

48 KT NE: 95 SE: 110 SW: 140 NW: 75

64 KT NE: 65 SE: 75 SW: 75 NW: 55

36H: 2022/12/28 00 UTC: 20.1 S / 79.0 E, VENT MAX= 065 KT, TROPICAL CYCLONE

28 KT NE: 285 SE: 530 SW: 415 NW: 230

34 KT NE: 165 SE: 295 SW: 250 NW: 140

48 KT NE: 95 SE: 110 SW: 150 NW: 75

64 KT NE: 45 SE: 65 SW: 55 NW: 55

48H: 2022/12/28 12 UTC: 21.7 S / 76.0 E, VENT MAX= 060 KT, SEVERE TROPICAL STORM  
28 KT NE: 260 SE: 480 SW: 400 NW: 220  
34 KT NE: 150 SE: 280 SW: 250 NW: 130  
48 KT NE: 65 SE: 100 SW: 140 NW: 45

60H: 2022/12/29 00 UTC: 23.2 S / 73.3 E, VENT MAX= 055 KT, SEVERE TROPICAL STORM  
28 KT NE: 285 SE: 470 SW: 380 NW: 195  
34 KT NE: 155 SE: 280 SW: 230 NW: 100  
48 KT NE: 65 SE: 100 SW: 140 NW: 45

72H: 2022/12/29 12 UTC: 24.8 S / 71.2 E, VENT MAX= 050 KT, SEVERE TROPICAL STORM  
28 KT NE: 305 SE: 415 SW: 350 NW: 175  
34 KT NE: 165 SE: 250 SW: 215 NW: 85  
48 KT NE: 65 SE: 100 SW: 140 NW: 45

#### 2.B LONGER-RANGE OUTLOOK:

96H: 2022/12/30 12 UTC: 28.5 S / 68.2 E, VENT MAX= 045 KT, MODERATE TROPICAL STORM  
28 KT NE: 345 SE: 455 SW: 345 NW: 240  
34 KT NE: 175 SE: 285 SW: 230 NW: 140

120H: 2022/12/31 12 UTC: 32.7 S / 68.0 E, VENT MAX= 040 KT, POST-TROPICAL DEPRESSION  
28 KT NE: 405 SE: 405 SW: 280 NW: 230  
34 KT NE: 205 SE: 280 SW: 215 NW: 130

#### 2.C ADDITIONAL INFORMATION:

T=5.5 CI=6.0

DURING THE LAST SIX HOURS, DARIAN'S EYE PATTERN HAS KEPT IMPROVING UNTIL 10UTC, WITH A VERY SYMMETRICAL EYE SURROUNDED BY A STRONG CONVECTIVE RING, AS SHOWN BY RECENT MICROWAVE IMAGERY (AMSR2 0817Z, SSMIS-F18 1025Z). DT AVERAGED OVER 3H THEN REACHED 6.0 BETWEEN 09 AND 10UTC. HOWEVER, IN THE FOLLOWING HOURS, CLOUD TOPS BEGAN WARMING UP, WHICH MAKES THE DT DROPPING TO 5.5 AT 12UTC. WE THUS ESTIMATE AN INTENSITY PEAK NEAR 100KT AT 09UTC, MOMENT USED HERE AS REFERENCE FOR THE CI OF 6.0. THIS PEAK INTENSITY ALSO FITS QUITE WELL WITH THE SATCON ESTIMATE.

DARIAN HAS STARTED ITS SOUTHWESTWARD TURN AND WILL THEN KEEP FOLLOWING THIS DIRECTION IN THE COMING DAYS, DUE TO THE STRENGTHENING OF THE SUBTROPICAL RIDGE WHICH IS NOW TAKING HOLD OF THE STEERING FLOW. FROM SATURDAY ONWARDS, THE SYSTEM SHOULD MOVE SOUTH OF 30S AND TURN TO THE SOUTH THEN SOUTHEAST WHILE BEING ATTRACTED BY A MID-LATITUDE TROUGH.

TODAY'S TEMPORARY INTENSITY PEAK WAS ENABLED BY LOWER WIND SHEAR, GOOD UPPER DIVERGENCE (OUTFLOW CHANNEL TO THE SOUTHEAST OF THE SYSTEM) AND STILL WARM SURFACE WATERS. FROM TUESDAY ONWARDS, DECREASING OCEANIC POTENTIAL (SST DROPPING BELOW 26C) AND ALSO SLIGHTLY INCREASING NORTHERLY WIND SHEAR, SHOULD LEAD TO STEADY WEAKENING THROUGHOUT THE WEEK. ON SATURDAY, WHILE TRACKING SOUTH OF

30S, DARIAN SHOULD START ITS EXTRATROPICAL TRANSITION AHEAD OF A MID-LATITUDE UPPER TROUGH.