



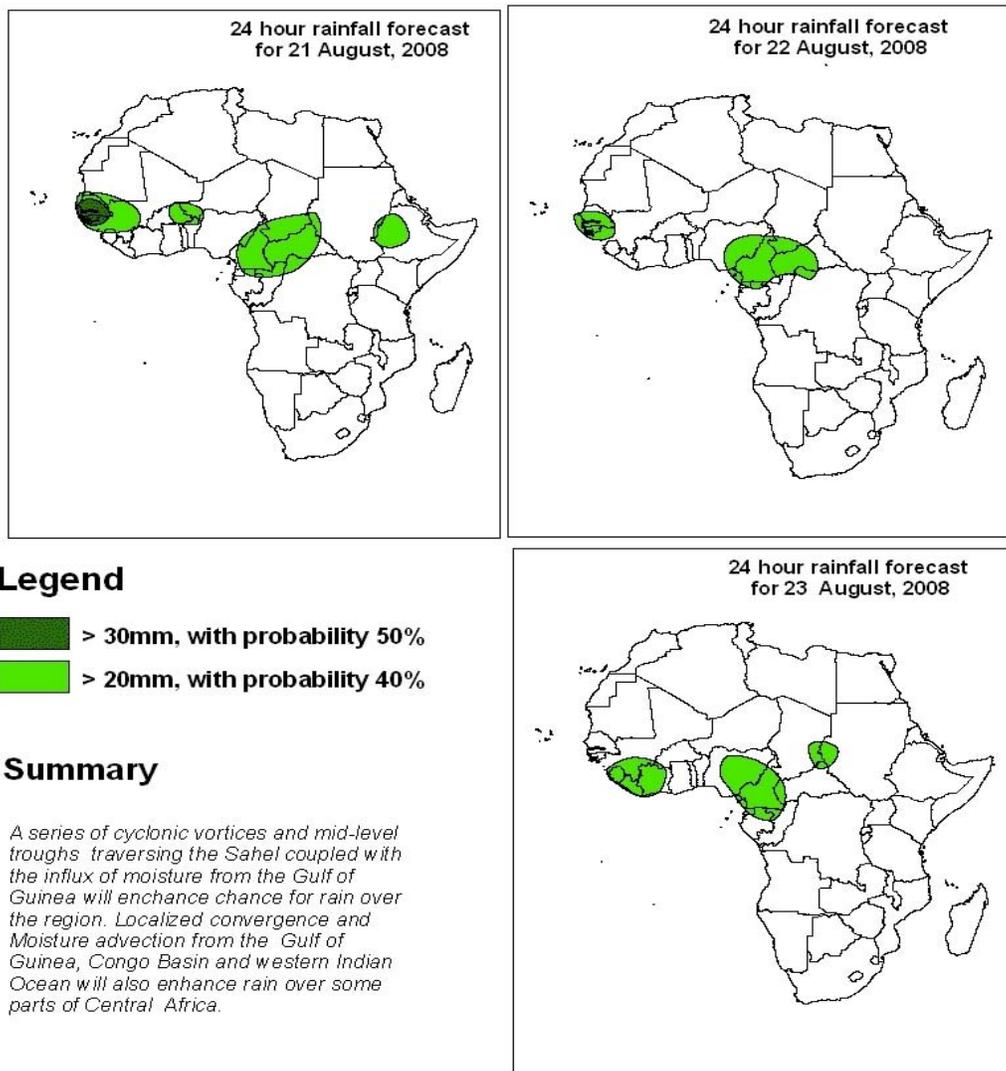
Forecast Guidance for Africa

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

FORECAST DISCUSSION 14H00 EST, 20th AUGUST 2008
Valid: 00Z 21st August – 23rd 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.



2. Model discussion

Model comparison (Valid from 00Z; 21st 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°S and 10°N) Continental Africa.

2.1. Flow at 850hPa:

T+24h, the Saharan anticyclonic circulation is expected to dominate the flow over North Africa. A series of cyclonic vortices are featured over northern Sahel along the same latitude ~20°N mainly over Mauritania, Mali, Niger, Chad; with others over northern Nigeria and Eritrea respectively. Localized convergence will occur over The Gambia/Senegal, western Niger, Ethiopia, Cameroon, CAR, eastern DRC, including northern and western Angola. On the contrary localized divergence will occur over Liberia, central Chad, southern Sudan, and Congo, western and central DRC. A cut-off mid-latitude cyclonic circulation will be featured off the western coast of South Africa while the rest of the Southern African region will be under the influence of the Mascarene anticyclonic circulation systems.

T+48, the flow pattern over north Africa is expected to remain quasi-stationary. Two of the cyclonic vortices featured over northern Sahel and the one over Nigeria during the previous day will decay. However, the one over Mauritania is expected to move off-shore to the Atlantic; while those over Mali and Eritrea will propagate to eastern Mauritania and eastern Sudan respectively. Localized convergence is likely to occur over Guinea Bissau, Cote d'Ivoire, eastern Niger, western Cameroon, central CAR, eastern Ethiopia, eastern DRC and northern Angola; whereas localized divergence will prevail over southeastern Mauritania, western Nigeria, southern sectors of Sudan, Congo, western and central DRC. Much of Southern Africa will be under the influence of the Mascarene anticyclonic system except for the coastal areas of South Africa which will be affected by a westerly wave.

T+72, a similar flow to that of the previous day will prevail. The cyclonic vortex over Mauritania will persist while moving slowly westwards. The one over Sudan will decay while others will develop over northeastern Niger and southern Guinea Conakry. Localized divergence is expected to prevail over central Chad, western and southern Sudan and central DRC; whereas localized convergence will persist over Ethiopia, Cameroon, DRC and northern Angola. A mid-latitude trough is expected to affect the western coastal sectors of Southern Africa while the Mascarene anticyclonic system will dominate the flow over the rest of the region.

2.2. Flow at 500hPa:

T+24, a well pronounced omega block pattern is expected over Northern Africa, with a massive Sub-Tropical anticyclonic circulation system centered over Algeria hence dominating the flow over the Maghreb region. The Sub-Tropical anticyclonic system will be flanked by a mid-latitude trough centered over northeast Atlantic Ocean and Egypt.

South of the anticyclonic system lies the easterlies with a shortwave trough centered over Guinea Conakry stretching into western Mali, with another over eastern Mali and Nigeria. An anticyclonic circulation will dominate the flow over the eastern Gulf of Guinea. The northern sectors of Southern Africa will be under the influence of a Sub-Tropical anticyclonic system; whereas, a westerly wave will characterize the flow to the south. Embedded within this wave are two mid-latitude troughs. A back hanging trough is expected over southeast Atlantic; whereas, a slanting trough will stretch from Madagascar onwards to the south Indian Ocean.

T+48, similar flow patterns to that of the previous day are expected over Northern and Southern Africa. However, the Sub-Tropical anticyclonic system over Maghreb will be weakening while both troughs will tend to deepen. A shortwave trough is likely over Senegal, eastern Mauritania, eastern Niger and western Sudan; while a cyclonic circulation will evolve over southern Cameroon and a confluent flow will occur over Ethiopia. The back hanging trough over southeast Atlantic will weaken while the slanting trough over Madagascar will deepen.

T+72, not many changes are expected on the general wind flow as compared to that of the previous day, except for the westward propagating shortwave troughs, which will be featured over Senegal, Niger and Chad. The cyclonic circulation over Cameroon is expected to decay while the slanting trough continues to deepen.

2.3. Flow at 200hPa:

T+24h, an extensive upper level anticyclonic flow pattern will prevail over northern Africa. A short wave trough is expected to develop over northwestern Mali. 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 wind flow pattern is expected to remain as that of the previous day, but a short wave trough over northwestern Mali is expected to move to the western Senegal and central Mauritania.

T+72h, the flow pattern will similar to the pervious day, but the short wave trough over western Senegal and central Mauritania is expected to fill up.

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).*