Direction Interrégionale de Météo-France pour l'Océan Indien
50 Boulevard du Chaudron
97490 Sainte-Clotilde
Tél : 0262 92 11 00

WTIO30 FMEE 200035
RSMC / TROPICAL CYCLONE CENTER / LA REUNION
TROPICAL CYCLONE FORECAST WARNING (SOUTH-WEST INDIAN OCEAN)

0.A WARNING NUMBER: 23/7/20222023
1.A INTENSE TROPICAL CYCLONE 7 (FREDDY)

2.A POSITION 2023/02/20 AT 0000 UTC:
WITHIN 20 NM RADIUS OF POINT 18.0 S / 60.7 E
(EIGHTEEN DECIMAL ZERO DEGREES SOUTH AND
SIXTY DECIMAL SEVEN DEGREES EAST)
MOVEMENT: WEST 16 KT

3.A DVORAK ANALYSIS: 6.0/6.5/W 1.0/6 H

4.A CENTRAL PRESSURE: 936 HPA
5.A MAX AVERAGE WIND SPEED (10 MN): 115 KT
RADIUS OF MAXIMUM WINDS (RMW): 19 KM

6.A EXTENSION OF WIND BY QUADRANTS (KM):
28 KT NE: 205 SE: 295 SW: 295 NW: 155
34 KT NE: 150 SE: 220 SW: 175 NW: 120
48 KT NE: 75 SE: 85 SW: 70 NW: 65
64 KT NE: 55 SE: 55 SW: 55 NW: 45

7.A FIRST CLOSED ISOBAR (PRESSURE / AVERAGE DIAM): 1009 HPA / 600 KM
8.A VERTICAL EXTENSION OF CYCLONE CIRCULATION: DEEP

1.B FORECASTS (WINDS RADII IN KM):
12H: 2023/02/20 12 UTC: 18.7 S / 57.0 E, VENT MAX= 115 KT, INTENSE TROPICAL CYCLONE
28 KT NE: 215 SE: 295 SW: 240 NW: 155
34 KT NE: 130 SE: 175 SW: 165 NW: 110
48 KT NE: 75 SE: 95 SW: 75 NW: 65
64 KT NE: 55 SE: 65 SW: 65 NW: 55

24H: 2023/02/21 00 UTC: 19.5 S / 53.4 E, VENT MAX= 110 KT, INTENSE TROPICAL CYCLONE
28 KT NE: 205 SE: 345 SW: 230 NW: 165
34 KT NE: 120 SE: 215 SW: 195 NW: 110
48 KT NE: 75 SE: 95 SW: 85 NW: 65
64 KT NE: 45 SE: 65 SW: 55 NW: 35

36H: 2023/02/21 12 UTC: 20.4 S / 50.0 E, VENT MAX= 110 KT, INTENSE TROPICAL CYCLONE
28 KT NE: 215 SE: 305 SW: 230 NW: 155
34 KT NE: 120 SE: 195 SW: 165 NW: 110

48 KT NE: 75 SE: 85 SW: 85 NW: 75
64 KT NE: 45 SE: 65 SW: 45 NW: 35

48H: 2023/02/22 00 UTC: 21.0 S / 47.0 E, VENT MAX= 045 KT, OVERLAND DEPRESSION
28 KT NE: 215 SE: 270 SW: 10 NW: 0
34 KT NE: 130 SE: 165 SW: 0 NW: 0

60H: 2023/02/22 12 UTC: 21.7 S / 43.5 E, VENT MAX= 035 KT, OVERLAND DEPRESSION
28 KT NE: 110 SE: 10 SW: 150 NW: 0
34 KT NE: 0 SE: 10 SW: 0 NW: 0

72H: 2023/02/23 00 UTC: 21.6 S / 41.1 E, VENT MAX= 040 KT, MODERATE TROPICAL STORM
28 KT NE: 155 SE: 270 SW: 260 NW: 95
34 KT NE: 85 SE: 165 SW: 100 NW: 0

2.B LONGER-RANGE OUTLOOK:
96H: 2023/02/24 00 UTC: 20.3 S / 35.9 E, VENT MAX= 055 KT, SEVERE TROPICAL STORM
28 KT NE: 230 SE: 285 SW: 260 NW: 110
34 KT NE: 130 SE: 195 SW: 150 NW: 65
48 KT NE: 55 SE: 85 SW: 85 NW: 45

120H: 2023/02/25 00 UTC: 21.0 S / 32.4 E, VENT MAX= 020 KT, OVERLAND DEPRESSION

2.C ADDITIONAL INFORMATION:
T=6.0+ CI=6.5+

OVERNIGHT, FREDDY EYE PATTERN HAS SLIGHTLY DEGRADED, AS ALREADY SUGGESTED BY THE ANALYSIS OF THE INTERMEDIATE POINT OF 21Z., WITH A GLOBAL WARMING OF THE CLOUD TOPS OBSERVED. THE INSTANTANEOUS SUBJECTIVE ANALYSIS OF THE INTENSITY ALLOWED TO VALIDATE THIS FACT, BY SHOWING A DECAY OF THE DT FROM 1945Z. AN AVERAGE DT OVER THE LAST 3 HOURS ALLOWS A DT OF 6, CONFIRMING THE INTENSITY ABOUT 115KT, PROVIDED BY THE ADT/AIDT AND THE SATCON. CONSEQUENTLY FREDDY IS DECLASSIFIED AS AN INTENSE TROPICAL CYCLONE. IN THE ABSENCE OF RECENT MICROWAVE DATA, IT IS DIFFICULT TO EVALUATE THE ROBUSTNESS OF THE CENTRAL CONVECTION RING OF THE SYSTEM. FINALLY, THE 1752Z ASCAT-B PASS ALLOWED TO UPDATE THE ANALYSIS OF THE WIND EXTENSIONS.

FREDDY IS MAINTAINING ITS WEST-SOUTHWESTWARD TRACK UNTIL TUESDAY, RUNNING ALONG THE NORTHERN SIDE OF THE HIGH GEOPOTENTIALS OF THE MIDDLE TROPOSPHERE. IN THE SHORT TERM, THE FORECASTS OF THE VARIOUS MODELS REMAIN LITTLE DISPERSED AND STABLE, WITH A GOOD CONFIDENCE ON A TRACK PASSING NORTH OF THE MASCARENE ISLANDS AND ACCELERATING UNTIL A LANDING ON TUESDAY EVENING ON THE MALAGASY EAST COAST. THE DISPERSION IS INCREASING JUST BEFORE THE LANDING ON MADAGASCAR AND BECOMES MORE IMPORTANT AFTERWARDS, ESPECIALLY WHEN THE SYSTEM COMES OUT ON THE MOZAMBIQUE CHANNEL. THIS DISPERSION IS EXPLAINED BY A DIFFERENT BEHAVIOUR OF THE MOBILITY AND THE POSITIONING OF THE SUBTROPICAL RIDGE FROM TUESDAY. THE RSMC TRACK FORECAST IS BASED ON A COMPROMISE BETWEEN THE BEST AVAILABLE GUIDANCE.

IN SPITE OF THE PERSISTENCE OF A WEAK TO MODERATE STRESS IN ALTITUDE FREDDY SHOULD KEEP A MARKED INTENSITY UNTIL THE LANDING ON THE MALAGASY COASTS, WITH A GOOD DIVERGENCE ALOFT ON THE EQUATORIAL SIDE, A STRONG OCEANIC POTENTIAL AND A SIGNIFICANT SPEED OF MOVEMENT. FREDDY SHOULD THEREFORE PROBABLY REMAIN AT LEAST AT A STAGE OF INTENSE TROPICAL CYCLONE. A POSSIBLE EYEWALL REPLACEMENT CYCLE OF THE EYEWALL COULD LIMIT AND FLUCTUATE THE INTENSITY OF THE SYSTEM BEFORE ITS LANDING BUT NO EVIDENCE FOR THIS SCENARIO AT THE MOMENT. IN THE END, AFTER A CLASSICAL WEAKENING OVER THE MALAGASY LANDS, THE CENTRAL CORE OF FREDDY SHOULD RESTRUCTURE BEFORE A REINTENSIFICATION OVER THE MOZAMBIQUE CHANNEL IN MIXED ENVIRONMENTAL CONDITIONS (OCEANIC POTENTIAL LESS RICH THAN OVER THE INDIAN OCEAN BASIN, AND ESPECIALLY A REINFORCEMENT OF THE SHEAR IN THE MIDDLE AND UPPER TROPOSPHERE). IT COULD HOWEVER REACH THE STAGE OF SEVERE TROPICAL STORM BEFORE LANDING ON THE COAST OF MOZAMBIQUE.

IMPACTS ON INHABITED LANDS DURING THE NEXT 72 HOURS :
- RODRIGUES ISLAND : VERY ROUGH SEA (4-6M) UNTIL MONDAY 03Z THEN IMPROVEMENT.
- MAURITIUS ISLAND : WINDS REACHING GALE MONDAY BETWEEN 06Z AND 15UTC. SEA VERY ROUGH (4-6M) BECOMING HIGH (6-8M) FROM MONDAY 06Z TO 18Z. SEA VERY ROUGH (4-6M) UNTIL TUESDAY 00UTC.
- REUNION : NEAR GALE FORCE WINDS ON MONDAY AROUND 12Z UNTIL 00Z. SEA VERY ROUGH (4-6M) FROM 15Z UNTIL TUESDAY 03Z.THE SEA BECAME PUNCTUALLY BIG (6-8M) AT THE PASSAGE OF FREDDY IN THE NORTH OF THE ISLAND.
- MADAGASCAR : MAINTENANCE OF THE LANDING PLANNED ON TUESDAY EVENING AROUND 18UTC PROBABLY ON THE PROVINCES VATOVANY-FITOVINANY, PROBABLY BETWEEN NOSY-VARIKA AND MANANJARY; THE LANDING ZONE WILL BE PRECISE DURING THE NEXT BULLETINS CONSIDERING THE CURRENT DISPERSION OF THE MODELS.
* PROBABLE ARRIVAL OF THE GALE FORCE WINDS FROM TUESDAY 15Z.
* VERY BIG TO HUGE SEA OFF THE COAST NEAR THE LANDING ZONE (WAVES OF 9 TO 15M) WITH A SURGE THAT CAN REACH 2M LOCALLY.
* INTENSE RAINFALL DURING THE NEXT 48 HOURS, WITH RAINFALL TOTALS CLOSE TO 200 MM NEAR THE IMPACT ZONE, OVER A LIMITED AREA, WITH A POTENTIAL FOR FLASH FLOODING.
- MOZAMBIQUE : FREDDY COULD LAND ON FRIDAY AT THE MINIMAL STAGE OF SEVERE TROPICAL STORM, THE AREA OF LANDING AS WELL AS THE INTENSITY OF THE SYSTEM AT THIS TIME, ARE STILL VERY UNCERTAIN.