



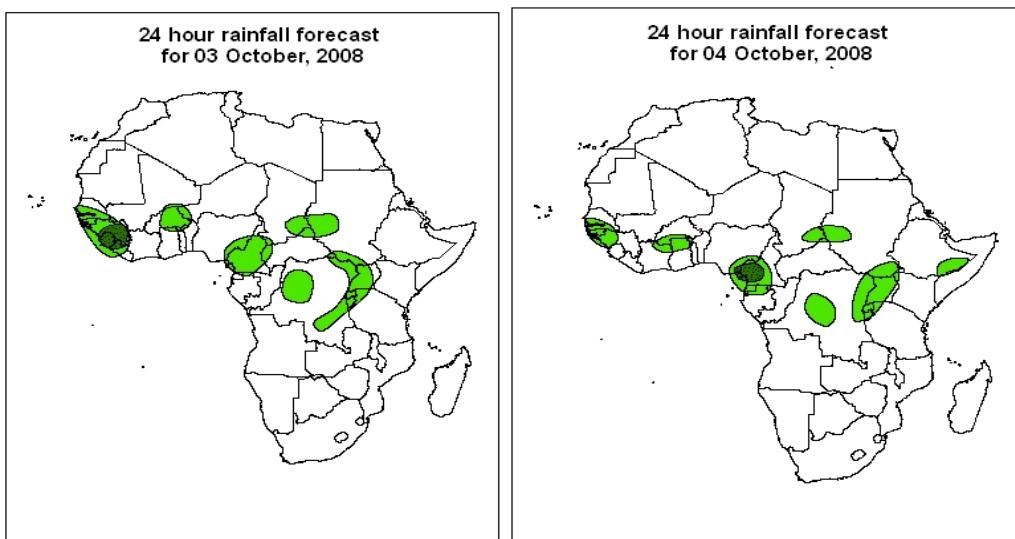
Forecast Guidance for Africa

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

FORECAST DISCUSSION 14H00 EST, 02nd OCTOBER, 2008 Valid: 00Z 03rd OCTOBER – 05th OCTOBER, 2008

1. Twenty Four Hour Cumulative Rainfall Forecasts

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

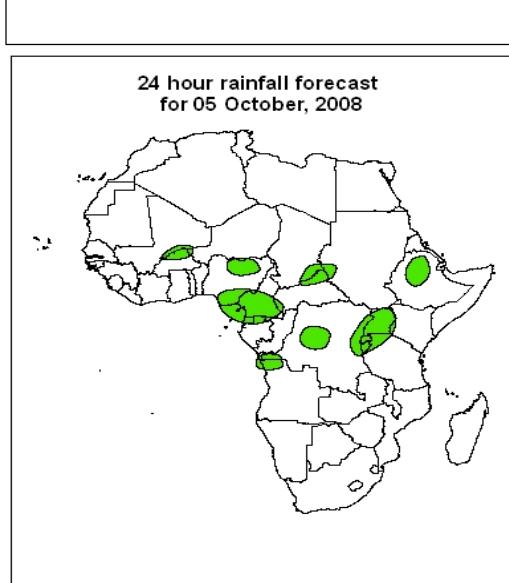


Legend

- africa_countries_new
- > 30mm, with probability 50%
- > 20mm, with probability 40%

Summary

Cyclonic vortices, mid-level troughs and localized convergence expected over parts of west, central and East Africa; coupled with moisture influx from the Gulf of Guinea and Congo Basin will enhance chance for rain.



2. Model discussion

Model comparison (Valid from 00Z; 03rd October, 2008): all the three models are in general agreement especially with respect to the positioning of large scale features, however, the UK model has a tendency to give lower values than the GFS and ECMWF models in the Equatorial (10°S and 10°N) Continental Africa.

2.1. Flow at 850hPa:

T+24h, the Saharan anticyclonic circulation is expected to dominate the flow over Northern Africa. A series of cyclonic vortices are likely to be featured off the Guinean coast, over western Niger, northeastern Nigeria, western Sudan and over southeastern Ethiopia. Localized convergence will occur over Sierra Leone, eastern Burkina, southern Chad, Southern Cameroon, central DRC, over Lake Victoria region and southern Angola stretching onto northeastern Namibia. Conversely, localized divergence will occur over Nigeria, northeastern Congo, Gabon, southern Sudan, most parts of Ethiopia and much of East Africa. The Southern African region is expected to be dominated by the St. Helena and Mascarene Ridges; with a mid-latitude trough likely to affect the eastern coast of South Africa.

T+48, the Saharan anticyclonic system is expected to prevail over Northern Africa. However, a mid-latitude trough will intrude onto the northern sectors of Algeria and Tunisia. The cyclonic vortex featured off the Guinean coast will propagate further westwards over the equatorial Atlantic Ocean while the one over Niger will move to central Mali and the other over western Sudan will drift slightly towards eastern Chad. Those which were featured over Nigeria and Ethiopia are expected to decay. Other cyclonic vortices are likely to develop over central Sudan, southern Cameroon, central CAR and over the northeastern Tip of Somalia. Localized convergence is likely to occur over Guinea Bissau/southern Senegal, Ghana, southeastern Ethiopia and will prevail over central DRC, Lake Victoria region and southern Angola stretching onto eastern Namibia. The Southern African region is expected to be dominated by the St. Helena and Mascarene Ridges; with a mid-latitude trough likely to affect the southern coast of South Africa.

T+72, the Azores anticyclonic ridge is expected to influence the flow over western Africa while the Saharan anticyclonic system will continue to dominate over North Africa. A series of cyclonic vortices are likely to be featured over the border between Mali and northern Burkina, the southern border between Chad and Sudan, over central Sudan, off the Tip of Somalia, southeastern coast of Nigeria and over southeastern Cameroon. Localized convergence is likely to occur over northern Nigeria, eastern Ethiopia, Rwanda, Burundi, southern Angola and over northern Namibia. On the other hand, a divergent flow pattern will prevail over western/northern Congo Basin, eastern CAR, Southeastern Sahel and most parts of East Africa. The ridge system from the St. Helena and Mascarene anticyclonic systems will continue to dominate the flow over Southern Africa while a mid-latitude trough is likely to affect the eastern coast of South Africa.

2.2. Flow at 500hPa:

T+24, an extensive Sub-Tropical anticyclonic circulation system is expected to prevail over western Sahel extending northeastwards over North Africa and onto Arabia. A westerly wave will dominate the flow pole-wards featuring a mid-level trough over the Canary Islands. Easterlies will dominate equator-wards; featuring shortwave troughs along the

western bulge of West Africa with its axis stretching from the coast of Senegal onwards to northern Liberia. Other weak troughs are likely over northern Liberia and the border between Chad/Sudan. A cyclonic circulation is expected to develop over the northeastern Tip of Somalia. The flow over much of Southern Africa will be dominated by a Sub-Tropical anticyclonic system; except over the southwestern sectors, which will be under the influence of a westerly wave.

T+48, similar flow patterns to that of the previous day are expected to prevail over Northern and Southern Africa. However, a pronounced mid-level trough is likely to be featured over northwestern Maghreb. The cyclonic circulation featured over the northeastern Tip of Somalia will propagate westwards to be centered between Ethiopia Djibouti and Somalia. A shortwave trough will be featured stretching along the eastern sectors of Nigeria; whereas, diffluent flow patterns will prevail over the Congo Basin and a confluent flow likely over southeastern DRC.

T+72, similar flow patterns to that of the previous day are expected to prevail over Northern and Southern Africa. A westerly wave will dominate the flow pole-wards featuring a deep cut-off ridge over northern Morocco. Easterlies will dominate equator-wards; featuring a weak cyclonic circulation over northern Ethiopia with its accompanied/associated shortwave trough extending onto northern Eritrea. Mid-level confluent flows are likely over parts of DRC, the border between Uganda/Kenya, northeastern Tanzania and over northern Zambia.

2.3. Flow at 200hPa:

T+24h, an extensive upper-level anticyclonic flow pattern will prevail over the equatorial Atlantic, spreading right across much of Northern Africa. A westerly wave will dominate the flow pole-ward of the anticyclonic system; whereas, easterlies will dominate the flow equator-ward. Diffluent flow patterns will likely prevail over much of the Congo Basin. Much of Southern Africa will be under the influence of an upper-level anticyclonic system while a westerly wave will likely dominate the southern sectors of South Africa with an intense trough stretching from the southwest Indian Ocean, right across northern Madagascar onto the East African coast.

T+48h, similar flows are expected over Northern and Southern Africa as compared to that of the previous day. However, an intense upper-level trough originating from Arabia will likely affect parts of the eastern sectors and northeastern Sudan. A deep cut-off cyclonic circulation will likely develop over Ethiopia. A Shortwave trough is expected to emerge on the easterlies with the axis centered over Benin. The trough featured over the East African coast will move further inland.

T+72h, the main difference on the general flow on the continent as compared to that of the previous day will be the westward propagation of the cut-off cyclonic circulation and the shortwave trough to be centered over the border of Sudan/Ethiopia and southern Guinea/southern Mali respectively. The trough featured over the northern Mozambique Channel will continue to intensify and become a cut-off cyclonic system.

*Authors: George Stafford (Department of Water Resources, The Gambia and African Desk).
Lutumba Tima (Meteorological Institute Angola, and African Desk).*