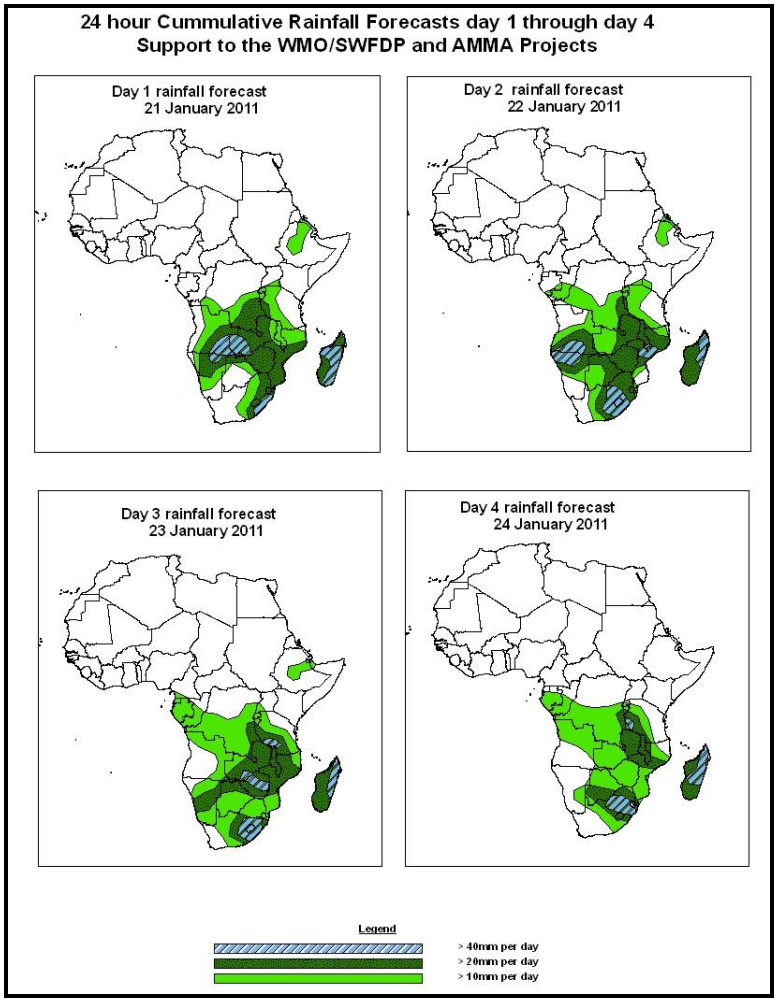
NCEP Contributions to the WMO Severe Weather Forecasting Demonstration Project (SWFDP) and to the African Monsoon Multidisciplinary Analysis (AMMA) Initiative

1.0. Rainfall Forecast: Valid, 06Z of 21 JANUARY – 06Z of 24 January 2011, (Issued at 14:00Z of 20 January 2011)

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, lower tropospheric weather systems are expected to deepen across western parts of the Southern African countries resulting in increased rainfall activity in the region. There is an increased chance for rainfall to exceed 20mm per day over places across southern Africa countries, with locally heavier rainfall events likely over Angola, Zambia, Mozambique, Namibia, South Africa, Lesotho, Tanzania and Madagascar.

1.2. Models Comparison and Discussion-Valid from 00Z of 20 JANUARY 2011.

According to the GFS, ECMWF and UKMET models series of cut of lows are expected to deepen across DRC, Angola, Zambia and northwest Namibia. On the other hand troughs over Mozambique and western Madagascar to eastern South Africa are expected to persist during the next 48 to 96 hours. Another Trough over northern DRC and Southern Sudan is expected to extend to the Gulf of Guinea in the next 48 to 96hours.

The seasonal trough (Meridional component of the ITCZ) is expected to be more active over Southern African countries.

According to the GFS, ECMWF and UKMET models, St. Helena High pressure system over southern hemisphere is expected to maintain a central pressure of about 1024hPa during the next 72hours. On the other hand the Mascarene high pressure system is expected to remain generally weak.

At 850hPa level, The GFS model indicates Convergence line over southern DRC that is expected to weaken gradually through 24 to 72 hours while moving slightly westwards. On the other hand, a Convergence line over western Zambia and Angola is expected to expand southwards, dominating the flow over northern parts of Namibia, Zimbabwe and Botswana. A convergence along the west cost of Madagascar is expected to persist and extend to northern Mozambique and southern Malawi during the next 24 to 72 hours. On the other hand, a weak trough is expected to dominate the flow over northeast Africa, including Eritrea, Djibouti and Ethiopia. This system is expected to move eastwards in the coming 72 hours.

At 700hPa level, a convergence line over western Zambia and southeast DRC is expected to persist through 24 to 48 hours and then become weak. Another convergence over Mozambique and Madagascar is expected to persist and deepen during the next 24 to 96 hours. A westward propagating mid-latitude cyclone is expected to dominate the flow over northeast Africa including Eritrea and Ethiopia in the coming 48 hours.

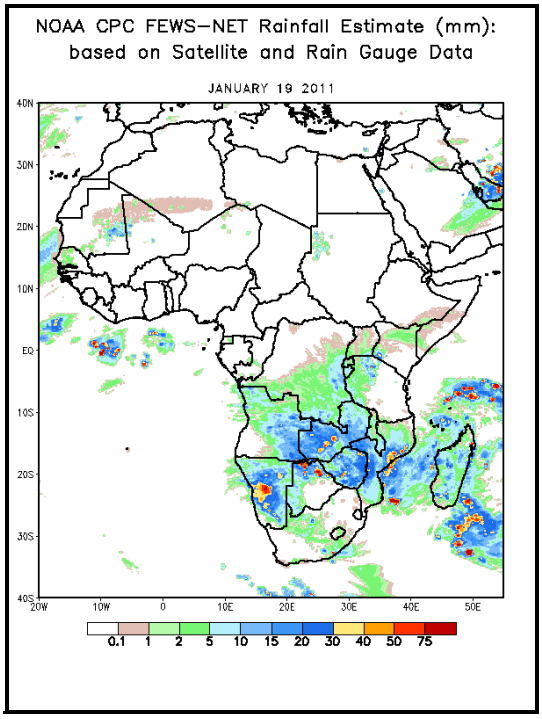
At 200hPa, zone of strong wind (>50Kts) associated with the Sub Tropical westerly Jet in the southern Hemisphere is expected to cross the southern tip of South Africa in the next 24 hours. The associated wind speed range between 90 and 110KT.

In the coming four days, lower tropospheric weather systems are expected to deepen across western parts of the Southern African countries resulting in increased rainfall activity in the region. There is an increased chance for rainfall to exceed 20mm per day over places across southern Africa countries, with locally heavier rainfall events likely over Angola, Zambia, Mozambique, Namibia, South Africa, Lesotho, Tanzania and Madagascar.

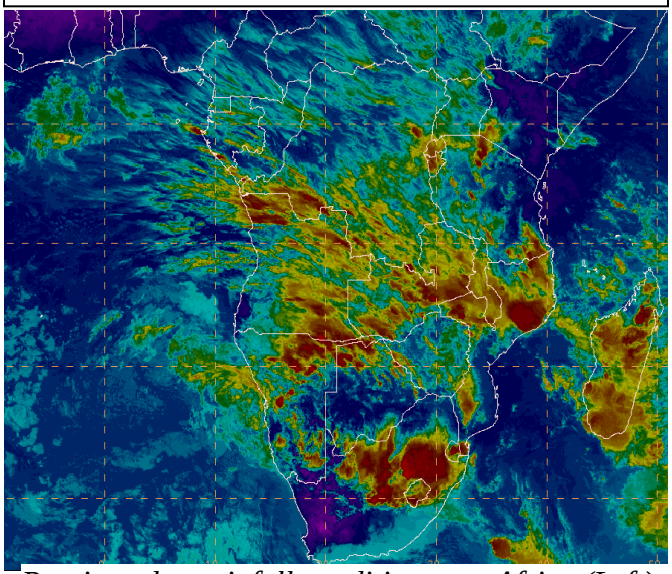
2.0. Previous and Current Day Weather Discussion over Africa (19 January 2011 – 20 January 2011)

2.1. Weather assessment for the previous day (19 January 2011):
During the previous day, moderate to heavy rainfall was observed over parts of Angola, Botswana, Mozambique, Zambia and Madagascar.

2.2. Weather assessment for the current day (20 January 2011): Intense clouds are observed over Mozambique, Zambia, Namibia, Angola, Lesotho, Swaziland and South Africa.



IR Satellite Image, Valid 1655Z, January 20, 2011



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

Author(s): *Samwel Mbuya (Tanzania Meteorological Agency) / CPC-African Desk), samwel.mbuya@noaa.gov*

Omar Gouled Allaleh (Djibouti Meteorological Office / CPC-African Desk)), omar.allaleh@noaa.gov

---