Forecast guidance for Severe Weather Forecasting Demonstration Project (SWFDP)

SHORT RANGE FORECAST DISCUSSION 14H00 EST 02nd April 2007

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

FORECAST DISCUSSION 14H00 EST 02nd April 2007
Valid: 00Z 3rd April 2007- 00Z 05th April 2007.

***Highlights*:** *TROPICAL CYCLONE 22°S (JAYA), centered near 15,3°S 53,6°E at 021200Z with 950hPa pressure at the center, moving westward at 10 kt with max sustained wind – 090 kt, gusts 110kt.*
JAYA has tracked westward at 09 knots over the past six hours intensifying. The system is expected to make landfall at 030900Z northeastern Madagascar (south of Antalaha) weakening due to some dry air entrainment and terrain roughness. At T+60 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 northwesterly trough over Mozambique at 200 mb, leads the weakening of the system, taking a south-southeastward turn. But the effects will persist over the northeastern coast of Mozambique.

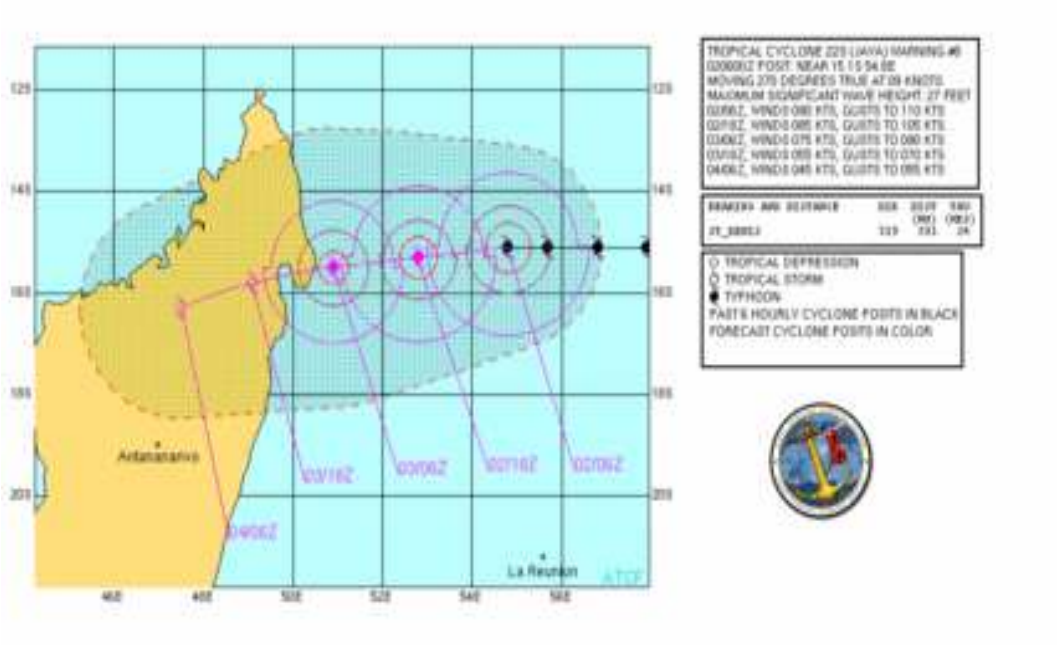
At T+24 hrs, the general flow pattern at 200hpa over Southern Africa (South of the Equator) as shown by the GFS, ECMWF and UK-MET models, is a persistent high pressure system centered at 16°S 70°E. The models show a trough to the southeastern part of South Africa. The models show also a shallow trough over Mozambican Channel stretching into the eastern parts of the coast of Kenya, causing convergence. Convergence is also seen over the southwestern coast of South Africa, where there is a low. There is a high pressure system centered at 7°S 9°E throwing a ridge over most of the sub continent. Another ridge is lying at 36°S 18°E. 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. There is a trough over southern South Africa stretching into western Zambia, with westerly to northwesterly winds of up to 60 KT. Elsewhere the general flow pattern is similar to that at T+24 hrs. At T+72 hrs, the trough over the southeastern parts 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 has weakened and there is a ridge over the northern part of Madagascar.

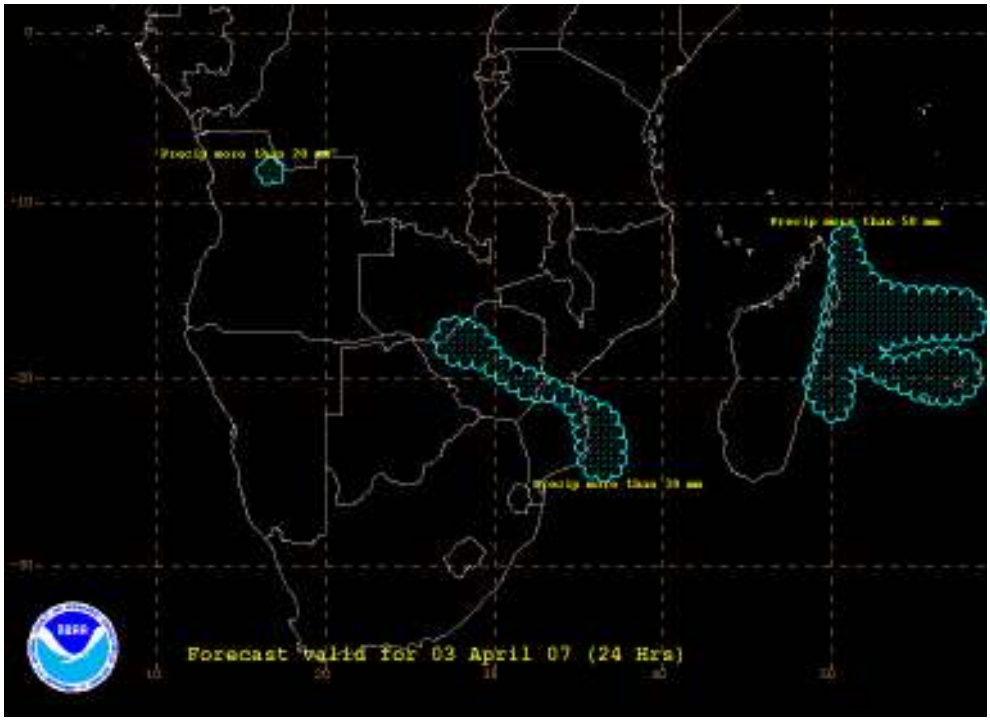
At 500mb, the GFS and the ECMWF models show a trough over southern Zambia, a trough to the northeast of Madagascar (13°S 52°E) which is associated with the tropical cyclone Jaya. The UKMET model does not show a trough (but a ridge) over southern Zambia, but agrees with the GFS and the ECMWF that there is trough to the northeast of Madagascar. The UKMET puts the center of this low at 16°S 55°E. The three models show the Mascarene high with two cells centered at 20°S 42°E and at 21°S 64°E, throwing a ridge over Tanzania, eastern Zambia and northern Mozambique. The St Helena high also has two cells with centers located at 29°S 28°E (over southeast South Africa) and at 23°S 10°E, ridging into the southern and 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 almost the northwestern coast of Madagascar. The models also show that there is a trough lying over Botswana, stretching to southern Mozambique with a closed circulation at 24°S 30°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 progresses further westwards to northwestern Madagascar. The ECMWF puts the closed circulation of this trough at 13°S 43°E, but the GFS and the UKMET do not show a clear center of the closed circulation. The trough over Botswana, western Zambia stretching into southern Mozambique is maintained, and so are the ridges of the St Helena and the Mascarene highs over the rest of the sub continent. The ensemble members of the GFS show a reasonable spread of the 5700m and 5870m height contours to the northeast of Madagascar, which implies some degree of agreement in the position of the trough associated with the tropical cyclone Jaya. The spread is high over Angola and to the west of Angola.

At 850mb, TC “JAYA” is lying near 12°S 51°E and it’s linking the easterly trough which is causing convergence over areas which are to the north of 10^{o}S latitude. Convergence can also be seen over the extreme southwest of the coast of South Africa, where there is a low. The rest of the sub continent is under a ridge of the Mascarene high centered at 36°S 39°E. At T+48 hrs, convergence to the northeast of the Mozambican Channel and over the areas which are to the north of 9^{o}S latitude is maintained and TC “JAYA” which was near 12°S 51°E has slightly shifted northwestward to 11°S 45°E. The low which was over the extreme southwest of the coast of South Africa prevails, hence convergence over these areas. The St Helene high centered at 27°S 10°W is hardly ridging into the northwestern coast of Namibia. The rest of the sub continent is under a ridge of Mascarene high. At T+72 hrs, there is no significant change in the general flow pattern, except that the Tropical Cyclone JAYA is shifting westward. A cut-off low to the extreme southeast of the coast of Mozambique is causing convergence over these areas. There is a trough to the southwestern coast of South Africa, causing convergence over these areas. The three models are in agreement that divergence prevails over the rest parts of the sub continent.

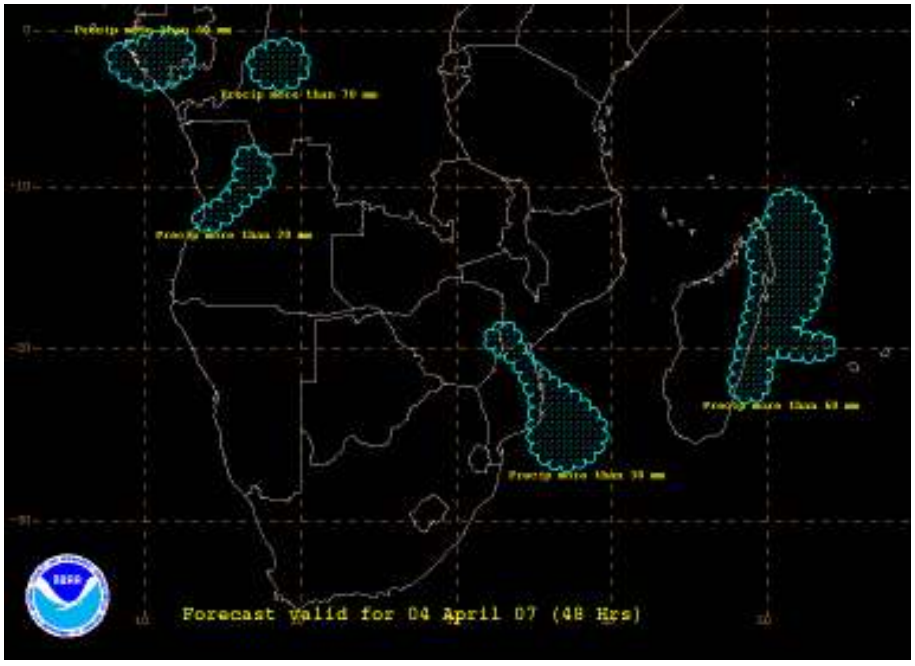
TROPICAL STORM JAYA TRACK AS ISSUED BY JTWC



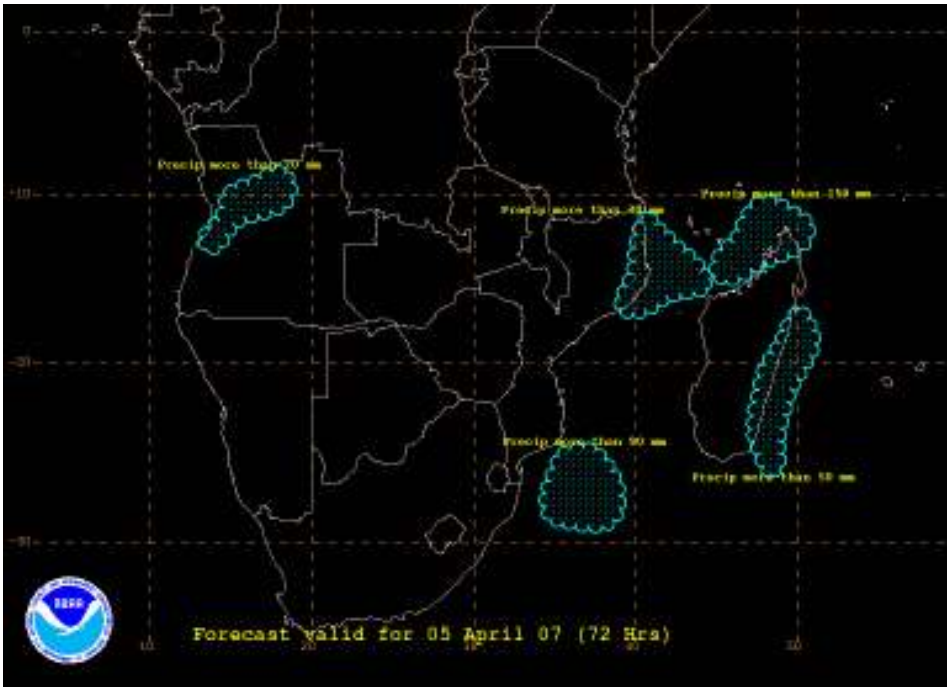
FORECAST MAP FOR DAY 1



FORECAST MAP FOR DAY 2



FORECAST MAP FOR DAY 3



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