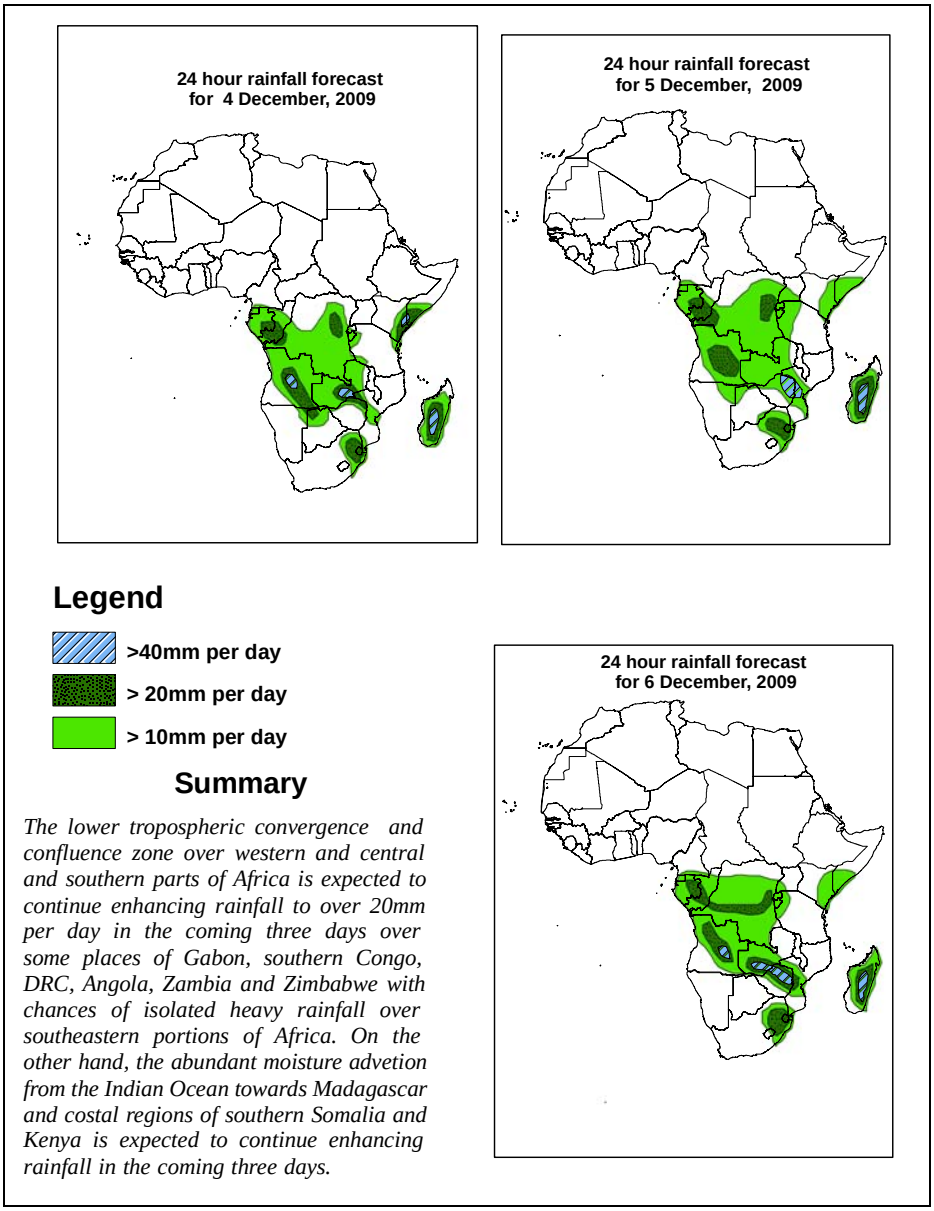
NCEP Contributions to the WMO Severe Weather Forecasting Demonstration Project (SWFDP) and to the African Monsoon Multidisciplinary Analysis (AMMA) Initiative

1.0. Rainfall Forecast: Valid, 06Z of 4 December – 06Z of 6 December 2009, (Issued at 14:00EST 0f 3 December 2009)

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 2 December 2009

The ECMWF model indicates that low tropospheric easterly flow is expected to continue dominating the flow across East African countries through 24 hours with a gradual weakening of the flow between 48 and 72 hrs, while the GFS model tends to persist the easterly flow through 24 to 72hrs. The northwesterly flow over western parts of equatorial African and its associated confluence zone is expected to be limited in the regions north of the equator between 24 and 48hrs, while the confluence line is expected to extend southwards after 72hrs. On the other hand, the seasonal convergence over the Congo Air Boundary region is expected to remain active through 24 to 72 hrs, while a northwest-southeast oriented convergence line is expected to develop in the region between Angola and eastern parts of South Africa and expected to remain active through 24 to 72 hrs. The northwesterly to northerly winds over southwest Indian Ocean are expected to continue advecting abundant moisture towards Madagascar in the coming three days.

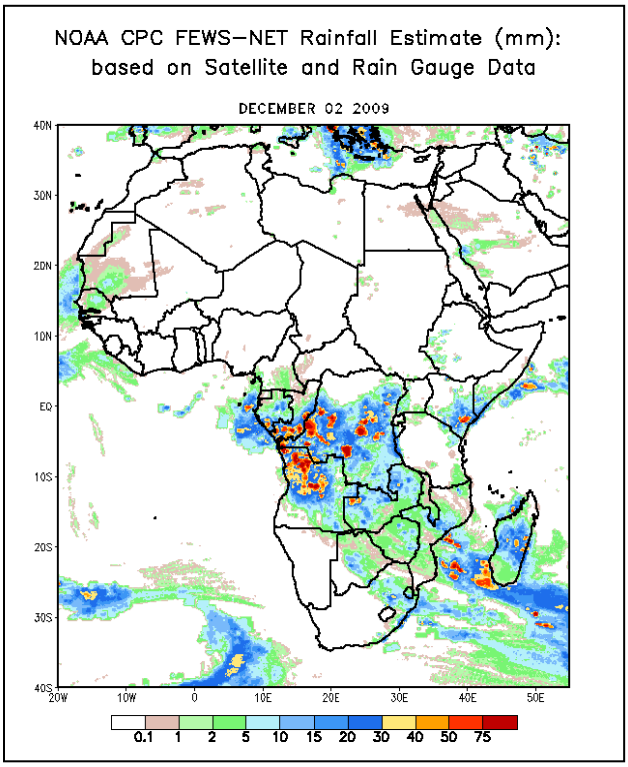
All the three models indicated persistent zonal westerly flow at 500mb level over sub-tropical regions of northern and southern Africa during 24hrs, while the flow in both hemispheres is expected to attain a wavy pattern due to eastward movement of mid-tropospheric cyclonic circulations in the Mediterranean Sea and Southeast Atlantic Ocean during 48 to 72 hrs. On the other hand, the GFS model indicates strong sub-tropical westerly jet (with a core speed of over 130kts) to dominate the 200mb flow in the sub-tropical regions of both hemispheres through 24 to 72 hrs, while the jet level wind indicated by the ECMWF is not as strong as that of the GFS wind, especially in the period between 24 to 48 hrs. However, the 200mb wind predicted by the ECMWF model is expected to attain its strength and become comparable with that of the GFS model after 72hrs.

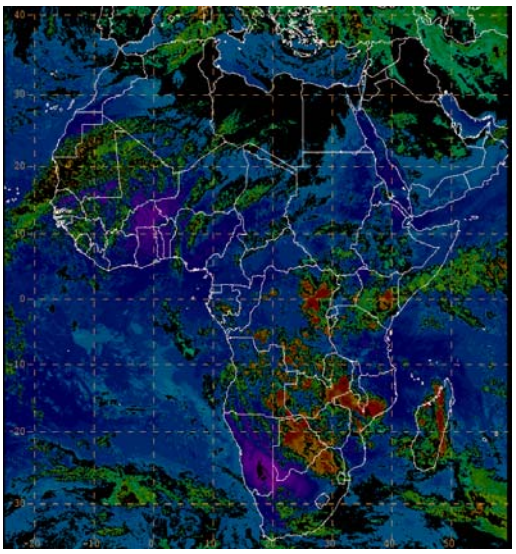
In general, the lower tropospheric convergence and confluence zone over western and central and southern parts of Africa is expected to continue enhancing rainfall to over 20mm per day in the coming three days over some places of Gabon, southern Congo, DRC, Angola, Zambia and Zimbabwe with chances of isolated heavy rainfall over southeastern portions of Africa. On the other hand, the abundant moisture advection from the Indian Ocean towards Madagascar and costal regions of southern Somalia and Kenya is expected to continue enhancing rainfall in the coming three days.

2. Previous and Current Day Weather Discussion over Africa (2 – 3 December to 2009)

2.1. Weather assessment for the previous day (2 December 2009): During the previous day, moderate to heavy rainfall events were observed over parts of southern Congo, central DR Congo, northern Angola, Zambia, Zimbabwe, eastern South Africa, southern Mozambique and Madagascar

2.2. Weather assessment for the current day (3 December 2009): Intense clouds are observed over parts of Gabon, southern Congo, central DR Congo, eastern Kenya, northern Angola, eastern Botswana, Zambia, Zimbabwe, eastern South Africa, southern Mozambique 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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