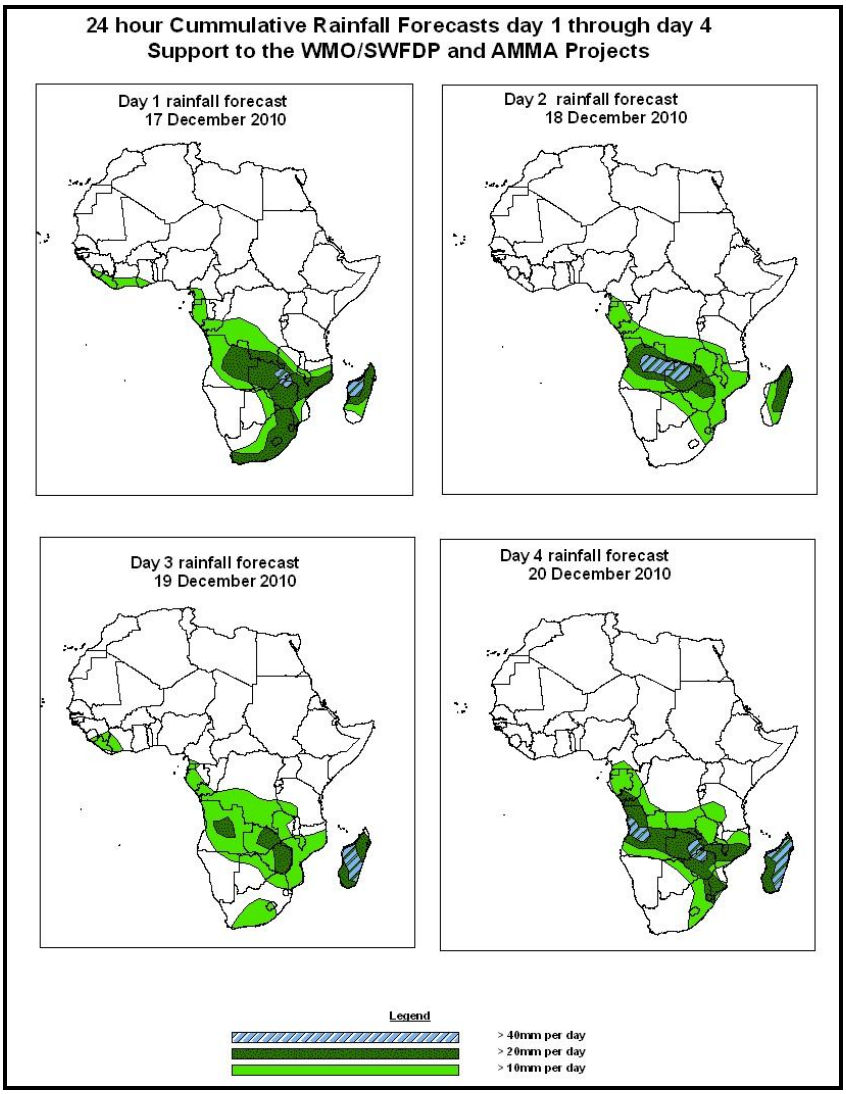
NCEP Contributions to the WMO Severe Weather Forecasting Demonstration Project (SWFDP) and to the African Monsoon Multidisciplinary Analysis (AMMA) Initiative

1.0. Rainfall Forecast: Valid, 07Z of 17 DECEMBER – 06Z of 20 DECEMBER 2010, (Issued at 14:00Z of 16 DECEMBER 2010)

1.1. Twenty Four Hour Cumulative Rainfall Forecasts

The forecasts are expressed in terms of probability of precipitation (POP) exceeded based on the NCEP, UK Met Office and the ECMWF NWP outputs, the NCEP global ensemble forecasts system (GEFS) and expert assessment.



Summary

In the coming four days, there is an increased chance for rainfall to exceed 20mm per day over Southern Africa with chances of locally heavy rainfall over Zambia, Angola, Madagascar and parts of Zimbabwe. Generally decrease of rainfall over East Africa and a greater part of DRC.

1.2. Models Comparison and Discussion-Valid from 00Z of 16 DECEMBER 2010.

According to the GFS, ECMWF and UKMET models a broad cut off low is over Botswana and South Africa, Zimbabwe and along the coast of Mozambique. The cut off low is expected to move to eastern Madagascar in the next 48 to 72 hours. A weak trough over DRC is expected to persist in the next 24 to 96 hours. Another cut off low along the Somali and Kenya is expected to extend to Tanzania in the next 24 hours and then disappear in 48 hours. Along the Gulf of Guinea a cut of low extends to Ghana in the next 24 to 48 hours and become weak. The UKMET model is indicating another cut off low over Botswana and South Africa extending to parts of Mozambique and western Madagascar in the next 48 to 72 hours.

The seasonal low pressure system (Meridional component of the ITCZ) is still active over the southern parts of the Continent. During the 72 hours cycle slight relaxation is expected.

According to the GFS, ECMWF and UKMET models, St. Helena High pressure system over southern hemisphere is expected to retreat westwards during the next 24hours. Also Mascarene high pressure system is expected to remain generally weak.

At 850hPa level, The GFS model indicates convergence over southwest Madagascar in the next 24 to 72 hours. The convergence is expected to extend to Mozambique in the next 48 hours. Another convergence line over DRC and Angola is expected to move to Zambia and later in the next 72 hours extends to western Tanzania. A convergence line over Botswana and Namibia is expected to become weak in the next 72 to 96 hours.

At 700hPa level, convergence over Angola and western Zambia is expected to move southwards in the next 24 to 48 hours. Another weak convergence line over Malawi and Southern Tanzania is expected to extend to Mozambique and Zambia during the next 24 to 72hours. A convergence over Zimbab**w**e, Mozambique and northeast South Africa is expected to weaken and disappear in the next 48 hours.

At 500hPa, the cyclonic convergence along the west coast of Namibia and South Africa is expected to move southwards in the next 24 to 48 hours.

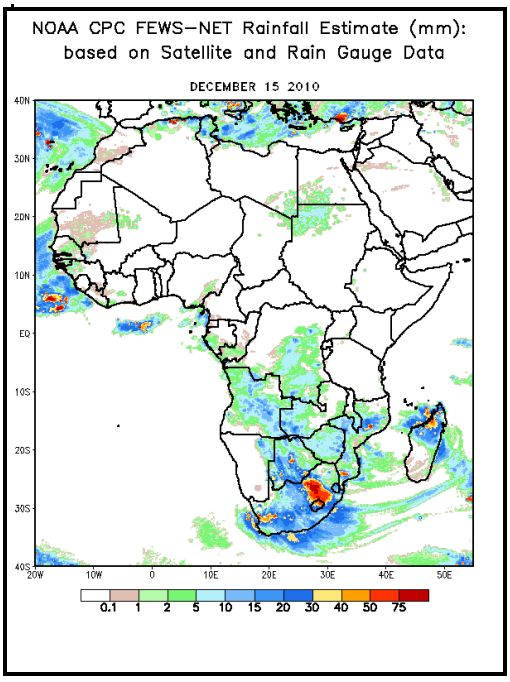
At 200hPa, zone of strong wind (>50Kts) associated with the Sub Tropical westerly Jet in the southern Hemisphere is expected to extend to the east coast of South Africa in the next 24 to 48 hours. Wind speed is expected to be in the range of 90 to 110 kts.

In the coming four days, there is an increased chance for rainfall to exceed 20mm per day over Southern Africa with chances of locally heavy rainfall over Zambia, Angola, Madagascar and parts of Zimbabwe. Generally decrease of rainfall over East Africa and a greater part of DRC.

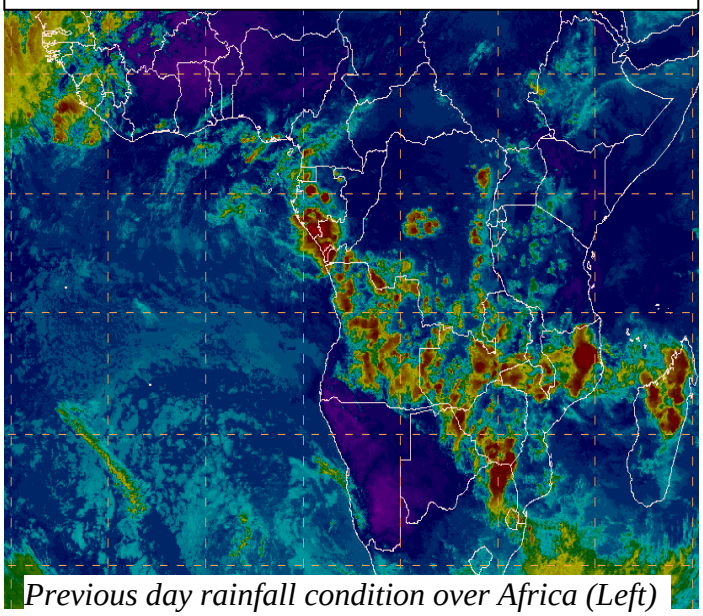
2.0. Previous and Current Day Weather Discussion over Africa (15 December 2010 – 16 December 2010)

2.1. Weather assessment for the previous day (15 December 2010):
During the previous day, locally heavy rainfall was observed over South Africa and Madagascar.

2.2. Weather assessment for the current day (16 December 2010): Intense clouds are observed over, Angola, Mozambique, Zimbabwe, South Africa and northern Madagascar.



IR Satellite Image, Valid 1652, December 16, 2010



Previous day rainfall condition over Africa (Left) based on the NCEP CPCE/RFE and current day cloud cover (top) based on IR Satellite image

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