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

0.A WARNING NUMBER: 4/5/20222023
1.A TROPICAL DEPRESSION 5

2.A POSITION 2023/01/18 AT 0000 UTC:
WITHIN 20 NM RADIUS OF POINT 13.8 S / 55.8 E
(THIRTEEN DECIMAL EIGHT DEGREES SOUTH AND
FIFTY FIVE DECIMAL EIGHT DEGREES EAST)
MOVEMENT: WEST 21 KT

3.A DVORAK ANALYSIS: 2.5/2.5/D 1.0/24 H

4.A CENTRAL PRESSURE: 1000 HPA
5.A MAX AVERAGE WIND SPEED (10 MN): 30 KT
RADIUS OF MAXIMUM WINDS (RMW): NIL

6.A EXTENSION OF WIND BY QUADRANTS (KM):
28 KT NE: 0 SE: 280 SW: 240 NW: 0

7.A FIRST CLOSED ISOBAR (PRESSURE / AVERAGE DIAM): 1006 HPA / 400 KM
8.A VERTICAL EXTENSION OF CYCLONE CIRCULATION: DEEP

1.B FORECASTS (WINDS RADII IN KM):
12H: 2023/01/18 12 UTC: 13.8 S / 52.9 E, VENT MAX= 035 KT, MODERATE TROPICAL STORM
28 KT NE: 130 SE: 305 SW: 220 NW: 150
34 KT NE: 75 SE: 110 SW: 120 NW: 75

24H: 2023/01/19 00 UTC: 14.1 S / 51.2 E, VENT MAX= 045 KT, MODERATE TROPICAL STORM
28 KT NE: 150 SE: 305 SW: 240 NW: 150
34 KT NE: 95 SE: 120 SW: 110 NW: 95

36H: 2023/01/19 12 UTC: 14.6 S / 50.2 E, VENT MAX= 040 KT, MODERATE TROPICAL STORM
28 KT NE: 120 SE: 315 SW: 205 NW: 130
34 KT NE: 95 SE: 120 SW: 95 NW: 85

48H: 2023/01/20 00 UTC: 15.2 S / 49.3 E, VENT MAX= 030 KT, OVERLAND DEPRESSION
28 KT NE: 0 SE: 305 SW: 205 NW: 0

60H: 2023/01/20 12 UTC: 16.1 S / 48.7 E, VENT MAX= 030 KT, OVERLAND DEPRESSION
28 KT NE: 0 SE: 305 SW: 205 NW: 0

72H: 2023/01/21 00 UTC: 17.1 S / 48.7 E, VENT MAX= 030 KT, OVERLAND DEPRESSION
28 KT NE: 0 SE: 305 SW: 205 NW: 0

2.B LONGER-RANGE OUTLOOK:
96H: 2023/01/22 00 UTC: 18.8 S / 49.4 E, VENT MAX= 030 KT, TROPICAL DEPRESSION
28 KT NE: 185 SE: 280 SW: 205 NW: 0

120H: 2023/01/23 00 UTC: 20.2 S / 50.3 E, VENT MAX= 045 KT, MODERATE TROPICAL STORM
28 KT NE: 260 SE: 305 SW: 240 NW: 260
34 KT NE: 110 SE: 110 SW: 110 NW: 95

2.C ADDITIONAL INFORMATION:
FT=CI=2.5-

DURING THE LAST 6 HOURS, SYSTEM NUMBER 05 HAS CONTINUED TO SHOW SIGNS OF INTENSIFICATION WITH AN INCREASE IN THE EXTENSION OF DEEP CONVECTION AND A CURVED BAND PATTERN WRAPPING 0.40 ON A LOG10 SPIRAL, WHICH GIVES A DT OF 2.5-. THE TROMELIN ISLAND WEATHER STATION, LOCATED IN THE SOUTH-SOUTHWEST PERIPHERY OF THE SYSTEM, HAS MEASURED WINDS UP TO 27KT AT 00UTC. BY EXTRAPOLATION OF LAST NIGHT'S PARTIAL ASCAT DATA, WE CAN ESTIMATE THAT 30KT WINDS ARE PRESENT IN THE SOUTHERN SEMICIRCLE OF THE CIRCULATION. THESE VARIOUS ELEMENTS ALLOW US TO ESTIMATE THAT THE SYSTEM IS NOW AT THE STAGE OF TROPICAL DEPRESSION.
ON THE OTHER HAND, THE SECONDARY VORTEX LOCATED FURTHER NORTH, NEAR AGALEGA, IS NOW TOTALLY EXPOSED AND WITHOUT DEEP CONVECTION UNDER THE EFFECT OF VERTICAL SHEAR. THE FUJIWHARA INTERACTION BETWEEN THIS VORTEX AND TROPICAL DEPRESSION 05 HAS HELPED TO BEND THE SYSTEM'S TRACK A LITTLE TO THE WEST-NORTHWEST OVER THE NIGHT HOURS.

THE SYSTEM IS STILL MOVING QUITE RAPIDLY IN A GENERAL WESTERLY DIRECTION ON THE NORTHERN SIDE OF THE SUBTROPICAL HIGH LOCATED TO THE SOUTH. THIS MOVEMENT SHOULD CONTINUE DURING THE NEXT 36H WHILE SLOWING DOWN GRADUALLY, WHILE THE REMNANT VORTEX LOCATED TO THE NORTHEAST SHOULD BE ABSORBED WITHIN SYSTEM 05'S CIRCULATION. FROM THURSDAY ON, A MID-TROPOSPHERE BAROMETRIC COL WILL SET UP SOUTH OF THE MASCARENES AND A NEAR EQUATORIAL RIDGE WILL BUILD UP NORTHEAST OF THE SYSTEM. A SUBTROPICAL RIDGE OF HIGH PRESSURE WILL REMAIN OVER THE SOUTH OF THE MOZAMBIQUE CHANNEL. THIS SITUATION IS FAVORABLE TO A SLOWER AND MORE MERIDIAN TRACK. IF GLOBAL MODELS ARE RATHER IN GOOD AGREEMENT ON THE ZONAL PORTION OF THE TRACK (IN SPITE OF SOME DISAGREEMENTS IN THE SPEED OF MOVEMENT), DISPERSION INCREASES QUICKLY BEYOND, WHICH MAKES THE FORECAST PARTICULARLY UNCERTAIN BEYOND 48H, WITH MANY VERY DIFFERENT TRACK POSSIBILITIES. THE ECMWF EPS FAVORS A TRACK THAT REMAINS RATHER ON THE EASTERN SIDE OF MADAGASCAR BEFORE A POSSIBLE SOUTHEASTWARD TURN AT THE END OF THE FORECAST PERIOD, WHILE THE US ENSEMBLE HAS THE SYSTEM MOVING MORE CLEARLY OVER MADAGASCAR OR EVEN TO ITS WESTERN SIDE. THE RSMC'S FORECAST IS CLOSER TO THE EUROPEAN TRACK PHILOSOPHY BUT REMAINS VERY UNCERTAIN FROM DAY 3 ONWARDS.

IN TERMS OF INTENSITY, THE FUJIWHARA INTERACTION WITH THE OTHER NEARBY

VORTEX SHOULD CONTAIN A LITTLE THE END OF THE CYCLOGENESIS PROCESS THIS WEDNESDAY. MODERATE EASTERLY SHEAR SHOULD ALSO CONTRIBUTE TO SLOW DOWN INTENSIFICATION. WITHIN THE NEXT 24 HOURS, CONDITIONS SHOULD THEN BE FAVORABLE FOR A MORE FRANK BUT SHORT-LIVED INTENSIFICATION BEFORE WEAKENING DUE TO INTERACTION WITH MADAGASCAR'S HIGH GROUND. THE INTENSITY FORECAST IS CLOSE TO GUIDANCES SUGGESTING A MODERATE INTENSIFICATION, POSSIBLY REACHING THE LOWER LEVEL OF SEVERE TROPICAL STORM STAGE JUST BEFORE LANDFALL OVER MADAGASCAR ON THURSDAY.

IMPACTS ON INHABITED LANDS DURING THE NEXT 72 HOURS.

MADAGASCAR:
- HEAVY RAINS WILL START FROM WEDNESDAY EVENING ON THE NORTH-EAST OF MADAGASCAR WITH THE APPROACH OF THE SYSTEM. THESE HEAVY RAINS WILL THEN LAST AT LEAST UNTIL SUNDAY, SPREADING TO THE WHOLE NORTHERN PART OF THE ISLAND (NORTH OF A TAMATAVE-MAJUNGA AXIS) IN CONNECTION WITH THE ESTABLISHMENT OF A VERY ACTIVE MONSOON FLOW. CUMULATIVE RAINFALL OVER 4 DAYS EXCEEDED 200 MM OVER A LARGE PART OF THE AREA WITH LOCALLY MORE THAN 500 MM OVER HIGHER GROUND.

- STRONG WIND CONDITIONS (GALE FORCE WINDS) ARE EXPECTED ON THURSDAY BETWEEN SAINTE-MARIE ISLAND TO THE SOUTH AND SAMBAVA TO THE NORTH. DESTRUCTIVE WIND CONDITIONS (STORM FORCE WINDS) ARE POSSIBLE NEAR THE LANDFALL AREA.

- A DANGEROUS SEA STATE WITH SIGNIFICANT WAVES OF MORE THAN 4M WILL ALSO SPREAD ALONG THE NORTHEASTERN COAST ON THURSDAY WITH LOCALLY A RISK OF COASTAL FLOODING.