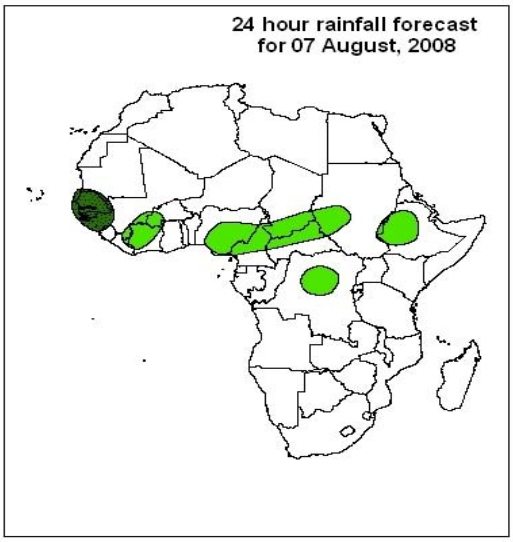
Forecast Guidance for Africa

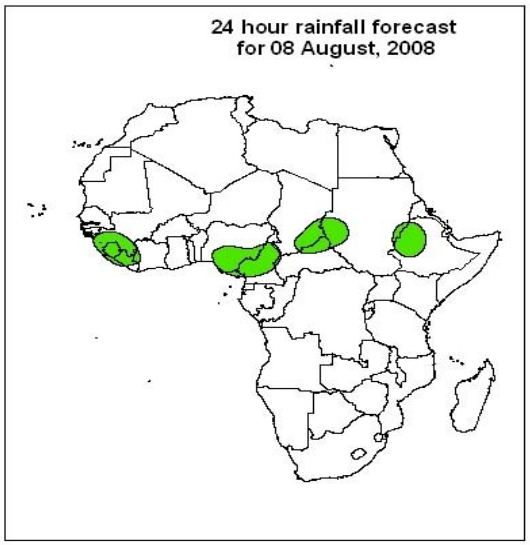
NCEP Contributions to the WMO Severe Weather Forecasting Demonstration Project (SWFDP) and to the African Monsoon Multidisciplinary Analysis (AMMA) Initiative

FORECAST DISCUSSION 14H00 EST, 06th AUGUST 2008
Valid: 00Z 07th August – 09th 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.





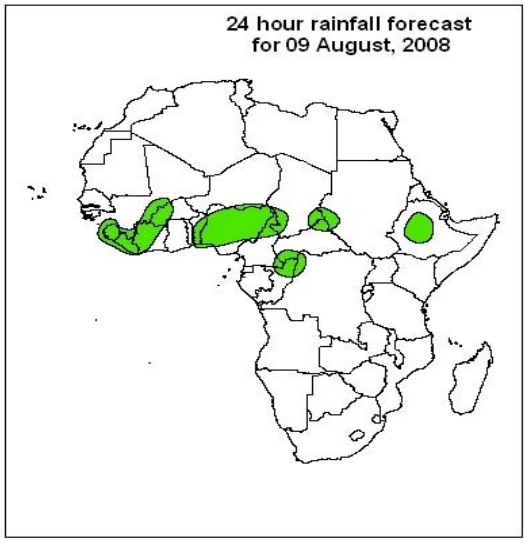
Legend

> 30mm, with probability 50%

> 20mm, with probability 40%

Summary

A series of cyclonic vortices traversing the Sahel and Gulf of Guinea countries will enchance chances for rain over the region. Moisture advection from the western Indian Ocean, Congo Basin and the Gulf of Guinea will also enhance rain over some parts of Central Africa, Eastern Sahel as well as the eastern Gulf of Guinea countries.



2. Model discussion

Model comparison (Valid from 00Z; 07th 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, northwestern Africa is expected to be under the influence of an anticyclonic circulation emanating from the Mediterranean Sea, northerlies dominating the eastern part over Libya and Egypt. Isolated cyclonic systems and convergence lines are expected to influence the Sahel region from Senegal, Gambia and Guinea-Bissau up to Ethiopia, including southwestern Congo and DRC. Southern Africa is expected to be influenced by the Mascarene and St Helene subtropical anticyclonic circulation systems, with westerlies to the south and a trough over the tip of South Africa.

T+48h, the flow pattern is expected to be similar to that of the previous day, but the cyclone system over Senegal, Gambia and Guinea-Bissau is expected to move into the Atlantic Ocean, and the convergence lines over southwestern Congo are expected to dissipate. Southern Africa is expected to continue being influenced by the Mascarene and St Helene subtropical anticyclones, but small cyclonic vortices are expected to form along the coasts of Namibia and southwestern Madagascar.

T+72h, the flow pattern is expected to remain as that of the previous day, but convergence lines are expected to develop off the coast of Guinea/Sierra Leone and Liberia. The cyclonic vortices along the coast of Namibia and over southwestern Madagascar are expected to dissipate and a trough is expected to develop over the tip of South Africa.

2.2. Flow at 500hPa:

T+24h, an anticyclonic circulation is expected to be located over northwest of the Maghreb countries flanked by two mid-latitudes troughs which are centered off the Moroccan coast and eastern Libya/northwestern Egypt respectively. An anticyclonic system is expected to the southeast of the latter trough. The easterly flow south of the Subtropical ridge systems will be characterized by mainly diffluent flow-lines over southern Mali, Burkina, Ethiopia and DRC. Confluent flow-lines are expected to occur over CAR and eastern Sudan. A cyclonic circulation will prevail over eastern Angola and northwestern Zambia, while a westerly wave will prevail further south over South Africa. The rest of the Southern African region will be under the influence of an anticyclonic circulation system.

T+48h, the anticyclonic circulation system over the Maghreb region will intensify and extend southwards into western Sahel and west of the Gulf of Guinea Countries. The trough off the Moroccan coast is expected to decay due to the development of an anticyclonic system over the area; while, that over Egypt will remain quasi- stationary and deepen. This in effect will weaken the anticyclonic system located to the southeast of the trough. Diffluent flow-lines will prevail over central Chad, DRC and Tanzania; whereas, confluent flow-lines are expected over eastern CAR and southern Sudan. A cyclonic circulation will develop over the Cameroon/Chad border while that over eastern Angola will prevail moving south-westwards. The anticyclonic system over Southern Africa is expected to relax while the westerly wave will deepen.

T+72h, not many changes will occur over Northern Africa as compared to that of the previous day. However, confluent flow-lines will prevail over Niger, north and south of Chad, northern Sudan and northern Tanzania; whereas, diffluent flow-lines are expected to prevail over southern Niger, Cameroon and Ethiopia. Over Southern Africa, the westerly wave will deepen further with a trough expected over Angola and western South Africa. The anticyclonic circulation system will remain quasi-stationary but confined mainly to the northeast of Southern Africa.

2.3. Flow at 200hPa:

T+24h, an extensive upper level anticyclonic flow pattern will prevail over northern Africa with a trough over the northwestern Morocco. However, western Sahel is expected to be influenced by a trough; while 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 the trough over western Sahel is expected to weaken.

T+72h, the wind flow pattern is expected to remain as that of the previous day, but a trough over northwestern Morocco is expected to deepen.

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