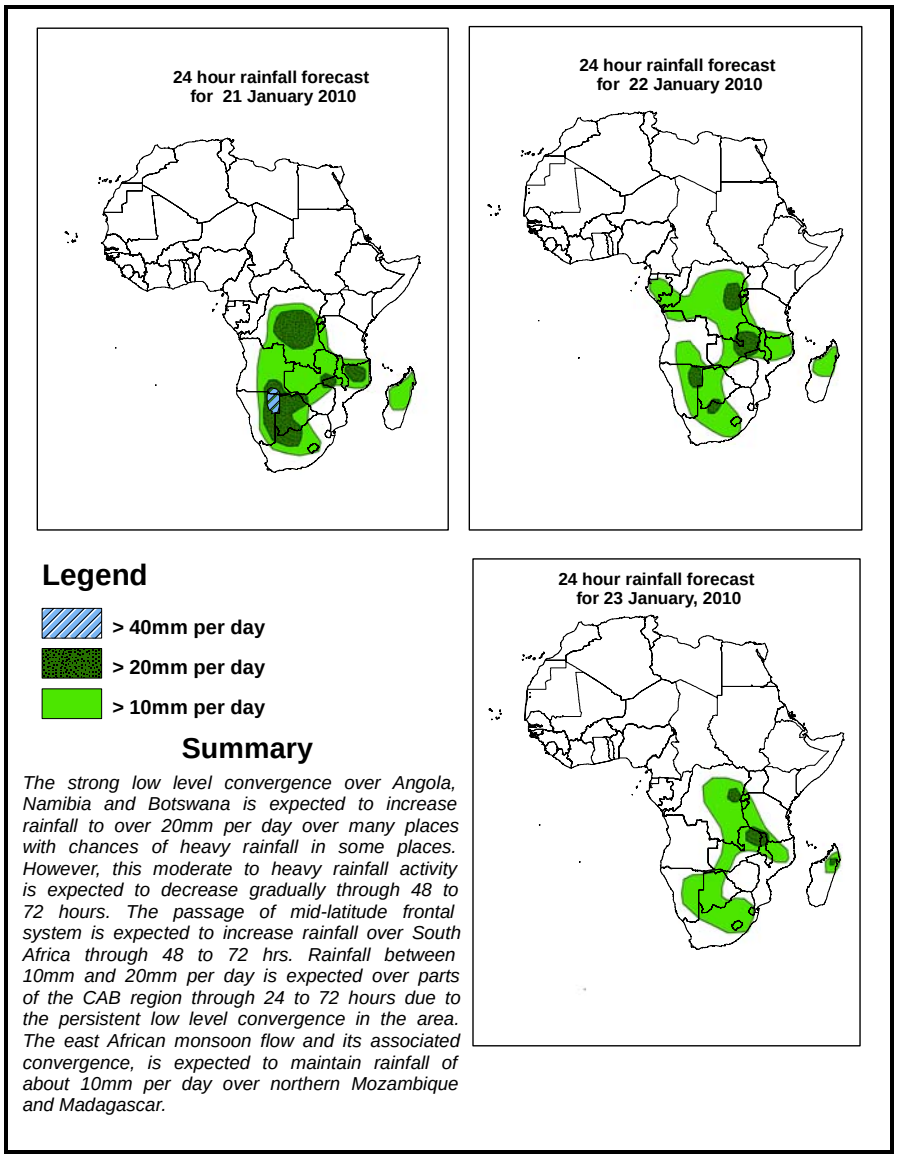
NCEP Contributions to the WMO Severe Weather Forecasting Demonstration Project (SWFDP) and to the African Monsoon Multidisciplinary Analysis (AMMA) Initiative

1.0. Rainfall Forecast: Valid, 06Z of 22 January –06Z of 24 January 2010, (Issued at 14:00EST of 21 January 2010)

1.1. Twenty Four Hour Cumulative Rainfall Forecasts

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



1.2. Models Comparison and Discussion - Valid from 00Z of 22 January 2010

In the next 24 hrs, sub tropical high pressure systems with values of about 1025mb and 1024mb are expected over northern Algeria and the Middle East, respectively. A mid latitude low pressure system with central value of 1005mb (GFS), 1009 (ECMWF), positioned between the two high pressure systems is expected centered over the Mediterranean Sea. The equatorial trough is expected to have pressure values of 1011mb over gulf of Guinea, southeastern Africa, Madagascar and Mozambique Channel, 1010mb over central Africa republic, Angola, Namibia and western South Africa, and1008mb over southern Sudan and the CAB region in 24hrs. Through 48 to 72 hrs, however, the equatorial trough is expected to deepen with the different regions attaining pressure values of 1008mb over the gulf of Guinea, 1007mb over central Africa republic, 1006 over southern Sudan and the CAB region and 1009mb over Madagascar and the Mozambique Channel. The low pressure system stretching from Angola to southwest South Africa is expected to break into two with one zone having pressure values of 1008mb and the other 1007mb over Namibia and South Africa respectively. On the other hand, the mid latitude low pressure system will weaken and shift northward while the Saharan high and the Arabian high will strengthen and merge.

At 850mb level, the Saharan Anticyclone, positioned over Egypt, is expected to maintain its weak position and give way to the mid latitude cyclonic circulation which is expected to move eastwards while its two troughs extending southwards up to northern Mali and south central border between Egypt and Libya through 24 to 72 hrs. On the other hand the Arabian anticyclone is expected to strengthen through 24 to 72 hrs with its centre positioned over the Arabian Peninsula. Easterly flow, from the east African monsoon, and westerly flow from the Atlantic Ocean is expected to converge over parts of east central and southern Africa, through 24 to 72 hrs. The seasonal convergence over the CAB region is expected to persist through 24 to 72 hrs while discontinuities over western equatorial Africa are expected to subside through 48 to 72 hrs. Localized convergence over southern Angola and northern Namibia is expected through 24 to 72 hrs.

At 500mb level, a wavy flow is expected over much of North Africa with a trough extending southwards up to central Cameron in 24 hrs. Through 48 to 72 hrs, however, the flow is expected to be zonal, in the westerlies, covering much of North Africa south extending southwards up to 10^0 N. On the other hand, the southern hemisphere is expected to have a wavy pattern in the sub tropical areas through 24 to 72 hrs.

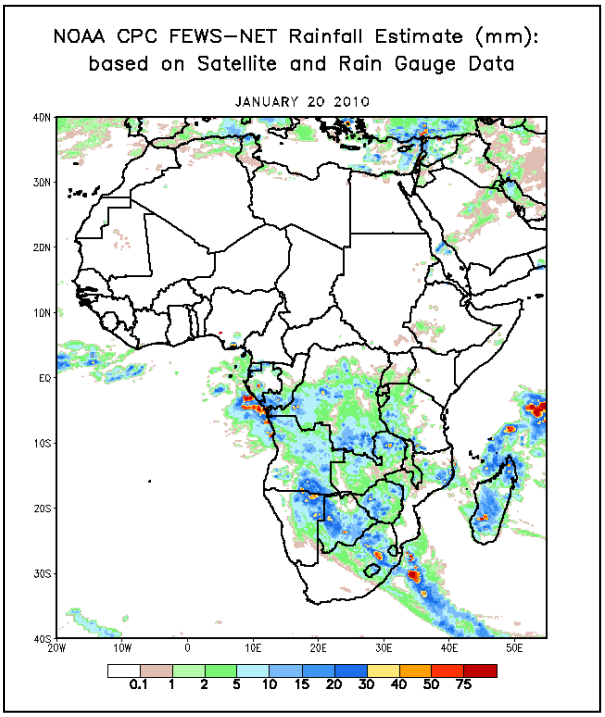
At 200mb, a mid latitude feeble westerly wave is expected in 24 hrs, tending to a zonal flow in 48 to 72 hrs. Much of North Africa will experience wind speeds of up to 110 knots while a narrow zone stretching from central Egypt, across the red sea up to the northeast of the Arabian Peninsula is expected to have wind speeds reaching up to 130 knots.

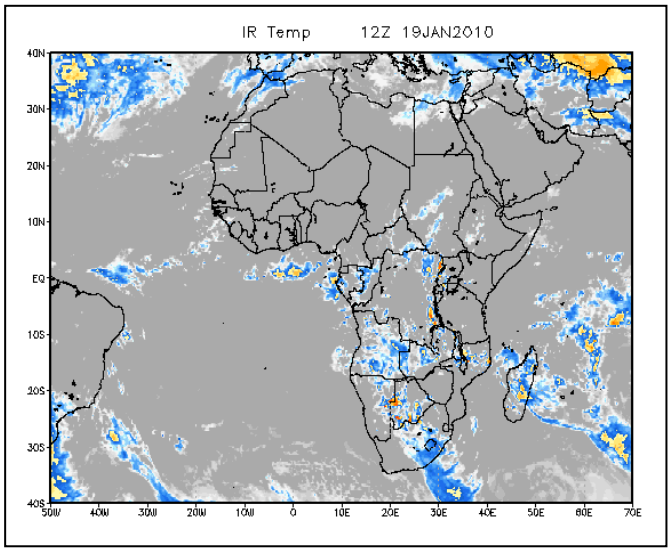
The strong low level convergence over Angola, Namibia and Botswana is expected to increase rainfall to over 20mm per day over many places with chances of heavy rainfall in some places. However, this moderate to heavy rainfall activity is expected to decrease gradually through 48 to 72 hours. The passage of mid-latitude frontal system is expected to increase rainfall over South Africa through 48 to 72 hrs. Rainfall between 10mm and 20mm per day is expected over parts of the CAB region through 24 to 72 hours due to the persistent low level convergence in the area. The east African monsoon flow and its associated convergence, is expected to maintain rainfall of about 10mm per day over northern Mozambique and Madagascar.

2. 0. Previous and Current Day Weather Discussion over Africa (11 –12 January 2010)

2.1. Weather assessment for the previous day (20 January 2010): During the previous day, rainfall activity was observed over Botswana and coastal Congo, the boarder between Namibia and Angola, DRC northern South Africa, Zimbabwe and Madagascar.

2.2. Weather assessment for the current day (21 January 2010): Clouds are observed over western Zambia, parts of Angola, Botswana, South Africa and Madagascar.





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

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