



Forecast Guidance for Africa

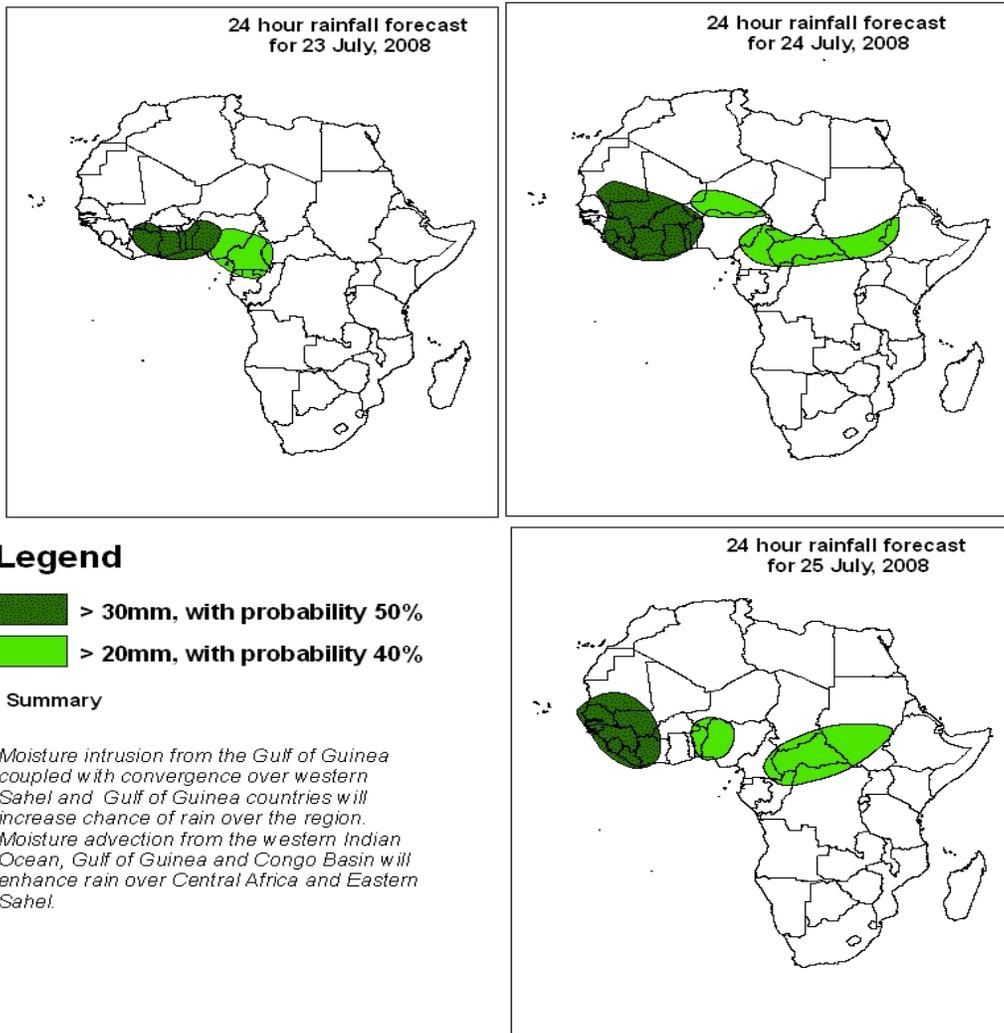
NCEP Contributions to the WMO Severe Weather Forecasting Demonstration Project (SWFDP) and to the African Monsoon Multidisciplinary Analysis (AMMA) Initiative

FORECAST DISCUSSION 14H00 EST, 22 JULY 2008

Valid: 00Z 23 – 25 JULY, 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.



2. Model discussion

Model comparison (Valid from 00Z; 23 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 ($10^{\circ}S$ and $10^{\circ}N$) Continental Africa.

2.1. Flow at 850hPa

T+24h, the Saharan anticyclonic circulation is expected to be centered over northern Algeria, while influencing the flow over the Maghreb region. North-northwesterly flow will prevail over Egypt. The Azores anticyclonic circulation located over the north Atlantic will extend its ridge southeastwards to Western Mauritania and Senegal to the west of which a cyclonic system will develop off the coast of Senegal. Two cyclonic vortices will be featured over northeastern Mali and over the central Gulf of Guinea Countries respectively. Diffluent flow pattern will occur over Senegal, western Sudan and eastern CAR; whereas localized convergence is expected over eastern Ethiopia, western Congo and eastern DRC/Uganda. The entire southern portions of Southern Africa will be under the influence of the Mascarene anticyclone.

T+48h, the Saharan anticyclonic circulation over North Africa will shift eastwards while a trough will develop off the northern coast of Morocco. The Vortices over Western Sahel and the central Gulf of Guinea Countries will deepen and propagate westwards to be located over southeastern Mauritania and northern Cote D'Ivoire. The diffluent flow over Sudan will move westwards to central Chad, while that over CAR will decay significantly, as it propagates to northern DRC. Localized convergence will occur over central DRC and northwestern Angola. The Mascarene anticyclone over Southern Africa will shift slightly eastwards to give way to a mid- latitude trough that will be centered off the western coastline.

T+72h, the Saharan and Azores anticyclonic circulation are expected to merge thus extending a ridge further into the Middle East. The cyclonic vortices over Mauritania and Cote D'Ivoire will also merge while continuing to propagate westwards and will be located over Senegal and The Gambia, and another cyclonic vortex will be expected to develop over northeastern Niger. Localized convergence will be featured over central Sudan, central DRC, Uganda and western Angola. The Mascarene anticyclone over Southern Africa will continue to shift slightly eastwards but will still influence the flow over the region.

2.2. Flow at 500hPa

T+24h, much of northern Africa will be under the influence of an anticyclonic system that will extend a ridge southwestward to Guinea Bissau. A cyclonic circulation system is expected over southern Egypt and another one over southern Nigeria with confluent flow-lines over southern Cote D'Ivoire/Ghana central CAR, southern Sudan and central Zambia; whereas, a diffluent flow is expected to dominate over DRC. Much of Southern Africa will be under the influence of an anticyclonic circulation system, except for the Tip of South Africa which will experience a westerly wave.

T+48h, the anticyclonic circulation system will prevail over the Maghreb region, but will retreat northwards. The cyclonic circulation system over Egypt will prevail with the evolution of a well developed trough. A deep cyclonic vortex will be featured over Cote D'Ivoire with its associated trough axis stretching to northwestern Mali. Diffluent flow is expected to prevail over eastern Sudan on to northern DRC. Cyclonic circulation systems will develop over the coast of Angola and southern Madagascar with the central/eastern portions of Southern Africa being under the influence of an anticyclonic circulation with northwesterlies dominating the flow over much of Namibia and western South Africa.

T+72h, the anticyclonic circulation over northern Africa will intensify and weakened the trough over Egypt although the cyclonic system is expected to persist. The cyclonic Vortex over Cote D'Ivoire will propagate westwards to the equatorial Atlantic while deepening. Another vortex is expected to evolve over southern Ethiopia. The flow pattern over southern Africa will remain quasi-stationary and hence, similar to that of the previous day.

2.3. Flow at 200hPa

T+24h, an extensive upper level subtropical anticyclonic flow pattern is expected to prevail over Northern Africa. Easterlies will dominate the flow equator-ward of the subtropical anticyclone with diffluent flow expected over much of the Gulf of Guinea Countries. The northern portions of Southern African are expected to be under the influence of an anticyclonic system, while a westerly wave will prevail to the south and cyclonic circulation will be featured over the Kenya/Tanzania coastline and over northeast Zambia respectively.

T+48h, the wind flow over much of the African Continent is expected to be similar to that of the previous day, except that the diffluent flow pattern will be confined mainly over southern Nigeria. The Cyclonic circulation systems over Southern Africa will merge and deepen over northeast Zambia and environs.

T+72h, the flow pattern will remain quasi-stationary over North Africa. However, diffluent flows will prevail over western Mali, Senegal, Guinea Bissau and southern Chad; whereas confluence flow is expected over central Congo stretching to southern Nigeria. Over Southern Africa, similar flow will prevail as that of the previous day, except for the cyclonic system which will propagate westwards to southern DRC, while another cyclonic circulation will develop over the border of Kenya and Somalia.

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).*