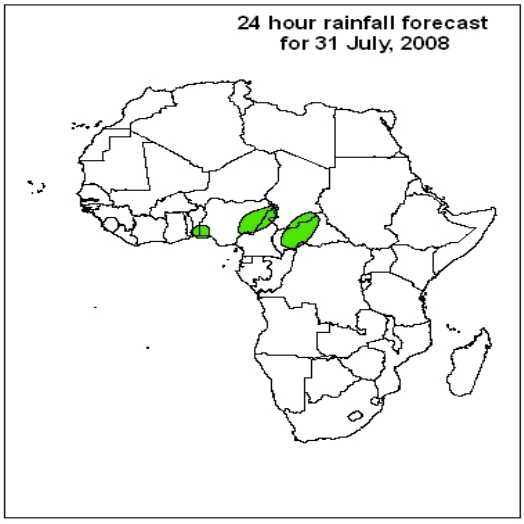
Forecast Guidance for Africa

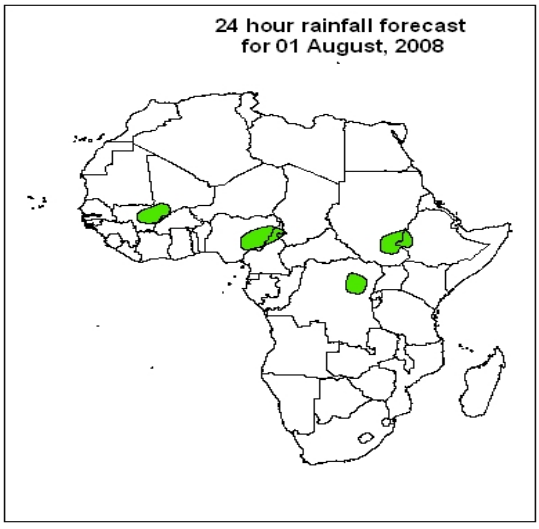
NCEP Contributions to the WMO Severe Weather Forecasting Demonstration Project (SWFDP) and to the African Monsoon Multidisciplinary Analysis (AMMA) Initiative

FORECAST DISCUSSION 14H00 EST, 30th JULY 2008
Valid: 00Z 31st JULY – 02nd 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.





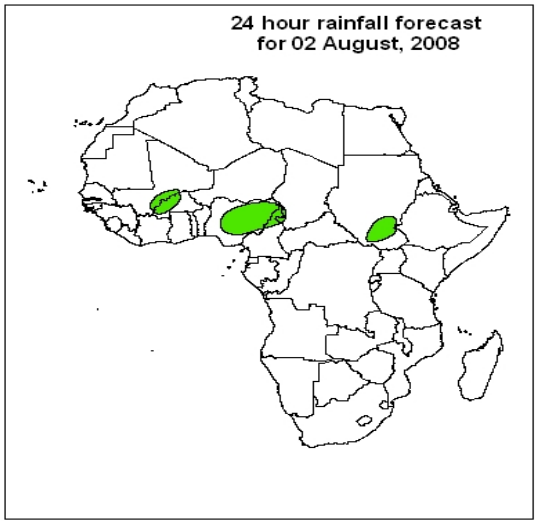
Legend

> 30mm, with probability 50%

> 20mm, with probability 40%

Summary

Intensification of the Saharan anticyclone at the mid-levels coupled with inadequate moisture influx from the Gulf of Guinea will suppress chances for precipitation over some parts of the Sahel and Gulf of Guinea countries. However, moisture advection from the western Indian Ocean and Congo Basin will enhance rain over some parts of Central Africa and Eastern Sahel.



2. Model discussion

Model comparison (Valid from 00Z; 31st July 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, northern Africa is expected to be under the influence of an anticyclonic circulation with a trough along the coast of Morocco and northerlies over Egypt. Another anticyclonic circulation is expected to develop over the coast of Guinea. The Sahel region up to Ethiopia and including Central African Republic, Congo, DRC and Uganda are expected to experience cyclonic vortices and isolated convergence lines. Southern Africa is expected to be influenced by the Mascarene and St Helene subtropical anticyclones which will merge, while a westerly flow is expected to dominate the southern part.

T+48h, the flow pattern is expected to be similar to that of the previous day; except the trough along the coast of Morocco is expected to fill; and the anticyclonic vortex over western Sahel is expected to move westward into the Atlantic Ocean, while convergence lines will decay over Central African Republic and Congo. St Helene anticyclone is expected to extend southwards causing the westerlies to back up and become south westerlies to the east of the anticyclone.

T+72h, the flow pattern is expected to remain as that of the previous day, but, a cyclonic vortex over eastern Cote D'Ivoire is expected to move westward into the Atlantic Ocean. The circulation over southern Africa will remain quasi-stationary.

2.2. Flow at 500hPa:

T+24h, an anticyclonic circulation system is expected to dominate the general flow pattern of North Africa, with northwesterlies over Libya and Egypt due to a trough in Mediterranean sea. Kenya and Somalia are expected to be under the influence of a trough. While the St Helene anticyclone is expected to influence a large part of southern Africa, a westerly flow pattern will prevail to the south that will develop a trough from Madagascar through northern Mozambique Channel across southern Tanzania to southeastern DRC.

T+48h, the flow pattern is expected to be similar to that of the previous day, but the trough over the Mediterranean sea is expected to penetrate inland, while the St Helene anticyclone is expected to extend further into the Indian Ocean cutting off a low from the trough that spanned over Madagascar and northern Mozambique to southern DRC.

T+72h, no much change is expected from the flow of the previous day, except the trough over northeastern Libya is expected to retreat northwards a little.

2.3. Flow at 200hPa:

T+24h, an extensive upper level anticyclonic flow pattern will prevail over much of northern Africa, except over Tunisia, Algeria and Morocco which are expected to be influenced by a westerly wave. Easterlies will dominate equator-ward of the subtropical anticyclones, and a westerly wave is expected to prevail over southern Africa with a trough over Mozambique.

T+48h, the flow pattern will remain quasi-stationary, i.e. similar to the previous day. But the trough over Mozambique is expected to narrow down due to the expansion of the St Helene and Mascarene anticyclones.

T+72h, the wind flow pattern is expected to remain as that of the previous day. The trough over Mozambique is expected to fill up as.

Authors:

1- *Hilaire Elenga (Direction de la Meteorologie Nationale du Congo Brazzaville and African Desk).*
2- *George Stafford (Department of Water Resources, The Gambia and African Desk).*