Forecast guidance for Severe Weather Forecasting Demonstration Project (SWFDP)

SHORT RANGE FORECAST DISCUSSION 14H00 EST 27th 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 28th March 2007- 00Z 30th March 2007.

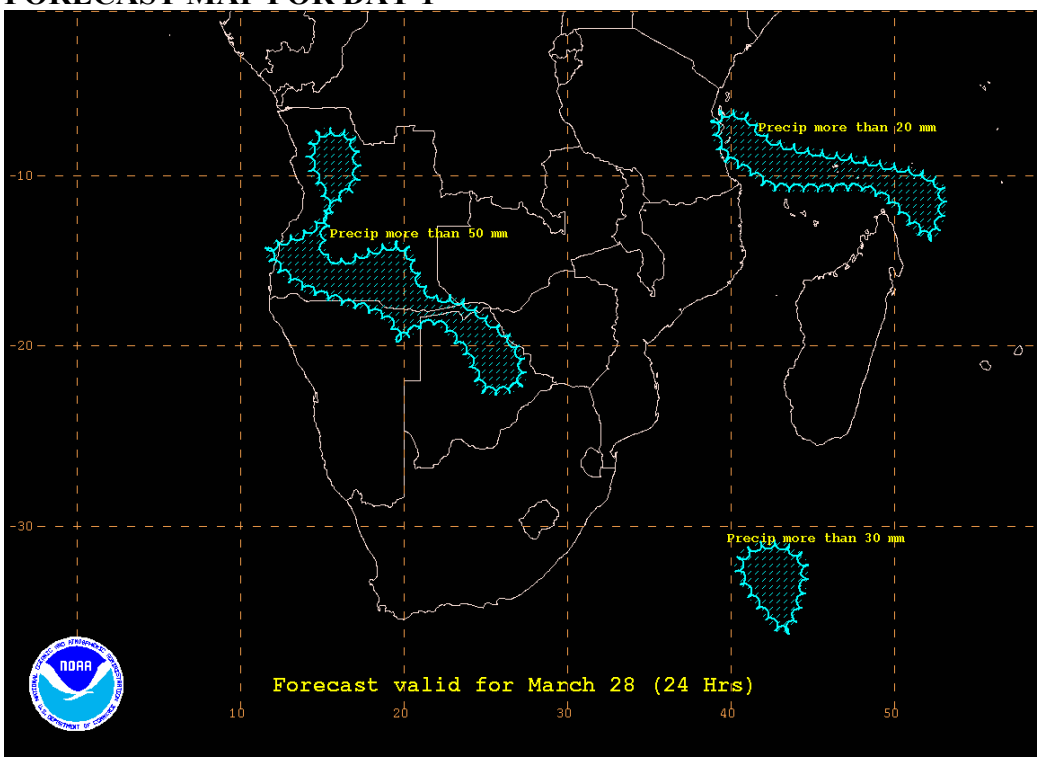
At T+24 hrs, the general flow pattern at 200hpa over Southern Africa (South of the Equator) depicted by the GFS, ECMWF and UK-MET models, is a high pressure system with the center lying over southern Angola (18°S 17°E), causing divergence over most parts of the sub continent. There is a trough to the south of the Mozambican Channel, causing convergence over these areas. Area of convergence can also be seen over D.R. Congo and Tanzania due to a trough. At T+48 hrs, divergence over the sub continent is maintained, except over northern part of Madagascar, southern Tanzania and eastern D.R. Congo where there is a slight convergence. The trough which was to the southern part of the Mozambican Channel has shifted to southeast of Madagascar coast. There is another trough over southwestern coast of the sub continent, causing convergence over these areas. The GFS, UK-MET and ECMWF are in agreement but the ECMWF does not show the trough over southwestern coast of the sub continent. At T+72 hrs, there is a trough over Tanzania/Mozambique border, causing convergence over these areas. The trough which was over the southwestern coast of the sub continent has shifted eastward, causing convergence over areas which are to the east of 22^{o}E longitude but south of 22^{o}S latitude. Divergence is maintained over the rest of the sub continent.

At 500mb, the GFS, UKMET and the ECMWF models are in agreement that there is a shortwave trough over southwestern Namibia and western South Africa, causing convergence over these areas. The GFS show that the shortwave trough is in line with an easterly trough over western Angola. There is another trough to the south of the Mozambican Channel, causing convergence over these areas. The Mascarene high with its centre lying to the east of Madagascar (22°S 52°E) is throwing a ridge over the rest of the sub continent, hence divergence. At T+48 hrs, the three models show that the shortwave trough shifts eastwards causing convergence over most of South Africa, southwestern Botswana stretching into southwestern Angola. The rest of the sub continent is generally under a ridge, hence divergence. At T+72 hrs, the St Helena high

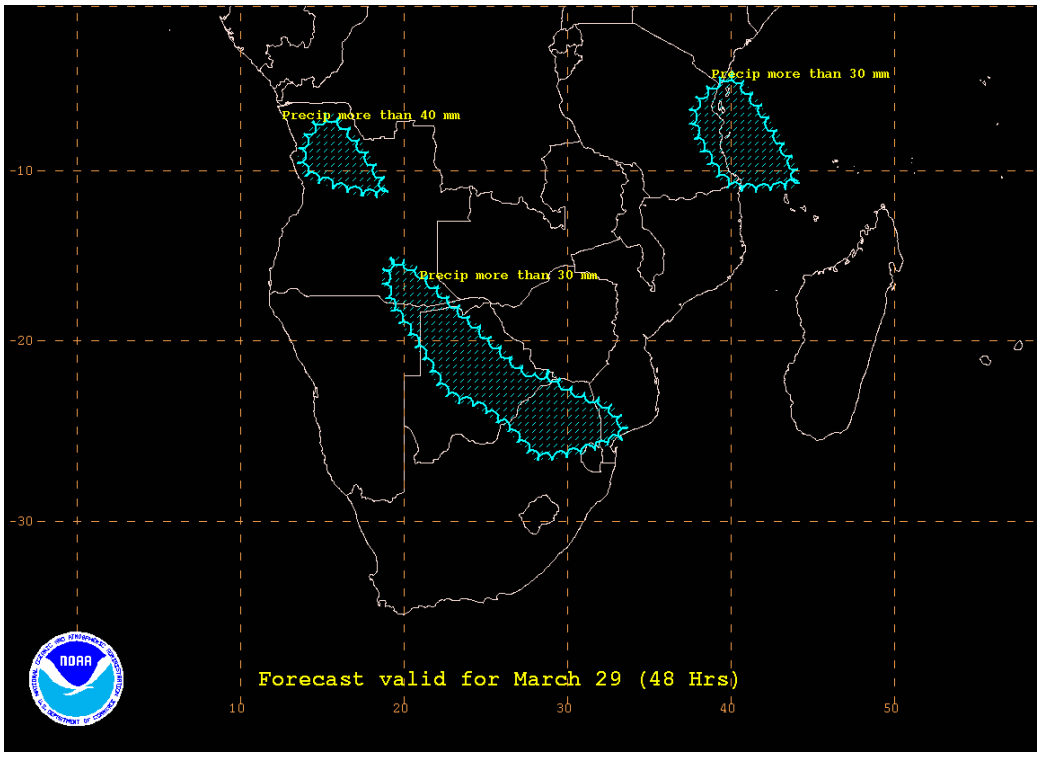
has its center located at 26°S 11°E, throwing a ridge into southwestern parts of the sub continent. The shortwave trough which was over southwestern Namibia and western South Africa has shifted eastward causing convergence over areas which are to the east of 25^{o}E longitude but south of 24^{o}S latitude. Convergence over Namibia and Botswana prevails. Elsewhere, divergence is maintained.
The ensemble products show that the probability of rainfall exceeding 50mm in 6 hrs over northeastern South Africa is 30 to 40% 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 a huge spread over Namibia, Botswana, D.R. Congo and southern 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 with two cells centered at 29°S 70°E and at 22°S 39°E, is 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 western South Africa, Namibia, Angola and D.R. Congo, where there are lows. Another trough is lying to the east of 15^{o}E longitude but south of 40^{o}S latitude. The St Helena high with two cells centered at 40°S 4°W and at 28°S 7°W is hardly ridging into the western coast of the sub continent. At T+48 hrs, convergence over Angola, Namibia and South Africa is maintained. The trough over south of 40^{o}S latitude has shifted northeastward as the St Helena high pressure system is ridging in from the southwest causing onshore flow along the south eastern coast of the sub continent. The trough is expected to form a cut-off low over southeastern coast of Mozambique. The rest of the sub continent is under the ridge of the Mascarene high. At T+72 hrs, there is no significant change in the general flow pattern, except that the St Helena high has shifted eastward and is throwing a ridge over the southern parts of the sub continent. Convergence over northwest of Angola, D.R. Congo and Namibia is maintained. The ECMWF model is in agreement with GFS, but also they show the low over the extreme southeast part of Mozambique at T+72 hrs, 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 due to the persistence of the ridge of the Mascarene high.

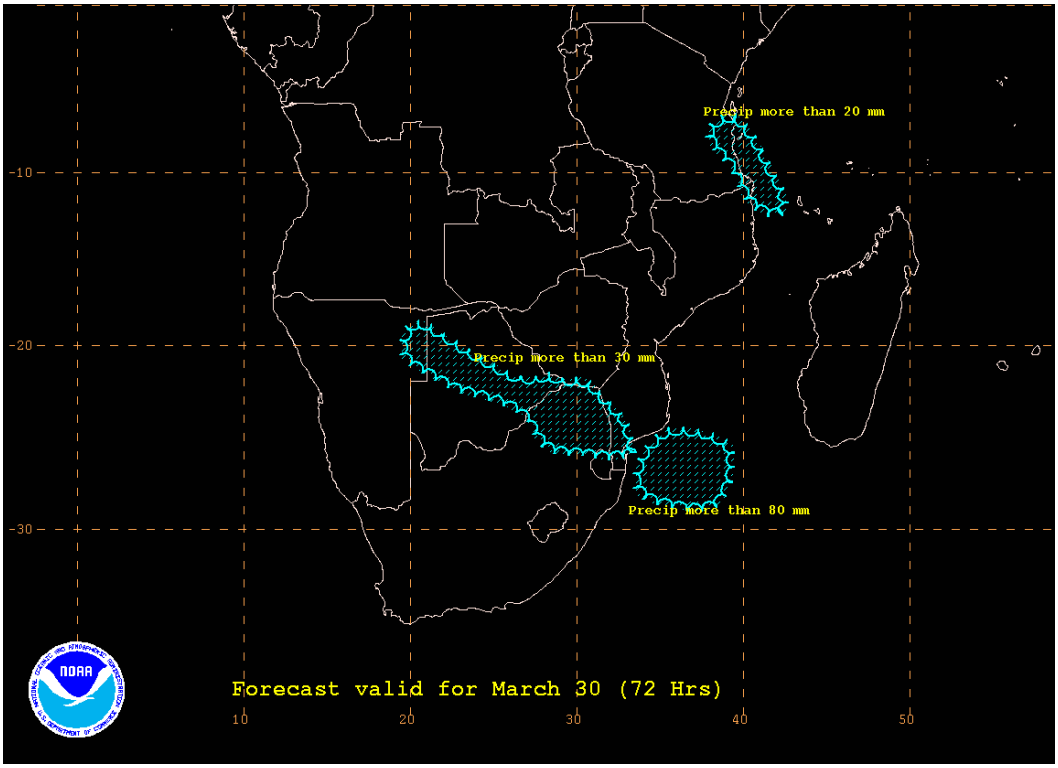
FORECAST MAP FOR DAY 1



FORECAST MAP FOR DAY 2



FORECAST MAP FOR DAY 3



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