



Forecast guidance for Severe Weather Forecasting Demonstration Project (SWFDP)

SHORT RANGE FORECAST DISCUSSION 14H00 EST 29th March 2007

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

FORECAST DISCUSSION 14H00 EST 29th March 2007

Valid: 00Z 30th March 2007- 00Z 01st April 2007.

***Highlights:** TROPICAL DISTURBANCE number 14, centered near 12.9°S 69.0°E at 291200Z with 1004hPa pressure at the center, moving westward at 7 kt. For the three consecutive days, the 200 mb charts shows anticyclonic circulation to the further northeast of Madagascar near 17°S 68°E, while at lower levels over the same area the general flow pattern is cyclonic enhancing vertical motion implying favorable conditions for developing a Tropical Depression at T+48 hrs.*

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 trough over southern Namibia/southwestern Botswana stretching into southern South Africa, with westerly to northwesterly winds of up to 60 KT. The models show another trough over central Zambia. The GFS shows still another trough over most of Madagascar, but the UKMET and the ECMWF put this trough only over northwestern Madagascar. Ridges of high pressure systems centered at 19°S 10°E and 17°S 68°E are lying over the rest of the sub continent, hence divergence. At T+48 hrs, Namibia is mainly under a ridge since the trough has progressed eastwards, causing convergence over eastern Botswana stretching into southeastern South Africa. This trough has maintained westerly to northwesterly winds of up to 60 KT. The trough over central Zambia has stretched to southern D.R. Congo. Another trough has developed to the east of Tanzania/Kenya coast with its centre located at 3°S 49°E. Elsewhere the general flow pattern is similar to that at T+24 hrs. At T+72 hrs, the trough over eastern Botswana/southeastern South Africa has shifted slightly eastwards and weakened in amplitude, and its winds have weakened also. Elsewhere the general flow pattern is similar to that at T+48 hrs.

At 500mb, the GFS, UKMET and the ECMWF models are in agreement that the Mascarene high has two cells centered at 21°S 52°E and at 17°S 41°E, throwing a ridge over most parts of the sub continent, hence divergence. There is a trough over

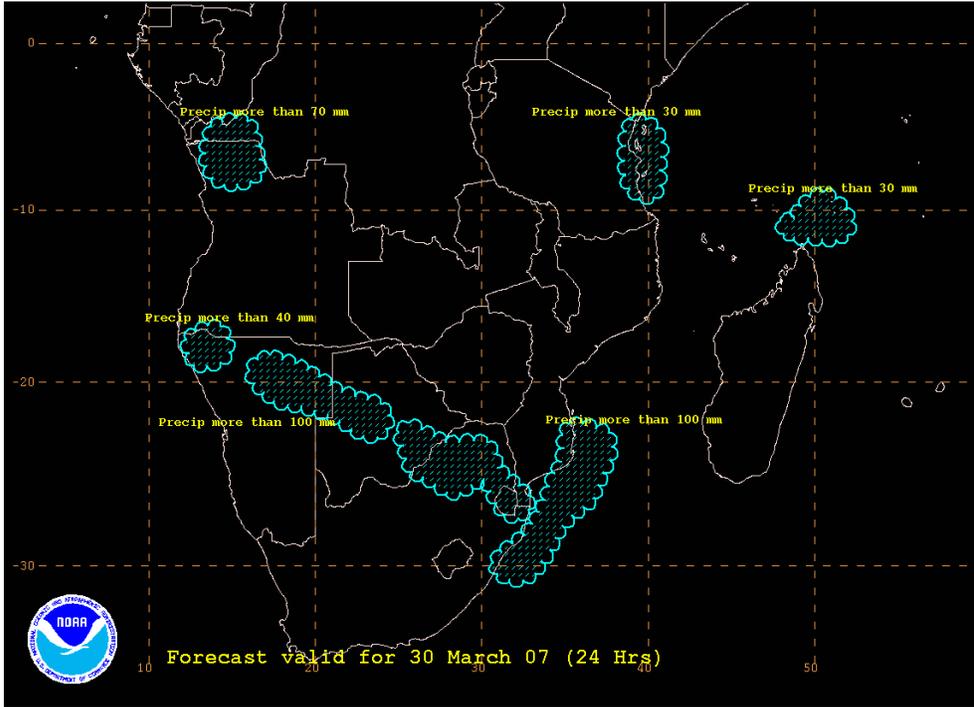
southeastern part of the sub continent, causing convergence over areas which are to the east of 19°E longitude but south of 21°S latitude. The St Helena high has its cell centered at 28°S 10°E ridging into the southwestern coast of the sub continent. There is a deep low to the further northeast of Madagascar (11°S 66°E). At T+48 hrs, the three models show that the trough which was over the southeastern part of the sub continent slightly shifts eastwards, stretching into northwestern Namibia and causing convergence over northwestern Namibia, Botswana, western South Africa and southern Mozambique. Areas of convergence are also seen to the east of the coast of Tanzania, where there is a low. Another low is near 11°S 65°E deepening and intensifying to tropical depression. Divergence prevails over the rest of the sub continent. At T+72 hrs, the trough over the southeastern part of the sub continent has shifted northeastward and weakened. The St Helena high has shifted southeastward ridging into most of the southern and western parts of the sub continent. The low which was to the further east of the coast of Tanzania has filled up. The deep low which was near 11°S 65°E still shifts westward to 11°S 60°E. The ECMWF model is in agreement with GFS and UK Met OFFICE that divergence is maintained over the rest of the sub continent.

The ensemble products show that the probability of rainfall exceeding 25mm in 6 hrs over northeastern South Africa and southeastern coast of Mozambique is 20 to 30% at T+48 hrs, falling 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 Angola, D.R. Congo, Tanzania, Namibia, Northern Botswana, central Mozambique and northern Madagascar implying that there is a high uncertainty in the position of the easterly trough and stretching of the trough over the southeastern parts of the sub continent into northern Namibia. 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.

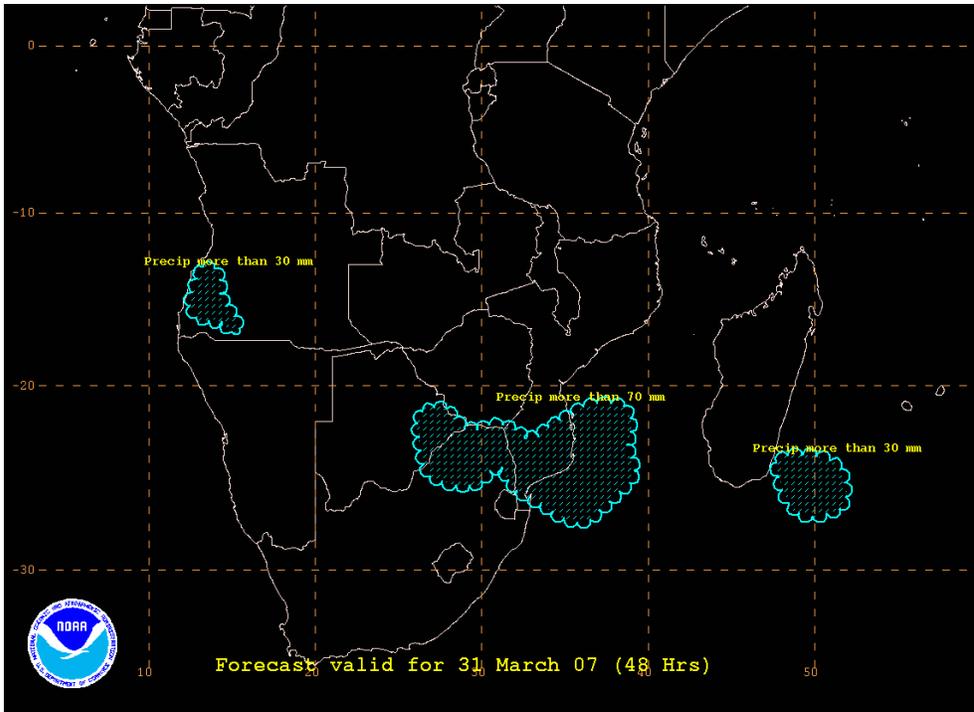
At 850mb, the St Helene high has two cells centered at 31°S 2°W and at 37°S 29°E, causing divergence over most parts of the sub continent. There is a trough to the south of Madagascar aligned with the cut-off low over southeastern Mozambique Channel, hence convergence over these areas. Convergence can also be seen over west of the coast of Namibia and South Africa and the extreme southeast of the Mozambican coast. Areas which are to the north of 9°S latitude are under convergence due to an easterly trough. There is a deep low near 11°S 69°E. At T+48 hrs, convergence to the east of the coast of Namibia, South Africa and over the areas which are to the north of 9°S latitude is maintained. The trough to the southeast of Madagascar and the cut-off low over the extreme southeast of Mozambique Channel prevails. The deep low near 11°S 69°E slightly shifted westward to 11°S 65°E. The rest of the sub continent a ridge of Mascarene high centered at 33°S 38°E. At T+72 hrs, there is no significant change in the general flow pattern, except that the trough to the southeast of Madagascar has weakened. 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 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 55 to 85% at T+24 hrs falling at T+48 hrs up to T+72 hrs.

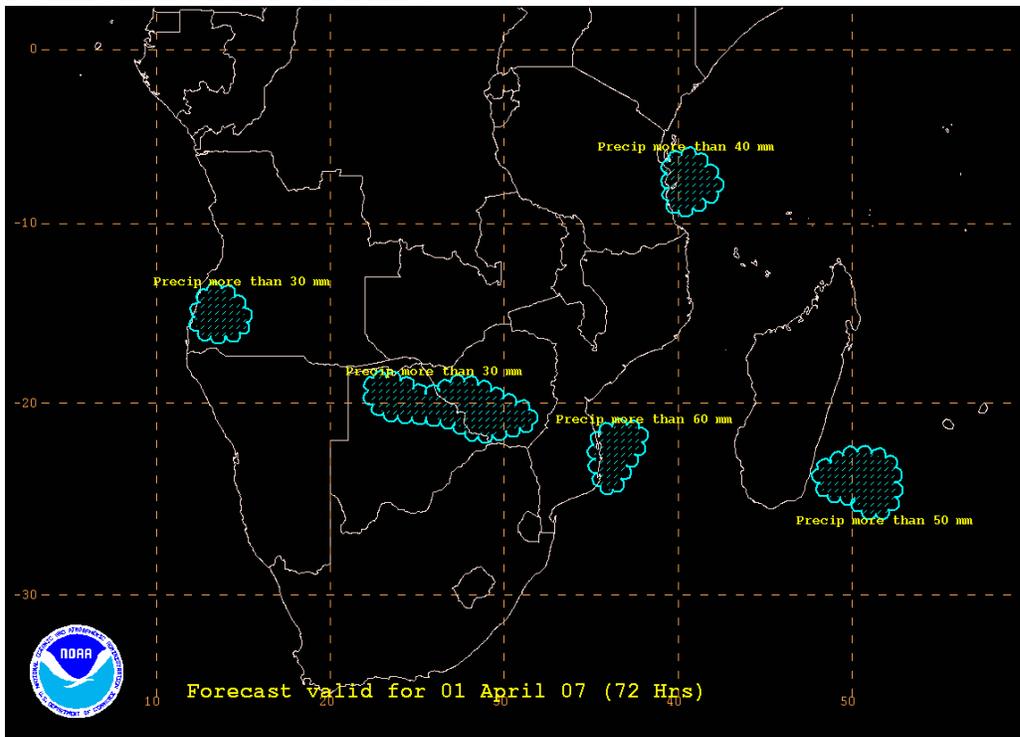
FORECAST MAP FOR DAY 1



FORECAST MAP FOR DAY 2



FORECAST MAP FOR DAY 3



Authors:

Sérgio Buque: - Mozambique Meteorological Services and African Desk

Oliver Moses: - Botswana Meteorological Services and African Desk