Forecast guidance for Severe Weather Forecasting Demonstration Project (SWFDP)

SHORT RANGE FORECAST DISCUSSION 14H00 EST 03rd April 2007

AFRICA DESK
CLIMATE PREDICTION CENTER
National Centers for Environmental predictions
National Weather Service
NOAA
Camp Springs MD 20746

FORECAST DISCUSSION 14H00 EST 03rd April 2007
Valid: 00Z 4th April 2007- 00Z 06th April 2007.

Highlights**:** *TROPICAL CYCLONE 22°S (JAYA), centered near 14,4°S 49,8°E at 031200Z with 975hPa pressure at the center, moving westward at 07 kt with max sustained wind – 065 kt, gusts 091kt.*
JAYA has tracked west-northwestward at 11 knot over the past six hours making landfall near Antalaha, northeast Madagascar. The system is expected to weaken due to some dry air entrainment and terrain roughness. At T+48 hrs the system is expected to exit the continent entering into northeastern part of the Mozambican Channel, slightly re-intensifying due to warmer water. The decreasing upper level outflow at T+72 hrs and the trough over Mozambique at 200 mb, with a northwesterly flow leads the weakening of the system, taking a south-southeastward turn. But the effects of this system will persist over the northeastern coast of Mozambique.

At T+24 hrs, the general flow pattern at 200hpa over Southern Africa (South of the Equator) as shown by the GFS, ECMWF and UK-MET models, is a persistent high pressure system centered at 17°S 70°E. The models show a trough over the southern part of the sub continent, with a northwesterly flow, causing convergence over these areas. The models show also a shallow trough over Mozambican Channel stretching into the eastern parts of the coast of Kenya, with a closed circulation at 9°S 58°E. There is a high pressure system centered at 5°S 14°E throwing a ridge over the rest of the sub continent. At T+48 hrs, the shallow trough which was over Mozambican Channel stretching into the eastern parts of the coast of Kenya has shifted northeastward, causing convergence over areas which are to the north of Madagascar. The trough which was over the southern part of the sub continent has developed a closed circulation, stretching into northwestern Zambia, with westerly to northwesterly winds of up to 60 KT. Elsewhere the general flow pattern is maintained. At T+72 hrs, the trough over the southern part of the sub continent has slightly shifted eastward and weakened in amplitude, and its winds over the southwestern parts of the sub continent have weakened also. Elsewhere the general flow

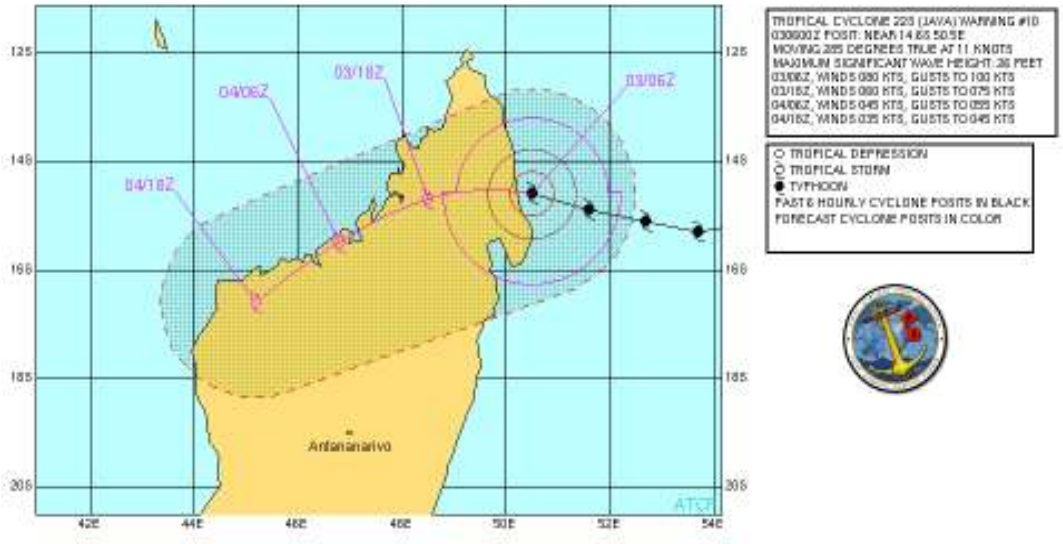
pattern prevails, except that the shallow trough which was to the north of Madagascar has weakened and there is a ridge over the northern part of Madagascar.

At 500mb, the GFS models show a trough to the north of Madagascar (16°S 49°E) which is associated with the tropical cyclone Jaya. The UKMET and ECMWF models do not show a trough (but a low) over northern Madagascar, but agrees with the GFS that there is a shallow trough over Botswana, stretching into northwestern Zambia. The UKMET puts the center of this low near 16°S 48°E. The three models show the Mascarene high with two cells centered at 21°S 41°E and at 21°S 59°E, throwing a ridge over Tanzania, eastern Zambia and Mozambique. The St Helena high also has two cells with centers located at 15°S 5°W and at 23°S 8°E, ridging into the western parts of the sub continent. At T+48 hrs, the three models show that the trough associated with the tropical cyclone Jaya shifts westwards to the northeastern coast of Mozambique. The models also show that the shallow trough which was over Botswana, stretching to southern Zambia, has developed a closed circulation at 24°S 25°E. Otherwise the ridges of the Mascarene and the St Helena highs prevails over the rest of the sub continent, hence subsidence. At T+72 hrs, the trough associated with the tropical cyclone Jaya has shifted southwestward, weakening, developing a closed circulation at 16°S 40°E. The ECMWF and the UKMET puts the closed circulation of this trough at 18°S 41°E, but the GFS do not show a clear center of the closed circulation. The shallow trough over Botswana, stretching into southern Zambia has shifted westward into Namibia. The ridges of the St Helena and the Mascarene highs are over the rest of the sub continent. The ensemble members of the GFS show a reasonable huge of the 5700m and 5870m height contours to the north of Madagascar, at T+24 up to T+48, which implies uncertainty in the position of the trough associated with the tropical cyclone Jaya. Some degree of agreement can be seen at T+72 denoting that the three models put the low associated to the Tropical Cyclone Jaya at the same position.

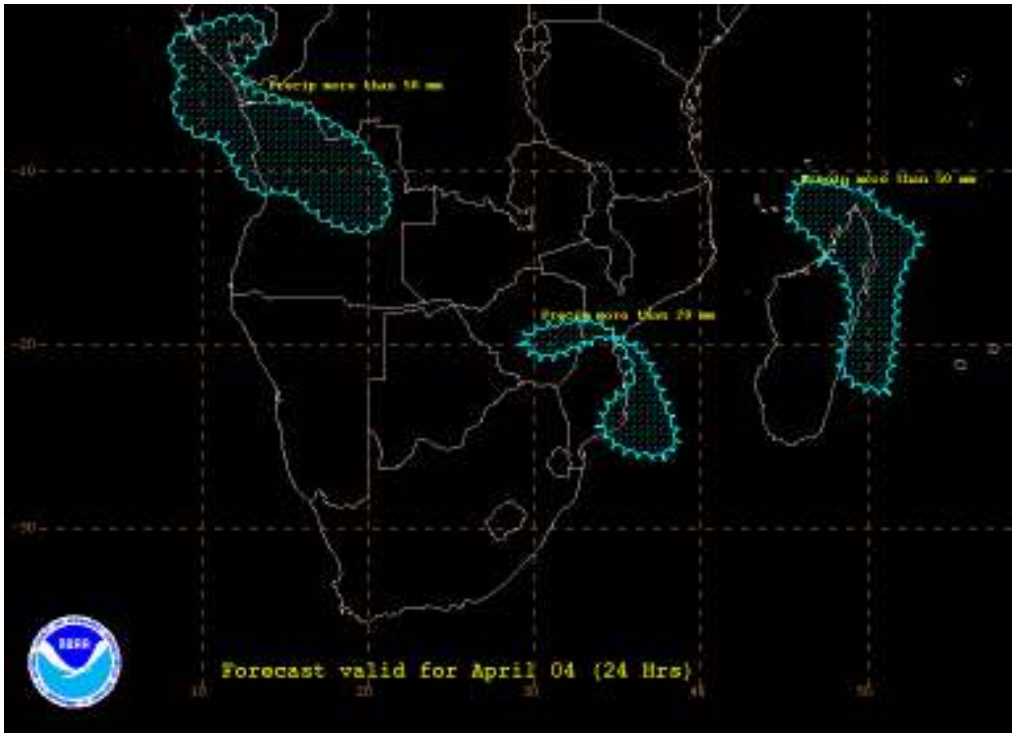
At 850mb, TC “JAYA” is lying over the northwestern coast of Madagascar (13°S 46°E), hence heavy thundershowers are expected to continue over northern Madagascar and over the channel. There is a trough to the west of the sub continent associated with a cold front, causing convergence over western South Africa and southwestern Namibia. There is convergence over northern D.R. Congo stretching into Uganda. The Mascarene high with its centre located at 33°S 57°E, has its ridge lying over the rest of the sub continent, hence divergence. At T+48 hrs, the tropical cyclone Jaya moves westward to the northeastern coast of Mozambique (13°S 40°E), hence heavy thundershowers are expected over northeastern Mozambique and over the channel, but some reduction over Madagascar. A low has developed just to the southeastern tip of Mozambique (27°S 33°E), which is expected to trigger some thundershowers over southern Mozambique, eastern Zimbabwe and northeastern South Africa. Convergence over southwestern South Africa is maintained. The low over northern D.R. Congo has shifted to the extreme north of D.R. Congo, i.e., to the north of the Equator. The Mascarene ridge is the main feature over the rest of the sub continent. At T+72 hrs, the tropical cyclone Jaya shifts slightly westward to northeastern Mozambique, and there is an indication of a trough from this position of the cyclone stretching to southern Madagascar, which is likely to be the trajectory of the tropical cyclone. The low which was just to the southeast of

Mozambique has shifted southwestward along the coast to 31°S 32°E, making the southern parts of Namibia and South Africa which are to the south of 28°S latitude to be under convergence, since the other trough over southwestern South Africa is maintained. The Mascarene ridge persists over the rest of the sub continent, hence maintenance of divergence.

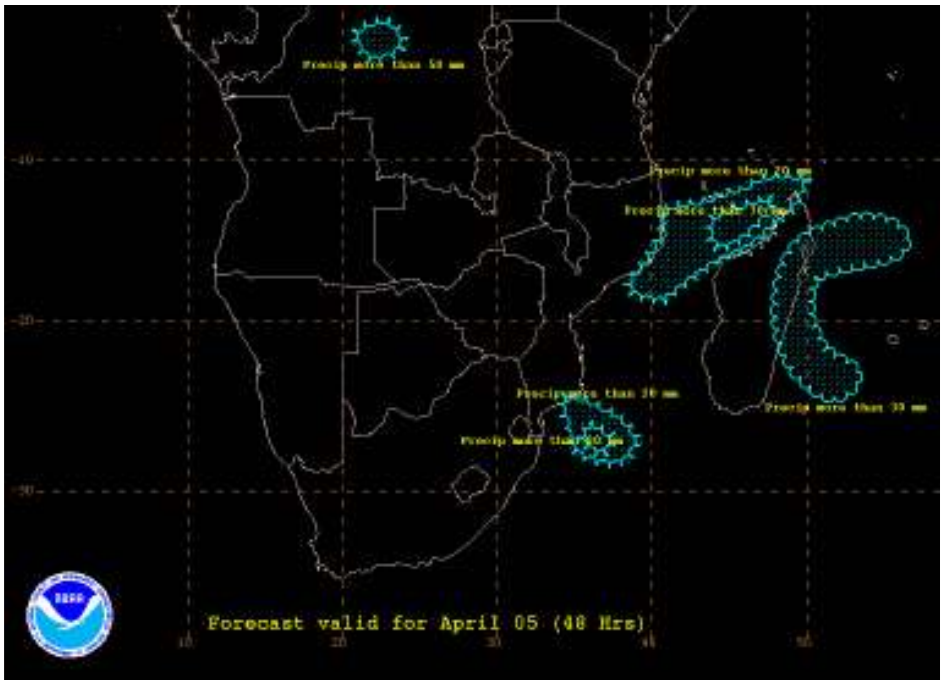
TROPICAL STORM JAYA TRACK AS ISSUED BY JTWC



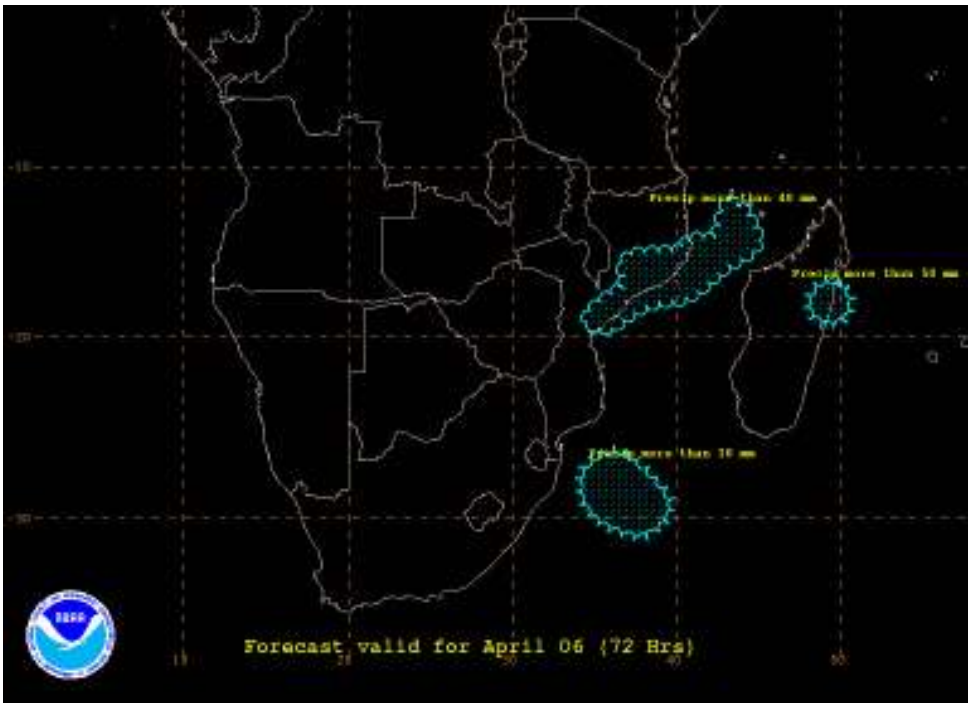
FORECAST MAP FOR DAY 1



FORECAST MAP FOR DAY 2



FORECAST MAP FOR DAY 3



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