Forecast guidance for Severe Weather Forecasting Demonstration Project (SWFDP)

SHORT RANGE FORECAST DISCUSSION 14H00 EST 28th March 2007

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

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Valid: 00Z 29th March 2007- 00Z 31st March 2007.

***Highlights*:** *For the three consecutives days, the 200 mb charts shows anticyclonic circulation to the further northeast of Madagascar near* 18°S 71°E, *while at lower levels over the same area the general flow pattern is cyclonic enhancing vertical motion implying favorable conditions for development of Tropical cyclone.*

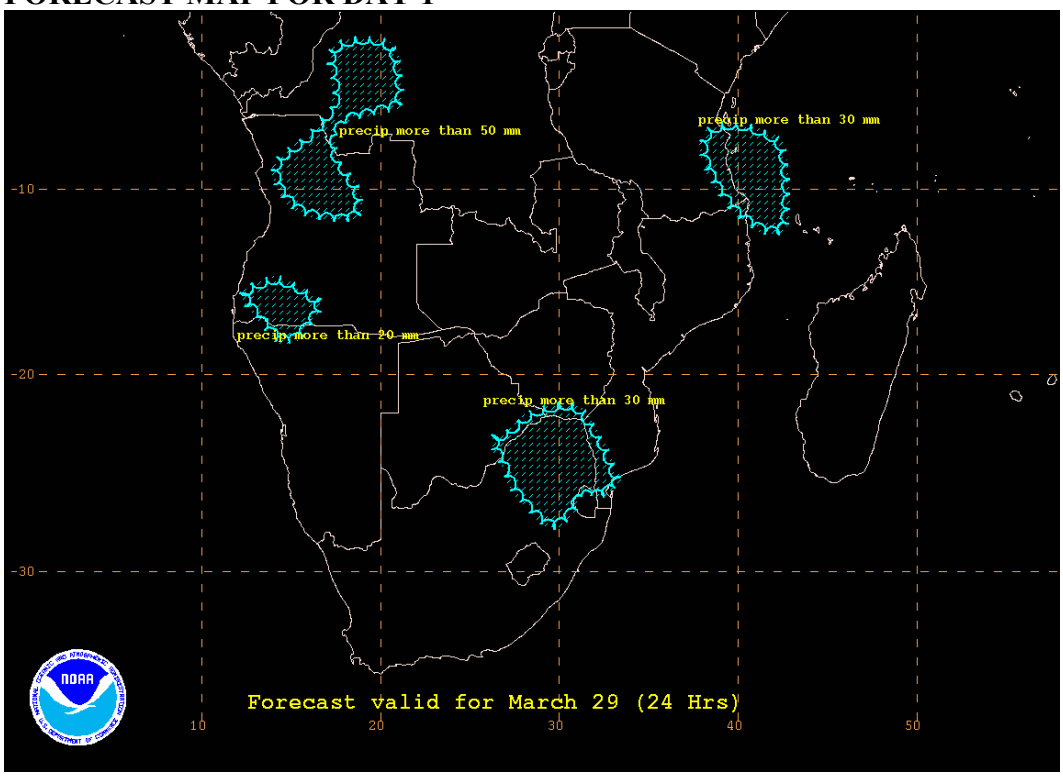
At T+24 hrs, the general flow pattern at 200hpa over Southern Africa (South of the Equator) depicted by the GFS, ECMWF and UK-MET models, is a high pressure system with two cells, one lying over eastern Angola (15°S 12°E) and another centered over central Zimbabwe (20°S 30°E), causing divergence over most parts of the sub continent. A bud-off high centered at 10°S 41°E is ridging into the extreme northeast parts of the sub continent. There is a trough to the east of Madagascar. Another trough is lying over southwestern parts of the sub continent, causing convergence over these areas. Area of convergence can also be seen over D.R. Congo, northern Zambia and northwestern Mozambique due to a trough. At T+48 hrs, divergence over most of the sub continent is maintained, except over northwestern D.R. Congo and over areas which are between 12°S and 19°S latitudes and between 30°E and 41°E longitudes where there is a slight convergence due to a shallow trough. The trough which was over the southwestern part of the sub continent has shifted eastward, causing convergence over areas which are to the east of 23°E longitude but south of 25°S latitude. At T+72 hrs, the trough which was over southern part of the sub continent slightly shifts to the southeast. Aligned with this trough is a shallow trough over western Mozambique, stretching into Zambia, causing convergence over areas which are between 25°E and 49°E longitude and between 9°S and 42°S latitude. Convergence over northwestern D.R. Congo persists. Convergence is also seen to the east of the coast of Tanzania where there is a low. Divergence is maintained over the rest of the sub continent.

At 500mb, the GFS, UKMET and the ECMWF models are in agreement that the Mascarene high has two cells centered at 22°S 55°E and at 18°S 28°E, throwing a ridge over most part of the sub continent, hence divergence. There is a trough over southern part of the sub continent, causing convergence over these areas. At T+48 hrs, the three models show that the trough slightly shifts eastwards causing convergence over southeastern parts of the sub continent. Areas of convergence are also seen over southwestern Botswana and Namibia and near 10°S 66°E where there is a deep low. The St Helena high has its center located at 28°S 10°E, throwing a ridge over southwestern parts of the sub continent. At T+72 hrs, the St Helena high has shifted eastward ridging into most of the southwestern parts of the sub continent. The trough which was over southeastern part of the sub continent has shifted further east. Convergence over northern Namibia and Botswana is maintained. The ECMWF model is in agreement with GFS, but also they show a cut-off low over the extreme southeastern part of South Africa, hence convergence. The UK Met OFFICE does not show the cut-off low over the extreme southeastern part of South Africa. Elsewhere, divergence is maintained.
The ensemble products show that the probability of rainfall exceeding 25mm in 6 hrs over northeastern South Africa and southeastern Mozambique is 20 to 30% at T+48 hrs, increasing at T+72 hrs. The 5700m and 5870m height contours of the 500mb heights of the GFS ensemble prediction system, at T+24 hours, show good agreement in the location of the trough over the southeastern parts of the sub continent but a huge spread over D.R. Congo and northern Tanzania, implying that there is a high uncertainty in the position of the shortwave trough and the easterly trough. This pattern continues up to T+72 hours where there is a large spread within the ensemble mean of the spaghetti diagrams of 50mm/6hrs precipitation isolines over southern Mozambique and northeastern South Africa, denoting uncertainty in the intensity of the rainfall.

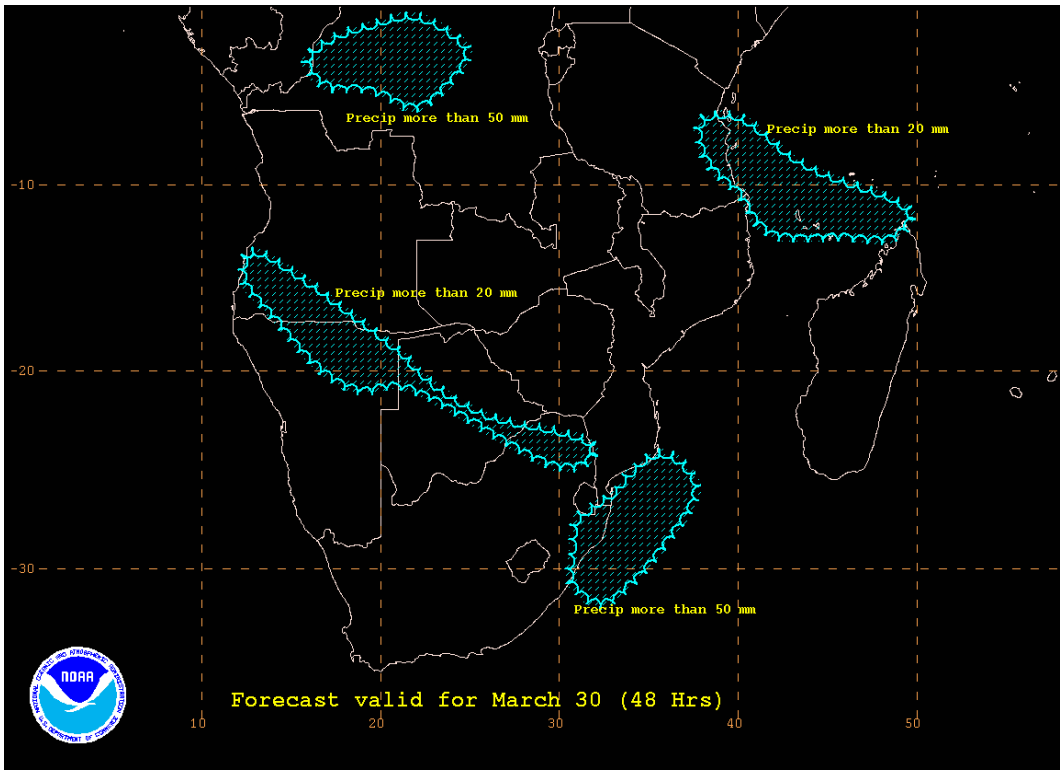
At 850mb, the Mascarene high is centered at 25°S 35°E, causing divergence over most parts of the sub continent. There is a trough to the south of Madagascar, hence convergence. Convergence can also be seen over central South Africa, Namibia, Angola and D.R. Congo, where there are lows. Another trough is lying to the east of 18^{o}E longitude but south of 32^{o}S latitude. There is a deep low near 11°S 71°E. The St Helena high has its cell centered at 41°S 10°E ridging into the southwestern coast of South Africa. At T+48 hrs, convergence over Angola, Namibia and South Africa is maintained. The trough over south of 32^{o}S latitude has weakened as the St Helena high pressure system is shifting eastward ridging in from the south causing onshore flow along the south eastern coast of the sub continent. The trough formed a cut-off low over southeastern coast of Mozambique. Areas which are to the north of 10^{o}S latitude are under convergence due to an easterly trough. The deep low near 11°S 71°E is slightly shifting eastward. The rest of the sub continent is under divergence. At T+72 hrs, there is no significant change in the general flow pattern, except that the trough to the east of Madagascar stretched into central Mozambique Channel. The deep low near 11°S 66°E has slightly shifted eastward. The ECMWF model is in agreement with GFS, but also they show the low over the extreme southeast part of Mozambique, hence convergence. The UK Met OFFICE does not show the low over the extreme southeast part of Mozambique. The three models are in agreement that divergence prevails over most parts of the sub continent. The ensemble products show that the probability of 10 m wind

speeds to exceed 20 KT over the southern Mozambique Channel is 65 to 85% at T+48 hrs up to T+72 hrs.

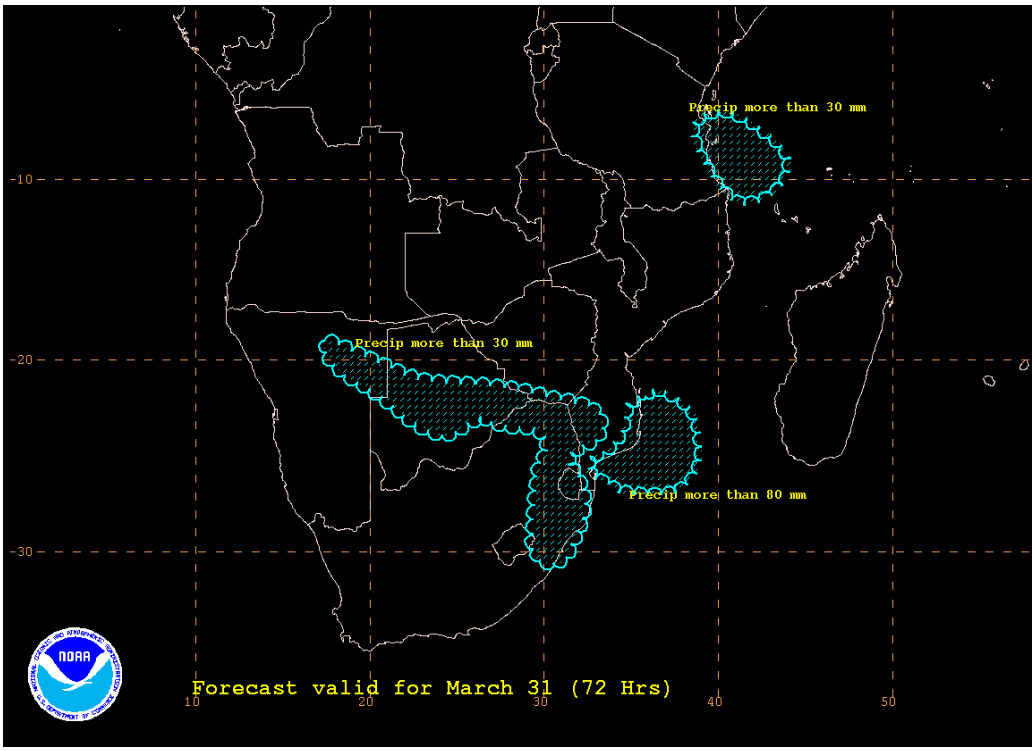
FORECAST MAP FOR DAY 1



FORECAST MAP FOR DAY 2



FORECAST MAP FOR DAY 3



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