



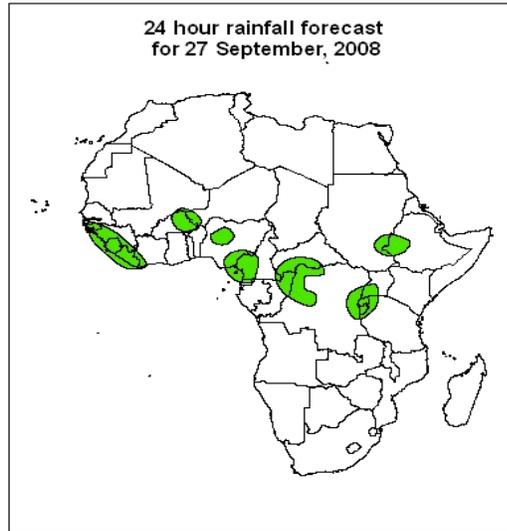
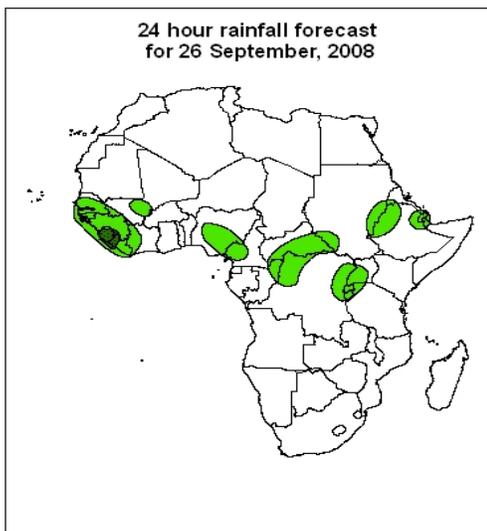
Forecast Guidance for Africa

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

FORECAST DISCUSSION 14H00 EST, 25th SEPTEMBER, 2008
Valid: 00Z 26th September – 28th SEPTEMBER, 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.

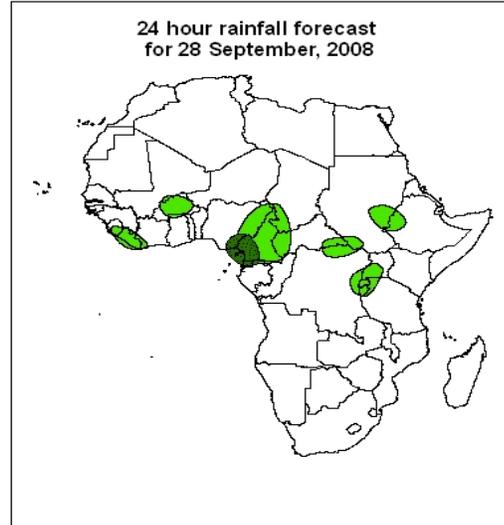


Legend

- 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; 26th September 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 much of North Africa particularly the central and eastern sectors. A series of cyclonic circulations will be featured over the Northeast Atlantic Ocean and western Algeria; whereas, a cyclonic vortex is likely to affect Guinea, The Gambia and Senegal with another one likely to develop off the coast of Cote d'Ivoire. Localized convergence will prevail over western central Mauritania, western and central Mali, central sectors of Sudan, Eritrea, eastern Ethiopia, Lake Victoria region and Angola. Conversely, localized divergence is likely to occur over much of Central Africa, Congo Basin and over much of East Africa. The Southern African region is expected to be dominated by the merger between the St. Helena and Mascarene Ridges; with a trough likely over the southern sector of South Africa.

T+48, a similar flow to that of the previous day is expected to prevail over Northern Africa. The cyclonic vortex featured over the coast of The Gambia/ Senegal will propagate westwards onto the Tropical Atlantic Ocean and be centered over Cape Verde Islands. Other cyclonic vortices are likely to evolve over central and eastern Mali, over Sierra Leone/ Liberia and between the borders of Sudan, Eritrea and Ethiopia. Localized convergence is likely over the border between Burkina/Niger, central Nigeria, eastern Ethiopia, south eastern Uganda, central DRC and Angola. On the other hand, a divergent flow will prevail over Central Africa, much of Sudan, northern sectors of Congo Basin and East Africa. The entire Southern African region is expected to be under the influence of the merger between the St. Helena's and Mascarene Ridges with the trough featured earlier to move off to the east coast of South Africa.

T+72, the Azores ridge is expected to intensify and extend a ridge over Western Sahel/ Sahara and as a result it's expected to merge with the Saharan anticyclonic circulation. However, the flow over Northwestern Africa will be dominated by a cyclonic system centered off the Moroccan Coast. The cyclonic vortices featured over Mali will decay while the rest will propagate westward to be centered off the coast of Sierra Leone/ Liberia and over central Sudan respectively. Localized convergence will prevail over southeastern Burkina onto central Mali, western Nigeria, Lake Chad region, southern Cameroon, western Lake Victoria region, southern sectors of DRC, and over eastern Angola. Much of Southern Africa will be dominated by the merger between the St. Helena's and Mascarene ridges including the development of an anticyclonic flow along the southeastern coastline of South Africa.

2.2. Flow at 500hPa:

T+24, an extensive Sub-Tropical anticyclonic circulation system is expected to prevail over Northern Africa. A westerly wave will dominate the flow pole-wards featuring a deep cyclonic circulation over the Northeast Atlantic Ocean. Easterlies will prevail equator-wards with shortwave troughs likely to occur off The Gambia, Senegal and Guinea Bissau

coast and over central Ethiopia. Confluent flows are likely to occur over northern Cote d'Ivoire, southwest Sudan, southern Ethiopia and Rwanda, while a cyclonic circulation is expected to develop over southwestern CAR. The flow over much of the northern sectors of Southern Africa will be dominated by a Sub-Tropical anticyclonic system; whereas, a westerly wave will prevail over the southern sectors.

T+48, a similar flow pattern to that of the previous day is expected over Northern and Southern Africa. However, both the cut-off cyclonic circulation and trough will retreat northeastwards; whereas, the Sub-Tropical anticyclonic system is likely to extend equatorwards. The only shortwave trough expected will be featured over CAR as a result of the degeneration of the cyclonic circulation over the area.

T+72, the main difference expected on the general flow as compared to that of the previous day will be the northwards tilting of the shortwave trough featured over CAR and its eventual propagation onto Cameroon and Chad.

2.3. Flow at 200hPa:

T+24h, an extensive upper-level anticyclonic flow pattern will prevail over much of Northern Africa extending from the equatorial Atlantic spreading right across to Arabia. Westerlies will dominate the flow pole-ward of the anticyclonic flow and over much of Northern Maghreb, while easterlies will prevail equator-ward. A deep upper-level trough will be featured over the Northeast Atlantic; whereas, a cyclonic circulation is likely to develop between the border of Ethiopia and Kenya with a well pronounced shortwave trough that stretches onto Eritrea. Another shortwave trough is likely to be featured stretching from the coast of Ghana onto southern Niger. The entire Congo Basin will be under the influence of diffluence flow pattern. The northern sectors of Southern Africa will be dominated by an anticyclonic flow while, the southern sectors will be under the influence of a well pronounced westerly wave with a back hanging trough over Angola and environs. A cross equatorial flow pattern is expected to prevail over the western and eastern equatorial regions of the continent.

T+48h, the flow over Northern Africa is expected to be similar to that of the previous day. However, the shortwave trough featured over Ghana/Niger will fill-up while the other one featured over Ethiopia will progress westwards and will be centered over Sudan. The cyclonic circulation featured over Ethiopia/Kenya is expected to split with one being over southern Sudan and the other over central Kenya. The entire Southern African region will be dominated by a westerly wave with the back hanging trough featured over Angola deepening; while another weak trough is expected over Mozambique and Tanzania.

T+72h, the westerly waves will persist over much of Northern and Southern Africa, with an extension of a weak trough over southern Algeria. The cyclonic circulation system will persist over Sudan moving northwestwards with its associated shortwave trough while its counter part over Kenya will fill-up.

Author: George Stafford (Department of Water Resources, The Gambia and African Desk).