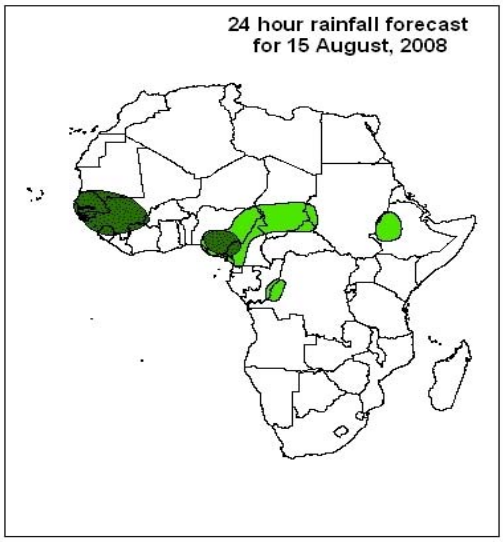
Forecast Guidance for Africa

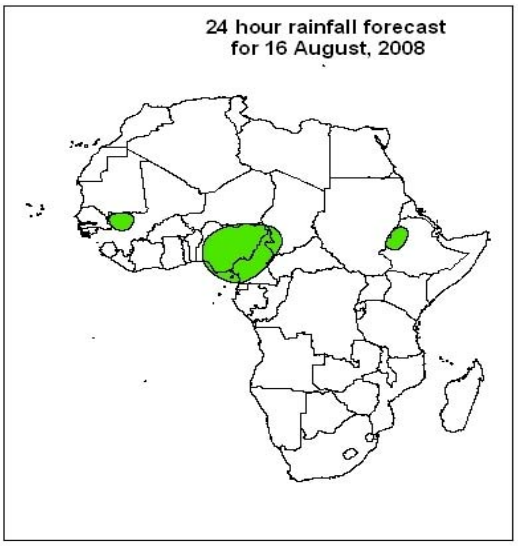
NCEP Contributions to the WMO Severe Weather Forecasting Demonstration Project (SWFDP) and to the African Monsoon Multidisciplinary Analysis (AMMA) Initiative

FORECAST DISCUSSION 14H00 EST, 14th AUGUST 2008
Valid: 00Z 15th August – 17th AUGUST, 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.





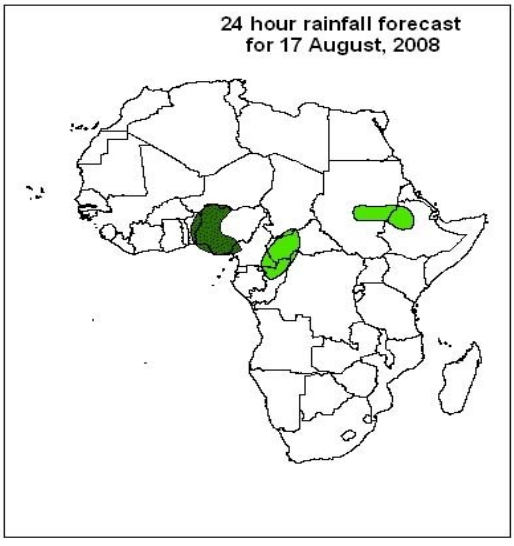
Legend

> 30mm, with probability 50%

> 20mm, with probability 40%

Summary

A series of cyclonic vortices and Localized convergence over Sahel and Gulf of Guinea countries coupled with the influx of moisture from the Gulf of Guinea will enchance chance for rain over the region. Moisture advection from the Congo Basin and Gulf of Guinea will also enhance rain over some parts of Central Africa and Eastern Sahel.



2. Model discussion

Model comparison (Valid from 00Z; 15th August 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^oS and 10^oN) Continental Africa.

2.1. Flow at 850hPa:

T+24h, the Saharan anticyclonic circulation is centered over northern Tunisia and will influence the wind flow over Algeria, Tunisia and Libya. A mid-latitude trough is expected to penetrate into northwestern Algeria, separating the Azores anticyclonic circulation from the Saharan. A series of cyclonic vortices are featured over Sahel. Localized convergence will occur over western Mali, Ethiopia, southern DRC, Angola and Namibia; whereas, localized divergent flows are expected over Mali, Congo, Tanzania and Zambia. The Western and eastern sectors of Southern Africa will be under the influence of the St. Helena and Mascarene anticyclonic systems while, the southern sector will be affected by a cut-off mid-latitude cyclonic circulation.

T+48h, the Azores and Saharan anticyclonic systems are expected to merge. The cyclonic vortices that were featured over the Sahel during the previous day will propagate westwards with the one between the border of Mali/Niger intensifying. Localized convergence will prevail over Ethiopia, DRC and Angola while, the one over Namibia will shift to Botswana and central South Africa. Divergent flows will occur over southern Mali while they are expected to prevail over western/northern DRC, Tanzania and Zambia. The western and eastern sectors of Southern Africa will remain under the influence of the St. Helena and Mascarene anticyclonic systems while, the cut-off cyclonic circulation which was featured during the previous day will move southeastwards giving way to a mid-latitude trough over the southern sectors.

T+72h, the flow over North Africa is expected to be similar to that of the previous day. The cyclonic vortex over the border of Mali/Niger will persist and will be centered over central Mali while, an anticyclonic vortex will develop over the border between CAR and DRC. The wind flow over South Africa and environs will be dominated by an anticyclonic circulation.

2.2. Flow at 500hPa:

T+24h, the flow over Northern Africa is expected to be dominated by a Sub-tropical anticyclonic system. However, a mid-latitude trough will prevail over eastern Libya and northern Egypt. Diffluent flow patterns will occur over most parts of Central and Eastern Africa; whereas an anticyclonic circulation system will dominate the flow over northern sectors of Southern Africa. A westerly wave will prevail to the south with a deep back hanging trough on the approach to the western sectors, while a cyclonic circulation will dominate the flow over the southern tip of Madagascar.

T+48h, generally the flow over Northern and Southern Africa will be similar to that of the previous day, with the trough over North Africa expected to penetrate further inland into northern Chad. A Cyclonic circulation will develop over Nigeria while diffluent flow will prevail over Ethiopia stretching onwards to western DRC. The anticyclonic system over northern sectors of Southern Africa will prevail while a mid-latitude trough associated with a westerly wave will characterize the flow to the southern sectors. The cyclonic circulation over the southern tip of Madagascar is expected to move further inland.

T+72h, the mid-latitude trough-axis is expected to shift slightly onto central Egypt and as a result will split the massive Sub-Tropical anticyclonic circulation over north Africa. The Cyclonic vortex over Nigeria will intensify. The wind flow over the Southern African region will remain quasi-stationary while the trough over South Africa is expected to decay.

2.3. Flow at 200hPa:

T+24h, an extensive upper level anticyclonic flow pattern will prevail over northern Africa with a cyclonic vortex and trough along the coast of Algeria, Tunisia and Libya. Easterlies will dominate equator-ward. Likewise, a large part of southern Africa is expected to be influenced by a subtropical anticyclone, to the south of which, a westerly wave is expected to prevail.

T+48h, the flow pattern will remain quasi-stationary, i.e. similar to the previous day. But a trough along the coast of the northwest is expected to penetrate and extend westward.

T+72h, the wind flow pattern is expected to remain as that of the previous day.

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