



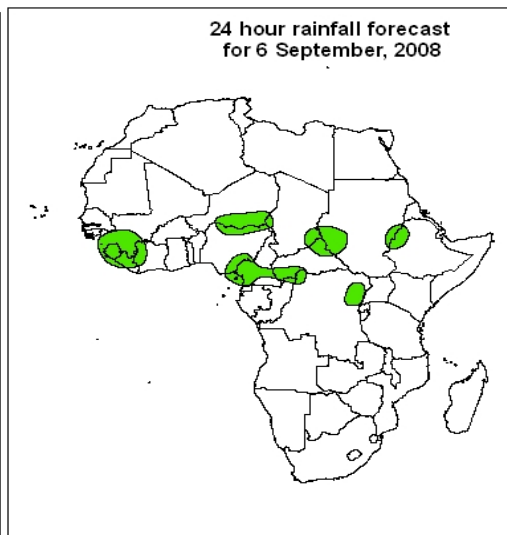
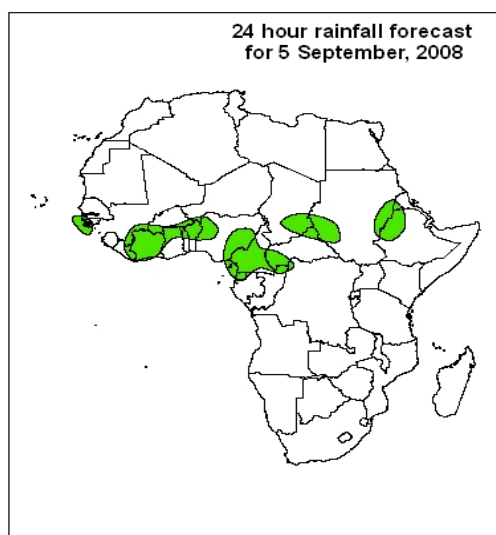
Forecast Guidance for Africa

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

FORECAST DISCUSSION 14H00 EST, 03rd SEPTEMBER, 2008
Valid: 00Z 05th September – 07th 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.

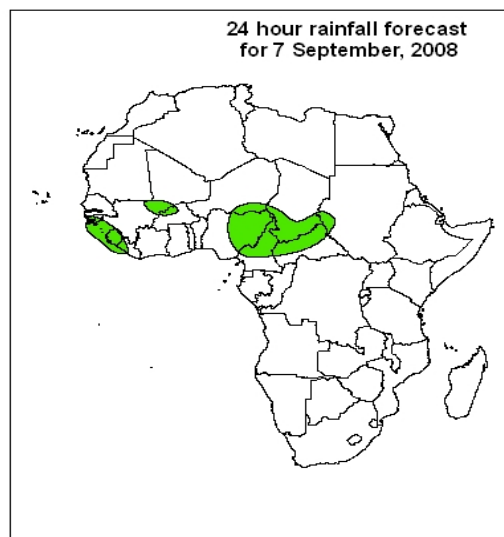


Legend

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

Summary

A series of cyclonic vortices and mid-level troughs traversing over west Africa coupled with the influx of moisture from the Gulf of Guinea will enhance chance for rain over the region. Localized convergence and Moisture advection from the Gulf of Guinea and Congo Basin will also enhance rain over some parts of Central Africa.



2. Model discussion

Model comparison (Valid from 00Z; 05th 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 flow over North Africa will be dominated by the merging of the Azores and Saharan anticyclonic circulation systems, centered over the North Atlantic Ocean and Tunisia/Libya respectively. Series of cyclonic vortices are expected over the Atlantic southeast of Cape Verde Islands, central Mali, central Niger, eastern Chad, northeastern Sudan, along the coastline of Togo/Benin, southwestern Cameroon and northeastern DRC. Localized convergence is likely over southern Mali, central Sudan, western Ethiopia, Equatorial Guinea as well as western and eastern DRC. Conversely, localized divergence is likely over north and central DRC, and East Africa. Southern Africa is expected to be under the influence of a ridge system due to the merging of the St. Helena and Mascarene anticyclonic circulations; whereas a westerly wave will affect the flow to the south.

T+48, a similar flow to that of the previous day will prevail over North Africa. The cyclonic vortex over central Mali will decay while the others over the Sahel and northeast DRC are expected to remain quasi-stationary. The two cyclonic vortices featured over the Gulf of Guinea states will propagate northwestwards to be centered over the borders between Sierra Leone, Guinea, Liberia and Cote d'Ivoire and over southern Nigeria. Localized convergence will occur over eastern Mali stretching to southeastern Niger, western Sudan, central Ethiopia, western Congo, western Lake Victoria and northern Angola; whereas localized divergence will prevail over Ghana and environs including most parts of East Africa. The entire Southern Africa region will be under the influence of an anticyclonic circulation system centered over the southern coastline of South Africa.

T+72, a similar flow pattern to that of the previous day is expected to prevail over North Africa. The Cyclonic vortex over Niger and Chad will persist while the one over Sudan will fill-up and that over DRC will decay. The one over the western Gulf of Guinea states will propagate westwards to the Atlantic Ocean while the other over Nigeria will move slightly to the coast of Benin. Confluent flow is likely over eastern Nigeria, western Lake Victoria and northern Angola; whereas, diffluent flow will prevail over western Gulf of Guinea States, DRC and most parts of East Africa. An off-shore anticyclonic system "Mascarene" is expected to dominate the flow over much of Southern Africa except for the northwest which will be affected by the St. Helena's ridge and southwestern areas that will be affected by mid-latitude trough.

2.2. Flow at 500hPa:

T+24, an extensive Sub-Tropical anticyclonic circulation system is expected to prevail over Northern Africa with a mid-level trough featured over northeastern Libya. South of the anticyclonic system are easterlies, in which shortwave troughs are embedded; with their axes lying over Cote d'Ivoire/Burkina and western Cameroon. Much of Southern Africa

will be under the influence of a Sub-Tropical anticyclonic system while the southern most part will be dominated by a westerly wave.

T+48, similar flow patterns to that of the previous day are expected over Northern and Southern Africa. However, the mid-level trough is expected to deepen with the development of a cut-off cyclonic circulation over the eastern Mediterranean Sea. The shortwave trough over Cote d'Ivoire/Burkina will propagate westwards to Sierra Leone/Guinea, the one over Cameroon will likely evolve to a cyclonic vortex off the coast of Nigeria while others will be featured over eastern Niger and western Sudan.

T+72, the main changes expected on the general flow as compared to that of the previous day will be an intrusion of a westerly wave over the western Maghreb and as a result, the southward shift of the anticyclonic flow to the western Gulf of Guinea States. All shortwave troughs will propagate westwards by about 5/6 degrees longitude.

2.3. Flow at 200hPa:

T+24h, an extensive upper-level anticyclonic flow pattern is expected to prevail over the Sahel/Sahara. A westerly wave will dominate the flow over the northern Maghreb region, north of the anticyclonic flow; while easterlies will prevail to the south. Eastern Africa is likely to be affected by a northeast cross equatorial flow. The eastern sector of Southern Africa will be dominated by a Sub-Tropical anticyclonic system while the western sector and Madagascar will be under the influence of a shallow and deep slanting trough respectively. The westerly wave is expected to prevail over South Africa.

T+48h, the westerly wave over western Maghreb will deepen and extend an upper-level trough southwards over Algeria. The flow pattern over south Central Africa, northwestern and northeastern sectors of Southern Africa will be dominated by anticyclonic circulation systems; whereas a cut-off cyclonic flow is likely to occur over southeast Angola and the coastal region of Tanzania/Mozambique. The rest of southern Africa will be affected by westerly wave.

T+72h, the westerly wave is expected to persist over the Maghreb region with its associated trough extending further south to Niger; thus, weakening the anticyclonic circulation over the area. The cut-off cyclonic flow over southeast Angola and the border between Tanzania and Mozambique will merge and dominate the flow over Zambia and environs. An anticyclonic flow will still persist over portions of northeastern and northwestern sectors of Southern Africa while a westerly wave will continue to dominate the flow to the south.

Author:

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