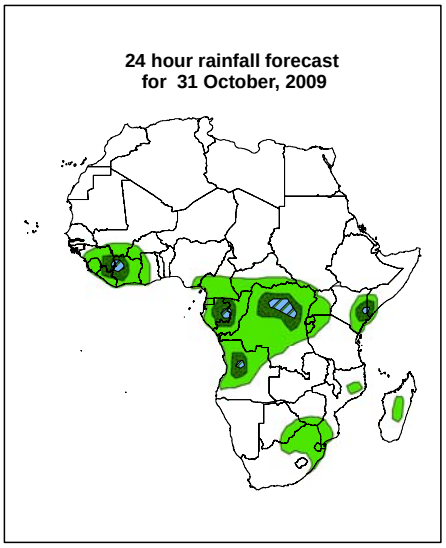
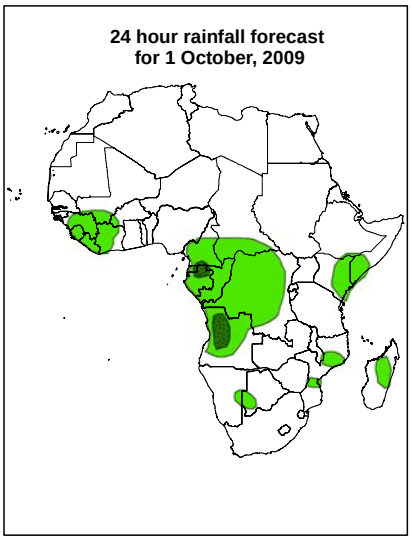
NCEP Contributions to the WMO Severe Weather Forecasting Demonstration Project (SWFDP) and to the African Monsoon Multidisciplinary Analysis (AMMA) Initiative

1. Forecast Discussion: Valid, 06Z of 31 October – 06Z of 2 November 2009, (Issued at 14:00EST 0f 30 October 2009)

1.1. Twenty Four Hour Cumulative Rainfall Forecasts

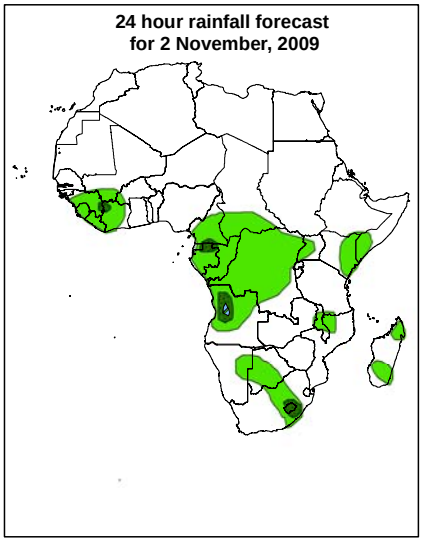
The forecasts are expressed in terms of probability of precipitation (POP) exceedence based on the NCEP, UK Met Office and the ECMWF NWP outputs, the NCEP global ensemble forecasts system (GEFS), and expert assessment.





Legend

- **>40mm, with probability 70%**
- **> 20mm, with probability 70%**
- **> 10mm, with probability 70%**



Summary

Westward propagating easterly trough over western portions of the Gulf of Guinea region, the enhanced convergence over western and Central parts of equatorial Africa and the persistent flow from Indian Ocean are expected to increase precipitation over different parts of Africa in the coming three days

1.2. Model discussion

Model comparison (Valid from 00Z; 30, OCTOBER, 2009): all the three models are in general agreement especially with respect to the positioning of large scale features, however, the UK model tends to give lower values than both the GFS and ECMWF models especially in the Equatorial region (10^oS and 10^oN).

1.3. Flow at 850hPa

T+24h: Axis of a trough in the easterlies is expected to extend towards Cote d'Ivoire. The persistent convergence over western portion of equatorial Africa is expected to expand towards the DR Congo and adjacent areas of East Africa. On there other hand the rainfall over southern Somalia and eastern Kenya is expected to get enhanced due to the persistent moist easterlies coming from western Indian Ocean. Besides, the southeasterly winds from southwest Indian Ocean are expected to enhance rainfall over Mozambique Channel and adjacent areas of South African countries.

T+48h: The axis of a trough in the easterlies over Cote d'Ivoire is expected to move towards to the coastal areas of West Africa. The convergence over western portion of equatorial Africa is expected to persist while slightly weakening over DR Congo and adjacent areas of East Africa. On there other hand, the easterly wind over the coastal areas of east Africa is expected to weaken slightly.

T+72h: The convergence over western portion of equatorial Africa is expected to persist over DR Congo and adjacent areas of East Africa. Localized wind convergence is expected to develop over South Africa.

1.4. Flow at 500hPa

T+24h: The northern hemisphere mid-latitude westerly trough is expected to dominate the flow over northeast African countries, while the Mozambique and Madagascar are expected to be influenced by the trough of southern hemisphere system.

T+48h: The northern hemisphere mid-latitude westerly trough is expected to persist over northeast African countries, while the trough over Mozambique and Madagascar is expected to move slightly to the east.

T+72h: The westerly troughs in both hemispheres are expected to move eastwards.

1.5. Flow at 200hPa

T+24h: The wind associated with sub-tropical westerly is expected to extend in the region between Mali and Persian Gulf with maximum speed located over Egypt and Libya. Similarly the wind associated with sub-tropical westerly jet of southern hemisphere is expected to have maximum wind over Namibia, Botswana, Zimbabwe and southern Mozambique.

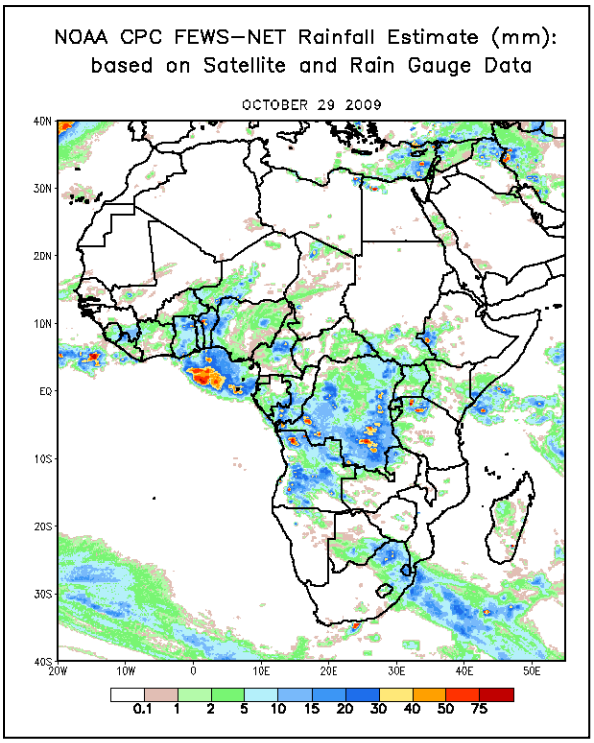
T+48h: The zone of maximum wind associated with sub-tropical westerly jets of both hemispheres is expected to shift slightly to the east.

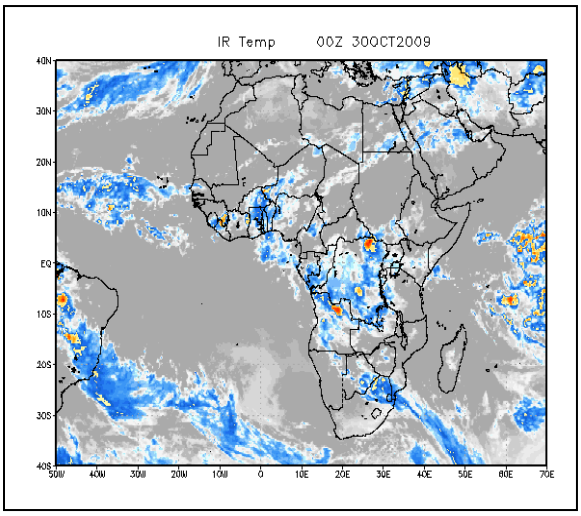
T+72h: The zone of maximum wind associated with sub-tropical westerly jet is expected to persist over northeast Africa while weakening over southern Africa countries.

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

2.1. Weather assessment for the previous day (29 October 2009): During the previous day, moderate to heavy rainfall events were observed over parts of Guinea, Gulf of Guinea, northeastern Nigeria, Congo, DR Congo, eastern Ethiopia, southern Botswana and South Africa.

2.2. Weather assessment for the current day (30 October 2009): Intense clouds are observed over parts of Guinea, Gulf of Guinea, Gabon, Congo, DR Congo, Angola and South Africa.





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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