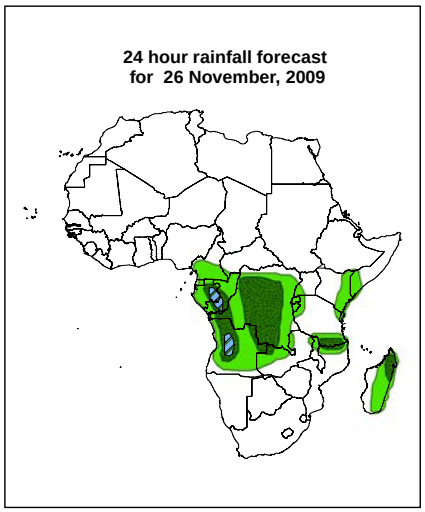
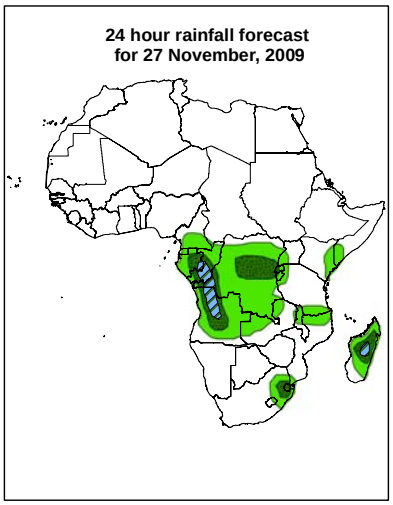
NCEP Contributions to the WMO Severe Weather Forecasting Demonstration Project (SWFDP) and to the African Monsoon Multidisciplinary Analysis (AMMA) Initiative

1.0. Rainfall Forecast: Valid, 06Z of 1 December – 06Z of 3 December 2009, (Issued at 14:00EST 0f 30 November 2009)

1.1. Twenty Four Hour Cumulative Rainfall Forecasts

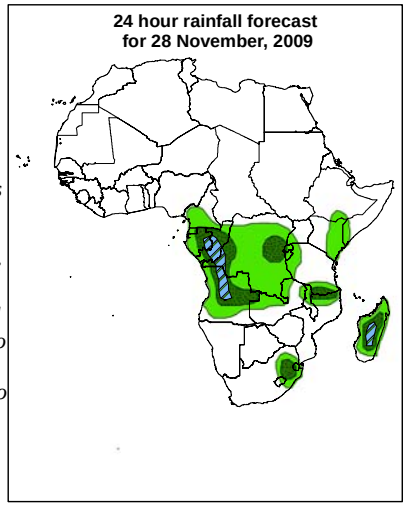
The forecasts are expressed in terms of probability of precipitation (POP) exceedence based on the NCEP, UK Met Office and the ECMWF NWP outputs, the NCEP global ensemble forecasts system (GEFS), and expert assessment.





Legend

- >40mm per day
- > 20mm per day
- > 10mm per day



Summary

The lower level confluence line over western parts of equatorial and southern Africa is expected to enhance precipitation in the regions, chances for heavy rainfall in excess of 40 mm is high in some places of Gabon, southern Congo and western Angola. On the other hand, the active lower level convergence over the CAB region is expected to increase rainfall to above 20mm per day in the regions, while the chance of heavy rainfall is also high over parts of Madagascar due to flow associated with tropical cyclone bongani. The persistent moist winds are predicted along coastal east Africa are also expected to increase rainfall in the region in coming three days.

1.2. Models Comparison and Discussion (Valid from 00Z; 1, DECEMBER, 2009):

Valid from 00Z of 1 December 2009

The GFS, ECMWF and UK Met Office models are in agreement in predicting strong 850mb wind confluence in the region between Gabon and Botswana. This confluence between dry northwesterlies from continental Africa and moist westerlies from the Atlantic Ocean is expected to persist through 24 to 72 hours with a slight decrease in its intensity after 72hrs. The models also predicted active seasonal convergence over the Congo Air Boundary (CAB) region during 24hrs and its gradual weakening after 48hrs. On the other hand, the 850mb wind over southern Somalia, southern Ethiopia, eastern portions of Kenya and Tanzania is expected to attain more easterly component in the period between 24 and 72 hrs. All the three models also in agreement in indicating eastward moving lower tropospheric cyclonic circulation across South Africa in the period between 24 and 72hrs. The strong moisture advection towards Madagascar and coastal areas of Mozambique is expected to persist in the coming 72 hrs.

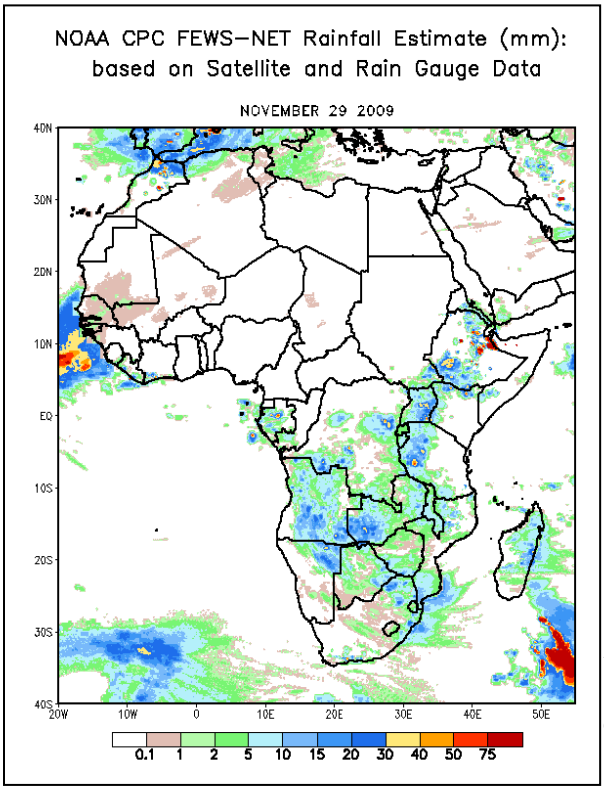
All the three models indicated persistent zonal westerly at 500mb level to dominate the flow over south African countries and the adjacent oceans, while, mid-tropospheric westerly trough is expected to move between western and eastern Mediterranean sea through 24 to 72 hrs.

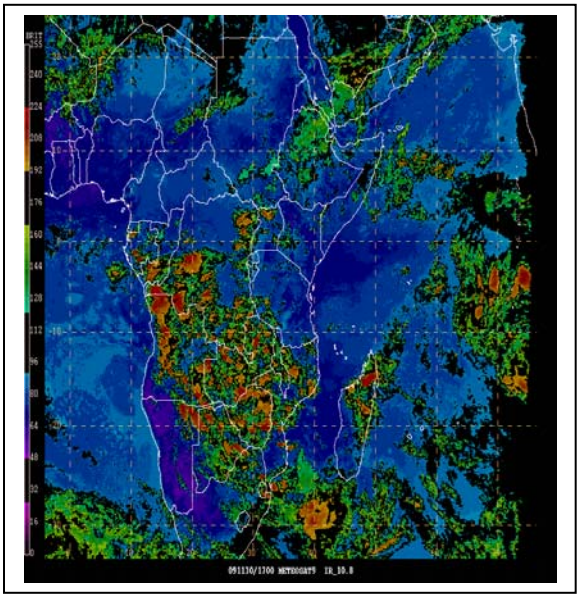
In general, the lower level confluence line extending in the region between southern Congo and Zimbabwe is expected to increase rainfall over 20mm per day through 24 to 72 hrs, with high chances of heavy rainfall in some places. On the other hand, the active lower level convergence over the cab region and the moist easterly winds from Indian Ocean are expected to increase rainfall over parts of east African countries. The persistent cyclonic circulation over South Africa and the persistent moisture advection towards Madagascar is also expected to enhance rainfall to over 20mm per day in the regions.

2. Previous and Current Day Weather Discussion over Africa (29-30 November 2009)

2.1. Weather assessment for the previous day (29 November 2009): During the previous day, moderate to heavy rainfall events were observed over parts of Gabon, DR Congo, Uganda, western Tanzania, Angola, central Ethiopia, Zambia, northern Namibia, northern Botswana, Zimbabwe, and central Madagascar.

2.2. Weather assessment for the current day (30 November 2009): Intense clouds are observed over parts of Gabon, southern Congo, western DR Congo, eastern Angola, northern Zambia, northeastern Namibia, eastern South Africa, southern Mozambique and northern 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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