

WTIO30 FMEE 311358

RSMC / TROPICAL CYCLONE CENTER / LA REUNION

TROPICAL CYCLONE FORECAST WARNING (SOUTH-WEST INDIAN OCEAN)

0.A WARNING NUMBER: 7/1/20232024

1.A MODERATE TROPICAL STORM 1 (ALVARO)

2.A POSITION 2023/12/31 AT 1200 UTC:

WITHIN 20 NM RADIUS OF POINT 20.5 S / 39.1 E

(TWENTY DECIMAL FIVE DEGREES SOUTH AND
THIRTY NINE DECIMAL ONE DEGREES EAST)

MOVEMENT: EAST-SOUTH-EAST 7 KT

3.A DVORAK ANALYSIS: 2.5/2.5/S 0.0/6 H

4.A CENTRAL PRESSURE: 1000 HPA

5.A MAX AVERAGE WIND SPEED (10 MN): 35 KT

RADIUS OF MAXIMUM WINDS (RMW): 33 KM

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

28 KT NE: 110 SE: 120 SW: 0 NW: 0

34 KT NE: 75 SE: 0 SW: 0 NW: 0

48 KT NE: 0 SE: 0 SW: 0 NW: 0

64 KT NE: 0 SE: 0 SW: 0 NW: 0

7.A FIRST CLOSED ISOBAR (PRESSURE / AVERAGE DIAM): 1008 HPA / 600 KM

8.A VERTICAL EXTENSION OF CYCLONE CIRCULATION: DEEP

1.B FORECASTS (WINDS RADII IN KM):

12H: 2024/01/01 00 UTC: 21.5 S / 41.0 E, VENT MAX= 035 KT, MODERATE TROPICAL
STORM

28 KT NE: 150 SE: 195 SW: 0 NW: 140

34 KT NE: 110 SE: 130 SW: 0 NW: 110

24H: 2024/01/01 12 UTC: 21.7 S / 42.7 E, VENT MAX= 035 KT, MODERATE TROPICAL
STORM

28 KT NE: 175 SE: 215 SW: 110 NW: 140

34 KT NE: 120 SE: 150 SW: 0 NW: 110

36H: 2024/01/02 00 UTC: 21.7 S / 45.0 E, VENT MAX= 030 KT, OVERLAND DEPRESSION

28 KT NE: 195 SE: 230 SW: 120 NW: 100

48H: 2024/01/02 12 UTC: 21.3 S / 46.8 E, VENT MAX= 025 KT, OVERLAND DEPRESSION

60H: 2024/01/03 00 UTC: 21.5 S / 47.8 E, VENT MAX= 025 KT, OVERLAND DEPRESSION

72H: 2024/01/03 12 UTC: 22.2 S / 48.9 E, VENT MAX= 025 KT, POST-TROPICAL

DEPRESSION

2.B LONGER-RANGE OUTLOOK:

96H: 2024/01/04 12 UTC: 24.1 S / 52.6 E, VENT MAX= 025 KT, POST-TROPICAL DEPRESSION

120H: 2024/01/05 12 UTC: 27.5 S / 57.0 E, VENT MAX= 020 KT, POST-TROPICAL DEPRESSION

2.C ADDITIONAL INFORMATION:

T=CI=2.5+

OVER THE LAST 6 HOURS, AND MORE SPECIFICALLY BETWEEN 06Z AND 09Z, THE SYSTEM'S CLOUD PATTERN HAS IMPROVED, TAKING ON A STRONGER CURVATURE, DESPITE CLOUD TOP TEMPERATURES GRADUALLY WARMING UNDER THE EFFECT OF THE DIURNAL CYCLE. THE CENTRAL HOT CORE HAS GRADUALLY CONSOLIDATED, AS WITNESSED BY THE 0448Z SSMIS F-17 MICROWAVE IMAGE SHOWING A CONVECTIVE HOOK IN THE WESTERN SEMICIRCLE, AND THE CONFIRMATION OF THE 0825Z GPM IMAGE AT BOTH 89GHZ AND 37GHZ, WHERE A CIAN-COLORED CONVECTION RING CAN BE SEEN, INDICATIVELY CONFIRMING THE PRESENCE OF THE GALE FORCE WINDS IN THE LOWER LAYERS. THESE ELEMENTS, TOGETHER WITH A SUBJECTIVE DVORAK CURVED BAND ANALYSIS RAISED TO 2.5+ IN CI, ENABLED THE SYSTEM TO BE UPGRADED TO MODERATE TROPICAL STORM STATUS. A CONSULTATION BETWEEN MADAGASCAR'S METEOROLOGICAL SERVICE AND CMRS IN REUNION, SHORTLY BEFORE 09Z, RESULTED IN THE SYSTEM BEING NAMED ALVARO. BEYOND 09Z, THE CURVED BAND CONFIGURATION GRADUALLY WIDENED, PROBABLY AS A RESULT OF MODERATE SHEAR STRESS IN THE MID-TROPOSPHERE, ALTHOUGH STRONG CONVECTION REMAINED AROUND THE CENTER.

ALVARO IS CONTINUING HIS CROSSING OF THE MOZAMBIQUE CHANNEL UNDER THE INFLUENCE OF A WEST-NORTH-WESTERLY DIRECTING FLOW DRIVEN BY A RIDGE OF HIGH PRESSURE LOCATED FURTHER NORTH. ITS TRACK WILL TAKE IT TO THE WESTERN COAST OF MADAGASCAR, WHICH IT MAY REACH ON MONDAY EVENING OR DURING THE NIGHT OF MONDAY TO TUESDAY. NUMERICAL FORECASTS ARE STILL WIDELY DISPERSED AS TO ITS SPEED AND LOCATION, ALTHOUGH THE DIFFERENCES BETWEEN THE AMERICAN MODEL GFS AND THE PREVIOUS NETWORK ARE SLIGHTLY LESS MARKED. THE RSMC TRACK IS CLOSER TO THE LATEST IFS AND AROME RUNS IN TERMS OF TIMING. THE AMERICAN MODEL IS STILL TOO FAST, AND HAS THE SYSTEM STAGNATING ALONG THE WEST COAST OF MADAGASCAR; SOME GEFS MEMBERS HAVE IT CROSSING THE MAIN ISLAND, WITH AN EXIT INTO THE INDIAN OCEAN. THE CMRS FORECAST IS BASED ON A COMPROMISE BETWEEN THE BEST AVAILABLE GUIDANCE, THE DISPERSION OF WHICH REMAINS SIGNIFICANT, LEADING TO CONSIDERABLE UNCERTAINTY OVER THE SYSTEM'S FINAL TRACK.

IN TERMS OF INTENSITY, WITH ENVIRONMENTAL CONDITIONS GENERALLY FAVORABLE FOR INTENSIFICATION SINCE THIS MORNING, WE'LL NOW HAVE TO DEAL WITH INCREASINGLY INSISTENT MID- AND UPPER-TROPOSPHERE SHEAR IN A SOUTHWESTERLY FLOW, CAUSING THE SYSTEM'S INTENSITY TO FLUCTUATE, OR EVEN WEAKEN IN THE SHORT TERM, BEFORE IT MAKES LANDFALL OVER WESTERN MADAGASCAR. THE CURRENT FORECAST THEREFORE SUGGESTS A STAGNATION IN

INTENSITY AS FAR AS MADAGASCAR, BEFORE A RAPID WEAKENING INLAND. AN OUTFLOW TO SEA IS POSSIBLE BY MID-WEEK, AT A WEAKENED STAGE UNDER THE CONTINUING EFFECT OF STRONG NORTHWESTERLY UPPER-LEVEL SHEAR BRINGING DRY AIR ALOFT TO THE HEART OF THE SYSTEM.

IMPACTS ON INHABITED LAND :

MADAGASCAR (TOLIARA PROVINCE, FIANARANTSOA PROVINCE):

- GALE-FORCE WINDS (20-40%) LIKELY TO ARRIVE FROM MIDDAY ON MONDAY THROUGH MONDAY NIGHT.
- HEAVY RAIN FROM MONDAY ON THE WEST COAST, SPREADING TO THE EAST COAST ON TUESDAY. RAINFALL TOTALS OF 100-200MM, LOCALLY 300M.
- WAVES CLOSE TO 4M NEAR THE IMPACT ZONE AROUND MONDAY EVENING.