



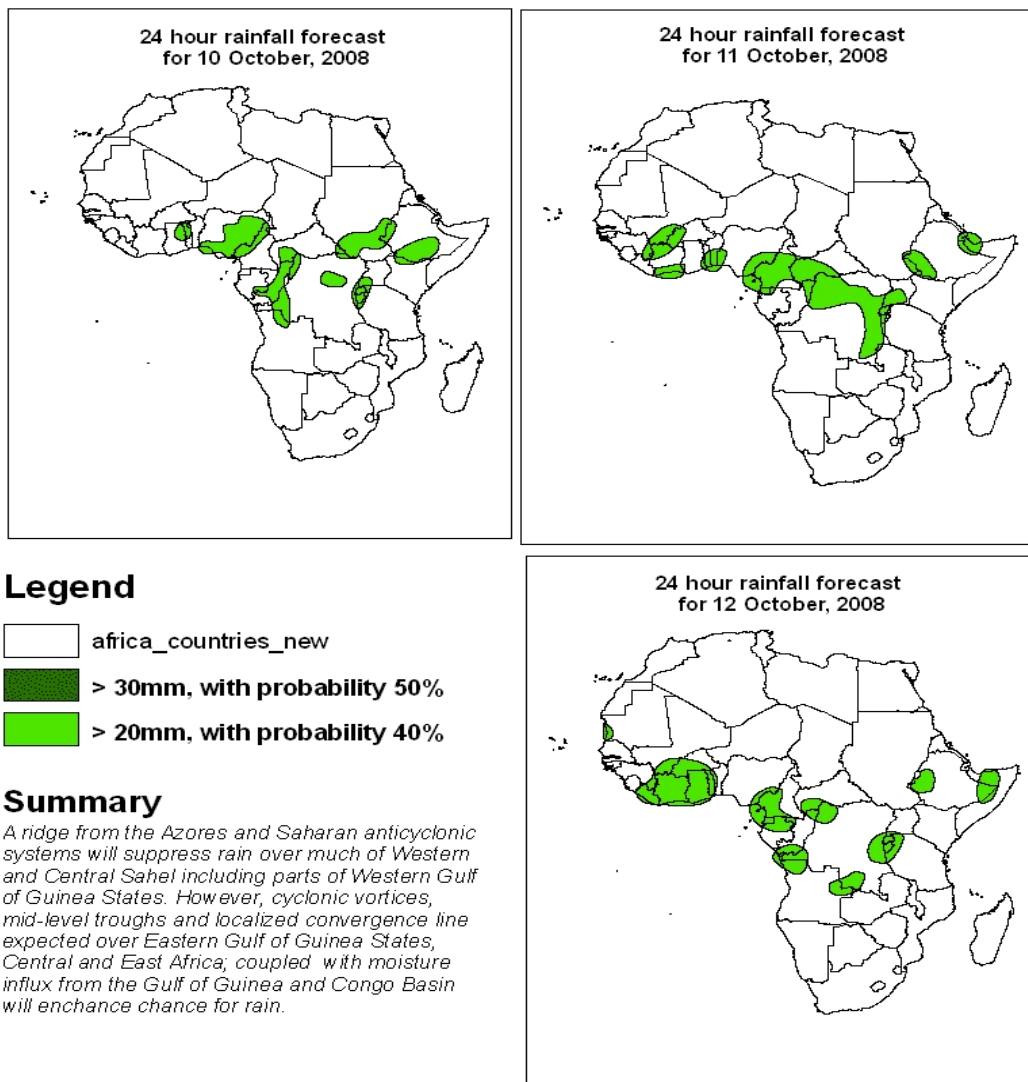
Forecast Guidance for Africa

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

FORECAST DISCUSSION 14H00 EST, 09^h OCTOBER, 2008
Valid: 00Z 10th OCTOBER – 12th OCTOBER, 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; 10th October, 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 system will dominate the flow mainly over Northeastern Africa while the Azores ridge will affect parts of Western Sahel and the western Gulf of Guinea States. A massive cyclonic vortex centered over western Algeria/northern Mali will dominate the flow over Northwestern Africa. Other cyclonic vortices will be featured over the Ghanaian coast, central Nigeria and central Sudan. Localized convergence is expected over western Niger/northern Burkina, northern Togo, central Chad, western Sudan, southwestern Eritrea, southern Ethiopia, southern Gabon, western and central DRC, Lake Victoria region, Angola and over northeastern Namibia. Conversely, localized divergence will occur over southern Sudan and environs, central Ethiopia, over the coast and southern DRC, and most parts of East Africa. Much of Southern Africa will be dominated by the St. Helena anticyclonic system except for the northeastern sector and Madagascar which will be under the influence of the Mascarene ridge.

T+48, the Saharan anticyclonic system will likely intensify and extend westwards onto western Maghreb. The massive cyclonic vortex featured over northwestern Africa will propagate westwards featuring double centers of action over southern Morocco and at the coast between Western Sahara/Mauritania. The other cyclonic vortices featured over the coast of Ghana and central Nigeria will likely merge and propagate onto the coast of Cote d'Ivoire. Similarly, the one over central Sudan will drift towards western Sudan. New cyclonic vortices are likely to develop over western and southern DRC. Localized convergence is likely to occur over central Mali, southern Cameroon, southwestern Ethiopia, northwestern Somalia, the Great Lakes region and southern Angola. On the other hand, an anticyclonic vortex will dominate the flow over southern Senegal and environs while localized divergence will likely occur over Congo and prevail over central Ethiopia, southern Sudan and most parts of East Africa. Much of Southern Africa will be dominated by a merger between the St. Helena and Mascarene Ridges.

T+72, the Saharan anticyclonic system will continue to intensify and extend a ridge southwards onto the eastern Gulf of Guinea. The cyclonic vortices featured over northwestern Africa will propagate onto the eastern Atlantic Ocean and are expected to influence the flow over the western bulge. The one over the coast of Cote d'Ivoire will degenerate but will be replaced by a shortwave trough that stretches from the coast of Liberia/Cote d'Ivoire onwards to eastern Mauritania. The one featured over western Sudan will remain quasi-stationary while another will evolve to the east; whereas the one over southern DRC will decay with another likely to evolve over northern Namibia. Much of Southern Africa will be dominated by the Mascarene anticyclonic system except for the southwest of South Africa which will be under the influence of a weak mid-latitude trough.

2.2. Flow at 500hPa:

T+24, a closed cyclonic circulation with its center over central Morocco will be prevailing over most of Morocco, Western Sahara, northern Mauritania, northeastern Mali and western Algeria while the rest of North Africa is likely to be under the influence of the Saharan anticyclonic circulation. Localized convergences are featured over northeastern

Nigeria and over the border between southwestern DRC and northeastern Angola with confluent flows over Northern Mali onto southern Algeria, western Nigeria and over western DRC. Conversely, a divergence is featured over southeastern Namibia and over the channel of Mozambique. Most of Southern Africa will be under the influence of an anticyclonic circulation system. The southeastern coast of South Africa is likely to be affected by a trough from the mid latitude cyclonic circulation.

T+48, the closed cyclonic circulation centered over central Morocco will deepen and extend onto most of Mauritania and northern Senegal. The Saharan anticyclonic circulation is expected to prevail over the rest of North Africa. Confluent flows over central Cote D'Ivoire, western DRC, and off the northern coast of Angola. On the other hand, divergence is likely to occur over northwestern Nigeria. Southern Africa will be dominated by an anticyclonic circulation system and a trough in the mid latitude westerly wave will affect southern Madagascar.

T+72, the cyclonic circulation over western Maghreb will weaken and move northwards but still prevail over Morocco and northern Western Sahel while a trough will be affect northeastern Libya and much of Egypt. The rest of North Africa is likely to be under the influence of the Saharan anticyclonic circulation system. Confluent flows are featured over western Algeria, northeastern Senegal onto Mauritania, southeastern Cameroon and northern Gabon and over southeastern DRC. Localized divergence is featured over northwestern Sudan. Easterlies will prevail equator-wards of the subtropical anticyclonic circulation, while Southern Africa will be dominated by the merger of the Santa Helena and Mascarene anticyclonic circulation systems.

2.3. Flow at 200hPa:

T+24h, Most of North Africa will be under the influence of a westerly wave with an upper level trough over most of Morocco, Western Sahara, northern Mauritania and over western Algeria. A large upper-level anticyclone flow will prevail over most of Northern, Central and Southern Africa. Strong divergences are likely to occur over western Chad and over central Kenya. A trough from the mid-latitude westerly wave will dominate the flow over southern and western South Africa and southern Mozambique.

T+48h, similar flow to that of the previous day will prevail over most of Africa. The trough over Morocco will strengthen and move slightly northwards. A confluent flow will be featured from southern onto northern Mali. Conversely, strong localized divergence is expected over eastern Chad, southeastern DRC and northeastern Angola. The trough from the mid-latitude westerly wave will propagate northwards and cover most of South Africa, south and central Mozambique and most of Madagascar.

T+72h, the trough over morocco will strengthen and move northwards, while another trough will prevail over northeastern Libya and northern Egypt. Confluent flows will be featured over northern Libya, southern Mali, eastern Sudan, northeastern DRC. On the other hand, divergence is likely to occur over southeastern Niger and over the central coast of Angola. The trough from the mid-latitude westerly wave will reinforce and move northeastwards and affect western Zimbabwe, most of Mozambique and Madagascar.

*Authors: George Stafford (Department of Water Resources, The Gambia and African Desk).
Lutumba Tima (Meteorological Institute Angola, and African Desk).*